

LISTED BAT STUDIES ALONG MVP'S PROPOSED
MOUNTAIN VALLEY PIPELINE PROJECT
IN CRAIG, FRANKLIN, GILES, MONTGOMERY, PITTSYLVANIA, AND
ROANOKE COUNTIES, VIRGINIA

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Submitted To:

Mr. Troy Andersen
U.S. Fish & Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

Mr. Ernie Aschenbach and
Mr. Rick Reynolds
Virginia Department of Game and
Inland Fisheries
7870 Villa Park Drive, Suite 400
Henrico, VA 23233-6510

Prepared for:



Prepared by:



Environmental Solutions & Innovations, Inc.

4525 Este Ave
Cincinnati, OH 45232
Phone: (513) 451-1777
Fax: (513) 451-3321

Syracuse, NY • Kent, OH • Indianapolis, IN • Orlando, FL • Springfield, MO

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1.0 Project Description

Mountain Valley Pipeline, LLC (MVP), a joint venture of EQT Midstream, LLC, a subsidiary of NextEra Energy, Inc., WGL Holdings, Inc., Vega Energy Partners, Ltd., and RGC Midstream, LLC, plans to construct the Mountain Valley Pipeline (Project), an approximate 301-mile, 42-inch diameter natural gas pipeline, to provide timely, cost-effective access to the growing demand for natural gas for use by local distribution companies, industrial users and power generation in the Mid-Atlantic and southeastern markets, as well as potential markets in the Appalachian region. The Project will extend from the existing Equitrans, L.P. transmission system near Mobley in Wetzel County, West Virginia, to Transcontinental Gas Pipe Line Company, LLC's Zone 5 compressor station 165 in Pittsylvania County, Virginia (Figure 1, Appendix A). In West Virginia, approximately 195.5 miles of the pipeline is expected to cross Braxton, Doddridge, Fayette, Greenbrier, Harrison, Lewis, Monroe, Nicholas, Summers, Webster, and Wetzel counties. In Virginia, approximately 105.5 miles of the pipeline is expected to cross Craig, Franklin, Giles, Montgomery, Pittsylvania, and Roanoke counties.

Several alternate routes were originally proposed for the Project in Virginia and West Virginia. Alternative 110 (A110) begins in Monroe County, West Virginia and continues southeast into Craig, Montgomery, and Roanoke counties, Virginia. Alternative 110J (A110J) is a spur from A110 that traverses portions of Craig and Roanoke counties before connecting back with A110. Alternative 110R (A110R) is a spur from A110 in Craig and Montgomery counties, Virginia. Alternative 93 Preston North re-route (A93) and Alternative 87 Preston Southern re-route (A87) deviate from the original proposed route and occur in Montgomery County, Virginia. Alternative 35 occurs in Pittsylvania at the southern terminus of the route. Alternative 135 Spring Hollow re-route, Alternative 210 Cahas Mountain re-route, Alternative 200 - Blacksburg, and Alternative 145 were incorporated into the current proposed route.

The current route as proposed includes a permanent right-of-way (ROW) with a width of 50 feet. This encompasses a total of 1,184.56 acres in West Virginia and 639.44 acres in Virginia. The width of the construction ROW is 125 feet which will temporarily impact an additional 1,012.22 acres in West Virginia and 911.68 acres in Virginia. The Project will require the construction of three compressor stations (Bradshaw, Harris, and Stallworth Stations) and four meter (interconnect) stations to receive and move gas from the beginning of the pipeline at the existing Equitrans transmission system in Wetzel County, West Virginia to the terminus at the Transco Station 165 in Pittsylvania County, Virginia. Additional ancillary aboveground facilities include pig launcher and receiver sites at the compressor stations, meter stations, and beginning and end of the pipeline, along with mainline block valve sites within

the pipeline ROW. Temporary and permanent access roads will be use to assist in the safe construction and operation of the Project.

In West Virginia, the Project occurs within multiple northern long-eared bat (*Myotis septentrionalis*) and Indiana bat (*Myotis sodalis*) capture, roost, and hibernacula buffers. Life history and ecology of each species is provided in Appendix B.

This report provides details regarding mist netting efforts in Craig, Franklin, Giles, Montgomery, Pittsylvania, and Roanoke counties, Virginia and within 5 miles of Virginia in Monroe County, West Virginia. Mist net survey efforts in West Virginia are not included in this report (with the exception of the referenced 5 miles in Monroe County), but were submitted to the West Virginia Field Office of USFWS.

2.0 Regulatory Setting

2.1 Endangered Species Act

The Federal Endangered Species Act (ESA) [16 U.S.C. 1531 et seq.] was codified into law in 1973. This law provides for the listing, conservation, and recovery of endangered and threatened species of plants and wildlife. Under the ESA, the U.S. Fish and Wildlife Service (USFWS) is mandated to monitor and protect listed species.

Section 9 of the ESA prohibits the take of listed species unless otherwise specifically authorized by regulation. Take is defined by the ESA as, “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect” [16 U.S.C. 1532(19)]. USFWS further defines harm to include significant habitat modification or degradation [50 CFR §17.3] to the point where it actually kills or injures an individual or significantly impairs essential behavioral patterns, including feeding, breeding, and sheltering. Harassment is an intentional or negligent act or omission that creates the likelihood of injury by annoying an individual to such an extent as to significantly disrupt formal behavior patterns, which include but are not limited to breeding, foraging, and sheltering. Harassment does not cover habitat disturbing activities.

Section 7(a)(2) of the ESA states that each federal agency shall insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in destruction or adverse modification of designated critical habitat. Federal actions include (1) expenditure of federal funds for roads, buildings, or other construction projects, and (2) approval of a permit or license, and the activities resulting from such permit or license. Compliance is required regardless of whether involvement is apparent, such as issuance of a federal permit, or less direct, such as federal oversight of a state-operated program.

Actions of federal agencies that do not result in jeopardy or adverse modification, but that could result in a take, must also be addressed under Section 7. Take by a federal agency can be authorized through the Section 7 consultation process, culminating in an Incidental Take Statement (ITS) by the USFWS. The take must be incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

In 1982 amendments to the ESA, Congress established a provision in Section 10(a)(1)(B) that authorizes incidental take by nonfederal entities. To obtain an Incidental Take Permit (ITP), an applicant must submit a conservation plan specifying impacts that result in take and measures to minimize and mitigate those impacts.

Regardless of whether incidental take might be covered under Section 7 or Section 10, it is the obligation of the project proponent to avoid and minimize impacts to listed species. If, through this process, take is avoided, then an ITS or ITP is not required. The initial step in avoidance and minimization is to determine whether suitable habitat and listed species are present.

2.2 Initial Project Review

On 13 October 2014, MVP submitted letters introducing the Project to the USFWS Gloucester Field Office (USFWS GFO) and Virginia Department of Game and Inland Fish (VDGIF). Environmental Solutions & Innovations, Inc. (ESI), on behalf of MVP, submitted letters to USFWS on 30 October 2014 and 6 March 2015 requesting information on the potential for federally listed species to occur within the Project's limits of disturbance. On 3 April 2015, the USFWS GFO provided formal comments to ESI regarding the Project's potential to impact federally listed species in the Project Area. Agency correspondence is provided in Appendix C.

2.3 Regional Occurrence of Listed Bats

The Project is within the ranges of the federally endangered Indiana bat and federally threatened northern long-eared bat. The northern long-eared bat was recently listed as threatened under ESA in May 2015. Detailed natural histories of Indiana and northern long-eared bats are provided in Appendix B.

2.3.1 Indiana Bat

Winter hibernacula in western Virginia are known from Wise, Bath, Bland, Craig, Giles, Dickenson, Lee, Montgomery, and Tazewell counties (USFWS 2007). The known hibernaculum in Bland County has approximately 230 individuals and is designated as priority 3 hibernacula. Tazewell has priority 2 hibernacula with an estimated 4,000 Indiana bats (USFWS 2007); however, White-nose Syndrome (WNS) has likely had detrimental effects on these populations. Approximately 11.78 miles of the Project traverses a protective hibernaculum buffer associated with Tawney's Cave, a priority 4 Indiana bat hibernaculum in Giles County, Virginia. The

status of the current winter population of Indiana bats within Tawney's Cave is uncertain, and the maximum documented winter population is 14 individuals (USFWS 2007).

ESI has reported multiple, historic Indiana bat captures in the region that indicate the presence of maternity colonies in Lee County, Virginia. Summer non-reproductive records are also known from Bath, Bland, Dickenson, Highland, Lee, Tazewell and Wise counties, Virginia.

2.3.2 Northern Long-eared Bat

The northern long-eared bat is rarely found in large numbers during winter cave surveys in Virginia; however, it is frequently captured during the fall swarming period at cave entrances. The northern long-eared bat is assumed to occur throughout Virginia during summer months. According to data maintained in VDGIF's Wildlife Environmental Review Map Service (WERMS), summer capture records are reported from Craig, Giles, Montgomery, and Roanoke counties.

2.4 Suitable Habitat is Present

A desktop habitat analysis was completed for the Project. Potentially suitable summer habitat for Indiana and northern long-eared bats was identified along the length of the Project.

2.5 Study Plan Approval and Collection Permits

A study plan outlining methods for mist net surveys was submitted to the USFWS GFO Office and the VDGIF on 3 November 2014. A revised study plan was submitted to the respective agencies on 24 April 2015. Site-specific authorization from the USFWS and VDGIF was received on 8 May 2015 and 11 May 2015 respectively (Appendix C).

Studies were carried out under current VDGIF Scientific Collection and Threatened and Endangered Species permits.

3.0 Methods

3.1 Mist Netting Survey

ESI completed a summer mist net survey in accordance with guidelines in the USFWS 2015 *Range-wide Indiana Bat Summer Survey Guidelines* (Table 1, Appendix D) for portions of the Project that occur outside known, occupied Indiana bat habitat.

3.1.1 Level of Effort

A review of GIS data is used to determine areas along the line that exhibit suitable summer habitat and require sampling. USFWS guidelines suggest that for linear projects in Virginia, a sampling effort of 1 site (6 net nights) should occur for every kilometer (0.6 mi) of potentially suitable summer habitat that is proposed for removal. These guidelines recommend that sampling is completed at a rate of 42 net nights per 123 acres for area-based Project features.

For the purposes of this report, the Project area is defined as all features of the Project within Craig, Franklin, Giles, Montgomery, Pittsylvania, and Roanoke counties, Virginia and within 5 miles of Virginia in Monroe County, West Virginia. Based on the initial length of the Project and the availability of suitable summer habitat within the Project area, 260 sites in Virginia and 18 sites within 5 miles of Virginia in Monroe County, West Virginia were selected for mist net surveys. Due to route modifications and additions to the Project following submittal of the mist net study plans, an updated total of 294 sites were selected for coverage of the Project's currently proposed route (REV4.0.0).

From 15 May to 15 August 2015, ESI completed mist net surveys at 160 sites for a total of 962 complete and 168 partial net nights along the Project's proposed route and associated access roads. Additional surveys along alternate routes and sections of the original proposed route (REV3v2-5) were completed between 21 May and 5 August at 23 sites for a total of 138 complete net nights and 15 partial net nights. Cumulative effort for all surveys completed for the Project area total **1,100 complete and 183 partial net nights at 183 sites**. Ninety sites were not sampled due to abandonment of select alternate routes and modifications to the proposed route (Table 2, Appendix D). An additional 21 sites were not sampled on the proposed route because permission to access suitable habitat within each site could not be obtained. Approximately 5.46 miles of the proposed route (Alternative 200 – Blacksburg, Figure 2, Appendix A) in Virginia was not surveyed due to modifications of the route during the survey period (July 2015). Because this portion of the Project crosses the Jefferson National Forest, an updated SF299 permit to grant permission to conduct surveys on federal lands was not approved by the U.S. Forest Service (USFS) prior to the end of the survey period (15 August 2015).

Mist net surveys did not occur along approximately 11.78 miles of the proposed route (Figure 2, Appendix A) within a documented Indiana bat hibernaculum buffer (i.e., Tawney's Cave) in Giles County, Virginia or along 4.37 miles within two known hibernacula along the proposed and Alternative 100 routes in Monroe County, West Virginia. These areas are considered known, occupied habitat for listed bats and thus did not warrant mist net surveys.

3.1.2 Site Selection

Site selection is based upon expectation of bat activity and maximizing coverage of the Project area. Mist net site selection also includes consideration of habitat characterization described in current literature and ESI personnel's experience with the species. Habitat with the following characteristics is selected to the degree feasible: large trees (over 40 centimeters [16 in] diameter-at-breast-height [dbh]) frequently used for maternity roosts, an open canopy, apparently important for warming roost sites, and an open, uncluttered understory, used for traveling and foraging.

Precise net placement (location and orientation) is determined in the field and is based upon canopy cover, presence of a flight corridor, water, and habitat conditions near the site.

High nets, based on the system of Garner et al. (1989) and modifications by Brack (2004) were used in accordance with USFWS guidelines. Nets are set to maximize coverage of flight paths used by Indiana and northern long-eared bats along suitable corridors. Riparian corridors often provide successful net sites, however, upland corridors (e.g. trails or logging roads) also provide suitable sites (Brown and Brack 2003). Net site coordinates are provided in Table 3 (Appendix D).

3.1.3 Bat Capture

The netting setup allows bats to be caught live and released unharmed near the point of capture. Bats are identified to species using a combination of morphological characteristics (e.g., ear and tragus, calcar, pelage, size/weight, length of right forearm, and overall appearance of the animal). The species, sex, reproductive condition, age, weight, length of right forearm, and time and location/net site of capture are recorded for all bats captured. Age (adult or juvenile) of bats is determined by examining epiphyseal-diaphyseal fusion (calcification) of long bones in the wing. Weight is measured to 0.1 gram using a Pesola spring scale.

Length of the right forearm of each bat is measured to at least the nearest 1.0 millimeter using either dial calipers or metric ruler. The reproductive condition of captured bats is classified as descended male (reproductive), non-descended male, non-reproductive female, pregnant female (based on gentle abdominal palpation), lactating female, or post-lactating female.

Bat capture data sheets are provided in Appendix E and representative photographs are provided in Appendix F.

3.1.4 Protocol for Addressing White-nose Syndrome

White-nose syndrome (WNS) is a disease killing millions of bats in the eastern U.S. All current federal and state guidelines for WNS decontamination, containment, and

avoidance are implemented. Biologists are kept aware of all current and changing WNS regulations. Bat handling follows current WNS protocols set by the USFWS and requirements of VDGIF. Wing damage is categorized using the Wing-Damage Index Used for Characterizing Wing Condition of Bats Affected by White-nose Syndrome (Reichard 2008), as applied, tested, and evaluated by ESI on similar projects (Franci et al. 2011).

3.1.5 Habitat Characterization

Habitat characterization at net sites focuses on features indicative of suitability for Indiana and northern long-eared bats. A habitat description of each net site is completed. The emphasis of this description is habitat form: size and relative abundance of large trees and snags that potentially serve as roost trees, canopy closure, understory clutter/openness, distance to water, stream or pond characteristics (if a net is placed over them), and flight corridors. Habitat form is emphasized because these bats roost in many tree species. Tree species composition is included because it provides insight to edaphic conditions of each site.

Habitat characterization identifies components of canopy and subcanopy layers. Trees that reach into the canopy are canopy trees, regardless of their diameter/size. As defined in the Indiana Bat Habitat Suitability Index Model (3D/Environmental 1995) dominant trees are the large trees in the canopy (over 40 centimeters [16 in] dbh). Current literature seems to suggest that these trees have the greatest likelihood of being used by bat maternity colonies. Many smaller trees are often also found in the canopy, and in some situations, the canopy can be entirely composed of small-diameter trees. ESI's habitat characterization identifies both dominant and subdominant elements of the canopy.

The subcanopy vegetation layer is well defined in classical ecological literature. It is that portion of the forest structure between the ground vegetation [to approximately 0.6 meter (2 ft) and the canopy layers, usually beginning at about 7.6 meters (25 ft)]. Vegetation in the understory may come from:

- Lower branches of overstory trees
- Small trees that will grow into the overstory
- Small trees and shrubs that are confined to the understory

The amount of understory, or clutter, is also recorded because, unlike the Indiana bat, the northern long-eared bat more frequently forages under the tree canopy and closer to the ground to glean insects from vegetation.

Other site-specific parameters pertinent to assessing the quality of the habitat are also recorded, such as distance to water, stream habitat (if present), standing water in an upland site, and travel corridors (or lack thereof). Habitat characterization data sheets are included in Appendix E.

3.1.6 Weather and Temperature

Weather conditions are monitored during mist netting to ensure compliance with USFWS mist netting guidelines (Table 1, Appendix D). Conditions recorded include temperature, wind speed, and percent cloud cover. A standard digital thermometer is used to record temperature, wind speed is determined by use of the Beaufort wind scale, and cloud cover is estimated visually. Survey temperatures ranged from 29.4° to 10.0° Celsius (84.9° – 50.0°F) during the survey period of 15 May to 15 August 2015 (Figure 3; Appendix A). Temperatures below 10.0° Celsius (50.0°F) precluded mist net efforts on 22 May 2015 for 4 sites. High winds precluded mist net efforts on 20 June 2015 (3 sites) and 27 June 2015 (3 sites). Rain precluded mist net efforts on the following dates: 29 May 2015 (4 sites), 1 June 2015 (2 sites), 2 June 2015 (4 sites), 3 June 2015 (6 sites), 4 June 2015 (5 sites), 5 June 2015 (1 site), 8 June 2015 (5 sites), 17 June 2015 (4 sites), 18 June 2015 (2 sites), 26 June 2015 (5 sites), 30 June 2015 (2 sites), 3 July 2015 (1 site), 12 July 2015 (3 sites), 13 July 2015 (1 site), 14 July 2015 (2 sites), 5 August 2015 (1 site), 6 August 2015 (1 site), and 10 August 2015 (1 site). Completed weather data sheets are provided in Appendix G.

3.2 Radio-telemetry

After collecting morphometric data, federally listed bats are fitted with radio-transmitters. A maximum of three Indiana bats and three northern long-eared bats per site are fitted with transmitters.

ESI notifies USFWS and VDGIF of any captures of federally listed bats within 48 hours.

3.2.1 Transmitter Attachment

A small interscapular area is trimmed of fur and the transmitter is attached to this area with non-toxic surgical adhesive. Transmitters are activated and tested before attachment. The adhesive degrades over time (typically 1 to 4 weeks) and the transmitter falls off the bat. Biologists record the transmitter weight, weight of the bat before and after transmitter attachment, and holding time. Bats are released unharmed near the points of capture. Standardized data forms are used to record transmitter attachment information and are provided in Appendix H.

Transmitters are typically obtained from either ®Holohil Systems Ltd. or ®Blackburn Transmitters (frequency of 171 and 172). Bat transmitter weights range from 0.25 to 0.5 gram. Whenever possible, ESI uses 0.25- to 0.35-gram transmitters, as they are the lightest commercially available, least stressful to the bats, are usually less than 5 percent of the pre-attachment weight of the bat, and are not more than 10 percent of a bat's total body weight. Batteries within transmitters typically last 7 to 14 days.

3.2.2 Diurnal Telemetry

To locate roosting bats, radio-telemetry signals are tracked using either a ®Wildlife Materials TRX-2000S PLL Synthesized Tracking Receiver, an ®Advanced Telemetry Systems, Inc. Model R2000 Scanning Receiver, or a ®Communications Specialists R-1000 Telemetry receiver with three-element folding Yagi directional antennas manufactured by either ®Wildlife Materials, Inc., ®Communications Specialists Inc. or ®Titley Electronics, PTY LTD.

Beginning the day after bat capture and transmitter attachment, telemetry is used to locate each bat's diurnal roost. No federally-endangered Indiana bats were captured. Northern long-eared bats are tracked for a minimum of 4 days, for a minimum of 4 hours per day per bat (or until the bat is found), after the date of capture or until the transmitter is shed or fails, whichever happens first. When tracking northern long-eared bats, if no roost tree is found after 4 days, telemetry is continued up to three more days, for a total search effort of 7 days. Mobile telemetry data sheets will be provided upon request.

When found, roost trees are identified to species and diameter at breast height (dbh) is measured. The approximate height at which the bat is roosting and general condition of the roost tree (dead, live, dying, % bark cover, etc.) is noted. Occasionally, northern long-eared bats roost in man-made structures. A description of habitat near the roost tree is recorded. Standardized data forms are used to characterize roost trees and assess associated habitat; the form also provides for assessment of man-made structures used as roosts (Appendix I). Depending on specific requests by landowners or the client, roosts can be flagged or marked in an acceptable manner for ease of future identification. Coordinates of each roost are recorded with a GPS unit. When feasible, distances among roost trees and other notable landscape features are determined. If a roost tree occurs in an area where biologists are not permitted access, then triangulation is used to estimate its location. Completed mobile telemetry and roost tree data sheets are provided in Appendices I and J, respectively.

3.2.3 Emergence Counts

Emergence counts are completed to determine the number of bats in each roost. Emergence counts are completed visually by a biologist while he or she is sitting near or under each roost tree. Bats are tallied only if emerging from a roost, not merely flying in the vicinity. Emergence counts are completed through observation of a biologist sitting near or under each roost tree to determine the number of bats emerging from each roost. Bats are tallied only if emerging from a roost, not merely flying in the vicinity. In keeping with USFWS guidelines, biologists arrive at roosts 30 minutes prior to jurisdictional sundown and observations continue for a minimum of 1 hour after jurisdictional sundown. When bats are present, counts are extended until bats finish emerging and/or darkness precludes accurate counting. Emergence

counts are performed on each identified roost tree for a minimum of 2 days as suggested in Appendix E (Phase 4 Emergence Surveys for Known Indiana Bat Roosts) of the USFWS 2015 *Range-wide Indiana Bat Summer Survey Guidelines*. Direction of bat emergence (as feasible) and other behavior are noted on the Roost Tree and Emergence Data Sheets provided in Appendix I.

4.0 Results

4.1 Mist Net Survey Along the Proposed Route

ESI surveyed 160 net sites along the Project's proposed route and access roads from 15 May to 15 August 2015 in Virginia and in West Virginia (within 5 miles of Virginia) (Figure 2, Appendix A).

4.1.1 Bat Capture

A total of 962 complete and 168 partial net nights resulted in capture of 697 bats representing nine species in and within 5 miles of Virginia (Table 4, Appendix D; Figure 4, Appendix A). This included 330 eastern red bats (*Lasiurus borealis*), 305 big brown bats (*Eptesicus fuscus*), 31 silver-haired bats (*Lasionycteris noctivagans*), 11 eastern small-footed bats (*Myotis leibii*), 6 hoary bats (*Lasiurus cinereus*), 6 tri-colored bats (*Perimyotis subflavus*), 6 evening bats (*Nycticeius humeralis*), 1 northern long-eared bat, and 1 little brown bat (*Myotis lucifugus*). Twenty-two eastern red bats, 5 big brown bats, and 1 tri-colored bat escaped before processing could be completed. No endangered Indiana bats were captured. Bat capture data sheets are provided in Appendix E.

4.1.2 Species Diversity

Of 17 bat species documented in Virginia, 7 were captured (Table 4, Appendix D). The MacArthur's Diversity Index for all captured bats was 2.4. The Simpson's Evenness Index indicated a low species equitability (SEI = 0.266, or 26.58%).

4.1.3 Occurrence by Sex and Age

Of the 669 bats captured and fully processed, 90 percent were adults ($n = 601$; Table 4, Appendix D). A significant difference between capture of adult females ($n = 306$) and adult males ($n = 242$) from two species (i.e., eastern red bat and big brown bat) was evident ($p = 0.006$). The sample size for the other seven species was not sufficient to determine significant differences in the capture of adult males and females. Juvenile bats were 10 percent ($n = 68$) of total captures. Forty-eight percent ($n = 135$) of adult females were pregnant, 36 percent ($n = 101$) were lactating, and 16 percent ($n = 45$) were post-lactating.

4.1.4 White Nose Syndrome Scores

Of the 664 bats with Wing Index Scores recorded, approximately 92 percent ($n = 609$) did not display signs of WNS damage (i.e., Wing Index Scores were 0). Forty-nine bats, including 25 big brown bats, 20 eastern red bats, 2 silver-haired bats, and 1 eastern small-footed bat, received Wing Index Scores of 1, indicating scarring was observed on less than half of the wing membranes of the bats. Six bats, including 3 big brown bats and 3 eastern red bats, received Wing Index Scores of 2, indicating scarring was observed on greater than 50 percent of the wing membranes of the bats. These bats with a score of 1 or greater may have hibernated in or interacted with a cave infected with WNS, or the scarring may have been caused by other damage during the lifetime of the bat.

4.1.5 Habitat Characterization of Net Sites

Mist net sites were placed in association with forested corridors, based upon their suitability for Indiana and northern long-eared bat use. The most commonly encountered habitat type was young upland forest, followed by woodlots and forest edges. Sites in close proximity to streams or rivers were common. The majority of habitat was characterized as having low (49%) to moderate (44%) roosting potential for northern long-eared and Indiana bat, based on the presence of large trees or snags that serve as potential roosts. Based on sites where roost potential was recorded, approximately 7 percent of sites were rated as having high roost potential. Canopy closure was generally moderately closed to completely closed. Subcanopy clutter was generally moderate to high.

Common dominant canopy species occurring in the project area have a recorded dbh between 117 and 40 centimeters. Dominant species encountered most frequently include tuliptree (*Liriodendron tulipifera*), white oak (*Quercus alba*), red maple (*Acer rubrum*), northern red oak (*Quercus rubra*), chestnut oak (*Quercus montana*), American sycamore (*Platanus occidentalis*), black walnut (*Juglans nigra*), black oak (*Quercus velutina*), sugar maple (*Acer saccharum*), eastern white pine (*Pinus strobus*), scarlet oak (*Quercus coccinea*), pine species (*Pinus* sp.), Virginia pine (*Pinus virginiana*), and American beech (*Fagus grandifolia*). In addition to the above listed species, box elder (*Acer negundo*), pignut hickory (*Carya glabra*), blackgum (*Nyssa sylvatica*), and black locust (*Robinia pseudoacacia*) are common subdominant canopy species. The subcanopy and sapling layer consists of species previously mentioned as well as all musclewood (*Carpinus caroliniana*), flowering dogwood (*Cornus florida*), eastern redbud (*Cercis canadensis*), spicebush (*Lindera benzoin*), American witch-hazel (*Hamamelis virginiana*), eastern red cedar (*Juniperus virginiana*), sassafras (*Sassafras albidum*), sourwood (*Oxydendrum arboreum*), American hophornbeam (*Ostrya virginiana*), and Tree-of-Heaven (*Ailanthus altissima*).

Table 5 (Appendix D) summarizes habitat characteristics for each net site. Mist Net Habitat Description data sheets are provided in Appendix E. Representative net site photographs are included in Appendix F.

4.2 Mist Netting Along Alternate and Abandoned Routes

ESI surveyed 23 net sites between 21 May to 15 August 2015 in Virginia and in West Virginia (within 5 miles of Virginia) along alternate routes and sections of the initial proposed route (REV3v2-5) that were modified or abandoned prior to completion of the 2015 summer mist net surveys (Figure 2, Appendix A).

4.2.1 Bat Captures

A total of 144 complete and 15 partial net nights resulted in capture of 76 bats representing six species (Table 6, Appendix D), including: 48 eastern red bats, 19 big brown bats, 4 evening bats, 3 silver-haired bats, 1 eastern small-footed bat, and 1 tri-colored bat. Three eastern red bats and 2 big brown bats escaped before processing could be completed. No endangered Indiana bats or threatened northern long-eared bats were captured. Bat Capture data sheets are included in Appendix E.

4.2.2 White Nose Syndrome Scores

Of the 71 bats with Wing Index Scores recorded, approximately 92 percent ($n = 65$) did not display signs of WNS damage (i.e., Wing Index Scores were 0). Five bats, including 3 big brown bats and 2 eastern red bats, received Wing Index Scores of 1, indicating scarring was observed on less than half of the wing membranes of the bats. One bat, an eastern red bat, received a Wing Index Score of 2, indicating scarring was observed on greater than 50 percent of the wing membranes of the bats. These bats with a score of 1 or greater may have hibernated in or interacted with a cave infected with WNS, or the scarring may have been caused by other damage during the lifetime of the bat.

4.2.3 Habitat Characterization of Net Sites

Mist net sites were placed in association with forested areas of the corridor, based upon their suitability for Indiana and northern long-eared bat use. The most commonly encountered habitat type was young upland forest, followed by woodlots and forest edges. All habitat was characterized as having low to moderate roosting potential for northern long-eared and Indiana bat, based on the presence of large trees or snags that serve as potential roosts. Canopy closure was generally moderately closed or completely closed. Subcanopy clutter was generally low to moderate.

Common dominant species occurring in the Project area have a recorded dbh between 121 and 40 centimeters. Dominant species encountered most frequently include tuliptree, white oak, red maple, sugar maple, pignut hickory, chestnut oak, northern red oak, American sycamore, black walnut, and black oak. In addition to the

above listed species, Virginia pine, blackgum, and wild black cherry (*Prunus serotina*) are common subdominant canopy species. The subcanopy and sapling layer consists of all these species in addition to American witch-hazel, flowering dogwood, eastern redbud, spicebush, Tree-of-Heaven, sassafras, shagbark hickory (*Carya ovata*), and black locust.

Table 7 (Appendix D) summarizes dominant and subdominant canopy and subcanopy tree species by net site as well as other habitat characteristics. Mist Net Habitat Description data sheets are provided in Appendix E. Representative net site photographs are included in Appendix F.

4.3 Radio-telemetry

One northern long-eared bat (Bat 482) was captured, radio-tagged (Table 8, Appendix D), and tracked via diurnal telemetry. The bat was successfully tracked to a single roost tree. Daily locations of bat are provided in Table 9 (Appendix D). Bat Transmitter data sheets are provided in Appendix H and photographs are provided in Appendix F.

4.3.1 Bat Capture and Transmitter Attachment

Bat 482, a lactating adult female, was captured at 0032h on 17 June 2015 at net site VA-KM573 in a 12-meter wide by 6-meter high mist net placed across a forested trail. Surrounding habitat consisted of a young, lowland forest with large snags and a small intermittent stream nearby. The bat was fitted with a 0.25-gram transmitter (frequency of 172.482 MHz) and was in good condition when released at the capture site at 0100h.

4.3.2 Diurnal Telemetry and Roost Trees

The radio-tagged bat was tracked for 5 days. During the first three days of telemetry, Bat 482 was tracked to a parcel where access was not granted. On the fourth day of telemetry the bat moved from its previous location and was tracked to Roost 482-1 (Figure 2, Appendix A). Roost 482-1 is a dead red pine (*Pinus resinosa*), approximately 5 meters high with an 18-centimeter dbh. The roost is on a steep slope within an uneven-aged, upland forest dominated by chestnut oaks with subdominant young oaks (*Quercus* spp.). Estimated canopy cover at the roost was 90 percent. Cracks and hollows were observed.

Mobile Telemetry data sheets will be provided upon request. Details of the roost tree used by the tagged bat are provided in Table 10 (Appendix D), and photographs are provided in Appendix F.

4.3.3 Roost Tree Emergence Counts

Bat 482 was successfully tracked to Roost 482-1 on 20 and 21 June 2015. Emergence counts from 20 to 21 June totaled 180 minutes and a total of 10 bats

were observed leaving the roost. Bat 482 emerged on both nights (Table 11, Appendix D). Bat 482's transmitter signal remained in Roost 482-1 following the conclusion of emergence counts on 21 June 2015. Bat 482's transmitter was found near the roost the following day.

5.0 Discussion and Conclusion

Surveys for federally listed bats within the Project area were completed 15 May to 15 August 2015. These surveys included mist netting, as well as radio telemetry and emergence counts at documented roost trees.

5.1 Mist Netting

Mist netting efforts complied with guidelines in the USFWS 2015 *Range-wide Indiana Bat Summer Survey* and USFWS 2014 *Northern Long-Eared Bat Interim Conference and Planning Guidance*. No federally endangered Indiana bats were captured, but 1 federally threatened northern long-eared bat was captured in the Project area.

5.2 Radio-telemetry

One radio transmitter was attached to one northern long-eared bat, which was successfully tracked to a single roost tree. The bat was tracked for five days; however, the bat's transmitter was shed during emergence on the fifth day.

5.3 Emergence Counts

Emergence counts were completed on the located roost tree for two nights from 20 June to 21 June 2015. Ten bats were counted during two emergence surveys.

5.4 Conclusions

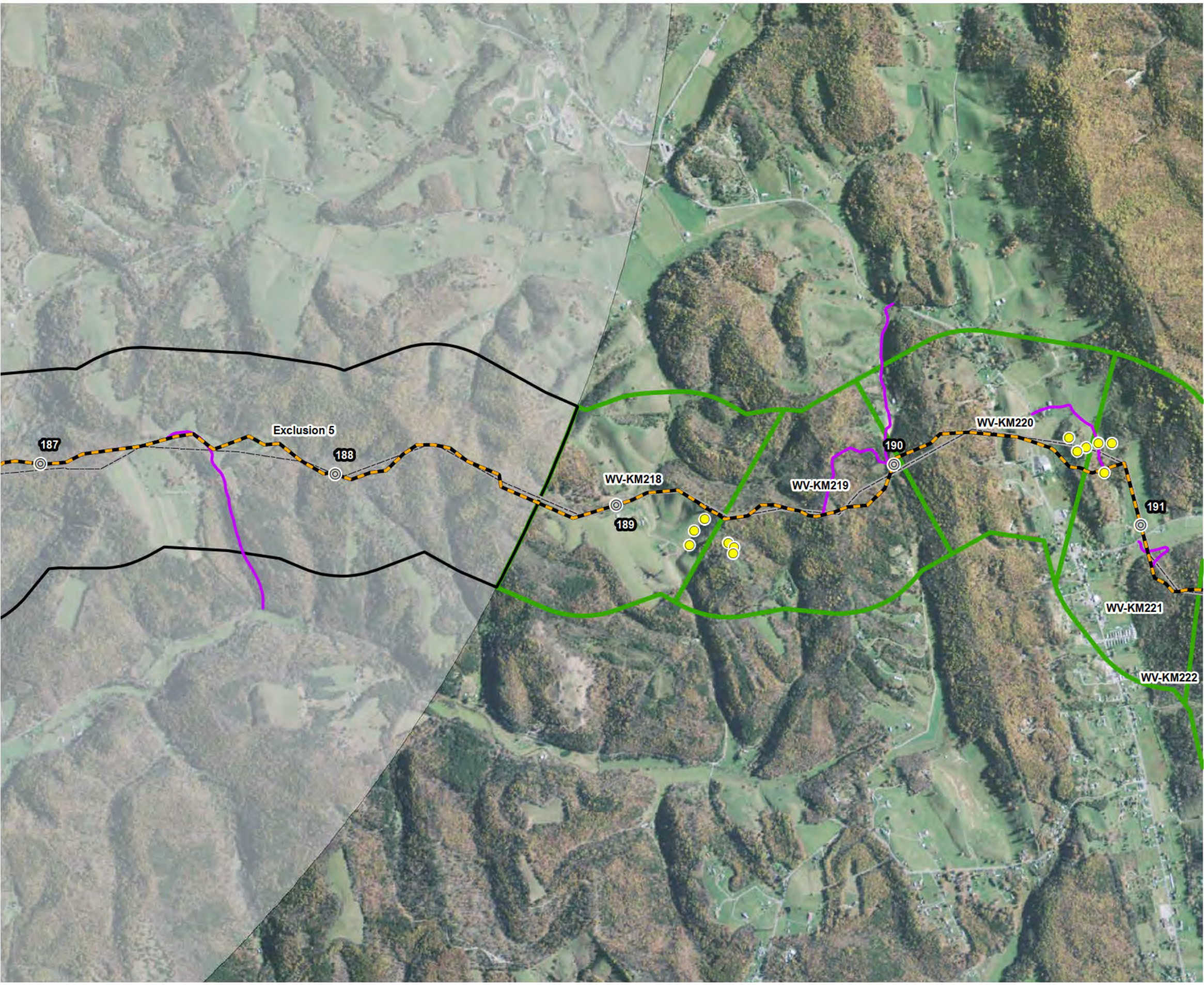
No Indiana bats were captured during mist netting efforts, but survey results confirm the presence of the northern long-eared bat along the Project area during the summer months. In addition to the presence of the species in the Project area in Virginia, a high number of captures ($n = 73$) and roost trees were documented in the West Virginia portion of the Project not detailed within this report. Based on these findings and anticipated amount of disturbance, the Project as a whole has potential to negatively impact northern long-eared bats.

6.0 Literature Cited

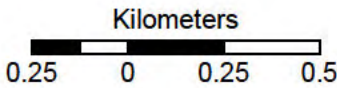
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APPENDIX A FIGURES

Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.



- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- █ Exclusion Zone
- █ USFWS Listed Bat Capture/Roost Buffer
- 1-Kilometer (KM) Mist Net Segment
- 6 Net Nights Completed



Base Map: ESRI ArcGIS Web service - "World_Imagery"
accessed - 10/19/2015

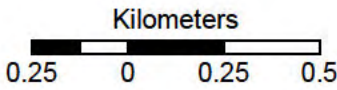


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Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
- 6 Net Nights Completed



Base Map: ESRI ArcGIS Web service - "World_Imagery" accessed - 10/19/2015



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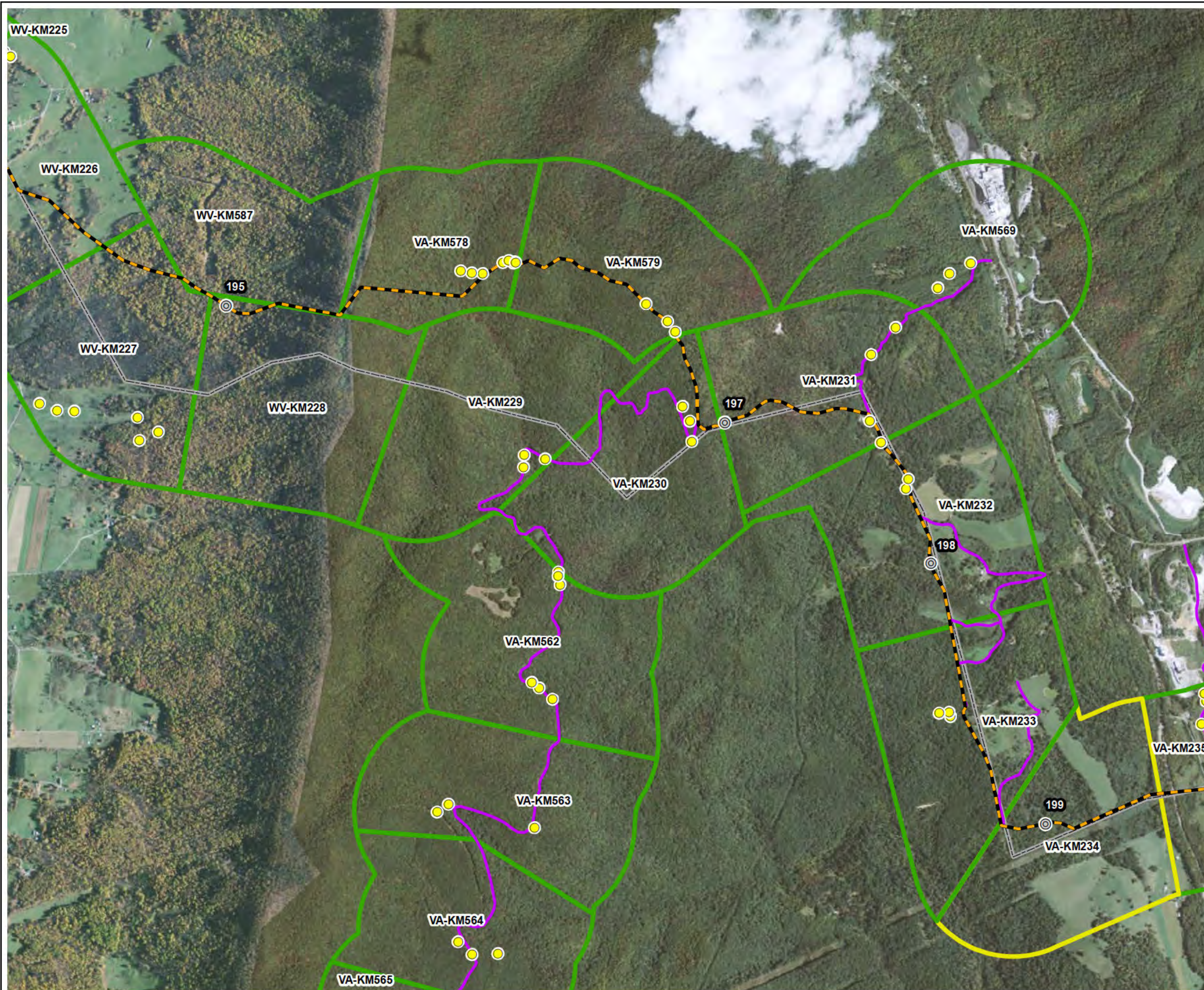


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

Map 3 of 42

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
 - ▬ 6 Net Nights Completed
 - ▬ Pending



Kilometers
0.25 0 0.25 0.5

Base Map: ESRI ArcGIS Web service - "World_Imagery"
accessed - 10/19/2015



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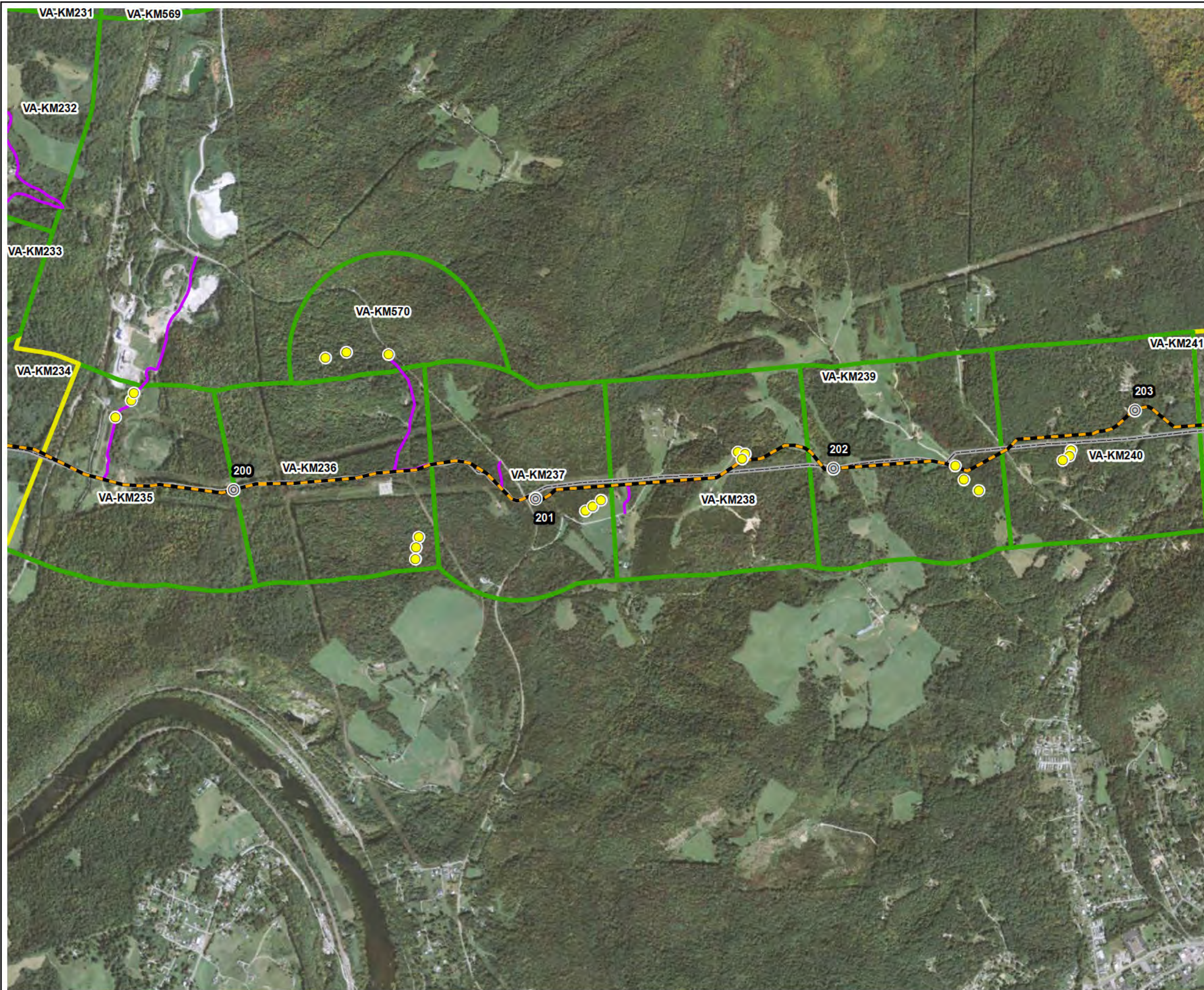
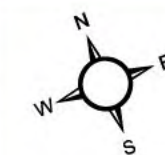


