STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

March 31, 2008

U. S. Army Corps of Engineers
Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, NC 28801-5006

ATTENTION: Mr. Steve Lund
NCDOT Coordinator

SUBJECT: **Nationwide Permit 13 Notice of Use** for the proposed Replacement of Bridge No. 36 on SR 3135 Over Irvins Creek in Mecklenburg County, State Project No. 8.2674101, Federal Aid Project No. BRSTP-3135 (4), TIP B-3677.

Dear Mr. Lund:
Please find the enclosed permit drawings and half size design plans for the above referenced project. A Categorical Exclusion and Right-of-Way Consultation were completed for the project on January 18, 2005 and August 3, 2007, respectively and distributed shortly thereafter. Additional copies are available upon request. The North Carolina Department of Transportation (NCDOT) proposes to replace the existing 41-foot long bridge with a new 58-foot wide and 100-foot long bridge. There will be 91 linear feet of permanent impacts to surface waters. Traffic will be maintained onsite during construction utilizing staged construction.

IMPACTS TO WATERS OF THE UNITED STATES
General Description: The project is located in the Catawba River Basin (HUC 03050103) and will impact the Irvins Creek. Irvins Creek (Index # 11-137-9-2)) is assigned a best usage classification of C, by the N.C. Division of Water Quality (DWQ). Irvins Creek is not designated as a North Carolina Natural or Scenic River, or as a National Wild and Scenic River, nor is it listed on the 2006 Final 303(d) list. The project does not drain to a 303(d) stream within one mile of the project limits. No designated High Quality Waters (HQW), Outstanding Resource Waters (ORW), Water Supply I (WS-I), or Water Supply II (WS-II) waters occur within 1.0 mile of the project. No wetlands occur on the project.

Permanent Impacts: Permanent stream impacts will total 91 linear feet from the placement of riprap on the banks of Irvins Creek under the proposed bridge and at the outlet of the lateral base ditches for bank stabilization.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-715-1334
FAX: 919-715-5501

WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD
SUITE 240
RALEIGH, NC 27604

Temporary Impacts: There will be no temporary impacts resulting from the construction of this project.

Utilities: There are no impacts to jurisdictional resources due to utilities for this project.

Bridge Demolition: Bridge No. 36 is a one span structure that consist of a timber deck with an asphalt wearing surface on steel I-beams. The substructure consists of timber caps, posts and sills and timber bulkheads. During removal of the existing bridge, bridge components will be removed without dropping them into waters of the United States. NCDOT's Best Management Practices for Bridge Demolition and Removal will be followed during the removal of this bridge.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), Proposed Threatened (PT), are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 31, 2008, the United States Fish and Wildlife Service lists a total of four federally protected species for Mecklenburg County (Table 1). A resurvey of project study area for smooth coneflower, Michaux's sumac, and Schweinitz's sunflower on August 30, 2007 confirmed no federally protected species were present. Surveys for the Carolina heelsplitter were originally conducted May 12, 2004 by John Alderman and no specimens were observed. The mussel survey report prepared June 7, 2004, indicated that no further mussel surveys were required.

Table 1: Federally Protected Species of Mecklenburg County

Scientific Name	Common Name	Federal Status	Biological Conclusion	Habitat Present
Lasmigona decorata	Carolina heelsplitter	E	No Effect	No
Echinacea laevigata	Smooth coneflower	E	No Effect	Yes
Rhus michauxii	Michaux's sumac	E	No Effect	Yes
Helianthus schweinitzii	Schweinitz's sunflower	E	No Effect	Yes

The bald eagle was delisted as of August 8, 2007 and is no longer protected by the Endangered Species Act. It is, however, protected under the Bald and Golden Eagle Protection Act. No foraging habitat is available within one mile of the project area for the bald eagle.

AVOIDANCE AND MINIMIZATION

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning and NEPA compliance stages; minimization measures were incorporated as part of the project design and include:

- Staged construction will be used.
- Best Management Practices for Bridge Demolition and Removal will be followed.
- Best Management Practices for the protection of Surface Waters will be enforced during the construction of the project.
- The new bridge will be longer then the existing structure.

COMPENSATORY MITIGATION
Mitigation is not proposed because bank stabilization is not considered "loss of waters". Additionally, no high quality resources or special aquatic habitat will be impacted by the proposed project.

PROJECT SCHEDULE
The project is scheduled to let September 16, 2008 and has a review date of July 29, 2008.

REGULATORY APPROVALS
Section 404 Permit: It is anticipated that the installation of riprap along Irvins Creek will be authorized under Section 404 Nationwide Permit 13 (bank stabilization). Impacts of 91 linear feet of bank stabilization do not constitute "loss of waters"; therefore, this letter serves as a Notice of Use by NCDOT and written concurrence is not requested.

Section 401 Certification: We anticipate 401 General Certification number 3689 will apply to this project. The NCDOT will adhere to all Water Quality Certification general conditions. Therefore, we are not requesting written concurrence. We are providing two copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their records.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Brett Feulner at bmfeulner@dot.state.nc.us or (919) 715-1488.

A copy of this permit application will be posted on the DOT website at: http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html.

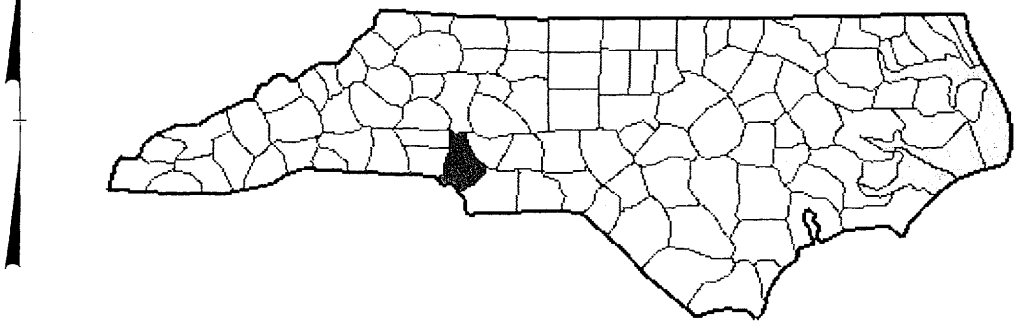
Sincerely,

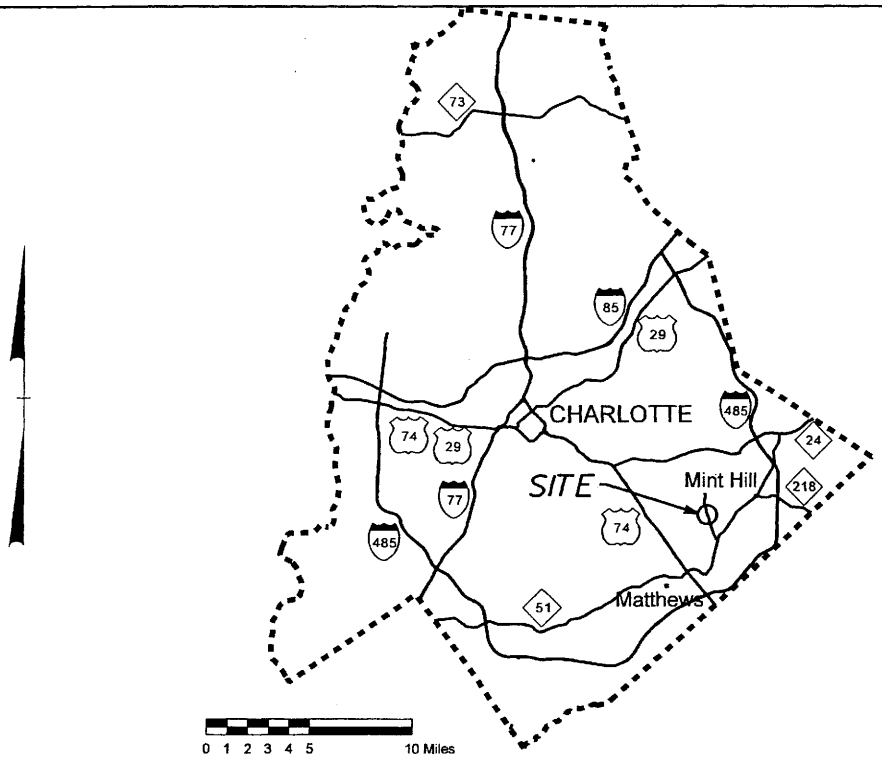
Gregory J. Thorpe, Ph.D. Environmental Management Director,
Project Development and Environmental Analysis Branch

cc: w/attachment
Mr. Brian Wrenn, NCDWQ (2 Copies)
Ms. Marla Chambers, NCWRC
Ms. Marella Buncick, USFWS

w/o attachment (see website for attachments)
Mr. Art McMillan, P.E., Highway Design
Mr. Majed Alghandour, P.E., Prog. and TIP
Mr. Hank Schwab, PDEA
Mr. Larry Thompson, DEO
Mr. Barry Moose, P.E. Division Engineer
Mr. Greg Perfetti, P.E., Structure Design
Mr. Jay Bennett, P.E., Roadway Design
Mr. Scott McLendon, USACE, Wilmington
Mr. Victor Barbour, P.E. Project Services
Dr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental

NORTH CAROLINA





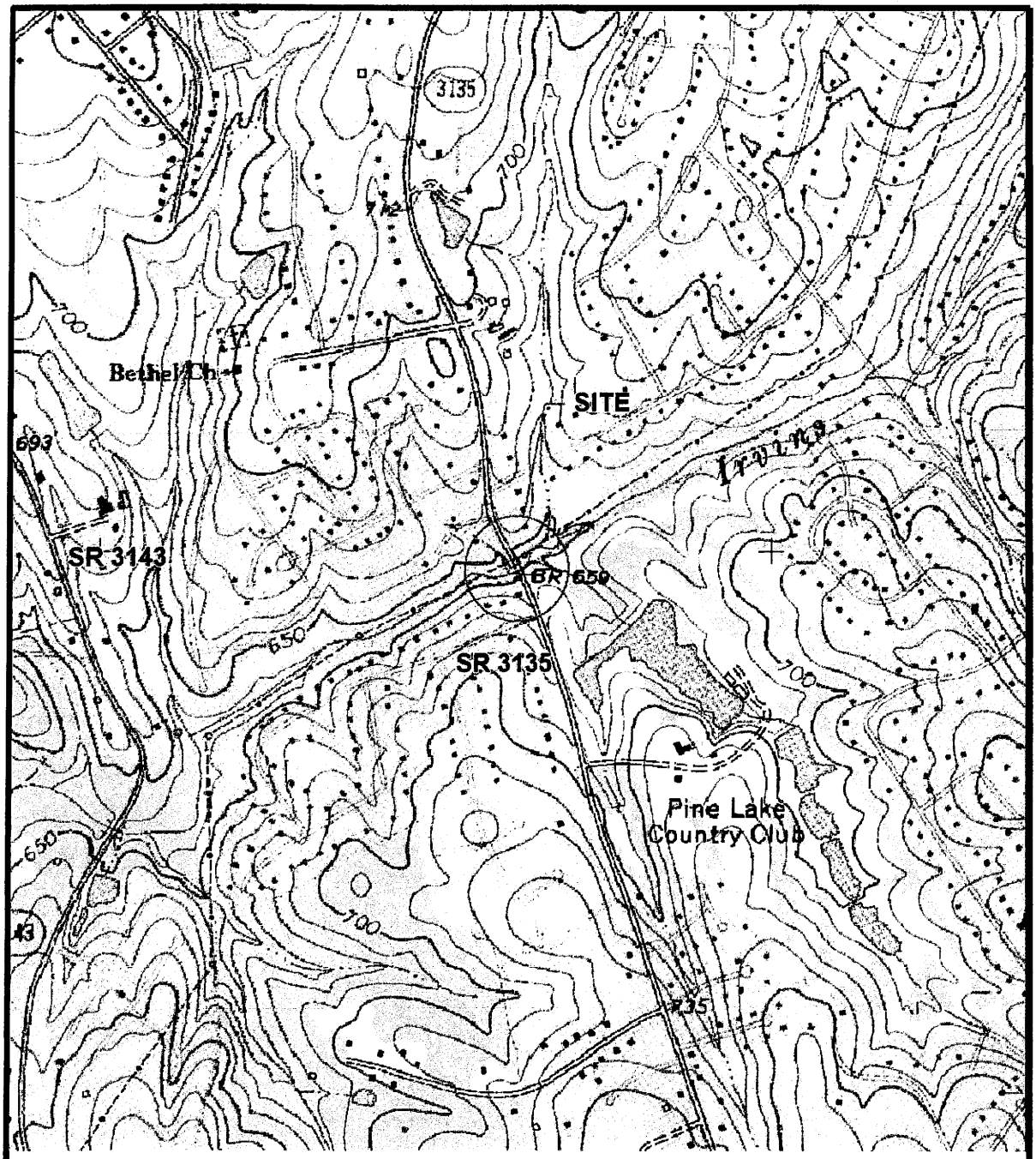
VICINITY MAP

NCDOT
DIVISION OF HIGHWAYS
MECKLENBURG COUNTY

PROJECT: 33220.1.1 (B-3677)

REPLACE BRIDGE NO. 36 ON
SR 3135 OVER IRVINS CREEK

SHEET 1 OF 7 DECEMBER 2007



SITE MAP

NCDOT
DIVISION OF HIGHWAYS
MECKLENBURG COUNTY

PROJECT: 33220.1.1 (B-3677)

REPLACE BRIDGE NO. 36 ON
SR 3135 OVER IRVINS CREEK

SHEET 2 OF 7 DECEMBER 2007

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 19+62+/- TO	100 FT PLATE						0.008		91		
	-L- 19+98+/- LT & RT	GIRDER BRIDGE										
TOTALS:								0.008		91		

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY
PROJECT: 33220.1.1 (B-3677)

ATN Revised 3/31/05

PROPERTY OWNER

SITE #	OWNER'S NAME	ADDRESS
SITE 2	JENNIFER TALLEY-HARMON AND FRANK III HARMON	4221 SINGLETREE RD CHARLOTTE, NC 28227
SITE 3	PINE LAKE COUNTRY CLUB, INCORPORATED	P.O. BOX 690490 CHARLOTTE, NC 28227
SITE 4	LYNDELL D. THOMPSON AND WIFE, LOIS Y. THOMPSON	5817 LEBANON ROAD CHARLOTTE, NC 28227
SITE 5	NIDIA L SUAREZ AND LEIDY GOMEZ	5836 LEBANON RD CHARLOTTE, NC 28227

NCDOT

DIVISION OF HIGHWAYS
MECKLENBURG COUNTY

PROJECT: 33220.1.1 (B-3677)

REPLACE BRIDGE NO. 36 ON
SR 3135 OVER IRVINS CREEK

SHEET 4 OF 7 DECEMBER 2007

8/17/99

REVISIONS

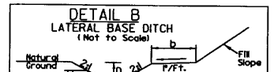
PROJECT REFERENCE NO.	SHEET NO.
B-3677	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TGS ENGINEERS
975 WALNUT STREET, SUITE 141
CARY, NC 27511
PH (919) 319-8850

NAD 83 95

DETAIL B
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= PSRM

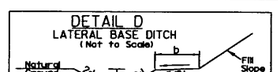
FROM -L- STA. 18+85 +/- TO STA. 19+55 +/- LT
PSRM: EST. 95 SY
DDE: EST. 37CY

DETAIL C
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner= CL I Rip-Rap

-L- STA. 19+60 +/- LT, EST. 10 TONS
-L- STA. 19+70 +/- RT, EST. 6 TONS
-L- STA. 19+75 +/- LT, EST. 10 TONS
-L- STA. 20+00 +/- RT, EST. 6 TONS

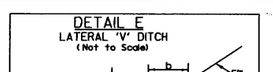
DETAIL D
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= PSRM

FROM -L- STA. 19+80 +/- TO STA. 22+25 +/- LT
PSRM: EST. 354 SY
DDE: EST. 256 CY

DETAIL E
LATERAL 'V' DITCH
(Not to Scale)



FROM -L- STA. 20+05 +/- TO STA. 22+50 +/- RT
DDE: EST. 55 CY

GEORGE WILLIAM HEDRICK
DB 3421 PG 421

BYRON S. BALDWIN, JR
AND WIFE MELISSA A. BALDWIN
DB 9189 PG 574

WILLIAM LAWSON GALLOWAY, JR.
AND WIFE
CAROLYN KISER GALLOWAY
DB 3420 PG 325

WILLIAM DAVIS HARRIS AND WIFE,
ETHEL S. HARRIS
DB 3438 PG 236

① MAX VINCENT O'CONNOR AND WIFE,
PAMELA GARNER O'CONNOR
DB 3389 PG 195

② ANTHONY C. GRIFFIN
AND WIFE,
JULIE B. GRIFFIN
DB 8468 PG 239

③ PINE LAKE COUNTRY CLUB, INCORPORATED
DB 1601 PG 405

④ LYNDELL D. THOMPSON AND WIFE,
LOIS Y. THOMPSON
DB 5971 PG 564
DB 6579 PG 529

EMORY M. THOMPSON & WIFE,
MARY E. THOMPSON
DB 10263 PG 738

⑤ JEWELL M. GARRISON AND WIFE,
LOIS E. GARRISON
DB 3894 PG 200

⑥ JEFFREY S. HLADUN AND WIFE,
SHIRLEY J. HLADUN
DB 6025 PG 360

⑦ BARRELL D. YATES, JR AND WIFE,
MARY ANNA U. YATES
DB 6171 PG 28

SMALLTREE RD. 23.3' PAVED

-L- POC 13+32.07

-L- PT 17+17.12

-L- PC 22+22.42

-L- PT 25+39.01

-L- POT 27+31.01

BEGIN PROJECT
-L- STA. 15+00.00

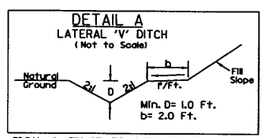
END PROJECT
-L- STA. 25+70.00

END CONSTRUCTION
-L- STA. 26+00.00

SEE SHEETS S-1 THRU S-
FOR STRUCTURE PLANS

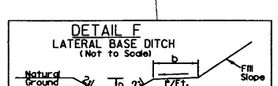
NOTE: RIP RAP STREAM BANK FROM EDGE OF WATER TO TOP OF BANK
EST. CL 'I' RIP RAP = 100 TONS
EST. FILTER FABRIC = 230 SY

