Gray Bat Habitat Survey Report

for

TIP Project I-4400/I-4700

(WBS 34232.1.1)

Widening of I-26 from NC 225 (US 25 Connector) in Henderson County to NC 280/I-40 in Buncombe County

Buncombe County, North Carolina



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION Project Development and Environmental Analysis Unit Natural Environment Section

May 2013



Alderman Environmental Services, Inc.

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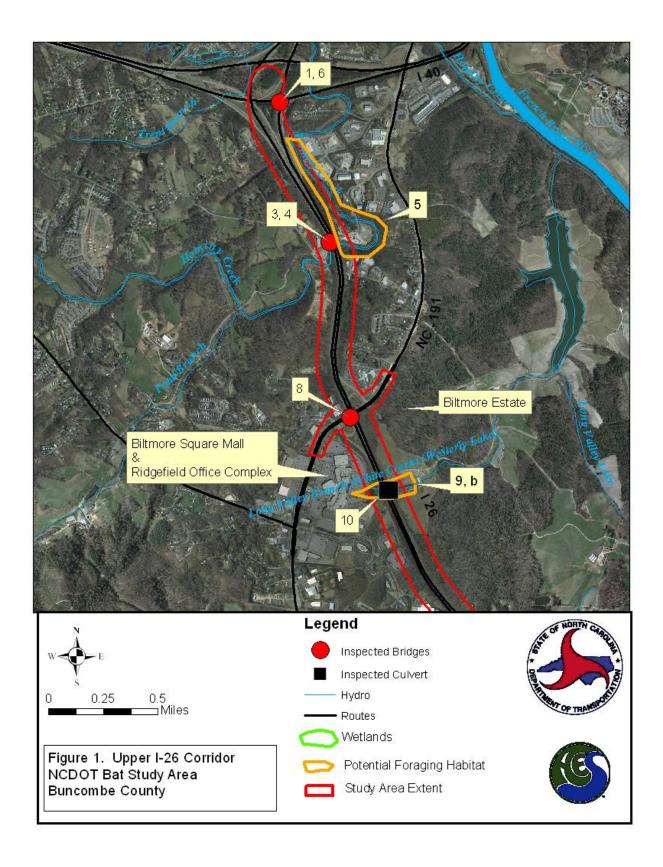
Widening of I-26 from NC 225 (US 25 Connector) in Henderson County to NC 280/I-40 in Buncombe County

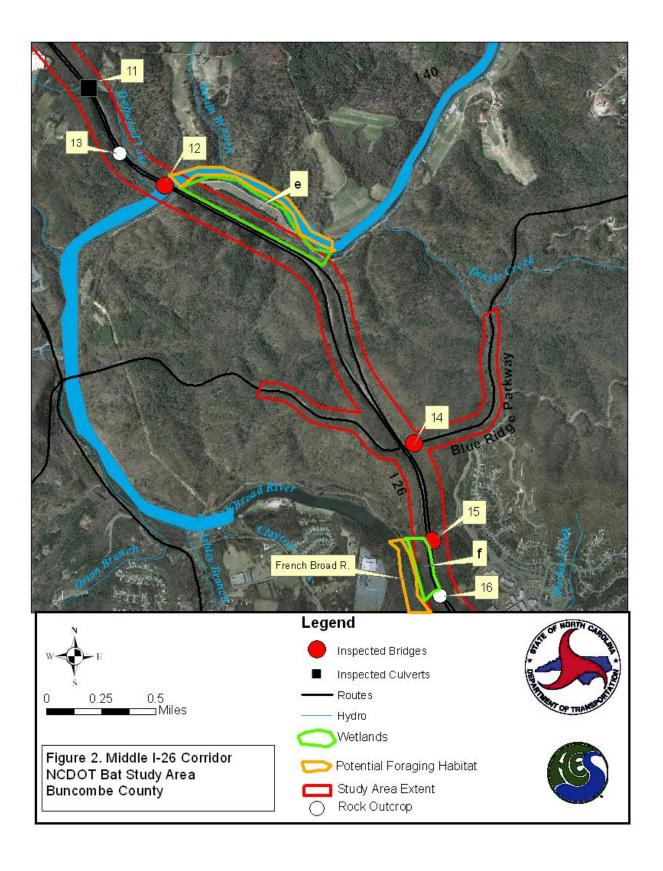
TIP: I-4400/I-4700 WBS: 34232.1.1 The North Carolina Department of Transportation (NCDOT) proposes to widen Interstate Highway 26 (I-26) from NC 225 (US 25 connector) in Henderson County to NC 280/I-40 in Buncombe County to six lanes. These projects are referred to as TIP project numbers I-4400 and I-4700, respectively. The existing roadway is a four-lane divided highway (two lanes in each direction), with a 44-foot median. The project area generally runs slightly northwest to southeast from the Interstate 40/240/26 junction to the North Carolina Highway 280 junction. The project study area consists of a 9.3-mile alignment, and an approximate 800-foot wide corridor, with expansions around interchanges (Figures 1-3).

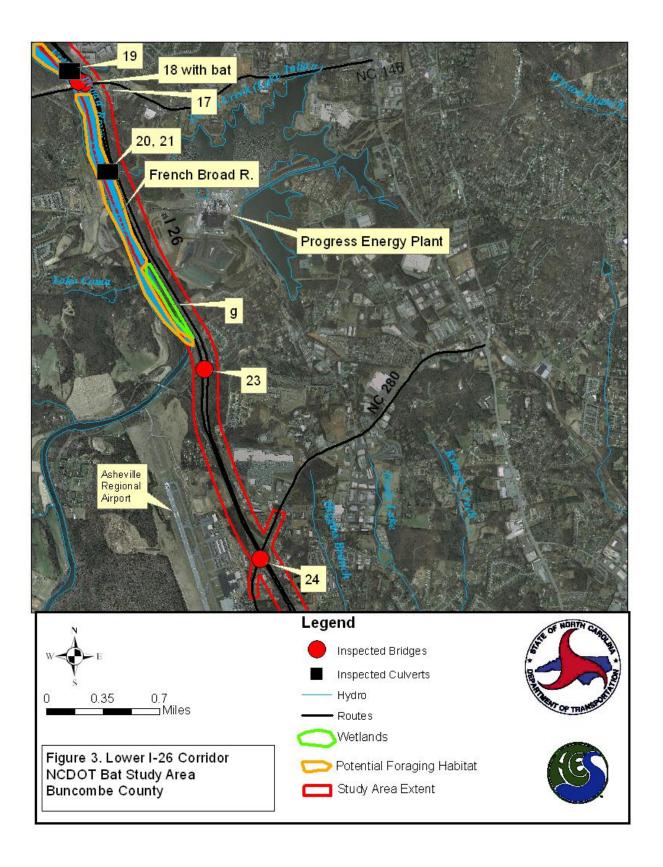
The gray bat (*Myotis grisescens*) is a federally-listed endangered species which the US Fish and Wildlife Service (USFWS) identifies as potentially occurring in Buncombe County, North Carolina. Surveys are required by the US Endangered Species Act (ESA), National Environmental Policy Act (NEPA), the North Carolina State Environmental Policy Act (SEPA), and other regulations and policies to determine potential project effects on this species. The gray bat is not listed by USFWS as potentially occurring in Henderson County; therefore no surveys for this species were conducted in that county.

The gray bat was listed as endangered in 1976 under the ESA throughout its range in the United States and retains that listing as well as North Carolina listing as endangered (NCGS 113-333). The gray bat is a small (0.25 - 0.56 ounces) insectivorous species in the genus *Myotis* that occurs in the central and southeastern US in areas with karst (limestone bedrock) geology (USFWS, 1982). It is a communally roosting cave obligate species, meaning that individuals roost in assemblages of conspecifics in caves both during the winter hibernation period as well as in the active period of spring/summer/fall of the year. Winter caves used for hibernation by gray bats tend to be large, deep, and vertical limestone caves with temperature range of 33.8-48.2 degrees Fahrenheit. Summer caves that support maternity colonies tend to include warmer portions of large caves (57.2-77 degrees F), while males and non-reproductive females are more widely distributed in smaller groups at a variety of caves throughout their range. Summer roost caves are usually within 0.62 miles of a river or reservoir over which the species almost exclusively forages (USFWS, 1982). Foraging has been documented over large rivers and reservoirs, often in proximity to the daytime roost caves; however, they may travel up to 21.7 miles from their roost to particular foraging areas over reservoirs or rivers (USFWS, 2009). Their diet consists largely of aquatic insects, and numerous studies have documented foraging over open water of rivers and reservoirs bordered by forested habitat. Records of gray bats foraging over open water where the adjacent shoreline has been cleared of forest do not exist (USFWS, 1982).

There are no known caves occupied by gray bats in North Carolina, either in the hibernation period or the summer active period. There are records of gray bats occurring (assumed during foraging) in Haywood County, North Carolina over the Pigeon River (NCWRC, pers. comm.) and three documented records from Buncombe County, though specific locations for those records are unclear (Robert Currie, USFWS pers. comm.; NCNHP database updated 2013). There are numerous records of gray bats occurring, including both roosts (caves) and foraging locations in eastern Tennessee counties adjacent to North Carolina (e.g. Greene and Sullivan counties, USFWS, 1982).







Within the project study area for NCDOT (TIP I-4400/I-4700), there are no known caves or abandoned subterranean mines that provide roosting habitat for gray bats. There are also no records of gray bats utilizing man-made structures (e.g. bridges or culverts) for roosting in NC (NCWRC, pers. comm.), although maternity colonies have been documented using bridges and culverts in other states (Keeley and Tuttle, 1999).

Specific objectives of the project were to find and investigate any potential roosting habitat and identify potential foraging habitat for gray bats. NCDOT provided a "Bat Habitat Assessment Form" to be completed for each potential roost as well as foraging habitat area.

Land use within the project area is dominated by the existing interstate corridor. Residential and commercial development occurs along segments of the corridor associated with road crossings, including NC 191, NC 146, and NC 280. There are several large and significant landholdings within the project area, including Biltmore Square Mall, and Ridgefield Commercial Development south of NC 191 and west of I-26, Progress Energy's Electric Utility Plant south of NC 146 and east of I-26, and the Asheville Regional Airport north of NC 280 and west of I-26. In addition, the Biltmore Estate is bisected by the I-26 corridor and includes several miles of forested land along the highway length and the only agricultural land (vineyard and small fields) within the study area. The US National Park Service's Blue Ridge Parkway crosses the project corridor approximately one mile north of NC 146. Hominy Creek, a medium sized (20-40 ft. wide) stream crosses the corridor and runs parallel to the interstate within the project area for approximately 3,000 feet. The French Broad River crosses the interstate corridor on the Biltmore Estate property and runs parallel to and within the project area for approximately 2.5 miles (Figures 1-3).

Survey Methods

We overlaid the project study area, including known bridges/box culverts, on satellite imagery in order to identify any areas of rock outcrops. We also used this approach to identify wooded areas that would need to be inspected on the ground for the presence of roosting and foraging habitat. Within the project study area we identified approximately twelve wooded miles that would require ground truthing for the presence of rock outcrops, caves, mines, culverts, or other roosting or foraging habitats. The remaining six miles were investigated from the roadside, since they were primarily open residential or commercial land that afforded quick verification of the presence of suitable habitat. In addition to walking the twelve identified miles, we also investigated end bents, rails, and deck expansion joints on each bridge and each box culvert within the project study area for potential roosting sties. Finally, habitats identified via satellite imagery as potential foraging habitat for gray bats were visited and assessed. For each rock outcrop, bridge, box culvert, and area of potential foraging habitat, we completed a NCDOT Bat Habitat Assessment Form, modified for this project to include GPS coordinates (see Appendix 2), and took pictures. Field Surveys were completed by Christopher McGrath (NCWRC Permit # 12-ES00358; USFWS Permit # TE82796A-0) and Joseph Alderman.

Results

A review of satellite imagery revealed no obvious rock outcroppings within the study area, or evidence of mines or caves. We used it to identify 12 miles within the project study area that we walked to visually search for and inspect roosting or foraging habitat. Table 1 (Appendix 1) is a compilation of the information contained in 26 separate Bat Habitat Assessment Forms completed at bridges, rock outcrops, box culverts, and potential foraging habitats for gray bats. Data forms for each site can be found in Appendix 3.

We investigated every bridge within the project area (see Table 1; Appendix 1 for details and references to photographs in Appendix 4, and Figures 1-3 for locations,). We examined crevices in each end wall, expansion joints, and bridge rails (when concrete). In addition to noting the width and depth of crevices that could potentially be used by roosting bats, we also looked for staining and the presence of guano which would indicate use by bats. Of all the bridges within the project area, we found evidence of bat use at only one bridge. Bridge # 100053 at site #18 (NC 146 over the French Broad River) had evidence of bat use (guano on south side of each end wall), and one *Myotis leibii* roosting on the southeast end wall crevice on the day we inspected it. The amount and size of guano suggest infrequent use by a few small sized bats like *Myotis leibii*. The rails of this same bridge also appeared to be suitable for bat use (the correct width and material) for potential bat use. The only other bridge which had suitable conditions for bat roosting in the rails of the bridge (a favorite roost spot of many bats) was bridge # 440240 at site #24 (NC 280 over I-26), though we found no evidence of bat use there. We did not find evidence of bat use at any other bridges, nor would we anticipate bat use, based upon evaluation of the crevices and other features of the bridges in the project area.

USFWS has requested that they be notified of the presence of any migratory bird nests. Three bridges in the project area showed evidence of use by birds (again, Figures 1-3 show locations). Bridge #100253, site #1 had an old eastern phoebe (*Sayornis phoebe*) on it. The Blue Ridge Parkway Bridge (#100205, site #14) has an active pair of northern ravens (*Corvus corax*) currently nesting on it. Bridge # 100053, site #18, in addition to being the only site with evidence of bat use, also has 18 cliff swallow (*Petrochelidon pyrrhonota*) nests on it. Cliff swallows are migrants and nest colonially and usually demonstrate nest site fidelity from year to year, so their return is likely imminent.

There were 7 concrete box culverts identified and investigated in the project (Sites 10, 11, 19, 20, and 21). Four of these were constructed for vehicle traffic under the interstate and the remainder carry streams. The box culverts range from approximately six foot square to 10' X 12'. Every one of them is very smooth with no wood or other surfaces potentially useful to roosting bats, and with very few (if any) cracks or crevices. We found no evidence (guano or staining) of use by any bats in any of the box culverts. Generally, they are too big, open, and smooth to offer sheltered roosts, perhaps have too much disturbance, or have unsuitable air flow and temperature regimes to be used by bats. The pictures below show examples.





Picture 10B. Site #10.

Picture 11B. Site #11.



Picture 19A. Site #19.

We found 2 small rock outcrops within the project area (site #13 and Site #16). Neither rock outcrop included roosting habitat for gray bats. They did not have significant overhangs or any evidence of caves associated with them. They both possessed significant fracturing of the rock faces such that some of the smaller myotid bats (e.g., *Myotis leibii* or *Myotis septentrionalis*) may potentially utilize them; however, we found no evidence of bat use at either site. Table 1 (Appendix 1) references the picture number for all photographs taken on the project, including all of the bridges, culverts, rock outcrops, and foraging habitats.





Picture 13A. Rock Outcrop at site #13.

Picture 16A. Rock Outcrop at site #16.

Gray bat foraging habitat consists of open water of larger rivers and lakes/reservoirs where adjacent shorelines are forested. We characterized the potential foraging habitat for gray bats in the project study area without regard to whether there are any gray bats in the area. In searching the project area for this habitat type, we found 5 areas of potential foraging habitat for gray bats (Figures 1-3). Hominy Creek (site #5, Figure 1) runs parallel to the interstate for approximately ½ mile. It is approximately 20-30 feet wide and partially bordered by woodlands. Its size and the amount of nearby development make it marginal foraging habitat for gray bats.



Picture 5A (upstream) and 5B (downstream) at site #5.