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

Map 4 of 42

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed
 - Pending



Kilometers
0.25 0 0.25 0.5

Base Map: ESRI ArcGIS Web service - "World_Imagery"
accessed - 10/19/2015



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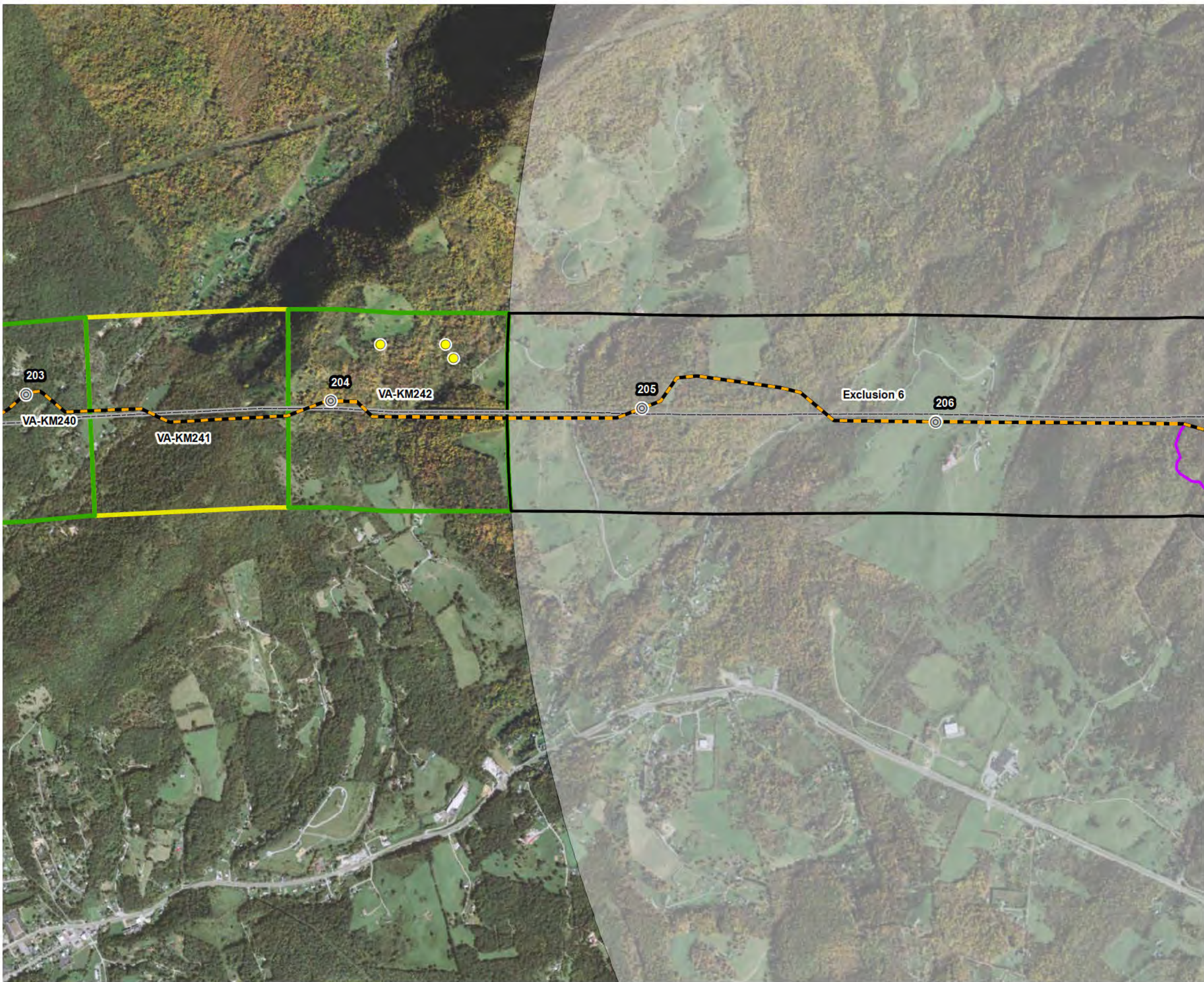
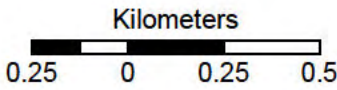
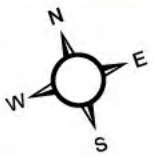


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- ▭ Exclusion Zone
- 1-Kilometer (KM) Mist Net Segment
 - ▭ 6 Net Nights Completed
 - ▭ Pending



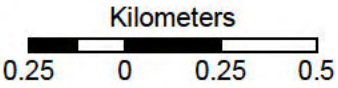
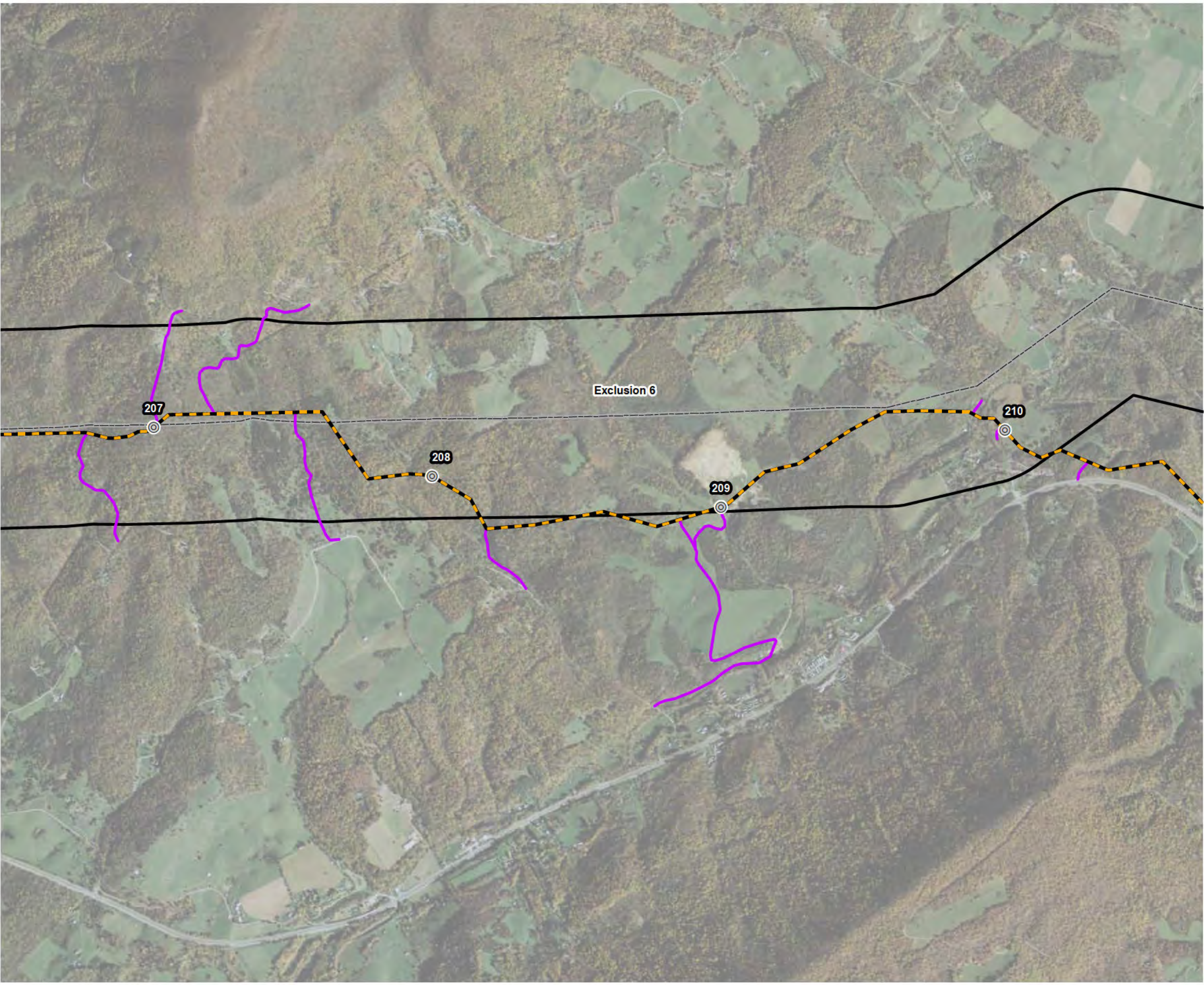
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Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- ⊙ Milepost
- Proposed Route
- Proposed Access Road
- Alternate Route
- Exclusion Zone



Base Map: ESRI ArcGIS Web service - "World_Imagery" accessed - 10/19/2015

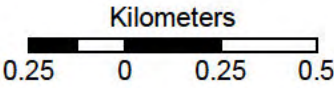


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Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- ⊙ Milepost
- Proposed Route
- Proposed Access Road
- Alternate Route
- Exclusion Zone



Base Map: ESRI ArcGIS Web service - "World_Imagery"
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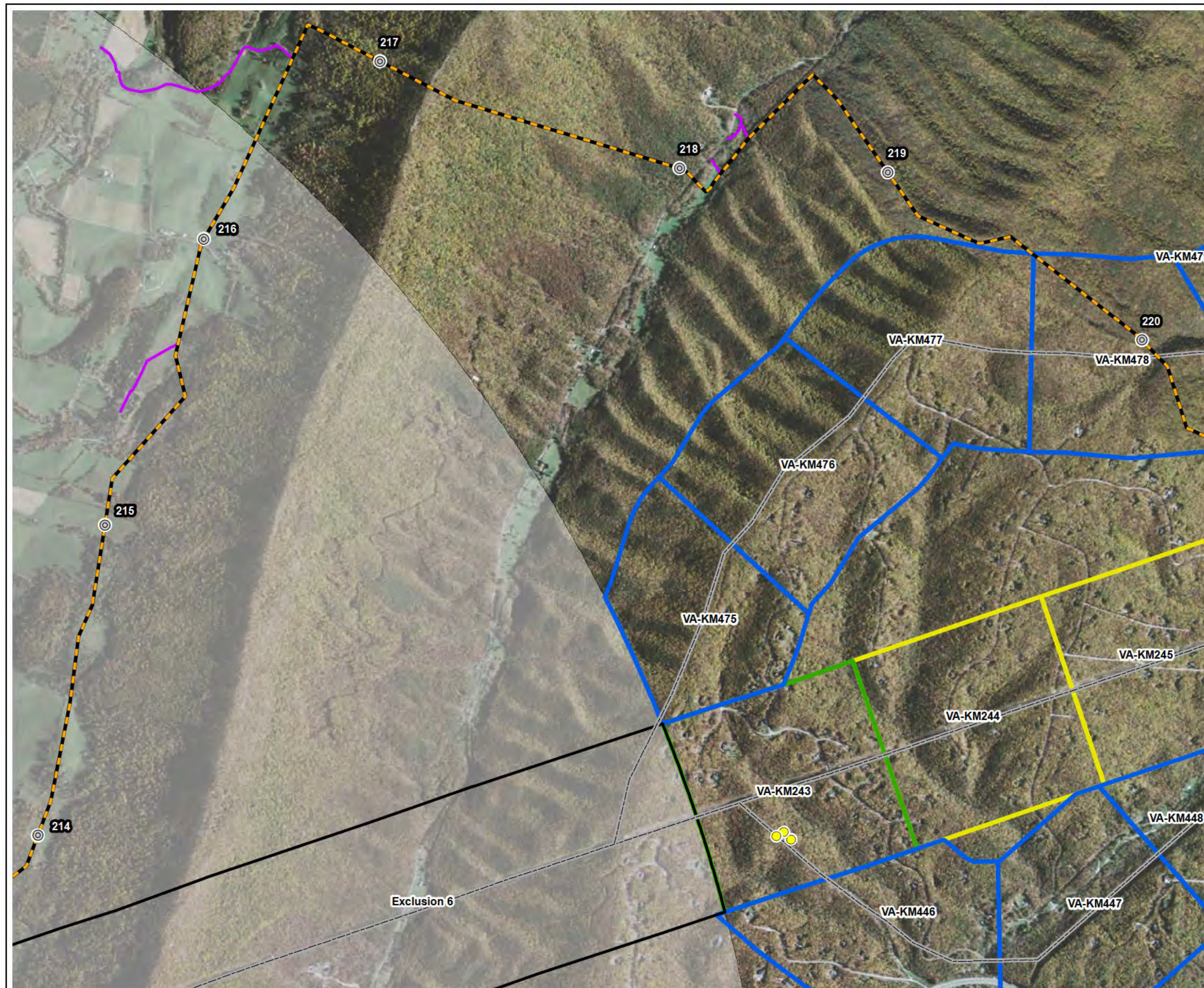
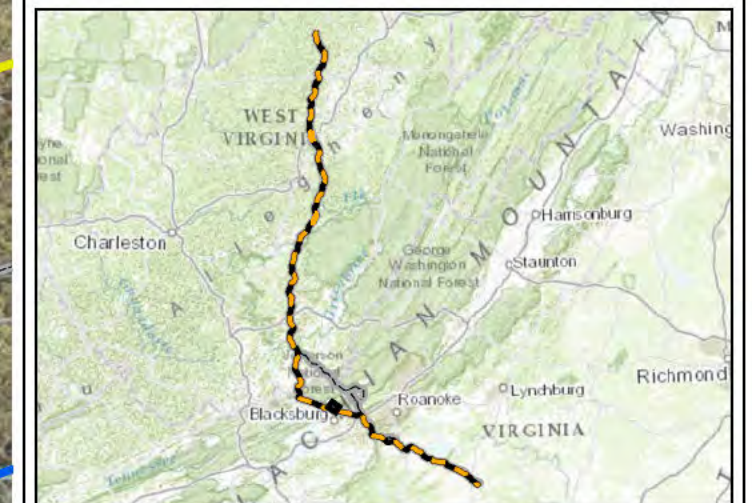


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

Map 8 of 42

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- Exclusion Zone
- 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed
 - Not Sampled – Route Abandoned
 - Pending



Kilometers
0.25 0 0.25 0.5

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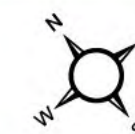
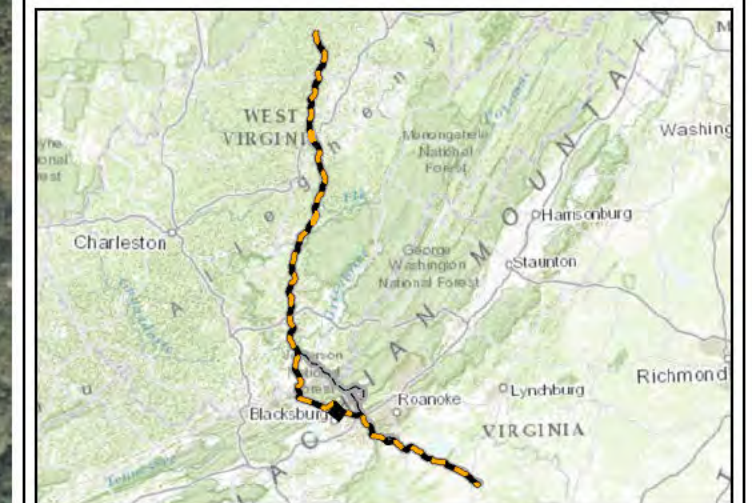
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Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

Map 9 of 42

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed
 - Not Sampled – Route Abandoned
 - Pending



Kilometers
0.25 0 0.25 0.5

Base Map: ESRI ArcGIS Web service - "World_Imagery"
accessed - 10/19/2015



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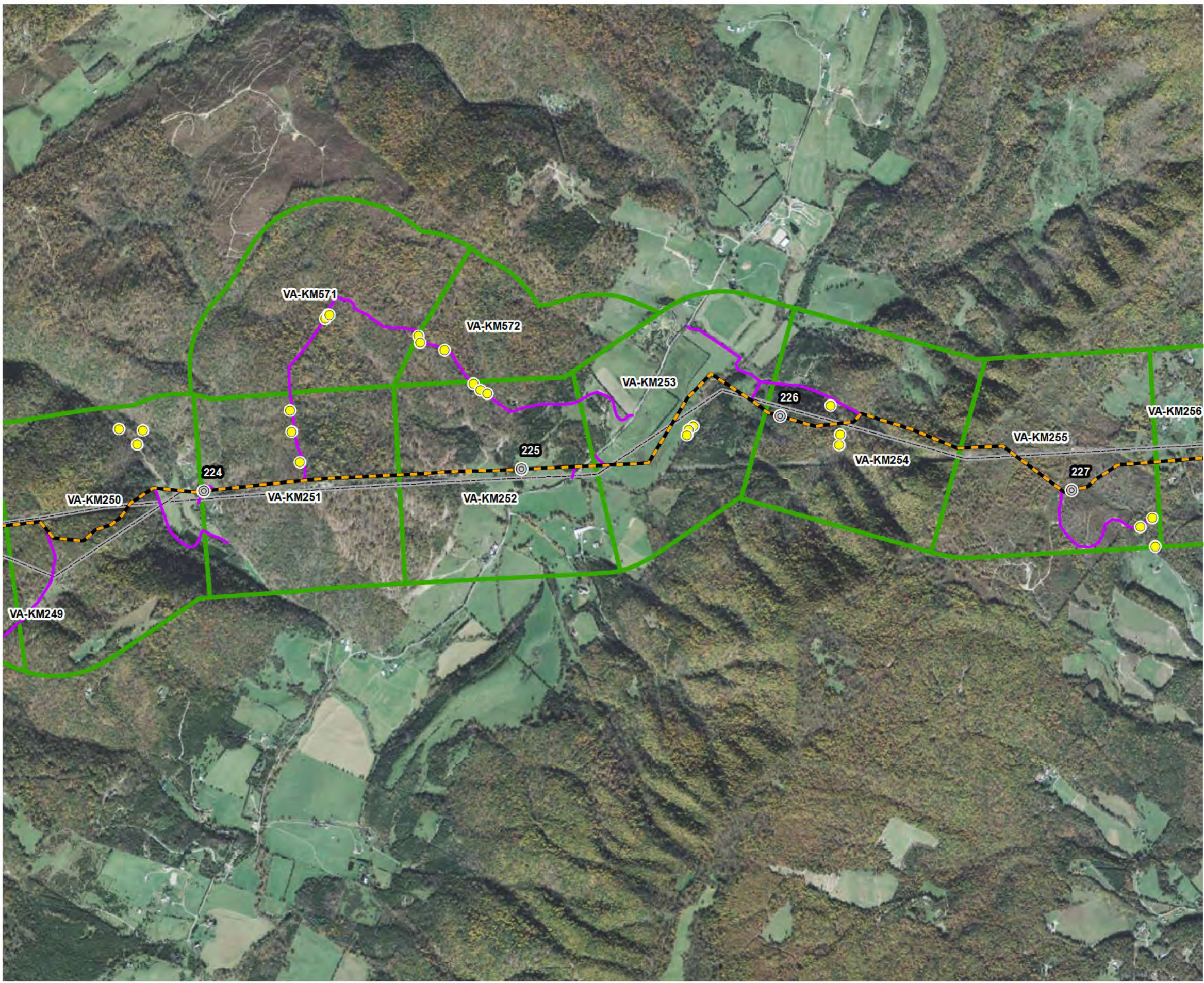
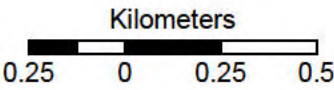


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
- 6 Net Nights Completed



Base Map: ESRI ArcGIS Web service - "World_Imagery" accessed - 10/19/2015



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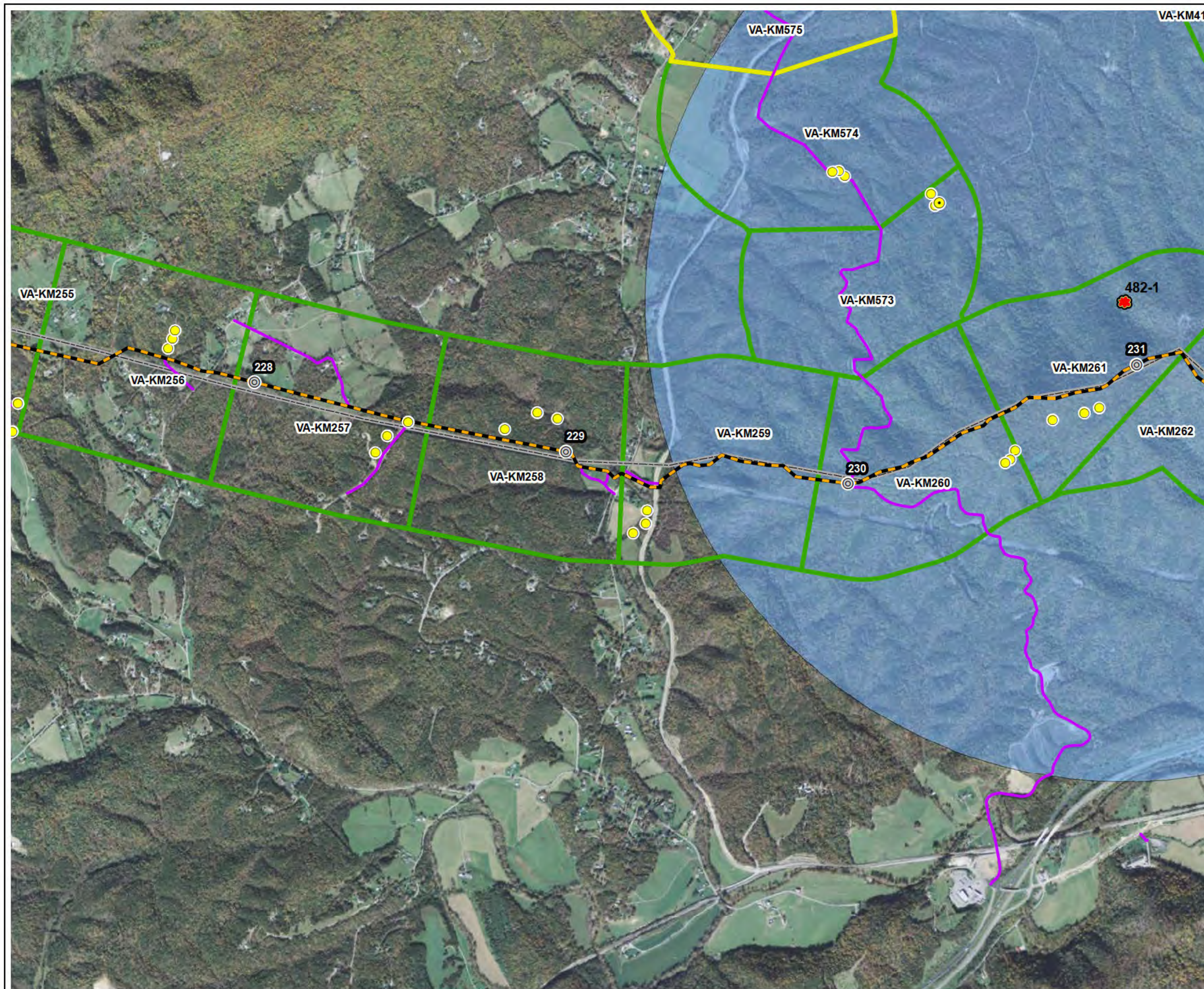
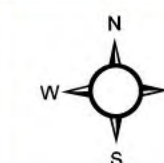


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

Map 11 of 42

- ⊙ Milepost
- ★ Roost Tree Location
- Mist Net Location
 - Without Listed Bat Capture
 - With Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- Blue Shaded Area ESI Listed Bat Capture/Roost Buffer
- 1-Kilometer (KM) Mist Net Segment
 - Green Line 6 Net Nights Completed
 - Yellow Line Pending



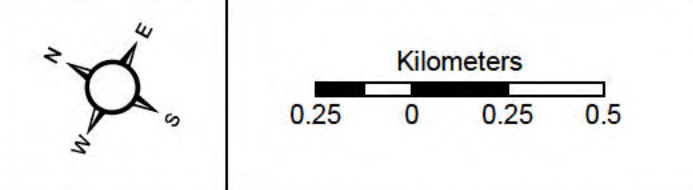
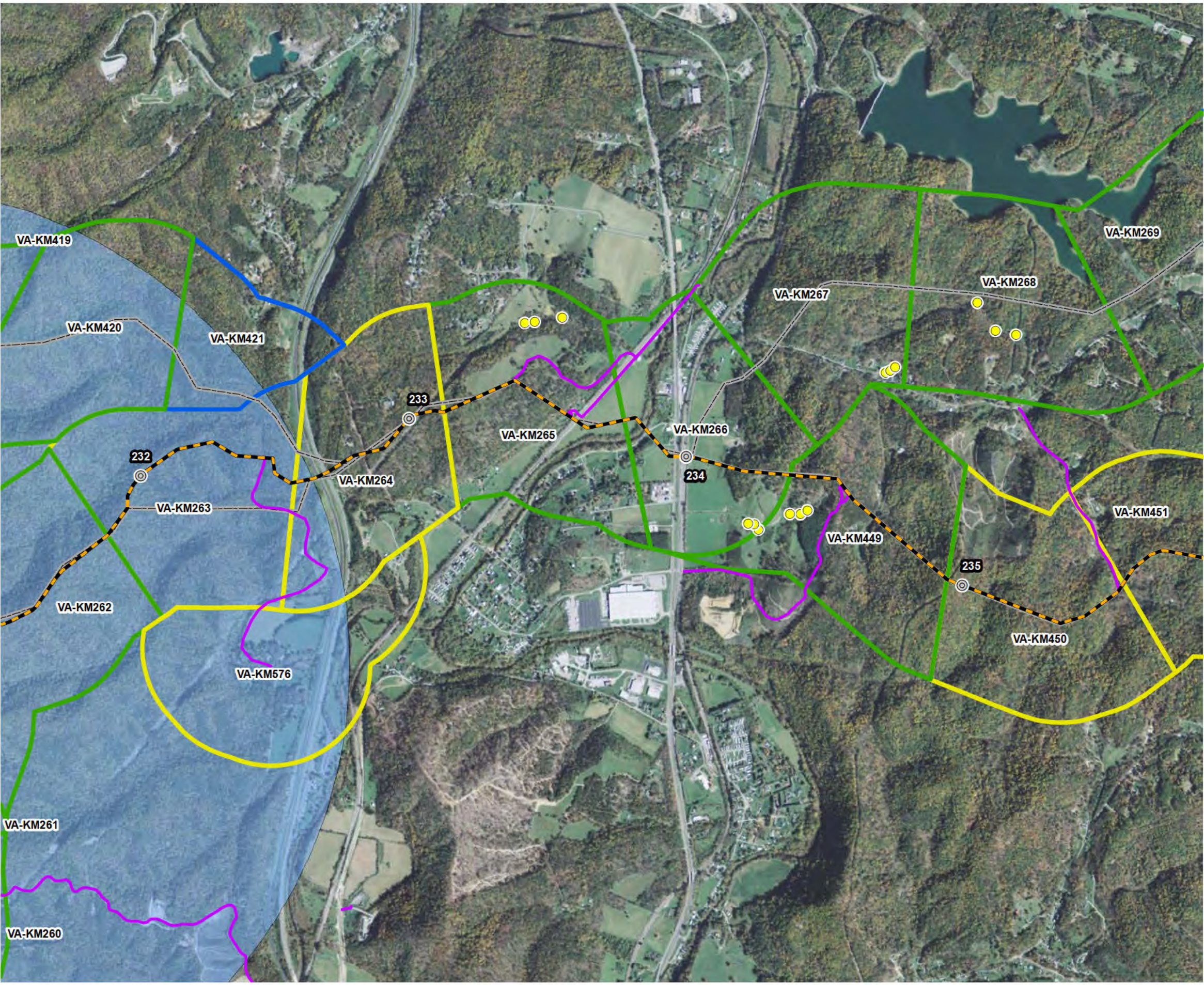
Kilometers
0.25 0 0.25 0.5

Base Map: ESRI ArcGIS Web service - "World_Imagery"
accessed - 10/19/2015



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Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.



Base Map: ESRI ArcGIS Web service - "World Imagery" accessed - 10/19/2015

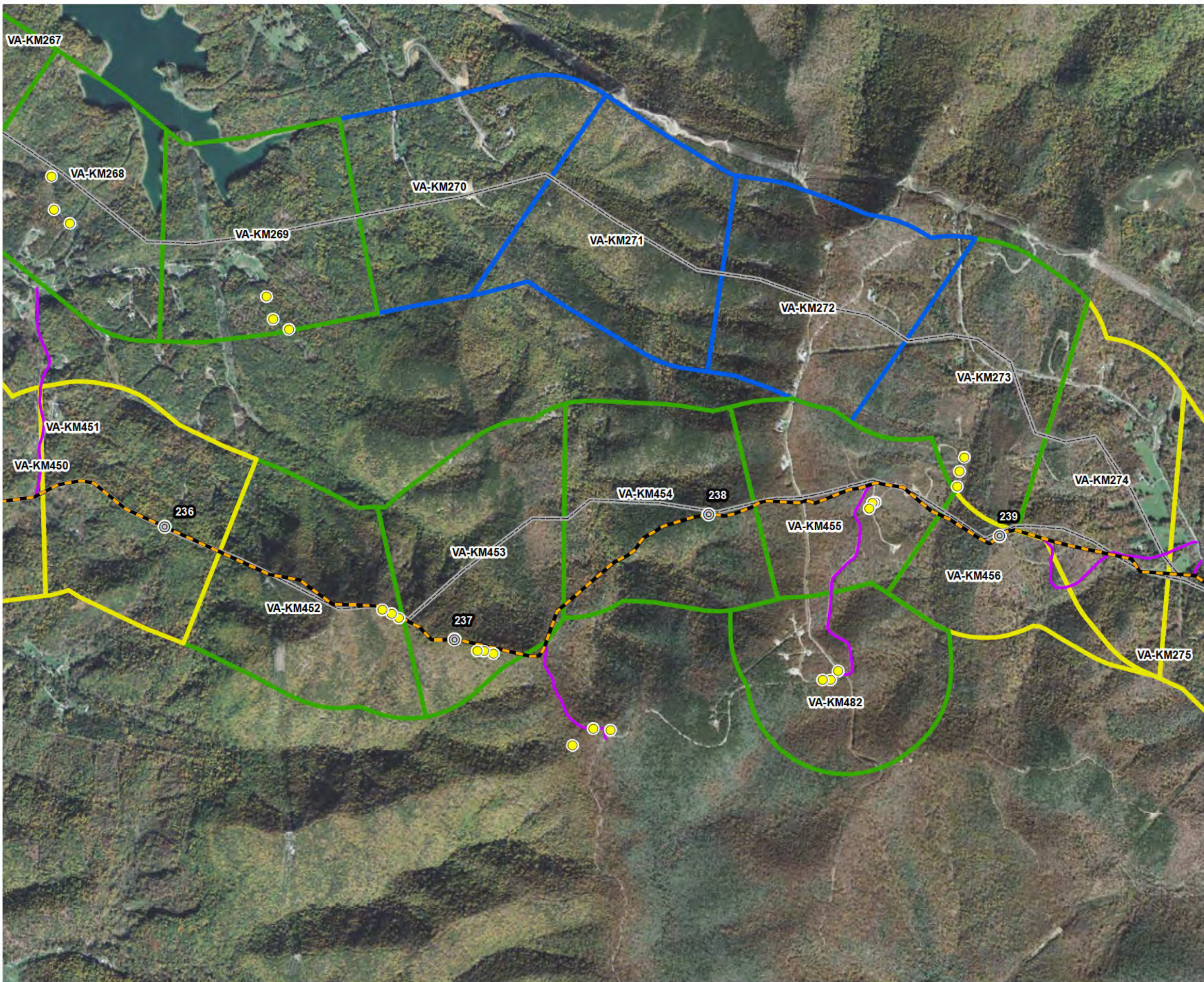
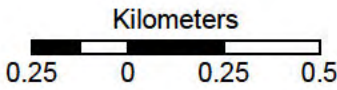


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed
 - Not Sampled – Route Abandoned
 - Pending



Base Map: ESRI ArcGIS Web service - "World_Imagery" accessed - 10/19/2015



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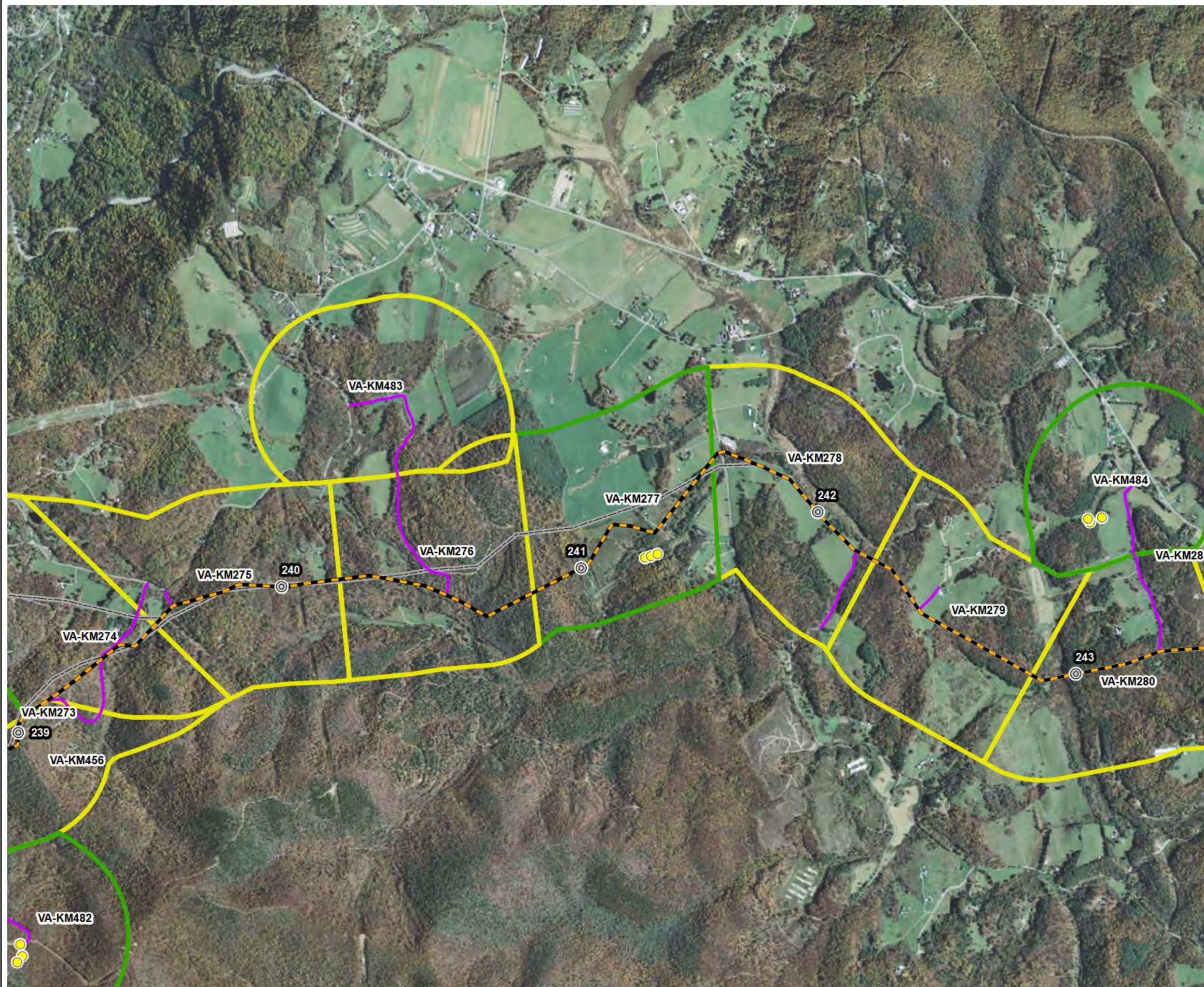
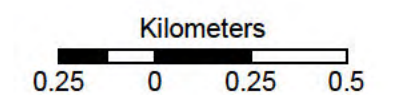
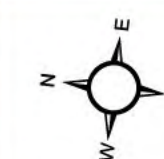


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

Map 14 of 42

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
 - ▭ 6 Net Nights Completed
 - ▭ Pending



Base Map: ESRI ArcGIS Web service - "World_Imagery"
accessed - 10/19/2015



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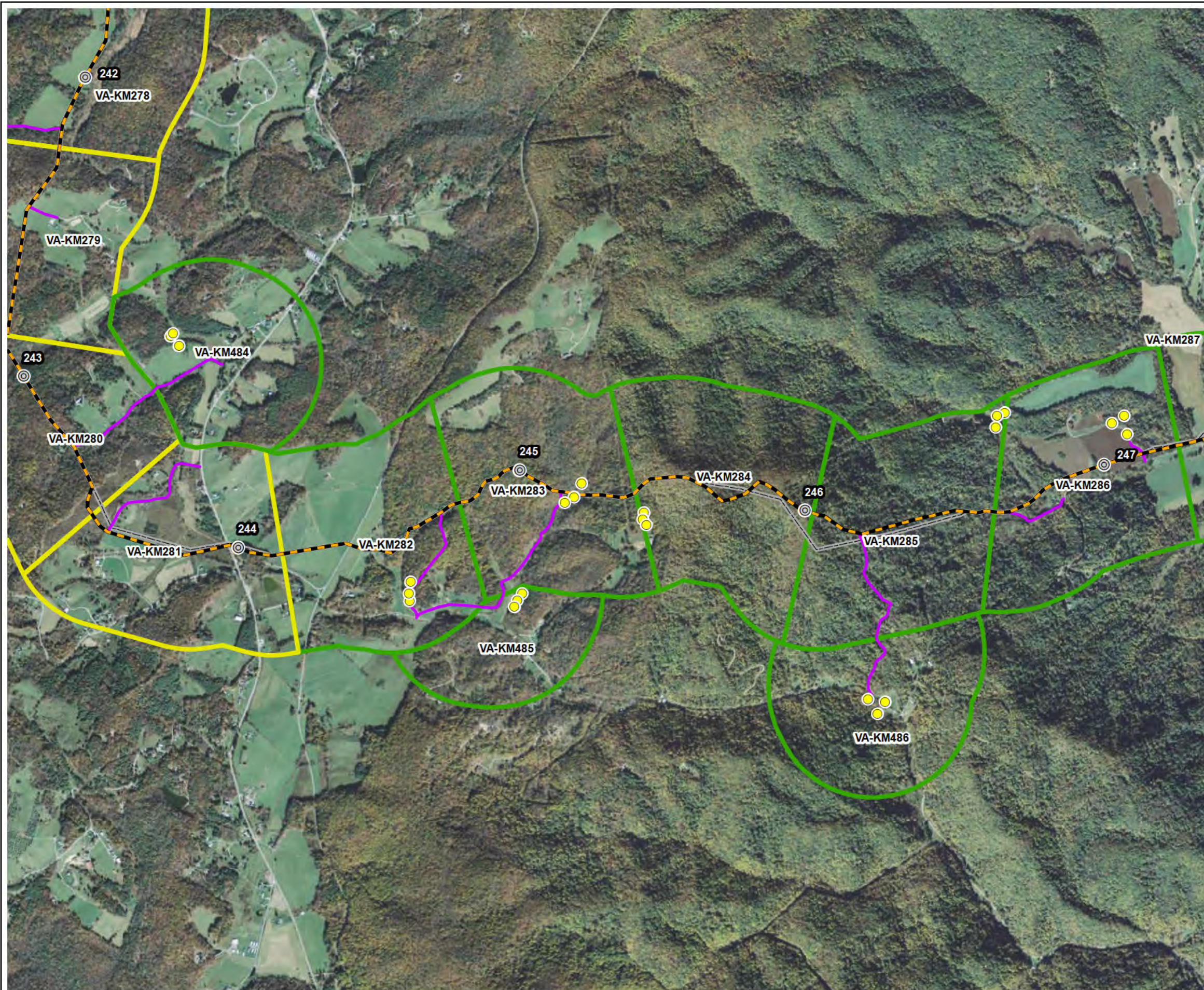
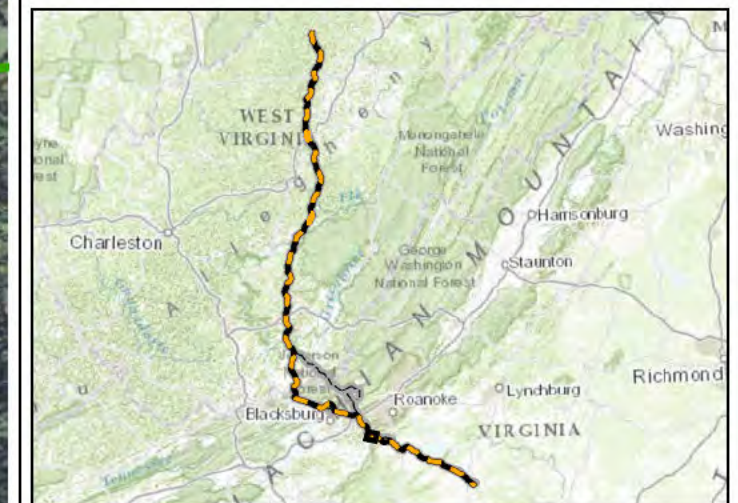


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

Map 15 of 42

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
 - ▭ 6 Net Nights Completed
 - ▭ Pending



Kilometers
0.25 0 0.25 0.5

Base Map: ESRI ArcGIS Web service - "World_Imagery"
accessed - 10/19/2015



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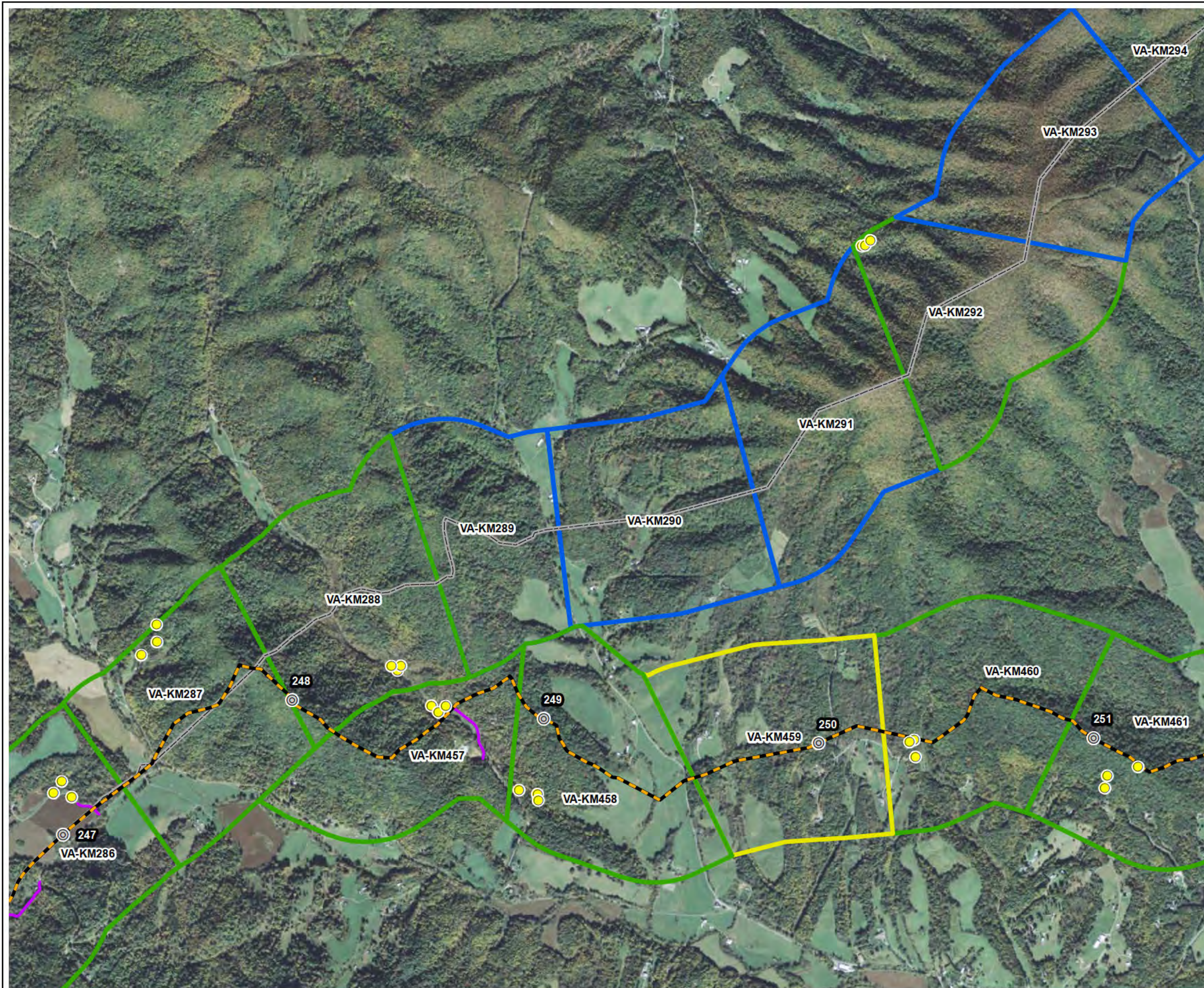
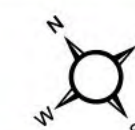


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

Map 16 of 42

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed
 - Not Sampled – Route Abandoned
 - Pending



