

Colonel Robert H. Reardon, Jr.
U.S. Army Corps of Engineers
Norfolk District
803 Front Street
Norfolk, Virginia 23510-1096

Attn: Peter Kube
Regulatory Branch

Re: Contel Cellular, Inc., Permit
Application No. 95-5560-14, Suffolk,
Virginia

Dear Colonel Reardon:

The U.S. Fish and Wildlife Service has reviewed the Department of the Army permit application, 95-5560-14, submitted by Contel Cellular, Inc., to construct an antenna tower, electronics shelter, and road in Suffolk, Virginia. Your November 1, 1995 request for formal consultation was received on November 6, 1995. This document represents the Service's biological opinion on the effects of that action on the Dismal Swamp southeastern shrew (*Sorex longirostris fisheri*) in accordance with Section 7 of the Endangered Species Act of 1973, as amended, (16 U.S.C. 1531 et seq.). The Dismal Swamp southeastern shrew has not been documented within the project site, but the applicant has chosen to assume this species is present in areas with appropriate habitat. A complete administrative record of this consultation is on file in this office.

I. CONSULTATION HISTORY

12-18-95 The Service received additional information and drawings from Schnabel Environmental Services.

II. BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

The applicant proposes to construct a fenced-in gravel compound containing an unguyed antenna tower, an electronics shelter, and a generator pad (Figure 1). A gravel road (12 feet wide, 25 feet long), two parking spaces, and a meter base will be constructed outside of the compound on a 1.0 acre parcel of land approximately 450 feet north of U.S. Route 58 and 2,000 feet west of the Chesapeake/Suffolk City line in Suffolk, Virginia (Figures 2 and 3). The site is located on the Kirk Timber and Farming Company property. The project purpose is to construct a communication transmitter and receiver for telephone and radio to provide services to the public within the vicinity of the project in Suffolk and Chesapeake. Construction will entail clearing and grading approximately 0.13 acres, all of which is forested wetland (PFO1E). The applicant has minimized wetland impacts on this site by examining and attempting to purchase a variety of other sites in the vicinity, and by constructing the project on the minimum land area possible for this type of project. After completion, the project site will be visited occasionally for maintenance of the tower and electronics building. The site will be restricted from public access, thus minimizing potential new disturbance both on the project site and in surrounding areas. The applicant proposes to establish a 0.5-acre perpetual conservation easement within the undeveloped portion of the 1.0-acre parcel.

The action area for this biological opinion has been determined by the Service to be the 1.0-acre project area.

RANGEWIDE STATUS OF THE SPECIES

The Dismal Swamp southeastern shrew is a small mammal that weighs less than 0.2 ounces and measures approximately four inches in length. Little is known about the life history of the shrew. However, the species' life history is likely similar to that of the more common southeastern shrew (*S. l. longirostris*). Based on a few studies, it appears that southeastern shrews average approximately four young per litter (U.S. Fish and Wildlife Service 1994). Pregnant southeastern shrews have been found in Indiana from 8 April to 25 September and in Alabama and Georgia from 31 March to 6 October (U.S. Fish and Wildlife Service 1994). Shrews of the genus *Sorex* usually have at least two litters per year (Churchfield 1990). It is likely that young shrews remain in the nest for their entire period of growth and development and are nearly adult size when they leave the nest (U.S. Fish and Wildlife Service 1994). Southeastern shrews feed mainly on small-sized invertebrates, but consume some vegetation (U.S. Fish and Wildlife Service 1994). Typically, shrews forage intermittently throughout the day and night in all seasons and seem to have highest levels of activity associated with rainfall and periods of high humidity. Much of their foraging occurs in leaf litter or in tunnels in the upper layers of the soil (U.S. Fish and Wildlife Service 1994). Predators include barred and barn owls, domestic cats, and occasionally snakes, domestic dogs, and opossums (French 1980).

The main reasons for the shrew's decline are habitat loss and modification and possible loss of genetic integrity through interbreeding with the more common upland subspecies (U.S. Fish and Wildlife Service 1994). "It is presumed that the Dismal Swamp southeastern shrew developed its distinctive size and coloration while geographically or ecologically isolated within the Great Dismal Swamp during the Holocene (Handley 1979). The recent human-induced progression toward homogenous mature hardwood forest, more representative of habitat conditions of the surrounding region, leads to the possibility that the more common and presumably more generally adapted . . . subspecies could invade the Dismal Swamp and genetically overwhelm the existing populations of *S. l. fisheri*, which are more specifically adapted to historic swamp conditions" (U.S. Fish and Wildlife Service 1994).