The next area of potential foraging habitat for gray bats is a complex of wetlands/ponds/lakes that includes the stormwater drainage pond for Biltmore Square Mall, immediately adjacent to the western side of I-26, connected by culvert to Westerly Lake of the Biltmore Estate, which is immediately adjacent to the eastern side of I-26 (site #9 and #b, Figure 1). These two ponds provide several acres of open water habitat and the drainage pond is somewhat surrounded by woodlands These waterbodies would provide marginal foraging habitat at best, because of the small area, surrounding land use (vineyard in the case of Westerly Lake) and the fact that they are bisected by I-26.





Picture 9A, site #9. Biltmore Mall drainage.

Picture bA, site b. Westerly Lake.

The remaining three potential foraging habitat sites for gray bats are similar in nature to each other in that they all are comprised of sizeable floodplain wetland complexes immediately adjacent to the French Broad River (see Figures 2 & 3, and site e, f, and g, in Table 1 in Appendix 1). In each case, the wetlands are fed by seepage from the toe of the hillslope as well as drainage from the highway, and run parallel to the river for several hundred yards. The French Broad River is good quality foraging habitat for gray bats due to its size (width, in particular), the substrate and water quality generally producing an abundance of aquatic insects, and its generally forested margins. Combining the river with these extensive wetland complexes only enhances the foraging habitat potential by adding to the insect foraging base and providing additional cover for predator avoidance while foraging over water. All three of these sites constitute good potential gray bat foraging habitat. In addition, site f is known to support bog turtles (*Glyptemys muhlenbergii*), a state Threatened species, further enhancing the ecological significance of these wetlands.



Picture eA. Site #e. Wetland adjacent to I-26 and French Broad River.

Conclusions

The project study area includes suitable foraging habitat for gray bats in at least three areas along the French Broad River, and perhaps marginal habitat in two other places. However, we found no evidence of roosting habitat for gray bats in any form (naturally occurring caves or man-made structures). While foraging habitat exists, there is no evidence that there are gray bats in the vicinity to make use of it. The 2009 Status Review for Gray Bat (USFWS) indicates that extensive study of gray bat populations has found travel distances up to 21.7 miles from roost sites to foraging areas, and that is even greater than the distances previous thought they would travel to forage (USFWS, 1982). In the case of this project, given that the closest known roost sites for gray bats occur in Tennessee (where karst geology occurs) and this project area is well over 25 miles to the closest point in Tennessee and even further from known roosts there, it is very unlikely that gray bats would be present and foraging in the project area. Therefore we conclude that TIP project I-4400/I-4700 will have no effect on gray bat populations.

References

- Currie, Robert. US Fish and Wildlife Service (Retired). Personal communications.
- Keeley, B. W. and M. D. Tuttle. 1999. Bats in American Bridges. Resource Publication No. 4. Bat Conservation International, Inc. Austin, TX. 41 pp.
- North Carolina Natural Heritage Program. Heritage Data Search website. Accessed 5/3/2013. http://portal.ncdenr.org/web/nhp/database-search.
- North Carolina Wildlife Resources Commission historical files and personal experience.
- US Fish and Wildlife Service. 1982. Gray Bat Recovery Plan. 143pp. http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A04J.
- US Fish and Wildlife Service. 2009. Gray Bat 5 Year Review: Summary and Evaluation. Columbia Missouri Ecological Services Office. 34 pp.

Qualifications of Principal Investigator: Christopher McGrath

Education

Master of Environmental Management, Natural Resources Ecology. Duke University, Durham, North Carolina. 1991.

Bachelor of Arts. Biology, minor in Anthropology. Skidmore College, Saratoga Springs, New York. 1989.

Professional Experience

Wildlife Diversity Program Coordinator, 2005-2012. North Carolina Wildlife Resources Commission.

Mountain Region Wildlife Diversity Supervisor, 2004-2005. North Carolina Wildlife Resources Commission.

Mountain Nongame Project Leader, 1994-2004. North Carolina Wildlife Resources Commission.

Wildlife Biologist, 1992-1994. North Carolina Wildlife Resources Commission. Contract Biologist, 1990-1992. North Carolina Wildlife Resources Commission.

Selected Professional Certifications

North Carolina Endangered Species Permit # 12-ES00358 for Bats, Northern Flying Squirrel, and Bog Turtle

US Fish and Wildlife Service Endangered Species Permit # TE82796A-0 for Bats, Northern Flying Squirrel, and Bog Turtle

Certified Wildlife Biologist ®, The Wildlife Society (since 2000)

Most recent rabies titer- 10/25/2011- 1.0 IU/ml

Experience and Qualifications

Mr. McGrath has been engaged in nongame and endangered species survey, research, monitoring, habitat management, and conservation for over 22 years. He has conducted research and surveys for a wide variety of species including freshwater fish and mussels, aquatic and terrestrial snails, mammals, birds, reptiles and amphibians. He has extensive experience with surveying and studying bats (volant and intra-hibernacula), northern flying squirrels, bog turtles, woodrats, green salamanders, peregrine falcons, songbirds, and freshwater mussels. Throughout his career with North Carolina Wildlife Resources Commission, he has been engaged on the review-end of NEPA and SEPA documentation and has extensive experience collaborating with the US Fish and Wildlife Service on Section 7 consultations and provision of technical guidance on endangered species to both the US Fish and Wildlife Service and permit applicants. Mr. McGrath has trained more than a dozen biologists in the capture, identification, and handling procedures and protocols with bats, flying squirrels, and bog turtles, as he advanced through the ranks of supervision and program coordination with the North Carolina Wildlife Resources Commission.

Appendix 1

Site Data

Table 1. Compilation of site assessment data forms.

		Road Name/SR											
Site #:	Date:	Number:	Bridge #	Waterbody:	Lattitude:	Longitude:	Canopy Co	ver (% close	ed)		Surrounding h	abitat (%)	
							0-25%	26-50%	51-75%	76-100%	developed	natural	agricultural
1 (lower Bridge)	3/25/2013	I-40	100253		35.55412	82.61124	Х				75	25	
1 (upper Bridge)	3/25/2013	I-40	?		35.55412	82.61124	х				75	25	
3	3/25/2013	Pond Rd	100238	Hominy Creek	35.54531	82.60479	Х				75	25	
4	3/25/2013	Pond Rd	100235	Hominy Creek	35.54531	82.60479	Х				75	25	
5	3/25/2013	Adjacent to I-26		Hominy Creek	35.54813	82.60484		Х			50	50	
6	3/25/2013	I-40	100273		35.55441	82.60919	Х				75	25	
8	3/25/2013	NC 191	100171		35.53377	82.60262	Х				75	25	
9	3/25/2013			Drainage Pond	35.52907	82.60049	Х				50	50	
10	3/25/2013	farm access	100226		35.52936	82.60017	Х				25	25	50
b	3/25/2013	Adjacent to I-26		Westerly lake	35.52936	82.60017	Х						10
11	3/26/2013	SR3482	100223		35.51964	82.59151					25	75	
12	3/26/2013		100214 & 100211	French Broad R	35.51308	82.58516	х					100	
13	3/26/2013	Adjacent to I-26			35.51522	82.58831			Х			100	
е	3/26/2013	Adjacent to I-26			35.50833	82.57214							
14	3/27/2013	Blue Ridge Parkway	100205		35.49662	82.56429	х					100	
15	3/27/2013	pvt road	100157 & 100158		35.49026	82.56251	Х					100	
16	3/27/2013	Adjacent to I-26			35.48584	82.56017				Х		100	
17	3/27/2013	NC 146	100113 & 100114		35.48198	82.55688	Х				50	50	
18	3/27/2013	NC 146	100053	French Broad R	35.48206	82.55753	х				50	50	
19	3/27/2013		Culvert	UT	35.48267	82.55848	Х				75	25	
f	3/27/2013	Adjacent to I-26											
20	3/27/2013		100101	Powell Cr	35.47414	82.55402			Х		50	50	
21	3/27/2013	pvt road	100094		35.47414	82.55402			Х		50	50	
g	3/27/2013				35.46622	82.54941							
23	3/28/2013	SR 3495	100069 &100068		35.45675	82.54264	х				75	25	
24		NC 280	440240		35.43996	82.53581	Х				100		

Table 1. continued.

Table 1. coi	iunuea.										
					rock outcrops	w/ protected					
Site #:	caves		abandoned m	ines	crevices	w/ protooted	Is there a v	vater source nearby	?		
Oito II.	oaves		abandoneam	1	01011000	1	10 thoroa v	Valor source ricarby	<u>:</u> I		T
	In project		In project		In project						
	area	In vicinity	area	In vicinity	area	In vicinity	river	stream	pond	lake	swamp
1 (lower Bridge)	N	N	N	N	N	N			1. 2		
1 (upper											
Bridge)	N	N	N	N	N	N					
3	N	N	N	N	N	N		Υ			
4	N	N	N	N	N	N		Υ			
5	N	N	N	N	N	N		Υ			
6	N	N	N	N	N	N					
<u>8</u> 9	N N	N N	N N	N N	N N	N N			Υ		
10	N	N	N	N	N	N		Υ	Y	Υ	+
b	IN	IN	IN	IN	IN	IN		1	1	Y	
11	N	N	N	N	N	N	Υ	Υ		'	
12	N	N	N	N	N	N	Y				
13					Y	N		Υ			
е											
14	N	N	N	N	N	N					
15	N	N	N	N	N	N	Υ				Υ
16					Υ	N					
17	N	N	N	N	N	N	Υ				
18	N	N	N	N	N	N	Υ	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			
19	N	N	N	N	N	N	Υ	Υ			
f 20	N	N	N	N	N	N	Υ	Y			
20	N	N	N	N	N	N	Y	Y			+
g	IN	IN	IN	IN	IN	IN	1	1			
23	N	N	N	N	N	N	N				<u> </u>
24	N	N	N	N	N	N					
		1	1	1	1		1	I	1	1	

Table 1. continued.

Table 1. C	continued.										
Site #:	features:				Bridge type (Y	′/N)					
									vertical	at least 4	crevices >
							concrete		crevices 0.5-1.25	inches deep and sealed	12 inches
	otognont	clear	pools	rapids	concrete guard rails	concrete deck	support beams/girders	concrete end walls	inches wide,	at top	deep and not sealed
1 (lower	stagnant	Clear	pools	Tapius	guaru rans	ueck	beams/girders	end wans	inches wide,	αι ιυρ	not sealed
Bridge)					N	Υ	Υ	Υ	Υ	Υ	N
1 (upper											
Bridge)			- V	.,	N 4/9	Υ	Y	Y	Y	Υ	N
3 4			Y	Y	1/2	Y	N N	Y	Y	Y N	N N
5			Y	Y	1/2	T	IN .	T		IN	IN
6			+ '	'	1/2	Υ	N	Υ	N	N	N
8					1/2	Y	N	Υ	Υ	Y	N
9											
10											
b											
11 12					4/0	Υ	N.	Υ	NI NI		N
13		Y	Y	Υ	1/2	Y	N	Y	N	N	N
e			-								
14					Υ	Υ	N	Υ	Υ	Υ	N
15					Υ	Υ	N	Υ	N	N	N
16											
17			Y	Y	Υ	N	N	Υ	N	N	N
18			Y	Y	Υ	Υ	Υ	Υ	Υ	Υ	N
19 f			Υ	Υ		1					
20			Y	Υ							
21			Y	Y							
g			1	1							
23					N	Υ	N	Υ	Υ	Υ	N
24					Υ	N	N	Υ	N	N	N

Table 1. continued.

Table 1. co	munucu.									
Site #:	Bridge type		sun exposure			bridge alignment:	Culvert type			
	bridge/roost height at least 5 feet above ground or water	vertical concrete or wooden surfaces beneath bridge deck	minimal (hardly any summer sun for any portion of the day)	moderate (full summer sun at least 3.5 hours)	maximum (full summer sun for more than 3.5 hours)	N/S-E/W- NW/SE- NE/SW	concrete box culvert	5-10' tall inside	at least 300" long	are openings protected from high wind?
1 (lower										
Bridge)	Υ	N			Х	N/S				
1 (upper Bridge)	Y	N			Х	NW/SE				
3	Y	N			X	N/S				
4	Υ	N			Х	N/S				
5										
6	Υ	N			Χ	N/S				
8	Υ	N			Х	E/W				
9										
10							Υ	Υ	200'?	Υ
b										
11						E/W	Υ	Y, >	200'?	Υ
12	Υ	N			Χ	NW/SE				
13										
е										
14	Υ	N			Χ	E/W				
15	Υ	N			Χ	N/S				
16										
17	Υ	N			Χ	N/S				
18	Υ	Υ			Χ	E/W				
19							Υ	Υ	Υ	N
f										
20						E/W	Υ	Υ	Υ	Υ
21						E/W	Υ	Υ	Υ	Υ
g										
23	Υ	N			Х	N/S				
24	Υ	N			Χ	E/W				

Table 1. continued.

Table 1.	continued.								
Site #:	Culvert type		Human disturbanc e or traffic under bridge/in culvert	Migratory birds nests under bridge/culvert?	Evidence of bats using bridge/culvert?	Possible co	ridors for netting:		Picture Files:
	crevices	rough surfaces or imperfection s in concrete	High/Low/ Moderate	Species/Number	Y or N	None	Moderate	Excellent	
1 (lower			1		N				10
Bridge) 1 (upper			Low		N	X			1D
Bridge)			Low	E. Phoebe /1	N	x			1A,1B,1C
3			Н		N	X			3A,3B,3C
4			L		N	х			4A,4B
5						Х			5A,5B
6			L		N	Х			6A,6B
8			L		N	Х			8A,8B,8C
9									9A,9B
10	N	N	L		N				10A,10B
b									bA,bB
11	N	N	L		N		Х		11A,11B,11C
12			L		N	Х			12A,12B12F
13									13A,13B,13C
е									eA
14			L	Raven, 1 pair 2 nests	N	Х			14A,14B,14C,14D
15			L		N		Х		15A,15B
16					N	Х			16A,16B,16C
17			L		N	X			
18			L	Cliff swallows, 18 nests. Pigeons	Υ	X			18A18B18G
19	N	N	L		N				19A,19B
f									
20	Υ	N	L		N		Х		20A
21	N	N	L		N				21A
g									
23			Н		N		Х		23A,23B,23C
24			Н		N	Х			24A,24B

Table 1. continued.