Kilometers
0.25 0 0.25 0.5

Base Map: ESRI ArcGIS Web service - "World_Imagery"
accessed - 10/19/2015



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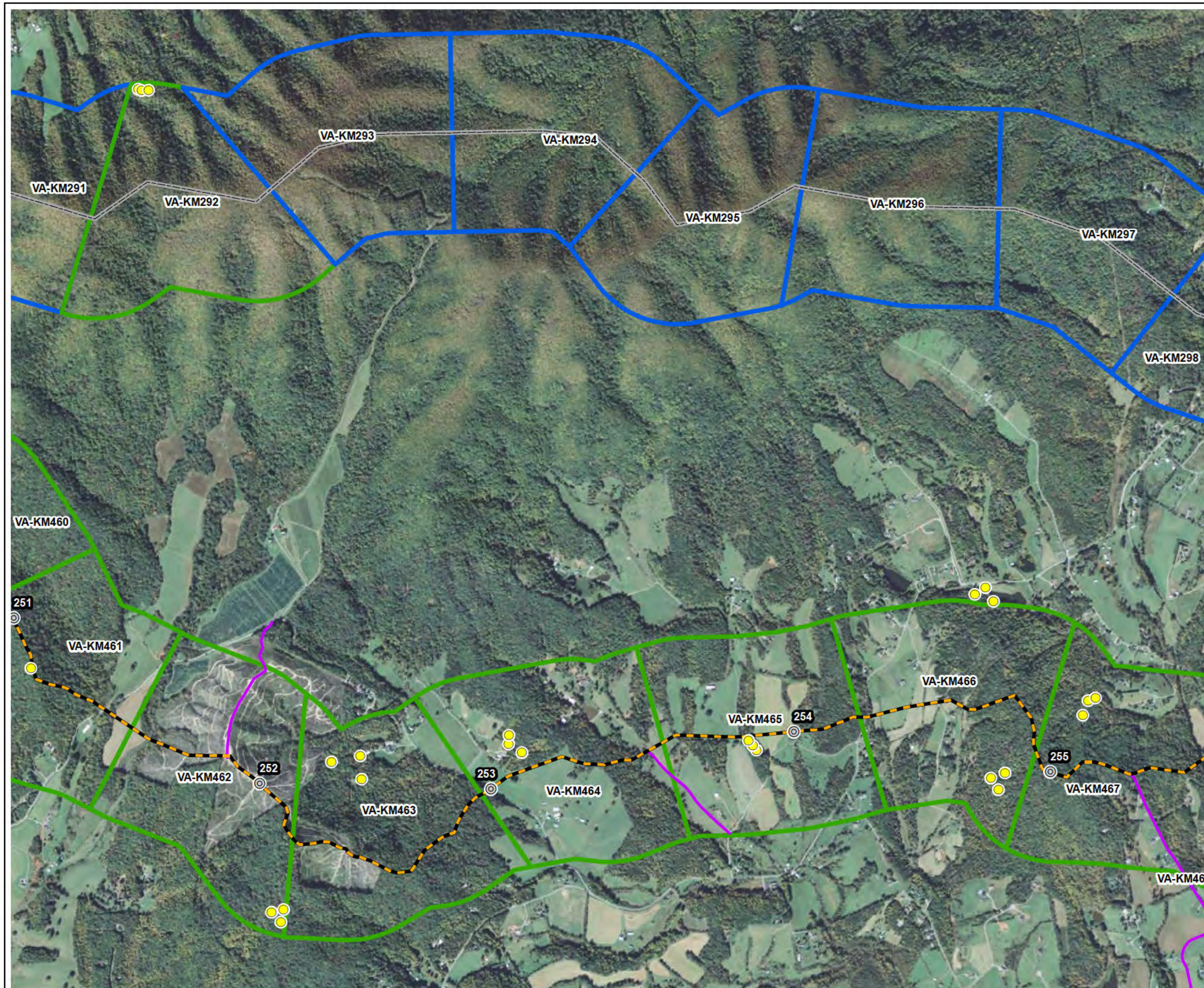
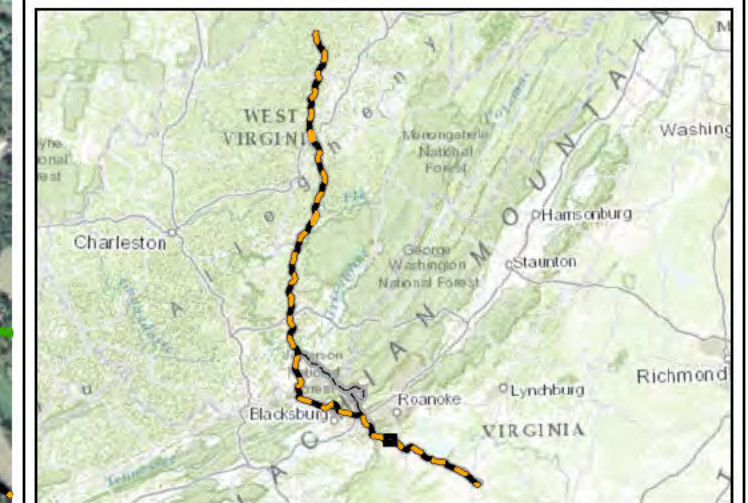


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

Map 17 of 42

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed
 - Not Sampled – Route Abandoned



Kilometers
0.25 0 0.25 0.5

Base Map: ESRI ArcGIS Web service - "World_Imagery"
accessed - 10/19/2015



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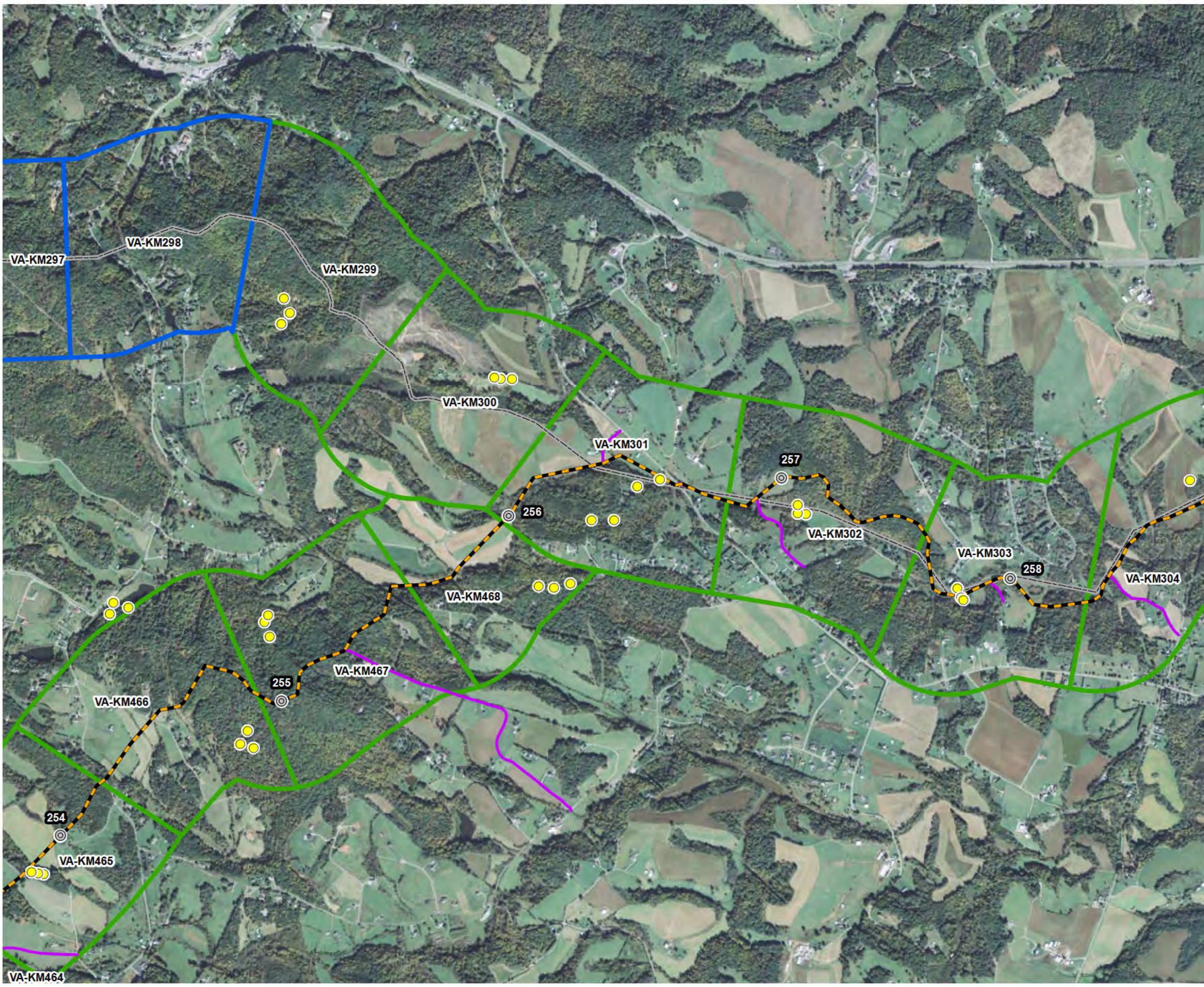
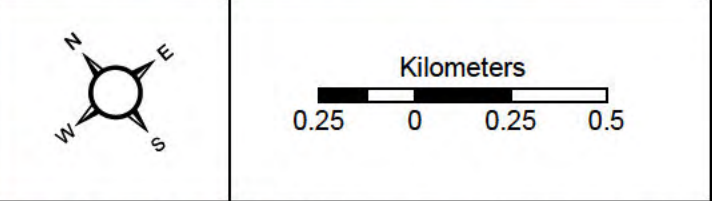


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed
 - Not Sampled – Route Abandoned



Base Map: ESRI ArcGIS Web service - "World_Imagery"
accessed - 10/19/2015

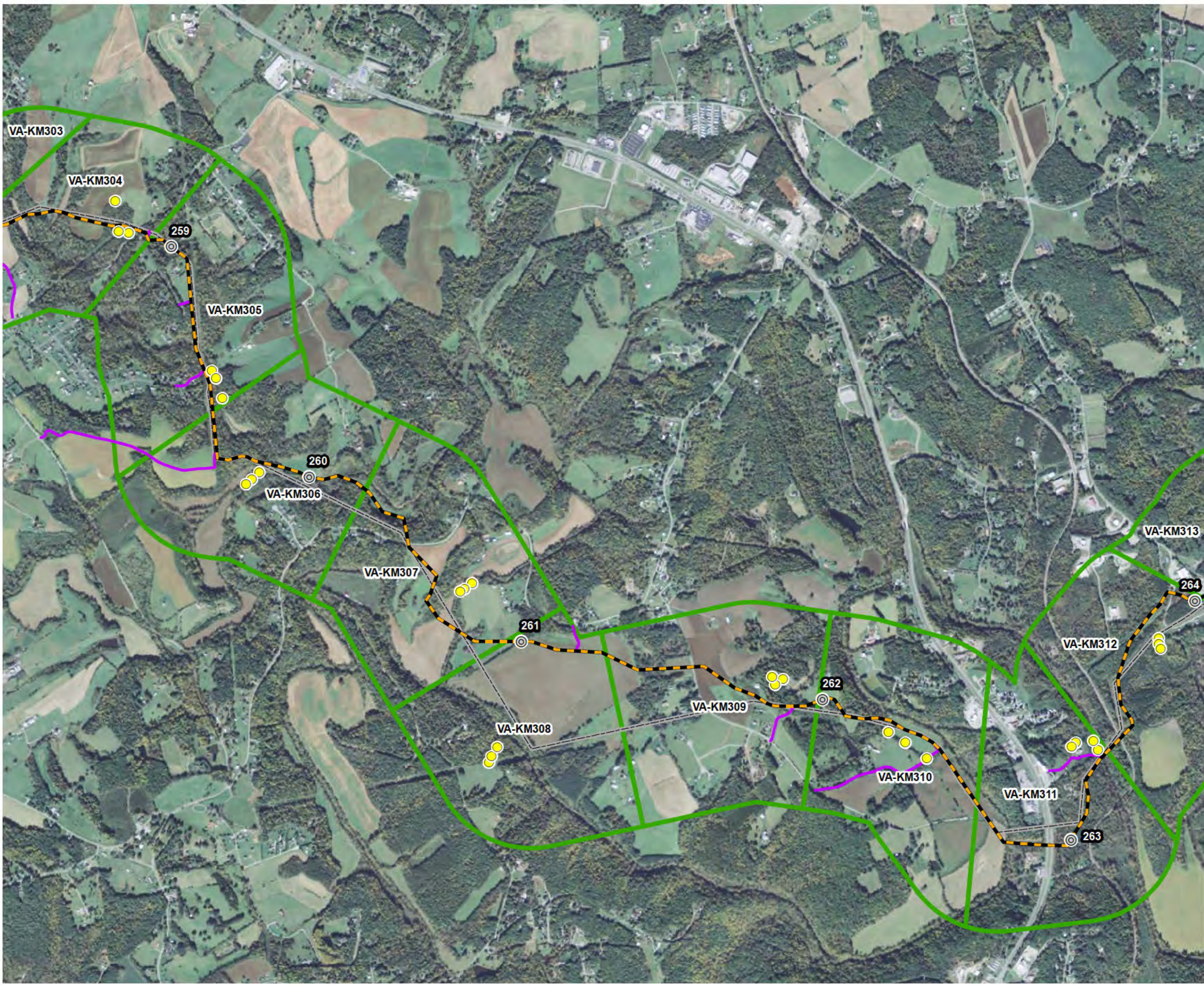
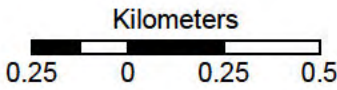


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
- 6 Net Nights Completed



Base Map: ESRI ArcGIS Web service - "World_Imagery"
accessed - 10/19/2015



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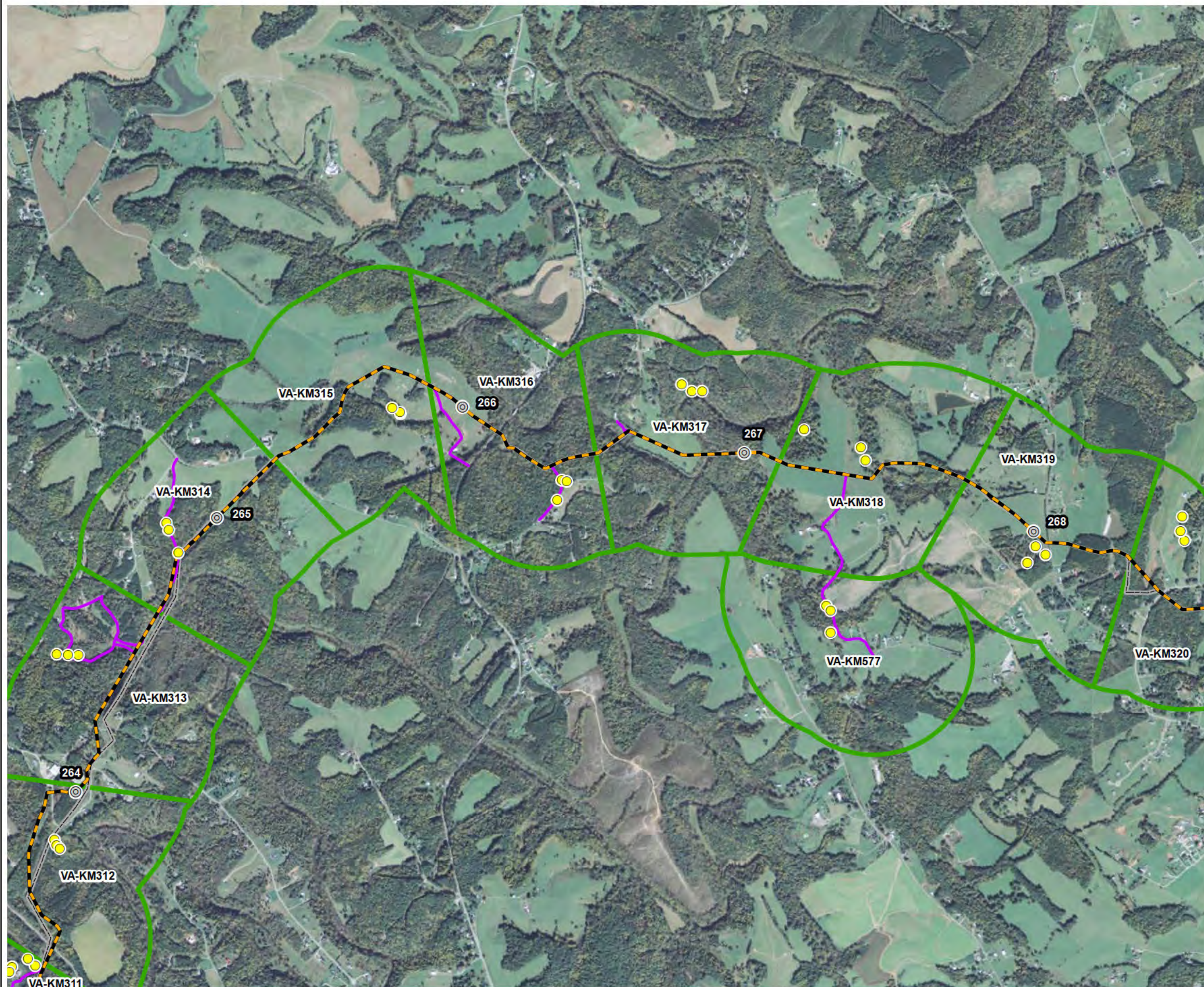


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

Map 20 of 42

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
- 6 Net Nights Completed



Kilometers
0.25 0 0.25 0.5

Base Map: ESRI ArcGIS Web service - "World_Imagery"
accessed - 10/19/2015

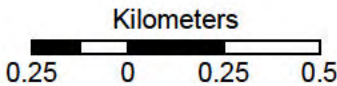
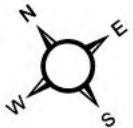


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Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.



- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed



Base Map: ESRI ArcGIS Web service - "World_Imagery"
accessed - 10/19/2015



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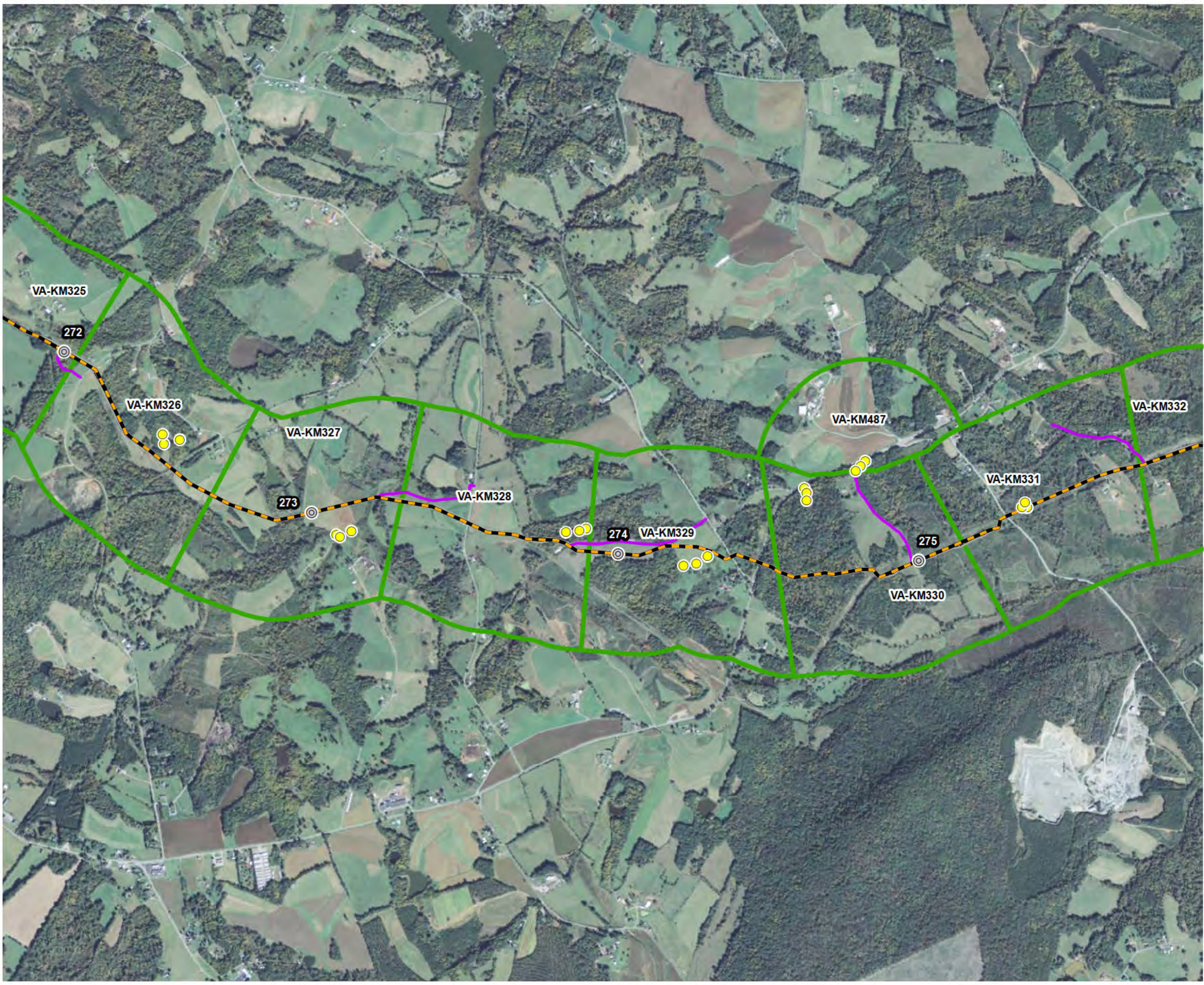
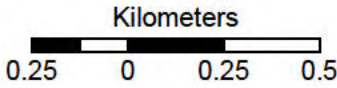
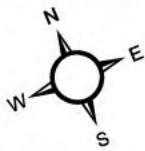
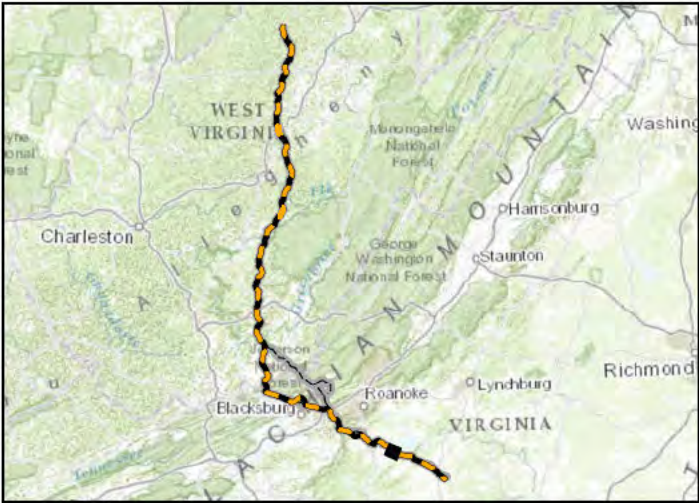


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed



Base Map: ESRI ArcGIS Web service - "World_Imagery"
accessed - 10/19/2015



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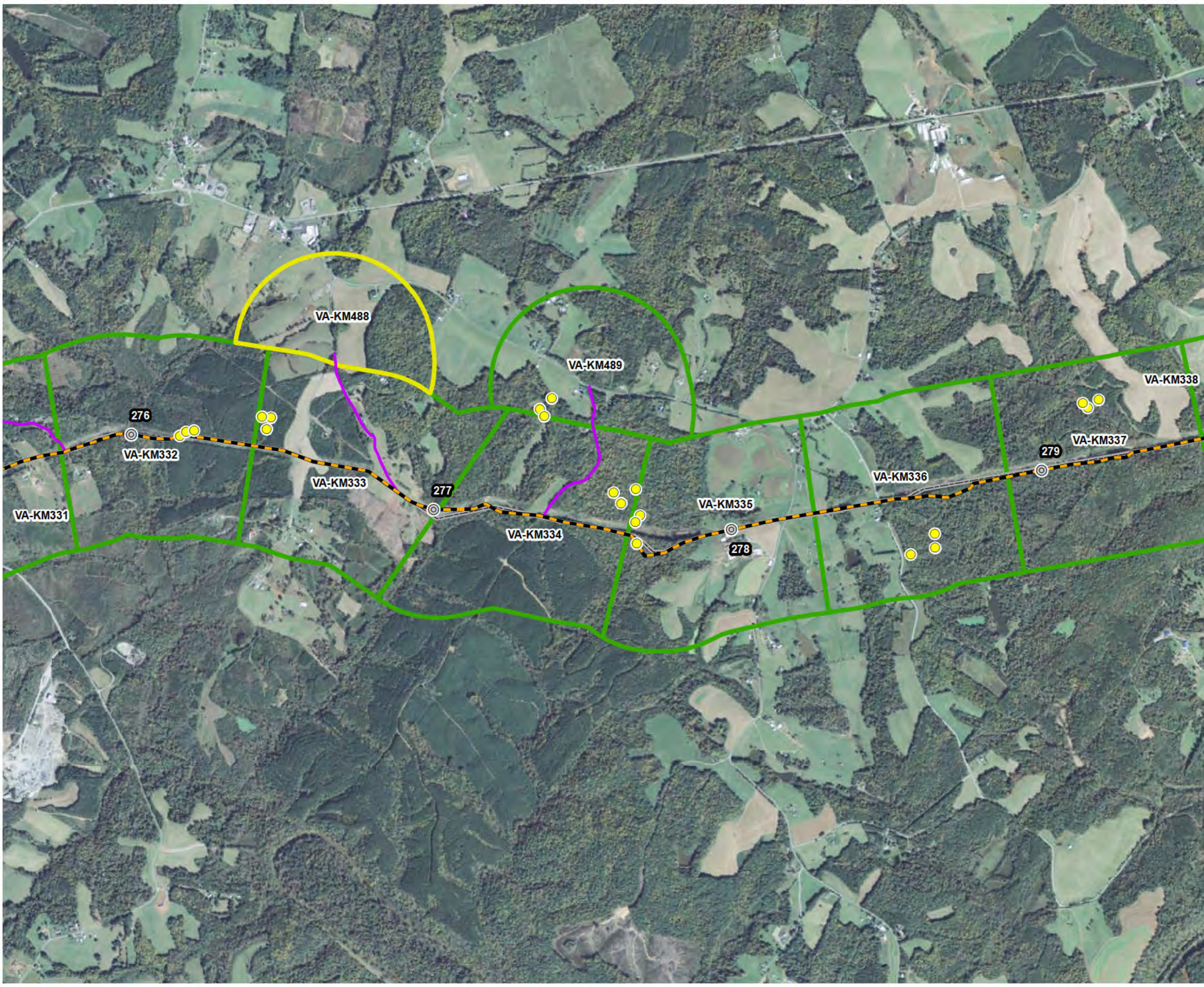
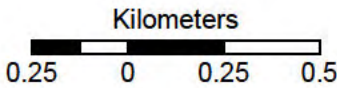
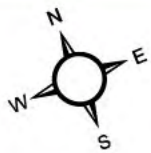


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- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed
 - Pending



Base Map: ESRI ArcGIS Web service - "World_Imagery"
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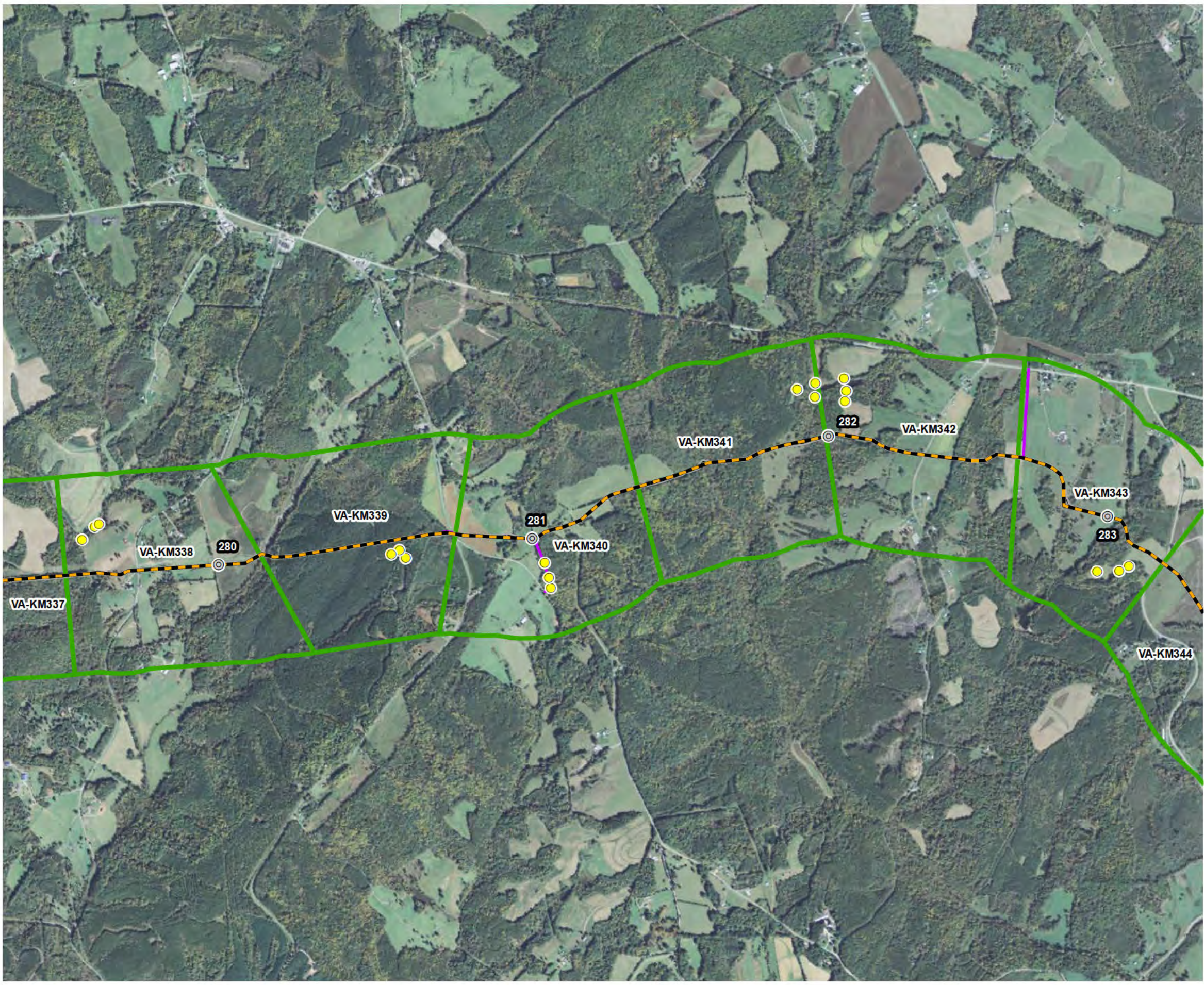
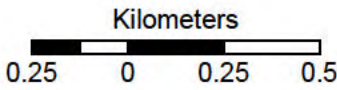
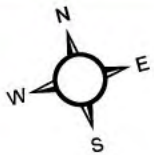
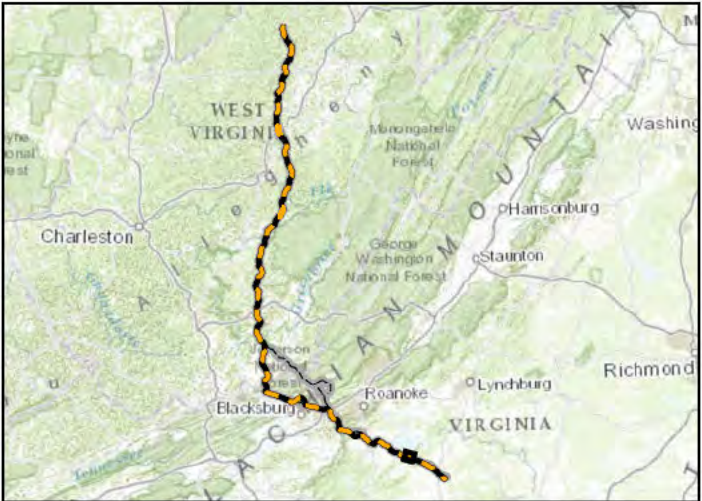


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- Mist Net Location
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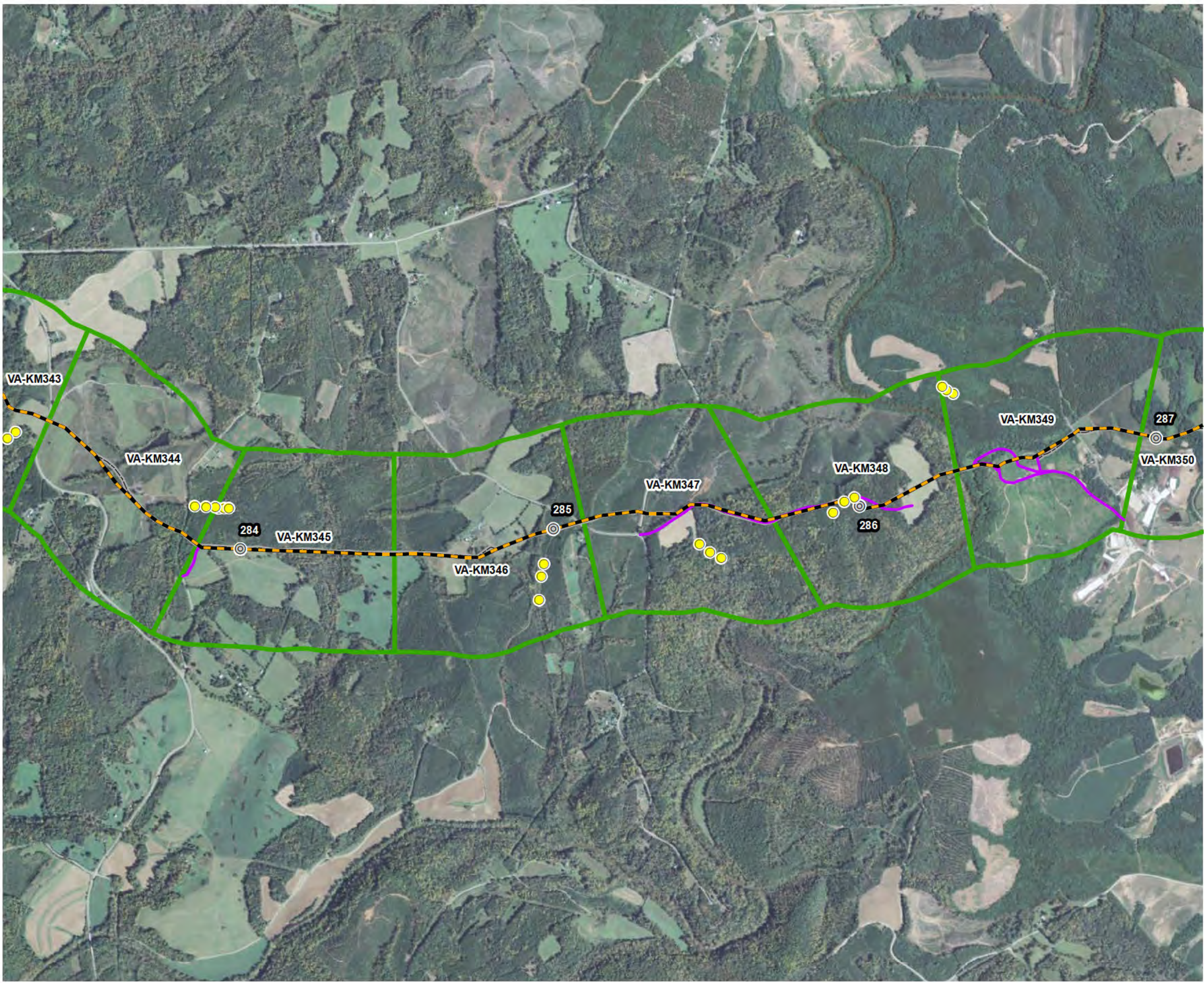
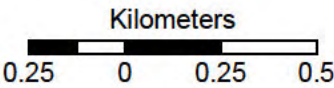
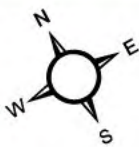


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
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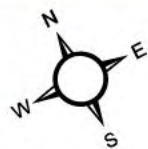


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Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed
 - Pending



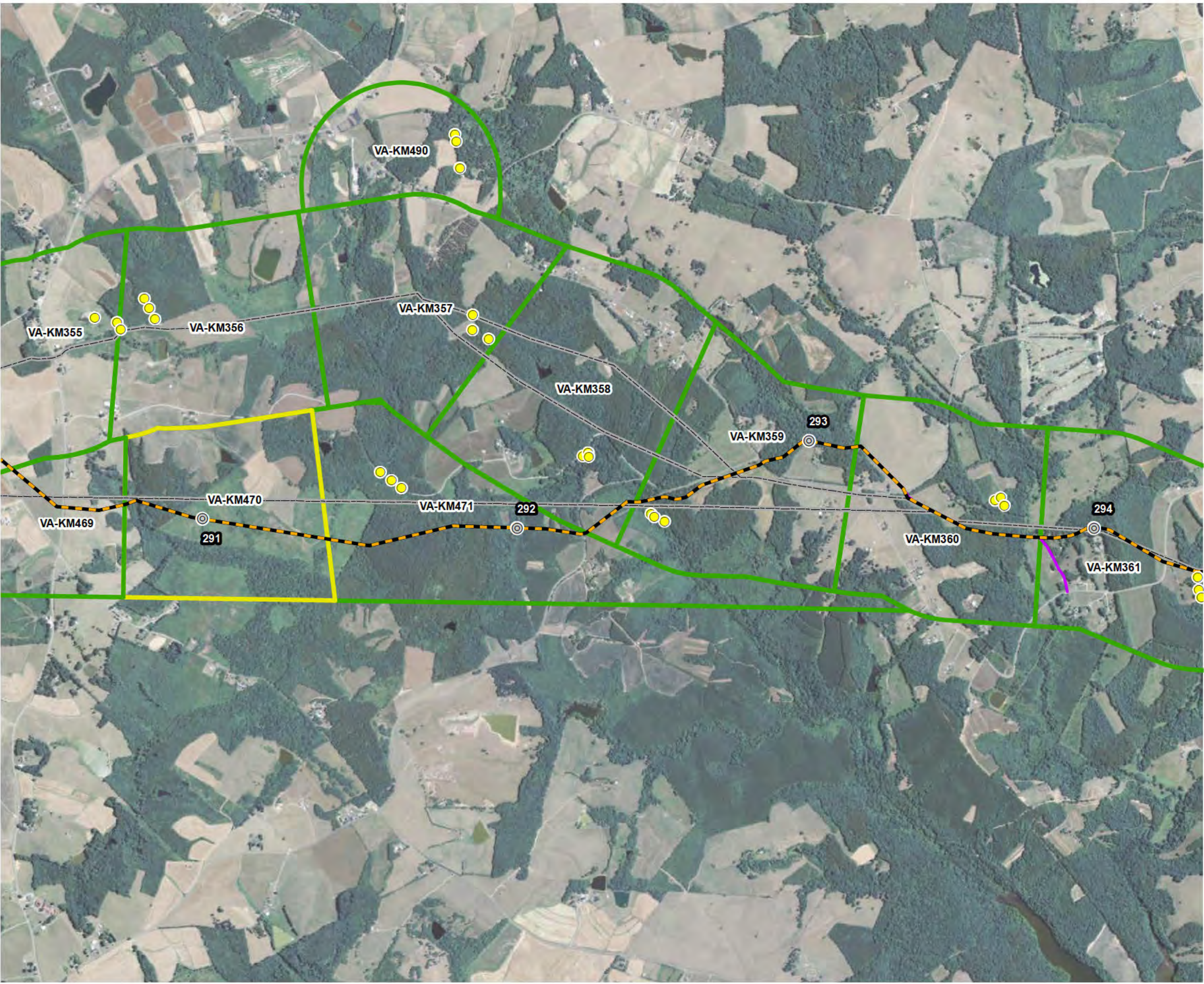
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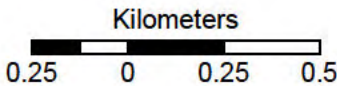
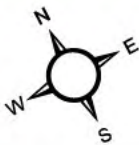


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Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.



- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed
 - Pending



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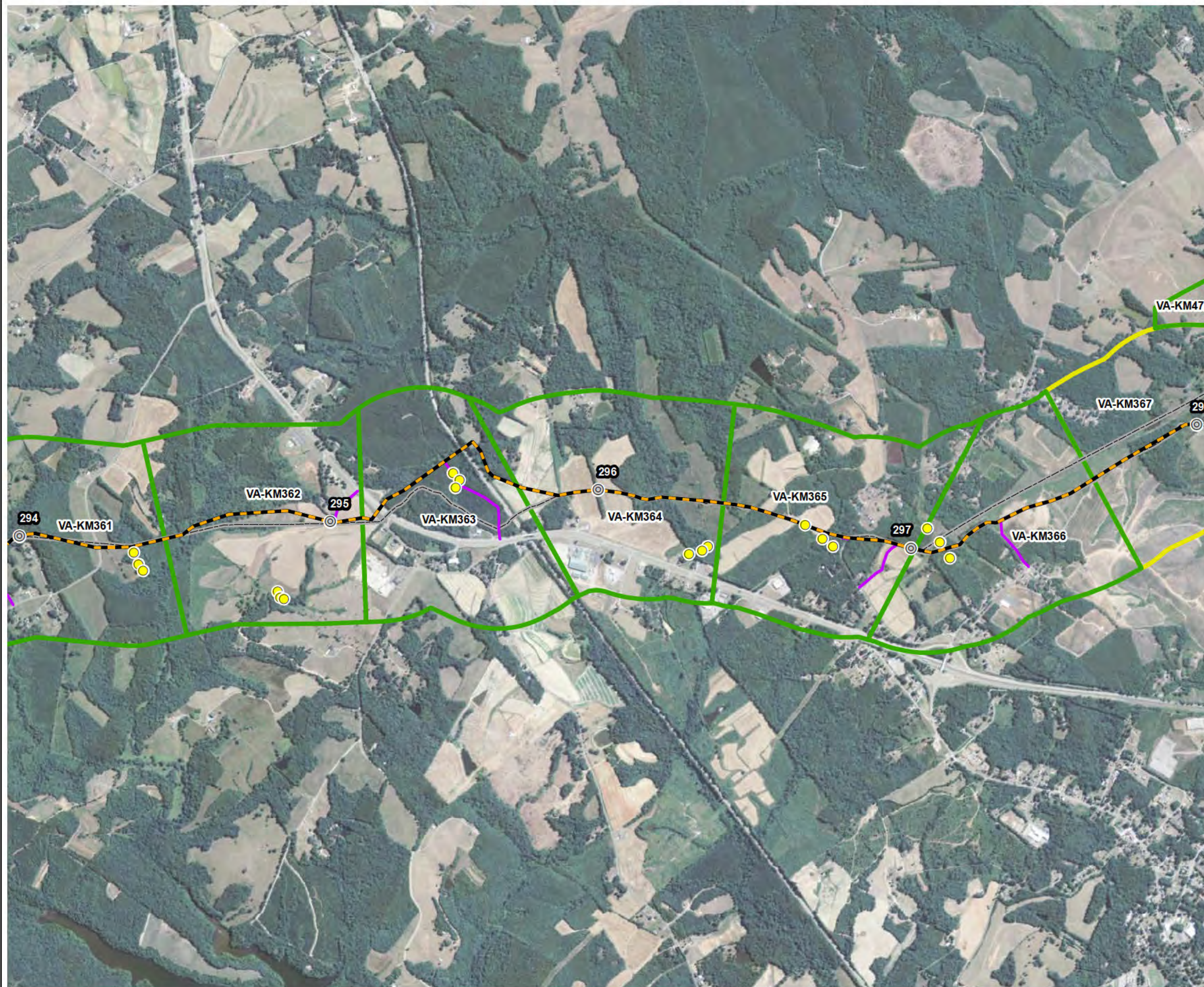


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

Map 28 of 42

- ⊙ Milepost
- Mist Net Location
 - Without Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed
 - Pending



Kilometers
0.25 0 0.25 0.5

Base Map: ESRI ArcGIS Web service - "World_Imagery"
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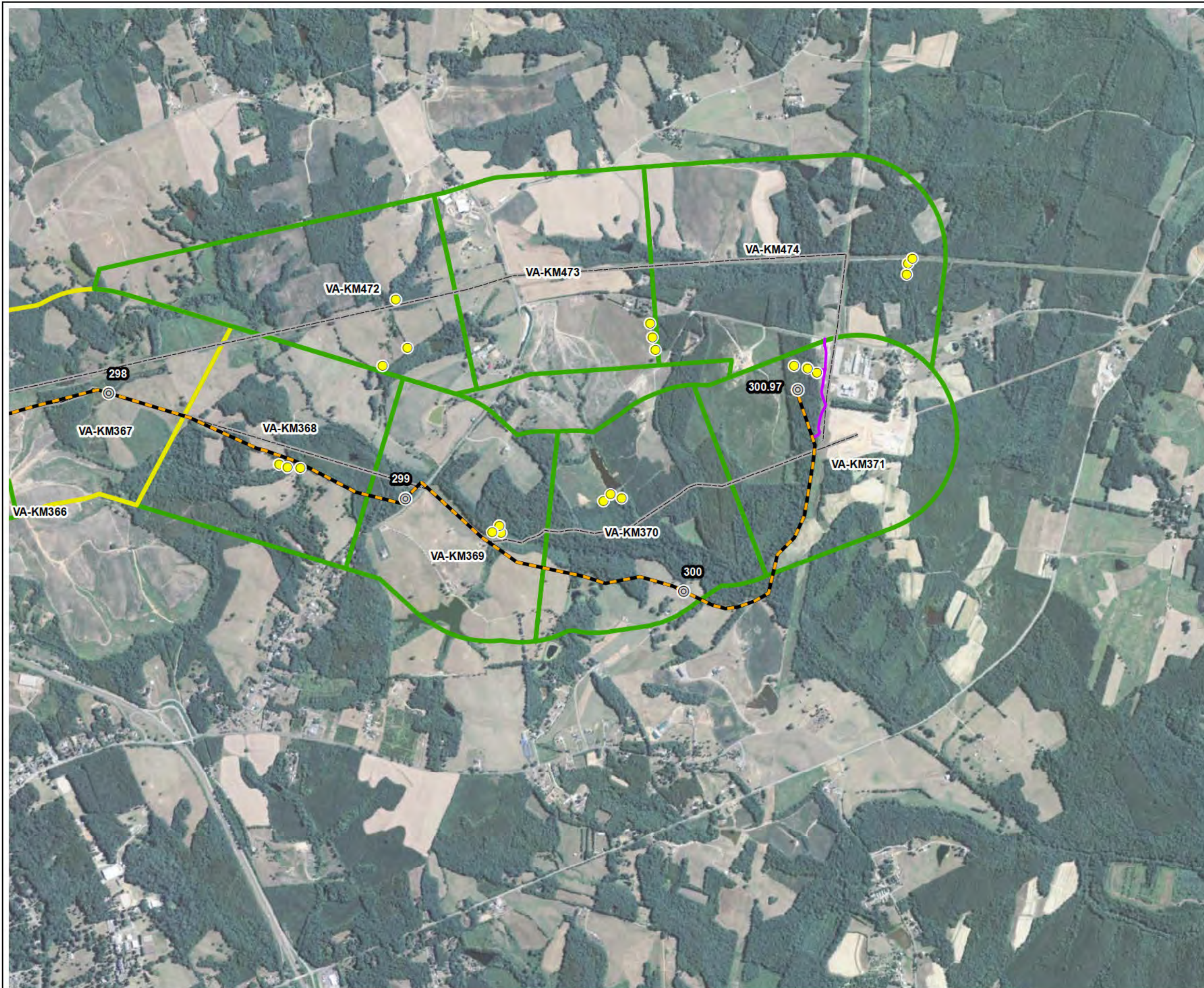
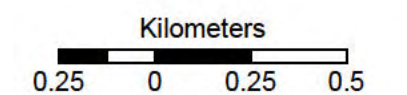
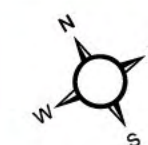


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

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Base Map: ESRI ArcGIS Web service - "World_Imagery"
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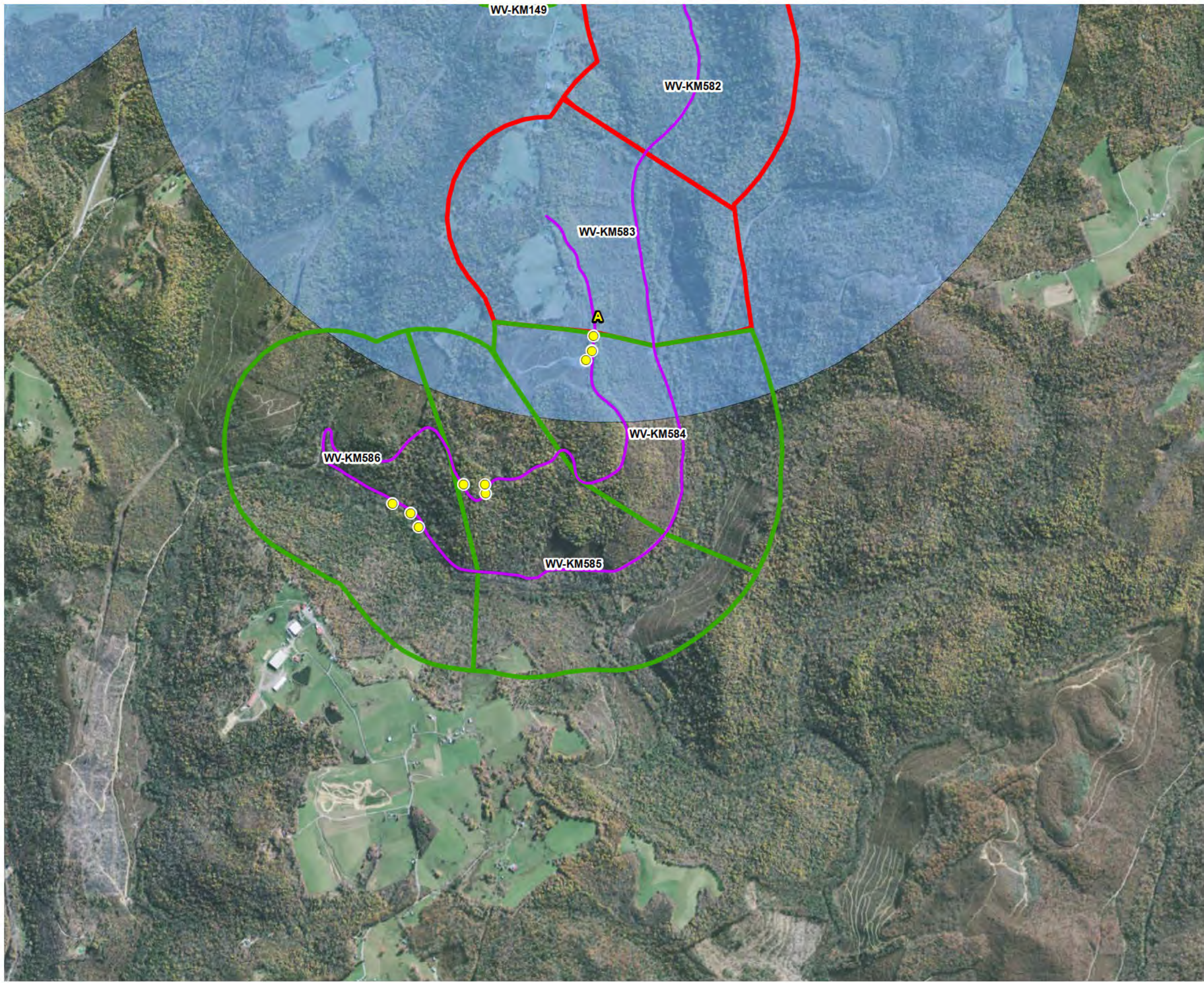
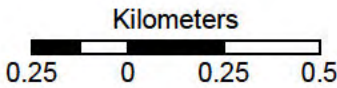
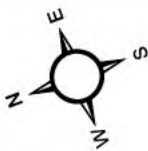


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- Mist Net Location
- Without Listed Bat Capture
 - Proposed Access Road
 - ESI Listed Bat Capture/Roost Buffer
- 1-Kilometer (KM) Mist Net Segment
- Excluded – Within ESI Listed Bat Buffer
 - 6 Net Nights Completed



Base Map: ESRI ArcGIS Web service - "World_Imagery" accessed - 10/19/2015



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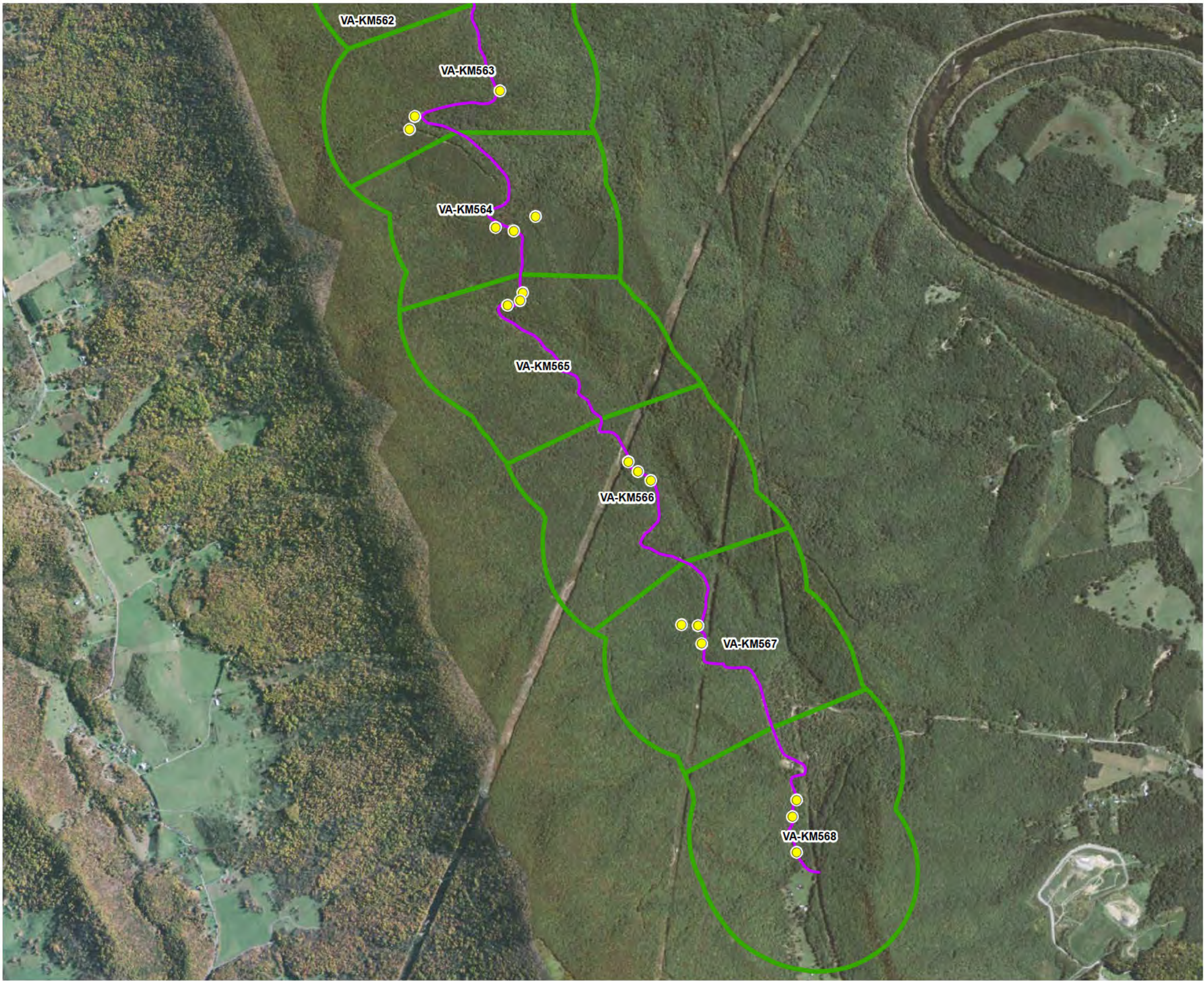
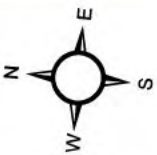


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- Mist Net Location
- Without Listed Bat Capture
 - Proposed Access Road
 - 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed



Base Map: ESRI ArcGIS Web service - "World_Imagery"
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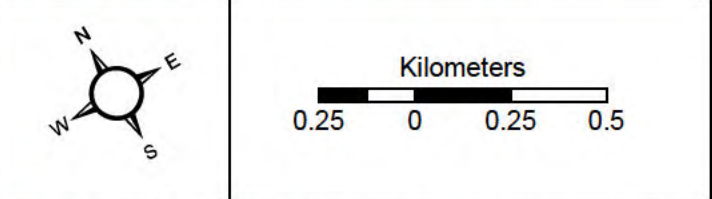


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Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- Mist Net Location
- Without Listed Bat Capture
 - Alternate Route
 - █ Exclusion Zone
 - ░ USFWS Listed Bat Capture/Roost Buffer
 - 1-Kilometer (KM) Mist Net Segment
 - ▬ 6 Net Nights Completed
 - ▬ Not Sampled – Route Abandoned



Base Map: ESRI ArcGIS Web service - "World_Imagery" accessed - 10/19/2015

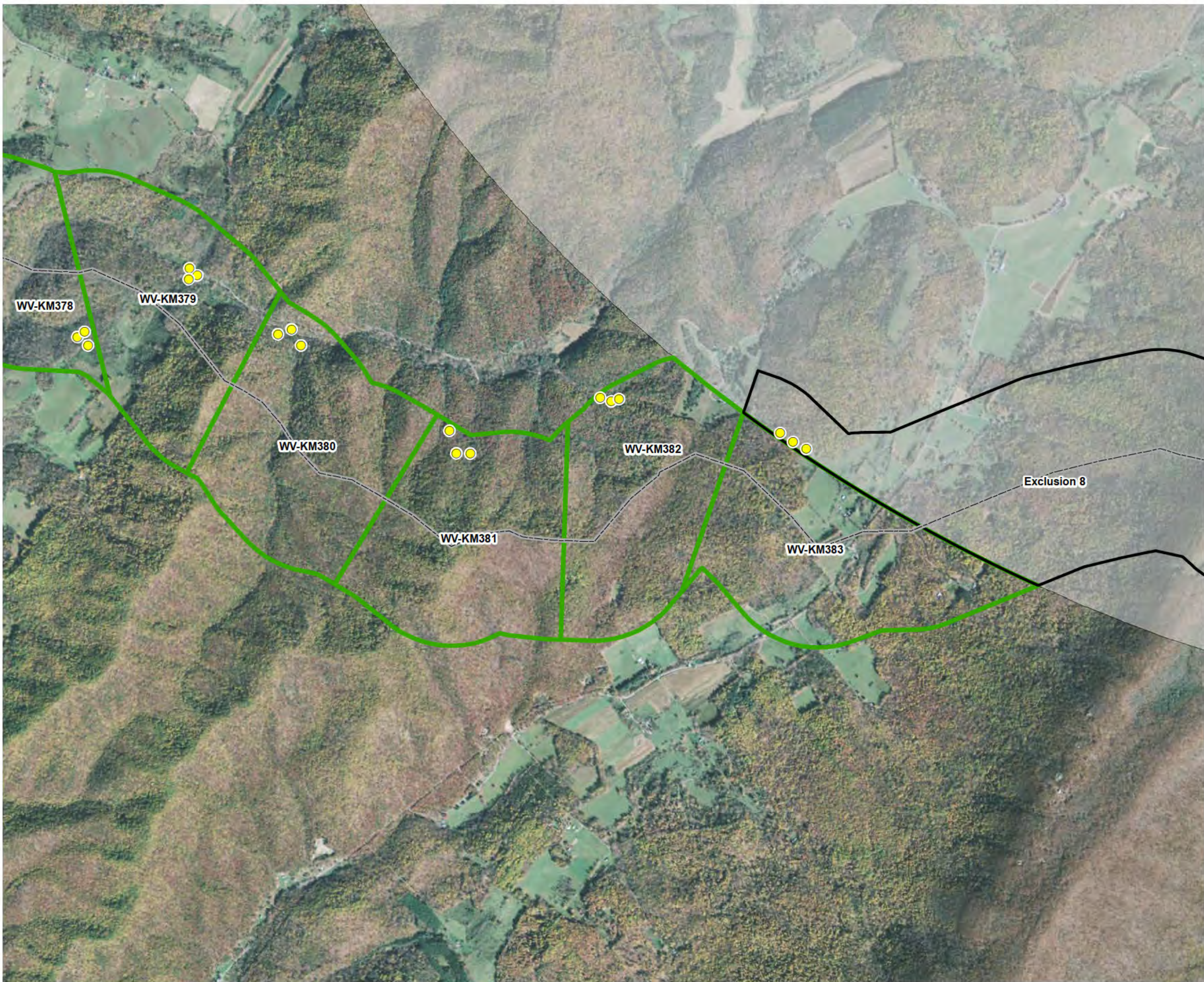
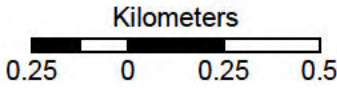
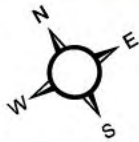


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- Mist Net Location
- Without Listed Bat Capture
 - Alternate Route
 - Exclusion Zone
 - USFWS Listed Bat Capture/Roost Buffer
 - 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed



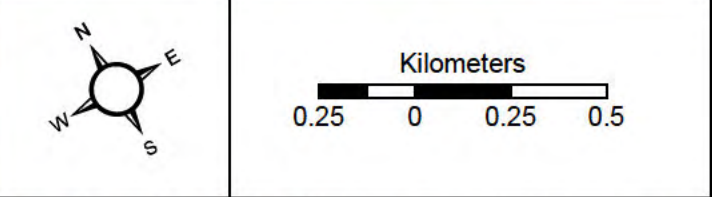
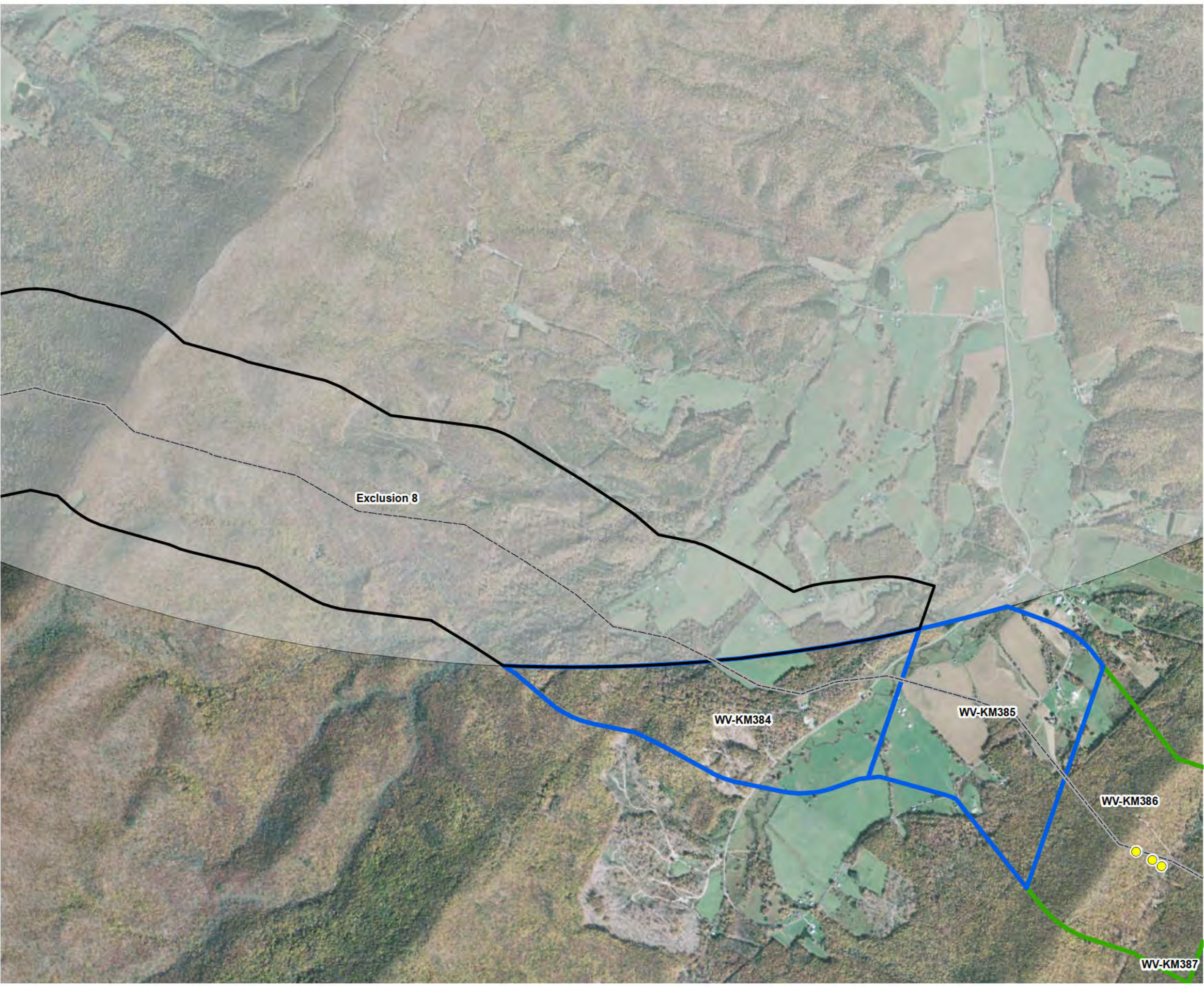
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Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- Mist Net Location
- Without Listed Bat Capture
 - Alternate Route
 - Exclusion Zone
 - USFWS Listed Bat Capture/Roost Buffer
 - 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed
 - Not Sampled – Route Abandoned



Base Map: ESRI ArcGIS Web service - "World_Imagery" accessed - 10/19/2015

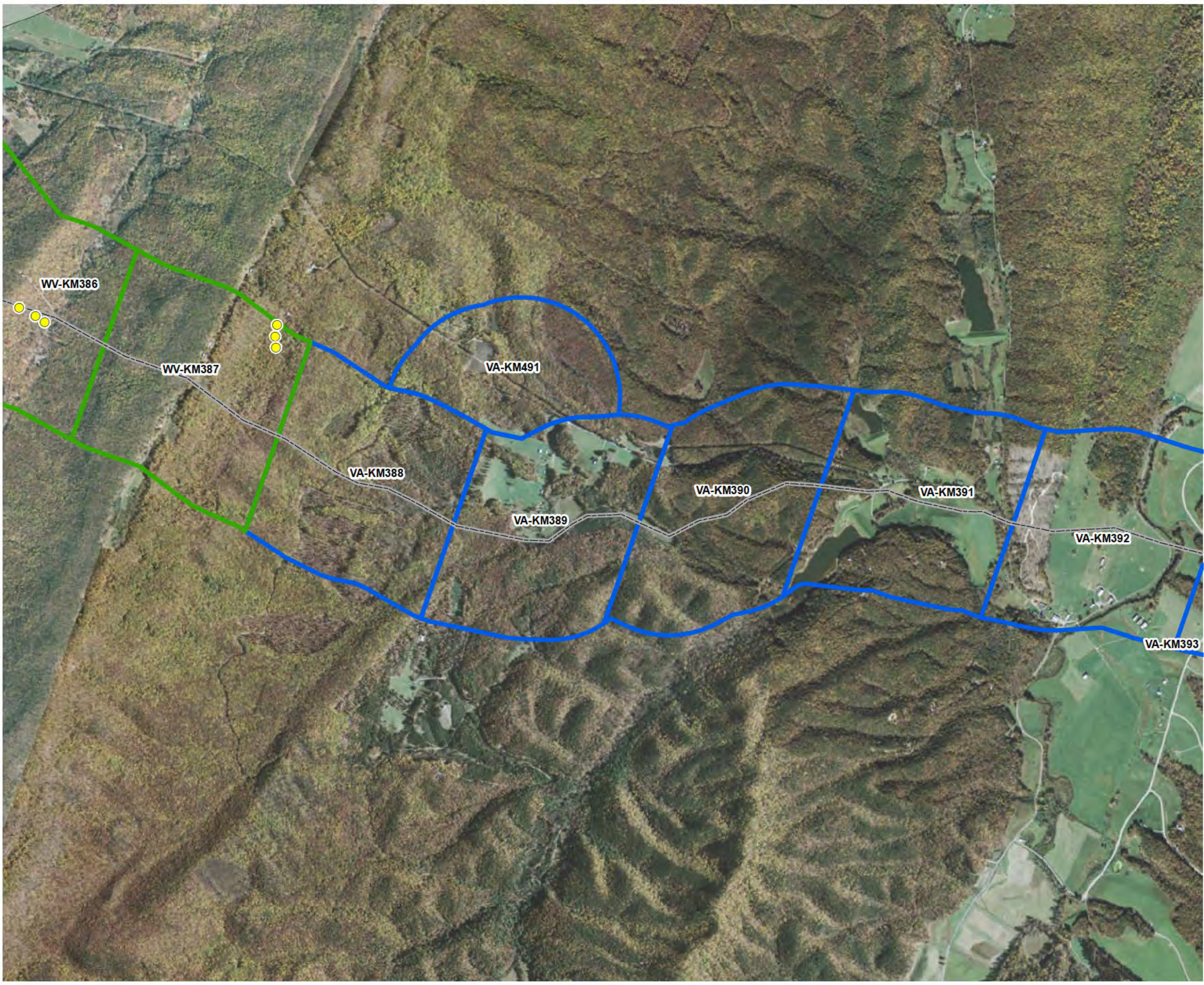
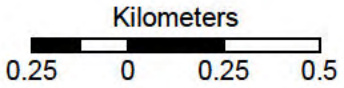


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- Mist Net Location
- Without Listed Bat Capture
 - Alternate Route
 - USFWS Listed Bat Capture/Roost Buffer
 - 1-Kilometer (KM) Mist Net Segment
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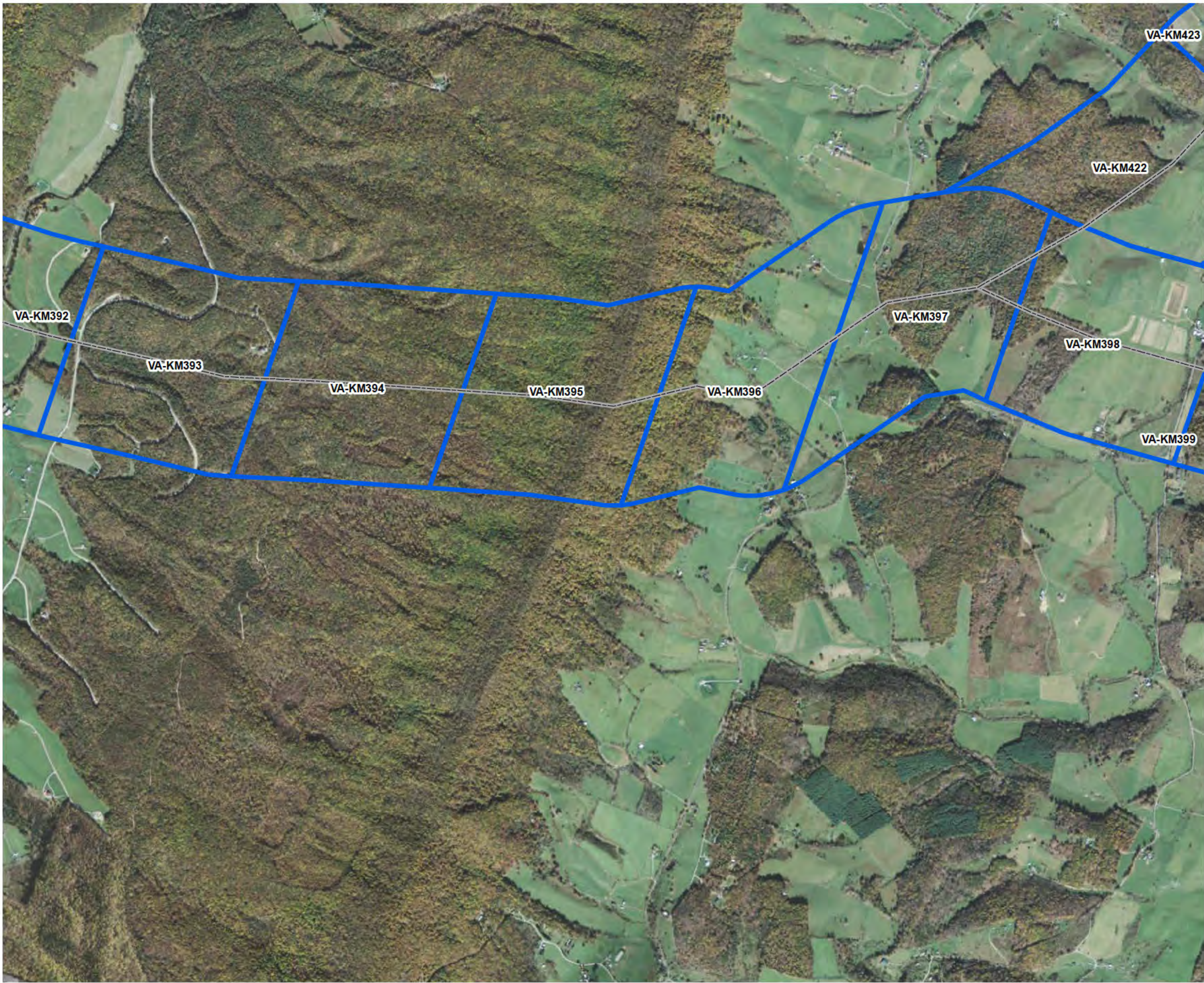
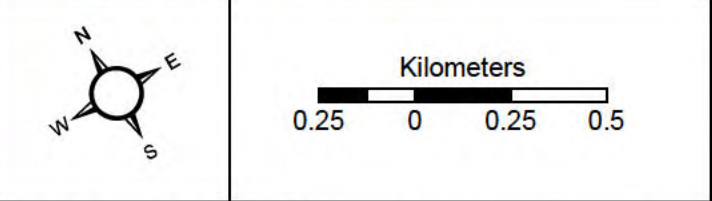


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- Alternate Route
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- Not Sampled – Route Abandoned



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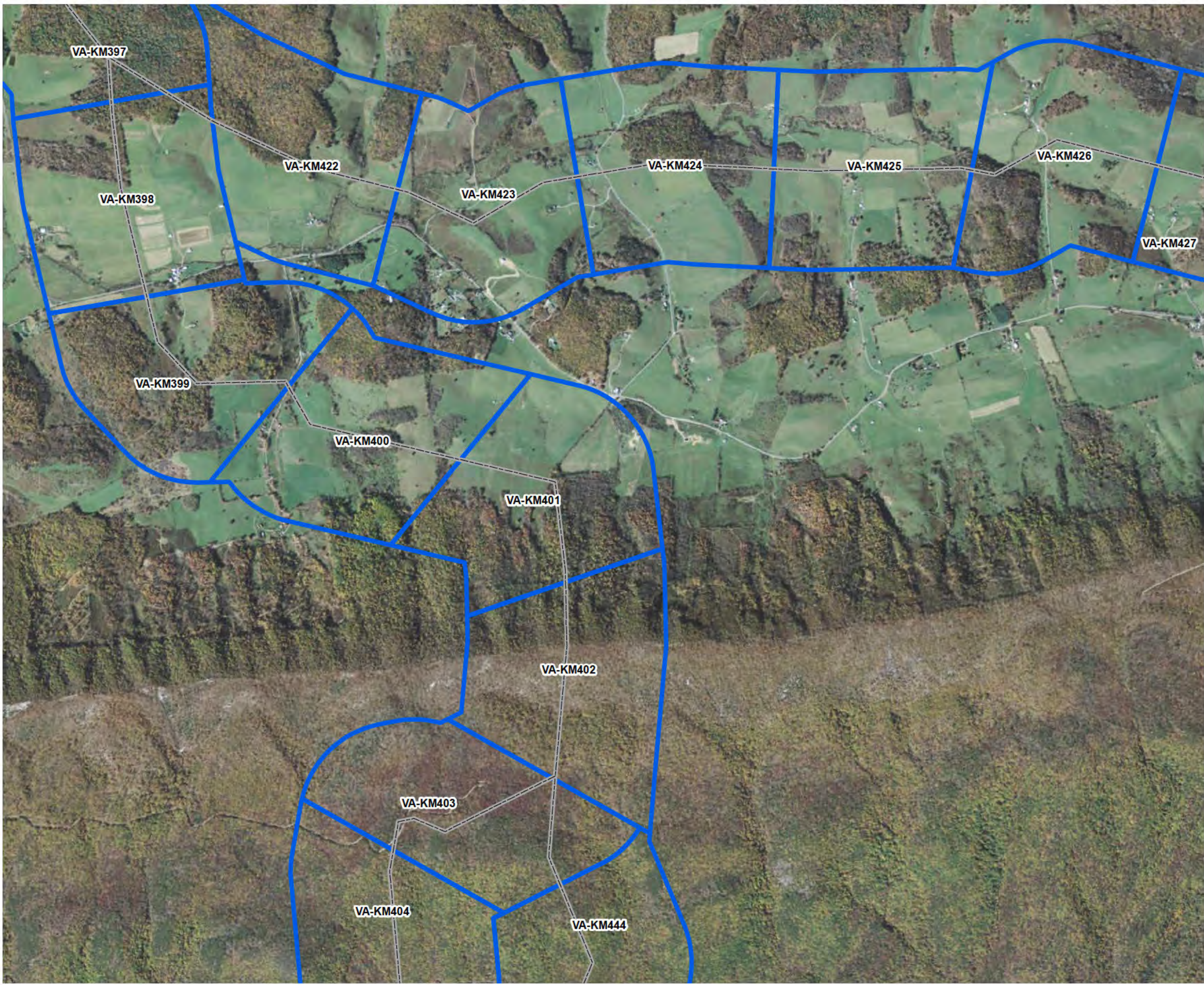
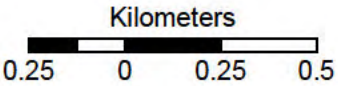
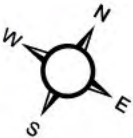


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
- Not Sampled – Route Abandoned



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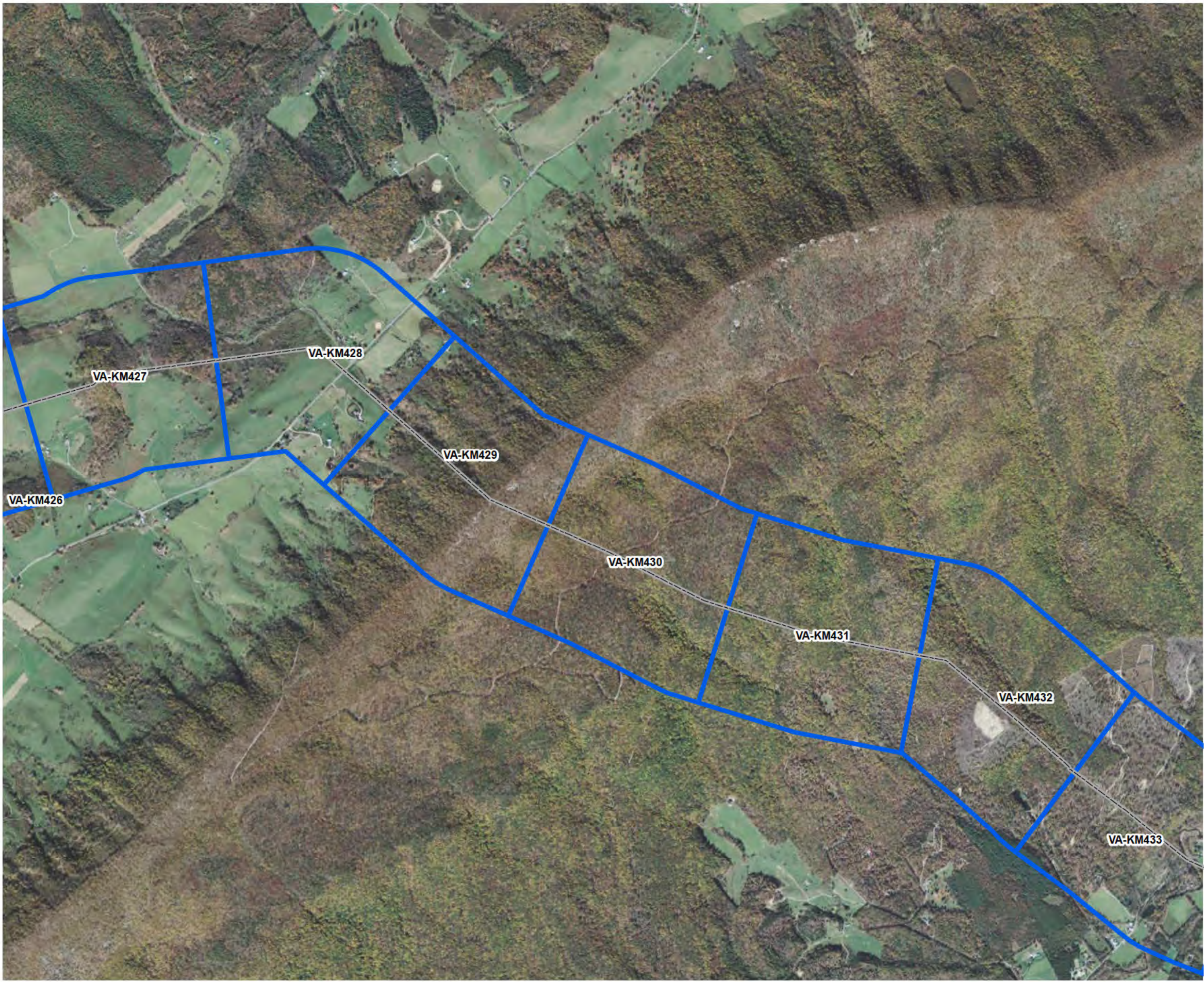
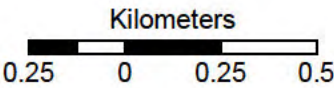


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- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
- Not Sampled – Route Abandoned



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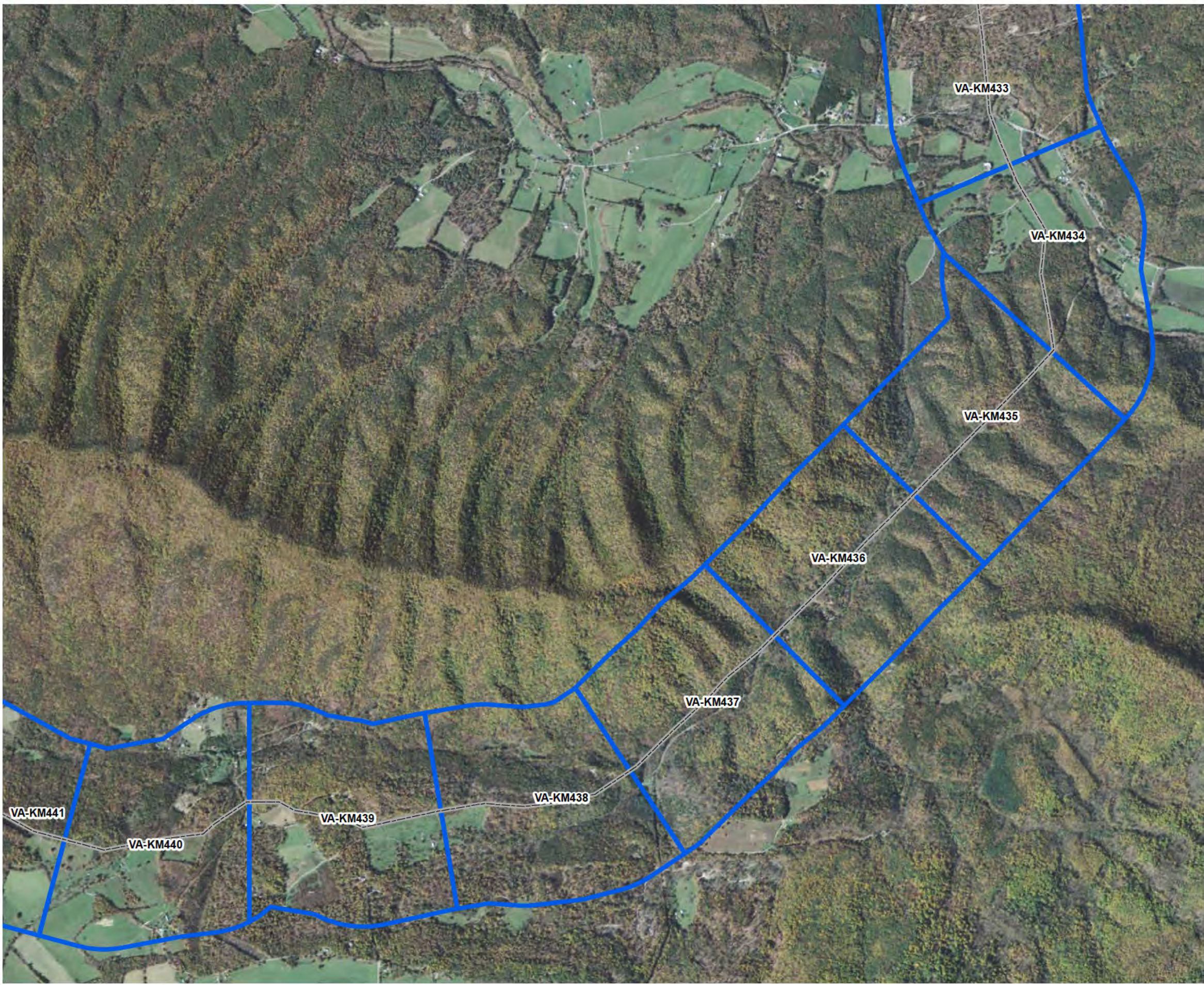
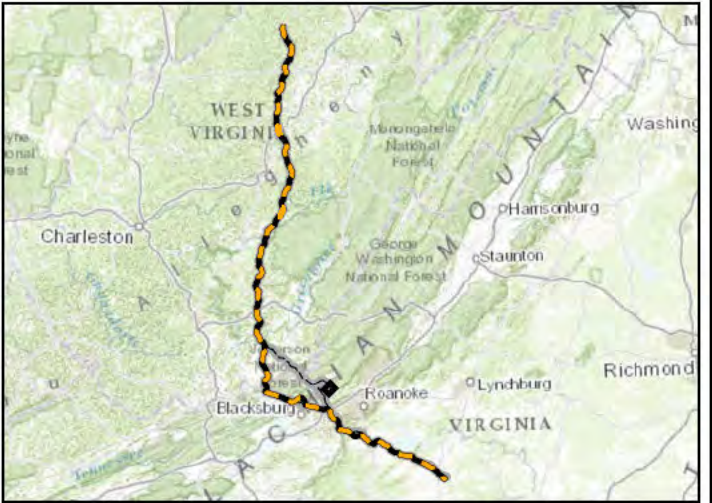


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- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
- Not Sampled – Route Abandoned



Base Map: ESRI ArcGIS Web service - "World_Imagery"
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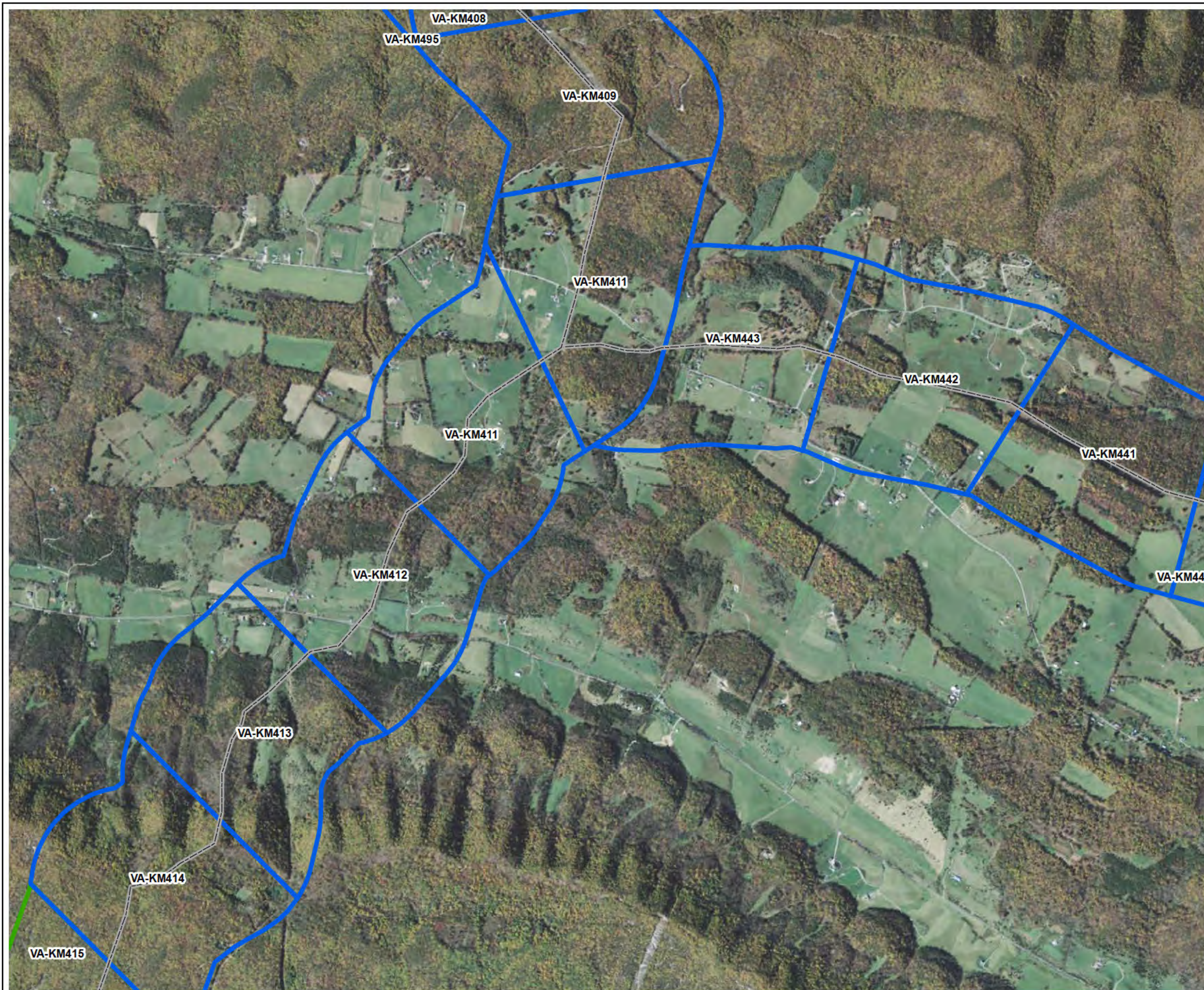


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

Map 40 of 42

- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
- 6 Net Nights Completed
- Not Sampled – Route Abandoned