DETAIL A
LATERAL 'V' DITCH
(Not to Scale)



FROM -L- STA. 17+75 +/- TO STA. 19+60 +/- RT
DDE: EST. 32 CY

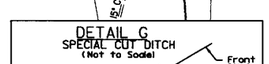
DETAIL F
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= PSRM

FROM -L- STA. 22+25 +/- TO STA. 24+50 +/- LT
PSRM: EST. 225 SY
DDE: EST. 99 CY

DETAIL G
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner= CL 'B' Rip-Rap

FROM -L- STA. 15+00.00 TO STA. 15+90 +/- LT
CLASS 'B' RIP RAP: EST. 45 TONS
FILTER FABRIC: EST. 132 SY

SEE PLANS RT SIDE OF SR4141 (15.7 % SLOPE)
CLASS 'B' RIP RAP: EST. 26 TONS
FILTER FABRIC: EST. 80 SY

DENOTES SURFACE WATER IMPACTS

IMPACTED IRVINS CREEK SURFACE WATER

Permit Drawing
Sheet 5 of 7

SEE SHEET 5 FOR -L- PROFILE

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8/17/99

REVISIONS

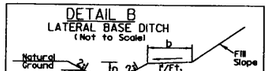
PROJECT REFERENCE NO.	SHEET NO.
B-3677	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TGS ENGINEERS
975 WALNUT STREET, SUITE 141
CARY, NC 27511
PH (919) 319-8850

NAD 83\95

DETAIL B
LATERAL BASE DITCH
(Not to Scale)



Min. D= 2.0 Ft.
Max. d= 2.0 Ft.
B= 2.0 Ft.
b= 5.0 Ft.
*When B is < 6.0'

Type of Liner= PSRM

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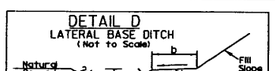

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*When B is < 6.0'

Type of Liner= PSRM

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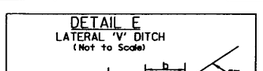

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FROM -L- STA. 20+05 +/- TO STA. 22+50 +/- RT
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PAMELA GARNER O'CONNOR
DB-3365 PG 195

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DB 3894 PG 200

-L- POC 13+32.07
-L- PT 17+17.12
-L- POT 27+31.01

BEGIN PROJECT
-L- STA. 15+00.00

END PROJECT
-L- STA. 25+70.00

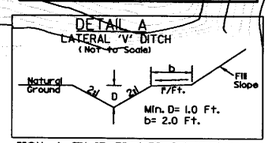
-L- PC 22+22.42

END CONSTRUCTION
-L- STA. 26+00 +/-

SEE SHEETS S-1 THRU S-
FOR STRUCTURE PLANS

NOTE: RIP RAP STREAM BANK FROM EDGE OF WATER TO TOP OF BANK
EST. CL 'I' RIP RAP = 100 TONS
EST. FILTER FABRIC = 230 SY

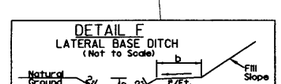
DETAIL A
LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.0 Ft.
b= 2.0 Ft.

FROM -L- STA. 17+75 +/- TO STA. 19+60 +/- RT
DDE: EST. 32 CY

DETAIL F
LATERAL BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max. d= 1.5 Ft.
B= 2.0 Ft.
b= 5.0 Ft.
*When B is < 6.0'

Type of Liner= PSRM

FROM -L- STA. 22+25 +/- TO STA. 24+50 +/- LT
PSRM: EST. 225 SY
DDE: EST. 99 CY

DETAIL G
SPECIAL CUT DITCH
(Not to Scale)

Min. D= 1Ft.
Max. d= 1Ft.

Type of Liner= CL 'B' Rip-Rap

FROM -L- STA. 15+00.00 TO STA. 15+90 +/- LT
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FILTER FABRIC: EST. 132 SY

SEE PLANS RT SIDE OF SR4141 (15.7 % SLOPE)
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DENOTES SURFACE WATER IMPACTS

IMPACTED IRVINS CREEK SURFACE WATER

Permit Drawing
Sheet 6 of 7

SEE SHEET 5 FOR -L- PROFILE

\b3677_rdy_Permitpsh4.dgn 2/21/2008 8:15:54 AM TGS

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

PROJECT REFERENCE NO.	SHEET NO.
B-3677	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

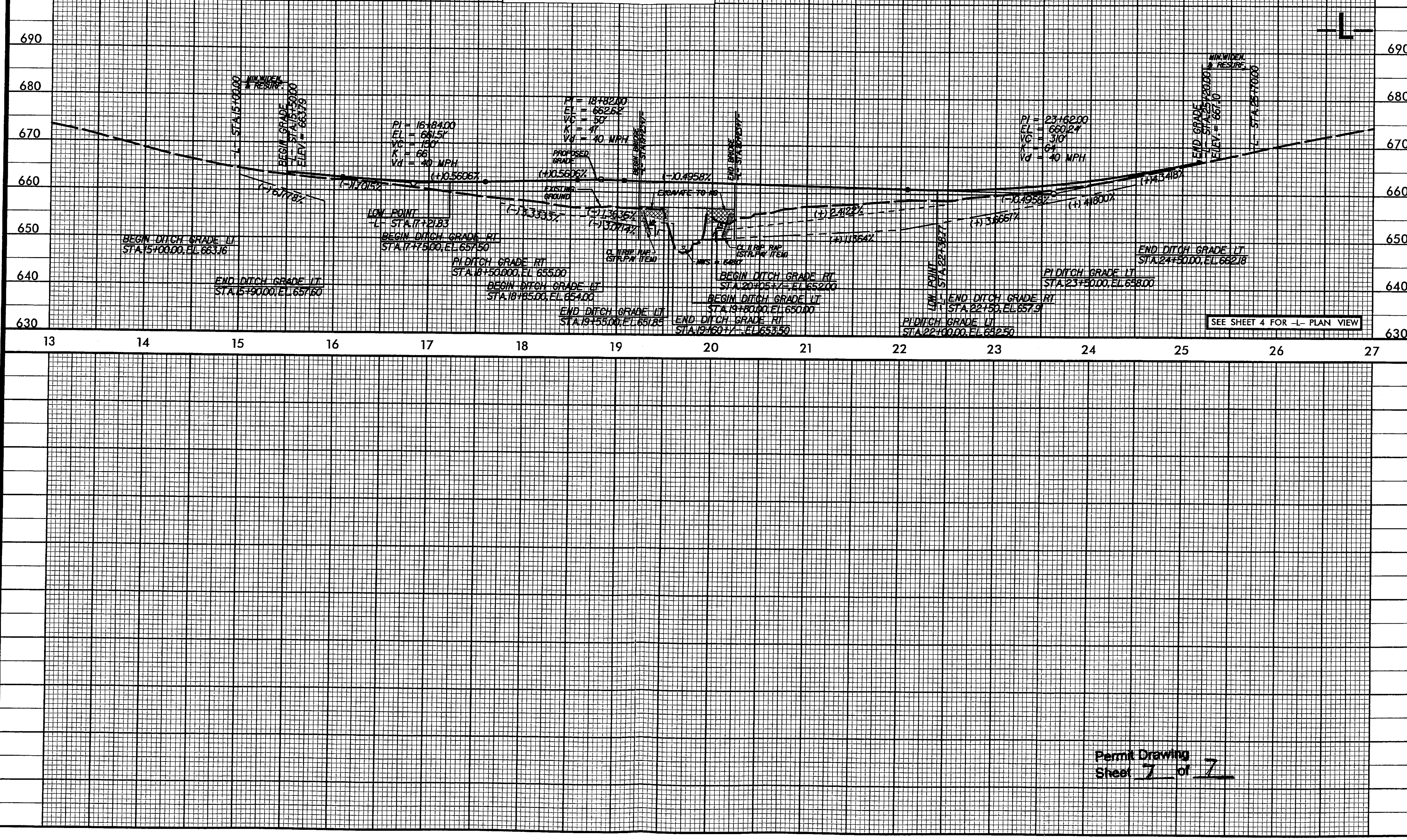
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 2,237	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN ELEVATION	= 658.2	FT
BASE DISCHARGE	= 3,053	CFS
BASE FREQUENCY	= 100	YRS
BASE ELEVATION	= 659.0	FT
OVERTOPPING DISCHARGE	= 5,000	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 660.93	FT

BM# S33-01
-BL- STA. 18+47.91 OFF 5.22' LT
ELEV. = 656.500
CITY OF CHARLOTTE SURVEY MARK.
(CITY OF CHARLOTTE PUBLISHED ELEV. = 656.08'.)

BM# 2
-BL- STA. 19+32.36 OFF 290.09' LT
ELEV. = 653.306
RR SPIKE IN THE BASE OF A 15" HAWTHORN.



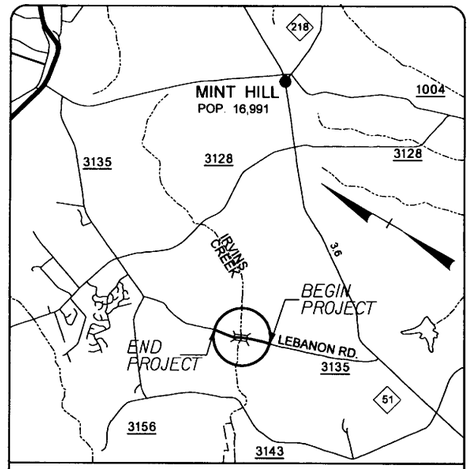
Permit Drawing
Sheet 7 of 7

09/28/99

TIP PROJECT: B-3677

CONTRACT: C201969

See Sheet 1-A For Index of Sheets



VICINITY MAP

RIGHT OF WAY PLANS SUBMITTAL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
MECKLENBERG COUNTY

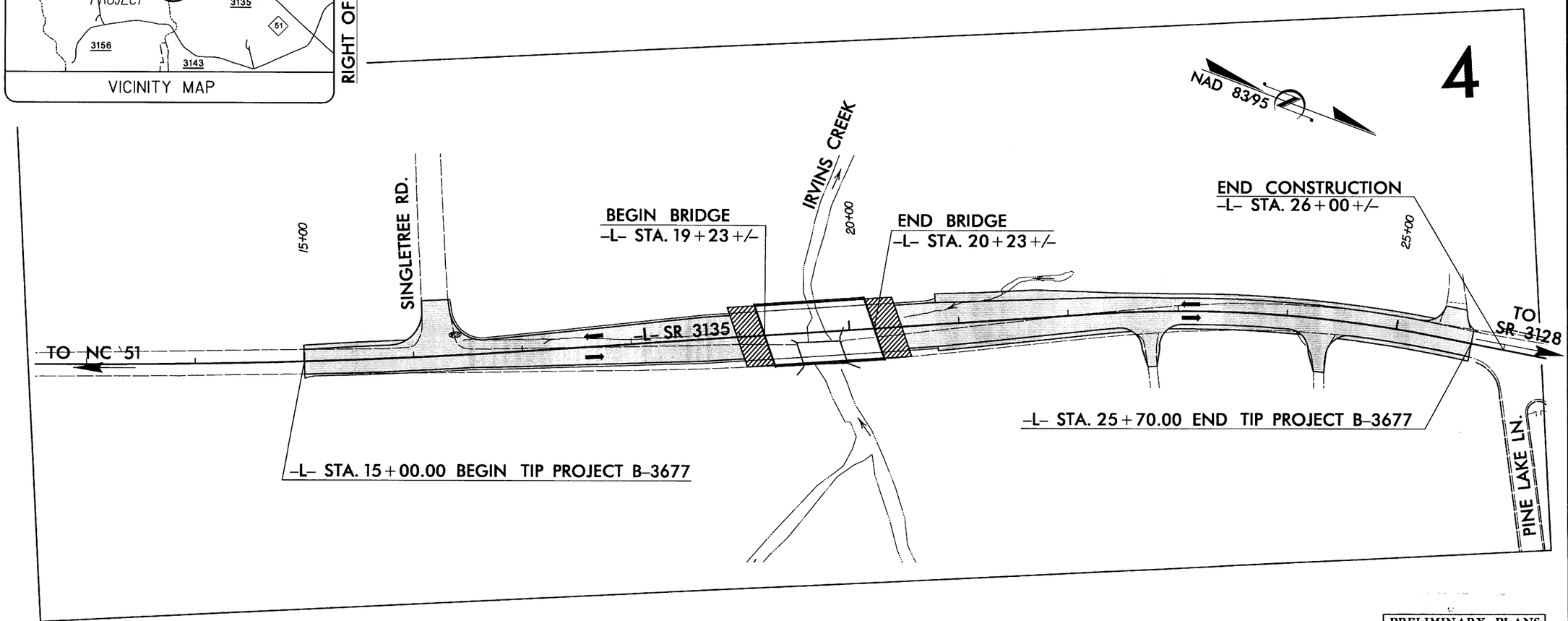
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3677	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33220.1.1	BRSTP-3135(4)	PE
33220.2.1	BRSTP-3135(4)	R/W, UTILITIES

LOCATION: BRIDGE NO. 36 OVER IRVINS CREEK ON SR 3135 (LEBANON ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE REMOVAL & STRUCTURE

4



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF MINT HILL.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2008 = 7,250
ADT 2028 = 12,750
DHV = 11 %
D = 55 %
T = 6 % *
V = 40 MPH

* (TTST 1% + DUAL 5%)

FUNCTIONAL CLASSIFICATION = URBAN COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3677 = 0.184 MI
LENGTH STRUCTURE TIP PROJECT B-3677 = 0.019 MI

TOTAL LENGTH TIP PROJECT B-3677 = 0.203 MI

PLANS PREPARED BY:

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 28, 2007

LETTING DATE:
NOVEMBER 2008

NCDOT CONTACT: B. DOUG TAYLOR, PE
PROJECT ENGINEER - ROADWAY DESIGN

PLANS PREPARED FOR:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr.
Raleigh, NC 27610

CHARLES L. FLOWE, PE
PROJECT ENGINEER

W. CRAIG PARKER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION · STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

1/7/2008
2:45:17 PM
...\Roadway\Proj\B3677_rdy_tsh.dgn

...\Roadway\Proj\B3677_rdy_tsh.dgn 1/7/2008 2:45:18 PM TGS

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-3677	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

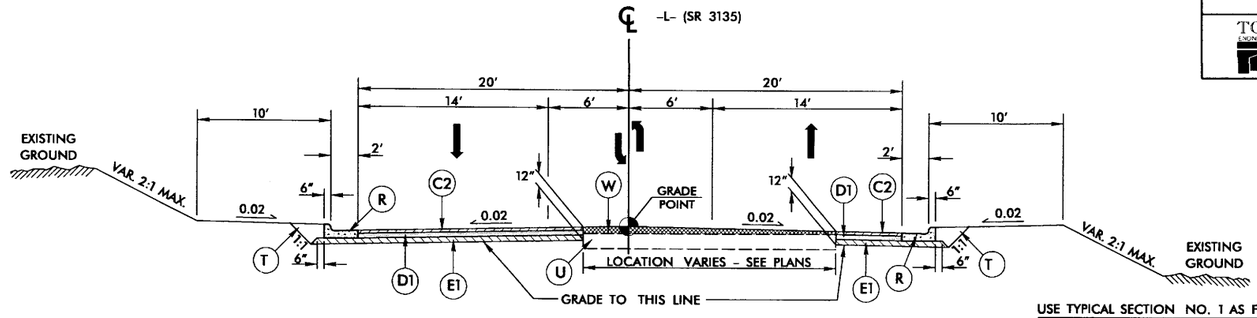
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1½" IN DEPTH OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 4" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
R	2'-6" CONCRETE CURB AND GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING EXISTING PAVEMENT (SEE DIAGRAMS BELOW).