Table 1. c	ontinued.
Site #:	Additional Comments:
Site #.	Adultional Comments.
1 (lower	
Bridge) 1 (upper	
Bridge)	Most crevices too wide, surrounded by steel girders, wet, or filled w/ sealant
3	most dictriced too mad, surrounded by steel girders, mot, or filled the socialist
4	This pair of bridges provide poor roosting habitat. Creek is big enough for foraging habitat, particularly downstream w/wooded margin. These are already in construction.
5	Hominy Creek potential foraging habitat. Creek is about 25-30' wide, pools and riffles. Marginal foraging but no evidence of roosting habitat.
6	Crevices on N. end wall are open but wide and obstructed by steel
8	Expansion joints on south side provide access but are very wide. No crevices at end walls.
9	Drainage Pond for Biltmore Square Mall. 1-2 acres potential foraging habitat.
10	Road that connects Biltmore drainage pond to Westerly lake. Currently has water in it. Drainage supposed to go immediately adjacent in 4' metal.
b	Lake adjacent to I-26 in Biltmore estate vineyard. Across and connected to drainage pond. In combination provides small amount of potential foraging habitat.
11	2 side by side large box culverts for vehicles. Very smooth and open. No bat roosting potential. Stream immediately adjacent in metal culvert.
12	Very slight potential for bat roosts in expansion joints, but they have no good landing places. Abutments have wide/shallow crevices. River provides foraging habitat.
13	Small rock outcrop. 35'X10' high broken rock with many shallow crevices. No deep holes or extensive crevices. Could be summer roost for big brown or E. small footed, but not Gray bat.
е	Extensive wetlands at toe of slope between the highway and thin strip of ag fields immediately adjacent to the river. From this point to site 12. These wetlands & the river provide potential foraging habitat.
14	Only decent crevices are at sides of end wall with 1/2" wide and 8-10" deep crevices. Expansion joints too wide. No sign of bats though.
15	These twin bridges have no good crevices. None at endwalls, expansion joints are filled or too wide or blocked by steel girders
16	Small rock outcrop. 15 X 12' high broken rock with several 4-12" deep 1/2 inch crevices, but no large crevices or cave. Could be used as summer roost by M. Leibii or other species, but not gray bat.
17	This is one bridge recently constructed that replaces the former twin bridges. The expansion joints in the rails are open, but most are ~1" wide so not likely to be used by bats.
18	Found 1 Myotis leibii roosting in SE corner in endwall crevice with small amount of guano below the area. Also noted scattered guano on SW end. Good potential for use of this bridge by bats, but not gray bats. Swallows on outside Girders (both north and south).
19	6' box culvert with stream running through it. Very smooth concrete with no large cracks or crevices. Vines obscure Western end. Little potential for bat use.
f	Large wetland between I-26 and river. From 35.49067/82.56399 to 35.48598/82.56151. This is known bog turtle wetland. Combined with adjacent River provides decent foraging habitat for bats including Gray bats.
20	Double box culvert. Somewhat obscured by vegetation. Relatively smooth concrete. Unknown potential for bat roost.
21	Large vehicle box culvert. Smooth with no signs of bat use.
a	Wetland between I-26 and French Broad River from these coordinates to 35.46148/82.54556. In conjunction with the river, provides potential foraging habitat for gray bats.
23	Twin bridges with only shallow crevices at end walls. Expansion joints are filled. Little potential for bat roosting.
24	Metal deck. Expansion joints very wide. Endwall joints filled or shallow. Guardrails are jersey type barrier and offer potential roosts in joints, but no sign of bat use.
	1 1 7 7

Appendix 2.

Modified NCDOT Bat Habitat Assessment Form

Bat Ha	bitat Assessment F	orm					NCDC	T			
Observ	vers:			r project		er:		I-4400)/I-4700)	
Date:		Road I	Name/S	SR Num	ber:						
County	: Buncombe			Water	body:						
Site #:	Lat	titude:			Longi	tude:					
Canop	y Cover (% closed)	ı	0-25%	ó	26-50	%		51-75	%		76-100%
Surrou	nding habitat (%)	develo	ped		natura	վ		agricu	ltural		
Presen	ce of:		In pro	ject are	a		In vici	nity			
	caves			yes	no		yes	no			
	abandoned mines			yes	no		yes	no			
	rock outcrops w/p	rotected cr	evices	yes	no		yes	no			
Is there	e a water source ne	arby?	yes		no						
	type:	river	stream	n pond	lake	swamp)				
	features:		stagna	ant	clear	pools	rapids				
Bridge	type					_	_				
	concrete guard rai	ls				yes		no			
	concrete deck					yes		no			
	concrete support b	eams/girde	ers			yes		no			
	concrete end walls	3				yes		no			
	vertical crevices 0	.5-1.25 inc	hes wi	de,		•					
	at least 4 inches de	eep and sea	led at	top		yes		no			
	crevices > 12 inch	-		-		yes		no			
	bridge/roost heigh	-			und or v	•		yes		no	
	6 6			C						feet	
	vertical concrete o	r wooden s	surface	s beneat	h bridg	e deck					
	protected from win				_			yes		no	
Bridge	type, continued			Ü				•			
	sun exposu	ire minim	al		(hardl	y any su	ımmer s	un for	any por	tion of	the day)
	1	moder				ummer s			• •		• ,
		maxim	num			ummer s				nours)	
	bridge alignment:		N/S	E/W	NW/S		NE/SV			,	
Culver											
	concrete box culve	ert			yes		no				
	5-10' tall inside				yes		no				
	at least 300" long				yes		no				
	are openings prote	cted from	high w	ind?	yes		no				
	crevices		6		yes		no				
	rough surfaces or	imperfectio	ons in c	concrete		yes		no			
Humar	disturbance or tra					<i>J</i>			high	low	none
	ory birds nests und		_						8		
	species					numbe	er				
	species										
	species										
	check bird nests	with binoci	ılars to	see if a	nv bats	are roos	sting in	them.			
Eviden	ce of bats using br						8	yes		no	
_ , 13011	*check large bridg	_		s and sn	otlight	for guan	o/staini	-			
		,				5"	2. 200111	-0			
Possibl	le corridors for nett	ing:		none/j	oor		margii	nal		excel	ent
Picture		<i>O</i> .		· ·]							•
	onal Comments:										

Appendix 3

Data Sheets

			MSPRA.			504	domingi	NCDOT
Observers:	CMIA			TIP or pro	ject number:	I-4400/I-47	700	
Date:	3/25			Road Nam	ne/SR Numbe	er: Bridge	100053	Lamber 13
County:	Buncombe			Waterbod	y:	0		
Site #:	1100000		Lattitude:			Longitude:		
Canopy Co	ver (% close	0-25%		26-50%		51-75%		76-100%
Surrounding	g habitat (%	developed		natural		agricultural	BAILD XOO	Wetongs)
		On		SBA			Spiece	163 '07'-6
Presence o	f:	00		In project	area		In viciinty	ROBERT NE
	caves	on		yes	no	an morr per	yes	no
	abandoned			yes	no		yes	no
	rock outcro	ps w/ protect	cted crevices	yes	no	Hollognegh	yes	no
		The same		soy			516	na conce
s there a w	ater source	nearby?	wat	. dold	Faultier's	yes	II E SEPTEMBLE OF	no
	type:	STRAIN	100	river	stream	pond	lake	swamp
	features:			stagnant	clear	pools	rapids	dame almost
			195/1907			1.7 Mark Handstoney	IBIOGUS	HISTORIES .
Bridge type			ledicum					
	concrete gu		Applications			yes	5090000	no
	concrete de	T PRODUCED FOR PART OF	DESCRIPTION OF REAL PROPERTY.	SHOULD WELL TO	time on much	yes	Stace held	no
		ipport beam	s/girders		100000000000000000000000000000000000000	yes	200011000	no
	concrete er	nd walls		2404		yes	Application on	no
	continut and	dana 0 5 4 4	OF 1-1-1-1-1	Tollings b	ns anythoda	old, right de	TOTAL STATE	20502
			25 inches wid	-	Nour	owand	shalla	10000
	at least 4 in	cnes deep	and sealed a	it top	1 100	yes	contition	no
	erouieee > 1	12 inches de	on and not a	analad				
	Crevices >	12 mones de	ep and not	sealed		yes		no
	bridge/roos	t hoight at l	east 5 feet at	DALLA GEALLA	dorwater			(Company
	bridgerroos	t neight at it	east 5 leet at	Jove groun	d or water	yes	feet	no
							ieet	
	vertical con	crete or wo	oden surface	s heneath	hridge deck			
			d moisture fo			yes		1000
	p. otootou II	on waid an	a moisture it	or migrit 100	Julia	100		no
Bridge type	continued							
	sun exposu	minimal		(hardly any	y summer su	n for any no	rtion of the	day)
	-an expedi	moderate			er sun at lea			uay)
	-	maximum		100	er sun for mo			

TO	bridge aligr	mont	(556	A ISH	U.S.T.	IS&II	28 Le
170	bridge aligr	mont.	turt				-	
		inent.	N/S	E/W	NW/SE	NE/SW		FARL
		0071-7	00011 30	denun toni	AND AND SET			
				Lu Gunn	and head			
				100	had not bell		62	Diamontal .
		inh	shore I					A LAMP I
Culvert type	OL 05		25.12		20.00		20.0	Country St. Alexander
	concrete bo	ox culvert	- Annino		yes		no	Linkshot male
	5-10' tall in:	side			yes		no	
	at least 300	" long			yes		no	1000
	are opening	s protected	from high v	vind?	yes		no	
	crevices	200		00	yes		no	a change in
	rough surfa	ices or impe	rfections	-		Janes barra	treatile sacr	aller store
	in concrete				yes		no	
Human distu	urbance or	raffic under	bridge/in o	thrort	high		- Andrean a	rivos salem s
riuman uist	irbance or	rame under	bridge/iri cc	livert	high	low	none	- type:
Migratory bir	rde neete III	nder bridge/	culvert?	TRAID	- Injuriorita			(sattles)
wing ratory bit	do Hooto di	species	ourvert:			number		
*		species_				number	-	
	-0/1	species	101			number	Sales in coops	
	check bire		binocular	s to see i	f any bats ar	The state of the s	in them *	-
			1007		, and an	o recouning		- Constal
Evidence of	bats using	bridge/culve	rt?		yes		no	6 600000
				ulars and	spotlight fo	r guano/st		
								H-POURITY
Possible cor	ridors for n	etting: (none/poor		marginal	191000 G1100 G	excellent	1 1000110
	00				halasa ta	alban anals	al alami Ph	
Picture Files	:						00100111 341	
Additional Co	omments:							
				***************************************	and annual	otore moun	O'SHIPPER TO	No Hangior III
							naximizem ?	

					1777			NCDOT
Observers:	CM 3	14		TIP or proj	ect number.	1-4400/1-4	700	NCDOT
Date:	3/25				ne/SR Numb	er. Gridg	2# 1002	53
County:	Buncombe			Waterbody	r I	40		
Site #:			Lattitude:	35.5541	2	Longitude:	082.611	DY Way
Canopy Co	ver (% close	(0-25%))	26-50%		51-75%		76-100%
Surrounding	g habitat (%	developed_	75	natural	25	agricultural		1
		91					100	HOUSE.
Presence o	f:			In project	airea		In vicinity	
	caves			yes	no		yes	(no)
	abandoned			yes	no		yes	no
	rock outcro	ps w/ protect	ed crevices	yes	no		yes	no
								on
s there a w	ater source	nearby?				yes	(no
	type:			river	stream	pond	lake	swamp
	features:			stagnant	clear	pools	rapids	
Bridge type								
ningo typo	concrete gu	ard rails				yes	-	no
	concrete de					The second secon	sphalt	no
		pport beams	/girders		F 200 15 K	(yes)	The second second	no
	concrete er				1	yes		no
						100	- Interes	110 1011
	vertical cres	vices 0.5-1.2	5 inches wir	de.			100	
		ches deep a				(yes are	ads	no
							1111111	
	crevices > 1	12 inches de	ep and not	sealed		yes	-	no
						1	1	
	bridge/roos	t height at le	ast 5 feet al	bove groun	d or water	yes)		no
							feet	
							7710	
	vertical con	crete or woo	den surface	s beneath	bridge deck		14.777	
	protected fr	om wind and	moisture for	or night roo	sting	yes		no
	*							
Bridge type	, continued							
	sun exposu	minimal		(hardly an	y summer si	un for any po	ortion of the	day)
		moderate		(full summ	er sun at lea	ast 3.5 hours)	
		maximum	V			ore than 3.5		

	m	07 10	BILLS	SSES	ALIST	deH	TEST BET	
	bridge align	ment:	N/S	E/W	NW/SE	NE/SW	100	
	bridge diigi	HIPONIC.	160	-	Terrigo	INDON		
					-			
			-					
				-			1	
Culvert typ	0					-		
50.10.1.19	concrete bo	x culvert			yes		no	
	5-10' tall ins	777			yes		00	
	at least 300	1000			yes		no	
			from high w	vind?	yes		no	
	crevices	p. c.c.c.c	in and in age, to		yes		no	
		ces or impe	rfections		****			
	in concrete		2413114		yes	-	no	
					,		100	
Human dis	turbance or t	raffic under	bridge/in cu	livert	high	low	none	
		The second second		200	-		336300	
Migratory b	irds nests ur	nder bridge/	culvert?					
	1	species E	. Phoeloe			number	Y	
NO 5	gu de	species				number		
+ 61	DEC.	species				number		
	47.0		n binocular	s to see if a	ny bats are	A Company of the last of the l	in them.*	
				100010000000000000000000000000000000000				
Evidence o	f bats using	ACTUAL DESCRIPTION OF THE PROPERTY OF THE PROP			yes	(no	
	check larg	je bridges i	with bionoc	culars and s	potlight for	guano/sta	aining	
Possible co	orridors for n	etting:	none/poor		marginal		excellent	
	100							
Picture File	is: 1-4	FOT BOX	h Bridge	25 her-	_			
The state of the s	Comments:							

						Τ			NCDOT
Observers:	CMJF	-		TIP or proje	ect number	Į.	-4400/1-4	700	
Date:	3/25			Road Name	e/SR Numb	ber:	Brid	\$ 1000°	38
County:	Buncombe							Cr. (wa	
Site #: 3			Lattitude:	35.5453			ongitude.		479 W
Canopy Co	ver (% close	0-25%		26-50%	1	5	1-75%	200000000000000000000000000000000000000	76-100%
Surroundin	g habitat (%)	developed	75	natural 🗠	25	а	gricultural	_	1000
20000000				In project of		ł		In violinty	
Presence o				In project a	Company of the Compan		- 100	In vicinty	(2)
	caves abandoned	minoc		yes (no			yes	(ng)
			and annulance	yes (no	+		yes (no
	rock outcro	os w protec	ted crevices	yes (no)	Ŧ		yes	(00)
s there a v	ater source	nearby?				y	es		no
	type:			river (stream) p	ond	lake	swamp
	features:			stagnant	clear	P	ools	rapids.	≈ 30-4
Bridge type						£		1000	110000
bridge type	concrete gu	ard rails				v	es /s	CTE D	no
	concrete de					-400	98	Mark Land	no
	concrete su		s/girders	THE YEAR			es	-	no)
	concrete en						es		no
						76	-	100	100
	vertical crev	rices 0.5-1.2	5 inches wid	de,				(Leen Luck	
	at least 4 in	ches deep a	and sealed a	t top		(Ý	es d	الصيضا	no
	crevices > 1	2 inches de	ep and not	halad			es	-	no)
	Grevices -	z mores oc	ep and not	Joaned		2	us	-	110
	bridge/roos	t height at le	ast 5 feet at	bave ground	or water	(y	es		no
						-		feet	
	vertical con	crate or was	oden surface	e hanaath h	ridae deck				
			d moisture for		-		es	-	no)
	protected ii	om wind an	o moisiure r	or mignit roos	ang	У	us	- 5	no /
Bridge type	, continued								
	sun exposu	minimal		for province of the private by				rtion of the	day)
		moderate		(full summe	er sun at le	ast	3.5 hours)	3.0
	-	maximum	1	(full summe	er sun for n	nore	e than 3.5	hours)	

	mnoH tr	iema:	8888	Altsti	BH	188	
	bridge alignment:	N/S	EW	NW/SE	NE/SW		
Culvert	type	400.00					
	concrete box culver			yes		no	
	5-10' tall inside			yes		no	
	at least 300" long			yes		no	
	are openings protect	ted from high	wind?	yes		no	
	crevices			yes		no	
	rough surfaces or in	nperfections					
	in concrete			yes		no	
Human	disturbance or traffic un	der bridge/in	culvert	high	low	none	
				constr	uction	MOW	
Migrator	ry birds nests under brid	ge/culvert?					
	species				number_		
	species				number		
	species				number_		
	check bird nests	with binocul	ars to see i	f any bats ar	e roosting	in them.	-
Evidenc	e of bats using bridge/c	ulvert?		yes		(no)	
	check large bridg		oculars and	spotlight fo	r guano/st	aining	
Doseible	e corridors for netting:	(none/pod	-	marginal		excellent	-
- uponule	outlines for tietaling.	полегрос		marginal		GAUGGETT	
Picture	Files:						
Addition	nal Comments:						