Kilometers
0.25 0 0.25 0.5

Base Map: ESRI ArcGIS Web service - "World_Imagery"
accessed - 10/19/2015



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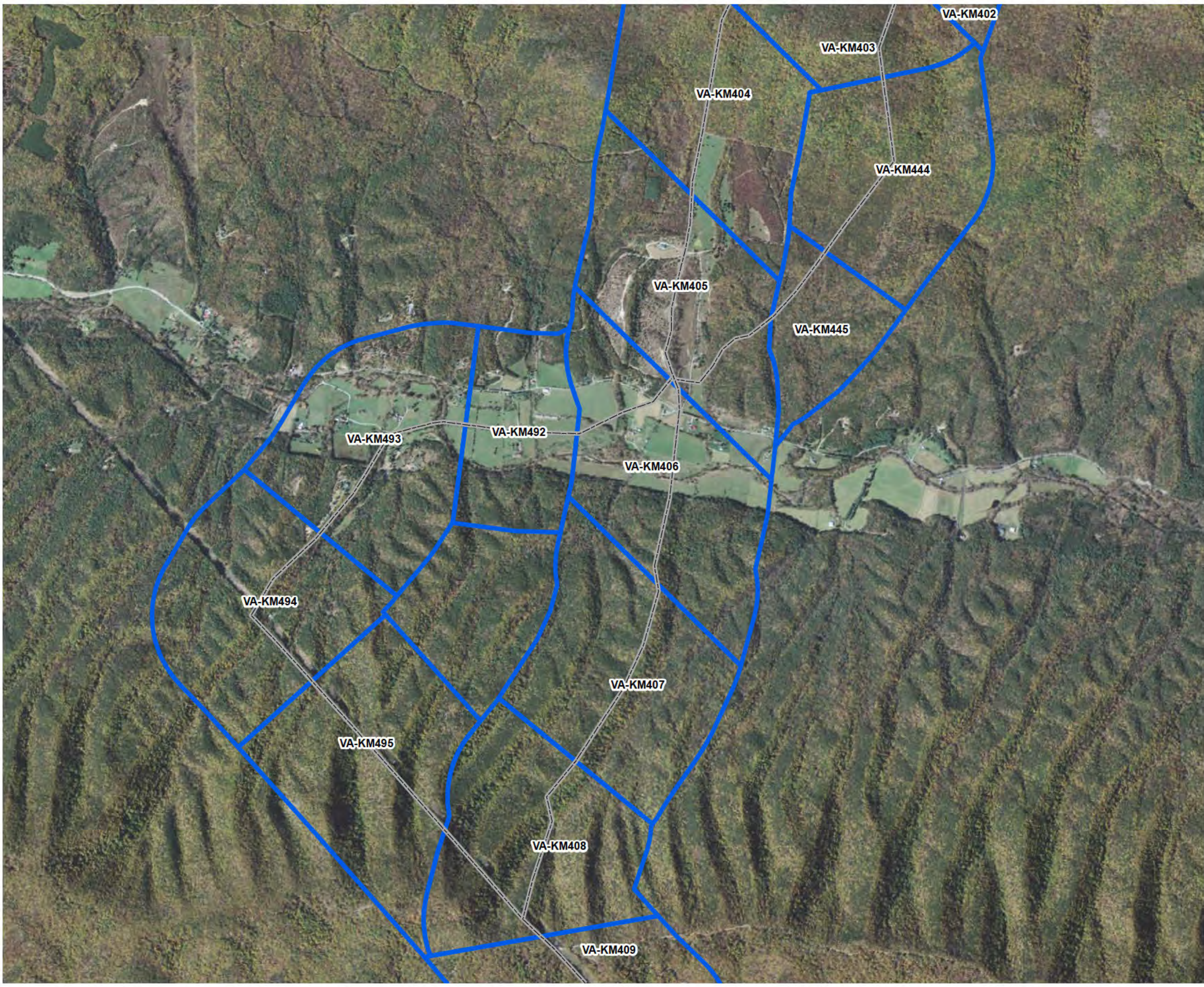
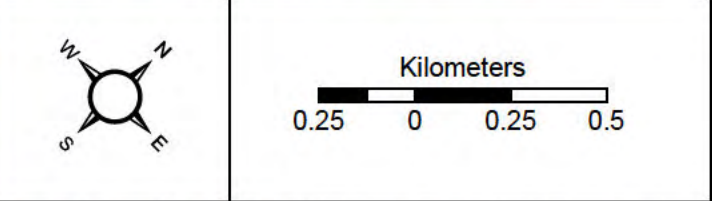


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

- Alternate Route
- 1-Kilometer (KM) Mist Net Segment
- Not Sampled – Route Abandoned



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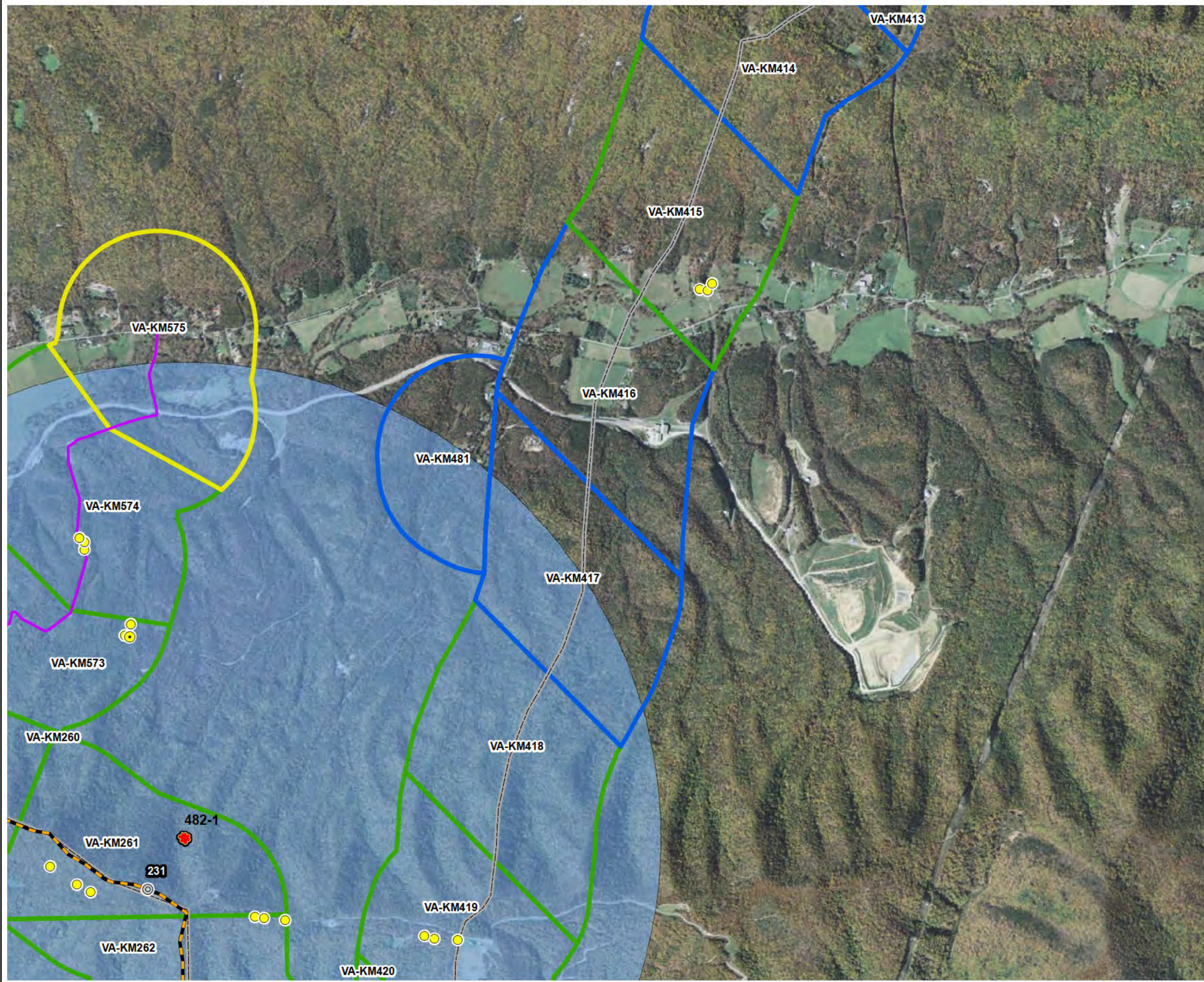
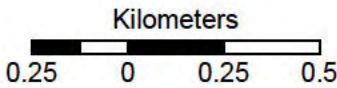


Figure 2. Mist net locations and documented roost trees along the Mountain Valley Pipeline Project.

Map 42 of 42

- ⊙ Milepost
- ★ Roost Tree Location
- Mist Net Location
 - Without Listed Bat Capture
 - With Listed Bat Capture
- Proposed Route
- Proposed Access Road
- Alternate Route
- ESI Listed Bat Capture/Roost Buffer
- 1-Kilometer (KM) Mist Net Segment
 - 6 Net Nights Completed
 - Not Sampled – Route Abandoned
 - Pending



Base Map: ESRI ArcGIS Web service - "World_Imagery"
accessed - 10/19/2015



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Figure 3. Ambient temperature during mist net surveys MVP's Mountain Valley Pipeline Project in and within 5 miles of Virginia.

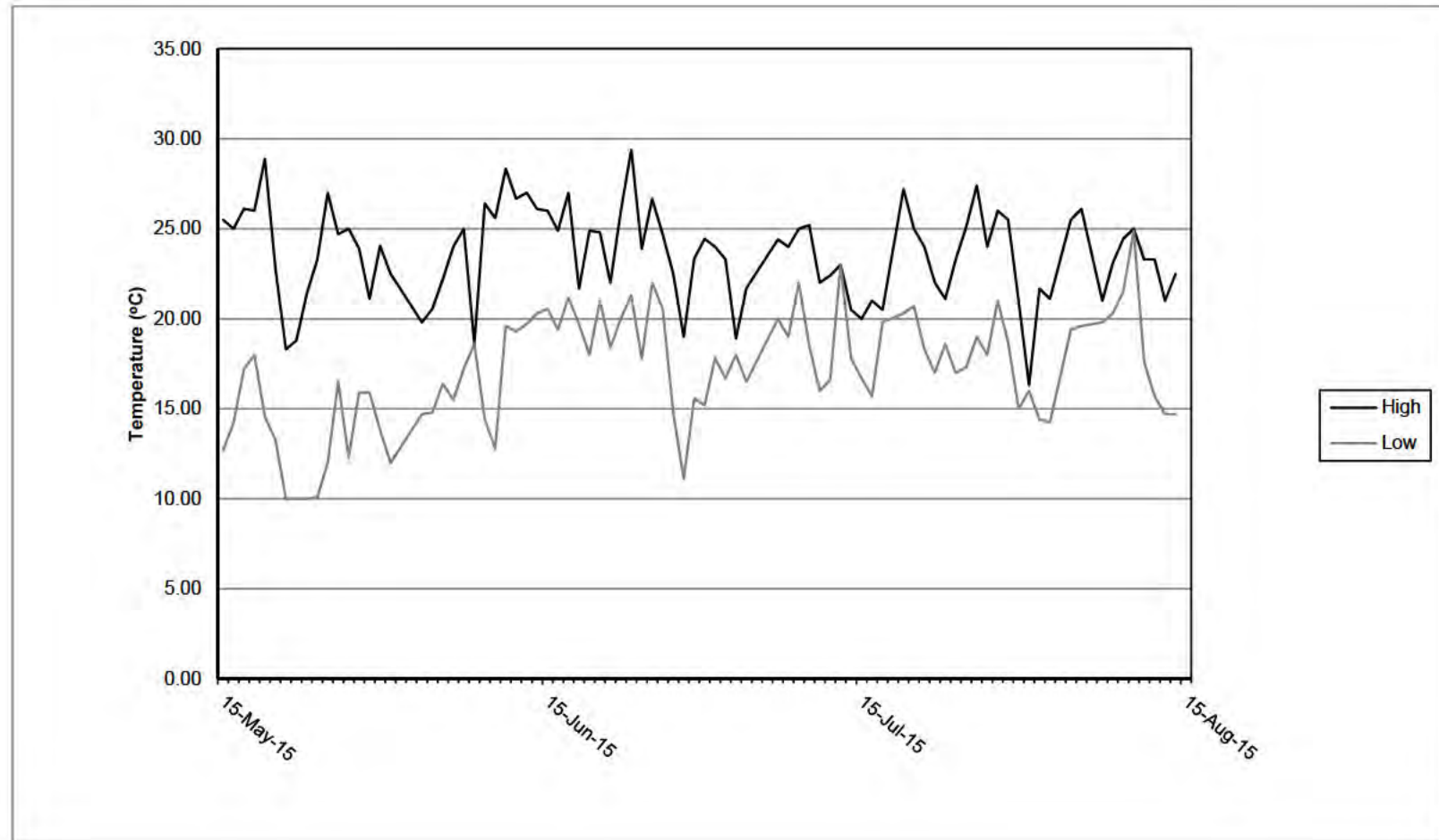
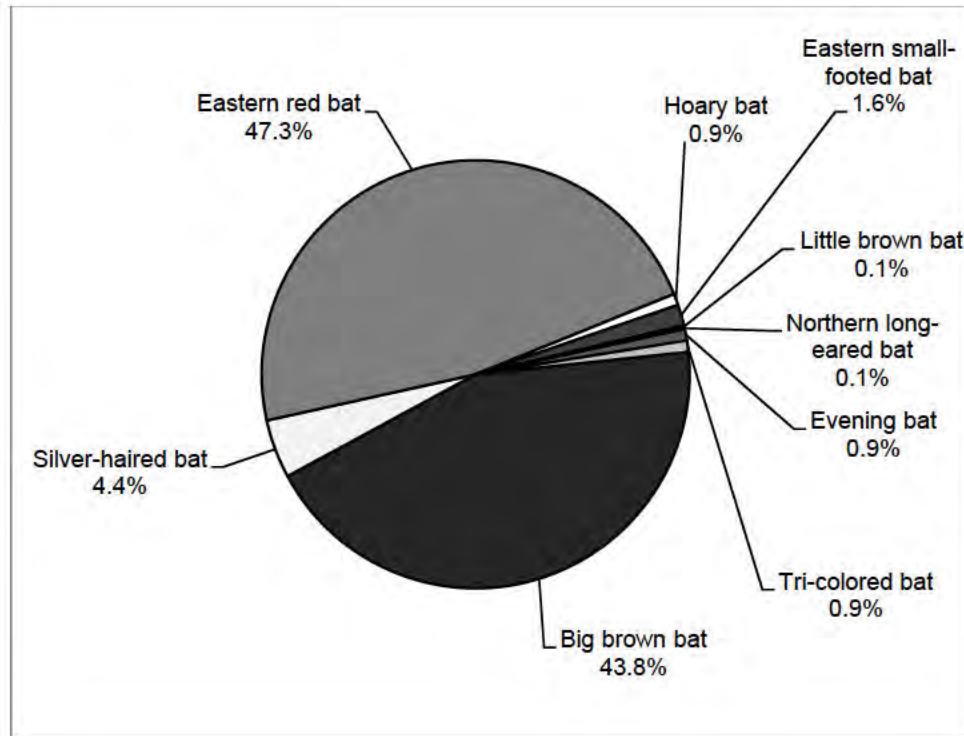


Figure 4. Percent bat capture by species during the mist net survey along the proposed route of MVP's Mountain Valley Pipeline Project in and within 5 miles of Virginia.



APPENDIX B
LIFE HISTORY AND ECOLOGY OF LISTED BATS

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1.0 Life Histories

1.1 Indiana Bat (*Myotis sodalis*)

1.1.1 Description

The Indiana bat is a medium-sized bat in the genus *Myotis*. The forearm length has a range of 35 to 41 millimeters (1.4 – 1.6 in). The head and body length range from 41 to 49 millimeters (1.6 – 1.9 in). Its appearance most closely resembles that of congeners little brown bat (*M. lucifugus*) and northern long-eared bat. Indiana bats differ from similar *Myotis* species in that they have a distinctly keeled calcar (cartilage that extends from the ankle to support the tail membrane). Other minor differences include smaller and more delicate hind feet, shorter hairs on the feet that do not extend past the toenails, and a pink nose. The fur lacks luster, and the wing and ear membranes have a dull, flat coloration that does not contrast with the fur (USFWS 2007). Fur on the chest and belly is lighter than fur on the back, but is not as strongly contrasting as that of similar *Myotis* species. Overall color is slightly grayer, while the little brown bat and northern bat are browner. The skull has a crest and tends to be smaller, flatter, and narrower than that of the little brown bat (USFWS 2007).



1.1.2 Status

The USFWS listed the Indiana bat (*Myotis sodalis*) as endangered on 11 March 1967. The most current range-wide estimate of the population is 523,636 individuals, which represents about 60 percent of the estimated population of 1960 (USFWS 2015). Long-term, detailed documentation of population changes are lacking across most of its range, with the exception of the state of Indiana (Brack et al. 1984, Johnson et al. 2002, Brack et al. 2003), although such information now being acquired in most states. It is probable that habitat loss during summer (USFWS 2007) and winter disturbances during hibernation (Johnson et al. 1998) both contributed to the overall decline of the species.

A recovery plan for the species was completed on 14 October 1983. In October 1996, the Indiana Bat Recovery Team released a Technical Draft Indiana Bat Recovery Plan. In October 1997, a preliminary version entitled "Agency Draft of the Indiana Bat Recovery Plan,"

Federal Register Documents
[41 FR 41914](#); 24 September 1976: Final
Critical Habitat, Critical habitat-mammals
[40 FR 58308 58312](#); 16 December
1975: Proposed Critical Habitat, Critical
habitat- mammals
[32 FR 4001](#); 11 March 1967: Final
Listing, Endangered

which incorporated changes from the 1996 Technical Draft, was released. Subsequently, an agency draft entitled "Indiana Bat (*Myotis sodalis*) Revised Recovery Plan" was distributed for comments in March 1999. In April 2007 USFWS released the "Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision". Critical habitat was designated on 24 September 1976, and includes 11 caves and 2 abandoned mines in Illinois, Indiana, Kentucky, Missouri, Tennessee, and West Virginia.

1.1.3 Ecology

The Indiana bat is a "tree bat" in summer and a "cave bat" in winter. There are four ecologically distinct components of the annual life cycle: winter hibernation, spring staging and autumn swarming, spring and autumn migration, and the summer season of reproduction. The U.S. Fish & Wildlife Service Recovery Plan (2007) provides a description of the life history. Figure 1 provides an annual chronology of seasonal activities.

1.1.3.1 Summer Roosting Ecology

The summer range of the Indiana bat is large and includes much of the eastern deciduous forestlands between the Appalachian Mountains and Midwest prairies (Figure 2). Distribution throughout the range is not uniform and summer occurrences are more frequent in southern Iowa and Michigan, northern Missouri, Illinois, and Indiana. Greater tree densities do not equate to more bats (Brack et al. 2002). Cooler summer temperatures associated with latitude or altitude likely affect reproductive success and the summer distribution of the species (Brack et al. 2002).

1.1.3.1.1 Males

Some males remain near hibernacula throughout summer while others migrate varying distances (Whitaker and Brack 2002). Males can be caught at hibernacula on most nights during summer (Brack 1983, Brack and LaVal 1985), although there may be a large turnover of individuals between nights (Brack 1983). Woodland roosts appear similar to maternity roosts (Kiser and Elliott 1996, Schultes and Elliott 2002, Brack and Whitaker 2004, Brack et al. 2004), although smaller diameter trees may be used. Less space may be required for a single bat than a colony of bats, or thermal requirements may differ. Males appear somewhat nomadic; over time, the number of roosts and the size of an area used increases. Activity areas encompass roads of all sizes, from trails to interstate highways. Roosts have also been located near roads of all sizes (Kiser and Elliott 1996, Schultes and Elliott 2002, Brack et al. 2004), including adjacent to an interstate highway (Brack et al. 2004).

1.1.3.1.2 Females and Maternity Colonies

When female Indiana bats emerge from hibernation, they migrate to maternity colonies that may be located up to several hundred miles away (Kurta and Murray 2002). Females form nursery colonies under exfoliating bark of dead, dying, and

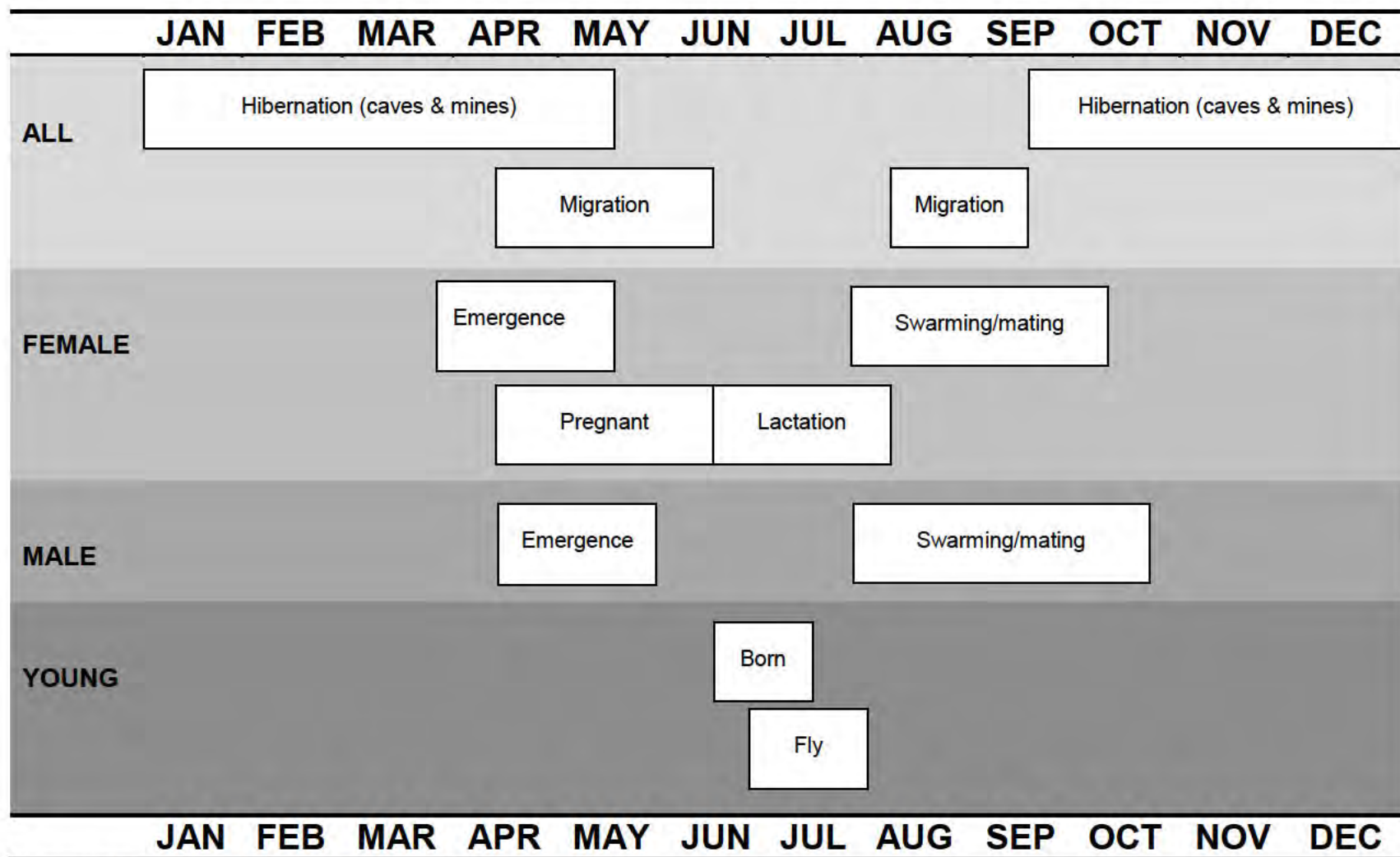


Figure 1. Seasonal chronology of Indiana bat activities.

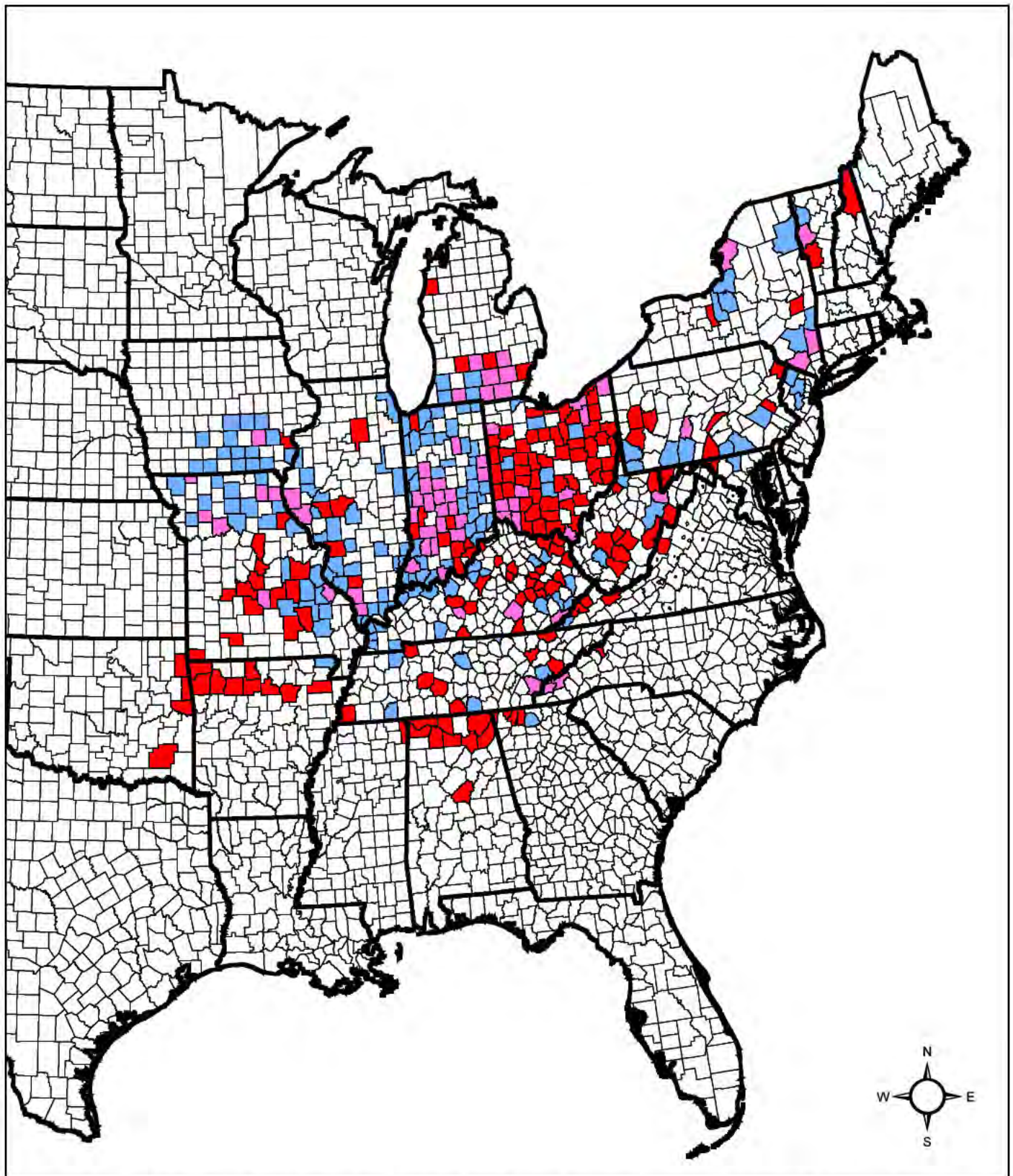
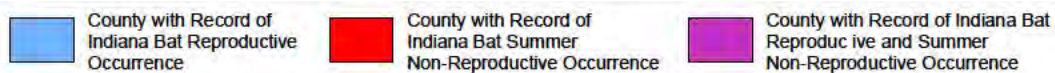


Figure 2. Range-wide distribution of the Indiana bat during summer, showing counties with reproductive (adult female and/or young-of-the-year) and non-reproductive records.



Sources: USFWS, Indiana Bat Revised Recovery Plan, Agency Draft, 2007
Updated: November 2014



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living trees in a variety of habitat types, including uplands and riparian habitats. A wide variety of tree species, including occasional pines (Britzke et al. 2003) are used as nursery colonies indicating that it is tree form, not species that is important for roosts. Since many roosts are in dead or dying trees, they are often ephemeral. Roost trees may be habitable for one to several years, depending on the species and condition of the tree (Callahan et al. 1997) Indiana bats exhibit strong site fidelity to summer roosting and foraging areas (Kurta and Murray 2002, Kurta et al. 2002). Females are pregnant when they arrive at maternity roosts. Parturition typically occurs between late June and early July. A maternity colony typically consists of 25 to 325 adult females. Nursery colonies often use several roost trees (Kurta et al. 1993, Foster and Kurta 1999, Kurta and Murray 2002), moving among roosts within a season. Most members of a colony coalesce into a single roost tree about the time of parturition, which begins to break up again as soon as young are volant.

Roosts that contain large numbers of bats (more than 20 bats) are often called primary roosts, while secondary roosts hold fewer bats. Primary roost trees are often greater than 46 centimeters (18 in) diameter at breast height (dbh) and secondary roost trees are often greater than 23 centimeters (9 in) dbh (Gardner et al. 1991, Callahan et al. 1997, Kurta et al. 2002, Miller et al. 2002, Carter 2003). Numerous suitable roosts may be required to support a single nursery colony, possibly about 45 stems per hectare (20/acre) (Gardner et al. 1991, Miller et al. 2002, Carter 2003). Roost trees are often located where they have solar exposure, with 20 to 80 percent canopy closure (Humphrey et al. 1977, Gardner et al. 1991, Kurta et al. 1993, Kurta et al. 1996, Kurta et al. 2002, Carter 2003). They are often exposed to 10 or more hours of solar radiation per day (Kurta et al. 2002). The need for solar exposure may vary with latitude.

Indiana bats live on anthropogenic landscapes and recent research indicates females do include roads in their active area. Although bats do cross roads, the studies that document this behavior were not designed to gauge a graded response (Gardner et al. 1991, Brown et al. 2001, Kiser et al. 2002, Kurta et al. 2002, Brack and Whitaker 2006).

1.1.3.2 Food Habits and Foraging Ecology

Like many other species of microchiropterans, the Indiana bat often uses travel corridors that consist of open flyways such as streams, woodland trails, small infrequently used roads, and possibly utility corridors, regardless of suitability for foraging or roosting (Brown and Brack 2003). Members of maternity colonies forage in a variety of woodland settings, including upland and floodplain forest (Humphrey et al. 1977, Brack 1983, Gardner et al. 1991). Foraging activity is concentrated above and around foliage surfaces, such as over the canopy in upland and riparian woods, around crowns of individual or widely spaced trees, and along edges. They forage less frequently over old fields, and occasionally over bushes in open pastures. Forest edges, small openings, and woodlands with patchy trees provide more foraging

opportunities than dense woodlands. Most species of woodland bats forage prominently along edges, less in openings, and least within forests (Grindal 1996). Openings also provide a better supply of insects than do wooded areas (Tibbels and Kurta 2003).

1.2 Northern Long-Eared Bat (*Myotis septentrionalis*)

1.2.1 Description

The northern long-eared bat ranges from the northern border of Florida north and west to Saskatchewan and east to Labrador. This bat is common to a variety of forest types ranging from intact to small remnants. Although primarily an eastern species, the northern long-eared bat can be found as far west as Montana, and onto the High Plains.



The northern long-eared bat weighs about 5-8 grams (0.17-0.28 oz) at maturity and its right forearm measures about 34-38 millimeters (1.3 – 1.5 in). The wing membrane connects to the foot at the base of the first toe. The northern long-eared bat is most easily characterized by the long ears (17 mm [0.7 in]), which extend past the muzzle when laid forward, as well as a long and thin tragus (9 mm [0.4 in]) (Whitaker and Mumford 2009). The northern long-eared bats' pelage is typically colored a light to dark brown on the dorsal side and a light brown on the ventral side (Caceres and Barclay 2000, Whitaker and Mumford 2009). Ears and wing membranes are usually a dark brown.

1.2.2 Status

On 2 October 2013, the northern long-eared bat was proposed for listing by USFWS as endangered. On 16 January 2015, USFWS proposed a special 4(d) rule for the northern long-eared bat in the event that the species was ultimately listed as threatened instead. On 2 April

2015, USFWS published notice in the Federal Register of its final decision to list the species as threatened and issue an interim special 4(d) rule exempting certain activities from the ESA's take prohibition. The listing decision and interim 4(d) rule took effect 4 May 2015.

Federal Register Documents

[80 FR 2371 2378](#); 16 January 2015: Proposed Listing: Threatened with a 4(d) Exemption
[80 FR 17973 18033](#); 2 April 2015: Final Rule: Threatened with a 4(d) Exemption

Based on hibernacula studies, the northern long-eared bat has suffered estimated losses of up to 93 to 98 percent in certain areas of the Northeastern U.S. since 2005 (Turner et al. 2011).

1.2.3 Seasonal Ecology

The northern long-eared bat is a "tree bat" in summer and a "cave bat" in winter. During the summer, the species is forest dependent. As with the Indiana bat, there are four ecologically distinct components of the annual life cycle: winter hibernation, spring staging and autumn swarming, spring and autumn migration, and the summer season of reproduction (Figure 3).

1.2.4 Summer Roosting Ecology

The summer range of the northern long-eared bat is large and includes much of the eastern deciduous forestlands from the northern border of Florida north and west to Saskatchewan and east to Labrador (Caceres and Barclay 2000, Whitaker and Mumford 2009) (Figure 4). Distribution throughout the range is not uniform, and summer occurrences are more common in the northern and northeastern portions of the species' range than in southern and western portions (Caceres and Barclay 2000, Amelon and Burhans 2006). Historically, these areas were primarily forested. Through the southern portions of their range, they appear to be less abundant, and are thought of as rare in Alabama, South Carolina, and Georgia (Mumford and Cope 1964, Barbour and Davis 1969, Amelon and Burhans 2006, Whitaker and Mumford 2009, Timpone et al. 2010). Although occasionally captured/recorded in western portions of their range, they are uncommon when records are compared to eastern areas, and may now occupy this area as a result of range expansion following settlement (Sparks et al. 2011).

When female northern long-eared bats emerge from hibernation, they migrate to maternity colonies. The distance traveled from winter hibernacula to summer roosting areas is not known. Maternity colonies are typically found in hollow trees and under bark although they also use bat-houses, buildings, and other anthropogenic structures (Amelon and Burhans 2006). After parturition, pups usually achieve volancy by 21 days (Kunz 1971, Krochmal and Sparks 2007). As the offspring become volant, average number of bats using a maternity roost declines (Lacki and Schwierjohann 2001, Sparks 2003).

A wide variety of deciduous tree species, as well as occasional coniferous species, are used as nursery colonies indicating that it is tree form, not species that is important for roosts (Caceres and Barclay 2000, Carter and Feldhamer 2005). This species regularly uses both live and dead trees (Sasse and Pekins 1996, Foster and Kurta 1999, Lacki and Schwierjohann 2001, Sparks 2003, Timpone 2004, Whitaker et al. 2004, Carter and Feldhamer 2005, Ford et al. 2006, Timpone et al. 2010, Johnson et al. 2012, Silvis et al. 2012, Johnson et al. 2013, Silvis et al. 2014). The northern long-eared bat may choose either tree condition, depending on the presence or availability within an area, or possibly due to competition with or predation from other wildlife (Perry and Thill 2007, Perry et al. 2007). Roost trees may be habitable for one to several years, depending on the species and condition of

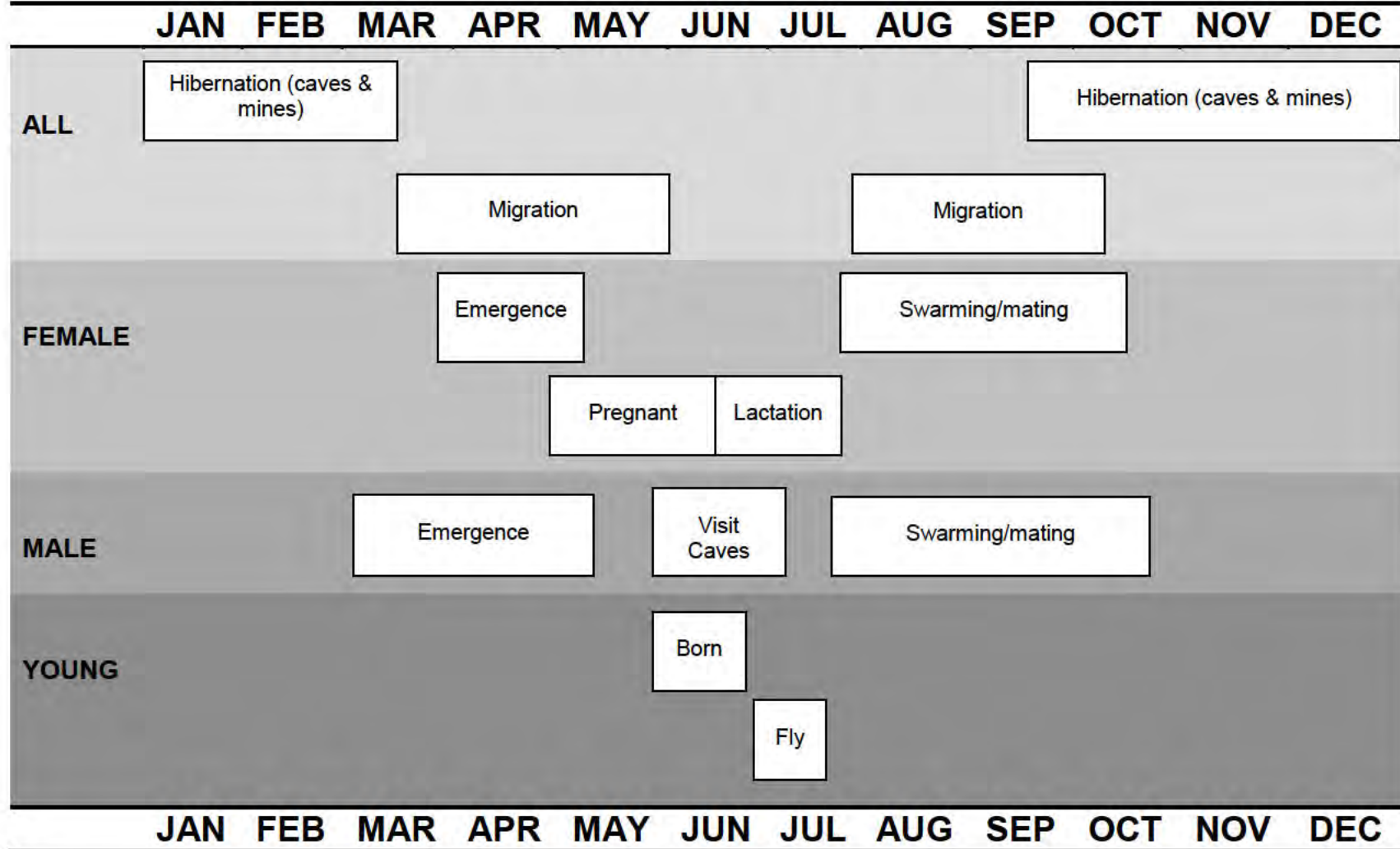


Figure 3. Seasonal chronology of northern long-eared bat activities

the tree. The species may also use several other structures as summer roost sites. These can be natural or man-made (e.g. bridges, barns/homes, rocky cracks or crevices). Northern long-eared bats make extensive use of bat-houses when these structures are available (Whitaker et al. 2006).

Some males and non-reproductive females remain near their winter hibernacula throughout summer while others migrate varying distances. This may be due to a preference for cooler environments in the absence of pups (Barbour and Davis 1969, Amelon and Burhans 2006).

Males can be caught at hibernacula on most nights during summer, although there may be a large turnover of individuals between nights.

Structurally, summer roosts used by males are similar to those used by maternity colonies. Trees used by males of the species are often smaller than those used by maternity colonies, perhaps because males are often solitary or form small groups and thus need less space or they may have different thermal requirements than females.

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APPENDIX C
AGENCY CORRESPONDENCE



ENVIRONMENTAL SOLUTIONS & INNOVATIONS, INC.

2250 Lucien Way, Suite 302
Maitland, FL 32751
Phone: (321) 972-3958; Fax: (321) 972-3959

Pesi 593

3 November 2014

Mr. John Schmidt
U.S. Fish and Wildlife Service
West Virginia Field Office
694 Beverly Pike
Elkins, WV 26241

Dear John:

Please find one bound copy of the following study plan: **LISTED BAT STUDIES ALONG MVP'S PROPOSED MOUNTAIN VALLEY PIPELINE PROJECT IN BRAXTON, DODDRIDGE, FAYETTE, GREENBRIER, HARRISON, LEWIS, MONROE, NICHOLAS, SUMMERS, UPSHUR, WEBSTER, AND WETZEL COUNTIES, WEST VIRGINIA AND FRANKLIN, GILES, MONTGOMERY, PITTSYLVANIA, AND ROANOAKE COUNTIES, VIRGINIA**

We look forward to discussing the contents of this study plan with you during the 10 November 2014 meeting in Elkins.

Please feel free to contact me beforehand if you have any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read "D. Judy", is shown within a rectangular box.

Daniel Judy
Southeast Regional Manager
(407) 269-7492
DJudy@envsi.com



ENVIRONMENTAL SOLUTIONS & INNOVATIONS, INC.

2250 Lucien Way, Suite 302
Maitland, FL 32751
Phone: (321) 972-3958; Fax: (321) 972-3959

Pesi 593

3 November 2014

Mr. Craig Stihler
West Virginia Division of Natural Resources
Elkins Operation Center
Ward Road, Box 67
Elkins, WV 26241

Dear Craig:

Please find one bound copy of the following study plan: **LISTED BAT STUDIES ALONG MVP'S PROPOSED MOUNTAIN VALLEY PIPELINE PROJECT IN BRAXTON, DODDRIDGE, FAYETTE, GREENBRIER, HARRISON, LEWIS, MONROE, NICHOLAS, SUMMERS, UPSHUR, WEBSTER, AND WETZEL COUNTIES, WEST VIRGINIA AND FRANKLIN, GILES, MONTGOMERY, PITTSYLVANIA, AND ROANOAKE COUNTIES, VIRGINIA**

Representatives from MVP, ESI, and USFWS (WV and VA) will be meeting at the WV-USFWS Field Office in Elkins on 10 November 2014 at 10 AM to discuss the contents of the study plan. We cordially invite you to attend or join the conversation through telephone by calling:
Toll Free Number = [REDACTED]
Passcode = [REDACTED]

Please feel free to contact me beforehand if you have any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read "Daniel Judy", is shown within a rectangular box.

Daniel Judy
Southeast Regional Manager
(407) 269-7492
DJudy@envsi.com



ENVIRONMENTAL SOLUTIONS & INNOVATIONS, INC.

2250 Lucien Way, Suite 302
Maitland, FL 32751
Phone: (321) 972-3958; Fax: (321) 972-3959

Pesi 593

3 November 2014

Mr. Troy Andersen
U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

Dear Troy:

Please find one bound copy of the following study plan: **LISTED BAT STUDIES ALONG MVP'S PROPOSED MOUNTAIN VALLEY PIPELINE PROJECT IN BRAXTON, DODDRIDGE, FAYETTE, GREENBRIER, HARRISON, LEWIS, MONROE, NICHOLAS, SUMMERS, UPSHUR, WEBSTER, AND WETZEL COUNTIES, WEST VIRGINIA AND FRANKLIN, GILES, MONTGOMERY, PITTSYLVANIA, AND ROANOAKE COUNTIES, VIRGINIA**

We look forward to discussing the contents of this study plan with you during the 10 November 2014 meeting in Elkins.

Please feel free to contact me beforehand if you have any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read "D. Judy", is shown within a rectangular border.

Daniel Judy
Southeast Regional Manager
(407) 269-7492
DJudy@envsi.com



ENVIRONMENTAL SOLUTIONS & INNOVATIONS, INC.

2250 Lucien Way, Suite 302
Maitland, FL 32751
Phone: (321) 972-3958; Fax: (321) 972-3959

Pesi 593

3 November 2014

Mr. Ernie Aschenbach
Virginia Department of Game and Inland Fisheries
4010 West Broad Street
Richmond, VA 23230

Dear Ernie:

Please find one bound copy of the following study plan: **LISTED BAT STUDIES ALONG MVP'S PROPOSED MOUNTAIN VALLEY PIPELINE PROJECT IN BRAXTON, DODDRIDGE, FAYETTE, GREENBRIER, HARRISON, LEWIS, MONROE, NICHOLAS, SUMMERS, UPSHUR, WEBSTER, AND WETZEL COUNTIES, WEST VIRGINIA AND FRANKLIN, GILES, MONTGOMERY, PITTSYLVANIA, AND ROANOAKE COUNTIES, VIRGINIA**

Representatives from MVP, ESI, and USFWS (WV and VA) will be meeting at the WV-USFWS Field Office in Elkins on 10 November 2014 at 10 AM to discuss the contents of the study plan. We cordially invite you to attend or join the conversation through telephone by calling:

Toll Free Number = [REDACTED]
Passcode = [REDACTED]

Please feel free to contact me beforehand if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Daniel Judy", is shown within a rectangular box.

Daniel Judy
Southeast Regional Manager
(407) 269-7492
DJudy@envsi.com



TELEPHONE / PERSONAL CONVERSATION REPORT

PROJECT NAME:	Mountain Valley Pipeline Project
MVP TEAM CALLER:	Valerie Clarkston
CONVERSATION WITH:	Craig Stihler
AGENCY:	West Virginia Division of Natural Resources
EMAIL ADDRESS:	Craig.W.Stihler@wv.gov
PHONE NUMBER:	(304) 637-0245
SUBJECT:	MVP Bat Study Plan comments
DATE AND TIME:	5 December 2014; 9:45 AM

SUMMARY OF CONVERSATION:

Craig was returning Valerie's call regarding comments on MVP's bat study plan. Craig stated that everything in the plan looked good and he had no comments so long as ESI/MVP was coordinating with USFWS regarding survey requirements. He would like a revised copy (preferably electronic) of the bat study plan. Also, he hinted that WVDNR may require a spreadsheet of northern long-eared bat captures/roosts to be submitted daily during the mist netting effort for this Project if this species becomes federally listed. This will allow the WVDNR (and USFWS) to efficiently keep track of all captures and determine if any nearby projects will become affected by captures/roosts.

Contact Signature: _____



ENVIRONMENTAL SOLUTIONS & INNOVATIONS, INC.

4525 Este Avenue
Cincinnati, OH 45232
Phone: (513) 451-1777; Fax: (513) 451-3321

Pesi 593

6 March 2015

Mr. John Schmidt
U.S. Fish and Wildlife Service
West Virginia Field Office
694 Beverly Pike
Elkins, WV 26241

RE: Endangered species surveys along MVP's proposed Mountain Valley Pipeline Project in Braxton, Doddridge, Fayette, Greenbrier, Harrison, Lew, Monroe, Nicholas, Summers, Upshur, Webster and Wetzel counties West Virginia, and Craig, Franklin, Giles, Montgomery, Pittsylvania, and Roanoke counties, Virginia.