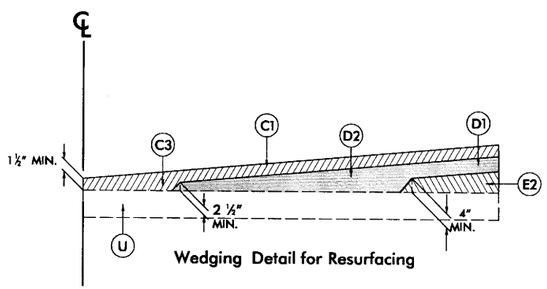
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



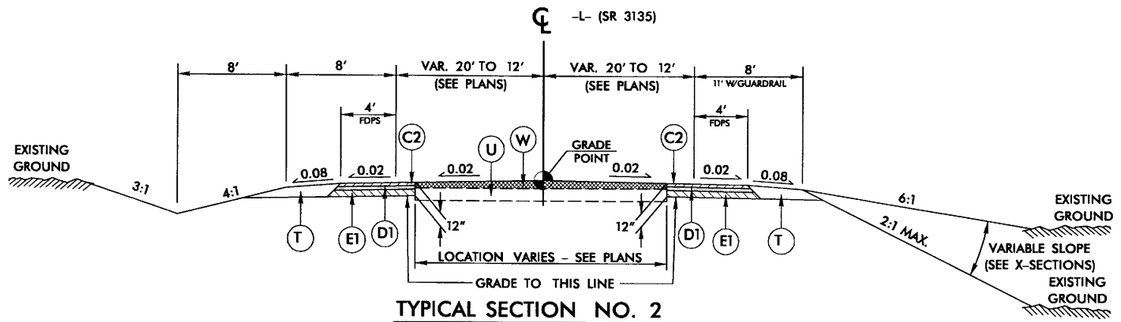
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:
-L- STA. 15+50.00 TO 19+23+/- (BEGIN BRIDGE) RT
-L- STA. 16+10+/- TO 19+23+/- (BEGIN BRIDGE) LT
-L- STA. 20+23+/- (END BRIDGE) TO 20+80.00

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1 FROM -L- STA. 15+00.00 TO 15+50.00 RT



Wedging Detail for Resurfacing



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:
-L- STA. 15+50.00 TO 16+10+/- LT
-L- STA. 20+80.00 TO 25+20.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 2 TO EXISTING FROM -L- STA. 15+00.00 TO 15+50.00 LT AND -L- STA. 25+20.00 TO 25+70.00

PROJECT REFERENCE NO.	SHEET NO.
B-3677	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TGS ENGINEERS
975 WALNUT STREET, SUITE 141
CARY, NC 27511
PH (919) 319-8850

DETAIL B
LATERAL BASE DITCH
(Not to Scale)

Min. D= 2.0 Ft.
Max. d= 2.0 Ft.
B= 2.0 Ft.
b= 5.0 Ft.
*When B is < 6.0'
Type of Liner= PSRM

FROM -L- STA. 18+85+/- TO STA. 19+55+/- LT
PSRM: EST. 95 SY
DDE: EST. 37CY

DETAIL C
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner= CL 1 Rip-Rap

-L- STA. 19+60+/- LT, EST. 10 TONS
-L- STA. 19+70+/- RT, EST. 6 TONS
-L- STA. 19+75+/- LT, EST. 10 TONS
-L- STA. 20+00+/- RT, EST. 6 TONS

DETAIL D
LATERAL BASE DITCH
(Not to Scale)

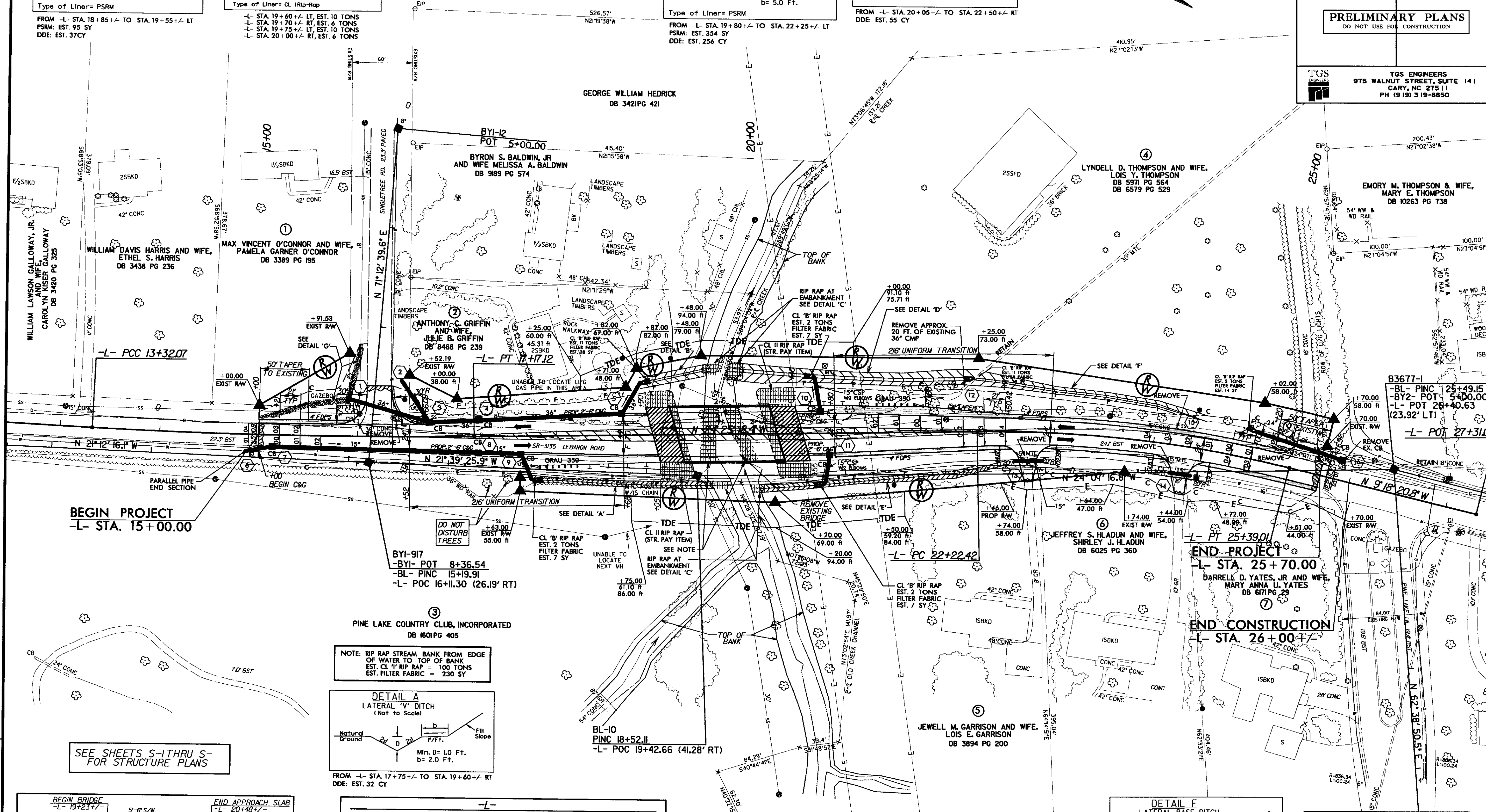
Min. D= 2.0 Ft.
Max. d= 2.0 Ft.
B= 3.0 Ft.
b= 5.0 Ft.
*When B is < 6.0'
Type of Liner= PSRM

FROM -L- STA. 19+80+/- TO STA. 22+25+/- LT
PSRM: EST. 354 SY
DDE: EST. 256 CY

DETAIL E
LATERAL 'V' DITCH
(Not to Scale)

Min. D= 1.0 Ft.
b= 5.0 Ft.

FROM -L- STA. 20+05+/- TO STA. 22+50+/- RT
DDE: EST. 55 CY


NAD 83/95
GEORGE WILLIAM HEDRICK
DB 3421 PG 421
BYRON S. BALDWIN, JR AND WIFE MELISSA A. BALDWIN
DB 9189 PG 574
LYNDELL D. THOMPSON AND WIFE, LOIS Y. THOMPSON
DB 5971 PG 564
DB 6579 PG 529
EMORY M. THOMPSON & WIFE, MARY E. THOMPSON
DB 10263 PG 738
WILLIAM DAVIS HARRIS AND WIFE, ETHEL S. HARRIS
DB 3438 PG 236
MAX VINCENT O'CONNOR AND WIFE, PAMELA GARNER O'CONNOR
DB 3389 PG 195
WILLIAM LAWSON GALLOWAY, JR. AND WIFE, CAROLYN KISER GALLOWAY
DB 3420 PG 325
ANTHONY C. GRIFFIN AND WIFE, JULIE B. GRIFFIN
DB 8468 PG 239
-L- PCC 13+32.07
-L- PT 17+17.12
BYI-12
POT 5+00.00
SINGLETREE RD. 23.3' PAVED
N 71° 12' 39.6" E
N 21° 12' 16.1" W
N 21° 39' 25.9" W
N 24° 07' 16.8" W
N 9° 18' 20.8" W
SR-3135 LEBANON ROAD
BEGIN PROJECT
-L- STA. 15+00.00
BEGIN C&G
PARALLEL PIPE END SECTION
DO NOT DISTURB TREES
BYI-917
-BYI- POT 8+36.54
-BL- PINC 15+19.91
-L- POC 16+11.30 (26.19' RT)
2/6' UNIFORM TRANSITION
REMOVE EXISTING BRIDGE
TOP OF BANK
RIP RAP AT EMBANKMENT SEE DETAIL 'C'
CL 'B' RIP RAP EST. 2 TONS FILTER FABRIC EST. 7 SY
REMOVE APPROX. 20 FT. OF EXISTING 36" CMP
SEE DETAIL 'D'
SEE DETAIL 'E'
SEE DETAIL 'F'
SEE DETAIL 'A'
SEE DETAIL 'B'
SEE DETAIL 'G'
50' TAPER TO EXISTING
UNABLE TO LOCATE UFG GAS PIPE IN THIS AREA
UNABLE TO LOCATE NEXT MH
-L- PC 22+22.42
-L- PT 25+39.01
B3677-1
-BL- PINC 25+49.15
-BY2- POT 5+00.00
-L- POT 26+40.63
(23.92' LT)
-L- POT 27+31.01
END PROJECT
-L- STA. 25+70.00
END CONSTRUCTION
-L- STA. 26+00+/-
JEFFREY S. HLADUN AND WIFE, SHIRLEY J. HLADUN
DB 6025 PG 360
DARRELL D. YATES, JR AND WIFE, MARY ANNA U. YATES
DB 6171 PG 29
JEWELL M. GARRISON AND WIFE, LOIS E. GARRISON
DB 3894 PG 200
PINE LAKE COUNTRY CLUB, INCORPORATED
DB 1601 PG 405
BL-10
PINC 18+52.11
-L- POC 19+42.66 (41.28' RT)
OLD CREEK CHANNEL
POWER LINE EASEMENT
N 62° 38' 50.5" E
REVISIONS

NOTE: RIP RAP STREAM BANK FROM EDGE OF WATER TO TOP OF BANK
EST. CL 'I' RIP RAP = 100 TONS
EST. FILTER FABRIC = 230 SY

DETAIL A
LATERAL 'V' DITCH
(Not to Scale)

Min. D= 1.0 Ft.
b= 2.0 Ft.

FROM -L- STA. 17+75+/- TO STA. 19+60+/- RT
DDE: EST. 32 CY

SEE SHEETS S-1 THRU S- FOR STRUCTURE PLANS

BRIDGE /ROADWAY RELATIONSHIP SKETCH
BEGIN BRIDGE -L- 19+23+/-
END APPROACH SLAB -L- 20+48+/-
BEGIN APPROACH SLAB -L- 18+98+/-
END BRIDGE -L- 20+23+/-

-L-

PI Sta 11+66.05	PI Sta 15+24.66	PI Sta 23+81.64
Δ = 1° 45' 42.3" (LT)	Δ = 3° 40' 37.3" (LT)	Δ = 15° 06' 57.6" (RT)
D = 0° 31' 50.0"	D = 0° 57' 17.3"	D = 4° 46' 28.7"
L = 332.07'	L = 385.06'	L = 316.59'
T = 166.05'	T = 192.59'	T = 159.22'
R = 10,799.43'	R = 6,000.00'	R = 1,200.00'
SE = EXISTING	SE = NC	SE = 0.04
Vd = 60 MPH	Vd = 45 MPH	Vd = 55 MPH

DETAIL F
LATERAL BASE DITCH
(Not to Scale)

Min. D= 1.0 Ft.
Max. d= 1.5 Ft.
B= 2.0 Ft.
b= 5.0 Ft.
*When B is < 6.0'
Type of Liner= PSRM

FROM -L- STA. 22+25+/- TO STA. 24+50+/- LT
PSRM: EST. 225 SY
DDE: EST. 99 CY

DETAIL G
SPECIAL CUT DITCH
(Not to Scale)

Min. D= 1Ft.
Max. d= 1Ft.
Type of Liner= CL 'B' Rip-Rap

FROM -L- STA. 15+00.00 TO STA. 15+90+/- LT
CLASS 'B' RIP RAP: EST. 45 TONS
FILTER FABRIC: EST. 132 SY

SEE PLANS RT SIDE OF SR4141 (15.7 % SLOPE)
CLASS 'B' RIP RAP: EST. 26 TONS
FILTER FABRIC: EST. 80 SY

SEE SHEET 5 FOR -L- PROFILE

STRUCTURE HYDRAULIC DATA			
DESIGN DISCHARGE	=	2,237	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN ELEVATION	=	658.2	FT
BASE DISCHARGE	=	3,053	CFS
BASE FREQUENCY	=	100	YRS
BASE ELEVATION	=	659.0	FT
OVERTOPPING DISCHARGE	=	5,000	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	660.93	FT

BM# S33-01
-BL- STA. 18+47.91 OFF 5.22' LT
ELEV. = 656.500
CITY OF CHARLOTTE SURVEY MARK.
(CITY OF CHARLOTTE PUBLISHED ELEV. = 656.08')

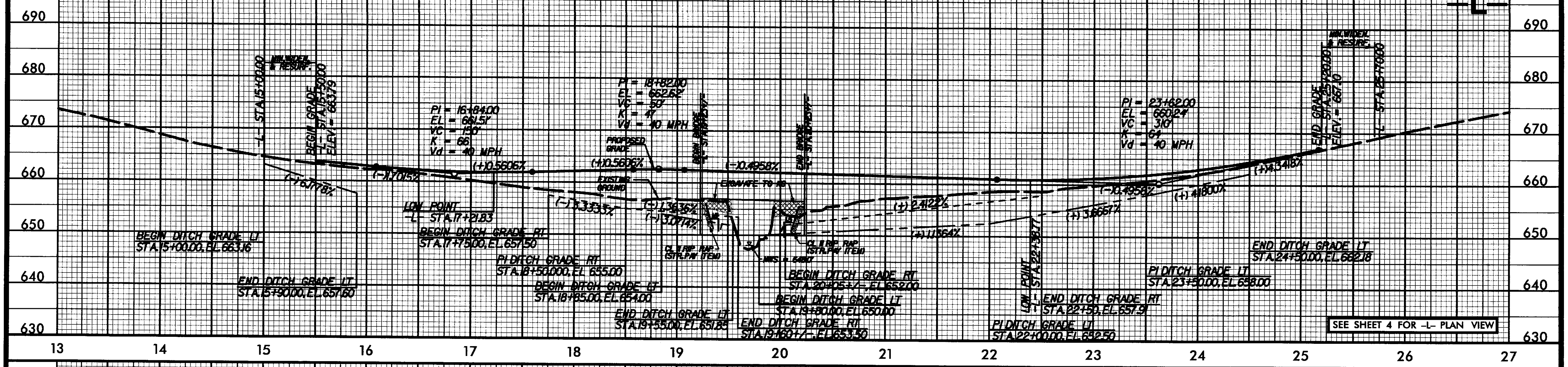
BM# 2
-BL- STA. 19+32.36 OFF 290.09' LT
ELEV. = 653.306
RR SPIKE IN THE BASE OF A 15" HAWTHORN.

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

PROJECT REFERENCE NO.	SHEET NO.
B-3677	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-



Mecklenburg County
Bridge No. 36 on SR 3135 (Lebanon Road)
over Irvins Creek
Federal Aid Project No. BRSTP-3135(4)
State Project No. 8.2674101
T.I.P. No. B-3677

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

APPROVED:

1-18-05
DATE

Gregory J. Thorpe, Ph.D., Environmental Management Director
Project Development and Environmental Analysis Branch, NCDOT

1/18/05
DATE

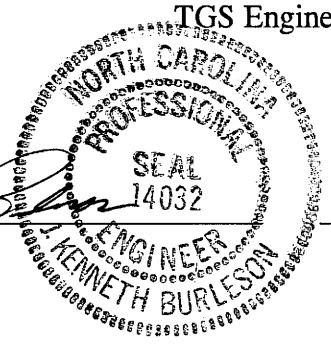
John. F. Sullivan, III, PE
Division Administrator, FHWA

Mecklenburg County
Bridge No. 36 on SR 3135 (Lebanon Road)
over Irvins Creek
Federal Aid Project No. BRSTP-3135(4)
State Project No. 8.2674101
T.I.P. No. B-3677

CATEGORICAL EXCLUSION

January 2005

Documentation Prepared by:
TGS Engineers



J. Kenneth Burleson, PE — 1/14/05 Date

For the North Carolina Department of Transportation

Elmo E. Vance
Project Manager
Consultant Engineering Unit

SUMMARY OF ENVIRONMENTAL COMMITMENTS

Mecklenburg County
Bridge No. 36 on SR 3135 (Lebanon Road)
over Irvins Creek
Federal Aid Project No. BRSTP-3135(4)
State Project No. 8.2674101
T.I.P. No. B-3677

In addition to the standard Nationwide Permit No. 23 Conditions, the General Nationwide Permit Conditions, Section 404 Only Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for the Protection of Surface Waters, Best Management Practices for Bridge Demolition and Removal, General Certification Conditions, and Section 401 Conditions of Certification, the following commitments have been agreed to by NCDOT:

Division 10:

A. Structure Design will include this standard note on the bridge plans: "Removal of the existing bridge shall be performed so as not to allow debris to fall into the water. The contractor shall remove the bridge and submit plans for demolition in accordance with Article 402-2 of the standard specifications."

B. All methods of demolition will be considered and implemented where practical, other than dropping the bridge in the water. Bridge demolition activities associated with this project will strictly follow NCDOT's *Best Management Practices for Bridge Demolition and Removal* (BMPs-BDR). The proposed project falls under Case 3 of BMPs-BDR.

Mecklenburg County
Bridge No. 36 on SR 3135 (Lebanon Road)
over Irvins Creek
Federal Aid Project No. BRSTP-3135(4)
State Project No. 8.2674101
T.I.P. No. B-3677

INTRODUCTION: Mecklenburg County Bridge No. 36 is included in the 2004-2010 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (TIP) and in the Federal-Aid Bridge Replacement Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion".

I. PURPOSE AND NEED STATEMENT

NCDOT Bridge Maintenance Unit records indicated the bridge has a sufficiency rating of 47.1 out of a possible 100 for a new structure. The bridge is considered structurally obsolete. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

The project is located in the southeastern part of Mecklenburg County just south of the town of Mint Hill. SR 3135 (Lebanon Road) is classified as an urban collector in the Statewide Functional Classification System. SR 3135 is a Minor Thoroughfare connecting NC 51 to SR 3128 (Lawyers Road) (both Major Thoroughfares). SR 3135 is included in the planning area for the 1994 Mecklenburg-Union Metropolitan Planning Organization (MUMPO) Thoroughfare Plan and the MUMPO Transportation Model.

This section of SR 3135 is shown as a preferred roadway for bicycling on the Charlotte/Mecklenburg Bicycle Suitability Map. Because the route is within the urban boundary, pedestrian accommodations are warranted.

The area adjacent to the project is comprised mainly of residential dwellings. A country club is located to the southeast of the bridge with its golf course located to the east (upstream). This area is zoned (R) Residential.

In the vicinity of the bridge, SR 3135 has a 20-foot pavement width with 2-foot to 4-foot grass shoulders (see Figures 3 and 4). The existing bridge is on tangent with a curve to the north. The roadway is situated approximately 11 feet above the streambed.

The current traffic volume of 5,500 vehicles per day (VPD) is expected to increase to 21,100 by the year 2030. The projected volume includes 3 percent truck-tractor semi-trailer (TTST) and 2 percent dual-tired vehicles (DT). There are no sidewalks on the structure. The posted speed limit on this section of SR 3135 is 35 miles per hour.