	No.			12350				NCDOT
Observers:	CMT	R		TIP or proj	ect number.	I-4400/I-47	700	
Date:	3/25			Road Nam	e/SR Numb	er: Brilling:	100235	Ensew
County:	Buncombe			Waterbody			Pand Rd	
Site #. 니			Lattitude:		-	Longitude:		
Canopy Co	ver (% close	0-25%)	26-50%		51-75%		76-100%
Surrounding	g habitat (%)	developed_	2575	natural	:25	agricultural		7
Presence o	f:			In project a	irea		In vicinty	
	caves			yes (no)		yes	no)
	abandoned	mines		yes	no		yes (no
	rock outcrop	os w/ protec	ted crevices	yes	no		yes	no)
s there a w	ater source	nearby?				yes		no
	type:			river	stream	pond	lake	swamp
	features:			stagnant	clear	pools	rapids	
Bridge type							-	
	concrete gu	ard rails	DIREMI			yes 15	CONCRETE !	no
	concrete de	ck				(Yes		no
	concrete su	pport beam	s/girders		FIG. 44 87805	yes	-	no
	concrete en	d walls		-		yes		no
	vertical crev	rices 0.5-1.2	5 inches wi	de,			aruruyus	-
	at least 4 in	ches deep a	and sealed a	at top	17.75	yes	-	no
	crevices > 1	2 inches de	ep and not	sealed		yes	(no
	bridge/roost	height at le	ast 5 feet a	bove ground	d or water	yes		no
						30	feet	
	vertical con-	crete or woo	oden surface	es beneath l	oridge deck			Water Print
				or night roo		yes	(no
Bridge type	, continued						7 7 1	
	sun exposu	minimal		(hardly any	summer su	in for any po	rtion of the o	day)
		moderate		(full summ	er sun at lea	st 3.5 hours)	1000
	- 6	maximum)	(full summ	er sun for m	ore than 3.5	hours)	

	HHO	110	911122	BSSE	JBI	BHI	887	
	bridge align	ment:	(N/S)	E/W	NW/SE	NE/SW		1700
- 11	The state of the s				10000			
							73.5	730
				-	100			730
	- 27		12.11	100,100			-	1
ulvert type			-			-		
aivoit type	concrete bo	ty culumet	1		yes	1 1 1 1 1 1	no	-
	5-10' tall ins		-		yes		no	100
	at least 300				yes		no	
		The state of the s	ed from high v	uind?	yes		no	100
	crevices	pa protoce	o irom ragar v	Verior :	1000		no	-
	rough surfa	ree or im	perfectione		yes		110	+
	in concrete		ACTICUOTIS	(30)	une	1014044	200	
	ar concrete				yes		no	
luman diet	urhance or t	raffic und	er bridge/in cu	dvert	high	low /	none	-
isamen unsu	a aminor of t	and and	or bringerin co		, ngir	TON C	TANTO	
Ainratony hi	rds nests ur	nder bride	alreduart?	N				+
ingratory bi	roa rroats ur	species_	aruareon r	10		number		
		species_				number		-
		species_				number		
	*check him	the state of the s	ith binocular	e to een if :	unu hate an	and the second of the court of the second	them *	
	CHOCK DIT	I HOULD III	iai cinoculai	3 10 300 11 1	my unto m	e roosing in	urgen.	+
vidence of	bats using	hridae/cul	vert?		yes	-	no	-
Trouting of	AND RESIDENCE OF THE PROPERTY OF		s with bionoc	culars and		r guano/stai	1	
			-	-	-poingin re	Buttieser	9	10000
nssible on	rridors for n	atting:	none/poor		marginal		excellent	-
uconno uu	moore for th	oung.	(none-poor	2	marginar		GAUGIGIA	
licture File	71	11	0.11.		et s		maga	-
dditional C	ommente:	II are	@ this	beth	ex being	102.		
demonati c	remineries.		big en		Allerance	4		-

			1-22					NCDOT
Observers:	CM	JA		TIP or proj	ect number.	I-4400/I-4	700	
Date:	3/25			Road Nam	e/SR Numb	er. @ Ha	Jun Crea	K Como
County:	Buncombe			Waterbody	r. Housey		1	- 1
Site # 5	waypoint	#53	Lattitude: 3	5.54813		Longitude:	82,604	84
Canopy Co	ver (% close	0-25%	(28-50%		51-75%	120000000000000000000000000000000000000	76-100%
Surroundin	g habitat (%	developed	12	natural	12	agricultura		
Presence o	t.			In project a	area		In vicinty	
	caves			yes	no		yes (no
	abandoned	mines		yes	no		yes	no
	rock outcro	ps w/ protec	ted crevices	yes	no		yes C	no
			The section of the					1000
is there a v	vater source	nearby?			- (yes		no
	type:			river	stream	pond	lake	swamp
	features:			stagnant	clear	pools	rapids	22.4 (1).4
						1000		H-3040 G
Bridge type			100					
	concrete gu	ard rails	CONT.			yes		no
	concrete de	ck				yes		no
	concrete su	pport beam	s/girders			yes		no
	concrete er	nd walls				yes		no
	vertical crev	vices 0.5-1.2	25 inches wit	de,				12-22
	at least 4 in	ches deep	and sealed a	t top		yes		no
								1 200
	crevices > 1	12 inches de	ep and not	sealed		yes		no
	bridge/roos	t height at k	east 5 feet al	oove groun	d or water	yes		no
							feet	
	vertical con	crete or wo	oden surface	s beneath	oridge deck			
	protected fr	om wind an	d moisture fo	or night roo	sting	yes		no
					10.000	1000		
Bridge type	, continued							
in contract	sun exposu	minimal		(hardly any	summer su	un for any po	ortion of the o	day)
	2.5	moderate		A COLUMN TO THE REAL PROPERTY OF THE PARTY O		st 3.5 hours		100
		maximum				ore than 3.5	CHARLES AND AND ADDRESS OF THE PARTY OF THE	

	mitoH in	HITTER	FIRE!	a testir	RH	te FI	
	bridge alignment:	N/S	E/W	NW/SE	NE/SW		
	bridge dilgrament.	160		IIIIIOL	(4001)		
			1-2-	77.7			
				-			
Culvert	type						
	concrete box culvert			yes		no	
	5-10' tall inside	17.5		yes		no	
	at least 300" long			yes		no	
	are openings protecte	ed from high v	wind?	yes		no	
	crevices			yes		по	
	rough surfaces or imp	perfections					
	in concrete			yes		no	
Human	disturbance or traffic und	er bridge/in c	ulvert	high	llow	none	
					1000	1000	
Migrato	ry birds nests under bridg	e/culvert?					
	species_				number_		
	species_				number		
	species_				number_		
	check bird nests w	ith binocular	rs to see i	any bats an	e roosting	in them.	
Eviden	ce of bats using bridge/cul	word?		yes		no	
LVIDENIC	*check large bridge:		culare and		r auanolet	-1777	
	chock large bridge	with biolio	Cusura um	apouignt to	- guariorat	anning	
Possible	e corridors for netting:	none/poor	Š.	marginal	-	excellent	
		-upstra	ar-	200		5112/28016	
Picture	Files: 12413-	downst	ream				
	nal Comments:		100000				

Cia	ex provides some foreging habited. No reacting that we can find though.
	point, some deep pools and riff is w some bulders.
	2

	No. of Lot			770			NCDOT
Observers:	CAJI	4	TIP or pro	ject number:	I-4400/I-4	700	
Date:	3/25		Road Nar	me/SR Numb	er: 7.40	Bridget	PO27
County:	Buncomb	0	Waterboo	ly:			
Site #: (p	WIET	154 Lattit	ude: 35.55	3441	Longitude:	82.60	59.19
- 4	over (% close	The second second	26-50%	111	51-75%		76-100%
Surroundin	ng habitat (%	developed	natural	25	agricultura		10103
Presence o	nf.	-	In project	area		In vicinty	100
riesence (1000000	00	100000000000000000000000000000000000000	1	northwe		100
	abandoneo	animan .	yes	no			no
			yes	no		yes	(no)
	rock outcre	pps w/ protected cr	evices yes	(no)		yes	(0)
is there a v	water source	nearby?			yes	6	no)
	type:		river	stream	pond	lake	swamp
	features:		stagnant	clear	pools	rapids	100 AGNO V
Bridge type		1010					
orrego type	concrete g	uard rails	H H		ves /n		no
	concrete d			-	Yes	10131	no
	concrete si	upport beams/gird	ers	THE REAL PROPERTY.	yes	THE REAL PROPERTY.	no
	concrete e				/yes)		no
	***********	P. Charles					a start and
	vertical cre	vices 0.5-1.25 incl	nes wide,	II Williams	Seale	ala)	Fuch
	at least 4 in	nches deep and se	ealed at top		yes		no
	W. V. C.	A PARTIE AND A STATE OF THE STA				1	
	crevices >	12 inches deep an	d not sealed		yes	(no
	bridge/roos	st height at least 5	feet above groun	nd or water	yes		no
					15	feet	
	wartical cor	crete or wooden s	urfaces hanceth	hridaa daak	2.63		
		rom wind and mois			yes	/	00
	protected	TOTAL WING SITG THOSE	stare for riight for	zaung	Jan	-	no
Bridge type	e, continued						
	sun exposi	u minimal	(hardly an	y summer su	in for any po	ortion of the o	fay)
		moderate	(full summ	ner sun at lea	st 3.5 hours)	1
	- (maximum	(full sumn	ner sun for m	ore than 3.5	hours)	

	-						
	10101110		BSSA		ISIT.	BG III	
-	bridge alignment:	N/S	E/W	NW/SE	NE/SW		
	Test to						
	The state of the state of	and the same of	1000	39		1000	
Culvert ty	pe	100				12.0	
	concrete box culvert			yes		no	
	5-10' tall inside	2.2		yes		no	
	at least 300" long		THE STREET	yes		no	
	are openings protecte	d from high	wind?	yes		no	
	crevices		-	yes		no	
	rough surfaces or imp	perfections	- 00				
	in concrete			yes		no	
Human di	sturbance or traffic unde	er bridge/in o	ulvert	high	low	none	
Migratory	birds nests under bridg	e/culvert?	-	-		-	
	species				number		
	species			number			
	species				number		
	check bird nests w	ith binocula	rs to see if	any bats are	roosting	in them.	
Evidence	of bats using bridge/cul	vert?		yes		(no)	-
	*check large bridge:	CASSOTT DAY	culars and		r quano/st	- Marie Control	
					100		
Possible	corridors for netting:	none/poor		marginal		excellent	
Picture Fi	les: 14415			Pales In	-	-	
	Comments:				_		

crevives	on	N.end	wall	are	open	but
Fairly wide						

	No.							NCDOT
Observers:				TIP or pro	ect number:	1-4400/1-47	700	
Date:				Road Nam	e/SR Numbe	er: NC 191	Bridgett	100171
County:	Buncombe			Waterbody	r.			
Site #: 🐇	wayt 5	1	Lattitude:	35.533	77	Longitude:	82.000	262
Canopy Co	ver (% close	0-25%		26-50%		51-75%		76-100%
Surroundin	g habitat (%)	developed_	75	natural	5	agricultural	-	
Presence o	e:			In project	area		In vicinty	
	caves			yes (no		yes (no
	abandoned	mines		yes	no		yes (no
	rock outcro	ps w/ protec	ted crevices	yes	00		yes	no
is there a w	vater source	nearby?				yes	(no
	type:			river	stream	pond	lake	swamp
	features:			stagnant	clear	pools	rapids	
Bridge type								
	concrete gu	ard rails				yes)	6	no
	concrete de	ck				yes		no
	concrete su	pport beam	s/girders		in which	yes	1	no
	concrete en	d walls			- <	yes		no
	vertical crev	rices 0.5-1.2	5 inches wic	de,	Selv	e at e	Machis	Our jour
	at least 4 in	ches deep a	and sealed a	t top		yes		no e
	crevices > 1	12 inches de	ep and not	sealed		yes	0	no
						10.	93	1
	bridge/roos	t height at le	ast 5 feet al	oove groun	d or water	yes)		no
						15	feet	
	vertical con	croto or wor	den surface	e hanaalh	hridaa daak		-	
			d moisture fo			yes		no
	protected if	On wind an	a moistare n	or ringent roto	surig	yes	(no
Bridge type	, continued							
	sun exposu				y summer su			fay)
		moderate		1000	er sun at lea			
	- (maximum		(full summ	er sun for mo	ore than 3.5	hours)	

	111111111111111111111111111111111111111	Hallinge	100	3 11011	1011	TOC N	Den.
	bridge alignment	N/S	E/W	NW/SE	NE/SW		
		1-1-10a - 1 - 2	Hall been				
			117 Sam	Haidi			
				des W			limit.
			100				
ulvert f	уре	200101				EN POR	University of
	concrete box culve	ert		yes		no	
	5-10' tall inside			yes		no	
	at least 300" long			yes		no	100
	are openings prote	ected from high v	vind?	yes		no	1
	crevices			yes		no	tinens.
	rough surfaces or	imperfections				W 87.00	
	in concrete			yes		no	
		100			100	10000	12.200
Human (disturbance or traffic u	nder bridge/in cu	livert	high	(low)	none	200
							(Maril
Aigrator	y birds nests under bri	idge/culvert7					
	specie	8			number_		100
	specie	6			number_	SHIPPER	11000
	specie				number_	4000	1
	*check bird nests	with binocular	s to see if	any bats an	e roosting	in them."	110100
	00					Aller Long	1999
Evideno	e of bats using bridge/			yes	-	(no)	
	check large brid	ges with biono	ulars and	spotlight fo	or guano/s	taining	40000)
		1	-		Walter Street		100
ossible	corridors for netting:	none/poor	1	marginal		excellent	
				1000000	The same	1000000	
Picture P	Files: 18,19,6	20					
Addition	al Comments:				1111111	H. Philippine I Special	

expansion pintson 5, side offer.	access but are about

	-				1 TYPES			NCDOT
Observers:	Cul	9		Browlet Carried Carried Commence		I-4400/I-4	700	
Date:	7/25				e/SR Numb			
County:	Buncombe				- Diajuas	ge You	O Bi	Housespu
Site #: Of	Wypt #1	-	Lattitude:	35.529	07	Longitude:	82.60	349
Canopy Co	ver (% close	0-259	V	26-50%		51-75%		76-100%
Surroundin	g habitat (%	developed	50	natural_5	0	agricultural		-
Presence o	f:			In project a	area		In vicinty	100
	caves			yes	no	P	yes (no
	abandoned	mines		yes /	no.		yes 2	no
	rock outcro	ps w/ prote	cted crevices	yes	no		yes 2	no
le there a w	ater source	nearnu?				Time		no
is there is n	type:	Trout by 1	100	river	stream	(pond)	lake	swamp
	features:			stagnant	clear	pools	rapids	owanip
								HI HILEY
Bridge type		4 - 9						
	concrete gu		1000.00			yes		no
	concrete de	2.7	VI. S. A.	Contract		yes		no
	concrete su		ns/girders			yes		no
	concrete er	nd walls				yes		no
	vertical crev	vices 0.5-1.	25 inches wid	de,	11000	1000		CHIEF.
	at least 4 in	ches deep	and sealed a	t top		yes		no
	crevices > 1	12 inches d	eep and not	helee		yes		no
	and mode		Jop and not	Journey		,		110
	bridge/roos	t height at l	east 5 feet al	oove groun	d or water	yes		no
			-		-	-	feet	
	vertical con	crete or wo	oden surface	s beneath I	oridge deck			
			d moisture fo			yes		no
Bridge has	, continued							
- alle type	sun exposu	minimal		(hardly any	summer su	in for any po	rtion of the	day)
		moderate				st 3.5 hours		100
		maximum		Spirit stressols introduce		ore than 3.5	-	

	concrete bo		-		yes	-	no
	5-10' tall in:		1		yes		no
	at least 300				yes		no
		MINOR TO	d from high w	vind?	yes		no
	crevices	je protouto	a nom siigit v	TO IM !	yes		no
	rough surfa	ces or imp	erfections		700		100
	in concrete		10000110		yes	-	no
					700		
Human d	listurbance or l	traffic unde	r bridge/in cu	ilvert	high	low	none
Migratory	birds nests u	nder bridge	/culvert?		+		1
		species_				number_	
		species_				number_	
		species_				number_	
	check bird	d nests wit	th binocular	s to see if	any bats are	e roosting	in them.
Evidence	of bats using	bridge/culv	ert?		yes		no
	check larg	ge bridges	with bionoc	ulars and	spotlight fo	r guano/st	aining
Possible	corridors for n	etting:	none/poor		marginal		excellent
Dietura E	iles: 21,27	3	-				
- ICVUIS 1	Comments:						