Dear John:

Please find enclosed one bound hardcopy of ESI's revised Study Plan for listed bat surveys along the above referenced project. This document contains updated project information, including new project routes, access roads, and above ground facilities and the proposed level of effort for the mist net survey has been adjusted accordingly; the methods remain unchanged. We respectfully request your review, concurrence of survey methods, and site specific authorization to proceed with field surveys.

At this juncture, in addition to approval on the bat Study Plan, we also request feedback from USFWS regarding several other matters on the project.

On 10 November 2014, representatives of MVP met with the USFWS in Elkins to discuss the previously submitted version of the enclosed study plan and the potential impacts of the project on other federally listed species. During the meeting and in a follow-up email on 25 November 2015, USFWS (Liz Stout) indicated the project is likely to impact the following federally-listed species:

- Indiana bat
- proposed Northern long-eared bat
- Federally listed mussels (varies based on stream)
- Running buffalo clover
- Small whorled pogonia
- Virginia spiraea

- Shale barren rock cress

We have completed, and included with this letter, the results of a recent query of the online Information, Planning, and Conservation (IPaC) analysis, based on the revised project facilities information. Additionally, we have compared the new project routes to the rare species information provided by Liz Stout on 25 November 2014. The new project features intersect 2 winter bat buffers, a known James spinymussel stream, and a known Harperella and/or Virginia spiraea stream. Please let us know if there are any additional species concerns that need to be addressed associated with the project.

The enclosed Study Plan provides details regarding endangered bat surveys, and a Study Plan detailing surveys for freshwater mussels was previously submitted to USFWS and WVDNR under separate cover. At this time, we request further details from the USFWS regarding requirements for field surveys for the plants listed above. Based on information provided by the USFWS and what is currently known regarding each plants' ecology, we propose to conduct field surveys in areas where the project crosses known or potential habitat. Specifics for each plant species are described below.

Running buffalo clover

Desktop resources indicate that this species is known from Fayette and Webster counties in West Virginia and prefers to grow in areas with periodic disturbance. ESI proposes to identify portions of the project area with periodic disturbance, via desktop analysis, within Fayette and Webster counties. Those areas will subsequently be targeted for field survey efforts during the established survey window (1 May – 30 September 2015).

Small whorled pogonia

This species is believed to occur in Greenbrier County and prefers to grow in upland mixed and deciduous forests containing little to no understory clutter. ESI proposes utilize desktop resources to target field survey efforts within those areas during the established survey window (1 May – 30 September 2015).

Virginia spiraea

This species is found along scoured banks of high gradient streams or on meander scrolls, point bars, natural levees, and braided features of lower stream reaches. The proposed project crosses 3 streams with USFWS has identified buffers associated with known Virginia spiraea occurrences. ESI will conduct field surveys for Virginia spiraea where the project intersects the stream buffers, and during the established survey window (1 July – 30 September 2015). Are surveys for this species required in any other riparian areas?

Shale barren rock cress

This species is found in mid-Appalachian shale barrens typical of the Ridge and Valley physiological province. It is believed to occur in Greenbrier, County. ESI proposes to identify shale barren areas, via desktop analysis, near the proposed project within Greenbrier County, and subsequently target field survey efforts within those areas during the established survey window (1 August – 30 September 2015).

In addition to concurrence on the bat Study Plan, we also request feedback regarding the survey areas associated with the four species of federally endangered plants listed above. ESI will submit a formal Study Plan for endangered plants that further refine survey areas (based on the results of the desktop analysis), provide qualifications for field surveyors, and details survey methods, once USFWS comments on the coarse methods proposed above.

Please feel free to contact me or Taina Pankiewicz (tpankiewicz@envsi.com) if you have any questions.

Sincerely,

A handwritten signature in cursive script, appearing to read "Valerie Clarkston".

Valerie Clarkston
Scientist
(513) 451-1777
VClarkston@envsi.com

Enclosures: Bat Study Plan, IPaC Results



ENVIRONMENTAL SOLUTIONS & INNOVATIONS, INC.

2250 Lucien Way, Suite 302
Maitland, FL 32751
Phone: (321) 972-3958; Fax: (321) 972-3959

Pesi 593

6 March 2015

Mr. Craig Stihler
West Virginia Division of Natural Resources
Elkins Operation Center
Ward Road, Box 67
Elkins, WV 26241

Dear Craig:

Please find one bound copy of the following revised study plan: **LISTED BAT STUDIES ALONG MVP'S PROPOSED MOUNTAIN VALLEY PIPELINE PROJECT IN BRAXTON, DODDRIDGE, FAYETTE, GREENBRIER, HARRISON, LEWIS, MONROE, NICHOLAS, SUMMERS, UPSHUR, WEBSTER, AND WETZEL COUNTIES, WEST VIRGINIA AND CRAIG, FRANKLIN, GILES, MONTGOMERY, PITTSYLVANIA, AND ROANOAKE COUNTIES, VIRGINIA**

This revised study plan includes new project routes, access roads, and above ground facilities. The proposed level of effort for the mist net survey has been updated accordingly.

Please feel free to contact me, Valerie Clarkston (vclarkston@envsi.com), or Taina Pankiewicz (tpankiewicz@envsi.com) if you have any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read "Daniel Judy", is shown within a rectangular border.

Daniel Judy
Southeast Regional Manager
(407) 269-7492
DJudy@envsi.com



ENVIRONMENTAL SOLUTIONS & INNOVATIONS, INC.

2250 Lucien Way, Suite 302
Maitland, FL 32751
Phone: (321) 972-3958; Fax: (321) 972-3959

Pesi 593

6 March 2015

Mr. Troy Andersen
U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

Dear Troy:

Please find one bound copy of the following revised study plan: **LISTED BAT STUDIES ALONG MVP'S PROPOSED MOUNTAIN VALLEY PIPELINE PROJECT IN BRAXTON, DODDRIDGE, FAYETTE, GREENBRIER, HARRISON, LEWIS, MONROE, NICHOLAS, SUMMERS, UPSHUR, WEBSTER, AND WETZEL COUNTIES, WEST VIRGINIA AND CRAIG, FRANKLIN, GILES, MONTGOMERY, PITTSYLVANIA, AND ROANOAKE COUNTIES, VIRGINIA**

This revised study plan includes new project routes, access roads, and above ground facilities. The proposed level of effort for the mist net survey has been updated accordingly.

Please feel free to contact me, Valerie Clarkston (vclarkston@envsi.com), or Taina Pankiewicz (tpankiewicz@envsi.com) if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Judy", is shown within a rectangular box.

Daniel Judy
Southeast Regional Manager
(407) 269-7492
DJudy@envsi.com



ENVIRONMENTAL SOLUTIONS & INNOVATIONS, INC.

2250 Lucien Way, Suite 302
Maitland, FL 32751
Phone: (321) 972-3958; Fax: (321) 972-3959

Pesi 593

6 March 2015

Mr. Ernie Aschenbach
Virginia Department of Game and Inland Fisheries
4010 West Broad Street
Richmond, VA 23230

Dear Ernie:

Please find one bound copy of the following revised study plan: **LISTED BAT STUDIES ALONG MVP'S PROPOSED MOUNTAIN VALLEY PIPELINE PROJECT IN BRAXTON, DODDRIDGE, FAYETTE, GREENBRIER, HARRISON, LEWIS, MONROE, NICHOLAS, SUMMERS, UPSHUR, WEBSTER, AND WETZEL COUNTIES, WEST VIRGINIA AND CRAIG, FRANKLIN, GILES, MONTGOMERY, PITTSYLVANIA, AND ROANOAKE COUNTIES, VIRGINIA**

This revised study plan includes new project routes, access roads, and above ground facilities. The proposed level of effort for the mist net survey has been updated accordingly.

Please feel free to contact me, Valerie Clarkston (valarkston@envsi.com), or Taina Pankiewicz (tpankiewicz@envsi.com) if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Daniel Judy", is shown within a rectangular box.

Daniel Judy
Southeast Regional Manager
(407) 269-7492
DJudy@envsi.com



ENVIRONMENTAL SOLUTIONS & INNOVATIONS, INC.

2250 Lucien Way, Suite 302
Maitland, FL 32751
Phone: (321) 972-3958; Fax: (321) 972-3959

Pesi 593

24 April 2015

Mr. Troy Andersen
U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

Dear Troy:

Please find one bound copy of the following revised study plan: **REVISED STUDY PLAN: LISTED BAT STUDIES ALONG MVP'S PROPOSED MOUNTAIN VALLEY PIPELINE PROJECT IN CRAIG, FRANKLIN, GILES, MONTGOMERY, PITTSYLVANIA, AND ROANOAKE COUNTIES, VIRGINIA**

This revised study plan includes revisions based on comments received from the USFWS Gloucester Field Office on 3 April 2015 and from VDGIF on 27 March 2015 as well as the inclusion of a 5-mile protective buffer around Tawney's Cave. The proposed level of effort for the mist net survey has been updated accordingly.

Please feel free to contact me, Valerie Clarkston (vclarkston@envsi.com), or Taina Pankiewicz (tpankiewicz@envsi.com) if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Daniel Judy", is shown within a rectangular box.

Daniel Judy
Southeast Regional Manager
(407) 269-7492
DJudy@envsi.com



ENVIRONMENTAL SOLUTIONS & INNOVATIONS, INC.

2250 Lucien Way, Suite 302
Maitland, FL 32751
Phone: (321) 972-3958; Fax: (321) 972-3959

Pesi 593

24 April 2015

Mr. Rick Reynolds
Virginia Department of Game and Inland Fisheries
517 Lee Highway
Verona, VA 24482

Dear Rick:

Please find one bound copy of the following revised study plan: **REVISED STUDY PLAN: LISTED BAT STUDIES ALONG MVP'S PROPOSED MOUNTAIN VALLEY PIPELINE PROJECT IN CRAIG, FRANKLIN, GILES, MONTGOMERY, PITTSYLVANIA, AND ROANOAKE COUNTIES, VIRGINIA**

This revised study plan includes revisions based on comments received from the USFWS Gloucester Field Office on 3 April 2015 and from VDGIF on 27 March 2015 as well as the inclusion of a 5-mile protective buffer around Tawney's Cave. Unlike previous versions, this study plan and contents are specific to Virginia. The proposed level of effort for the mist net survey has been updated accordingly.

Please feel free to contact me, Valerie Clarkston (vclarkston@envsi.com), or Taina Pankiewicz (tpankiewicz@envsi.com) if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Daniel Judy", is shown within a rectangular box.

Daniel Judy
Southeast Regional Manager
(407) 269-7492
DJudy@envsi.com

Valerie Clarkston

Subject: FW: Mountain Valley Pipeline - Revised Bat Study Plan

From: Sumalee Hoskin [mailto:sumalee_hoskin@fws.gov]
Sent: Friday, May 08, 2015 3:23 PM
To: Valerie Clarkston; Troy Andersen; Kimberly Smith
Cc: Daniel Judy; mneylon@egt.com; Taina Pankiewicz
Subject: RE: Mountain Valley Pipeline - Revised Bat Study Plan

Valerie,

This message responds to your request for comments on the revised study plan: “Listed Bat Studies Along MVP’s Proposed Mountain Valley Pipeline Project in Craig, Franklin, Giles, Montgomery, Pittsylvania, and Roanoke Counties, Virginia” dated April 24, 2015. The following comments are provided under provisions of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended.

Your proposed bat survey plan follows the U.S. Fish and Wildlife Service’s April 2015 Rangewide Indiana Bat Summer Survey Guidance and the June 25, 2012 White Nose Syndrome Decontamination Protocol. We concur with your proposed plan for the Virginia portion of the bat survey.

Sumalee

Sumalee Hoskin
US Fish & Wildlife Service
6669 Short Lane
Gloucester, VA 23061

Tel: 804-693-6694 ex. 2414
Fax: 804-693-9032
Cell: 804-654-1824
Visit us at <http://www.fws.gov/northeast/virginiafield/>

Valerie Clarkston

Subject: FW: ESSLog 35246: Mountain Valley Pipeline - revised Bat Study Plan

From: Aschenbach, Ernie (DGIF) [<mailto:Ernie.Aschenbach@dgif.virginia.gov>]
Sent: Monday, May 11, 2015 8:49 AM
To: Valerie Clarkston
Cc: ProjectReview (DGIF); Reynolds, Rick (DGIF)
Subject: FW: ESSLog 35246: Mountain Valley Pipeline - revised Bat Study Plan



Valerie Clarkston

Scientist

Environmental Solutions & Innovations, Inc.
4525 Este Avenue | Cincinnati, Ohio 45232 | USA
office: 513.451.1777 **direct:** 513.591.4315
fax: 513.451.3321 **cell:** 513.382.0925
vclarkston@envsi.com |

Rick Reynolds provided the following comment in response to your updated draft Bat Study Plan:

Page 5, sec. 4.1.3, last paragraph: *"Bat passes are monitored and tallied for at least one hour after 10:00 pm." Acoustic detectors should be run for 2 hours starting at dusk. If they start at 10:00 pm they'll miss the most active period for bats exiting, typically for at least an hour after dusk.*

Please update your draft as appropriate. Call Rick if you have further questions and CC: ProjectReview on relevant email correspondence...

Thanks.

p.s. DGIF is in the process of moving our Headquarters the next few weeks. Our phone and computer service may be intermittent during this time. Thank you for your patience.

Ernie Aschenbach
Environmental Services Biologist
Virginia Dept. of Game and Inland Fisheries
P.O. Box 11104
~~4010 West Broad Street~~
~~Richmond, VA 23230~~
~~FAX: (804) 367-2427~~
Phone: (804) 367-2733
Email: Ernie.Aschenbach@dgif.virginia.gov

We're moving! Our new address as of May 5, 2015

Physical
7870 Villa Park Dr, Suite 400
Henrico, VA 23233-6510

Mailing
P O Box 90778

From: Aschenbach, Ernie (DGIF)
Sent: Friday, May 08, 2015 2:07 PM
To: Reynolds, Rick (DGIF)
Cc: ProjectReview (DGIF)
Subject: FW: ESSLog 35246: Mountain Valley Pipeline - revised Bat Study Plan

Rick:

Got a window of internet access, probably brief. Did you see this? Have any additional comments/recommendations? Let me know.

Thanks.

Ernie Aschenbach
Environmental Services Biologist
Virginia Dept. of Game and Inland Fisheries
~~P.O. Box 11104~~
~~4010 West Broad Street~~
~~Richmond, VA 23230~~
~~FAX: (804) 367-2427~~
Phone: (804) 367-2733
Email: Ernie.Aschenbach@dgif.virginia.gov

We're moving! Our new address as of May 5, 2015

Physical
7870 Villa Park Dr, Suite 400
Henrico, VA 23233-6510

Mailing
P O Box 90778
Henrico, VA 23228-0778



United States Department of the Interior
FISH AND WILDLIFE SERVICE



West Virginia Field Office
694 Beverly Pike
Elkins, West Virginia 26241

Concurrence Form for Myotis Bat Study Plans

Contact Name: **Taina Pankiewicz**

Email Address or Fax Number: **TPankiewicz@envsi.com**

Project: **Mountain Valley Pipeline Project in Braxton, Doddridge, Fayette, Greenbrier, Harrison, Lewis, Monroe, Nicholas, Summers, Upshur, Webster, and Wetzel Counties, West Virginia**

The U.S. Fish and Wildlife Service has reviewed the **revised** study plan you submitted on **June 2, 2015** and we concur with the proposed survey methods. Surveys will be conducted in accordance with the protocol outlined in the current Range-wide Indiana Bat Summer Survey Guidelines. These Guidelines are acceptable to address the endangered Indiana bat (*Myotis sodalis*) and the threatened northern long-eared bat (*M. septentrionalis*).

Mist net surveys will be conducted. You propose sampling at **296** net sites for activities proposed within **349 kilometers** of potential bat habitat. This survey would have a total effort of **1776** net nights.

If any Indiana bats or northern long-eared bats are detected or captured during this survey, we recommend that you conduct additional surveys including mist-netting (when acoustic surveys were conducted), radio-tracking, roost tree identification, and emergence counts. This additional information will assist the Service and your client(s) in any consultations conducted under section 7 of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U. S. C. 1531 *et seq.*). Additional surveys are also recommended if other federally endangered or proposed endangered bats are located.

We request that the following be provided in the final survey reports:

- 1) Name, permit number, and location (latitude, longitude) of the proposed project;
- 2) A map with the project boundary and net/detector sites indicated;
- 3) A description of the survey effort, including number of detectors/nets used at each site, distance between sites, and selection of sites;
- 4) Color photos of the sites;
- 5) Copies of field data sheets;
- 6) Any additional information that may be relevant, such as weather and habitat conditions; and
- 7) A description of whether any potential bat hibernacula (caves/abandoned mine portals) may be present on site, and a summary of any surveys planned or conducted.

Reports may be submitted on CD. Please be aware that mist net survey activities require a valid West Virginia Scientific Collectors Permit, which can be acquired from the West Virginia Division of Natural Resources, Elkins Operation Center, Ward Road, Elkins, West Virginia 26241 (contact Barbara Sargent at 304-637-0245). Please provide a copy of your valid permit with your final report.

All federally listed species captures must be reported to the U.S. Fish and Wildlife Service, West Virginia Field Office, within 24 hours. If you have questions regarding this finding or report requirements, please contact Tiernan Lennon at (304) 636-6586 ext. 12 or at the letterhead address.

Tiernan Lennon

Biologist

Date: 6/3/15

John E. Schmidt

John E. Schmidt, Field Supervisor

Date: 6/4/15

APPENDIX D TABLES

Table 1. USFWS Indiana Bat Mist Net Survey Guidelines.

MIST NETTING GUIDELINES Northeast and Appalachian Recovery Units (CT, DE, MA, MD, NC, NJ, NY, PA, eastern TN, WV, VA, VT)	
1. Netting Season: Broadly 15 May to 15 August broadly; June 1 to August 15 in WV.	
2. Equipment (Mist Nets): constructed of the finest, lowest visibility mesh commercially available – monofilament or black nylon – with the mesh size approximately 1½ inch (1¼ – 1¾) (38 mm).	
3. Net Placement: mist nets extend approximately from water or ground level to tree canopy and are bounded by foliage on the sides. Net width and height are adjusted for the fullest coverage of the flight corridor at each site. A “typical” net set consists of two (or more) nets “stacked” on top of one another; width may vary up to 60 feet (20 m).	
4. Net Site Spacing:	<ul style="list-style-type: none"> ◆ Linear Projects – minimum of 6 net nights per 0.6 mile (1 km); 1 net night = 1 net set deployed for 1 night ◆ Non-linear Projects – minimum of 42 net nights per 123 acres (0.5 km)
5. Minimum Level of Effort Per Net Site:	<ul style="list-style-type: none"> ◆ Maximum of 3 nights of consecutive netting at any given location; must change net locations or wait at least 2 calendar nights before resuming netting at same location ◆ Sample Period: begin at dusk and net for 5 hours (approximately 0200h) ◆ Nets are monitored at approximately 10-minute intervals ◆ No disturbance near the nets between checks
6. Weather: Negative surveys combined with any of the following conditions throughout all or most of a sampling period are likely to require an additional night of mist-netting:	<ul style="list-style-type: none"> ◆ Precipitation (rain and/or heavy fog) lasting >30 minutes or continuing intermittently during the survey period ◆ Temperatures <10°C (50°F) ◆ Sustained wind >9 mi/hr (4 m/sec) (3 on Beaufort scale)
Source: U.S. Fish and Wildlife Service; 2015	

Table 2. Non-surveyed mist net sites on MVP's Mountain Valley Pipeline Project in and within 5 miles of Virginia.

Route	Site	Reason for Omission*
Proposed Route	VA-KM234	No land access
Proposed Route	VA-KM241	No land access
Previous Route	VA-KM244	Route abandoned
Previous Route	VA-KM245	Route abandoned
Proposed Route	VA-KM263	No land access
Proposed Route	VA-KM264	No land access
Previous Route	VA-KM270	Route abandoned
Previous Route	VA-KM271	Route abandoned
Previous Route	VA-KM272	Route abandoned
Proposed Route	VA-KM274	No land access
Proposed Route	VA-KM275	No land access
Proposed Route	VA-KM276	No land access
Proposed Route	VA-KM278	No land access
Proposed Route	VA-KM279	No land access
Proposed Route	VA-KM280	No land access
Proposed Route	VA-KM281	No land access
Previous Route	VA-KM289	Route abandoned
Previous Route	VA-KM290	Route abandoned
Previous Route	VA-KM291	Route abandoned
Previous Route	VA-KM293	Route abandoned
Previous Route	VA-KM294	Route abandoned
Previous Route	VA-KM295	Route abandoned
Previous Route	VA-KM296	Route abandoned
Previous Route	VA-KM297	Route abandoned
Previous Route	VA-KM298	Route abandoned
Proposed Route	VA-KM367	No land access
A110	VA-KM388	Route abandoned
A110	VA-KM389	Route abandoned
A110	VA-KM390	Route abandoned
A110	VA-KM391	Route abandoned
A110	VA-KM392	Route abandoned
A110	VA-KM393	Route abandoned
A110	VA-KM394	Route abandoned
A110	VA-KM395	Route abandoned
A110	VA-KM396	Route abandoned
A110	VA-KM397	Route abandoned
A110	VA-KM398	Route abandoned
A110	VA-KM399	Route abandoned
A110	VA-KM400	Route abandoned
A110	VA-KM401	Route abandoned
A110	VA-KM402	Route abandoned
A110	VA-KM403	Route abandoned
A110	VA-KM404	Route abandoned

Route	Site	Reason for Omission*
A110	VA-KM405	Route abandoned
A110	VA-KM406	Route abandoned
A110	VA-KM407	Route abandoned
A110	VA-KM408	Route abandoned
A110	VA-KM409	Route abandoned
A110	VA-KM411	Route abandoned
A110	VA-KM411	Route abandoned
A110	VA-KM412	Route abandoned
A110	VA-KM413	Route abandoned
A110	VA-KM414	Route abandoned
A110	VA-KM416	Route abandoned
A110	VA-KM417	Route abandoned
A110	VA-KM418	Route abandoned
A110	VA-KM420	Route abandoned
A110	VA-KM421	Route abandoned
A110J	VA-KM422	Route abandoned
A110J	VA-KM423	Route abandoned
A110J	VA-KM424	Route abandoned
A110J	VA-KM425	Route abandoned
A110J	VA-KM426	Route abandoned
A110J	VA-KM427	Route abandoned
A110J	VA-KM428	Route abandoned
A110J	VA-KM429	Route abandoned
A110J	VA-KM430	Route abandoned
A110J	VA-KM431	Route abandoned
A110J	VA-KM432	Route abandoned
A110J	VA-KM433	Route abandoned
A110J	VA-KM434	Route abandoned
A110J	VA-KM435	Route abandoned
A110J	VA-KM436	Route abandoned
A110J	VA-KM437	Route abandoned
A110J	VA-KM438	Route abandoned
A110J	VA-KM439	Route abandoned
A110J	VA-KM440	Route abandoned
A110J	VA-KM441	Route abandoned
A110J	VA-KM442	Route abandoned
A110J	VA-KM443	Route abandoned
A110R	VA-KM444	Route abandoned
A110R	VA-KM445	Route abandoned
A87	VA-KM446	Route abandoned
A87	VA-KM447	Route abandoned
A87	VA-KM448	Route abandoned
Proposed Route	VA-KM450	No land access
Proposed Route	VA-KM451	No land access
Proposed Route	VA-KM456	No land access

Route	Site	Reason for Omission*
Proposed Route	VA-KM459	No land access
Proposed Route	VA-KM470	No land access
A93	VA-KM475	Route abandoned
A93	VA-KM476	Route abandoned
A93	VA-KM477	Route abandoned
A93	VA-KM478	Route abandoned
A93	VA-KM479	Route abandoned
A93	VA-KM480	Route abandoned
A110	VA-KM481	Route abandoned
Proposed Route	VA-KM483	No land access
Proposed Route	VA-KM488	No land access
A110	VA-KM491	Route abandoned
A110R	VA-KM492	Route abandoned
A110R	VA-KM493	Route abandoned
A110R	VA-KM494	Route abandoned
A110R	VA-KM495	Route abandoned
Proposed Route	VA-KM575	No land access
Proposed Route	VA-KM576	No land access
A110	WV-KM375	Route abandoned
A110	WV-KM376	Route abandoned
A110	WV-KM377	Route abandoned
A110	WV-KM384	Route abandoned
A110	WV-KM385	Route abandoned

***Reason for Omission:** Route abandoned – Sites (i.e., KMs) associated with alternate routes or sections of the Proposed Route that were modified and consequently abandoned. No land access – Access was not granted to suitable habitat within the site.

Table 3. Mist net site GPS coordinates along MVP's Mountain Valley Pipeline Project in and within 5 miles of Virginia.

Site	Net	Latitude	Longitude
VA-KM229	A	37° 23' 30.028" N	80° 41' 23.367" W
VA-KM229	B	37° 23' 33.146" N	80° 41' 25.343" W
VA-KM229	C	37° 23' 32.051" N	80° 41' 27.370" W
VA-KM230	A	37° 23' 12.518" N	80° 41' 2.709" W
VA-KM230	B	37° 23' 14.761" N	80° 40' 59.605" W
VA-KM230	C	37° 23' 17.180" N	80° 40' 58.086" W
VA-KM231	A	37° 22' 51.276" N	80° 40' 37.638" W
VA-KM231	B	37° 22' 57.553" N	80° 40' 26.541" W
VA-KM231	C	37° 22' 56.995" N	80° 40' 19.171" W
VA-KM232	A	37° 22' 47.673" N	80° 40' 39.772" W
VA-KM232	B	37° 22' 40.568" N	80° 40' 42.435" W
VA-KM232	C	37° 22' 39.961" N	80° 40' 44.316" W
VA-KM233	A	37° 22' 11.990" N	80° 41' 16.181" W
VA-KM233	B	37° 22' 12.593" N	80° 41' 15.611" W
VA-KM233	C	37° 22' 13.778" N	80° 41' 16.990" W
VA-KM235	A	37° 21' 38.437" N	80° 40' 46.851" W
VA-KM235	B	37° 21' 40.043" N	80° 40' 42.544" W
VA-KM235	C	37° 21' 41.009" N	80° 40' 41.516" W
VA-KM236	A	37° 20' 59.317" N	80° 40' 0.045" W
VA-KM236	B	37° 21' 1.076" N	80° 39' 59.011" W
VA-KM236	C	37° 21' 2.489" N	80° 39' 57.802" W
VA-KM237	A	37° 20' 56.704" N	80° 39' 24.086" W
VA-KM237	B	37° 20' 57.005" N	80° 39' 22.365" W
VA-KM237	C	37° 20' 57.498" N	80° 39' 20.302" W
VA-KM238	A	37° 20' 56.841" N	80° 38' 50.762" W
VA-KM238	B	37° 20' 56.055" N	80° 38' 49.485" W
VA-KM238	C	37° 20' 55.494" N	80° 38' 50.431" W
VA-KM239	A	37° 20' 41.966" N	80° 38' 10.330" W
VA-KM239	B	37° 20' 39.384" N	80° 38' 9.741" W
VA-KM239	C	37° 20' 36.866" N	80° 38' 7.675" W
VA-KM240	A	37° 20' 36.558" N	80° 37' 49.436" W
VA-KM240	B	37° 20' 36.845" N	80° 37' 47.816" W
VA-KM240	C	37° 20' 37.607" N	80° 37' 47.137" W
VA-KM242	A	37° 20' 28.122" N	80° 36' 20.204" W
VA-KM242	B	37° 20' 24.509" N	80° 36' 7.661" W
VA-KM242	C	37° 20' 21.959" N	80° 36' 7.032" W
VA-KM243*	A	37° 17' 13.397" N	80° 25' 27.432" W
VA-KM243*	B	37° 17' 15.063" N	80° 25' 27.717" W
VA-KM243*	C	37° 17' 15.211" N	80° 25' 29.473" W
VA-KM246	A	37° 16' 52.233" N	80° 23' 32.553" W
VA-KM246	B	37° 16' 52.071" N	80° 23' 34.523" W
VA-KM246	C	37° 16' 49.267" N	80° 23' 34.579" W
VA-KM247	A	37° 16' 27.357" N	80° 23' 15.357" W

Site	Net	Latitude	Longitude
VA-KM247	B	37° 16' 27.365" N	80° 23' 14.583" W
VA-KM247	C	37° 16' 29.113" N	80° 23' 12.454" W
VA-KM248	A	37° 16' 27.700" N	80° 22' 20.915" W
VA-KM248	B	37° 16' 26.675" N	80° 22' 22.339" W
VA-KM248	C	37° 16' 25.829" N	80° 22' 23.648" W
VA-KM249	A	37° 16' 10.771" N	80° 21' 33.816" W
VA-KM249	B	37° 16' 12.806" N	80° 21' 28.672" W
VA-KM249	C	37° 16' 14.561" N	80° 21' 26.108" W
VA-KM250	A	37° 16' 26.819" N	80° 20' 49.097" W
VA-KM250	B	37° 16' 30.195" N	80° 20' 51.603" W
VA-KM250	C	37° 16' 28.740" N	80° 20' 47.033" W
VA-KM251	A	37° 16' 24.127" N	80° 20' 17.169" W
VA-KM251	B	37° 16' 20.737" N	80° 20' 18.234" W
VA-KM251	C	37° 16' 15.568" N	80° 20' 18.607" W
VA-KM252	A	37° 16' 18.691" N	80° 19' 39.692" W
VA-KM252	B	37° 16' 17.344" N	80° 19' 38.788" W
VA-KM252	C	37° 16' 16.400" N	80° 19' 37.719" W
VA-KM253	A	37° 16' 0.594" N	80° 18' 59.772" W
VA-KM253	B	37° 16' 0.316" N	80° 19' 0.891" W
VA-KM253	C	37° 15' 59.507" N	80° 19' 1.574" W
VA-KM254	A	37° 15' 56.607" N	80° 18' 31.788" W
VA-KM254	B	37° 15' 51.620" N	80° 18' 31.770" W
VA-KM254	C	37° 15' 50.040" N	80° 18' 32.682" W
VA-KM255	A	37° 15' 22.303" N	80° 17' 36.583" W
VA-KM255	B	37° 15' 21.555" N	80° 17' 39.489" W
VA-KM255	C	37° 15' 17.735" N	80° 17' 37.861" W
VA-KM256	A	37° 15' 30.696" N	80° 17' 5.529" W
VA-KM256	B	37° 15' 32.217" N	80° 17' 4.630" W
VA-KM256	C	37° 15' 33.578" N	80° 17' 4.021" W
VA-KM257	A	37° 15' 17.703" N	80° 16' 16.893" W
VA-KM257	B	37° 15' 15.509" N	80° 16' 21.222" W
VA-KM257	C	37° 15' 12.788" N	80° 16' 23.773" W
VA-KM258	A	37° 15' 16.084" N	80° 15' 57.202" W
VA-KM258	B	37° 15' 18.707" N	80° 15' 50.433" W
VA-KM258	C	37° 15' 17.651" N	80° 15' 46.387" W
VA-KM259	A	37° 14' 58.623" N	80° 15' 31.443" W
VA-KM259	B	37° 15' 0.128" N	80° 15' 28.812" W
VA-KM259	C	37° 15' 2.237" N	80° 15' 28.507" W
VA-KM260	A	37° 15' 10.478" N	80° 14' 12.997" W
VA-KM260	B	37° 15' 9.050" N	80° 14' 14.068" W
VA-KM260	C	37° 15' 8.517" N	80° 14' 15.073" W
VA-KM261	A	37° 15' 15.377" N	80° 14' 5.170" W
VA-KM261	B	37° 15' 16.399" N	80° 13' 58.620" W
VA-KM261	C	37° 15' 17.135" N	80° 13' 55.542" W
VA-KM262	A	37° 15' 33.424" N	80° 13' 28.154" W

Site	Net	Latitude	Longitude
VA-KM262	B	37° 15' 34.346" N	80° 13' 26.669" W
VA-KM262	C	37° 15' 36.581" N	80° 13' 23.280" W
VA-KM265	A	37° 14' 25.862" N	80° 11' 45.742" W
VA-KM265	B	37° 14' 24.485" N	80° 11' 44.606" W
VA-KM265	C	37° 14' 20.880" N	80° 11' 41.200" W
VA-KM266	A	37° 13' 38.201" N	80° 12' 0.649" W
VA-KM266	B	37° 13' 37.262" N	80° 12' 0.276" W
VA-KM266	C	37° 13' 36.260" N	80° 12' 0.718" W
VA-KM267*	A	37° 13' 29.847" N	80° 11' 20.204" W
VA-KM267*	B	37° 13' 29.317" N	80° 11' 19.431" W
VA-KM267*	C	37° 13' 28.905" N	80° 11' 18.347" W
VA-KM268*	A	37° 13' 21.948" N	80° 10' 58.818" W
VA-KM268*	B	37° 13' 17.177" N	80° 11' 2.120" W
VA-KM268*	C	37° 13' 13.881" N	80° 11' 0.880" W
VA-KM269*	A	37° 12' 39.738" N	80° 10' 35.231" W
VA-KM269*	B	37° 12' 42.539" N	80° 10' 36.780" W
VA-KM269*	C	37° 12' 46.257" N	80° 10' 35.379" W
VA-KM273	A	37° 11' 21.775" N	80° 8' 53.775" W
VA-KM273	B	37° 11' 20.275" N	80° 8' 56.216" W
VA-KM273	C	37° 11' 18.404" N	80° 8' 58.315" W
VA-KM277	A	37° 9' 29.257" N	80° 8' 7.515" W
VA-KM277	B	37° 9' 28.401" N	80° 8' 7.070" W
VA-KM277	C	37° 9' 27.374" N	80° 8' 6.435" W
VA-KM282	A	37° 7' 26.468" N	80° 7' 16.814" W
VA-KM282	B	37° 7' 27.640" N	80° 7' 16.531" W
VA-KM282	C	37° 7' 29.395" N	80° 7' 15.650" W
VA-KM283	A	37° 7' 38.074" N	80° 6' 36.949" W
VA-KM283	B	37° 7' 36.229" N	80° 6' 39.144" W
VA-KM283	C	37° 7' 35.748" N	80° 6' 41.265" W
VA-KM284	A	37° 7' 30.985" N	80° 6' 26.234" W
VA-KM284	B	37° 7' 29.963" N	80° 6' 26.726" W
VA-KM284	C	37° 7' 28.946" N	80° 6' 26.276" W
VA-KM285	A	37° 7' 32.181" N	80° 5' 10.023" W
VA-KM285	B	37° 7' 32.013" N	80° 5' 11.708" W
VA-KM285	C	37° 7' 30.254" N	80° 5' 12.523" W
VA-KM286	A	37° 7' 26.213" N	80° 4' 49.425" W
VA-KM286	B	37° 7' 23.886" N	80° 4' 46.992" W
VA-KM286	C	37° 7' 26.877" N	80° 4' 46.610" W
VA-KM287	A	37° 7' 34.988" N	80° 4' 17.933" W
VA-KM287	B	37° 7' 37.366" N	80° 4' 11.643" W
VA-KM287	C	37° 7' 35.147" N	80° 4' 13.776" W
VA-KM288	A	37° 7' 7.123" N	80° 3' 38.917" W
VA-KM288	B	37° 7' 8.292" N	80° 3' 39.350" W
VA-KM288	C	37° 7' 7.414" N	80° 3' 37.783" W
VA-KM292*	A	37° 7' 14.550" N	80° 1' 31.046" W

Site	Net	Latitude	Longitude
VA-KM292*	B	37° 7' 14.294" N	80° 1' 30.403" W
VA-KM292*	C	37° 7' 14.364" N	80° 1' 28.966" W
VA-KM299*	A	37° 6' 10.704" N	79° 57' 32.305" W
VA-KM299*	B	37° 6' 13.233" N	79° 57' 31.253" W
VA-KM299*	C	37° 6' 10.315" N	79° 57' 35.035" W
VA-KM300*	A	37° 5' 39.032" N	79° 57' 6.312" W
VA-KM300*	B	37° 5' 40.294" N	79° 57' 8.073" W
VA-KM300*	C	37° 5' 41.078" N	79° 57' 8.840" W
VA-KM301	A	37° 5' 12.970" N	79° 57' 12.572" W
VA-KM301	B	37° 5' 10.632" N	79° 57' 9.072" W
VA-KM301	C	37° 5' 12.384" N	79° 57' 1.019" W
VA-KM301	D	37° 5' 10.821" N	79° 56' 56.503" W
VA-KM302	A	37° 4' 51.049" N	79° 56' 38.308" W
VA-KM302	B	37° 4' 51.965" N	79° 56' 39.531" W
VA-KM302	C	37° 4' 53.043" N	79° 56' 38.418" W
VA-KM303	A	37° 4' 25.781" N	79° 56' 24.499" W
VA-KM303	B	37° 4' 24.227" N	79° 56' 25.180" W
VA-KM303	C	37° 4' 23.703" N	79° 56' 25.083" W
VA-KM304	A	37° 4' 9.296" N	79° 55' 31.604" W
VA-KM304	B	37° 4' 9.597" N	79° 55' 33.663" W
VA-KM304	C	37° 4' 14.632" N	79° 55' 34.024" W
VA-KM305	A	37° 3' 46.053" N	79° 55' 16.135" W
VA-KM305	B	37° 3' 44.795" N	79° 55' 15.348" W
VA-KM305	C	37° 3' 41.464" N	79° 55' 14.262" W
VA-KM306	A	37° 3' 29.052" N	79° 55' 7.509" W
VA-KM306	B	37° 3' 27.958" N	79° 55' 9.141" W
VA-KM306	C	37° 3' 27.208" N	79° 55' 10.305" W
VA-KM307	A	37° 3' 9.163" N	79° 54' 25.309" W
VA-KM307	B	37° 3' 8.229" N	79° 54' 26.924" W
VA-KM307	C	37° 3' 7.897" N	79° 54' 27.806" W
VA-KM308	A	37° 2' 39.699" N	79° 54' 23.775" W
VA-KM308	B	37° 2' 40.687" N	79° 54' 23.160" W
VA-KM308	C	37° 2' 42.141" N	79° 54' 21.875" W
VA-KM309	A	37° 2' 50.787" N	79° 53' 22.879" W
VA-KM309	B	37° 2' 49.933" N	79° 53' 24.578" W
VA-KM309	C	37° 2' 51.237" N	79° 53' 25.062" W
VA-KM310	A	37° 2' 36.604" N	79° 52' 54.440" W
VA-KM310	B	37° 2' 39.385" N	79° 52' 58.650" W
VA-KM310	C	37° 2' 41.217" N	79° 53' 1.933" W
VA-KM311	A	37° 2' 36.574" N	79° 52' 19.453" W
VA-KM311	B	37° 2' 38.047" N	79° 52' 20.307" W
VA-KM311	C	37° 2' 37.905" N	79° 52' 23.887" W
VA-KM311	D	37° 2' 37.303" N	79° 52' 24.781" W
VA-KM312	A	37° 2' 54.244" N	79° 52' 5.853" W
VA-KM312	B	37° 2' 53.322" N	79° 52' 5.881" W

Site	Net	Latitude	Longitude
VA-KM312	C	37° 2' 52.581" N	79° 52' 5.539" W
VA-KM313	A	37° 3' 21.069" N	79° 51' 48.590" W
VA-KM313	B	37° 3' 21.934" N	79° 51' 50.692" W
VA-KM313	C	37° 3' 20.379" N	79° 51' 46.749" W
VA-KM314	A	37° 3' 34.612" N	79° 51' 19.780" W
VA-KM314	B	37° 3' 33.396" N	79° 51' 19.890" W
VA-KM314	C	37° 3' 29.379" N	79° 51' 19.905" W
VA-KM315	A	37° 3' 36.058" N	79° 50' 27.282" W
VA-KM315	B	37° 3' 36.302" N	79° 50' 27.215" W
VA-KM315	C	37° 3' 37.508" N	79° 50' 28.370" W
VA-KM316	A	37° 3' 13.161" N	79° 50' 4.845" W
VA-KM316	B	37° 3' 15.811" N	79° 50' 2.370" W
VA-KM316	C	37° 3' 15.333" N	79° 50' 1.558" W
VA-KM317	A	37° 3' 22.598" N	79° 49' 32.340" W
VA-KM317	B	37° 3' 20.887" N	79° 49' 30.979" W
VA-KM317	C	37° 3' 20.249" N	79° 49' 29.003" W
VA-KM318	A	37° 3' 7.958" N	79° 49' 12.992" W
VA-KM318	B	37° 3' 1.619" N	79° 49' 3.811" W
VA-KM318	C	37° 2' 59.489" N	79° 49' 3.961" W
VA-KM319	A	37° 2' 33.825" N	79° 48' 37.838" W
VA-KM319	B	37° 2' 35.702" N	79° 48' 39.040" W
VA-KM319	C	37° 2' 33.775" N	79° 48' 41.897" W
VA-KM320	A	37° 2' 27.081" N	79° 48' 10.689" W
VA-KM320	B	37° 2' 28.708" N	79° 48' 10.705" W
VA-KM320	C	37° 2' 30.836" N	79° 48' 9.226" W
VA-KM321	A	37° 2' 2.688" N	79° 47' 41.024" W
VA-KM321	B	37° 2' 4.012" N	79° 47' 41.293" W
VA-KM321	C	37° 2' 0.216" N	79° 47' 38.552" W
VA-KM322	A	37° 1' 42.650" N	79° 46' 55.397" W
VA-KM322	B	37° 1' 40.453" N	79° 46' 55.537" W
VA-KM322	C	37° 1' 39.287" N	79° 46' 55.853" W
VA-KM323	A	37° 1' 40.102" N	79° 46' 49.973" W
VA-KM323	B	37° 1' 39.983" N	79° 46' 48.357" W
VA-KM323	C	37° 1' 40.173" N	79° 46' 46.074" W
VA-KM324	A	37° 1' 32.516" N	79° 46' 0.596" W
VA-KM324	B	37° 1' 31.061" N	79° 45' 59.117" W
VA-KM324	C	37° 1' 24.582" N	79° 45' 53.637" W
VA-KM325	A	37° 0' 49.864" N	79° 45' 42.946" W
VA-KM325	B	37° 0' 53.631" N	79° 45' 42.853" W
VA-KM325	C	37° 0' 54.365" N	79° 45' 42.940" W
VA-KM326	A	37° 0' 23.345" N	79° 45' 5.501" W
VA-KM326	B	37° 0' 23.750" N	79° 45' 8.805" W
VA-KM326	C	37° 0' 25.259" N	79° 45' 8.283" W
VA-KM327	A	36° 59' 58.831" N	79° 44' 43.902" W
VA-KM327	B	36° 59' 58.217" N	79° 44' 43.436" W

Site	Net	Latitude	Longitude
VA-KM327	C	36° 59' 58.372" N	79° 44' 40.783" W
VA-KM328	A	36° 59' 43.372" N	79° 43' 56.616" W
VA-KM328	B	36° 59' 43.522" N	79° 43' 58.056" W
VA-KM328	C	36° 59' 44.186" N	79° 44' 0.710" W
VA-KM329	A	36° 59' 31.269" N	79° 43' 36.143" W
VA-KM329	B	36° 59' 30.914" N	79° 43' 38.875" W
VA-KM329	C	36° 59' 31.469" N	79° 43' 41.435" W
VA-KM330	A	36° 59' 35.228" N	79° 43' 12.449" W
VA-KM330	B	36° 59' 34.363" N	79° 43' 12.388" W
VA-KM330	C	36° 59' 33.171" N	79° 43' 13.020" W
VA-KM331	A	36° 59' 17.682" N	79° 42' 32.268" W
VA-KM331	B	36° 59' 18.103" N	79° 42' 33.220" W
VA-KM331	C	36° 59' 18.570" N	79° 42' 32.289" W
VA-KM332	A	36° 59' 11.722" N	79° 41' 44.015" W
VA-KM332	B	36° 59' 11.911" N	79° 41' 42.475" W
VA-KM332	C	36° 59' 11.603" N	79° 41' 40.926" W
VA-KM333	A	36° 59' 8.732" N	79° 41' 25.420" W
VA-KM333	B	36° 59' 9.473" N	79° 41' 26.998" W
VA-KM333	C	36° 59' 7.253" N	79° 41' 27.131" W
VA-KM334	A	36° 58' 33.825" N	79° 40' 26.072" W
VA-KM334	B	36° 58' 35.868" N	79° 40' 26.673" W
VA-KM334	C	36° 58' 35.019" N	79° 40' 22.277" W
VA-KM335	A	36° 58' 30.770" N	79° 40' 23.474" W
VA-KM335	B	36° 58' 30.042" N	79° 40' 24.899" W
VA-KM335	C	36° 58' 26.750" N	79° 40' 26.301" W
VA-KM336	A	36° 58' 7.861" N	79° 39' 35.593" W
VA-KM336	B	36° 58' 7.343" N	79° 39' 30.442" W
VA-KM336	C	36° 58' 9.507" N	79° 39' 29.368" W
VA-KM337	A	36° 58' 19.437" N	79° 38' 48.033" W
VA-KM337	B	36° 58' 18.918" N	79° 38' 50.710" W
VA-KM337	C	36° 58' 19.951" N	79° 38' 51.305" W
VA-KM338	A	36° 58' 12.036" N	79° 38' 26.395" W
VA-KM338	B	36° 58' 13.494" N	79° 38' 23.234" W
VA-KM338	C	36° 58' 13.740" N	79° 38' 22.233" W
VA-KM339	A	36° 57' 54.755" N	79° 37' 23.791" W
VA-KM339	B	36° 57' 56.281" N	79° 37' 24.546" W
VA-KM339	C	36° 57' 56.034" N	79° 37' 26.390" W
VA-KM340	A	36° 57' 47.877" N	79° 36' 56.739" W
VA-KM340	B	36° 57' 45.311" N	79° 36' 56.686" W
VA-KM340	C	36° 57' 43.610" N	79° 36' 56.891" W
VA-KM341	A	36° 58' 4.229" N	79° 35' 53.531" W
VA-KM341	B	36° 58' 1.981" N	79° 35' 54.392" W
VA-KM341	C	36° 58' 4.026" N	79° 35' 57.456" W
VA-KM342	A	36° 58' 3.674" N	79° 35' 47.641" W
VA-KM342	B	36° 58' 1.580" N	79° 35' 47.885" W