Bridge No. 36 is a one-span structure that consists of a timber deck with an asphalt wearing surface on steel I-beams. The substructure consists of timber caps, posts and sills and timber bulkheads. The existing bridge (see Figure 3) was constructed in 1953 and is in fair condition. The overall length of the structure is approximately 41 feet. The clear roadway width is 19-feet. The posted weight limit on this bridge is 22 tons for single vehicles and 26 tons for TTST's.

There are no utilities attached to the existing structure, but power and telephone lines run diagonally overhead across the bridge. A large power transformer exists along the creek to the Northwest. Manholes are located in the northwest, southwest, and southeast quadrants. A USGS Stream Gage is also located at the southeast corner of the bridge. Utility impacts are anticipated to be high.

Five accidents were reported in the vicinity of Bridge No. 36 during the period from January 2000 to December 2003. Three of the accidents were Property Damage Only crashes and two were Class C Non-Fatal Injury crashes. However, none of the five accidents seem to have any common cause.

Approximately thirty school buses cross the bridge daily.

III. ALTERNATIVES

A. Project Description

The proposed replacement structure consists of a bridge 85 feet long and 58 feet wide. The replacement structure requires a spill-through abutment on each end. The proposed structure will accommodate a future 12-foot center turn lane and two 14-foot lanes to accommodate bicyclists with 2-foot gutters and 5.5-foot sidewalks on each side (see Figure 5). The proposed typical section satisfies the Town of Mint Hill's recommendation for this minor thoroughfare.

The proposed bridge length is based on a preliminary hydraulic analysis. The final design of the bridge will be such that the backwater elevation will not encroach beyond the current 100-year floodplain limits. The length of the new structure may be increased or decreased as necessary to accommodate peak flows as determined by further hydrologic studies.

The roadway grade of the new structure will be approximately the same as the existing.

The existing 20-foot roadway will be widened to 24 feet with 4-foot paved shoulders to accommodate bicycles on the approaches. At the crossing, the roadway will be widened to a 44-foot face-to face curb and gutter width in order to tie into the 44-foot face-to-face curb and gutter bridge. Typical sections of the existing and proposed approach roadways are shown in Figure 4.

B. Build Alternatives

The alternatives for replacing Bridge No. 36 that were evaluated are described below.

Alternative 1 replaces the structure along a new roadway alignment to the west (downstream) of its current location. The proposed design speed is 40 miles per hour. The existing bridge and approaches will be used to maintain traffic during the construction period.

This alternative will improve the horizontal roadway alignment. However, this alternative is not recommended due to damages to a residence located to the southwest of the crossing as well as a large power transformer located to the northwest. Alternate 1 also conflicts with existing overhead powerlines as well as a sewer system to the west.

Alternative 2 replaces the structure at its existing location. An on-site temporary detour to the east on the golf course property will be used to maintain traffic during the construction process. A 40-mile per hour design speed is proposed for the new structure. However, this alternative is not recommended due to the costs and damages associated with the temporary detour.

Alternative 3 (Preferred) replaces Bridge No. 36 in its existing location utilizing staged construction to maintain traffic on-site during construction. This alternative minimizes damages to the adjacent golf course east of the crossing and avoids the residence west of the crossing. The proposed design speed is 40 miles per hour.

C. Alternatives Eliminated from Further Study

The "do-nothing" or no-build alternative will eventually necessitate closure of the bridge. This option is not acceptable because SR 3135 is a minor thoroughfare connecting two major thoroughfares.

"Rehabilitation" of the old bridge is not feasible due to its age and condition. This bridge needs to be more than one lane due to the large volume of traffic using this roadway.

D. Preferred Alternative

Mecklenburg County Bridge No. 36 will be replaced at its existing location as shown by Alternative 3 in Figure 2. This alternative is preferred because it creates less conflict with the existing utilities, maintains traffic on-site during construction and has minimal impacts to the adjacent properties.

IV. ESTIMATED COSTS

The estimated costs for the alternatives, based on current prices, are as follows:

	Alternative 1	**Alternative 2**	**Alternative 3** Preferred
Structure	$ 334,125	$ 350,625	$ 425,700
Roadway Approaches	291,475	247,175	204,170
Detour Structure and Approaches	N/A	25,500	N/A
Structure Removal	6,400	6,400	6,400
Misc. & Mob.	183,000	175,300	158,730
Eng. & Contingencies	135,000	120,000	130,000
Total Construction Cost	$ 950,000	$ 925,000	$ 925,000
Right-of-Way Costs	474,500	250,000	230,000
Total Project Cost	$1,424,500	$ 1,175,000	$ 1,155,000

The estimated cost of the project, shown in the 2004-2010 NCDOT Transportation Improvement Program (TIP), is $840,000, including $30,000 for right-of-way, $725,000 for construction and $85,000 prior years expense.

V. NATURAL RESOURCES

A review of the project area has been undertaken to evaluate natural resource features likely to be affected. Materials and research data in support of this investigation have been derived from a number of sources including applicable U.S. Geological Survey (USGS) topographic mapping (Mint Hill, NC 7.5 minute quadrangle, 1993), U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping, and general alternative locations on site aerial photography.

A. Methodology

A natural resources field investigation for Bridge No. 36 was conducted on May 16, 2001. The study corridor was visually investigated on foot for substantial features. For purposes of the field investigation and to assure proper area coverage of the alternatives, the study corridor was assumed to be approximately 675 feet in length, with a width extending approximately 200 feet west and 200 feet east of the SR 3135 centerline. Plant community area calculations provided in this report are based on a 100-foot corridor centered on each of the alternatives. Final impacts will be limited to cut-and-fill boundaries plus the cleared area of the constructed alternative. Special concerns evaluated in the field include 1) potential habitat for protected species and 2) wetlands and water quality protection in Irvins Creek.

The study corridor is located approximately 0.5 mile north of the intersection of NC 51 (Matthews-Mint Hill Road) and SR 3135 (Lebanon Road) near Mint Hill, NC (Figure 1). Bridge No. 36 is located along SR 3135 at Irvins Creek in Mecklenburg County. The study corridor includes the channel and floodplain adjacent to Irvins Creek. Irvins Creek flows from the northeast, under Bridge No. 36, and continues approximately 3.6 miles to the southwest, where it joins McAlpine Creek.

Plant community descriptions are based on a classification system utilized by North Carolina Natural Heritage Program (NHP) (Schafale and Weakley 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names follow nomenclature found in Radford *et al.* (1968), with adjustments made to reflect more current nomenclature (Kartesz 1998). Jurisdictional areas were evaluated using the three-parameter approach following U.S. Army Corps of Engineers (COE) delineation guidelines (DOA 1987). Wetland jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979). Habitat used by terrestrial wildlife and aquatic organisms, as well as expected population distributions, were determined through field observations, evaluation of available habitat, and supportive documentation (Webster *et al.* 1985, Potter *et al.* 1980, Martof *et al.* 1980, Rohde *et al.* 1994, Menhinick 1991, Palmer and Braswell 1995). Fish and wildlife nomenclature follow current standards. Water quality information for area streams and tributaries was derived from available sources (DWQ 1999a, 1999b). Quantitative sampling was not undertaken to support existing data.

The most current FWS listing of federally protected species with ranges extending into Mecklenburg County was obtained prior to initiation of the field investigation. In addition, NHP records documenting presence of federally or

state listed species were consulted before commencing the field investigation.

B. Physiography and Soils

Land use within the study corridor is disturbed and maintained, primarily as residential lots, golf course, and utility line corridors. The land immediately adjacent to Irvins Creek is primarily maintained herbs and grasses with scattered trees and shrubs.

The study corridor is located in the Metavolcanic Rock geologic formation of the Charlotte and Milton Belts within the Inner Piedmont physiographic province of North Carolina. This system is characterized by broad, gently sloping uplands, moderately to steeply sloping areas with narrow convex ridges, and steep valley slopes. Soil systems in the Piedmont are determined by the local bedrock type and form in saprolite weathered from bedrock of various composition (Daniels *et al.* 1999). The study corridor is located within the floodplain of Irvins Creek. Within the study corridor, the floodplain is shallow and flat. Elevations rise from approximately 645 feet National Geodetic Vertical Datum (NGVD) at streamside to 660 feet NGVD at the northern and southern extremes of the study corridor (USGS Mint Hill, NC quadrangle).

The Natural Resource Conservation Service (formerly the Soil Conservation Service) (USDA 1980) indicates the following soils within the study corridor: Monacan loam (fine-loamy, mixed, thermic *Fluvaquentic Eutrochrepts*), adjacent to and including the streambed; Cecil sandy clay loam (clayey, kaolinitic, thermic *Typic Hapludults*) to the northwest and southeast of the stream channel; and Cecil-urban land complex (clayey, kaolinitic, thermic *Typic Hapludults*) to the north and south of the stream channel.

The Monacan series consists of frequently flooded, somewhat poorly drained, nearly level soils on floodplains along streams and drainageways. The Monacan soil surface layer is brownish loam, fine sandy loam, or sandy loam. The subsoil is reddish loam in the upper part and brownish or grayish silty clay loam, fine sandy loam, sandy clay loam, and sandy clay in the lower part.

The Cecil sandy clay loam series consists of well drained soils on broad smooth ridges on the uplands. Typically, the surface layer is yellowish red sandy clay loam about 6 inches thick. The subsoil is 47 inches thick. The upper part is red clay, and the lower part is red clay loam. The underlying material to a depth of 65 inches is red and yellow loam. Slope ranges from 2 to 8 percent.

The Cecil-Urban land complex consists of areas of Cecil soils and areas of Urban land primarily in the suburban areas of Charlotte, NC. The undisturbed Cecil soil makes up 50 to 70 percent of each area and is described above. The

Urban land makes up 15 to 35 percent of the complex. The rest of this unit consists of areas where most of the natural soil has been altered or covered as the result of grading and digging. The Urban land part of this unit is covered with houses, paved streets, parking lots, driveways, small shopping centers, industrial buildings, schools, and apartment complexes (USDA 1980).

Of the predominant soil map units in the study corridor, the Natural Resources Conservation Service lists only the Monacan series as having hydric inclusions in depressions adjoining upland sideslopes (USDA 1996).

C. Water Resources

1. Waters Impacted

The study corridor is located within subbasin 03-08-34 (Sugar Creek Watershed subbasin) of the Catawba River Basin (DWQ 1999a). This area is part of USGS accounting unit 03050103 of the South Atlantic-Gulf Coast Region. The section of Irvins Creek crossed by the subject bridge has been assigned Stream Index Number 11-137-9-2 by the N.C. Division of Water Quality (DWQ 1999b).

2. Stream Characteristics

Irvins Creek is a second-order stream in the Sugar Creek Watershed subbasin. The Irvins Creek watershed is characterized by upland and mesic hardwood forests, agricultural land use, and moderate to heavy residential development. Within the study corridor, Irvins Creek is moderately entrenched, exhibited moderate flow, shows no sinuosity, and lacks well-defined riffle and pool development. Width of the stream is approximately 12 feet at the point of the bridge crossing. The roadway on the bridge is approximately 11 feet above the streambed.

During the field visit, water depths along the study corridor varied from 1 inch to 18 inches. The water level was low, with about 6 inches of unvegetated riverbank above the water surface. Persistent aquatic vegetation was not observed within the stream channel with the exception of some algal growth. The channel substrate is composed of a sand and gravel mixture with some finer sediments present in slower flowing reaches. Rip-rap bank control structures exist along most of the channel throughout the study corridor. Riparian vegetation primarily consists of maintained grasses and herbs, and scattered trees and shrubs.

Classifications are assigned to waters of the State of North Carolina based on the existing or contemplated best usage of various streams or

segments of streams in the basin. A best usage classification of **C** has been assigned to Irvins Creek. The designation **C** denotes water supply waters that are suitable for aquatic life propagation and protection, agriculture, and secondary recreation. Secondary recreation refers to wading, boating, and other uses not involving human body contact with waters on an organized or frequent basis (DWQ 1999a). No designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply II (WS-II) waters occur within 1.0 mile of the study corridor. No watershed Critical Area (**CA**) occurs within 1.0 mile of the study area.

The Division of Water Quality (DWQ) has initiated a whole-basin approach to water quality management for the 17 river basins within the state. Water quality for the proposed study corridor is summarized in the Catawba River basin management plan. No water quality samples have been performed on Irvins Creek; however, the most recent benthic macroinvertebrate samples (1997) in McAlpine Creek, approximately 8 miles downstream of the study corridor, have a bioclassification of Fair. No fish community or tissue sampling was performed on Irvins or McAlpine Creeks.

The Catawba River subbasin 03-08-34 has been biologically and chemically monitored and has a use support rating of fully supporting in 14 percent of its reaches. Thirty-three percent are rated as partially supporting, 1 percent as not supporting, and 52 percent of its stream miles were not evaluated. The entire length of Irvins Creek has been classified as Not Rated. Subbasin 03-08-34, containing the entire Irvins Creek catchment from its headwaters to its confluence with McAlpine Creek, supports six major point-source dischargers with a combined permitted discharge of 101.9 million gallons per day (MGD) permitted flow. The subbasin includes 44 minor dischargers, with a total permitted flow of 1.3 MGD. Nonpoint source pollution is also a major consideration in the Catawba River drainage, with sedimentation and erosion the most widespread problem throughout Mecklenburg County (DWQ 1999a).

3. Anticipated Impacts

The project alternatives include complete bridging of Irvins Creek to maintain the current water quality, aquatic habitat, and flow regime. Alternative 1 involves the replacement of the structure on a new alignment to the west (downstream) with the existing structure serving to maintain traffic on-site during the construction period. Alternative 2 involves replacement of the structure at the current location with an

temporary on-site detour. Alternative 3 involves replacement of the structure at the current location with stage construction to avoid a temporary on-site detour. Temporary construction impacts due to erosion and sedimentation will be minimized through implementation of a stringent erosion control schedule and the use of best management practices. The contractor will follow contract specifications pertaining to erosion control measures as outlined in 23 CFR 650 Subpart B and Article 107-13 entitled "Control of Erosion, Siltation, and Pollution" (NCDOT, Specifications for Roads and Structures). These measures include the use of dikes, berms, silt basins, and other containment measures to control runoff; elimination of construction staging areas in floodplains and adjacent to waterways; re-seeding of herbaceous cover on disturbed sites; management of chemicals (herbicides, pesticides, de-icing compounds) with potential negative impacts on water quality; and avoidance of direct discharges into steams by catch basins and roadside vegetation.

In each of the alternatives, the proposed bridge replacement will allow for continuation of pre-project stream flows in Irvins Creek, thereby protecting the integrity of this waterway. Long-term impacts resulting from construction are expected to be negligible. In order to minimize impacts to water resources, NCDOT Best Management Practices (BMPs) for the Protection of Surface Waters will be strictly enforced during the entire life of the project.

During removal of the existing bridge, bridge components will be removed without dropping them into waters of the United States. NCDOT's Best Management Practices for Bridge Demolition and Removal (BMP-BDR) must be applied for the removal of this bridge.

D. Biotic Resources

1. Plant Communities

One distinct plant community was identified within the study corridor: maintained/disturbed land. This plant community is described below.

Maintained/Disturbed Land - Maintained/disturbed land occurs within the entire study corridor. Land use is maintained lawns, mowed roadside, mowed utility line corridors, streamside vegetation, and a well-groomed golf course. The roadside margins, maintained lawns and utility line corridors primarily support cultivated grass which is regularly maintained by mowing. Species include fescue (*Festuca* sp.), foxtail grass (*Setaria* sp.), English plantain (*Plantago lanceolata*), rye grass

(*Lolium multiflorum*), and crab grass (*Digitaria sanguinalis*).

Streamside vegetation is mainly herbaceous and includes scattered trees and shrubs. Common species include climbing hempweed (*Mikania scandens*), goldenrod (*Solidago* sp.), wild grape (*Vitis rotundifolia*), clover (*Trifolium* sp.), Japanese honeysuckle (*Lonicera japonica*), poison ivy (*Toxicodendron radicans*), soft rush (*Juncus effusus)*, wild garlic (*Allium* sp.), dock (*Rumex* sp.), buttercup (*Ranunculus carolinianus*), dog-fennel (*Eupatorium capillifolium*), pokeweed (*Phytolacca americana*), Chinese privet (*Ligustrum sinense*), tag alder (*Alnus serrulata*), black willow (*Salix nigra*), boxelder (*Acer negundo*), green ash (*Fraxinus pensylvanica*), sycamore (*Platanus occidentalis*), willow oak (*Quercus phellos*), eastern red cedar (*Juniperus virginiana*), and mimosa (*Albizzia julibrissin*).

The residential area and golf course are well-groomed and support several species of trees and shrubs in addition to maintained lawn grass (*Festuca* sp.). Common trees and shrubs include wax myrtle (*Morella cerifera*), shortleaf pine (*Pinus echinata*), eastern white pine (*Pinus strobus*), willow oak, red mulberry (*Morus rubra*), layland cypress (*Cupressocyparis leylandii*), sweetgum (*Liquidambar styraciflua*), silver maple (*Acer saccharinum*), eastern redbud (*Cercis canadensis*), blackberry (*Rubus* sp), tulip poplar (*Liriodendron tulipifera*), and black cherry (*Prunus serotina*).

2. Plant Community Impacts

Plant community areas are estimated based on the amount of each plant community present within the alternative corridor. Alternative 1 involves replacement of the structure on a new roadway alignment with the existing structure and approaches serving to maintain traffic during the construction period. This alternative corridor contains 1.23 acres of the above plant community. Alternative 2 involves replacement of the structure along the existing roadway alignment with a temporary, on-site detour provided to maintain traffic during the construction period. This alternative corridor includes a total of 1.49 acres of the above plant community, with 1.23 acres for the structure replacement, and 0.26 acre for the temporary detour corridor. Alternative 3 involves replacement of the structure along the existing roadway alignment using stage construction to maintain traffic during the construction period. This alternative corridor includes a total of 1.23 acres of the above plant community for the structure replacement.

From an ecological perspective, impacts of upgrading existing road

facilities are minimal for the alternatives. The alternative corridors contain no natural plant communities and may only claim narrow strips of primarily maintained herbaceous vegetation. No new fragmentation of plant communities will be created, as the project will result only in relocation of community boundaries.

Roadside ecotones typically serve as vectors for invasive species into local natural communities. An example of an undesirable invasive species utilizing roadsides is kudzu (*Pueria lobata*). The establishment of a hardy groundcover on road shoulders as soon as practicable will limit the availability of construction areas to invasive and undesirable plants.