The distribution of the Dismal Swamp southeastern shrew is considered coincidental with the boundaries of the historic Dismal Swamp, an extensive contiguous wetland complex that once occupied most of the low-lying land between Norfolk, Virginia and the Albemarle Sound in North Carolina. Historically, this wetland complex was maintained in a variety of successional stages (such as marshes, canebrakes, pocosins, and forest) by natural fires. The original Dismal Swamp ecosystem has been greatly reduced in size because of urban development and the clearing and draining of land for agriculture and silviculture. Most of the remaining wetlands are forested. Approximately 197,680 acres of these wetlands remain, more than half of which are preserved by the Service as the Great Dismal Swamp National Wildlife Refuge, created in 1974, which is in Virginia and North Carolina. The Service is attempting to restore some of the vegetational and successional diversity to the portion of the Dismal Swamp ecosystem within the Refuge. The Great Dismal Swamp State Park in North Carolina provides an additional 22 square miles of shrew habitat. There are additional areas of protected shrew habitat such as the North Landing River Preserve and the Northwest River Park in Virginia and Elizabeth City State University's Dismal Swamp Wetland in North Carolina.

Outside the protected areas, remnants of the Dismal Swamp are rapidly disappearing in southeastern Virginia due to development associated with the Hampton Roads metropolitan area (U.S. Fish and Wildlife Service 1994). In North Carolina, agricultural and silvicultural conversion are the main causes of habitat loss. "In the vicinity of Elizabeth City, North Carolina, for example, two tracts totaling some 32,000 acres of swamp have been cleared and drained within the past 20 years. Besides these contiguous tracts, many smaller areas within the historic Dismal Swamp of North Carolina have been ditched and cleared in a piecemeal fashion. In Virginia, a comparison of U.S.G.S. 7.5-minute topographic maps to recent aerial photography revealed a collective loss of some 2,600 acres of forested land, scattered over four maps portraying the Dismal Swamp (S. Martin, U.S. Army Corps of Engineers, pers. comm. 1993)" (U.S. Fish and Wildlife Service 1994).

Within the historic Dismal Swamp, the Dismal Swamp southeastern shrew is found in a range of habitats including recent clearcuts, regenerating forests, young pine plantations, grassy and brushy roadsides, young forests with shrubs and saplings, and mature pine and deciduous forests (U.S. Fish and Wildlife Service 1994). The shrew is likely to exist at highest densities in early successional wetland habitats, such as cane stands; shrub-dominated areas; and young, open forests that retain a

fairly dense herbaceous understory. The shrew also occurs at high densities within cleared rights-of-way, such as those used for utility lines, as these areas often contain early successional habitats such as scrub-shrub wetlands. Mature wetland forests also provide habitat diversity important to the integrity and dynamic structure of shrew populations across their entire range. Rose (1983) found that the shrew was most abundant in mid-successional, 12- to 15-year-old regenerating forests having a dense understory, moist organic soils, and moderate leaf litter.

Recently, new evidence suggests that the Dismal Swamp southeastern shrew may occur throughout the coastal plain of North Carolina, at least as far south as Wilmington (U.S. Fish and Wildlife Service 1994). However, until this can be substantiated through additional distribution and taxonomy studies, the shrew will remain on the Service's list of endangered and threatened wildlife and plants. As such, the shrew, and its habitat, will continue to receive protection pursuant to the ESA until it is removed from this list.

ENVIRONMENTAL BASELINE

Status of the Species - The project site is located on a 3,343-acre tract of land that extends west and north and consists predominantly of PFO1B, 1C, 1E, and 4B forested wetlands. An existing gravel road borders the site to the west and south. To the east is a grassy field with a series of drainage ditches that is part of the Hampton Roads Airport property. The remainder of the airport property is predominantly open fields. The entire site and most of the vicinity are underlain by Torhunta loam (Typic Humaquept), a poorly drained hydric soil typically found on flats along the perimeter of the Dismal Swamp. These soils are deep with a very dark brown-black loam 16 inches thick. Deloss mucky loam (Typic Umbraquult) is another soil type found within 0.25 miles of the site. Deloss soils are deep and very poorly drained hydric soils and are also found on broad flats primarily around the perimeter of the Dismal Swamp.