Pond at acres possible foraging habitat

	No.			Yell			NCDOT
Observers:	CMI	A	TIP or proj	ect number:	I-4400/I-47	100	44002024
Date:	3/25	,	description of the State of the		er. 1736 -		# 100 A
County:	Buncombe		Waterbody	r.		Gricale	
Site #. /	(כפן נואש (Lattitude:	35.529	3(.	Longitude:	82-68	P17
	ver (% close		26-50%	-	51-75%		76-100%
Surrounding	g habitat (%	developed 25	natural	25	agricultural	50	
			100000000000000000000000000000000000000	100	100000000000000000000000000000000000000	3000	T.U.S.
Presence o	ď:	(* P	In project a	area		In vicinty	
	caves		yes	no)	A STATE OF	yes /	no
	abandoned	mines	yes	no		yes	no
	rock outcro	ps w/ protected crevices	yes	60		yes	no-
	NAVI MONTE EX						
Is there a w	rater source	nearby?			yes.		no
	type:		river	stream	pond	lake	swamp
	features:		stagnant	clear	pools	rapids	Particular.
							100000
Bridge type							
	concrete gu	uard rails			yes		no
	concrete de	eck			yes		no
	concrete su	ipport beams/girders	Caro Serie pe	THE RESERVE	yes		no
	concrete er	nd walls			yes		no
					1000		Liberto e
	vertical cre-	vices 0.5-1.25 inches wi	de,				
	at least 4 in	ches deep and sealed a	at top		yes		no
	crevices >	12 inches deep and not	sealed		yes		no
	bridge/roos	t height at least 5 feet a	bove ground	d or water	yes		no
			Mary In			feet	100
		crete or wooden surface		100000000000000000000000000000000000000			MARIE
	protected fr	om wind and moisture for	or night roos	sting	yes		no
		The state of the s	100	100	10000		
Bridge type	, continued						
	sun exposu	UV0 (20002/20)			n for any po		day)
		moderate			st 3.5 hours		
		maximum	(full summ	er sun for m	ore than 3.5	hours)	

Migratory birds nests under bridge/culvert? species
concrete box culvert 5-(1) all inside at least 300" long are openings protected from high wind? yes no crevices rough surfaces or imperfections in concrete yes no luman disturbance or traffic under bridge/in culvert high low none figratory birds nests under bridge/culvert? species number species number species number *check bird nests with binoculars to see if any bats are roosting in them.* vidence of bats using bridge/culvert? yes no *check large bridges with bionoculars and spotlight for guano/staining* rossible comidors for netting: none/poor marginal excellent icture Files: 33434 dditional Comments:
concrete box culvert 5-(0) all inside
concrete box culvert 5-(0) all inside
concrete box culvert 5-(i) all inside at least 300" long are openings protected from high wind? yes no crevices rough surfaces or imperfections in concrete yes no Human disturbance or traffic under bridge/in culvert high low none Migratory birds nests under bridge/culvert? species
concrete box culvert 5-(Dall inside
st least 300" long are openings protected from high wind? yes no rewices rough surfaces or imperfections in concrete yes no rough surfaces or imperfections in concrete yes number species number species number species number reheat with binoculars to see if any bats are roosting in them.* Evidence of bats using bridge/culvert? yes no reheck large bridges with bionoculars and spotlight for guano/staining* Possible corridors for netting: none/poor marginal excellent Picture Files: 23 4 2 4 2 4 2 4 2 4 2 4 2 4 2 4 2 4 2
at least 300" long are openings protected from high wind? orevices rough surfaces or imperfections in concrete Human disturbance or traffic under bridge/in culvert Migratory birds nests under bridge/culvert? species species number species number *check bird nests with binoculars to see if any bats are roosting in them.* Evidence of bats using bridge/culvert? yes *check large bridges with bionoculars and spotlight for guano/staining* Possible comidors for netting: none/poor marginal excellent Picture Files: 23424 Additional Comments:
are openings protected from high wind? crevices rough surfaces or imperfections in concrete Human disturbance or traffic under bridge/in culvert Migratory birds nests under bridge/culvert? species species number species number *check bird nests with binoculars to see if any bats are roosting in them.* Evidence of bats using bridge/culvert? yes *check large bridges with bionoculars and spotlight for guano/staining* Possible corridors for netting: none/poor marginal excellent Picture Files:
rough surfaces or imperfections in concrete Human disturbance or traffic under bridge/in culvert Migratory birds nests under bridge/culvert? species species number species number *check bird nests with binoculars to see if any bats are roosting in them.* Evidence of bats using bridge/culvert? yes *check large bridges with bionoculars and spotlight for guano/staining* Possible corridors for netting: none/poor marginal excellent Picture Files: 23424 Additional Comments:
rough surfaces or imperfections in concrete Human disturbance or traffic under bridge/in culvert Migratory birds nests under bridge/culvert? species species number species number *check bird nests with binoculars to see if any bats are roosting in them.* Evidence of bats using bridge/culvert? yes no *check large bridges with bionoculars and spotlight for guano/staining* Possible comidors for netting: none/poor marginal excellent Picture Files: 23424 Additional Comments:
Human disturbance or traffic under bridge/in culvert high low none Migratory birds nests under bridge/culvert? species
Human disturbance or traffic under bridge/culvert? Migratory birds nests under bridge/culvert? species number species species number species species
Migratory birds nests under bridge/culvert? species
Migratory birds nests under bridge/culvert? species
species
species
species
species
check bird nests with binoculars to see if any bats are roosting in them. Evidence of bats using bridge/culvert? *check large bridges with bionoculars and spotlight for guano/staining* Possible corridors for netting: none/poor marginal excellent Picture Files: 33434 Additional Comments:
Evidence of bats using bridge/culvert? *check large bridges with bionoculars and spotlight for guano/staining* Possible corridors for netting: none/poor marginal excellent Picture Files: 23 4 24 Additional Comments:
check large bridges with bionoculars and spotlight for guano/staining Possible corridors for netting: none/poor marginal excellent Picture Files: 23424 Additional Comments:
check large bridges with bionoculars and spotlight for guano/staining Possible corridors for netting: none/poor marginal excellent Picture Files: 33 4 34 Additional Comments:
Possible corridors for netting: none/poor marginal excellent Picture Files: 33 4 34 Additional Comments:
Picture Files: 33434 Additional Comments:
Picture Files: 23 4 24 Additional Comments:
Additional Comments:
odertylake. Filled W water now,

	No.							NCDO
Observers:	MM SI	d .		TIP or proj	ect number:	I-4400/I-4	700	
Date:	3/26/17	5		Road Nam	e/SR Numb	er: 58.35	152.600	wet-1002
County:	Buncombe			Waterbody				1
Site #:	11 wast	4 63	Lattitude:	35,5196	ii ii	Longitude:	82.591	51
Canopy Co	ver (% close	0-25%		26-50%	1	51-75%		76-100%
Surroundin	g habitat (%	developed	25	natural	75	agricultura		-
								100
Presence o				In project a	Tarana I	-	In vicilnty	200
	caves	1000		yes	no		yes (no
	abandoned			yes	no		yes	no.
	rock outcro	ps w/ protec	ted crevices	s yes	no		yes	no
Is there a w	vater source	nearby?			- (yes		no
	type:			river (stream	pond	lake	swamp
	features:			stagnant	clear	pools	rapids	
			Three	fram in	LATTUSA	ted pe	ec./	
Bridge type			and a		1		NO CONTRACTOR	
- 0-	concrete gu	ard rails				yes		по
	concrete de	eck	A Table of the last			yes		по
	concrete su	pport beam	s/girders			yes		по
	concrete er	nd walls				yes		по
			Annual Control					
	vertical crev	vices 0.5-1.2	25 inches wi	de,				
	at least 4 in	ches deep a	and sealed a	at top		yes		no
	crevices > 1	12 inches de	ep and not	sealed		yes	100	no
	bridge/roos	t height at k	east 5 feet a	bove ground	or water	yes		no
				3.44		1	feet	110

				es beneath l		-	1271	
	protected fr	om wind an	d moisture f	or night roo	sting	yes		no
Bridge type	continued							
2. 484	sun exposu	minimal		(hardly any	summer su	n for any no	rtion of the	dayl
		moderate		No. of the last of	er sun at lea			
		maximum		\$5000000000000000000000000000000000000	er sun for m		**************************************	

							- 30-
	10110	HIME	M8891	28	JEJI	ish:	BM 188
7	bridge align	ment:	N/S E/M	0	NW/SE	NE/SW	4150
		0011-1	MAT SHOW		10.707		Al and
				-			COLEVE
				1700			
Culvert typ			1909/		-	1000	
	concrete bo			0	yes		no
	5-10' tall ins		= 15 1tall	4	yes.		no
	at least 300				yes		800 maybe 150-80
	are opening	s protected	from high wind?	- 6	yes		no
	crevices				yes		(no)
	rough surfa	ces or impe	rfections				
	in concrete				yes		no
luman dis	sturbance or t	raffic under	bridge/in culvert		high (low)	none
Migratory I	birds nests ur	rder bridge/	culvert?	1. 27	,		
		species		100		number	
		species				number	The second second
	61	species	491/			number	
	check bird	the state of the s	binoculars to	see if an	y bats an		n them.
Siddagas	of hote voice	haldan (n. d. u	42			The same of the same	
Evidence c	of bats using *check larg		with bionoculars		yes otliaht fo	r guano/st:	no sining*
						100	
ossible o	orridors for n	etting:	none/poor	0	marginal		excellent
Picture File	es: 25,21	027			-	100	THE STATE OF THE STATE OF
	Comments:	10.1					
		1 0	4 10	-		1.0	1. / / -
	25	de By	side large	COX	CUL	HER 153	or Vehicles.
	12. 0		u and no	26 4	20 0		1. 4 . 1
	Ver	7 51400	an ano opi	10-16	0 8	ad roos	ating potentice (
		***************************************					to an eyed belowers.

	No.		Milai				P00-70	NCDOT
Observers:	CM JA			TIP or pro	ject number:	I-4400/I-4	700	
Date: 3/	20/13			Encloses realizations	ne/SR Numbe		Bridge	10001
County:	Buncombe				y: Franch			70000
Site #: /2	waype 6	4	Lattitude:	35.513	98	Longitude:	82.58	5/6
Canopy Co	ver (% close	0-25%	0	26-50%		51-75%		76-100%
Surroundin	g habitat (%	developed		natural	100	agricultura		11000
D							2000000	200
Presence o	Contract Contract	100		In project	1-75		In vicinty	777
	caves			yes	no		yes	по
	abandoned			yes	no		yes	no
	rock outcro	ps w/ prote	cted crevices	yes	no		yes	no)
Is there a w	rater source	nearby?				yes		no
	type:		(river	stream	pond	lake	swamp
	features:			stagnant	clear	pools	rapids	Protection -
Driden tone							The state of the s	1
Bridge type	concrete gu	ard rails	10000			yes /		no
	concrete de		1000			yes	2007	no
	concrete su	pport beam	s/girders		100	yes		no
	concrete er					yes		no
	undical area	inos O E + 1	25 inches wid	40	T 007000		or and	19107
						-22		1
	at least 4 in	cnes deep	and sealed a	t top		yes	200	no
	crevices > 1	12 inches di	eep and not	sealed		yes		no
	bridge/roos	t height at l	east 5 feet al	oove groun	d or water	yes		no
						- 20	feet	1
	vertical con	crete or wo	oden surface	s beneath	bridge deck		2 0000	
	protected fr	om wind an	d moisture fo	or night roo	sting	yes		no
Bridge type	continued							
	sun exposu	minimal		(hardly an	y summer su	n for any po	rtion of the	day)
		moderate			er sun at lea			-
		maximum	1		er sun for mo			

	0110	Him	THER	3220	TISH	BH t			
b	ridge align	ment:	N/S	EW (NW/SE	NE/SW			
		-				11011			
Culvert type									
C	oncrete bo	x culvert			yes		no		
5	10' tall ins	side			yes		no		
al	least 300	" long			yes		no		
a	re opening	s protected	from high w	rind?	yes		no		
C	revices				yes		no		
ro	ough surfa	ces or impo	erfections						
in	concrete				yes		no		
						2000	-		
Human distur	bance or t	raffic unde	r bridge/in cu	lvert.	high	low	none		
Migratory bird	e nacte ur	odar bridga	(culvert?	N				-	
migratory one	o Hoolo ui	species_	COULACTEL	100		number	-		
		species				number			
		species				number			
*0	heck bird	Control of the Contro	h binocular	s to see if a	ny bats are		them."		
							(11)(0)(2)		
Evidence of b	and the second second second second				yes	(no		
0	heck larg	e bridges	with bionoc	ulars and s	potlight for	guano/sta	ining		
Possible corri	dors for no	etting:	none/poor		marginal	-	excellent		
STATE OF THE PARTY		101110000							
Picture Files:	28,29	30.3/ 5	2 33						
Additional Cor		1111	1						

Large Bridges with slight potential for bot roosting in the thousand soints only. Abut ments have wide but shallow crevices and only at sides of each bridge. Expansion justs on deck look >1" wide and no good landing spots adjacent.