3. Wildlife

No mammals were observed during the field visit. Tracks of raccoon (*Procyon lotor*) and opossum (*Didelphis virginiana*) were noted within the study corridor. Other mammals expected to frequent similar habitats in the Piedmont include eastern cottontail (*Sylvilagus floridanus*), eastern mole (*Scalopus aquaticus*), least shrew (*Cryptotis parva*), eastern gray squirrel (*Sciurus carolinensis*), and evening bat (*Nycticeius humeralis*).

Bird species identified during the field visit are chimney swift (*Chaetura pelagica*), belted kingfisher (*Megaceryle alcyon*), common grackle (*Quiscalus quiscula*), northern cardinal (*Cardinalis cardinalis*), blue jay (*Cyanocitta cristata*), gray catbird (*Dumetella carolinensis*), American robin (*Turdus migratorius*), American crow (*Corvus brachyrhynchos*), and red-bellied woodpecker (*Melanerpes carolinus*). Feeding holes, evidence of yellow-bellied sapsucker (*Sphyrapicus varius*), were found on the boles of some streamside trees. Streamside and disturbed habitat might be expected to also support Carolina chickadee (*Poecile carolinensis*), white-eyed vireo (*Vireo griseus*), northern mockingbird (*Mimus polyglottos*), tufted titmouse (*Baeolophus bicolor*), common yellowthroat (*Geothlypis trichas*), chipping sparrow (*Spizella passerina*), blue-gray gnatcatcher (*Polioptila caerulea*), white throated sparrow (*Zonotrichia albicollis*), summer tanager (*Piranga rubra*), American goldfinch (*Carduelis tristis*), white-breasted nuthatch (*Sitta carolinensis*), eastern towee (*Pipilo erythrophthalmus*), mourning dove (*Zenaida macroura*), and yellow-rumped warbler (*Dendroica coronata*).

No terrestrial reptile or amphibian species were observed within the study corridor. Species that might be expected in these habitats are green anole (*Anolis carolinensis*), five-lined skink (*Eumeces fasciatus*), brown snake (*Storeria dekayi*), eastern garter snake (*Thamnophis*

sirtalis), rough green snake (*Opheidrys aestivus*), American toad (*Bufo americanus*), and Fowler's toad (*Bufo woodhousei*).

No aquatic amphibian or reptile was observed during the field visit with the exception of bullfrog (*Rana catesbeiana*) tadpoles. Irvins Creek provides suitable habitat for aquatic and semi-aquatic reptiles including eastern ribbon snake (*Thamnophis sauritus*) and northern water snake (*Nerodia sipedon*). Salamanders are expected to be uncommon in this area as a result of the developed landscape, lack of riparian cover, and apparent high level of siltation and erosion into Irvins Creek. Several mussel shells belonging to the invasive Asian clam (*Corbicula flumenea*) were found inside the stream channel. No other evidence of mollusks was found.

No sampling was undertaken in Irvins Creek to determine fishery potential. Small minnows were seen during visual investigations, but no larger fish were noted. Species which may be present in Irvins Creek include rosyside dace (*Clinostomus funduloides*), bluehead chub (*Nocomis leptocephalus*), eastern mosquitofish (*Gambusia holbrooki*), redbreast sunfish (*Lepomis auritus*), pumpkinseed (*Lepomis gibbosus*), bluegill (*Lepomis macrochirus*), tessellated darter (*Etheostoma olmstedi*), and fantail darter (*Etheostoma flabellare*).

4. Wildlife Impacts

Due to the limited extent of infringement on natural communities, the proposed bridge replacement will not result in substantial loss or displacement of known terrestrial animal populations. No substantial habitat fragmentation is expected since most permanent improvements will be restricted to or adjoining existing roadside margins. Construction noise and associated disturbances will have short-term impacts on avifauna and migratory wildlife movement patterns. Long-term impacts are expected to be minimal for the alternatives. After removal of temporary bridge structures and associated fill, the area will be replanted. For all of the alternatives, potential impacts to down-stream aquatic habitats will be avoided by bridging the systems to maintain regular flow and stream integrity. Short-term impacts associated with turbidity and suspended sediments will affect benthic populations. Temporary impacts to downstream habitats from increased sediment during construction will be minimized by the implementation of stringent erosion control measures.

E. Jurisdictional Issues

1. Water of the United States

Surface waters within the embankments of Irvins Creek are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "waters of the United States" (33 CFR section 328.3). NWI mapping depicts Irvins Creek as a riverine, lower perennial stream with an excavated, unconsolidated bottom, with a permanently flooded water regime (R2UBHx; Cowardin *et al.* 1979). The field investigation verified this characterization, finding Irvins Creek to be a perennial stream system with an unconsolidated bottom consisting of a gravel and sand mixture with some finer sediments present in slower flowing reaches.

During removal of the existing bridge and project construction, no components of the bridge will be dropped into waters of the United States. In consideration of surface water impacts, this project can be classified as Case 3, where there are no special restrictions beyond those outlined in Best Management Practices for Protection of Surface Waters. NCDOT will coordinate with the various resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved.

2. Jurisdictional Wetlands

Vegetated wetlands are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology at or near the surface for a portion (12.5 percent) of the growing season (DOA 1987). No vegetated wetlands subject to jurisdictional consideration under Section 404 of the Clean Water Act as "waters of the United States" (CFR 328.3) occur within the study corridor. Jurisdictional impacts are avoided by each of the considered alternatives. The only expected effect of bridge construction will be continued shading of the area of Irvins Creek under the replaced bridge.

3. Permits Required

This project is being processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. The COE has made available Nationwide Permit (NWP) #23 (61 FR 65874, 65916; December 13, 1996) for CEs due to expected minimal impact. DWQ has made available a General 401 Water Quality Certification for NWP #23.

4. Mitigation

Fill or alteration of streams may require compensatory mitigation in accordance with 15 NCAC 2H .0506(h). However, compensatory mitigation is not expected to be offered for this project due to the lack of jurisdictional impacts. Utilization of BMPs is recommended in an effort to minimize indirect impacts to Irvins Creek. A final determination regarding mitigation rests with the COE and DWQ.

F. Protected Species

1. Federal Species

Species with the federal classification of Endangered, Threatened, or officially proposed for such listing, are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The term "Endangered species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range", and the term "Threatened species" is defined as "any species which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532). Federally protected species listed for Mecklenburg County (February 24, 2003 FWS list) are provided in the following table.

Federally Protected Species. Species name and status for federally protected species in Mecklenburg County (February 24, 2003 FWS list).

Common Name	Scientific Name	Federal Status
Bald eagle	*Haliaeetus leucocephalus*	Threatened (Proposed for delisting)
Carolina heelsplitter	*Lasmigona decorata*	Endangered
Smooth coneflower	*Echinacea laevigata*	Endangered
Michaux's sumac	*Rhus michauxii*	Endangered
Schweinitz's sunflower	*Helianthus schweinitzii*	Endangered

Bald Eagle - The bald eagle is a large raptor with a wingspan greater than 6.0 feet. Adult bald eagles are dark brown with a white head and tail. Immature eagles are brown with whitish mottling on the tail, belly, and wing linings. Bald eagles typically feed on fish but may also take

birds and small mammals. In the Carolinas, nesting season extends from December through May (Potter *et al.* 1980). Bald eagles typically nest in tall, living trees in a conspicuous location near open water. Eagles forage over large bodies of water and utilize adjacent trees for perching (Hamel 1992). Disturbance activities within a primary zone extending 750 to 1500 feet from a nest tree are considered to result in unacceptable conditions for eagles (FWS 1987). The FWS recommends avoiding disturbance activities, including construction and tree-cutting within this primary zone. Within a secondary zone, extending from the primary zone boundary out to a distance of 1.0 mile from a nest tree, construction and land-clearing activities should be restricted to the non-nesting period. The FWS also recommends avoiding alteration of natural shorelines where bald eagles forage, and avoiding significant land-clearing activities within 1500 feet of known roosting sites.

The study corridor contains no large bodies of open water that might serve as bald eagle habitat. The nearest lake (Waverly Lake) is approximately 3.0 miles to the north; however, it is most likely not of sufficient size to support bald eagles. Tall, old trees which might serve as perching sites do grow near Irvins Creek, but lack of access to open water is probably a key limiting factor at the study corridor. NHP records document no occurrences of bald eagle within 5.0 miles of the study corridor, and no eagles were observed during the site visit.

BIOLOGICAL CONCLUSION: The Irvins Creek study corridor contains no suitable open water habitat for bald eagles. No occurrences have been documented by the NHP, and no eagles were seen during the site visit. Based on these factors and professional judgement, the proposed project will have **NO EFFECT** on bald eagle.

Carolina Heelsplitter - The Carolina heelsplitter has an ovate, trapezoid shaped, unsculptured shell which grows to a maximum of approximately 4.5 inches length, by 2.7 inches height, and 1.5 inches in width (FWS 1996). The shell varies in color from a greenish brown to dark brown on the outer surface and is often pearly to whitish blue, grading to orange on the inside surface. The dorsal margin is straight and may end in a slight wing, and the umbo is flattened. Beak sculpture is depressed and double looped, extending slightly past the hinge line. Lateral teeth are generally, thin and pseudo-cardinal teeth are lamellar and parallel to the dorsal margin (TSCFTM 1990).

Historically, this species was apparently widespread in the Catawba and Pee Dee River basins in North Carolina. Currently, only two populations are known in North Carolina: 1) in a tributary (Goose

Creek) to the Pee Dee River located in on the Mecklenburg/Union County line and 2) in a tributary (Waxhaw Creek) to the Catawba River located in the southwestern corner of Union County. The heelsplitter is usually found in mud, muddy sand, or muddy gravel substrates along stable, well-shaded stream banks (Keferl and Shelly 1988).

The stream reach within the study corridor offers appropriate habitat for Carolina heelsplitter, although, the study corridor is approximately 50 river miles from the nearest population in the Catawba River basin. The NHP has no documentation of Carolina heelsplitter within 5.0 miles of the study corridor. The only sign of bivalves observed during the site visit was several shells of the invasive Asian clam (*Corbicula flumenea*).

On May 12, 2004, a survey was conducted to determine the presence of the Carolina Heelsplitter at the project site. Two species of freshwater mussels, Eastern Elliptio, *Elliptio complanata* and Eastern Creekshell, *Villosa delumbis* were found during the survey but no evidence of the targeted Carolina Heelsplitter was found.

BIOLOGICAL CONCLUSION: Although Irvins Creek does provide suitable habitat for the Carolina Heelsplitter, NHP records indicate that this species has not been documented within 1.0 mile of the study corridor, and no specimens were found during the field visit. Based on available information and results of an on-site survey, the proposed project ~~**May Affect - Not Likely To Adversely**~~ **Affect** the Carolina heelsplitter. No Effect

Smooth coneflower - This species is a stiffly erect, rarely branched perennial that grows up to 5 feet tall. Basal and stem leaves are large, glabrous, lanceolate to narrowly ovate blades reaching 3 inches in length. This coneflower blooms from late May to July, producing solitary heads of small purplish disk flowers with long drooping pink to purplish ray flowers (Kral 1983). This species occurs on calcareous, basic, or circumneutral soils on roadsides, clear-cuts, power line right-of-ways where there is abundant light and little herbaceous competition (Gaddy 1991). Fire-maintained woodlands also appear to provide potential habitat for the coneflower.

Within the study corridor, suitable habitat for smooth coneflower occurs along road shoulders, within utility line corridors, and adjacent to the streams. The site was visited and surveyed during the blooming season for smooth coneflower. A systematic search of the study corridor resulted in no observations of any species of *Echinacea*. All open, grass-and-herb dominated areas within the study corridor appear to be

frequently mowed close to the ground, and the entire area appeared to have been mowed recently. NHP records have no documentation of this species within 5.0 miles of the study corridor.

BIOLOGICAL CONCLUSION: The study corridor contains suitable habitat for smooth coneflower along the road shoulders and within the utility line corridors. During the field visit it was apparent that these areas are frequently mowed during the growing season to promote a well-manicured lawn. Due to the periodicity of this maintenance it is not likely any species other than cultivated grass is being allowed to survive. The site visit occurred during the blooming season of smooth coneflower and a survey of the study corridor resulted in no identification of any species of *Echinacea*. NHP records indicate that this species has not been documented within 1.0 mile of the study corridor. Based on these factors and best professional judgement, the proposed project **May Affect – ~~Not Likely~~ To Adversely Affect** the smooth coneflower.

No Effect

Michaux's Sumac - Michaux's sumac is a densely pubescent, deciduous, rhizomatous shrub, usually less than 2.0 feet high. The alternate, compound leaves consist of 9 to 13 hairy, round-based, toothed leaflets borne on a hairy rachis that may be slightly winged (Radford et al. 1968). Small male and female flowers are produced during June on separate plants; female flowers are produced on terminal, erect clusters followed by small, hairy, red fruits (drupes) in August and September. In the Piedmont, Michaux's sumac appears to prefer clay soil derived from mafic rocks or sandy soil derived from granite (Weakley 1993). Michaux's sumac ranges from south Virginia through Georgia in the inner Coastal Plain and lower Piedmont. Michaux's sumac tends to grow in disturbed areas where competition is reduced by periodic fire or other disturbances, and may grow along roadside margins or utility right-of-ways.

Within the study corridor, suitable habitat for Michaux's sumac occurs along the road shoulders and within utility line corridors. These areas appear to be frequently mowed close to the ground, and the entire area appeared to have been mowed recently. Additionally, the frequency of mowing appears to be preventing woody and herbaceous species invasion into the maintained plant community. A survey of the study corridor resulted in the identification of no species of *Rhus*. NHP records have no documentation of this species within 5.0 miles of the study corridor

BIOLOGICAL CONCLUSION: The study corridor contains suitable habitat for Michaux's sumac along the road shoulders and within the utility line corridors. During the field visit it was apparent that these

areas are frequently mowed during the growing season to promote a well-manicured lawn. NHP records indicate that this species has not been documented within 1.0 mile of the study corridor. No specimens were identified during a survey of the study corridor. Based on available information and best professional judgement, the proposed project **May ~~Affect - Not Likely To Adversely~~ Affect** the Michaux's sumac.

Schweinitz's Sunflower - Schweinitz's sunflower is an erect, unbranched, rhizomatous, perennial herb that grows to approximately 6 feet in height. The stem may be purple, usually pubescent, but sometimes nearly smooth. Leaves are sessile, opposite on the lower stem but alternate above. Leaf shape is lanceolate and averages 5 to 10 times as long as wide. The leaves are rather thick and stiff, with a few small serrations. The upper leaf surface is rough and the lower surface is usually pubescent with soft white hairs. Schweinitz's sunflower blooms from September to frost; the yellow flower heads are about 0.6 inch in diameter. The current range of this species is within 60 miles of Charlotte, North Carolina, occurring on upland interstream flats or gentle slopes, in soils that are thin or clayey in texture. The species needs open areas protected from shade or excessive competition, reminiscent of Piedmont prairies. Disturbances such as fire maintenance or regular mowing help sustain preferred habitat (FWS 1994).

Within the study corridor, suitable habitat for Schweinitz's sunflower occurs along the road shoulders, within utility line corridors, and adjacent to the streams. The site visit occurred outside of the blooming season (September to frost) for Schweinitz's sunflower. All open, grass-and-herb dominated areas within the study corridor appear to be frequently mowed close to the ground, and the entire area appeared to have been mowed recently. Additionally, the frequency of mowing appears to be preventing herbaceous species invasion into the maintained lawn. NHP records have no documentation of this sunflower within 5.0 miles of the study corridor.

BIOLOGICAL CONCLUSION: The study corridor contains suitable habitat for Schweinitz's sunflower along the road shoulders, utility line corridors, and along stream edges. No existing populations are known within 5.0 miles of Bridge No. 36. A survey for this sunflower was conducted during the blooming season (September to frost) on September 18, 2001. This survey consisted of systematically walking all areas of suitable habitat and identifying all Helianthus species. Sunflowers identified included H. microcephalus and H. strumosus. No individuals of Schweinitz's sunflower were identified within the study corridor. Based on available information and results of an on-site survey, the

proposed project ~~May Affect – Not Likely To~~ **Adversely Affect** the Schweinitz's sunflower. No Effect

Federal Species of Concern - The February 24, 2003 FWS list also includes a category of species designated as "Federal species of concern" (FSC) in Mecklenburg County. A species with this designation is one that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing). A list of FSC species occurring in Mecklenburg County is given in the table below.

The FSC designation provides no federal protection under the ESA for species listed. NHP files do not document any occurrences of FSC species within 1.0 mile of the study corridor.

Federal Species of Concern. Species name, habitat potential within the study corridor, and state status for species federally designated as FSC within Mecklenburg County.

Common Name	Scientific Name	Potential Habitat	State Status**
Carolina Darter	*Etheostoma collis collis*	Yes	SR
Carolina creekshell	*Villosa vaughaniana*	Yes	SC
Tall larkspur	*Delphinium exaltatum*	No	E-SC
Virginia quillwort	*Isoetes virginica*	Yes	C
Heller's trefoil	*Lotus helleri*	Yes	C
Georgia aster	*Aster georgianus*	Yes	T

** E = Endangered; T = threatened; SC = Special concern; SR = Significantly Rare; C = Candidate; P = Species has been formally proposed for listing as Endangered, Threatened, or Special Concern; W5 = NC Plant Watch List: rare because of severe decline (Amoroso 1999; LeGrand and Hall1999).

2. State Species

Plant and animal species which are on the North Carolina state list as Endangered (E), Threatened (T), Special Concern (SC), Candidate (C), Significantly Rare (SR), or Proposed (P) (Amoroso 1999, LeGrand and Hall 1999) receive limited protection under the North Carolina Endangered Species Act (G.S. 113-331 *et seq.*) and the North Carolina Plant Protection Act of 1979 (G.S. 106-202 *et seq.*). No species with these designations are documented within 1.0 mile of the study corridor.

However, NHP documents the occurrence of shooting star (*Dodecatheon media*), a Significantly Rare species, about 2.6 miles west of the study corridor.

VI. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800. Section 106 requires Federal agencies to take into account the effect of their undertakings (federally-funded, licensed, or permitted) on properties included in the National Register of Historic Places and to afford the Advisory Council a reasonable opportunity to comment on such undertakings.