Site	Net	Latitude	Longitude
VA-KM342	C	36° 57' 59.980" N	79° 35' 48.749" W
VA-KM343	A	36° 57' 21.346" N	79° 35' 2.088" W
VA-KM343	B	36° 57' 21.063" N	79° 35' 4.219" W
VA-KM343	C	36° 57' 21.977" N	79° 35' 8.586" W
VA-KM344	A	36° 56' 56.355" N	79° 34' 37.652" W
VA-KM344	B	36° 56' 55.349" N	79° 34' 35.693" W
VA-KM344	C	36° 56' 54.546" N	79° 34' 34.074" W
VA-KM345	A	36° 56' 54.128" N	79° 34' 33.643" W
VA-KM345	B	36° 56' 53.703" N	79° 34' 32.615" W
VA-KM345	C	36° 56' 53.325" N	79° 34' 31.770" W
VA-KM346	A	36° 56' 20.037" N	79° 33' 41.305" W
VA-KM346	B	36° 56' 18.436" N	79° 33' 42.994" W
VA-KM346	C	36° 56' 15.235" N	79° 33' 45.805" W
VA-KM347	A	36° 56' 10.387" N	79° 33' 11.632" W
VA-KM347	B	36° 56' 8.349" N	79° 33' 10.587" W
VA-KM347	C	36° 56' 6.588" N	79° 33' 9.176" W
VA-KM348	A	36° 56' 4.068" N	79° 32' 44.712" W
VA-KM348	B	36° 56' 4.754" N	79° 32' 41.643" W
VA-KM348	C	36° 56' 4.533" N	79° 32' 39.371" W
VA-KM349	A	36° 56' 11.475" N	79° 32' 11.399" W
VA-KM349	B	36° 56' 12.464" N	79° 32' 12.221" W
VA-KM349	C	36° 56' 13.306" N	79° 32' 12.698" W
VA-KM350	A	36° 55' 37.089" N	79° 31' 28.077" W
VA-KM350	B	36° 55' 36.462" N	79° 31' 28.766" W
VA-KM350	C	36° 55' 36.782" N	79° 31' 29.754" W
VA-KM351	A	36° 55' 19.079" N	79° 31' 4.217" W
VA-KM351	B	36° 55' 20.748" N	79° 31' 7.113" W
VA-KM351	C	36° 55' 16.562" N	79° 31' 4.193" W
VA-KM352	A	36° 55' 7.790" N	79° 30' 34.676" W
VA-KM352	B	36° 55' 6.775" N	79° 30' 38.409" W
VA-KM352	C	36° 55' 6.076" N	79° 30' 39.847" W
VA-KM353	A	36° 54' 59.879" N	79° 29' 49.962" W
VA-KM353	B	36° 55' 1.190" N	79° 29' 50.274" W
VA-KM353	C	36° 55' 2.620" N	79° 29' 48.830" W
VA-KM354	A	36° 54' 59.811" N	79° 29' 18.696" W
VA-KM354	B	36° 54' 59.890" N	79° 29' 18.511" W
VA-KM354	C	36° 54' 59.473" N	79° 29' 19.305" W
VA-KM355	A	36° 54' 46.034" N	79° 28' 2.176" W
VA-KM355	B	36° 54' 44.739" N	79° 28' 2.245" W
VA-KM355	C	36° 54' 48.479" N	79° 28' 5.787" W
VA-KM356*	A	36° 54' 47.325" N	79° 27' 55.043" W
VA-KM356*	B	36° 54' 45.577" N	79° 27' 55.095" W
VA-KM356*	C	36° 54' 43.528" N	79° 27' 55.141" W
VA-KM357*	A	36° 54' 19.092" N	79° 26' 57.913" W
VA-KM357*	B	36° 54' 16.935" N	79° 26' 59.499" W

Site	Net	Latitude	Longitude
VA-KM357*	C	36° 54' 14.393" N	79° 26' 57.509" W
VA-KM358	A	36° 53' 50.183" N	79° 26' 52.141" W
VA-KM358	B	36° 53' 50.238" N	79° 26' 50.922" W
VA-KM358	C	36° 53' 49.627" N	79° 26' 51.188" W
VA-KM359	A	36° 53' 34.360" N	79° 26' 44.013" W
VA-KM359	B	36° 53' 35.770" N	79° 26' 45.423" W
VA-KM359	C	36° 53' 36.527" N	79° 26' 45.672" W
VA-KM360	A	36° 53' 11.293" N	79° 25' 42.941" W
VA-KM360	B	36° 53' 11.264" N	79° 25' 41.684" W
VA-KM360	C	36° 53' 9.832" N	79° 25' 41.845" W
VA-KM361	A	36° 52' 44.283" N	79° 25' 14.336" W
VA-KM361	B	36° 52' 42.403" N	79° 25' 15.397" W
VA-KM361	C	36° 52' 41.122" N	79° 25' 15.680" W
VA-KM362	A	36° 52' 22.978" N	79° 24' 59.876" W
VA-KM362	B	36° 52' 22.027" N	79° 25' 0.358" W
VA-KM362	C	36° 52' 21.392" N	79° 25' 0.103" W
VA-KM363	A	36° 52' 15.640" N	79° 24' 17.918" W
VA-KM363	B	36° 52' 14.142" N	79° 24' 18.059" W
VA-KM363	C	36° 52' 13.763" N	79° 24' 19.750" W
VA-KM364	A	36° 51' 37.418" N	79° 23' 52.933" W
VA-KM364	B	36° 51' 37.607" N	79° 23' 54.362" W
VA-KM364	C	36° 51' 38.815" N	79° 23' 56.680" W
VA-KM365	A	36° 51' 28.446" N	79° 23' 36.108" W
VA-KM365	B	36° 51' 24.853" N	79° 23' 35.782" W
VA-KM365	C	36° 51' 22.712" N	79° 23' 35.372" W
VA-KM366	A	36° 51' 13.694" N	79° 23' 19.453" W
VA-KM366	B	36° 51' 10.640" N	79° 23' 19.783" W
VA-KM366	C	36° 51' 7.666" N	79° 23' 20.705" W
VA-KM368	A	36° 50' 29.441" N	79° 22' 4.234" W
VA-KM368	B	36° 50' 28.291" N	79° 22' 3.085" W
VA-KM368	C	36° 50' 27.116" N	79° 22' 0.927" W
VA-KM369	A	36° 50' 2.073" N	79° 21' 34.144" W
VA-KM369	B	36° 50' 2.451" N	79° 21' 32.234" W
VA-KM369	C	36° 50' 1.250" N	79° 21' 32.673" W
VA-KM370	A	36° 49' 57.181" N	79° 21' 11.555" W
VA-KM370	B	36° 49' 57.525" N	79° 21' 9.579" W
VA-KM370	C	36° 49' 56.057" N	79° 21' 8.052" W
VA-KM371	A	36° 50' 0.197" N	79° 20' 24.288" W
VA-KM371	B	36° 49' 58.771" N	79° 20' 22.112" W
VA-KM371	C	36° 49' 57.350" N	79° 20' 20.991" W
VA-KM415*	A	37° 17' 37.918" N	80° 13' 55.331" W
VA-KM415*	B	37° 17' 38.731" N	80° 13' 54.092" W
VA-KM415*	C	37° 17' 40.068" N	80° 13' 54.407" W
VA-KM419*	A	37° 15' 54.422" N	80° 12' 55.470" W
VA-KM419*	B	37° 15' 51.810" N	80° 12' 58.951" W

Site	Net	Latitude	Longitude
VA-KM419*	C	37° 15' 50.995" N	80° 13' 0.798" W
VA-KM449	A	37° 13' 30.632" N	80° 11' 52.598" W
VA-KM449	B	37° 13' 31.336" N	80° 11' 53.948" W
VA-KM449	C	37° 13' 32.880" N	80° 11' 54.911" W
VA-KM452	A	37° 11' 50.328" N	80° 10' 48.662" W
VA-KM452	B	37° 11' 51.612" N	80° 10' 49.369" W
VA-KM452	C	37° 11' 52.925" N	80° 10' 50.569" W
VA-KM453	A	37° 11' 36.984" N	80° 10' 36.399" W
VA-KM453	B	37° 11' 38.184" N	80° 10' 37.810" W
VA-KM453	C	37° 11' 38.832" N	80° 10' 38.900" W
VA-KM454	A	37° 11' 16.036" N	80° 10' 24.941" W
VA-KM454	B	37° 11' 17.829" N	80° 10' 27.711" W
VA-KM454	C	37° 11' 17.354" N	80° 10' 33.147" W
VA-KM455	A	37° 11' 23.242" N	80° 9' 15.844" W
VA-KM455	B	37° 11' 23.717" N	80° 9' 14.698" W
VA-KM455	C	37° 11' 23.574" N	80° 9' 14.084" W
VA-KM457	A	37° 6' 59.169" N	80° 3' 38.016" W
VA-KM457	B	37° 6' 57.662" N	80° 3' 37.683" W
VA-KM457	C	37° 6' 57.702" N	80° 3' 35.747" W
VA-KM458	A	37° 6' 39.530" N	80° 3' 34.607" W
VA-KM458	B	37° 6' 37.141" N	80° 3' 32.164" W
VA-KM458	C	37° 6' 36.261" N	80° 3' 32.821" W
VA-KM460	A	37° 6' 3.682" N	80° 2' 27.058" W
VA-KM460	B	37° 6' 5.959" N	80° 2' 25.134" W
VA-KM460	C	37° 6' 6.196" N	80° 2' 26.116" W
VA-KM461	A	37° 5' 40.516" N	80° 2' 0.770" W
VA-KM461	B	37° 5' 41.858" N	80° 1' 58.835" W
VA-KM461	C	37° 5' 39.868" N	80° 1' 52.757" W
VA-KM462	A	37° 4' 58.493" N	80° 1' 1.689" W
VA-KM462	B	37° 5' 0.508" N	80° 1' 1.111" W
VA-KM462	C	37° 5' 0.104" N	80° 1' 3.530" W
VA-KM463	A	37° 5' 24.676" N	80° 0' 51.397" W
VA-KM463	B	37° 5' 21.846" N	80° 0' 45.228" W
VA-KM463	C	37° 5' 25.672" N	80° 0' 45.519" W
VA-KM464	A	37° 5' 26.200" N	80° 0' 12.589" W
VA-KM464	B	37° 5' 27.636" N	80° 0' 15.259" W
VA-KM464	C	37° 5' 29.038" N	80° 0' 15.203" W
VA-KM465	A	37° 5' 26.692" N	79° 59' 24.729" W
VA-KM465	B	37° 5' 27.405" N	79° 59' 25.457" W
VA-KM465	C	37° 5' 28.262" N	79° 59' 26.307" W
VA-KM466	A	37° 5' 22.140" N	79° 58' 36.905" W
VA-KM466	B	37° 5' 20.287" N	79° 58' 35.348" W
VA-KM466	C	37° 5' 23.056" N	79° 58' 33.960" W
VA-KM466-1	A	37° 5' 53.257" N	79° 58' 37.993" W
VA-KM466-1	B	37° 5' 52.195" N	79° 58' 40.146" W

Site	Net	Latitude	Longitude
VA-KM466-1	C	37° 5' 51.067" N	79° 58' 36.356" W
VA-KM467	A	37° 5' 32.451" N	79° 58' 18.155" W
VA-KM467	B	37° 5' 34.855" N	79° 58' 17.024" W
VA-KM467	C	37° 5' 35.289" N	79° 58' 15.578" W
VA-KM468	A	37° 5' 7.298" N	79° 57' 24.261" W
VA-KM468	B	37° 5' 8.508" N	79° 57' 27.407" W
VA-KM468	C	37° 5' 10.345" N	79° 57' 29.542" W
VA-KM469	A	36° 54' 26.763" N	79° 28' 52.696" W
VA-KM469	B	36° 54' 21.687" N	79° 28' 55.902" W
VA-KM469	C	36° 54' 21.009" N	79° 28' 51.562" W
VA-KM471	A	36° 53' 59.873" N	79° 27' 27.695" W
VA-KM471	B	36° 54' 1.764" N	79° 27' 28.699" W
VA-KM471	C	36° 54' 3.858" N	79° 27' 29.889" W
VA-KM472*	A	36° 50' 34.983" N	79° 21' 29.770" W
VA-KM472*	B	36° 50' 34.553" N	79° 21' 35.978" W
VA-KM472*	C	36° 50' 42.754" N	79° 21' 26.808" W
VA-KM473*	A	36° 50' 13.985" N	79° 20' 46.741" W
VA-KM473*	B	36° 50' 16.051" N	79° 20' 45.989" W
VA-KM473*	C	36° 50' 18.167" N	79° 20' 44.928" W
VA-KM474*	A	36° 50' 5.364" N	79° 19' 52.447" W
VA-KM474*	B	36° 50' 5.042" N	79° 19' 53.690" W
VA-KM474*	C	36° 50' 3.584" N	79° 19' 55.095" W
VA-KM482	A	37° 11' 3.767" N	80° 9' 39.301" W
VA-KM482	B	37° 11' 3.240" N	80° 9' 41.643" W
VA-KM482	C	37° 11' 3.926" N	80° 9' 42.965" W
VA-KM484	A	37° 8' 17.846" N	80° 7' 50.609" W
VA-KM484	B	37° 8' 15.986" N	80° 7' 49.489" W
VA-KM484	C	37° 8' 18.188" N	80° 7' 49.996" W
VA-KM485	A	37° 7' 23.081" N	80° 6' 54.204" W
VA-KM485	B	37° 7' 22.207" N	80° 6' 55.552" W
VA-KM485	C	37° 7' 21.289" N	80° 6' 56.451" W
VA-KM486	A	37° 6' 49.813" N	80° 5' 50.279" W
VA-KM486	B	37° 6' 52.499" N	80° 5' 51.422" W
VA-KM486	C	37° 6' 51.381" N	80° 5' 48.134" W
VA-KM487	A	36° 59' 34.438" N	79° 43' 1.379" W
VA-KM487	B	36° 59' 34.791" N	79° 43' 0.116" W
VA-KM487	C	36° 59' 35.302" N	79° 42' 58.824" W
VA-KM489	A	36° 58' 53.994" N	79° 40' 30.935" W
VA-KM489	B	36° 58' 53.125" N	79° 40' 34.015" W
VA-KM489	C	36° 58' 51.784" N	79° 40' 33.821" W
VA-KM490*	A	36° 54' 41.145" N	79° 26' 45.829" W
VA-KM490*	B	36° 54' 45.246" N	79° 26' 43.913" W
VA-KM490*	C	36° 54' 46.359" N	79° 26' 43.386" W
VA-KM562	A	37° 23' 17.316" N	80° 41' 40.314" W
VA-KM562	B	37° 23' 16.947" N	80° 41' 41.044" W

Site	Net	Latitude	Longitude
VA-KM562	C	37° 23' 15.831" N	80° 41' 42.147" W
VA-KM563	A	37° 22' 55.532" N	80° 42' 25.063" W
VA-KM563	B	37° 23' 9.087" N	80° 42' 31.740" W
VA-KM563	C	37° 23' 9.779" N	80° 42' 34.423" W
VA-KM564	A	37° 22' 54.428" N	80° 42' 53.043" W
VA-KM564	B	37° 22' 51.387" N	80° 42' 53.487" W
VA-KM564	C	37° 22' 48.056" N	80° 42' 50.168" W
VA-KM565	A	37° 22' 49.131" N	80° 43' 5.987" W
VA-KM565	B	37° 22' 49.440" N	80° 43' 7.692" W
VA-KM565	C	37° 22' 51.416" N	80° 43' 8.794" W
VA-KM566	A	37° 22' 29.638" N	80° 43' 38.840" W
VA-KM566	B	37° 22' 27.927" N	80° 43' 40.673" W
VA-KM566	C	37° 22' 25.710" N	80° 43' 42.273" W
VA-KM567	A	37° 22' 16.034" N	80° 44' 11.249" W
VA-KM567	B	37° 22' 18.778" N	80° 44' 11.298" W
VA-KM567	C	37° 22' 15.191" N	80° 44' 14.871" W
VA-KM568	A	37° 21' 56.862" N	80° 44' 55.988" W
VA-KM568	B	37° 21' 58.062" N	80° 44' 48.779" W
VA-KM568	C	37° 21' 57.610" N	80° 44' 45.249" W
VA-KM569	A	37° 22' 53.429" N	80° 39' 59.455" W
VA-KM569	B	37° 22' 55.224" N	80° 40' 3.760" W
VA-KM569	C	37° 22' 55.320" N	80° 40' 7.537" W
VA-KM570	A	37° 21' 31.995" N	80° 39' 50.215" W
VA-KM570	B	37° 21' 34.818" N	80° 39' 58.074" W
VA-KM570	C	37° 21' 35.201" N	80° 40' 2.428" W
VA-KM571	A	37° 16' 36.949" N	80° 20' 3.271" W
VA-KM571	B	37° 16' 37.027" N	80° 20' 3.450" W
VA-KM571	C	37° 16' 36.539" N	80° 20' 4.294" W
VA-KM572	A	37° 16' 29.001" N	80° 19' 47.275" W
VA-KM572	B	37° 16' 27.839" N	80° 19' 47.439" W
VA-KM572	C	37° 16' 25.420" N	80° 19' 43.155" W
VA-KM573	A	37° 15' 52.837" N	80° 14' 28.824" W
VA-KM573	B	37° 15' 50.853" N	80° 14' 28.093" W
VA-KM573	C	37° 15' 51.243" N	80° 14' 27.200" W
VA-KM574	A	37° 15' 56.052" N	80° 14' 46.430" W
VA-KM574	B	37° 15' 56.935" N	80° 14' 47.600" W
VA-KM574	C	37° 15' 56.810" N	80° 14' 48.876" W
VA-KM577	A	37° 2' 35.867" N	79° 49' 24.182" W
VA-KM577	B	37° 2' 39.116" N	79° 49' 22.444" W
VA-KM577	C	37° 2' 40.164" N	79° 49' 22.843" W
VA-KM578	A	37° 23' 52.988" N	80° 40' 54.803" W
VA-KM578	B	37° 23' 54.117" N	80° 40' 55.367" W
VA-KM578	C	37° 23' 54.646" N	80° 40' 56.408" W
VA-KM579	A	37° 23' 25.337" N	80° 40' 46.773" W
VA-KM579	B	37° 23' 27.335" N	80° 40' 45.995" W

Site	Net	Latitude	Longitude
VA-KM579	C	37° 23' 31.945" N	80° 40' 45.710" W
WV-KM218	A	37° 28' 11.200" N	80° 40' 33.597" W
WV-KM218	B	37° 28' 12.080" N	80° 40' 36.608" W
WV-KM218	C	37° 28' 11.871" N	80° 40' 39.657" W
WV-KM219	A	37° 28' 4.736" N	80° 40' 37.832" W
WV-KM219	B	37° 28' 4.998" N	80° 40' 36.541" W
WV-KM219	C	37° 28' 6.182" N	80° 40' 36.163" W
WV-KM220	A	37° 27' 18.267" N	80° 39' 49.604" W
WV-KM220	B	37° 27' 19.365" N	80° 39' 50.992" W
WV-KM220	C	37° 27' 21.464" N	80° 39' 49.202" W
WV-KM221	A	37° 27' 13.927" N	80° 39' 52.930" W
WV-KM221	B	37° 27' 16.689" N	80° 39' 47.766" W
WV-KM221	C	37° 27' 14.626" N	80° 39' 46.752" W
WV-KM222	A	37° 26' 24.011" N	80° 40' 8.095" W
WV-KM222	B	37° 26' 24.884" N	80° 40' 9.509" W
WV-KM222	C	37° 26' 23.298" N	80° 40' 6.151" W
WV-KM223	A	37° 26' 27.198" N	80° 40' 46.893" W
WV-KM223	B	37° 26' 25.830" N	80° 40' 47.274" W
WV-KM223	C	37° 26' 25.333" N	80° 40' 48.379" W
WV-KM224	A	37° 26' 10.644" N	80° 41' 31.388" W
WV-KM224	B	37° 26' 9.434" N	80° 41' 31.108" W
WV-KM224	C	37° 26' 8.310" N	80° 41' 30.619" W
WV-KM225	A	37° 25' 30.295" N	80° 41' 35.482" W
WV-KM225	B	37° 25' 28.848" N	80° 41' 35.649" W
WV-KM225	C	37° 25' 26.399" N	80° 41' 36.105" W
WV-KM226	A	37° 25' 21.262" N	80° 41' 22.690" W
WV-KM226	B	37° 25' 20.311" N	80° 41' 22.679" W
WV-KM226	C	37° 25' 19.026" N	80° 41' 22.706" W
WV-KM227	A	37° 24' 36.216" N	80° 42' 12.939" W
WV-KM227	B	37° 24' 38.549" N	80° 42' 14.983" W
WV-KM227	C	37° 24' 41.494" N	80° 42' 15.994" W
WV-KM227	D	37° 24' 24.838" N	80° 42' 9.874" W
WV-KM227	E	37° 24' 27.349" N	80° 42' 6.327" W
WV-KM227	F	37° 24' 23.230" N	80° 42' 6.148" W
WV-KM228	A	37° 23' 5.695" N	80° 42' 1.906" W
WV-KM228	B	37° 23' 8.511" N	80° 42' 1.656" W
WV-KM228	C	37° 23' 10.053" N	80° 42' 1.627" W
WV-KM378*	A	37° 31' 58.802" N	80° 30' 49.755" W
WV-KM378*	B	37° 32' 0.882" N	80° 30' 50.731" W
WV-KM378*	C	37° 32' 0.998" N	80° 30' 48.931" W
WV-KM379*	A	37° 31' 59.543" N	80° 30' 23.086" W
WV-KM379*	B	37° 32' 1.252" N	80° 30' 23.755" W
WV-KM379*	C	37° 31' 59.751" N	80° 30' 24.986" W
WV-KM380*	A	37° 31' 41.018" N	80° 30' 12.073" W
WV-KM380*	B	37° 31' 44.112" N	80° 30' 12.088" W

Site	Net	Latitude	Longitude
WV-KM380*	C	37° 31' 44.549" N	80° 30' 14.991" W
WV-KM381*	A	37° 31' 16.667" N	80° 29' 54.780" W
WV-KM381*	B	37° 31' 11.743" N	80° 29' 53.454" W
WV-KM381*	C	37° 31' 12.953" N	80° 29' 55.891" W
WV-KM382*	A	37° 31' 8.731" N	80° 29' 24.636" W
WV-KM382*	B	37° 31' 7.312" N	80° 29' 23.033" W
WV-KM382*	C	37° 31' 7.013" N	80° 29' 21.421" W
WV-KM383*	A	37° 30' 44.380" N	80° 28' 53.547" W
WV-KM383*	B	37° 30' 46.450" N	80° 28' 55.130" W
WV-KM383*	C	37° 30' 48.767" N	80° 28' 56.479" W
WV-KM386*	A	37° 27' 33.629" N	80° 25' 22.005" W
WV-KM386*	B	37° 27' 35.283" N	80° 25' 22.980" W
WV-KM386*	C	37° 27' 37.822" N	80° 25' 24.958" W
WV-KM387*	A	37° 27' 13.865" N	80° 24' 41.206" W
WV-KM387*	B	37° 27' 12.414" N	80° 24' 42.672" W
WV-KM387*	C	37° 27' 10.764" N	80° 24' 43.758" W
WV-KM587	A	37° 23' 56.218" N	80° 41' 0.665" W
WV-KM587	B	37° 23' 57.708" N	80° 41' 1.916" W
WV-KM587	C	37° 23' 59.351" N	80° 41' 2.876" W

*Routes associated with these sites were subsequently abandoned.

Table 4. Bat capture by sex, reproductive condition, and age along the Proposed Route of MVP's Mountain Valley Pipeline Project in and within 5 miles of Virginia.

Species	Adult	Adult Female ¹				Juvenile		Escape ²	Total
	Male	P	L	PL	NR	Male	Female		
Big brown bat	118	26	69	40	16	14	17	5	305
Silver-haired bat	31								31
Eastern red bat	124	106	28	4	17	9	20	22	330
Hoary bat			2			4			6
Eastern small-footed bat	5	1	1	1		3			11
Little brown bat	1								1
Northern long-eared bat			1						1
Evening bat	5					1			6
Tri-colored bat	1	2			2			1	6
Total	285	135	101	45	35	31	37	28	697

¹ P = Pregnant; L = Lactating; PL = Post lactating; NR = Non-reproductive

²Escape = escaped from net or hand before processing was complete

Table 5 Mist net habitat characteristics along the Proposed Route for MVP's Mountain Valley Pipeline Project in and within 5 miles of Virginia.

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM229	Stream	100	<i>Pinus resinosa</i> <i>Quercus montana</i> <i>Acer rubrum</i>	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i> <i>Pinus resinosa</i>	<i>Sassafras albidum</i> <i>Robinia pseudoacacia</i> <i>Oxydendrum arboreum</i>	M	M	Saplings	M	Large Trees & Snags	YU	D
VA-KM230	Stream	400	<i>Quercus rubra</i> <i>Quercus montana</i> <i>Quercus alba</i>	<i>Acer rubrum</i> <i>Quercus montana</i> <i>Oxydendrum arboreum</i>	<i>Acer sp.</i> <i>Acer rubrum</i> <i>Hamamelis virginiana</i>	C	M	Saplings	M	Large Trees & Snags	YU	M
VA-KM231	Spring	0	<i>Liriodendron tulipifera</i> <i>Robinia pseudoacacia</i>	<i>Liriodendron tulipifera</i> <i>Acer negundo</i> <i>Nyssa sylvatica</i>	<i>Cercis canadensis</i> <i>Lindera benzoin</i> <i>Cornus florida</i>	M	M	Lower Branches of Canopy Trees, Shrubs	M	Snags	YL, W/FE	D
VA-KM232	Stream	600	<i>Quercus velutina</i> <i>Quercus coccinea</i> <i>Liriodendron tulipifera</i>	<i>Quercus velutina</i> <i>Liriodendron tulipifera</i> <i>Robinia pseudoacacia</i>	<i>Cornus florida</i> <i>Sassafras albidum</i> <i>Elaeagnus umbellata</i>	M	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Snags	YU	M
VA-KM233	Pond	500	<i>Liriodendron tulipifera</i> <i>Quercus montana</i> <i>Quercus coccinea</i>	<i>Acer rubrum</i> <i>Liriodendron tulipifera</i> <i>Carya tomentosa</i>	<i>Cornus florida</i> <i>Sassafras albidum</i> <i>Acer rubrum</i>	C	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees	YU	M
VA-KM235	Pond	10	None	<i>Platanus occidentalis</i> <i>Robinia pseudoacacia</i>	<i>Elaeagnus umbellata</i> <i>Platanus occidentalis</i> <i>Juniperus virginiana</i>	O	L	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Neither	YL, OF, EW	D
VA-KM236	NA	0	<i>Fraxinus sp.</i> <i>Quercus alba</i> <i>Pinus strobus</i>	<i>Juniperus virginiana</i> <i>Ulmus rubra</i> <i>Robinia pseudoacacia</i>	<i>Cercis canadensis</i> <i>Cornus florida</i> <i>Juniperus virginiana</i>	M	H	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YU	M

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM237	NA	0	<i>Fraxinus</i> sp. <i>Juglans nigra</i> <i>Acer rubrum</i>	<i>Juglans nigra</i> <i>Fraxinus</i> sp.	<i>Juglans nigra</i> <i>Juniperus virginiana</i> <i>Cercis canadensis</i>	O	H	Lower Branches of Canopy Trees, Saplings	L	Large Trees	YU, W/FE, AG	D
VA-KM238	Pond	0	<i>Quercus velutina</i> <i>Carya ovata</i> <i>Fraxinus</i> sp.	<i>Carya ovata</i> <i>Acer saccharum</i> <i>Juniperus virginiana</i>	<i>Cercis canadensis</i> <i>Robinia pseudoacacia</i> <i>Quercus velutina</i>	M	H	Lower Branches of Canopy Trees, Saplings	H	Large Trees	YU, W/FE, AG, VP	D
VA-KM239	Pond	500	<i>Quercus alba</i> <i>Quercus velutina</i> <i>Quercus montana</i>	<i>Acer saccharum</i> <i>Quercus montana</i> <i>Acer rubrum</i>	<i>Nyssa sylvatica</i> <i>Robinia pseudoacacia</i> <i>Sassafras albidum</i>	C	M	Saplings	L	Large Trees & Snags	YU	M
VA-KM240	NA	0	<i>Acer saccharum</i> <i>Fraxinus pennsylvanica</i> <i>Carya laciniosa</i>	<i>Quercus alba</i> <i>Liriodendron tulipifera</i> <i>Quercus rubra</i>	<i>Crataegus</i> spp.	C	M	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees & Snags	MU	M
VA-KM242	Stream	30	<i>Quercus alba</i> <i>Acer saccharum</i> <i>Carya ovata</i>	<i>Acer saccharum</i> <i>Ulmus rubra</i> <i>Carya ovata</i>	<i>Cercis canadensis</i> <i>Robinia pseudoacacia</i> <i>Juniperus virginiana</i>	M	H	Lower Branches of Canopy Trees, Saplings, Shrubs	H	Large Trees & Snags	YU, AG	M
VA-KM246	Pond	112	<i>Quercus velutina</i> <i>Acer saccharum</i>	<i>Quercus</i> sp. <i>Quercus velutina</i>	<i>Quercus velutina</i> <i>Pinus strobus</i> <i>Carya</i> sp.	M	M	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YU, W/FE, AG	S
VA-KM247	NA	0	<i>Quercus alba</i> <i>Quercus velutina</i> <i>Fraxinus</i> sp.	<i>Acer saccharum</i> <i>Carya</i> sp.	<i>Cornus florida</i> <i>Acer saccharum</i> <i>Fraxinus</i> sp.	M	H	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YU, W/FE, AG	D
VA-KM248	Stream	556	<i>Quercus</i> sp. <i>Quercus muehlenbergii</i> <i>Quercus alba</i>	<i>Quercus</i> sp.	<i>Quercus</i> sp.	C	None	Lower Branches of Canopy Trees	L	Large Trees & Snags	MU	S

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM249	Stream	25	<i>Quercus alba</i> <i>Quercus rubra</i> <i>Liriodendron tulipifera</i>	<i>Carya ovata</i> <i>Pinus resinosa</i> <i>Tilia americana</i>	<i>Cornus florida</i> <i>Cercis canadensis</i> <i>Quercus alba</i>	C	H	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YL	M
VA-KM250	Stream	0	<i>Liriodendron tulipifera</i>	<i>Juglans nigra</i> <i>Platanus occidentalis</i> <i>Ulmus americana</i>	<i>Juniperus virginiana</i> <i>Cercis canadensis</i> <i>Lindera benzoin</i>	C	M	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Snags	YL, W/FE, S/R, EW, FS, VP	D
VA-KM251	Stream	1500	<i>Quercus alba</i> <i>Acer saccharum</i> <i>Quercus montana</i>	<i>Acer saccharum</i> <i>Carya ovata</i> <i>Quercus alba</i>	<i>Acer saccharum</i> <i>Ostrya virginiana</i> <i>Carya ovata</i>	C	L	Saplings	M	Snags	YU	M
VA-KM252	Stream	805	<i>Quercus alba</i> <i>Liriodendron tulipifera</i> <i>Fraxinus</i> sp.	<i>Acer saccharum</i> <i>Liriodendron tulipifera</i> <i>Quercus alba</i>	<i>Cercis canadensis</i> <i>Acer saccharum</i> <i>Quercus alba</i>	M	H	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YU	M
VA-KM253	Stream	0	<i>Platanus occidentalis</i> <i>Juglans nigra</i> <i>Juniperus virginiana</i>	<i>Acer saccharum</i> <i>Platanus occidentalis</i> <i>Aesculus flava</i>	<i>Carpinus caroliniana</i> <i>Ulmus rubra</i>	O	L	Lower Branches of Canopy Trees, Saplings	M	Large Trees	YU, W/FE, AG, S/R	S
VA-KM254	Stream	530	<i>Acer saccharum</i> <i>Quercus alba</i> <i>Fraxinus</i> sp.	<i>Juglans nigra</i> <i>Liriodendron tulipifera</i> <i>Ulmus americana</i>	<i>Liriodendron tulipifera</i> <i>Carpinus caroliniana</i> <i>Ulmus americana</i>	C	H	Lower Branches of Canopy Trees, Saplings	H	Large Trees & Snags	YU	S
VA-KM255	Stream	1000	<i>Quercus montana</i> <i>Quercus alba</i> <i>Quercus velutina</i>	<i>Quercus montana</i> <i>Pinus virginiana</i> <i>Nyssa sylvatica</i>	<i>Acer rubrum</i> <i>Carya glabra</i> <i>Nyssa sylvatica</i>	C	L	Saplings	M	Large Trees & Snags	MU	S
VA-KM256	Pond	128	<i>Pinus virginiana</i> <i>Quercus alba</i> <i>Quercus montana</i>	<i>Fraxinus</i> sp. <i>Quercus velutina</i> <i>Pinus virginiana</i>	<i>Robinia pseudoacacia</i> <i>Liriodendron tulipifera</i> <i>Acer saccharum</i>	M	H	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YU	M

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM257	Stream	500	<i>Pinus resinosa</i> <i>Quercus rubra</i>	<i>Quercus montana</i> <i>Quercus rubra</i> <i>Pinus virginiana</i>	<i>Acer rubrum</i> <i>Sassafras albidum</i> <i>Nyssa sylvatica</i>	M	M	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Snags	YU, W/FE	M
VA-KM258	Stream	0	<i>Pinus strobus</i> <i>Pinus resinosa</i>	<i>Quercus alba</i> <i>Pinus resinosa</i> <i>Acer rubrum</i>	<i>Cercis canadensis</i> <i>Carpinus caroliniana</i> <i>Pinus virginiana</i>	C	H	Lower Branches of Canopy Trees, Saplings	M	Snags	YU, YL, S/R	M
VA-KM259	Stream	1	<i>Platanus occidentalis</i> <i>Pinus strobus</i> <i>Acer saccharum</i>	<i>Betula nigra</i> <i>Juglans nigra</i> <i>Prunus serotina</i>	<i>Crataegus</i> spp.	M	NA	Shrubs	L	Snags	MU, ML, S/R	M
VA-KM260	Stream	2000	<i>Carya tomentosa</i> <i>Carya glabra</i> <i>Quercus velutina</i>	<i>Acer rubrum</i> <i>Carya glabra</i> <i>Quercus montana</i>	<i>Ostrya virginiana</i> <i>Acer rubrum</i> <i>Cercis canadensis</i>	M	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees & Snags	YU	M
VA-KM261	Stream	800	<i>Quercus alba</i> <i>Quercus montana</i> <i>Carya glabra</i>	<i>Betula lenta</i> <i>Acer rubrum</i> <i>Quercus velutina</i>	<i>Ostrya virginiana</i> <i>Acer rubrum</i> <i>Carya glabra</i>	M	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Snags	YU	M
VA-KM262	Stream	3000	<i>Quercus montana</i> <i>Quercus velutina</i> <i>Carya ovata</i>	<i>Pinus resinosa</i> <i>Carya glabra</i> <i>Quercus montana</i>	<i>Acer rubrum</i> <i>Nyssa sylvatica</i> <i>Quercus montana</i>	M	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees & Snags	YU	M
VA-KM265	Pond	20	<i>Platanus occidentalis</i> <i>Juglans nigra</i> <i>Liriodendron tulipifera</i>	<i>Ailanthus altissima</i> <i>Robinia pseudoacacia</i> <i>Acer negundo</i>	<i>Acer negundo</i> <i>Ailanthus altissima</i> <i>Platanus occidentalis</i>	M	M	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees & Snags	YL, W/FE, AG	M
VA-KM266	Stream	10	<i>Acer saccharum</i> <i>Juglans nigra</i> <i>Platanus occidentalis</i>	<i>Acer nigrum</i> <i>Platanus occidentalis</i> <i>Ulmus rubra</i>	<i>Acer saccharum</i> <i>Platanus occidentalis</i> <i>Fraxinus americana</i>	O	L	Lower Branches of Canopy Trees, Saplings	L	Snags	YL, W/FE, AG, S/R	D

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM273	Stream	0	<i>Acer saccharum</i> <i>Quercus velutina</i> <i>Robinia pseudoacacia</i>	<i>Acer saccharum</i> <i>Magnolia acuminata</i> <i>Quercus montana</i>	<i>Platanus occidentalis</i> <i>Tsuga canadensis</i> <i>Hamamelis virginiana</i>	M	H	Lower Branches of Canopy Trees, Saplings	H	Large Trees & Snags	YU, S/R	S
VA-KM277	Stream	500	<i>Pinus strobus</i> <i>Prunus serotina</i> <i>Fraxinus americana</i>	<i>Robinia pseudoacacia</i> <i>Prunus serotina</i> <i>Acer rubrum</i>	<i>Quercus velutina</i> <i>Acer rubrum</i> <i>Fraxinus americana</i>	M	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees & Snags	YU	D
VA-KM282	Wetland	25	<i>Acer saccharum</i> <i>Acer rubrum</i> <i>Betula nigra</i>	<i>Betula nigra</i> <i>Acer saccharum</i> <i>Pinus strobus</i>	<i>Pinus strobus</i> <i>Betula nigra</i>	O	None	Saplings	L	Neither	RLF, W/FE, OF	S
VA-KM283	Stream	25	<i>Liriodendron tulipifera</i> <i>Betula alleghaniensis</i> <i>Betula nigra</i>	<i>Juglans nigra</i> <i>Betula alleghaniensis</i> <i>Betula nigra</i>	<i>Robinia pseudoacacia</i> <i>Liriodendron tulipifera</i> <i>Nyssa sylvatica</i>	C	H	Shrubs	L	Snags	ML, W/FE, OF, S/R, EW	D
VA-KM284	Spring	0	<i>Liriodendron tulipifera</i> <i>Betula nigra</i> <i>Quercus coccinea</i>	<i>Liriodendron tulipifera</i> <i>Quercus coccinea</i> <i>Carya glabra</i>	<i>Lindera benzoin</i> <i>Betula nigra</i> <i>Carya glabra</i>	C	H	Shrubs	L	Large Trees & Snags	MU	D
VA-KM285	Stream	0	<i>Liriodendron tulipifera</i> <i>Cercis canadensis</i> <i>Quercus rubra</i>	<i>Liriodendron tulipifera</i> <i>Cercis canadensis</i> <i>Quercus rubra</i>	<i>Cercis canadensis</i> <i>Acer saccharum</i> <i>Quercus rubra</i>	C	L	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Snags	YU, W/FE, S/R	M
VA-KM286	Stream	228	<i>Liriodendron tulipifera</i> <i>Fagus grandifolia</i> <i>Fraxinus pennsylvanica</i>	<i>Juniperus virginiana</i> <i>Quercus alba</i>	<i>Juglans nigra</i> <i>Acer rubrum</i>	M	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees	MU, YU, W/FE	D

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM287	Spring	0	<i>Juglans nigra</i> <i>Liriodendron tulipifera</i> <i>Quercus velutina</i>	<i>Betula lenta</i> <i>Robinia pseudoacacia</i> <i>Acer rubrum</i>	<i>Hamamelis virginiana</i> <i>Lindera benzoin</i> <i>Acer rubrum</i>	C	M	Saplings	H	Snags	YU, YL	M
VA-KM288	Stream	0	<i>Liriodendron tulipifera</i> <i>Ailanthus altissima</i> <i>Quercus rubra</i>	<i>Fraxinus americana</i> <i>Liriodendron tulipifera</i> <i>Platanus occidentalis</i>	<i>Lindera benzoin</i> <i>Liriodendron tulipifera</i> <i>Ailanthus altissima</i>	C	H	Shrubs	M	Large Trees	YL, S/R	D
VA-KM301	Stream	0	<i>Liriodendron tulipifera</i> <i>Quercus alba</i> <i>Quercus sp.</i>	<i>Platanus occidentalis</i> <i>Carya tomentosa</i>	<i>Liriodendron tulipifera</i>	M	M	Lower Branches of Canopy Trees, Saplings	H	Large Trees & Snags	MU, S/R	S
VA-KM302	Stream	0	<i>Ailanthus altissima</i> <i>Liriodendron tulipifera</i> <i>Acer rubrum</i>	Unknown <i>Liriodendron tulipifera</i> <i>Ailanthus altissima</i>	<i>Lindera benzoin</i> <i>Ailanthus altissima</i> Unknown	M	H	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees	YU, W/FE, OF, S/R	D
VA-KM303	Stream	5	<i>Platanus occidentalis</i> <i>Juglans nigra</i>	<i>Acer negundo</i> <i>Ailanthus altissima</i>	<i>Acer negundo</i> <i>Lindera benzoin</i>	O	M	Lower Branches of Canopy Trees, Shrubs	L	Snags	YL, OF, S/R	M
VA-KM304	Stream	20	<i>Juglans nigra</i> <i>Liriodendron tulipifera</i> <i>Platanus occidentalis</i>	<i>Juniperus virginiana</i> <i>Liriodendron tulipifera</i> <i>Acer rubrum</i>	<i>Acer negundo</i> <i>Liriodendron tulipifera</i> <i>Carya sp.</i>	M	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees & Snags	MU, YL, AG	D
VA-KM305	Stream	0	<i>Juglans nigra</i> <i>Quercus alba</i> <i>Carya sp.</i>	<i>Quercus alba</i> <i>Liriodendron tulipifera</i> <i>Juglans nigra</i>	<i>Acer negundo</i> <i>Lindera benzoin</i> <i>Carpinus caroliniana</i>	C	H	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees & Snags	MU, AG, S/R	M

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM306	Stream	0	<i>Acer negundo</i> <i>Platanus occidentalis</i> <i>Juglans nigra</i>	<i>Acer negundo</i> <i>Platanus occidentalis</i> <i>Juglans nigra</i>	<i>Platanus occidentalis</i> <i>Ailanthus altissima</i> <i>Acer negundo</i>	O	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Neither	YL, AG, S/R	D
VA-KM307	Stream	0	<i>Acer rubrum</i> <i>Fraxinus americana</i> <i>Fagus grandifolia</i>	<i>Acer negundo</i> <i>Acer rubrum</i> <i>Liriodendron tulipifera</i>	<i>Carpinus caroliniana</i> <i>Acer negundo</i>	M	L	Lower Branches of Canopy Trees, Saplings, Shrubs	H	Large Trees & Snags	YL, AG, S/R	M
VA-KM308	Stream	175	<i>Fagus grandifolia</i> <i>Quercus</i> sp. <i>Liriodendron tulipifera</i>	<i>Pinus virginiana</i> <i>Liriodendron tulipifera</i> <i>Fagus grandifolia</i>	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i> <i>Asimina triloba</i>	C	H	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YU, W/FE, AG	S
VA-KM309	Stream	0	<i>Fagus grandifolia</i> <i>Pinus strobus</i> <i>Liriodendron tulipifera</i>	<i>Acer rubrum</i> <i>Juniperus virginiana</i> <i>Liriodendron tulipifera</i>	<i>Acer rubrum</i> <i>Liriodendron tulipifera</i>	C	H	Saplings	M	Snags	YU, W/FE, S/R	M
VA-KM310	Stream	100	<i>Juglans nigra</i> <i>Acer negundo</i> <i>Fraxinus americana</i>	<i>Cercis canadensis</i> <i>Prunus serotina</i> <i>Fraxinus americana</i>	<i>Juniperus virginiana</i> <i>Acer negundo</i>	O	H	Shrubs	M	Large Trees	YU, W/FE, OF, AG, S/R	D
VA-KM311	NA	1	<i>Liriodendron tulipifera</i>	<i>Acer negundo</i>	<i>Acer negundo</i> <i>Platanus occidentalis</i> <i>Asimina triloba</i>	M	M	Saplings	L	Neither	S/R	D
VA-KM312	Stream	0	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i> <i>Pinus strobus</i>	<i>Liriodendron tulipifera</i> <i>Acer negundo</i> <i>Pinus strobus</i>	<i>Acer negundo</i> <i>Cornus florida</i> <i>Fagus grandifolia</i>	M	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees & Snags	YU	M
VA-KM313	Stream	0	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i>	<i>Liriodendron tulipifera</i> <i>Fagus grandifolia</i>	<i>Asimina triloba</i> <i>Carpinus caroliniana</i> <i>Hamamelis virginiana</i>	M	M	Shrubs	L	Large Trees & Snags	YL, S/R	D