Low potential

	No.			HENRY.	1993			NCDO1
Observers:	CM 51	1		TIP or pro	ject number:	I-4400/I-47	100	
Date:	3/260				ne/SR Numb			
County	Buncombe			Waterbod	y UT			
Site #: 13	waypoint	#65	Lattitude:	35.5/56	Comment Control	Longitude:	82.58	831
Canopy Co	ver (% close	0-259		26-50%	1 - 6	51-75%	-	76-100%
Action to the property of	g habitat (%			natural	100	agricultural		
				100000				F 71 F
Presence o	d:			In project	area		In vicinty	
	caves			yes	(nd)	-	yes	(00)
	abandoned	mines		yes	no		yes	(no)
-	rock outcro	ps w/ prote	cted crevice	1000	no		yes /	no
					2000		(
s there a v	vater source	nearby?				yes		no
	type:		-18	river	stream	pond	lake	swamp
	features:			stagnant	(clear)	pools	rapids	- 1000
					2 6	Pt wie		at haso
Bridge type					-	2.00.190	19.0	The same
-	concrete gu	ard rails				yes		no
	concrete de					yes		по
	concrete su		ns/girders	100	-	yes		no
	concrete er	***************************************				yes		по
				521		1-1-		
	vertical crev	rices 0.5-1.	25 inches w	ide.	12000	SITHER		12111
			and sealed			yes		no
			707.007185				100000	
	crevices > 1	2 inches d	eep and not	sealed		yes		no
	-					700		110
	bridge/roos	t height at l	east 5 feet a	above groun	d or water	yes		no
						1	feet	1100
	vertical con	crete or wo	oden surfac	es beneath	bridge deck	1130.01	1100	177.51
				for night roo		yes		no
	P. 010 010 011		- IIIolotai o	- mgm. roo	- III	1-0		110
Bridge type	continued							
179	sun exposu	minimal		(hardly an	y summer su	n for any no	tion of the	day)
		moderate			er sun at lea			100
	1	maximum		THE CONTRACTOR OF STREET	er sun for m		- 007-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-	
1		THE SHITTER		from outility	di anii ini ili	ore man oro	nours)	

	1010	1000	mae	9886	DEBI	BH	188	Le .
	bridge align	ment	N/S	E/W	NW/SE	NE/SW	-	10.10
- 17	uriuge align	MINGHIS.	140	Livi	HAMOL	THEOTH		
			-	House bearing	11111			200
			-		-			
					-		-	
Colored boxes			-		-	-	100	
Culvert type		and and	-				100	
	concrete bo				yes		no	
	5-10' tall ins				yes		no	
	at least 300				yes		no	
	The second secon	as protected	from high w	rind?	yes		no	
	crevices				yes		no	
		ices or impe	rfections				1-1-1	
	in concrete				yes		no	
	1	7710	V-120000		220			
Human distu	urbance or t	traffic under	bridge/in cu	Ivert	high (low	none	
Migratory bir	rds nests ur	nder bridge/	culvert?					
		species_			number_			
		species				number_		-
		species				number_		
	check bird	d nests with	h binocular	s to see if a	iny bats are	roosting	in them.	
			0 6					
			nto Rock		yes		no	
	*check larg	ge bridges	with bionoc	ulars and s	potlight for	guano/st	aining"	military .
					-)		
	ridors for n	etting:	none/poor		marginal		excellent	
Possible cor			none/poor		marginal		excellent	
Possible cor Picture Files	34,35		none/poor		marginal		excellent	
Possible cor	ridors for n	etting:	none/poor		marginal		excellent	
Possible cor Picture Files Additional C	: 34,35 omments:	136		licent of		of I		5/0p0 0
Possible cor Picture Files Additional C	: 34,35 omments: I Rock	36 200+c 35'×10	rapadg Chiph		6 Tot		TOOW shall	
Possible cor Picture Files Additional C	: 34,35 omments: I Rock	36 200+c 35'×10	rapadg Chiph		6 Tot		TOOW shall	
Possible cor Picture Files Additional C Small Style CTe	: 34,35 omments: I Rock an	36 35' × 10 No da	rapady Thigh phole	sort	to Tot nouts a portensi	we co	t 20 W my shall	
Possible cor Picture Files Additional C Small Style CTe	: 34,35 omments: I Rock an	36 35' × 10 No da	rapady Thigh phole	sort	to Tot nouts a portensi	we co	t 20 W my shall	
Possible cor Picture Files Additional C Swall Style Cre Co	an.	No de used	rapadg Phiph phole as su	sort mer	to Tot notes a postensi noost	for l	TOOW shall	nor

	1	Bat	Habit	tat A	sses	smer	nt Fo	rm
	A.	Dut	idol	iat /	.0000	OTTIO	101	NCDO
Observers:	MITA			TIP or pro	ject number:	I-4400/I-4	700	
Date:	3/27/13				ne/SR Numbe			100205
County:	Buncombe	,		Waterbod	y:	D. L.	- 0	-
Site #:	14 10001	mintal 7	Lattitude:	35.4966	7	Longitude:	82,56	1.29
Canopy Co	ver (% close			26-50%		51-75%		76-100%
	g habitat (%	1		natural	100	agricultural		
							21000-01001	
Presence o				In project	1,000		In vicinty	-
	caves			yes	no		yes (no
	abandoned			yes	no		уев	(ho)
	rock outcro	ps w/ protec	ted crevices	yes	no		yes (no)
Is there a w	vater source	nearby?				yes		no
	type:			river	stream	pond	lake	swamp
	features:			stagnant	clear	pools	rapids	
Bridge type	-						THE REAL PROPERTY.	
bridge type	concrete gu	uard rails				yes	They call	no
	concrete de					yes	1000	no
	concrete su	pport beam	s/girders			yes		no
	concrete er	nd walls			(yes		по
	vertical crea	vices 0.5-1.2	5 inches wir	No.	-			
		nches deep a				yes		20
	at reast 4 ii	icres deep a	and seared a	пор	(yes	Supplier a	no
	crevices >	12 inches de	ep and not	sealed		yes	(no
						0		
	bridge/roos	t height at le	ast 5 feet at	oove groun	nd or water	yes		no
		-				100	feet	
	vertical con	crete or woo	oden surface	s beneath	bridge deck			
		rom wind an			And the second second	yes	27-2	no
Bridge type	, continued							
	sun exposu	minimal		(hardly an	y summer su	n for any po	rtion of the	day)
	The second	moderate			ner sun at lea			
		maximum		September 2014 and a continued	ner sun for m			

	11110	TUIN	BRILL	382/	JBII	(IBH)	SE TIL
	bridge align	ment	N/S	EW	NW/SE	NE/SW	
ulvert type	9						
	concrete bo	x culvert			yes		no
	5-10' tall ins	side			yes		no
	at least 300	" long			yes		no
		A STATE OF THE PARTY OF THE PAR	from high w	rind?	yes		no
	crevices	0.0000000000000000000000000000000000000	11300.00	11100	yes		no
	rough surfa	ces or impe	erfections				
	in concrete				yes	Talala	no
					,		
luman dist	urbance or t	traffic under	bridge/in cu	livert	high	low)	none
0.71007.000			arragem, or				1100100
figratory b	irds nests ur	oder bridge	/culvert?				1000
ogratory o	00 110313 0	-	Raven	4.545/	2)	number	same pair
		species	Lanter	PA-7-12-1	1	number	
		species				number	1619.07
	*check bire	the state of the s	h binocular	s to see if :	any hats ar		n them *
					,	a recounting	T Green
vidence o	f bats using	bridge/culy	ert?		yes		no
VIGOTIOC O	the second constitution of the second second		with bionoc	ulars and	-14	or quano/st	
				The same	opening	9	
nasible co	midors for n	etting	none/poor	1	marginal		excellent
OSSILITO GO	THOUS FOILTH	Citating.	Tionscrpoor	-	marganar		GAMMINI
icture File	s: 49,43,4	14.45				-	100111
	Comments:	411					
Only	decen	t crev	ices ad	sides . No	of enc	1 walls F bad.	2 15"x 8

		-						NCDOT	
Observers	CM, J	A		TIP or pro	ject number:	1-4400/1-4	700		
Date:	3/27/1	3		Road Nan	ne/SR Numb	er: Brida	to 1001	574/00	V
County:	Buncombe			Waterbodi					
Site #:	15 ways	met # 68 L	attitude:	35. 4907	16	Longitude:	82.5	62.51	
Canopy C	over (% close		,	26-50%		51-75%	1	76-100%	
Surroundi	ng habitat (%	developed		natural	100	agricultural			1
Presence	-4			In monlest			to idellate		
Presence				In project	1000		In viciinty	(2)	ł
	abandoned	minne		yes	no		yes	no	ł
				yes	Toronto.		yes	(no)	
	rock outero	ps w/ protecte	a crevices	yes	no		yes	no'	ł
s there a	water source	nearby?				yes		no 255	4
	type:		- (river)	stream	pond	lake	(swamp)	1
	features:		- 22	stagnant	clear	pools	rapids	-	1
Bridge typ							HOUSE STREET		
orioge typ	concrete gu	ard rails				yes)	1000	no	t
	concrete de					ves	10101	no.	
		pport beams/g	nirders	-1007		yes	· · · · · · · · · · · · · · · · · ·	no	
	concrete er		gridate			yes		no	
						100	100/000	di di di di	
	vertical crev	vices 0.5-1.25	inches wid	ie,					
	at least 4 in	ches deep an	d sealed a	t top		yes	(no	
	crevices > 1	12 inches deep	and not	sealed		yes	/	no	
						100	1		
	bridge/roos	t height at leas	st 5 feet al	bove groun	d or water	yes		no	
						15	feet		
	2017								
		crete or wood				2000			
	protected fr	om wind and r	noisture fo	or night roc	eting	yes		no	
Bridge typ	e, continued								
	sun exposu	minimal		(hardly an	y summer su	n for any po	rtion of the	day)	
		moderate		(full summ	er sun at lea	st 3.5 hours)	100	
	-	maximum		(full summ	er sun for m	ore than 3.5	hours)		

			SILLS	SSEE	PUBLIC	IBH.	188 TB	
	bridge align	ment:	N/S	E/W	NW/SE	NE/SW		
				100				
							100	
ulvert type	9							
- 200	concrete bo	ox culvert		0.0	yes		no	
	5-10' tall ins	side			yes		no	
	at least 300	y' long			yes		no	
	are opening	gs protecte	d from high	wind?	yes		no	
	crevices		-		yes		no	
	rough surfa	ices or imp	erfections		100			
	in concrete	Annual and a series			yes		no	
						-67		
uman dist	turbance or t	traffic unde	r bridge/in r	culvert	high	low	none	
igratory b	irds nests ur	nder bridge	/culvert?					
		species				number		
		species				number		
		species				number		
	check bird	d nests wi	th binocula	irs to see if	f any bats are	roosting i	n them.	
vidence o	f bats using	bridge/culy	ert?		ves		no	
				culars and	spotlight fo	r guano/sta	17742	
							0.000	
ossible co	orridors for n	etting:	none/poo	r	marginal)	excellent	
1 5	11/	un.	100			-	-	
	s. 46,	4 /		_				
ARCHITECTURE AND ARCHITECTURE	Comments:							

	N. A.							NCDO
Observers	CM	JA		TIP or pro	ject number:	I-4400/I-47	700	-
Date: 3/	27/13			Road Nam	ne/SR Numb	er: —		
County:	Buncombe			Waterbod	y			
Site #.	+ yough =	109	Lattitude:	35.485	84	Longitude:	82,56	017
Canopy Co	over (% close	0-25		26-50%	1	51-75%		78-100%
Surroundin	g habitat (%	develope	d	natural_/	00	agricultural		
		100000000000000000000000000000000000000		A CONTRACTOR				
Presence (of:			In project	area		In vicinty	_
	caves			yes	(no)	100 Mary 100	yes	Cno
	abandoned	mines		yes	no		yes	no
->	rock outcro	ps w/ prote	acted crevices	yes	no	(yes)	no
								-
s there a	water source	nearby?				yes	(no)
	type:	-		river	stream	pond	lake	swamp
	features:			stagnant	clear	pools	rapids	
Bridge type			10000					
	concrete gu	uard rails				yes		no
	concrete de	eck				yes		no
	concrete su	apport bear	ms/girders			yes		no
	concrete er	nd walls				yes		no
	vertical cre	vices 0.5-1	.25 inches wi	de		O Alle or		100
	100000000000000000000000000000000000000		and sealed a			yes		no
		-				100		
	crevices >	12 inches	deep and not	sealed		yes		no
	- September 1		and the same of th					
	bridge/roos	t height at	least 5 feet a	bove groun	d or water	yes	1 7	no
							feet	
								100
	vertical con	crete or w	ooden surface	s beneath	bridge deck			
	protected fr	om wind a	nd moisture fo	or night roo	sting	yes		no
Bridge type	s, continued							
	sun exposu	minimal		(hardly arr	y summer su	n for any po	rtion of the	day)
		moderate			er sun at lea			111
		maximum	91	Parameter and the second	er sun for m			

Culvert type concrete box culvert 5-10' tall inside at least 300" long are openings protected from high wind? yes no crevices rough surfaces or imperfections in concrete Human disturbance or traffic under bridge/in culvert Wigratory birds nests under bridge/culvert? species species number species number *check bird nests with binoculars to see if any bats are roosting in them.* Evidence of bats using bridge/culvert? Recent yes no *check large bridges with bionoculars and spotlight for guano/staining* Possible corridors for netting: none/poge marginal excellent Picture Files: 18, 19, 50 Additional Comments: Small 15 x 12' rock outcop with sweral 4 - 12" day / Sinch NO COULS or large captiles, Could be used as roost for lea a septent from 15, but not for any bats				d Last	1	4.0
concrete box culvert 5-10' tall inside at least 300' long are openings protected from high wind?	HIIIQTU	110111165	1986/	4.1611	91511	BO THE
concrete box culvert 5-10' tall inside at least 300" long are openings protected from high wind? crevices rough surfaces or imperfections in concrete uman disturbance or traffic under bridge/in culvert bigratory birds nests under bridge/culvert? species species number species numbe	bridge alignment.	N/S	E/W	NW/SE	NE/SW	1970
concrete box culvert 5-10' tall inside at least 300" long are openings protected from high wind? crevices rough surfaces or imperfections in concrete uman disturbance or traffic under bridge/in culvert igratory birds nests under bridge/culvert? species species number species number "check bird nests with binoculars to see if any bats are roosting in them." vidence of bats using bridge/culvert? Rough officer of yes "check large bridges with bionoculars and spotlight for guano/staining" ossible corridors for netting: none/poor marginal excellent SWAN 15/X12 rock officer with several 4-12" day /5 inch plants of large apprices, Could be used as roost for lea		the American		4-51		
concrete box culvert 5-10' tall inside at least 300" long are openings protected from high wind? crevices rough surfaces or imperfections in concrete uman disturbance or traffic under bridge/in culvert igratory birds nests under bridge/culvert? species species number						
concrete box culvert 5-10' tall inside at least 300" long are openings protected from high wind? crevices rough surfaces or imperfections in concrete yes no aman disturbance or traffic under bridge/in culvert gratory birds nests under bridge/culvert? species species number species						
concrete box culvert 5-10' tall inside at least 300" long are openings protected from high wind? crevices rough surfaces or imperfections in concrete uman disturbance or traffic under bridge/in culvert igratory birds nests under bridge/culvert? species species number species number "check bird nests with binoculars to see if any bats are roosting in them." vidence of bats using bridge/culvert? Rough officer of yes "check large bridges with bionoculars and spotlight for guano/staining" ossible corridors for netting: none/poor marginal excellent SWAN 15/X12 rock officer with several 4-12" day /5 inch plants of large apprices, Could be used as roost for lea		1 10 10000				
5-10' tall inside at least 300" long are openings protected from high wind? yes no crevices rough surfaces or imperfections in concrete uman disturbance or traffic under bridge/in culvert ligratory birds nests under bridge/culvert? species species number species number species number *check bird nests with binoculars to see if any bats are roosting in them.* vidence of bats using bridge/culvert? Rock official yes no *check large bridges with bionoculars and spotlight for guano/staining* ossible corridors for netting: none/poge marginal excellent SMAN 15/X/2 rock official with several H-12" deep Sinch DCONGS of large capyious, Cool of be used as roost for lea	ulvert type					
at least 300" long are openings protected from high wind? yes no crevices yes no rough surfaces or imperfections in concrete yes no luman disturbance or traffic under bridge/in culvert high low none ligratory birds nests under bridge/culvert? species	concrete box culve	ert		yes		no
are openings protected from high wind? crevices rough surfaces or imperfections in concrete wes no luman disturbance or traffic under bridge/in culvert ligratory birds nests under bridge/culvert? species species number species number *check bird nests with binoculars to see if any bats are roosting in them.* widence of bats using bridge/eulvert? Rock off roff yes no *check large bridges with bionoculars and spotlight for guano/staining* cossible corridors for netting: none/pogs marginal excellent icture Files: 48,49,50 dditional Comments: Small 15/x13' rock offcrop with sweral 4-12" day / Sinch pocaus or large alguises, Could be used as roost for les	5-10' tall inside			yes		no
crevices rough surfaces or imperfections in concrete yes no fluman disturbance or traffic under bridge/in culvert figratory birds nests under bridge/culvert? species species number spec	at least 300" long			yes		no
rough surfaces or imperfections in concrete yes no furnan disturbance or traffic under bridge/in culvert high low none figratory birds nests under bridge/culvert? species number species number number species number "check bird nests with binoculars to see if any bats are roosting in them." cividence of bats using bridge/culvert? Rock official yes no "check large bridges with bionoculars and spotlight for guano/staining" Possible corridors for netting: none/poge marginal excellent Picture Files: 48,49,50 additional Comments: SWAN 15/X/2 rock official to used as roost for less than the used that the used as roost for less than the used that the	are openings prote	cted from high v	wind?	yes		no
in concrete yes no furnan disturbance or traffic under bridge/in culvert high low none figratory birds nests under bridge/culvert? species	crevices			yes		no
figratory birds nests under bridge/culvert? species	rough surfaces or	imperfections				
Figratory birds nests under bridge/culvert? species	in concrete			yes		no
Alignatory birds nests under bridge/culvert? species	1					100000
species number the check bird nests with binoculars to see if any bats are roosting in them.* Indicate of bats using bridge/sulvert? Rock official yes no check large bridges with bionoculars and spotlight for guano/staining* Indicate Files: 48,49,50 marginal excellent section of the second of the seco	luman disturbance or traffic u	nder bridge/in ca	ulvert	high	low	none
species number the check bird nests with binoculars to see if any bats are roosting in them.* Indicate of bats using bridge/sulvert? Rock official yes no check large bridges with bionoculars and spotlight for guano/staining* Indicate Files: 48,49,50 marginal excellent section of the second of the seco						
species number species number "check bird nests with binoculars to see if any bats are roosting in them." ividence of bats using bridge/sulvert? Rock official yes no "check large bridges with bionoculars and spotlight for guano/staining" Possible corridors for netting: none/pogo marginal excellent Picture Files: 48,49,50 Additional Comments: SMAN 15/X12 rock official with several 4-12" day /sinch 10 Counts of large crevices, Could be used as roosely for less than the used	figratory birds nests under bri	idge/culvert?				
species number check bird nests with binoculars to see if any bats are roosting in them.* vidence of bats using bridge/eulvert? Rock offcrof yes no check large bridges with bionoculars and spotlight for guano/staining* rossible corridors for netting: none/poor marginal excellent ricture Files: 48,49,50 additional Comments: Small 15/x12 rock offcrop with several 4-12" deep /Sinch 10 Courts of large applices, Could be used as roost for lea	specie	5			number_	
check bird nests with binoculars to see if any bats are roosting in them. vidence of bats using bridge/eulvert? Rock official yes no *check large bridges with bionoculars and spotlight for guano/staining* rossible corridors for netting: none/poor marginal excellent Picture Files: 48,49,50 additional Comments: SMAN 15/X12 rock offices with several 4-12" day / Sinch NO CONUS OF large CAPVICES, Cool ld be used as roost for les	specie	s			number_	
vidence of bets using bridge/outvert? Rock officially yes no "check large bridges with bionoculars and spotlight for guano/staining" ossible corridors for netting: none/poor marginal excellent licture Files: 48,49,50 dditional Comments: Small 15/x12 rock official with several 4-12" day /sinch NO COMES OF large CRIVILLS, Could be used as roose for les	specie	is			number_	
ossible corridors for netting: none/poor marginal excellent icture Files: 48,49,50 dditional Comments: SMAN 15/X12 rock outcrop with several 4-12" doop 15 inch NO COURS ON large CIEVILLES, Could be used as rocket for les	*check bird nests	with binocular	s to see if	any bats ar	e roosting	in them.*
"check large bridges with bionoculars and spotlight for guano/staining" ossible corridors for netting: (none/poor) marginal excellent licture Files: 48,49,50 dditional Comments: SMAN 15/X12 rock outcrop with several 4-12" doop 15 inch ND CONSON large CRVICES, Could be used as roosel for les	vidence of hote unless heldest	mana Park	-ot - o			
Possible corridors for netting: (none/poge) marginal excellent Picture Files: 48,49,50 Idditional Comments: SMAN 15/x12 rock outcrop with several 4-12" doop 15 inch ND CONSON large CRYILLS, Could be used as roosel for les					er auanolet	No. of Contract of
odditional Comments: SMAN 15/x12' rock outcrop with several 4-12" doop /sinch 10 CONSON large CARVILLES, Could be used as rooset for les	Check large brid	ges with biolioi	cuiars and	sponight it	or guariovst	aming
odditional Comments: Small 15/x12' rock outcrop with several 4-12" doop 15 inch NO COUNS ON large CRUICES, Could be used as rocket for les	ossible corridors for netting:	(none/poor	>	marginal		excellent
Small 15/x/2' rock outcrop with soveral 4-12" doop Sinch NO COURS Or large crevices, Could be used as rocket for lei				100000000000000000000000000000000000000		10000000
Small 15/x/2' rock outcrop with several 4-12" doop 15 inch 10 Cansor large capties, could be used as rooset for les	icture Files: 48,49,50	2				
Small 15/x/2' rock outcrop with several 4-12" doop Sinch NO CONSON large crevices, Cowld be used as rooset for les						
	SMAN 15/X/	2' rock or	, Coul	y po n	sed as	12" doep /sinch roost for le
				2		