B. Historic Architecture

A field survey of the Area of Potential Effects (APE) was conducted on March 1, 2000. All structures within the APE were photographed, and later reviewed by NCDOT architectural historians and the State Historic Preservation Office (HPO). None of the properties were considered eligible, and in a concurrence form dated June 1, 2000 the State Historic Preservation Officer (SHPO) concurred that there are no historic architectural resources either listed in or eligible for listing in the National Register of Historic Places within the APE. A copy of the concurrence form and the SHPO's memorandum of March 1, 2001, 2001 are included in the Appendix.

C. Archaeology

The State Historic Preservation Officer (SHPO), in a memorandum dated March 1, 2001 stated that " We have conducted a review of the project and are aware of no properties of architectural, historic, or archaeological significance which would be affected by the project. Therefore, we have no comment on the project as currently proposed." Based upon this memorandum, no archaeological investigations are required. A copy of the SHPO's memorandum is included in the Appendix.

VII. ENVIRONMENTAL EFFECTS

The project is expected to have an overall positive impact. Replacement of the inadequate bridge will result is safer traffic operations.

The project is considered to be a Federal "Categorical Exclusion" due to its limited scope and lack of substantial environmental consequences.

The bridge replacement will not have an adverse effect on the quality of the human or natural environment with the use of the current North Carolina Department of Transportation standards and specifications.

The project is not in conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from construction of the project.

No adverse impact on families or communities is anticipated. Right-of-Way acquisition will be limited. No relocates are expected with implementation of the proposed alternative.

In compliance with Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations) a review was conducted to determine whether minority or low income populations were receiving disproportionately high and adverse human health or environmental impacts as a result of this project. The investigation determined the project would not disproportionately impact any minority or low income populations.

No adverse impact on public facilities or services is anticipated. The project is not expected to adversely affect social, economic or religious opportunities in the area.

The project does not involve any known Section 4(f) properties. There are no publicly-owned parks, recreational facilities, or wildlife and waterfowl refuges of the National, State, or local significance in the vicinity of the project.

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impacts to prime and important farmland soils by all land acquisition and construction projects. Prime and important farmland soils are defined by the Natural Resources Conservation Service (NRCS). Since there are no prime or important farmlands in the immediate vicinity as a result on the suburban character of the land uses, the Farmland Protection Policy does not apply.

A GeoEnvironmental Impact Evaluation was conducted along the project. Based on the field reconnaissance survey and a review of the Geographical Information Service (GIS) map, there were no anticipated Underground Storage Tank (UST) impacts, no Superfund sites, no regulated or unregulated landfills or dumpsites

within the project limits. Therefore, there should be no environmental liability concerns for this project.

The project is located in Mecklenburg County, which is within the Charlotte-Gastonia nonattainment area for ozone (O_3) and the Charlotte nonattainment area for carbon monoxide (CO) as defined by the EPA. The 1990 Clean Air Act Amendments (CAAA) designated these areas as "moderate" nonattainment area O_3 and CO. However, due to improved monitoring data, these areas were redesigned as "maintenance" for O_3 on July 5, 1995, and "maintenance" fro CO on September 18, 1995. Section 176(c) of the CAAA requires that transportation plans, programs, and projects conform to the intent of the state air quality implementation plan (SIP). All appropriate transportation control measures included in the SIP for Mecklenburg County have been completed. The Mecklenburg-Union MPO 2025 Long Range Transportation Plan (LRTP) and the 2004-2010 Metropolitan Transportation Improvement Program (MTIP) has been determined to conform to the intent of the SIP. The USDOT air quality conformity approval of the LRTP was April 15, 2002 and the USDOT air quality conformity approval of the MTIP was October 1, 2003. The current conformity determination is consistent with the final conformity rule found in 40 CFR Parts 51 and 93. There have been no substantial changes in the project's design concept or scope, as used in conformity analyses.

This project is an air quality "neutral" project, so it is not required to be included in the regional emission analysis (if applicable) and a project level CO analysis is not required. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520. This evaluation completes the assessment requirements for air quality of the 1990 Clean Air Act Amendments and the NEPA process and no additional reports are necessary.

Since the project is located along the existing alignment and will not substantially increase traffic volumes, the impact of noise levels will not be substantial due to the existing development within the project area. Noise levels will increase during construction, but the increase will only be temporary. Also, construction activities are usually conducted only during daylight hours along project of this nature. Therefore, traffic noise reports are considered unnecessary. This noise assessment completes the requirements for evaluating highway traffic noise in Title 23 of the Code of Federal Regulations, Part 772

Mecklenburg County is a participant in the National Flood Insurance Program. The project area is included in a detailed study for Irvins Creek in Mecklenburg County. Bridge No. 36 is located in a 100 year Federal Emergency Management Agency (FEMA) floodplain. The base floodway elevation is listed as 659.3 feet. The floodplain for Irvins Creek at the project crossing is shown in Figure 6. The

final design of the bridge will be such that the backwater elevation will not encroach beyond the current 100-year floodplain limits. The length of the new structure may be increased or decreased as necessary to accommodate peak flows as determined by further hydrologic studies. The proposed replacement will not adversely affect the existing floodplain, or modify flood characteristics, and will have minimal impacts on the floodplain due to roadway encroachment. The existing drainage pattern will not be affected.

On the basis of the above discussion, it is concluded that no substantial adverse environmental impacts will result from implementation of this project.

VIII. PUBLIC INVOLVEMENT

On November 15, 2000, a scoping letter was mailed to federal, state and local agencies to solicit input regarding this bridge replacement. Coordination with Town of Mint Hill was conducted during the development of the preferred alternative. A Citizens Informational Workshop was held on Thursday, June 24, 2003, in the Mint Hill Town Hall.

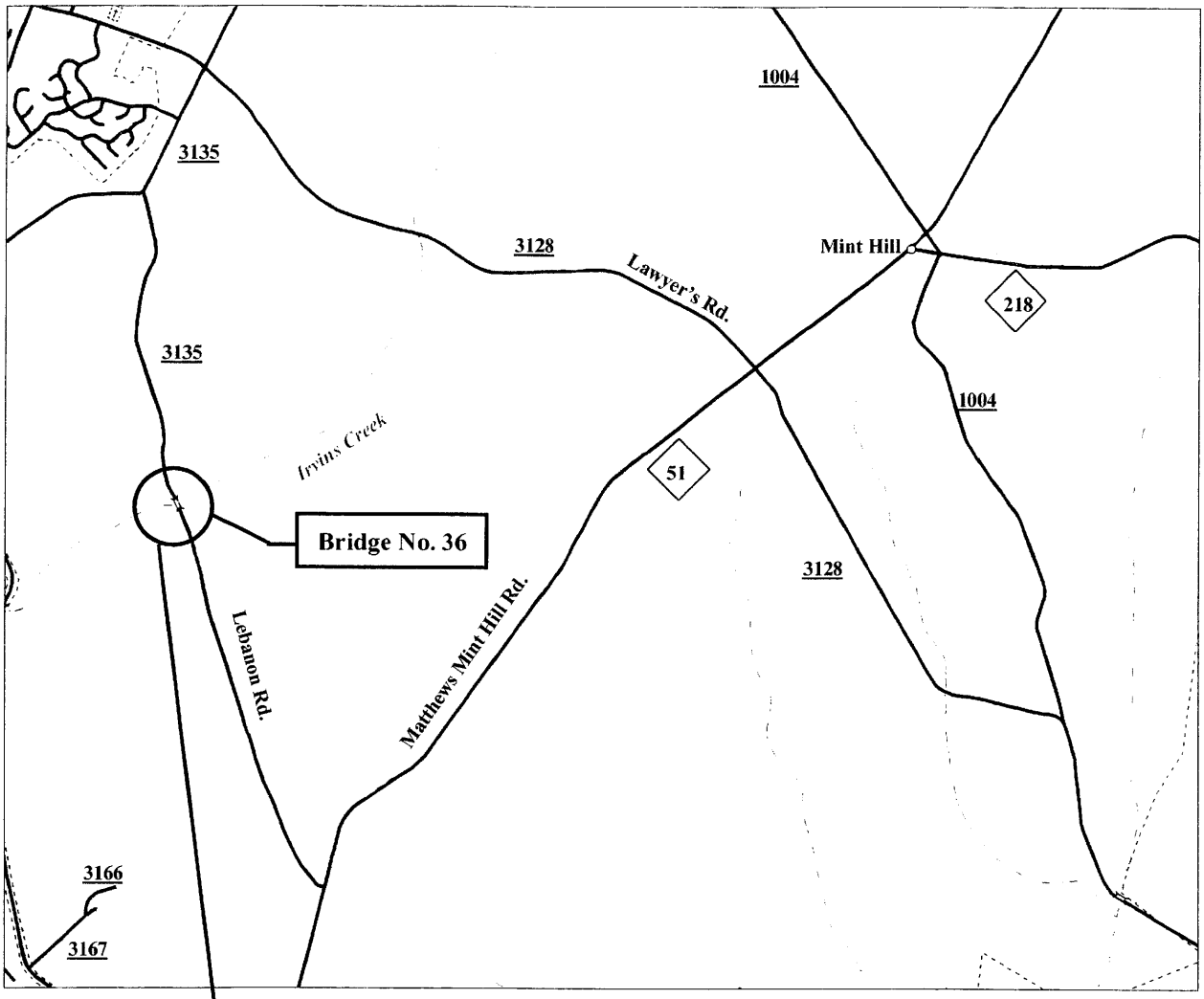
IX. AGENCY COMMENTS

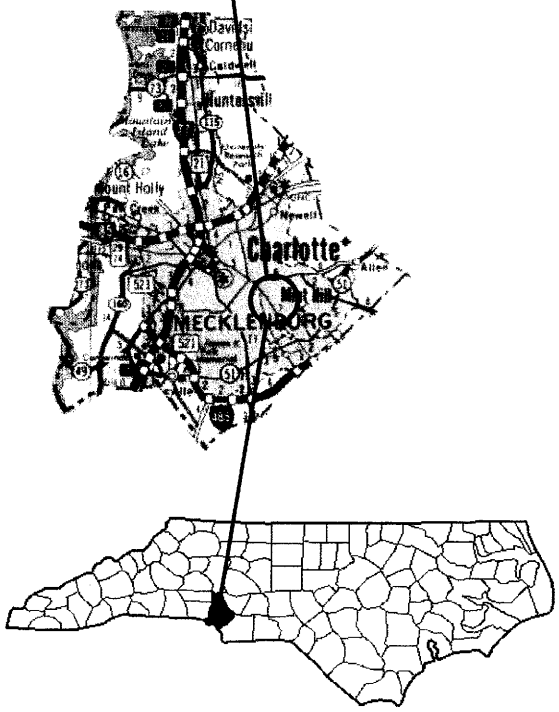
United States Department of the Interior - Fish and Wildlife Service

Comment: If Schweinitz's sunflower (*Helianthus shweinitzii*) occurs in the project area additional consultation will be required.

Response: No individuals of Schweinitz's sunflower were identified within the study corridor. Based on available information and results of an on-site survey, the proposed project is not likely to adversely affect the Schweinitz's sunflower.

FIGURES





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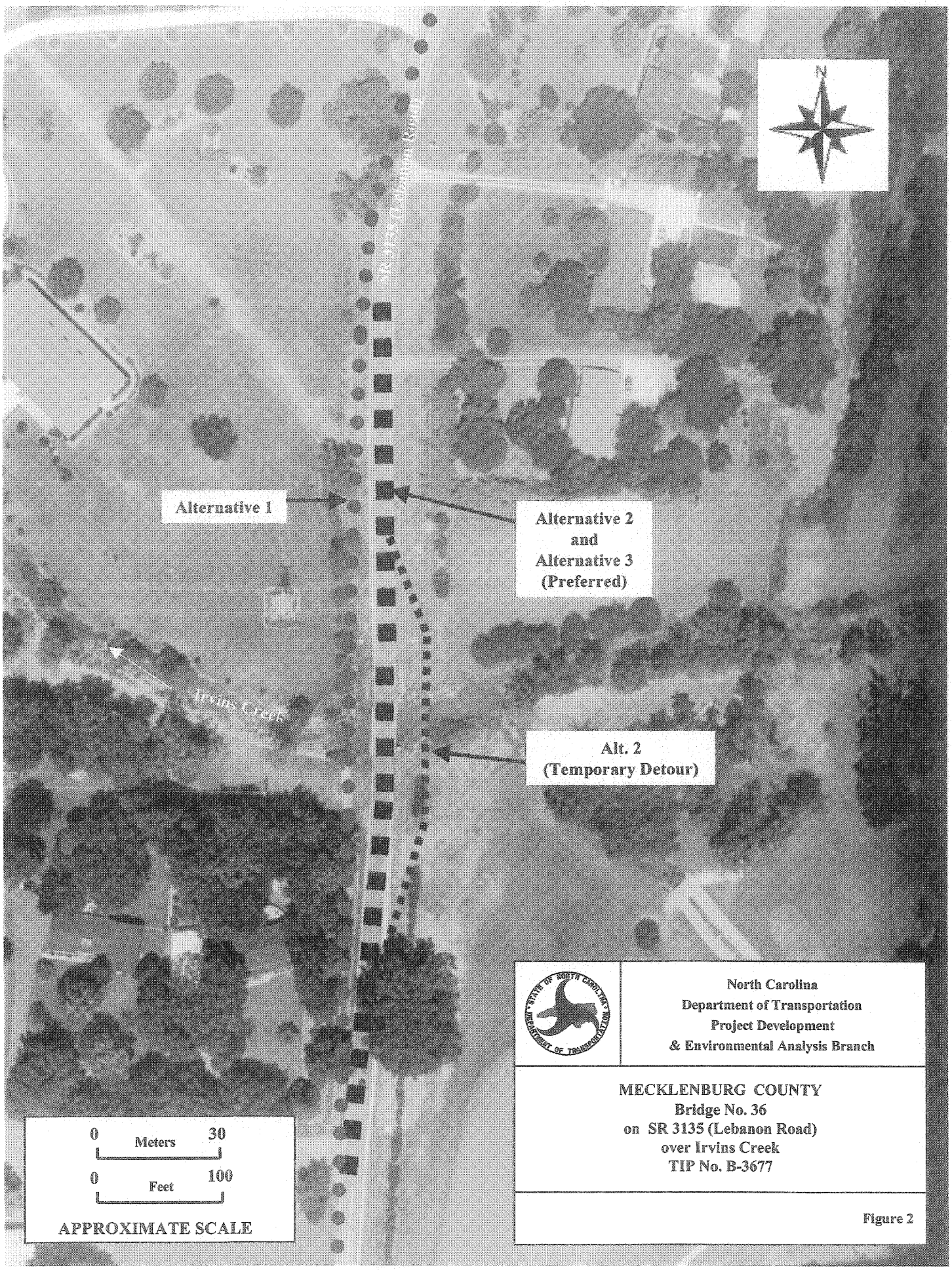
APPROXIMATE SCALE

North Carolina
Department of Transportation
Project Development
& Environmental Analysis Branch

MECKLENBURG COUNTY
Bridge No. 36
on SR 3135 (Lebanon Road)
over Irvins Creek
TIP No. B-3677

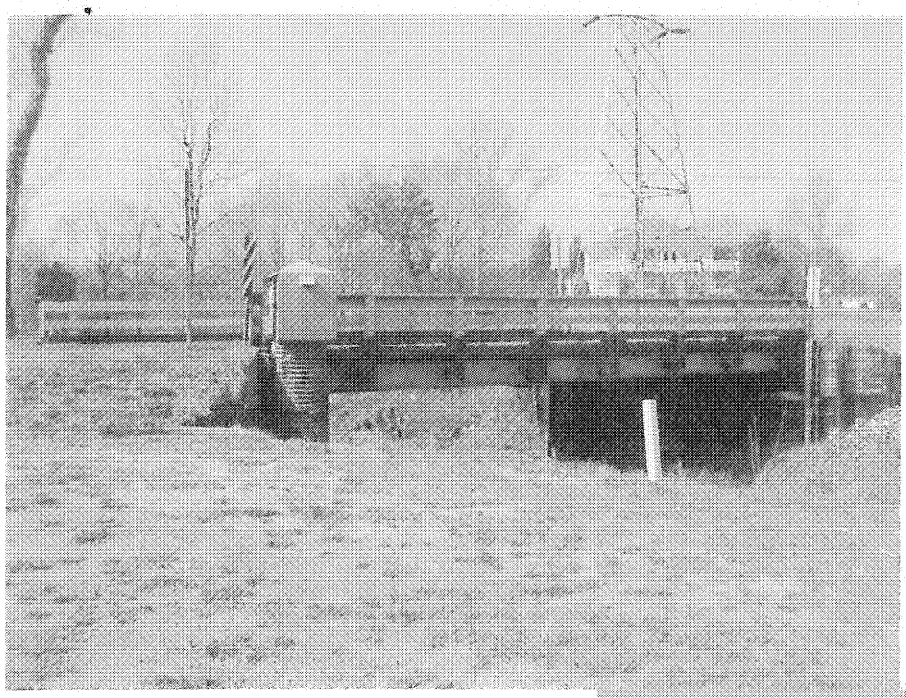
Figure 1



North Carolina
Department of Transportation
Project Development
& Environmental Analysis Branch