The site occurs at the headwaters of the Dismal Swamp (approximately 22 feet above mean sea level). The vegetation at the site is dominated in the tree layer by red maple (*Acer rubrum*) and sweet gum (*Liquidambar styraciflua*); by giant cane (*Arundinaria gigantea*) and sweetbay magnolia (*Magnolia virginiana*) in the saplings/shrub layer; and cinnamon fern (*Osmunda cinnamomea*) and sedges (*Carex* spp.) in the herbaceous layer. Nondominant species include pond pine (*Pinus serotina*), black gum (*Nyssa sylvatica*), highbush blueberry (*Vaccinium corumbosum*), and greenbriar (*Smilax rotundifolia*).

The site is hummocky with only slight variations in topography. It appears to drain toward the north. The field to the east and the existing gravel road to the west and the south are several feet higher than the site itself and thus preclude drainage in those directions. The site's hydrological indicators include water-stained leaves, multi-trunking of red maples, hypertrophied lenticels on tree roots, saturation within the upper 12 inches of the surface, and oxidized root channels in the upper 12 inches of soil. The leaf litter layer is one to three inches deep. The soil surface contains a layer of greasy black organic

matter.

The Dismal Swamp southeastern shrew has been documented with 0.85 miles of the action area.

Effects of the Action - Direct impacts to the shrew associated with this project include the potential to crush shrews with vehicles and heavy equipment, resulting in death or injury, while clearing vegetation for and constructing the antenna, electronics building, generator pad, meter base, parking spaces, and road. The shrew will also be directly affected by the permanent loss of 0.13 acres of habitat.

While there is likely to be a loss of individual shrews, because there will only be a minor amount of completely unusable habitat created and no habitat fragmentation is expected, this loss should not affect the genetic viability or range of the species. "Because these shrews have a high reproductive potential and rapid maturation rate, limited collection of individuals is not detrimental to healthy populations, although more widespread mortality associated with loss or permanent alteration of habitat continues to constitute the primary threat to the survival of this subspecies." (U.S. Fish and Wildlife Service 1994).

Cumulative Effects - Cumulative effects include the effects of future State, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA. We are not aware of any future State, local, or private actions planned for this site.

CONCLUSION

After reviewing the current status of the Dismal Swamp southeastern shrew throughout its range and in the action area, the environmental baseline for the action area, the effects of the proposed clearing and construction, and the cumulative effects, it is the Service's biological opinion that the construction of the antenna, electronics shelter, generator pad, meter base, parking spaces, and road, as proposed, is not likely to jeopardize the continued existence of the Dismal Swamp southeastern shrew. No critical habitat has been designated for this species, therefore, none will be affected.

III. INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of the ESA, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns, which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise

lawful activity conducted by the Federal agency or applicant. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

AMOUNT OR EXTENT OF TAKE

Previous studies have indicated that “mature forests with closed canopies...have densities of only 1-4 [shrews] per hectare” which is “only about one-fourth or less the densities of southeastern shrews compared to early successional stage habitats dominated by grasses and shrubs” (Rose 1995). Therefore, the Service anticipates that no more than two Dismal Swamp southeastern shrews will be taken during vegetation clearing for and construction of the proposed project. The incidental take is expected to be in the form of direct killing, harassment, and harm.

REASONABLE AND PRUDENT MEASURES

The measures described below are nondiscretionary, and must be implemented by the Corps so that they become binding conditions of any permit issued to the applicant in order for the exemption in Section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of Section 7(o)(2) may lapse. The Service considers the following reasonable and prudent measures to be necessary and appropriate to minimize take of the Dismal Swamp southeastern shrew.

1. Vegetation clearing and use of heavy equipment for construction should be minimized to reduce soil and leaf litter disturbance.
2. Impacts to wetlands should be minimized.
3. Avoid use of pesticides and herbicides.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of Section 9 of the ESA, the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

1. The following measures will be taken during clearing, construction, and maintenance activities associated with the project:

- a. No vehicle or equipment use or placement or stockpiling of materials will occur outside of the 0.13-acre impact area, except on existing roadways, active agricultural fields, maintained lawns, or previously unvegetated areas.
 - b. No ground disturbance or vegetation clearing will occur outside of the 0.13-acre impact area.
 - c. Stumps/root wads will not be removed after vegetation clearing, if practicable.
 - d. Initial and maintenance clearing of vegetation in wetlands will be done by hand where practicable.
 - e. All work in wetlands will be done on mats where practicable.
 - f. No use of broad scale or aerial herbicide or pesticide applications.
2. The applicant is required to notify the Service before initiation of construction and upon completion of the project at the address given below. All additional information to be sent to the Service should be sent to the following address:
- Virginia Field Office
U.S. Fish and Wildlife Service
P.O. Box 480
U.S. Route 17, Mid-County Centre
White Marsh, VA 23183
Phone: (804) 693-6694
Fax: (804) 693-9032
3. Care must be taken in handling any dead specimens of the Dismal Swamp southeastern shrew that are found in the project area to preserve biological material in the best possible state. In conjunction with the preservation of any dead specimens, the finder has the responsibility to ensure that evidence intrinsic to determining the cause of death of the specimen is not unnecessarily disturbed. The finding of dead specimens does not imply enforcement proceedings pursuant to the ESA. The reporting of dead specimens is required to enable the Service to determine if take is reached or exceeded and to ensure that the terms and conditions are appropriate and effective. Upon locating a dead specimen, initial notification must be made to the following Service Law Enforcement office:

Division of Law Enforcement
U.S. Fish and Wildlife Service
P.O. Box 187
Yorktown, VA 23690
(804) 890-0003

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. With implementation of these measures the Service believes that adverse impacts to the shrew have been minimized.

IV. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to further minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans and other recovery activities, or to develop information to benefit the species.

The Service recommends that the Corps conduct a survey for the Dismal Swamp southeastern shrew within the action area before clearing and construction are undertaken. No surveys have been conducted to the north or west within the vicinity of the action area. The Technical/Agency Draft Recovery Plan for this species indicates that "more information is needed on the distribution and abundance" of the shrew outside the Refuge (U.S. Fish and Wildlife Service 1994). Any information on shrew distribution or abundance obtained from the action area would enhance the recovery of this species. The Service would be pleased to work with the Corps to design such a study.

The Service also recommends that the Corps work with the applicant to ensure that the proposal to place a 0.5-acre perpetual conservation easement within the action area is carried out.

In order for the Service to be kept informed of actions that minimize or avoid adverse effects or benefit listed species or their habitats, the Service requests notification of the implementation of any of these conservation recommendations by the Corps.

V. REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the action outlined in the Corps' request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this

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opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Unless information in this biological opinion is protected by national security or contains confidential business information, the Service recommends that you forward a copy to the following agency:

Virginia Department of Game and Inland Fisheries
Wildlife Information and Enhancement
P.O. Box 11104
Richmond, VA 23230

If this opinion is not provided by the Corps and does not contain national security or confidential business information, the Service will provide a copy to this State agency ten business days after the date of this opinion.

The Service appreciates this opportunity to work with the Corps in fulfilling our mutual responsibilities under the ESA. Please contact Cindy Schulz of this office at (804) 693-6694 if you require additional information.

Sincerely,

Karen L. Mayne
Supervisor
Virginia Field Office

Enclosures

LITERATURE CITED

- Churchfield, S. 1990. The natural history of shrews. Cornell University Press; Ithaca, NY.
- French, T.W. 1980. Natural history of the southeastern shrew, *Sorex longirostris* Bachman. American Midland Naturalist 104:13-31.
- Handley, C.O., Jr. 1979. Mammals of the Dismal Swamp; a historical account. Pages 297-357 in P.W. Kirk, Jr., eds., The Great Dismal Swamp. University Press of Virginia; Charlottesville, VA.
- Rose, R.K. 1983. A study of two rare mammals endemic to the Virginia/North Carolina Dismal Swamp. Unpublished report prepared for U.S. Fish and Wildlife Service; Newton Corner, MA.
- Rose, R.K. 1995. Final report of the field study to determine the presence of the federally threatened Dismal Swamp southeastern shrew (*Sorex longirostris fisheri*) on the property on Southeastern Virginia et al. and the property known as Fountaingate, located near London Bridge Road between Lake Placid Estates and the Piney Ridge subdivision in Virginia Beach, Virginia. Submitted to Thomas A. Stierhoff, Stokes Environmental Associates, Ltd., Norfolk, VA.
- U.S. Fish and Wildlife Service. 1994. Dismal Swamp southeastern shrew (*Sorex longirostris fisheri*) recovery plan. Technical/agency draft. Hadley, MA. 51pp.

(CSchulz:12/13/95)

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bcc: ARD-South, Region 5
Endangered Species Coordinator, Region 5
CBFO Reading File
Endangered Species Biologist, CBFO
Law Enforcement, Yorktown
(Attn: Dan Hurt)
Law Enforcement, Richmond
(Attn: Senior Resident Agent)

10 business days after the date of this letter, mail copies to:

VDGIF, Richmond

(Attn: Wildlife Information and Enhancement)

DNH, Richmond

(Attn: Tom Smith)