	No.		MIGN	10.00				NCDOT
Observers:	CMJA			TIP or pro	ject number:	I-4400/I-47	'00	
Date:	3/27/13			Road Nan	ne/SR Numb	er: 7-74-b	ung sheals R.	Beings "
County:	Buncombe			Waterbod	y: -nd			
Site #. 17	went # 7	2	Lattitude:	35.481	70-11-11-1	Longitude:	82.5	5688
	ver (% close		D	26-50%		51-75%	- table	76-100%
Surrounding	g habitat (%	developed	55	natural	50	agricultural	Section 100	
Presence o	f:			In project	area		In viciinty	steel le
	caves			yes	(ng)		yes	no
	abandoned	mines		yes	no		yes	no
	rock outcro	ps w/ protec	ted crevices	yes	no		yes	no
								-000
a there a w	vater source	nearby?			-	уба		nu
	type:			river	stream	pond	lake	swamp
	features:			stagnant	clear	pools	rapids	-
Bridge type			NOTES !					
	concrete gu	ard rails	10014		- 0	yes		no
	concrete de	ck	Tre			yes	PART .	no
	concrete su	pport beam	s/girders			yes		(no)
	concrete er	nd walls			1	yes		no
								2000
	vertical crev	vices 0.5-1.2	25 inches wi	de,	7 1400	014-1010-23		
	at least 4 in	ches deep	and sealed a	at top		yes	- (no
						CHRIST		-
	crevices > 1	12 inches de	ep and not	sealed		yes	- (no
	2022000000					(6)		
	bridge/roos	t height at k	east 5 feet a	bove groun	d or water	yes		no
				1000		- /5	feet	
	vertical con	crete or wo	oden surface	s beneath	bridge deck	100	10.0	
			d moisture f			yes	1	no)
	p. otootou ii	on wind an	a moiorai e i	or ragnerou	our og	100	-	110
Bridge type	, continued							
	sun exposu	minimal		(hardly an	y summer su	n for any po	rtion of the o	day)
		moderate		(full summ	ner sun at lea	st 3.5 hours		
	-	maximum		(full summ	er sun for m	ore than 3.5	hours)	
	-		1	100000000000000000000000000000000000000		Service Service	70336	

dge alignme	000	N/S)	E/W	NW/SE	NE/SW	BEI W	
ncrete box o	000	N/S)	EW	NW/SE	NE/SW		4
ncrete box o	000						
	ulvert						
	ulvert						
	ulvert		100				
	ulvert						
	ulvert				1		
or and institute				yes	- 7	no	
U tali inside	3			yes		no	
east 300" k	ong			yes		no	
	the second second	from high w	vind?	yes		no	
wices				1000		no	
gh surfaces	s or impe	rfections					
concrete				yes		no	
ance or traf	fic under	bridge/in cu	ilvert	high	low	none	
				-			
nests unde	er bridge	culvert?	Na				
	110000000000000000000000000000000000000		1		number		
sp	ecies				number		
sp	ecles				number		
neck bird n	ests wit	h binocular	s to see if a	any bats are	roosting i	n them.*	
ts using brid	dae/culv	ert?		ves		no	-
and the second second second second			ulars and	spotlight for	r guano/sta	ining*	
ors for netti	na:	none/poor		marginal	-	excellent	
		The state of the s					
		-		-		1	
ments:							
	openings provices up h surfaces concrete ance or traff nests unde sp sp sp seck bird ne ts using brid neck large I	openings protected vices igh surfaces or imper concrete ance or traffic under nests under bridger species species species species species oeck bird nests with ts using bridge/culve neck large bridges ors for netting:	openings protected from high was vices igh surfaces or imperfections concrete ance or traffic under bridge/in cultimests under bridge/culvert? species species species species species species species species orek bird nests with binocular ts using bridge/culvert? neck large bridges with bionocular to the species ore for netting: Indiana in the species of the species of the species of the species or the species of the sp	openings protected from high wind? wices gh surfaces or imperfections concrete ance or traffic under bridge/in culvert nests under bridge/culvert? species species species species species neck bird nests with binoculars to see if a seck large bridges with bionoculars and seck large bridges with bridges with bionoculars and seck large bridges with bridges with	openings protected from high wind? vices yes gh surfaces or imperfections concrete ance or traffic under bridge/in culvert nests under bridge/culvert? species species	openings protected from high wind? wices yes ugh surfaces or imperfections concrete ance or traffic under bridge/in culvert nests under bridge/culvert? species species number meck bird nests with binoculars to see if any bats are roosting in ts using bridge/culvert? yes neck large bridges with bionoculars and spotlight for guano/state ors for netting: none/poor marginal	e openings protected from high wind? vices yes no sigh surfaces or imperfections concrete yes no ance or traffic under bridge/in culvert high low none nests under bridge/culvert? species number species number species number speck bird nests with binoculars to see if any bats are roosting in them.* Its using bridge/culvert? yes no neck large bridges with bionoculars and spotlight for guano/staining* ors for netting: none/poor marginal excellent iments:

	-		1901					NCDO
Observers:	CMIA			TIP or pro	ject number:	1-4400/1-47	700	
Date:	3/27/13			Road Nam	ne/SR Numb	er: Love Shand	s. Bida	# 1000
County:	Buncombe	-7		Waterbod	y: Flench	Brook		
Site #: 1%	wayplat	73	Lattitude:	35. 482			82.55	753
CONTRACTOR OF THE PARTY	ver (% close		6	26-50%		51-75%	-	76-100%
Surrounding	g habitat (%)	developed	SD	natural_5	0	agricultural	OHIUD TIE	
Presence o	f:			In project	area		In viciinty	
	caves			yes	no		yes	no
	abandoned			yes	(no)		yes (no)
	rock outcro	ps w/ prote	cted crevices	yes	no		yes (no
s there a w	rater source	nearby?			0	yes		no
	type:		(river	stream	pond	lake	swamp
	features:			stagnant	clear	pools <	rapids	
Oridan huna								
Bridge type	concrete gu	ard rails	1000		/	yes	1000	no
	concrete de		William.		5	yes		no
	concrete su		ns/airders	A TOTAL	>	yes	A. 100 P. D. S.	no
	concrete en				1	yes		по
				1.50	-		adod to	
	vertical crev	rices 0.5-1.	25 inches wit	de,	-	1		
	at least 4 in	ches deep	and sealed a	t top	(yes		по
	crevices > 1	12 inches d	eep and not s	sealed		yes		no)
	bridge/roos	t height at 8	east 5 feet at	oove groun	d or water	yes		no
						6	feet	
	vertical con	crete or wo	oden surface	s beneath	bridge deck	1110	7 7 6	17
			nd moisture fo			yes		no
Tridge type	continued					20001		
and o Obe	sun exposu	minimal		(hardly are	y summer su	n for any no	rtion of the	(av)
		moderate		And the second second	er sun at lea			1/
	(maximum	\		er sun for me			

		34					4 C B	
	11110		911188	DISSI-		PL.	TPO M	No.
	bridge align	ment:	N/S	E/W)	NW/SE	NE/SW		137
	13300	- 0073	1000		WOL.			
	0				1			
			10000			-		
Culvert typ			401.50		100.00	-	-	
	concrete bo		-		yes		no	-
	5-10' tall in				yes		no	
	at least 300	THE RESERVE THE PARTY OF THE PA			yes		no	
	In the second second	as protecte	d from high v	vind?	yes		no	
	crevices				yes		no	
	rough surfa	Promise and the second	erfections		35/8	-		1400
	in concrete				yes		no	
Human dia	huthanna and	roffic und	v bridge to a	shoort	blab /	Inu)	0000	
numan dis	turbance or t	rame unde	er bridge/in cu	livert	high (low	none	
Maratan, b	lede moete u	nder belder	Standard?		-			-
Migratory c	irds nests u		Pigeons			mumb as		
		4 may 2				number_	18 res	ler.
	-		THEE S	CORTIDE	<u> </u>	number_	146 1455	2
	*ehack bin	species_	th binocular	e to see if a	no bate an	number_	in those *	
	CHECK DIT	u nests wi	ui binoculai	s to acc it a	my bats an	roosung	III LIIGIII.	
Evidanaa a	f bats using	bridge/out	enet?		(no	
CVIDETIOE C			with bionoc	ulare and	yes enotlight fo	r nuanniet	17.75	
	Greek rary	ge bringer	WILL DIOLOG	Juliars ario :	spoulgitt to	guariora	mining	
Possible o	orridors for n	offina:	none/poor)		marginal	-	excellent	
r cooloic o	ATTOCKED FOR TH	coorig.	Choriorpool		rivargiriai		excellers.	
Picture File	45"		177		-		-	
	Commente							
	outminume.	4 - 12		-		and.		
Enros	I W	, leibi	in s	E cor	not in oelow	end t. s	weell C.F	evice
	90	od pot	ential	For	othero	se la	1 bats	in th
			si de que	derand	worth	side	too.	

	No.			1861				NCDOT
Observers:	CANT	A		TIP or proje	ect number:	I-4400/I-47	700	
Date:	3/27/17			Road Name	e/SR Numbe	er: 4long J	26-01	
County:	Buncombe			Waterbody		-		
Site #:	19 WALD!	74	Lattitude:	35,4876	1	Longitude:	80.559	48
Canopy Co	ver (% close	(0-25%		26-50%		51-75%		76-100%
Surrounding	g habitat (%	developed	35	natural 2	15	agricultural	enter and	
				and the same		000000000000000000000000000000000000000	1000	P. DELE
resence o	f:	- 00		In project a	rea		In vicinty	
	caves			yes (no	and the	yes	00
	abandoned	mines		yes	no		yes (no
	rock outcro	ps w/ protec	ted crevices	yes (na		yes	(no)
				1997		-		11111111
s there a w	ater source	nearby?			-	yes		по
	type:	0000		river (stream	pond	lake	swamp
	features:			stagnant	clear	pools	rapids	
						DONN'N	NHE SOLD II	
Bridge type								
	concrete gu	ard rails	INSTITUTE IN			yes		по
	concrete de	eck				yes		по
	concrete su	pport beam	s/girders	1150 1150		yes		по
	concrete er	nd walls				yes		по
								11000
		vices 0.5-1.2						
	at least 4 in	ches deep a	and sealed a	at top		yes		no
						District Co.		
	crevices > 1	12 inches de	ep and not	sealed		yes		по
	bridge/roos	t height at le	ast 5 feet a	bove ground	or water	yes		по
				- 10			feet	
				es beneath b				1003
	protected fr	om wind and	d moisture f	or night roos	ting	yes		no
indge type	, continued					92 1 5 1 1 1 1 1 1		
	sun exposu					n for any po		day)
		moderate				st 3.5 hours		
		maximum		(full summe	r sun for me	ore than 3.5	hours)	

	10000	El tor	11122	1991	teti	In H	BROK	
	heldan allas	mont.	N/S	EW	NUMBER	NE/SW	NO COM	
	bridge align	ment	IMO	E/VV	NW/SE	NE/SVV		
		9071-7			4			-
		-		-	+			
				- 39				
Culvert typ			1999				177.77	-
July 175	concrete bo	ex culvert	127-175	1	yes		no	
	5-10' tall ins		1000		(yes)		no	
	at least 300)* long		((yes)		no	
		gs protected	from high w	vind?	yes		00	
	crevices				yes		no	
	rough surfa	ices or impe	rfections		1000			
	in concrete				yes		(no)	
							-	
Human dis	turbance or t	traffic under	bridge/in cu	livert	high	low	none	
		2000	1000					
Migratory b	oirds nests ur		culvert?					
		species				number_		
	-	species				number_	-	
		species				number_		
	*check bird	d nests with	binocular	s to see if	any bats are	e roosting	in them."	
- 14			-				-	
Evidence d	of bats using	Annual Contract of the Party of the Contract o		udam and	yes		no	
	cneck larg	je bnoges v	with bionoc	uiars and	spotlight fo	r guanorst	aining	-
Pacalhia a	orridors for n	ottina:	none/poor		marginal	-	excellent	-
USSIDIE C	JITIOUIS FOI TE	olurig.	Honeypoor		marginai		excellent	
Picture File	s: 51,52					-	-	-
	Comments:							