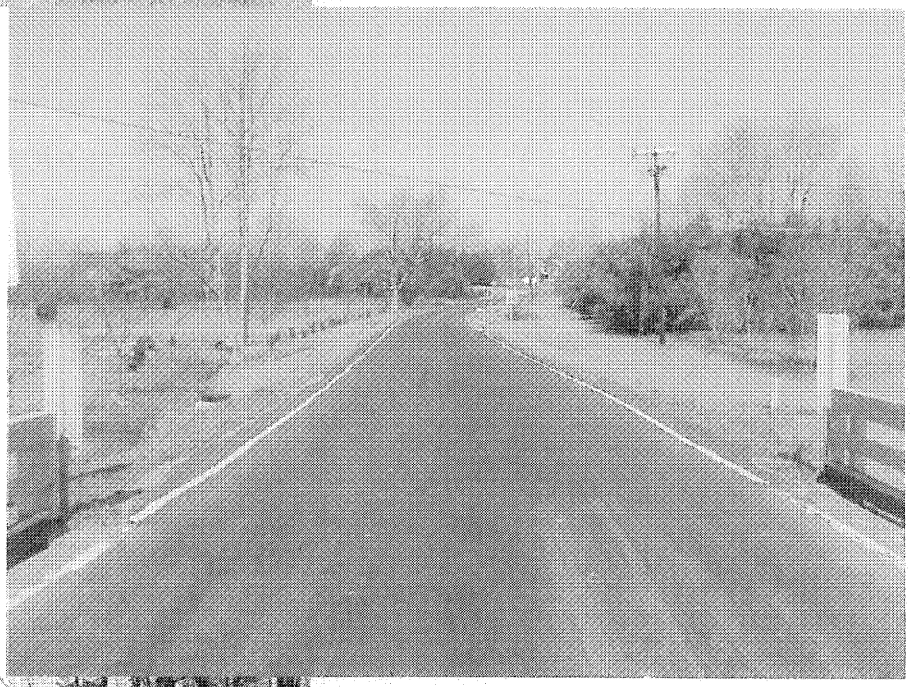
MECKLENBURG COUNTY
Bridge No. 36
on SR 3135 (Lebanon Road)
over Irvins Creek
TIP No. B-3677

Figure 2



SIDE VIEW
LOOKING WEST

NORTH APPROACH
LOOKING NORTH

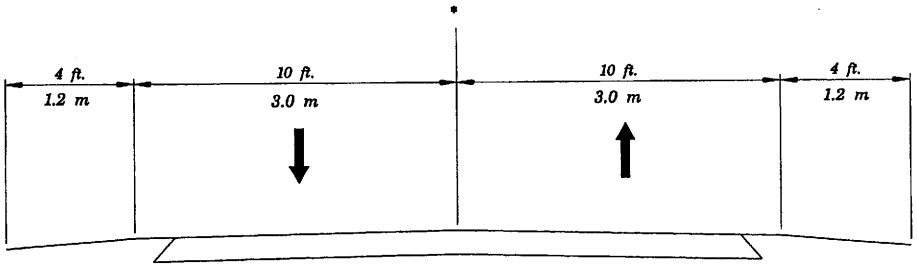


SOUTH APPROACH
LOOKING SOUTH

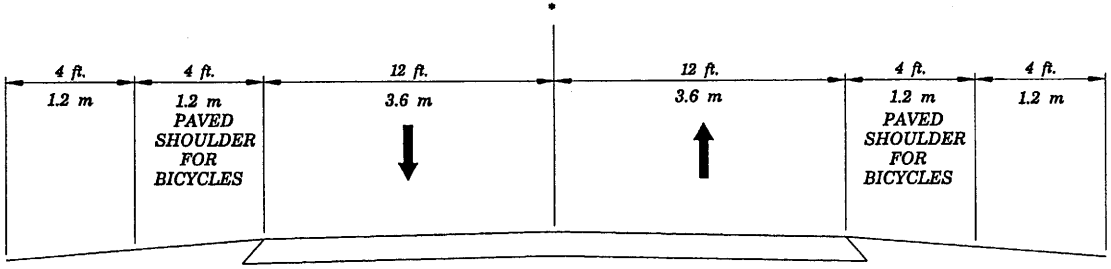
North Carolina
Department of Transportation
Project Development
& Environmental Analysis Branch

MECKLENBURG COUNTY
Bridge No. 36
on SR 3135 (Lebanon Road)
over Irvins Creek
TIP No. B-3677

Figure 3



TYPICAL APPROACH SECTION
(EXISTING)



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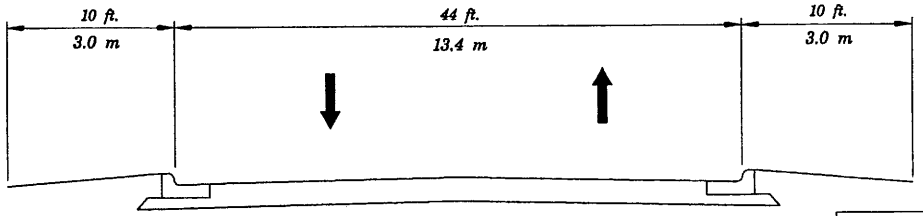
(PROPOSED)



TYPICAL APPROACH SECTION
AT PROPOSED BRIDGE

FUNCTIONAL CLASSIFICATION: URBAN COLLECTOR

AVERAGE DAILY TRAFFIC

(EXISTING)	*2000* =	*5,500*
(DESIGN YR.)	*2030* =	*21,100*

North Carolina
Department of Transportation
Project Development
& Environmental Analysis Branch

MECKLENBURG COUNTY
Bridge No. 36
on SR 3135
over Irvins Creek
TIP No. B-3677

Figure 4

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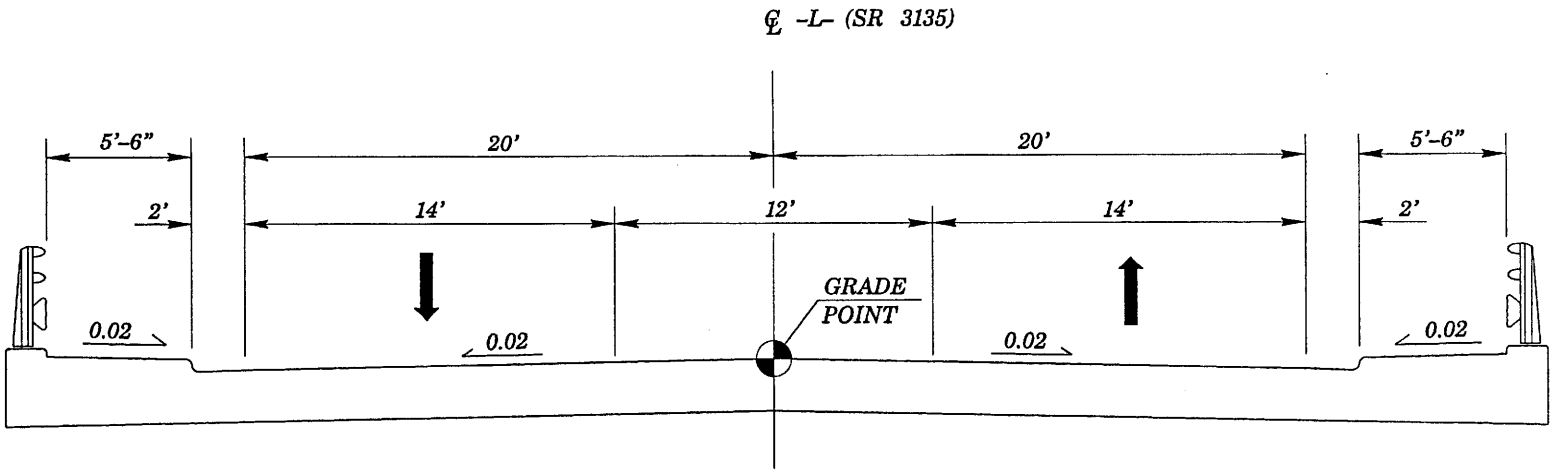

PROPOSED TYPICAL BRIDGE SECTION

FUNCTIONAL CLASSIFICATION: URBAN COLLECTOR

AVERAGE DAILY TRAFFIC

(EXISTING)	*2000* =	*5,500*
(DESIGN YR.)	*2030* =	*21,100*

North Carolina
Department of Transportation
Project Development
& Environmental Analysis Branch

MECKLENBURG COUNTY
Bridge No. 36
on SR 3135
over Irvins Creek
TIP No. B-3677

Figure 5

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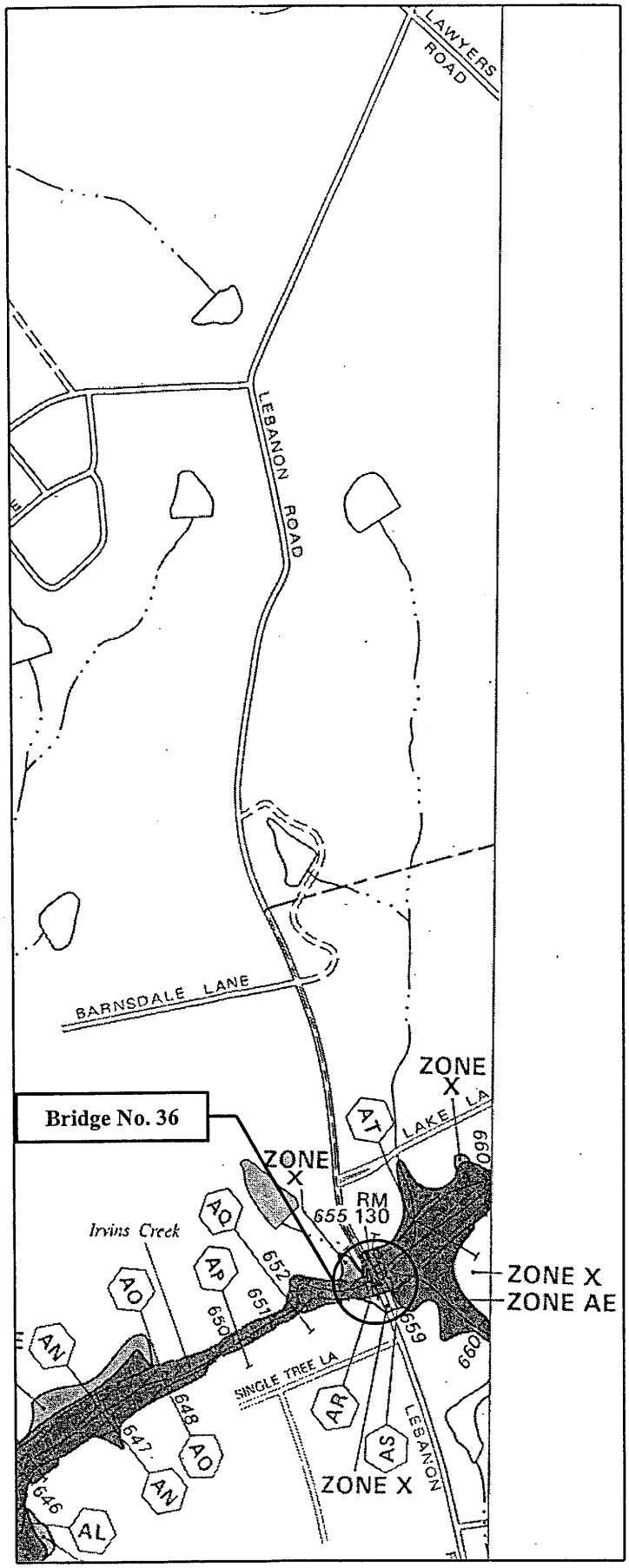

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FEET

APPROXIMATE SCALE

FEMA – Floodplain Map of Project Area

North Carolina
Department of Transportation
Project Development
& Environmental Analysis Branch

MECKLENBURG COUNTY
Bridge No. 36
on SR 3135 (Lebanon Road)
over Irvins Creek
TIP No. B-3677

Figure 6

APPENDIX

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801

January 25, 2001

Mr. William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Gilmore:

Subject: Bridge Replacements: B-3677, Mecklenburg County; B-3822, Catawba County; B-3840, Gaston County; B-3700, Stanly County; B-3828, Cleveland County; B-3839, B-3454, Forsyth County; B-3421, Cabarrus County; B-3637, Davie County; B-3835, Davie-Forsyth Counties; B-3404, Anson County; DOT contractor TGS Engineers

We have reviewed these projects and provide comments in accordance with the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e), and Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act).

The information we received for these 11 projects does not include descriptions of the structures that will replace the existing bridges, nor does it include any environmental information regarding the streams or whether or not habitat assessments or surveys for rare species have been conducted for any of these projects. Therefore, our comments are primarily limited to the known locations of listed species and species of federal concern. When the Categorical Exclusions are prepared and more information is available regarding environmental effects we can offer more substantive comments.

Enclosed are species lists from the nine counties included in this package. These lists provide the names of species that are on the Federal List of Endangered and Threatened Wildlife and Plants, as well as species of federal concern. Species of federal concern are not legally protected under the Act and are not subject to any of its provisions, including Section 7, unless they are formally proposed or listed as endangered or threatened. We are including these species in our response to give you advance notification and to request your assistance in protecting them if any are found in the vicinity of your projects. Our records indicate the following:

1. B-3822, Catawba County; B- 3840, Gaston County; B-3839, B-3454, Forsyth County; B-3421, Cabarrus County; B-3637, Davie County. There are no known locations of species of concern near these projects. However, we recommend surveying each of the project areas for

species prior to any further planning or on-the-ground activities to ensure no adverse impacts occur.

2. B-3677, Mecklenburg County; B-3700, Stanly County; B-3404, Anson County. Our records for these counties indicate known locations for the federally endangered Schweinitz's sunflower (*Helianthus schweinitzii*) in the vicinity of these projects. If this species occurs in the project areas, additional consultation will be required.

3. B-3828, Cleveland County. Our records for Cleveland County indicate there is a known location of the federally threatened dwarf-flowered heartleaf (*Hexastylis naniflora*) near the project. If this species occurs in the project area, additional consultation will be required.

4. B-3835, Davie-Forsyth Counties. Our records indicate there is a known location of the federally endangered Michaux's sumac (*Rhus michauxii*) near the project. If this species occurs in the project area, additional consultation will be required.

We are interested in the types of structures that will replace these existing bridges and would recommend spanning structures, preferably bridges, in all cases. We look forward to reviewing the completed categorical exclusion documents.

If you have questions about these comments, please contact Ms. Marella Buncick of our staff at 828/258-3939, Ext. 237. In any future correspondence concerning these projects, please reference our Log Number 4-2-01-252.

Sincerely,

Brian P. Cole

Brian P. Cole
State Supervisor

Enclosure

cc:
John Conforti, Project Development and Environmental Analysis Branch, North Carolina Department of Transportation, 1548 Mail Service Center, Raleigh, North Carolina 27699-1548
Mr. Ron Linville, Western Piedmont Region Coordinator, North Carolina Wildlife Resources Commission, 3855 Idlewild Road, Kernersville, North Carolina 27284-9180
Ms. Cynthia Van Der Wiele, North Carolina Department of Environment and Natural Resources Division of Water Quality, Wetlands Section, 1621 Mail Service Center, Raleigh, North Carolina 27699-1621

ENDANGERED, THREATENED, AND CANDIDATE SPECIES AND FEDERAL SPECIES OF CONCERN, BY COUNTY, IN NORTH CAROLINA

This list was adapted from the North Carolina Natural Heritage Program's County Species List. It is a listing of North Carolina's federally listed and proposed endangered, threatened, and candidate species and Federal species of concern (for a complete list of rare species in the state, please contact the North Carolina Natural Heritage Program). The information in this list is compiled from a variety of sources, including field surveys, museums and herbariums, literature, and personal communications. The North Carolina Natural Heritage Program's database is dynamic, with new records being added and old records being revised as new information is received. Please note that this list cannot be considered a definitive record of listed species and Federal species of concern, and it should not be considered a substitute for field surveys.

Critical habitat: Critical habitat is noted, with a description, for the counties where it is designated.

Aquatic species: Fishes and aquatic invertebrates are noted for counties where they are known to occur. However, projects may have effects on downstream aquatic systems in adjacent counties.

Sea turtles: Sea turtles occur in coastal waters and nest along beaches. This list includes sea turtles in the counties where they are known to nest. The U.S. Fish and Wildlife Service has jurisdiction over sea turtle issues on terrestrial systems; the National Marine Fisheries Service has authority over sea turtles in coastal waters.

Manatees: Manatees occur throughout North Carolina's coastal waters; this list includes manatees in counties where there are known concentrations. The U.S. Fish and Wildlife Service has consultation and recovery responsibility for manatees.

COMMON NAME	SCIENTIFIC NAME	STATUS
ANSON COUNTY		
Vertebrates		
Shortnose sturgeon	*Acipenser brevirostrum*	Endangered
Bald eagle	*Haliaeetus leucocephalus*	Threatened (proposed for delisting)
Carolina redhorse	*Moxostoma* sp.	FSC
Robust redhorse	*Moxostoma robustum*	FSC
Red-cockaded woodpecker	*Picoides borealis*	Endangered
Vascular Plants		
Bog spicebush	*Lindera subcoriacea*	FSC
Schweinitz's sunflower	*Helianthus schweinitzii*	Endangered
CABARRUS COUNTY		
Vertebrates		
Carolina darter	*Etheostoma collis collis*	FSC

Invertebrates

Pee Dee crayfish ostracod	*Dactylocythere peedeensis*	FSC*
Carolina heelsplitter	*Lasmigona decorata*	Endangered**

Vascular Plants

Schweinitz's sunflower	*Helianthus schweinitzii*	Endangered
Heller's trefoil	*Lotus helleri*	FSC

CATAWBA COUNTY

Invertebrates

Catawba crayfish ostracod	*Dactyloctythere isabelae*	FSC

Vascular Plants

Dwarf-flowered heartleaf	*Hexastylis naniflora*	Threatened
Sweet pinesap	*Monotropsis odorata*	FSC

CLEVELAND COUNTY

Vascular Plants

Dwarf-flowered heartleaf	*Hexastylis naniflora*	Threatened
Sweet pinesap	*Monotropsis odorata*	FSC
Carolina saxifrage	*Saxifraga caroliniana*	FSC

DAVIE COUNTY

Vascular Plants

Heller's trefoil	*Lotus helleri*	FSC*
Michaux's sumac	*Rhus michauxii*	Endangered

FORSYTH COUNTY

Vertebrates

Bog turtle	*Clemmys muhlenbergii*	T(S/A)[1]
Red-cockaded woodpecker	*Picoides borealis*	Endangered****

Vascular Plants

Small-anthered bittercress	*Cardamine micranthera*	Endangered

GASTON COUNTY

Vertebrates		
Bog turtle	*Clemmys muhlenbergii*	T(S/A)[1]
Bald eagle	*Haliaeetus leucocephalus*	Threatened (proposed for delisting)
Vascular Plants		
Georgia aster	*Aster georgianus*	C1
Schweinitz's sunflower	*Helianthus schweinitzii*	Endangered

MECKLENBURG COUNTY

Vertebrates		
Carolina darter	*Etheostoma collis collis*	FSC
Bald eagle	*Haliaeetus leucocephalus*	Threatened (proposed for delisting)
Invertebrates		
Carolina heelsplitter	*Lasmigona decorata*	Endangered
Carolina creekshell	*Villosa vaughaniana*	FSC
Vascular Plants		
Georgia aster	*Aster georgianus*	C1
Tall larkspur	*Delphinium exaltatum*	FSC*
Smooth coneflower	*Echinacea laevigata*	Endangered*
Schweinitz's sunflower	*Helianthus schweinitzii*	Endangered
Virginia quillwort	*Isoetes virginica*	FSC
Heller's trefoil	*Lotus helleri*	FSC
Michaux's sumac	*Rhus michauxii*	Endangered*

STANLY COUNTY

Vertebrates		
Carolina darter	*Etheostoma collis collis*	FSC
Bald eagle	*Haliaeetus leucocephalus*	Threatened (proposed for delisting)
Invertebrates		
Brook floater	*Alasmidonta varicosa*	FSC
Carolina creekshell	*Villosa vaughaniana*	FSC
Vascular Plants		
Georgia aster	*Aster georgianus*	C1
Schweinitz's sunflower	*Helianthus schweinitzii*	Endangered
Butternut	*Juglans cinerea*	FSC
Heller's trefoil	*Lotus helleri*	FSC

Savanna cowbane	*Oxypolis ternata*	FSC
Yadkin River goldenrod	*Solidago plumosa*	FSC*
Riverbank vervain	*Verbena riparia*	FSC*

KEY:

Status	**Definition**
Endangered	A taxon "in danger of extinction throughout all or a significant portion of its range."
Threatened	A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."
Proposed	A taxon proposed for official listing as endangered or threatened.
C1	A taxon under consideration for official listing for which there is sufficient information to support listing.
FSC	A Federal species of concern--a species that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing).
T(S/A)	Threatened due to similarity of appearance (e.g., American alligator)--a species that is threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically endangered or threatened and are not subject to Section 7 consultation.
EXP	A taxon that is listed as experimental (either essential or nonessential). Experimental, nonessential endangered species (e.g., red wolf) are treated as threatened on public land, for consultation purposes, and as species proposed for listing on private land.

Species with 1, 2, 3, or 4 asterisks behind them indicate historic, obscure, or incidental records.

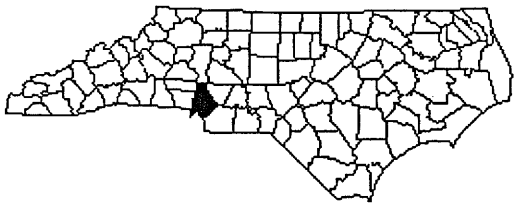
*Historic record - the species was last observed in the county more than 50 years ago.
**Obscure record - the date and/or location of observation is uncertain.
***Incidental/migrant record - the species was observed outside of its normal range or habitat.
****Historic record - obscure and incidental record.

[1]In the November 4, 1997, *Federal Register* (55822-55825), the northern population of the bog turtle (from New York south to Maryland) was listed as T (threatened), and the southern population (from Virginia south to Georgia)was listed as T(S/A) (threatened due to similarity of appearance). The T(S/A) designation bans the collection and interstate and international commercial trade of bog turtles from the southern population. The T(S/A) designation has no effect on land-management activities by private landowners in North Carolina, part of the southern population of the species. In addition to its official status as T(S/A), the U.S. Fish and Wildlife Service considers the southern population of the bog turtle as a Federal species of concern due to habitat loss.

Updated: 02/24/2003

U.S. Fish & Wildlife Service

MECKLENBURG COUNTY



Common Name	Scientific Name	Status
Vertebrates		
Bald eagle	*Haliaeetus leucocephalus*	Threatened(Proposed for delisting)
Carolina darter	*Etheostoma collis collis*	FSC
Invertebrates		
Carolina creekshell	*Villosa vaughnaniana*	FSC
Carolina heelsplitter	*Lasmigona decorata*	Endangered
Vascular Plants		
Georgia aster	*Aster georgianus*	C1
Heller's trefoil	*Lotus helleri*	FSC
Michaux's sumac	*Rhus michauxii*	Endangered*
Schweinitz's sunflower	*Helianthus schweinitzii*	Endangered
Smooth coneflower	*Echinacea laevigata*	Endangered*
Tall larkspur	*Delphinium exaltatum*	FSC*
Virginia quillwort	*Isoetes virginica*	FSC

KEY:

Status	Definition
Endangered -	A taxon "in danger of extinction throughout all or a significant portion of its range."
Threatened -	A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."
Proposed -	A taxon proposed for official listing as endangered or threatened.
C1 -	A taxon under consideration for official listing for which there is sufficient information to support listing.
FSC -	A Federal species of concern--a species that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing).

T(S/A) - Threatened due to similarity of appearance (e.g., American alligator)--a species that is threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically endangered or threatened and are not subject to Section 7 consultation.

EXP - A taxon that is listed as experimental (either essential or nonessential). Experimental, nonessential endangered species (e.g., red wolf) are treated as threatened on public land, for consultation purposes, and as species proposed for listing on private land.

Species with 1, 2, 3, or 4 asterisks behind them indicate historic, obscure, or incidental records.

*Historic record - the species was last observed in the county more than 50 years ago.

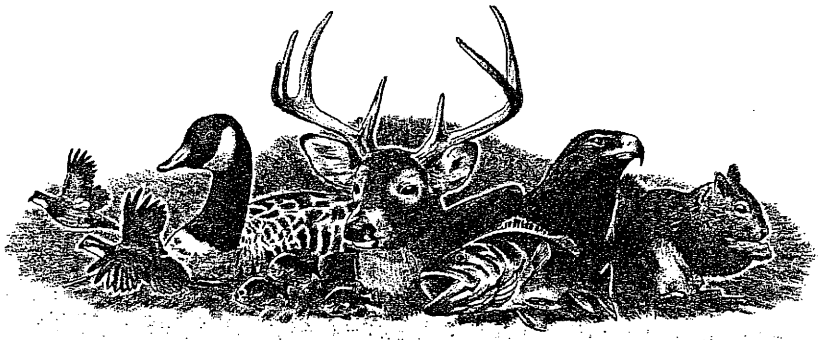
**Obscure record - the date and/or location of observation is uncertain.

***Incidental/migrant record - the species was observed outside of its normal range or habitat.

****Historic record - obscure and incidental record.

For additional information regarding this Web page, contact Carolyn Wells, in Asheville, NC, at carolyn_wells@fws.gov
Visit the North Carolina ES Homepage
Visit the U.S. Fish and Wildlife Service Home Page

Keywords={same keywords listed above - used for search tools}



North Carolina Wildlife Resources Commission

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

TO: John Conforti
Project Engineer, NCDOT

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program

DATE: January 2, 2001

SUBJECT: NCDOT Bridge Replacements in Anson, Cabarrus, Catawba, Cleveland, Davie, Forsythe, Gaston, Guilford, Mecklenburg, Randolph, Rockingham, and Stanly counties of North Carolina. TIP Nos. B-3404, B-3421, B-3822, B-3828, B-3637, B-3835, B-3454, B-3839, B-3840, B-3337, B-3652, B-3851, B-3677, B-3506, B-3694, and B-3700.

Biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the information provided and have the following preliminary comments on the subject project. Our comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

On bridge replacement projects of this scope our standard recommendations are as follows:

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.

2. Bridge deck drains should not discharge directly into the stream.

3. Live concrete should not be allowed to contact the water in or entering into the stream.

4. If possible, bridge supports (bents) should not be placed in the stream.

5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should

be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.

6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the steam underneath the bridge.

7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.

8. In streams that contain threatened or endangered species, NCDOT biologist Mr. Tim Savidge should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.

9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.

10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.

11. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.

12. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.

13. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.

14. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.

15. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.

16. During subsurface investigations, equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

If corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used:

1. The culvert must be designed to allow for fish passage. Generally, this means that the culvert or pipe invert is buried at least 1 foot below the natural stream bed. If

multiple cells are required the second and/or third cells should be placed so that their bottoms are at stream bankful stage (similar to Lyonsfield design). This could be accomplished by constructing a low sill on the upstream end of the other cells that will divert low flows to another cell. This will allow sufficient water depth in the culvert or pipe during normal flows to accommodate fish movements. If culverts are long, notched baffles should be placed in reinforced concrete box culverts at 15 foot intervals to allow for the collection of sediments in the culvert, to reduce flow velocities, and to provide resting places for fish and other aquatic organisms moving through the structure.

2. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage.

3. Culverts or pipes should be situated so that no channel realignment or widening is required. Widening of the stream channel at the inlet or outlet of structures usually causes a decrease in water velocity causing sediment deposition that will require future maintenance.

4. Riprap should not be placed on the stream bed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. B-3404 – Anson County – Bridge No. 314 over South Fork Jones Creek. We have no specific comments. We are not aware of any threatened of endangered species in the project vicinity.

2. B-3421 – Cabarrus County – Bridge No. 266 over Norfolk and Southern Railway. No comment.

3. B-3822 – Catawba County – Bridge No. 8 over unnamed tributary to the Catawba River. We request that High Quality Sedimentation and Erosion Control Measures be used due to the DWQ water quality classification of WS-IV. We are not aware of any threatened of endangered species in the project vicinity.

4. B-3828 – Cleveland County – Bridge No. 233 over Buffalo Creek. We have no specific comments. We are not aware of any threatened of endangered species in the project vicinity.

5. B-3637 – Davie County – Bridge No. 37 over I-40. No comment.

6. B-3835 – Davie-Forsyth counties – Bridge No. 35 over the Yadkin River. We request that High Quality Sedimentation and Erosion Control Measures be used due to the DWQ water quality classification of WS-IV. We request that the new bridge span the adjacent wetlands

entirely. The old fill causeways should then be removed and graded to natural ground level. We are not aware of any threatened of endangered species in the project vicinity.

7. B-3454 – Forsyth County – Bridge No. 260 over Muddy Creek. We have no specific comments. We are not aware of any threatened of endangered species in the project vicinity.

8. B-3839 – Forsyth County – Bridge No.139 over Fishers Branch. We have no specific comments. We are not aware of any threatened of endangered species in the project vicinity.

9. B-3840 – Gaston County – Bridge No. 52 over South Crowders Creek. We have no specific comments. We are not aware of any threatened of endangered species in the project vicinity.

10. B-3337 – Guilford County – Bridge No. 527 over North Buffalo Creek. We have no specific comments. We are not aware of any threatened of endangered species in the project vicinity.

11. B-3652 – Guilford County – Bridge No. 20 over the Deep River. SR 4121 crosses the Deep River just below the dam of High Point City Lake. This area supports good numbers of sunfish and may support a tailrace fishery. Therefore, we request that no in-water work be preformed from April 1 to May 31. We request that High Quality Sedimentation and Erosion Control Measures be used due to the DWQ water quality classification of WS-IV. We are not aware of any threatened of endangered species in the project vicinity.

12. B-3851 – Guilford County – Bridge No. 21 over US 29/70. No comment.

13. B-3677 – Mecklenburg County – Bridge No. 36 over Greasy Creek. We have no specific comments. We are not aware of any threatened of endangered species in the project vicinity.

14. B-3506 – Randolph County – Bridge No. 226 over Richland Creek. Richland Creek is a medium sized stream that supports good populations of sunfish. Therefore, we request that no in-water work be preformed from April 1 to May 31. We are not aware of any threatened of endangered species in the project vicinity.

15. B-3694 – Rockingham County – Bridge No. 55 over the Belews Lake Spillway. This bridge appears to be just downstream of the Belews Lake dam. This area supports good numbers of sunfish and may support a tailrace fishery. Therefore, we request that no in-water work be preformed from April 1 to May 31. We request that High Quality Sedimentation and Erosion Control Measures be used due to the DWQ water quality classification of WS-IV. We are not aware of any threatened of endangered species in the project vicinity.

16. B-3700 – Stanly County – Bridge No. 187 over Long Creek. This segment of Long Creek may support the state listed Carolina darter. Therefore, we request that High Quality Sedimentation and Erosion Control Measures be used to minimize project impacts to this species.

We request that NCDOT routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. The NCDOT should install and maintain sedimentation control measures throughout the life of the project and prevent wet concrete from contacting water in or entering into these streams. Replacement of bridges with spanning structures of some type, as opposed to pipe or box culverts, is recommended in most cases. Spanning structures allow wildlife passage along streambanks, reducing habitat fragmentation and vehicle related mortality at highway crossings.

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (919) 528-9886. Thank you for the opportunity to review and comment on these projects.

John Cofoti

North Carolina Department of Cultural Resources
State Historic Preservation Office
David L. S. Brook, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

March 1, 2001

MEMORANDUM

To: William D. Gilmore, P.E., Manager
Project Development & Environmental Analysis Branch

From: David Brook
Deputy State Historic Preservation Officer

Re: B-3677, Mecklenburg County, Replace Bridge
No. 36 on SR 3135 over Greasy Creek (Irwins), ER01-8188

Thank you for your memorandum of November 15, 2001, concerning the above project.

We have conducted a review of the project and are aware of no properties of architectural, historic, or archaeological significance, which would be affected by the project. Therefore, we have no comment on the project as currently proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919/733-4763.

DB:pda

cc: Mary Pope Furr, NC DOT
T. Padgett, NC DOT

	Location	Mailing Address	Telephone/Fax
Administration	507 N. Blount St, Raleigh, NC	4617 Mail Service Center, Raleigh 27699-4617	(919) 733-4763 •733-8653
Restoration	515 N. Blount St, Raleigh , NC	4613 Mail Service Center, Raleigh 27699-4613	(919) 733-6547 •715-4801
Survey & Planning	515 N. Blount St, Raleigh, NC	4618 Mail Service Center, Raleigh 27699-4618	(919) 733-4763 •715-4801

Federal Aid =BRSTP-3135(4) *TIP* =B-3677 *County*: Mecklenburg

CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Project Description: Replace Bridge No. 36 on SR 3135 over Irvins (Greasy) Creek

On June 1, 2000, representatives of the

- [x] North Carolina Department of Transportation (NCDOT)
- [x] Federal Highway Administration (FHWA)
- [x] North Carolina State Historic Preservation Office (SHPO)

Reviewed the subject project at

- [ ] a scoping meeting
- [x] photograph review session/consultation
- [ ] other

All parties present agreed

- [x] there are no properties over fifty years old within the project's area of potential effect.
- [x] there are no properties less than fifty years old which are considered to meet Criterion Consideration G within the project's area of potential effect.
- [ ] there are properties over fifty years old (list attached) within the project's area of potential effect, but based on the historical information available and the photographs of each property, properties identified as _____ are considered not eligible for the National Register and no further evaluation of them is necessary.
- [x] there are no National Register-listed properties located within the project's area of potential effect.

Signed:

Mary Pope Furr — 6·1·00
Representative, NCDOT — Date

Michael C. Dawson — 6/1/00
FHWA, for the Division Administrator, or other Federal Agency — Date

April Montgomery — 6/1/00
Representative, SHPO — Date

David Brook, Deputy — 6/9/00
State Historic Preservation Officer — Date

If a survey report is prepared, a final copy of this form and the attached list will be included.

John Curtis

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

DAVID MCCOY
SECRETARY

January 31, 2001

MEMORANDUM TO: William D. Gilmore, PE, Manager
Project Development and Environmental Analysis Branch

FROM: Curtis B. Yates, Director

SUBJECT: Replacement of Bridge No. 36 on SR 3135 (Lebanon Road)
Over Irving Creek,
Mecklenburg County, TIP Project No. B-3677

This memo is to respond to your request for comments on the subject bridge replacement project.

This section of SR 3135 (Lebanon Road) is shown as a preferred roadway for bicycling on the Charlotte/Mecklenburg Bicycle Suitability Map. AASHTO standard bicycle accommodations should be included on the replacement bridge and the approaches to the new bridge. In accordance with the Department's revised bridge policy (March 2000), appropriate pedestrian accommodations should be included on the replacement bridge since this section of SR 3135 is within in the urban area boundary.

We appreciate the opportunity to comment on the subject project. If there is a need for additional information, please contact T. P. Norman, Engineering Unit Head, at 715-2342.

CBY/tpn

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF BICYCLE & PEDESTRIAN TRANSPORTATION
1552 MAIL SERVICE CENTER
RALEIGH NC 27699-1552

TELEPHONE: 919-715-2342
FAX: 919-715-4422

WEBSITE: WWW.DOT.STATE.NC.US/TRANSIT/BICYCLE/
EMAIL: TNORMAN@DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
ROOM 304
RALEIGH NC

Town of Mint Hill

Office of the Mayor
Post Office Box 23457
Mint Hill, North Carolina 28227-0272
Telephone 704-545-9726

August 15, 2002

Ted H. Biggers, Jr.
Mayor

Mr. Ron Elmore
North Carolina Department of Transportation
P.O. Box 25201
Raleigh, NC 27611

Re: Lebanon Road Bridge Replacement B-3677

Dear Mr. Elmore:

This letter is in response to the Lebanon Road bridge replacement (B-3677) scheduled in the 2004-2010 Transportation Improvement Program for construction to begin in 2003. The town would like to recommend the attached cross-section for the bridge replacement for the following reasons:

1. Lebanon Road is a minor thoroughfare on the adopted thoroughfare plan for the Mecklenburg-Union Metropolitan Planning Organization's Region. Minor thoroughfares require a 70 ft. right-of-way with pavement width and designs that vary (see attached). The Town feels that the need for the bridge to be a three-way section at this location is critical to eventually accommodate left turns lanes on Lebanon for two substantially large subdivisions on each end of the bridge and the Pine Lake Country Club Golf Course especially with an Average Daily Traffic count that exceeds 5,000 cars per day.

2. The MPO has also adopted a resolution (see attached) recommending that all bridge replacements accommodate bicycles and pedestrians. In addition, the bicycle suitability map for Mecklenburg/Union rates Lebanon Road as moderate for bicycle travel.

3. Last, the Town of Mint Hill is committed to providing sidewalks throughout the town. We have expended funds to construct sidewalks and amended our zoning and subdivision ordinances to require sidewalks through the development process.

We greatly appreciate the opportunity to comment on this project . If there is a need for further information please contact Sherry Ashley, Planning Director at 704-545-9726.

Sincerely,

Ted H. Biggers
Mayor