								NCDOT
Observers	CMTA			TIP or proj	ect number:	I-4400/I-47	700	
Date:	3/27/1	3		Road Nam	e/SR Numb	er: Bridge	# 1001	01
County:	Buncombe			Waterbody	: Powell C	1		
Site #: Jr	Langoint	475	Lattitude:	35,474			82.55	402
	over (% close			26-50%	(51-75%	THE OWNER	76-100%
Surroundi	ng habitat (%	developed	50	natural_5	0_	agricultural		
				to desire to				
Presence	Total			In project a	Living 1		In vicinty	Carrent I
	caves			yes 7	no		yes	no
	abandoned			yes (no		yes	no
	rock outcro	ps w/ protec	ted crevices	yes	no		yes	no
s there a	water source	nearby'/			1	yes		no
	type:		1	river /	stream	pond	lake	swamp
	features:			stagnant	clear	pools	rapids	E CONTRACTO
Bridge typ			ACCIONS.				200	-
anage typ	concrete gu	ard rails	and the			yes	1010	no
	concrete de	ck	HITTER			yes	W-77/8	no
	concrete su	pport beam	s/girders			yes		no
	concrete en	d walls				yes		no
			25 inches wid			COLUMN TO SERVICE STATE OF THE PERSON SERVICE STATE SERVICE STATE SERVICE STATE OF THE PERSON SERVICE STATE SERVICE STATE SERVICE STATE SERVIC		
	at least 4 in	ches deep	and sealed a	t top		yes	1000	no
	crevices > 1	12 inches de	ep and not	sealed		yes		no
							10	
	bridge/roos	t height at le	east 5 feet al	bove ground	f or water	yes	20.000	no
							feet	-
	vertical con	crete or wo	oden surface	s beneath: I	oridge deck			
			d moisture fo		the first of the same and the same and	yes		no
Bridge for	e, continued							
mindle rat	sun exposu	minimal		(hardly any	summer su	n for any po	rtion of the	day)
	au anpuau	moderate				st 3.5 hours		J.,
		maximum		(full summe				

10								
	bridge align	ment:	N/S	(EM)	NW/SE	NE/SW		NO.
				400			7/1	
Culvest tune			-			-		
Culvert type	concrete bo	ov culvert	100		yes		no	
	5-10' tall in		-		yes		no	
	at least 300				yes		no	
		gs protected	from high	wind?	yes		no	
	crevices			201000000000000000000000000000000000000	yes		no)	
		ces or impe	rfections		200			
	n concrete				yes	7	no	
					- 1000			
Human distu	rbance or	traffic under	bridge/in o	ulvert	high (low	none	
Migratory bir	ds nests u	nder bridge/	culvert?					
		species				number		_
		species				number_		
		species				number_		
	check bin	d nests with	binocular	rs to see if a	ny bats an	e roosting i	n them."	-
Evidence of	bats usino	bridge/culve	ert?		ves	7	no	
		Annual Contract of the Contrac		culars and s	14	r guano/sta		
Possible con	ridors for n	etting:	none/poor	5	marginal)	excellent	
Picture Files	£2		- 777			-		
Additional Co	-							

	No.							NCDO
Observers:	CMIT	4		TIP or pro	ject number:	I-4400/I-47	700	
Date:	3/27/1	3		The state of the s	ne/SR Numbe			1094
County:	Buncombe			Waterbod	y:	Dirag		1
	came lo	alouas 20	Lattitude:			Longitude:		
	ver (% close	THE RESIDENCE OF STREET		26-50%	1	51-75%		76-100%
	g habitat (%		50	natural_ <	50	agricultural		
Presence o				In project			In continue	
rieserioe o				In project:	7		In viciinty	(67)
	abandoned	minor		yes	(10)		yes (no
		ps w/ protec	ted crevices	yes	no	100000	yes	no no
		1000		53700			1	-
Is there a w	rater source	nearby?			_ ?	yes)		ñō
	type:			river	stream	pond	lake	swamp
	features:			stagnant	clear	pools	rapids	1000000
Bridge type								
anage type	concrete gu	and rails				yes		no
	concrete de					yes		no
		ipport beams	s/girders	TAIL YES T	10.17.25	yes		no
	concrete en					yes		no
	vertical crev	vices 0.5-1.2	5 inches wid	de,				
	at least 4 in	ches deep a	nd sealed a	t top		yes		no
								PER D
	crevices > 1	12 inches de	ep and not s	sealed		yes		no
	bridge/roos	t height at le	ast 5 feet at	oove groun	d or water	yes		no
							teet	
	vertical con	crete or woo	den surfece	e henoath	bridge deck			
		om wind and				yes		no
						5350		1000
Bridge type	, continued							
	sun exposu	minimal			y summer su	the second secon		day)
		moderate		(full summ	er sun at lea	st 3.5 hours)	1755
		maximum		(full summ	er sun for mo	ore than 3.5	hours)	

Culvert type concrete box culvert 5-10' tall inside at least 300" long are openings protected from high wind? yes no crevices rough surfaces or imperfections in concrete Human disturbance or traffic under bridge/in culvert Migratory birds nests under bridge/culvert? species species number
concrete box culvert yes no 5-10' tall inside yes no at least 300" long yes no are openings protected from high wind? yes no crevices yes no rough surfaces or imperfections in concrete yes no furnan disturbance or traffic under bridge/in culvert high low none Wigratory birds nests under bridge/culvert? species number
concrete box culvert yes no 5-10' tall inside yes no at least 300' long yes no are openings protected from high wind? yes no crevices yes no rough surfaces or imperfections in concrete yes no fuman disturbance or traffic under bridge/in culvert high low none figratory birds nests under bridge/culvert? species number
concrete box culvert yes no 5-10' tall inside yes no at least 300" long yes no are openings protected from high wind? yes no crevices yes no rough surfaces or imperfections in concrete yes no furnan disturbance or traffic under bridge/in culvert high low none Wigratory birds nests under bridge/culvert? species number
concrete box culvert
concrete box culvert
5-10' tall inside at least 300' long are openings protected from high wind? crevices rough surfaces or imperfections in concrete Human disturbance or traffic under bridge/in culvert Migratory birds nests under bridge/culvert? species species number
at least 300" long are openings protected from high wind? crevices rough surfaces or imperfections in concrete Human disturbance or traffic under bridge/in culvert Migratory birds nests under bridge/culvert? species species number
rough surfaces or imperfections in concrete Human disturbance or traffic under bridge/in culvert Migratory birds nests under bridge/culvert? species species number species number *check bird nests with binoculars to see if any bats are roosting in them.*
rough surfaces or imperfections in concrete Human disturbance or traffic under bridge/in culvert Migratory birds nests under bridge/culvert? species
in concrete yes no Human disturbance or traffic under bridge/in culvert high low none Migratory birds nests under bridge/culvert? species
Human disturbance or traffic under bridge/in culvert high low none Migratory birds nests under bridge/culvert? species
Migratory birds nests under bridge/culvert? species
Migratory birds nests under bridge/culvert? species
speciesnumberspeciesnumber
speciesnumberspeciesnumber
species
speciesnumber *check bird nests with binoculars to see if any bats are roosting in them.* Evidence of bats using bridge/culvert? yes
check bird nests with binoculars to see if any bats are roosting in them. Evidence of bats using bridge/culvert? yes no
Evidence of bats using bridge/culvert? yes no
circus in ge bridges with biolioculars and spoulght for guartostalling
Possible corridors for netting: none/poor marginal excellent
ossess delinera for ficting. Frenched Intelligence (Marginet
Picture Files: 54
Additional Comments:
large (10" high) vehicular box culvert, smooth with

Bat Habitat Assessment Form NCDOT Observers: CM ? TIP or project number: I-4400/I-4700 Road Name/SR Number: Glean Bridgel & Bridge 100069 Date: Buncombe Waterbody: County: Site # 23 way pand # 80 35.45675 Lattitude: Longitude: \$2.54964 26-50% 51-75% 76-100% Canopy Cover (% close Surrounding habitat (%) developed natural agricultura In vicinty Presence of: In project area (ne) Cho yes **CBV88** yes abandoned mines по TIO) yes rock outcrops w/ protected crevices yes (00 yes no) yes is there a water source nearby? no river lake gmawa type: stream pond stagnant features: clear pools rapids Bridge type concrete guard rails no yes. concrete deck no concrete support beams/girders (no) yes concrete end walls YES no vertical crevices 0.5-1.25 inches wide. at least 4 inches deep and sealed at top yes no crevices > 12 inches deep and not sealed yes no yes bridge/roost height at least 5 feet above ground or water no vertical concrete or wooden surfaces beneath bridge deck protected from wind and moisture for night roosting no yes Bridge type, continued (hardly any summer sun for any portion of the day) sun exposu minimal moderate (full summer sun at least 3.5 hours) (full summer sun for more than 3.5 hours) maximum

Culvert type	alignment:	N/S	EW	NW/SE	NE/SW		118
The state of the s		Miki-I redi	Non-Income				
The state of the s		100014	A contract of				-
Culvert type				1001			
The state of the s				March .			miG - th
The state of the s		Apro.I			9-4		
				1100		-	\$779V50739
	ete box culvert	Lehon		yes		no	
170770	all inside			yes		no	
	st 300" long		100	yes		no	de corid
	enings protecte	a from nigh v	MINGY	yes		no	
crevio	77			yes		no	
37768.755	surfaces or imp	errections			-	of the sections	0.5001
in con	crete			yes		no	
A service all at subserve	o or troffic und	er beidene fin er	theet	high	low	none	W-200
Human disturband	e or trainic unot	a unugenn c	meet (nigit	IUW	TIME	620
Migratory birds ne	ata undar bridas	Chardunian					Name of
viigratory birds ne	species	prodivert.			number		
	species_				number		0.70
	species	7-77		7	number	400	7
chec	k bird nests wi	th binocula	rs to see if	any hats ar		in them.	14.44
Cinc	K Dild ilosto iii	ui billoculu		,			10000
Evidence of bats	using bridge/cut	unrt?		yes		no	
	k large bridges		culars and		or guano/st		
- 0.00		20000	THE RESERVE	1,110,000,000	HART (IX.255)	00,000,000	
Possible corridors	for netting:	none/poor	(marginal	5	excellent	100
DUDING SUTTONIO							
Picture Files: 55	55657				1	MAN TO THE	
a distance of the second	Annual Control						
-	Bridges.	. 1	1.11.	commiss	5 4 0	and en se	ils, expa
Twin	Brioges.	ONIT 5	, MALLONG	Citation	204 4		
2000	-11-1	2.14	1:41.	potentia	1 for 6	est room	Ti ma

Bat Habitat Assessment Form

								NCDOT
Observers:	Cm, JA			TIP or pro	ject number	I-4400/I-4	700	
Date: 3	128/13			Road Nam	ne/SR Numb	er: NC280	Bridge	440940
County:	Buncombe			Waterbod				
Site #: 24	waypolat	# 82	Lattitude:	35.4399	6	Longitude:	82.5	5358 1
	ver (% close	and the second s	Contract of the Contract of th	26-50%	1837	51-75%		76-100%
	g habitat (%		100	natural		agricultura		
				In medicat			To retailed	Dig RH-6
Presence o				In project	6	described.	In vicini	(no
	caves			yes	Cno		yes	carried Way.
	abandoned			yes	no		yes	Cno
	rock outcro	ps w/ protec	tea crevice	s yes	no		yes	(no
is there a v	water source	nearby?				yes		(no)
	type:			river	stream	pond	lake	swamp
	features:			stagnant	clear	pools	rapids	
							of cache	
Bridge type	concrete g	sand rails			5	yes	Total .	по
	concrete de					yes		no
		upport beam	eloirdare	that you to be		yes		no
	concrete e		arginuera					no
	CONCINUE 61	AU Wellia				yes		no stand to see
	vertical cre	vices 0.5-1.2	25 inches w	ide,	Policiono	Million soul	and more	Special Company
	at least 4 in	nches deep	and sealed	at top		yes		no
		40 1		and d		NAME OF THE PARTY	granoa s	A SPORTO BIO
	crevices >	12 inches de	eep and not	sealed		yes		(no
	bridge/roos	t height at k	east 5 feet a	bove groun	d or water	(yes)_		no
						15	feet	
	vertical cor	ncrete or wo	oden surfac	es beneath	bridge deck			
	protected f	rom wind an	d moisture	for night roc	esting	yes		no
Bridge type	e, continued							
- mge tjpt	sun exposi			(hardly an	y summer s	un for any po	ortion of t	he day)
	- and suppose	moderate				ast 3.5 hours		
		maximum	0			nore than 3.5	2.000	
		_	E C					

bridge alignment.	N/S E/W	NW/SE	NE/SW	11.29
. 000-1	LIDELY section to	ajest skill		
	THORNAS HOL	transis (mail		
		SCHOOL STATE		
Culvert type			tille!	
concrete box culvert		yes		no
5-10' tall inside	MARITE	yes		no
at least 300" long		yes		no
are openings protects	ed from high wind?	yes		no
crevices		yes		no
rough surfaces or imp	perfections			
in concrete	- AUDIO 18-04	уев		no
luman disturbance or traffic und	er onagevin cuivert	nigh	IUW	HOHE
Aigratory birds nests under bridg	e/culvert?			-18
species_	X		number_	
species_			number_	
species			number	
check bird nests w	ith binoculars to s	ee if any bats ar	e roosting	in them.
Evidence of bats using bridge/ou	lvert?	yes	-	(no)
check large bridge			or guano/si	taining
Possible corridors for netting:	(none/poor)	marginal	risk link qui	excellent
The second				
Picture Files: 58,59				
and the second s	and the		1.10	
metal deck- expan	usion joines	very large	د الماحد	1
	,	0.1	- 140	and a hallow
End wall expans	ton joints	Filled o	r wide	Gro >
Geordrail joi	to SE.	andrew time	1 roose	ger med belowtoop
Grardrain joi	NIS OHE	PERENT. OF	2/1/25/1/22	
concretesere	y Barrier +	ype-		
Control 1	C sit had become	Asset Algorithm		
	or sum of heads 31.5 had at such for expent tipes			

Appendix 4. Project Photographs (other than previously shown) Reference Table 1 (Appendix 1) for locations.



Picture 1A



Picture 1B



Picture 1C



Picture 1D



Picture 3A



Picture 4A



Picture 3C



Picture 4B



Picture 3B



Picture 6A



Picture 6B



Picture 8A



Picture 8B



Picture 8C



Picture 9B



Picture 10A



Picture 11A



Picture 11C



Picture 12A



Picture 12B



Picture 12C



Picture 12D



Picture 12E



Picture 12F



Picture 13B



Picture 13C



Picture bB



Picture 14A



Picture 14B



Picture 14C



Picture 14D



Picture 15A



Picture 15B



Picture 16B



Picture 16C



Picture 19B



Picture 20A



Picture 21A



Picture 23A



Picture 23B



Picture 23C



Picture 24A



Picture 24B



Picture 18A



Picture 18B



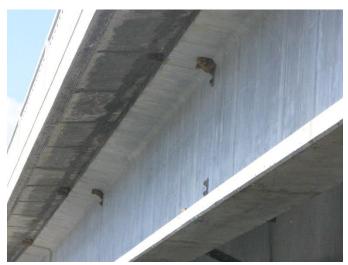
Picture 18C



Picture 18D



Picture 18E



Picture 18F



Picture 18G