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM314	Stream	258	<i>Quercus alba</i> <i>Pinus sylvestris</i> <i>Liriodendron tulipifera</i>	<i>Carya tomentosa</i> <i>Acer rubrum</i> <i>Liriodendron tulipifera</i>	<i>Liriodendron tulipifera</i> <i>Nyssa sylvatica</i> <i>Fagus grandifolia</i>	C	M	Lower Branches of Canopy Trees, Saplings	L	Large Trees & Snags	YU	M
VA-KM315	Stream	0	<i>Liriodendron tulipifera</i> <i>Quercus</i> sp. <i>Acer rubrum</i>	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i> <i>Nyssa sylvatica</i>	<i>Juniperus virginiana</i> <i>Nyssa sylvatica</i> <i>Acer rubrum</i>	O	None	NA	L	Large Trees	YL, W/FE, AG, S/R	D
VA-KM316	Stream	412	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i> <i>Pinus virginiana</i>	<i>Acer rubrum</i> <i>Liriodendron tulipifera</i> <i>Quercus</i> sp.	<i>Cornus florida</i> <i>Liriodendron tulipifera</i> <i>Acer rubrum</i>	M	L	Saplings	L	Large Trees	YU	S
VA-KM317	Stream	0	<i>Quercus alba</i> <i>Liriodendron tulipifera</i> <i>Fagus grandifolia</i>	<i>Acer rubrum</i> <i>Ailanthus altissima</i> <i>Quercus rubra</i>	<i>Carpinus caroliniana</i> <i>Acer rubrum</i> <i>Asimina triloba</i>	C	M	Lower Branches of Canopy Trees, Saplings, Shrubs	H	Large Trees & Snags	MU, S/R	M
VA-KM318	Stream	93	<i>Quercus alba</i> <i>Liriodendron tulipifera</i> <i>Platanus occidentalis</i>	<i>Acer rubrum</i> <i>Juglans nigra</i>	<i>Carpinus caroliniana</i>	M	L	Lower Branches of Canopy Trees, Saplings	M	Snags	AG, S/R	M
VA-KM319	NA	0	<i>Quercus alba</i> <i>Quercus rubra</i> <i>Liriodendron tulipifera</i>	<i>Acer rubrum</i> <i>Quercus</i> sp. <i>Pinus strobus</i>	<i>Juniperus virginiana</i> <i>Acer rubrum</i> <i>Cornus florida</i>	M	M	Saplings	H	Large Trees & Snags	YU, RLF, W/FE, AG	M
VA-KM320	NA	0	<i>Liriodendron tulipifera</i> <i>Quercus alba</i>	<i>Liriodendron tulipifera</i> <i>Robinia pseudoacacia</i> <i>Quercus alba</i>	<i>Liriodendron tulipifera</i> <i>Quercus</i> sp. <i>Robinia pseudoacacia</i>	O	M	Lower Branches of Canopy Trees, Saplings	None	Neither	W/FE, AG	S
VA-KM321	Pond	800	<i>Quercus alba</i> <i>Quercus rubra</i>	<i>Robinia pseudoacacia</i>	<i>Juniperus virginiana</i>	O	None	Shrubs	L	Large Trees	W/FE, AG	D

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM322	Pond	300	<i>Quercus alba</i> <i>Quercus rubra</i> <i>Acer rubrum</i>	<i>Liriodendron tulipifera</i> <i>Nyssa sylvatica</i> <i>Carya glabra</i>	<i>Quercus velutina</i> <i>Cornus florida</i> <i>Quercus montana</i>	M	M	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YU, W/FE, AG	M
VA-KM323	Pond	100	<i>Liriodendron tulipifera</i> <i>Quercus alba</i> <i>Quercus montana</i>	<i>Acer rubrum</i> <i>Robinia pseudoacacia</i> <i>Fagus grandifolia</i>	<i>Acer rubrum</i> <i>Robinia pseudoacacia</i> <i>Quercus rubra</i>	C	M	Lower Branches of Canopy Trees, Saplings	L	Snags	YU, W/FE, AG	M
VA-KM324	NA	0	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i> <i>Quercus alba</i>	<i>Nyssa sylvatica</i> <i>Ailanthus altissima</i>	<i>Liriodendron tulipifera</i> <i>Magnolia acuminata</i> <i>Quercus alba</i>	O	M	Lower Branches of Canopy Trees, Saplings	M	Large Trees	YU, W/FE	D
VA-KM325	Stream	0	<i>Liriodendron tulipifera</i> <i>Platanus occidentalis</i> <i>Juglans nigra</i>	<i>Fraxinus americana</i> <i>Juglans nigra</i> <i>Liriodendron tulipifera</i>	<i>Carpinus caroliniana</i> <i>Cercis canadensis</i> <i>Acer rubrum</i>	O	L	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YL, W/FE, AG, S/R	D
VA-KM326	Pond	0	<i>Liriodendron tulipifera</i> <i>Juglans nigra</i> <i>Fraxinus americana</i>	<i>Acer rubrum</i> <i>Robinia pseudoacacia</i> <i>Quercus alba</i>	<i>Acer rubrum</i> <i>Pinus virginiana</i> <i>Liriodendron tulipifera</i>	M	M	Saplings	L	Large Trees & Snags	YU, L/P	S
VA-KM327	Stream	0	<i>Platanus occidentalis</i> <i>Acer rubrum</i> <i>Liriodendron tulipifera</i>	<i>Juglans nigra</i> <i>Salix nigra</i>	<i>Juglans nigra</i> <i>Salix nigra</i> <i>Lindera benzoin</i>	M	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees	YL, AG, S/R	D
VA-KM328	Stream	0	<i>Ailanthus altissima</i> <i>Liriodendron tulipifera</i> <i>Acer rubrum</i>	<i>Quercus rubra</i> <i>Robinia pseudoacacia</i> <i>Fagus grandifolia</i>	<i>Lindera benzoin</i> <i>Cercis canadensis</i> <i>Carpinus caroliniana</i>	M	M	Saplings	M	Large Trees	YL, RLF, S/R	M
VA-KM329	Stream	350	<i>Ailanthus altissima</i> <i>Juglans nigra</i>	<i>Liriodendron tulipifera</i> <i>Acer negundo</i> <i>Acer rubrum</i>	<i>Juniperus virginiana</i> <i>Ailanthus altissima</i> <i>Acer negundo</i>	O	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Snags	YL, W/FE	D

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM330	Stream	500	<i>Liriodendron tulipifera</i> <i>Ailanthus altissima</i> <i>Acer rubrum</i>	<i>Acer rubrum</i> <i>Liriodendron tulipifera</i> <i>Platanus occidentalis</i>	<i>Platanus occidentalis</i> <i>Acer rubrum</i> <i>Ailanthus altissima</i>	M	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Snags	YL	D
VA-KM331	Stream	200	<i>Juglans nigra</i> <i>Ailanthus altissima</i>	<i>Juglans nigra</i> <i>Liriodendron tulipifera</i> <i>Robinia pseudoacacia</i>	<i>Juniperus virginiana</i> <i>Pinus sylvestris</i> <i>Robinia pseudoacacia</i>	M	H	Shrubs	H	Large Trees & Snags	YU, RLF, W/FE, OF	D
VA-KM332	Pond	458	None	<i>Pinus virginiana</i> <i>Quercus velutina</i> <i>Liriodendron tulipifera</i>	<i>Robinia pseudoacacia</i> <i>Acer rubrum</i> <i>Quercus velutina</i>	C	M	Saplings	None	Neither	YU, RLF, PP	S
VA-KM333	Stream	2	<i>Pinus rigida</i> <i>Liriodendron tulipifera</i> <i>Robinia pseudoacacia</i>	<i>Quercus alba</i> <i>Acer rubrum</i> <i>Quercus velutina</i>	<i>Acer rubrum</i> <i>Nyssa sylvatica</i> <i>Robinia pseudoacacia</i>	C	H	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Neither	YU, RLF, PP	M
VA-KM335	Stream	200	<i>Fagus grandifolia</i> <i>Liriodendron tulipifera</i> <i>Quercus alba</i>	<i>Acer rubrum</i> <i>Liriodendron tulipifera</i> <i>Nyssa sylvatica</i>	<i>Cornus florida</i> <i>Oxydendrum arboreum</i> <i>Ostrya virginiana</i>	C	M	Lower Branches of Canopy Trees, Saplings	L	Snags	YL, W/FE	M
VA-KM336	NA	0	<i>Quercus alba</i> <i>Liriodendron tulipifera</i>	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i> <i>Prunus serotina</i>	<i>Liriodendron tulipifera</i> <i>Juniperus virginiana</i> <i>Prunus serotina</i>	C	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Neither	YU	M
VA-KM337	Stream	0	<i>Liriodendron tulipifera</i> <i>Pinus strobus</i> <i>Platanus occidentalis</i>	<i>Liriodendron tulipifera</i> <i>Pinus strobus</i>	<i>Liriodendron tulipifera</i> <i>Pinus strobus</i> <i>Platanus occidentalis</i>	M	M	Lower Branches of Canopy Trees, Saplings	M	Large Trees	YU, PP, S/R	S
VA-KM338	Stream	0	<i>Fagus grandifolia</i> <i>Liriodendron tulipifera</i>	<i>Carpinus caroliniana</i> <i>Carya glabra</i> <i>Liriodendron tulipifera</i>	<i>Hamamelis virginiana</i> <i>Acer rubrum</i> <i>Platanus occidentalis</i>	C	M	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YU, YL, AG, S/R	D

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM339	Pond	580	<i>Pinus</i> sp. <i>Quercus alba</i> <i>Quercus coccinea</i>	<i>Acer rubrum</i> <i>Pinus</i> sp. <i>Liriodendron tulipifera</i>	<i>Oxydendrum arboreum</i> <i>Acer rubrum</i> <i>Liriodendron tulipifera</i>	C	H	Saplings	L	Large Trees & Snags	MU, PP	S
VA-KM340	Stream	365	<i>Platanus occidentalis</i> <i>Quercus alba</i> <i>Acer rubrum</i>	<i>Acer rubrum</i> <i>Cornus florida</i> <i>Celtis occidentalis</i>	<i>Cornus florida</i> <i>Celtis occidentalis</i>	M	M	Lower Branches of Canopy Trees, Saplings	L	Large Trees & Snags	ML, W/FE	M
VA-KM341	Stream	0	<i>Quercus alba</i> <i>Liriodendron tulipifera</i> <i>Platanus occidentalis</i>	<i>Acer rubrum</i> <i>Fagus grandifolia</i> <i>Quercus palustris</i>	<i>Cornus florida</i> <i>Cercis canadensis</i> <i>Lindera benzoin</i>	C	M	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees & Snags	ML, W/FE, AG, S/R	S
VA-KM342	Pond	0	<i>Quercus alba</i> <i>Liriodendron tulipifera</i> <i>Pinus virginiana</i>	<i>Oxydendrum arboreum</i> <i>Liriodendron tulipifera</i> <i>Fagus grandifolia</i>	<i>Oxydendrum arboreum</i> <i>Fagus grandifolia</i> <i>Quercus montana</i>	M	H	Saplings	L	Large Trees	MU, W/FE, L/P	S
VA-KM343	Stream	100	<i>Quercus alba</i> <i>Quercus rubra</i> <i>Liriodendron tulipifera</i>	<i>Pinus virginiana</i> <i>Carya glabra</i> <i>Juniperus virginiana</i>	<i>Carya</i> sp. <i>Pinus virginiana</i> <i>Quercus</i> sp.	C	M	Lower Branches of Canopy Trees, Saplings	M	Snags	MU, AG, S/R	M
VA-KM344	Pond	380	<i>Pinus</i> sp. <i>Quercus rubra</i> <i>Quercus alba</i>	<i>Pinus</i> sp. <i>Prunus serotina</i> <i>Carya</i> sp.	<i>Cornus florida</i> <i>Pinus</i> sp. <i>Acer rubrum</i>	M	H	Saplings	L	Neither	YU, PP	S
VA-KM345	Pond	402	<i>Quercus</i> sp. <i>Quercus alba</i> <i>Pinus</i> sp.	<i>Acer rubrum</i> <i>Pinus virginiana</i>	<i>Carya tomentosa</i> <i>Nyssa sylvatica</i> <i>Pinus virginiana</i>	C	H	Saplings	L	Large Trees	YU, RLF, PP	S
VA-KM346	Stream	15	<i>Liriodendron tulipifera</i> <i>Pinus</i> sp. <i>Platanus occidentalis</i>	<i>Pinus</i> sp. <i>Liriodendron tulipifera</i> <i>Platanus occidentalis</i>	<i>Liriodendron tulipifera</i> <i>Juglans nigra</i> <i>Pinus virginiana</i>	O	H	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YL, RLF, PP, W/FE, AG, S/R	M

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM347	Stream	400	<i>Liriodendron tulipifera</i> <i>Pinus</i> sp. <i>Pinus virginiana</i>	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i> <i>Betula lenta</i>	<i>Acer rubrum</i> <i>Fagus grandifolia</i> <i>Liriodendron tulipifera</i>	M	M	Saplings	L	Large Trees	MU	S
VA-KM348	Stream	635	<i>Pinus virginiana</i>	<i>Pinus virginiana</i> <i>Quercus palustris</i> <i>Liriodendron tulipifera</i>	<i>Cornus florida</i> <i>Acer rubrum</i> <i>Pinus virginiana</i>	C	H	Lower Branches of Canopy Trees, Saplings	M	Snags	YU, RLF, PP, W/FE	S
VA-KM349	Stream	168	<i>Pinus resinosa</i> <i>Quercus rubra</i> <i>Quercus montana</i>	<i>Pinus virginiana</i> <i>Nyssa sylvatica</i> <i>Acer rubrum</i>	<i>Acer rubrum</i> <i>Prunus serotina</i> <i>Oxydendrum arboreum</i>	C	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Neither	YU, RLF, PP, W/FE	M
VA-KM350	Stream	0	<i>Quercus rubra</i> <i>Fraxinus pennsylvanica</i> <i>Platanus occidentalis</i>	<i>Betula nigra</i> <i>Fraxinus pennsylvanica</i> <i>Acer negundo</i>	<i>Juglans nigra</i> <i>Ailanthus altissima</i> <i>Acer negundo</i>	O	L	Lower Branches of Canopy Trees, Saplings	L	Large Trees	YL, AG	S
VA-KM351	Stream	0	<i>Platanus occidentalis</i> <i>Quercus rubra</i> <i>Liriodendron tulipifera</i>	<i>Ulmus rubra</i> <i>Acer rubrum</i> <i>Pinus resinosa</i>	<i>Asimina triloba</i> <i>Lindera benzoin</i> <i>Carpinus caroliniana</i>	M	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees & Snags	YL, AG, S/R	M
VA-KM352	Stream	0	<i>Quercus alba</i> <i>Fagus grandifolia</i> <i>Pinus virginiana</i>	<i>Ulmus americana</i> <i>Acer rubrum</i> <i>Nyssa sylvatica</i>	<i>Carpinus caroliniana</i> <i>Lindera benzoin</i> <i>Juniperus virginiana</i>	C	L	Saplings	M	Large Trees & Snags	MU, PP, S/R	D
VA-KM353	Stream	20	<i>Quercus alba</i> <i>Quercus velutina</i> <i>Liriodendron tulipifera</i>	<i>Quercus rubra</i> <i>Carya cordiformis</i> <i>Carya glabra</i>	<i>Nyssa sylvatica</i> <i>Oxydendrum arboreum</i> <i>Cornus florida</i>	C	L	Saplings	H	Large Trees	MU, S/R	S
VA-KM354	Pond	200	<i>Liriodendron tulipifera</i> <i>Juglans nigra</i> <i>Prunus serotina</i>	<i>Acer rubrum</i> <i>Pinus resinosa</i> <i>Quercus velutina</i>	<i>Carpinus caroliniana</i> <i>Quercus alba</i> <i>Acer rubrum</i>	M	M	Saplings	M	Large Trees & Snags	YL	M

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM355	Pond	0	<i>Liriodendron tulipifera</i> <i>Quercus alba</i> <i>Acer rubrum</i>	<i>Carya glabra</i> <i>Nyssa sylvatica</i> <i>Platanus occidentalis</i>	<i>Juniperus virginiana</i> <i>Nyssa sylvatica</i>	O	L	Saplings	L	Large Trees & Snags	YL, RLF, W/FE, AG, EW	D
VA-KM358	Stream	0	<i>Platanus occidentalis</i> <i>Betula alleghaniensis</i> <i>Acer rubrum</i>	<i>Platanus occidentalis</i> <i>Betula alleghaniensis</i> <i>Carpinus caroliniana</i>	<i>Platanus occidentalis</i> <i>Carpinus caroliniana</i> <i>Betula alleghaniensis</i>	M	H	Lower Branches of Canopy Trees, Saplings, Shrubs	NA	NA	YL, W/FE, S/R	D
VA-KM359	Stream	0	<i>Platanus occidentalis</i> <i>Acer saccharum</i> <i>Prunus serotina</i>	<i>Platanus occidentalis</i> <i>Liriodendron tulipifera</i> <i>Acer negundo</i>	<i>Platanus occidentalis</i> <i>Acer saccharum</i> <i>Lindera benzoin</i>	M	H	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees & Snags	YL, S/R	D
VA-KM360	Pond	380	<i>Pinus</i> sp. <i>Quercus</i> sp. <i>Liriodendron tulipifera</i>	<i>Liriodendron tulipifera</i> <i>Quercus</i> sp. <i>Acer rubrum</i>	<i>Liriodendron tulipifera</i> <i>Quercus</i> sp. <i>Pinus</i> sp.	M	M	Saplings	L	Neither	YU, W/FE, OF	D
VA-KM361	Pond	390	<i>Liriodendron tulipifera</i> <i>Quercus alba</i> <i>Juglans nigra</i>	<i>Liriodendron tulipifera</i> <i>Juglans nigra</i> <i>Juniperus virginiana</i>	<i>Carpinus caroliniana</i> <i>Liriodendron tulipifera</i> <i>Juniperus virginiana</i>	M	H	Lower Branches of Canopy Trees, Saplings	L	Large Trees	MU, OF	M
VA-KM362	Stream	0	<i>Liriodendron tulipifera</i> <i>Juglans nigra</i> <i>Acer rubrum</i>	<i>Liriodendron tulipifera</i> <i>Juglans nigra</i> <i>Acer rubrum</i>	<i>Liriodendron tulipifera</i> <i>Carpinus caroliniana</i> <i>Acer rubrum</i>	M	M	Lower Branches of Canopy Trees, Saplings	L	Large Trees	YU, W/FE, OF, S/R	D
VA-KM363	Stream	45	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i>	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i> <i>Robinia pseudoacacia</i>	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i> <i>Robinia pseudoacacia</i>	C	H	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees & Snags	ML, PP	D

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM364	NA	0	<i>Quercus alba</i> <i>Quercus rubra</i> <i>Acer rubrum</i>	<i>Acer rubrum</i> <i>Quercus alba</i> <i>Quercus sp.</i>	<i>Acer rubrum</i> <i>Carya cordiformis</i> <i>Quercus alba</i>	M	M	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	MU, PP	M
VA-KM365	Pond	400	<i>Quercus alba</i> <i>Quercus muehlenbergii</i>	<i>Quercus alba</i> <i>Carya tomentosa</i> <i>Acer rubrum</i>	<i>Liriodendron tulipifera</i> <i>Quercus alba</i> <i>Nyssa sylvatica</i>	M	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Snags	YU, W/FE	M
VA-KM366	Stream	100	<i>Pinus virginiana</i> <i>Quercus alba</i>	<i>Pinus virginiana</i> <i>Gleditsia triacanthos</i>	<i>Pinus virginiana</i> <i>Quercus alba</i> <i>Acer rubrum</i>	M	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Neither	YU, RLF, OF, S/R	D
VA-KM368	Stream	100	<i>Quercus palustris</i> <i>Liriodendron tulipifera</i> Unknown	<i>Acer rubrum</i> Unknown	Unknown <i>Platanus occidentalis</i> <i>Carpinus caroliniana</i>	O	L	Lower Branches of Canopy Trees	L	Large Trees	W/FE, AG, S/R	S
VA-KM369	Stream	0	Unknown <i>Platanus occidentalis</i> <i>Acer rubrum</i>	<i>Carpinus caroliniana</i>	<i>Carpinus caroliniana</i> <i>Cornus florida</i>	C	M	NA	M	Large Trees & Snags	ML, AG, S/R	M
VA-KM370	Pond	6	<i>Pinus resinosa</i> <i>Pinus virginiana</i> <i>Acer rubrum</i>	<i>Quercus velutina</i> <i>Carya glabra</i> <i>Liriodendron tulipifera</i>	<i>Quercus velutina</i> <i>Carya glabra</i> <i>Juniperus virginiana</i>	O	H	Lower Branches of Canopy Trees, Saplings	L	Neither	PP, OF	M
VA-KM371	Pond	560	<i>Pinus sp.</i>	None	<i>Acer rubrum</i> Unknown <i>Nyssa sylvatica</i>	M	M	Saplings	L	Neither	PP	S
VA-KM449	Stream	20	<i>Acer saccharum</i> <i>Juglans nigra</i> <i>Platanus occidentalis</i>	<i>Acer rubrum</i> <i>Pinus strobus</i> <i>Ulmus americana</i>	<i>Acer saccharum</i> <i>Platanus occidentalis</i> <i>Fraxinus americana</i>	O	L	Saplings	M	Large Trees & Snags	YU, PP, W/FE, AG, S/R	D

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM452	Lake	2344	<i>Quercus coccinea</i> <i>Quercus montana</i>	<i>Acer rubrum</i> <i>Carya glabra</i> <i>Quercus montana</i>	<i>Acer rubrum</i> <i>Ostrya virginiana</i> <i>Magnolia acuminata</i>	C	H	Saplings	M	Large Trees & Snags	YU	S
VA-KM453	Stream	500	<i>Quercus montana</i> <i>Quercus coccinea</i> <i>Quercus velutina</i>	<i>Quercus coccinea</i> <i>Carya glabra</i> <i>Quercus montana</i>	<i>Ostrya virginiana</i> <i>Carya glabra</i> <i>Nyssa sylvatica</i>	M	M	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YU	S
VA-KM454	Vernal Pool	0	<i>Quercus rubra</i> <i>Prunus serotina</i> <i>Betula lenta</i>	<i>Acer saccharum</i> <i>Betula lenta</i> <i>Quercus alba</i>	<i>Hamamelis virginiana</i> <i>Nyssa sylvatica</i> <i>Ostrya virginiana</i>	C	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees & Snags	YU	M
VA-KM455	Stream	750	None	<i>Robinia pseudoacacia</i> <i>Ailanthus altissima</i> <i>Acer rubrum</i>	<i>Robinia pseudoacacia</i> <i>Acer sp.</i> <i>Betula lenta</i>	O	H	Saplings	L	Snags	YU, RLF	S
VA-KM457	Stream	0	<i>Platanus occidentalis</i> <i>Liriodendron tulipifera</i> <i>Acer rubrum</i>	<i>Juglans nigra</i> <i>Acer rubrum</i> <i>Ailanthus altissima</i>	<i>Lindera benzoin</i> <i>Carpinus caroliniana</i> <i>Acer negundo</i>	M	M	Saplings	M	Large Trees	YL, S/R	D
VA-KM458	Stream	0	<i>Liriodendron tulipifera</i>	<i>Liriodendron tulipifera</i> <i>Betula lenta</i>	<i>Carpinus caroliniana</i> <i>Lindera benzoin</i> <i>Liriodendron tulipifera</i>	C	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees & Snags	YU, RLF, S/R	M
VA-KM460	Stream	145	<i>Liriodendron tulipifera</i> <i>Pinus strobus</i> <i>Quercus alba</i>	<i>Acer rubrum</i> <i>Liriodendron tulipifera</i> <i>Juglans nigra</i>	<i>Acer rubrum</i> <i>Liriodendron tulipifera</i> <i>Asimina triloba</i>	M	H	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YU	S

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM461	Pond	640	<i>Acer rubrum</i> <i>Quercus montana</i> <i>Quercus rubra</i>	<i>Liriodendron tulipifera</i> <i>Pinus strobus</i>	<i>Hamamelis virginiana</i> <i>Cornus florida</i>	M	M	NA	M	Large Trees & Snags	MU	NA
VA-KM462	NA	950	<i>Acer rubrum</i> <i>Pinus strobus</i> <i>Liriodendron tulipifera</i>	<i>Oxydendrum arboreum</i> <i>Pinus virginiana</i> <i>Quercus alba</i>	<i>Pinus strobus</i> <i>Fagus grandifolia</i> <i>Acer rubrum</i>	C	H	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YU	M
VA-KM463	Pond	206	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i> <i>Fagus grandifolia</i>	<i>Quercus coccinea</i> <i>Platanus occidentalis</i> <i>Betula lenta</i>	<i>Pinus strobus</i> <i>Acer rubrum</i> <i>Liriodendron tulipifera</i>	M	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees & Snags	YU, VP	S
VA-KM464	Stream	165	<i>Liriodendron tulipifera</i> <i>Pinus strobus</i> <i>Carya sp.</i>	<i>Acer rubrum</i> <i>Carya sp.</i> <i>Quercus sp.</i>	<i>Acer rubrum</i> <i>Carya sp.</i> <i>Lonicera spp.</i>	C	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees & Snags	YU	M
VA-KM465	Stream	0	<i>Liriodendron tulipifera</i> <i>Juglans nigra</i> <i>Quercus sp.</i>	<i>Liriodendron tulipifera</i> <i>Juglans nigra</i> <i>Fagus grandifolia</i>	<i>Cornus florida</i> <i>Liriodendron tulipifera</i> <i>Acer rubrum</i>	M	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees	YL, AG, S/R	NA
VA-KM466	Pond	850	<i>Liriodendron tulipifera</i> <i>Quercus rubra</i> <i>Pinus sp.</i>	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i>	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i> <i>Robinia pseudoacacia</i>	C	H	Saplings	L	Snags	YU	S
VA-KM466-1	Pond	0	<i>Liriodendron tulipifera</i> <i>Quercus montana</i> <i>Acer rubrum</i>	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i>	<i>Hamamelis virginiana</i> <i>Betula lenta</i> <i>Carpinus caroliniana</i>	C	H	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Snags	YU, ML, W/FE, L/P	M
VA-KM467	Spring	200	<i>Quercus montana</i> <i>Quercus coccinea</i> <i>Nyssa sylvatica</i>	<i>Liriodendron tulipifera</i> <i>Oxydendrum arboreum</i> <i>Pinus strobus</i>	<i>Pinus strobus</i> <i>Oxydendrum arboreum</i> <i>Liriodendron tulipifera</i>	C	M	Lower Branches of Canopy Trees, Saplings	M	Large Trees	MU, S/R	M

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM468	Stream	500	<i>Quercus coccinea</i> <i>Pinus strobus</i> <i>Nyssa sylvatica</i>	<i>Nyssa sylvatica</i> <i>Liriodendron tulipifera</i> <i>Robinia pseudoacacia</i>	<i>Nyssa sylvatica</i> <i>Liriodendron tulipifera</i> <i>Pinus virginiana</i>	C	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees	MU, W/FE	M
VA-KM469	Pond	0	<i>Acer rubrum</i> <i>Juniperus virginiana</i> <i>Pinus virginiana</i>	None	<i>Pinus</i> sp. <i>Acer rubrum</i>	O	H	Saplings	L	Snags	RLF, PP, AG	D
VA-KM471	Stream	1	<i>Quercus alba</i> <i>Acer rubrum</i> <i>Platanus occidentalis</i>	<i>Quercus alba</i> <i>Acer rubrum</i> <i>Sassafras albidum</i>	<i>Carpinus caroliniana</i> <i>Sassafras albidum</i> <i>Liriodendron tulipifera</i>	M	M	Saplings	L	Large Trees & Snags	YL, PP, S/R	M
VA-KM482	Stream	1000	<i>Quercus rubra</i> <i>Quercus alba</i>	<i>Acer rubrum</i> <i>Quercus rubra</i> <i>Magnolia acuminata</i>	<i>Ostrya virginiana</i> <i>Tsuga canadensis</i> <i>Hamamelis virginiana</i>	M	H	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees & Snags	YU	M
VA-KM484	Stream	0	<i>Pinus strobus</i> <i>Betula lenta</i>	<i>Pinus strobus</i> <i>Acer rubrum</i> <i>Prunus serotina</i>	<i>Acer rubrum</i> <i>Prunus serotina</i> <i>Lindera benzoin</i>	M	M	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees & Snags	YU, YL, W/FE, S/R	M
VA-KM485	Stream	0	<i>Betula alleghaniensis</i> <i>Liriodendron tulipifera</i> <i>Pinus strobus</i>	<i>Pinus strobus</i> <i>Nyssa sylvatica</i> <i>Betula alleghaniensis</i>	<i>Acer rubrum</i> <i>Pinus strobus</i>	C	H	Shrubs	L	Large Trees	ML, W/FE, S/R	M
VA-KM486	Stream	20	<i>Platanus occidentalis</i> <i>Liriodendron tulipifera</i> <i>Cercis canadensis</i>	<i>Liriodendron tulipifera</i> <i>Pinus virginiana</i>	<i>Liriodendron tulipifera</i> <i>Ostrya virginiana</i>	C	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees	YL, W/FE, OF, AG, S/R	M

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM487	Stream	500	<i>Quercus alba</i> <i>Liriodendron tulipifera</i> <i>Quercus montana</i>	<i>Quercus coccinea</i> <i>Quercus velutina</i> <i>Pinus virginiana</i>	<i>Nyssa sylvatica</i> <i>Sassafras albidum</i> <i>Acer rubrum</i>	M	M	Lower Branches of Canopy Trees, Saplings	L	Large Trees & Snags	YU	M
VA-KM489	NA	0	<i>Liriodendron tulipifera</i> <i>Pinus virginiana</i> <i>Acer saccharum</i>	<i>Quercus alba</i> <i>Acer saccharum</i>	<i>Carya glabra</i> <i>Acer saccharum</i>	M	L	Lower Branches of Canopy Trees, Saplings	L	Large Trees & Snags	YU, W/FE, AG	S
VA-KM562	Stream	500	<i>Quercus montana</i> <i>Quercus alba</i> <i>Quercus velutina</i>	<i>Liriodendron tulipifera</i> <i>Magnolia acuminata</i> <i>Acer rubrum</i>	<i>Magnolia acuminata</i> <i>Oxydendrum arboreum</i> <i>Acer rubrum</i>	C	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees & Snags	YU	M
VA-KM563	Spring	0	<i>Quercus montana</i> <i>Liriodendron tulipifera</i> <i>Quercus rubra</i>	<i>Acer rubrum</i> <i>Quercus sp.</i> <i>Liriodendron tulipifera</i>	<i>Acer rubrum</i> <i>Castanea dentata</i> <i>Hamamelis virginiana</i>	M	M	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees & Snags	MU, YU, S/R	M
VA-KM564	Stream	2000	<i>Quercus montana</i> <i>Quercus rubra</i> <i>Pinus strobus</i>	<i>Magnolia acuminata</i> <i>Quercus montana</i> <i>Quercus rubra</i>	<i>Cornus florida</i> <i>Nyssa sylvatica</i> <i>Pinus strobus</i>	M	M	Lower Branches of Canopy Trees, Saplings	L	Snags	YU	D
VA-KM565	Stream	400	<i>Quercus coccinea</i> <i>Quercus velutina</i> <i>Liriodendron tulipifera</i>	<i>Quercus alba</i> <i>Quercus montana</i> <i>Quercus coccinea</i>	<i>Acer rubrum</i> <i>Quercus montana</i> <i>Sassafras albidum</i>	O	M	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees & Snags	YU	NA
VA-KM566	Stream	500	<i>Liriodendron tulipifera</i> <i>Quercus montana</i> <i>Quercus alba</i>	<i>Liriodendron tulipifera</i> <i>Quercus velutina</i> <i>Pinus strobus</i>	<i>Magnolia acuminata</i> <i>Pinus strobus</i> <i>Sassafras albidum</i>	M	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees & Snags	YU, S/R	M

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM567	Stream	2400	<i>Liriodendron tulipifera</i> <i>Pinus strobus</i>	<i>Betula lenta</i> <i>Acer rubrum</i> <i>Liriodendron tulipifera</i>	<i>Quercus montana</i> <i>Betula lenta</i> <i>Sassafras albidum</i>	M	M	Saplings	L	Snags	YU	S
VA-KM568	Stream	150	<i>Quercus alba</i> <i>Quercus montana</i> <i>Liriodendron tulipifera</i>	<i>Betula lenta</i> <i>Acer rubrum</i> <i>Quercus montana</i>	<i>Oxydendrum arboreum</i> <i>Cornus florida</i> <i>Nyssa sylvatica</i>	C	M	Saplings	M	Large Trees & Snags	YU	S
VA-KM569	Stream	105.8399963	<i>Platanus occidentalis</i> <i>Tilia americana</i> <i>Liriodendron tulipifera</i>	<i>Betula lenta</i> <i>Acer rubrum</i> <i>Aesculus glabra</i>	<i>Acer rubrum</i> <i>Cercis canadensis</i> <i>Aesculus glabra</i>	C	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees & Snags	YU, ML, S/R	M
VA-KM570	Pond	1000	<i>Acer saccharum</i> <i>Liriodendron tulipifera</i> <i>Fraxinus americana</i>	<i>Acer saccharum</i> <i>Quercus montana</i> <i>Liriodendron tulipifera</i>	<i>Acer saccharum</i> <i>Carpinus caroliniana</i> <i>Aesculus glabra</i>	C	L	Saplings	M	Large Trees & Snags	YU	M
VA-KM571	Stream	1500	<i>Quercus alba</i> <i>Quercus rubra</i> <i>Carya tomentosa</i>	<i>Quercus rubra</i> <i>Liriodendron tulipifera</i> <i>Acer rubrum</i>	<i>Cercis canadensis</i> <i>Cornus florida</i> <i>Quercus alba</i>	C	H	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees & Snags	YU	M
VA-KM572	Stream	2000	<i>Quercus montana</i> <i>Quercus velutina</i> <i>Quercus alba</i>	<i>Carya tomentosa</i> <i>Quercus velutina</i> <i>Oxydendrum arboreum</i>	<i>Cornus florida</i> <i>Cercis canadensis</i> <i>Quercus alba</i>	M	H	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees & Snags	YU	M
VA-KM573	Stream	15	<i>Quercus alba</i> <i>Quercus montana</i> <i>Quercus velutina</i>	<i>Liriodendron tulipifera</i> <i>Carya tomentosa</i> <i>Quercus alba</i>	<i>Sassafras albidum</i> <i>Nyssa sylvatica</i> <i>Cornus florida</i>	M	M	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees & Snags	YL, S/R	M
VA-KM574	NA	0	<i>Quercus alba</i> <i>Acer rubrum</i>	<i>Quercus alba</i> <i>Pinus virginiana</i> <i>Quercus rubra</i>	<i>Acer rubrum</i> <i>Ostrya virginiana</i> <i>Fraxinus americana</i>	C	M	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Snags	YL, S/R	M

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM577	Stream	0	<i>Platanus occidentalis</i> <i>Quercus alba</i> <i>Liriodendron tulipifera</i>	<i>Juglans nigra</i> <i>Pinus virginiana</i> <i>Nyssa sylvatica</i>	<i>Acer rubrum</i> <i>Carpinus caroliniana</i> <i>Nyssa sylvatica</i>	C	L	Saplings	M	Large Trees & Snags	YL, AG, S/R	M
VA-KM578	Stream	3500	<i>Quercus montana</i> <i>Quercus rubra</i> <i>Quercus alba</i>	<i>Acer saccharum</i> <i>Oxydendrum arboreum</i> <i>Quercus montana</i>	<i>Hamamelis virginiana</i> <i>Acer sp.</i> <i>Cornus florida</i>	M	M	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	MU, YU	M
VA-KM579	Stream	1000	<i>Quercus rubra</i> <i>Quercus velutina</i> <i>Quercus alba</i>	<i>Acer rubrum</i> <i>Diospyros virginiana</i> <i>Quercus montana</i>	<i>Hamamelis virginiana</i> <i>Oxydendrum arboreum</i> <i>Acer rubrum</i>	C	L	Lower Branches of Canopy Trees, Saplings	M	Snags	MU	M
WV-KM218	Stream	0	<i>Acer saccharum</i> <i>Prunus serotina</i> <i>Juglans nigra</i>	<i>Acer saccharum</i> <i>Aesculus glabra</i> <i>Quercus rubra</i>	<i>Aesculus glabra</i> <i>Fraxinus americana</i> <i>Quercus rubra</i>	C	H	Saplings	L	Neither	YU, YL, RLF, W/FE, AG, S/R	S
WV-KM219	Wetland	75	<i>Quercus alba</i> <i>Fraxinus americana</i> <i>Juglans nigra</i>	<i>Acer saccharum</i> <i>Fraxinus americana</i> <i>Quercus rubra</i>	<i>Quercus rubra</i> <i>Cercis canadensis</i> <i>Robinia pseudoacacia</i>	C	M	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YU, W/FE	D
WV-KM220	Pond	75	<i>Acer rubrum</i> <i>Liriodendron tulipifera</i> <i>Juglans nigra</i>	<i>Quercus rubra</i>	<i>Sassafras albidum</i> <i>Carpinus caroliniana</i>	O	H	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees	OF, AG	D
WV-KM221	Pond	0	<i>Quercus rubra</i> <i>Magnolia acuminata</i> <i>Aesculus flava</i>	<i>Juglans nigra</i> <i>Liriodendron tulipifera</i> <i>Quercus sp.</i>	<i>Carpinus caroliniana</i> <i>Juniperus virginiana</i>	O	H	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees	OF, AG, L/P	D
WV-KM222	Stream	30	<i>Quercus alba</i> <i>Quercus rubra</i> <i>Acer rubrum</i>	None	<i>Carya tomentosa</i>	M	L	Lower Branches of Canopy Trees, Shrubs	M	Large Trees	MU	S

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
WV-KM223	Stream	100	<i>Liriodendron tulipifera</i> <i>Juglans nigra</i> <i>Fraxinus americana</i>	<i>Carya ovata</i> <i>Juglans nigra</i> <i>Robinia pseudoacacia</i>	<i>Crataegus</i> spp. <i>Carya ovata</i> <i>Juglans nigra</i>	M	M	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YU, W/FE, AG	M
WV-KM224	Stream	0	<i>Platanus occidentalis</i> <i>Acer saccharum</i> <i>Liriodendron tulipifera</i>	<i>Juglans nigra</i> <i>Carya ovata</i> <i>Quercus alba</i>	<i>Carpinus caroliniana</i> <i>Acer saccharum</i> <i>Tilia americana</i>	C	M	Lower Branches of Canopy Trees, Saplings	L	Large Trees & Snags	YL, W/FE, S/R	M
WV-KM225	Stream	10	<i>Quercus alba</i> <i>Quercus rubra</i> <i>Pinus</i> sp.	<i>Acer rubrum</i> <i>Carya ovata</i> <i>Quercus alba</i>	<i>Carpinus caroliniana</i> <i>Hamamelis virginiana</i> <i>Carya ovata</i>	C	L	Saplings	L	Large Trees	MU, S/R	S
WV-KM226	Stream	400	<i>Quercus alba</i> <i>Quercus rubra</i> <i>Robinia pseudoacacia</i>	<i>Robinia pseudoacacia</i> <i>Sassafras albidum</i> <i>Quercus alba</i>	<i>Carya glabra</i> <i>Robinia pseudoacacia</i>	M	L	Lower Branches of Canopy Trees, Saplings	L	Large Trees	MU, W/FE	M
WV-KM227	Pond	500	<i>Quercus coccinea</i> <i>Acer rubrum</i> <i>Acer saccharum</i>	<i>Juglans nigra</i> <i>Acer rubrum</i> <i>Liriodendron tulipifera</i>	<i>Juglans nigra</i> <i>Liriodendron tulipifera</i> <i>Acer saccharum</i>	C	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees	ML, W/FE	S
WV-KM228	Stream	500	<i>Quercus montana</i> <i>Quercus velutina</i> <i>Acer rubrum</i>	<i>Acer rubrum</i> <i>Liriodendron tulipifera</i> <i>Quercus montana</i>	<i>Sassafras albidum</i> <i>Oxydendrum arboreum</i> <i>Betula lenta</i>	M	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees & Snags	YU	M
WV-KM587	Stream	3500	<i>Quercus montana</i> <i>Quercus rubra</i> <i>Quercus alba</i>	<i>Acer saccharum</i> <i>Oxydendrum arboreum</i> <i>Quercus montana</i>	<i>Hamamelis virginiana</i> <i>Acer</i> sp. <i>Cornus florida</i>	M	M	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	MU, YU	M

Water Source Type: NA = Not Available

Tree Species: box elder (*Acer negundo*), black maple (*Acer nigrum*), red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), maple species (*Acer* sp.), yellow buckeye (*Aesculus flava*), Ohio buckeye (*Aesculus glabra*), Tree-of-Heaven (*Ailanthus altissima*), pawpaw (*Asimina triloba*), yellow birch (*Betula alleghaniensis*), black birch (*Betula lenta*), river birch (*Betula nigra*), musclewood (*Carpinus caroliniana*), bitternut hickory (*Carya cordiformis*), pignut hickory (*Carya glabra*), shellbark hickory (*Carya laciniosa*), shagbark hickory (*Carya ovata*), hickory species (*Carya* sp.), mockernut hickory (*Carya tomentosa*), American chestnut (*Castanea dentata*), common hackberry (*Celtis occidentalis*), eastern redbud (*Cercis canadensis*), flowering dogwood (*Cornus florida*), hawthorn species (*Crataegus* spp.), common persimmon (*Diospyros virginiana*), autumn olive (*Elaeagnus umbellata*), American

beech (*Fagus grandifolia*), white ash (*Fraxinus americana*), green ash (*Fraxinus pennsylvanica*), ash species (*Fraxinus* sp.), honey locust (*Gleditsia triacanthos*), American witch-hazel (*Hamamelis virginiana*), black walnut (*Juglans nigra*), eastern red cedar (*Juniperus virginiana*), spicebush (*Lindera benzoin*), tuliptree (*Liriodendron tulipifera*), bush honeysuckle species (*Lonicera* spp.), cucumbertree (*Magnolia acuminata*), blackgum (*Nyssa sylvatica*), American hophornbeam (*Ostrya virginiana*), sourwood (*Oxydendrum arboreum*), red pine (*Pinus resinosa*), pitch pine (*Pinus rigida*), pine species (*Pinus* sp.), eastern white pine (*Pinus strobus*), scotch pine (*Pinus sylvestris*), Virginia pine (*Pinus virginiana*), American sycamore (*Platanus occidentalis*), black cherry (*Prunus serotina*), white oak (*Quercus alba*), scarlet oak (*Quercus coccinea*), chestnut oak (*Quercus montana*), chinkapin oak (*Quercus muehlenbergii*), pin oak (*Quercus palustris*), northern red oak (*Quercus rubra*), oak species (*Quercus* sp.), black oak (*Quercus velutina*), black locust (*Robinia pseudoacacia*), black willow (*Salix nigra*), sassafras (*Sassafras albidum*), American basswood (*Tilia americana*), American elm (*Ulmus americana*), slippery elm (*Ulmus rubra*)

Canopy/Subcanopy Closure: C = Closed; M = Moderate; O = Open

Clutter Rating: H = High; M = Moderate; L = Low; NA = Not Available

Roost Potential Rating: H = High; M = Moderate; L = Low

Habitat Type: MU = Mature Upland Forest; ML = Mature Lowland Forest; YU = Young Upland Forest; YL = Young Lowland Forest; RLF = Recently Logged Forest; PP = Pine Plantation; W/FE = Woodlot/Forest Edge; OF = Old Field; AG = Crop/Pasture; S/R = Stream/River; EW = Emergent Wetland; FS = Forested Swamp; VP = Vernal Pool; L/P = Lake/Pond

Herb (Herbaceous) Cover: S = Sparse; M = Moderate; D = Dense; NA = Not Available

Table 6. Bat capture by sex, reproductive condition, and age along alternate routes of MVP's Mountain Valley Pipeline Project in and within 5 miles of Virginia.

Species	Adult Male	Adult Female ¹					Juvenile			Total
		P	L	PL	NR	UNK	Male	Female	Escape ²	
Big brown bat	3	8	1	3			1	1	2	19
Silver-haired bat	3									3
Eastern red bat	17	17	5	1		1*	1	3	3	48
Eastern small-footed bat				1						1
Evening bat	1		3							4
Tri-colored bat	1									1
Total	25	25	9	5	0	1	2	4	5	76

¹ P = Pregnant; L = Lactating; PL = Post lactating; NR = Non-reproductive; UNK = Unknown

²Escape = escaped from net or hand before processing was complete

*Escaped before determining reproductive condition

Table 7. Mist net habitat characteristics along alternate routes along MVP's Mountain Valley Pipeline Project in and within 5 miles of Virginia.

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM415	Stream	0	<i>Platanus occidentalis</i> <i>Juglans nigra</i> <i>Liriodendron tulipifera</i>	<i>Robinia pseudoacacia</i> <i>Pinus virginiana</i> <i>Cornus florida</i>	<i>Platanus occidentalis</i> <i>Cercis canadensis</i> <i>Cornus florida</i>	O	L	Lower Branches of Canopy Trees, Saplings	L	Large Trees & Snags	YL, W/FE, AG, S/R	D
VA-KM419	Stream	2000	<i>Quercus alba</i> <i>Carya glabra</i> <i>Quercus velutina</i>	<i>Quercus montana</i> <i>Rhus typhina</i> <i>Cercis canadensis</i>	<i>Acer rubrum</i> <i>Robinia pseudoacacia</i> <i>Rhus typhina</i>	C	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees & Snags	YU, W/FE	D
VA-KM472	Stream	10	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i> <i>Fagus grandifolia</i>	<i>Juniperus virginiana</i> <i>Juglans nigra</i> <i>Salix nigra</i>	None	C	L	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Snags	W/FE, AG, S/R	D
VA-KM473	NA	0	<i>Pinus</i> sp. <i>Quercus alba</i> <i>Quercus</i> sp.	None	<i>Quercus</i> sp. <i>Acer rubrum</i> Unknown	O	H	Saplings	None	Neither	RLF, W/FE, OF	D
VA-KM474	Stream	500	<i>Liriodendron tulipifera</i>	<i>Juglans nigra</i> <i>Acer rubrum</i> <i>Liriodendron tulipifera</i>	<i>Ailanthus altissima</i> <i>Acer rubrum</i> <i>Liriodendron tulipifera</i>	M	H	Lower Branches of Canopy Trees, Saplings	L	Snags	YL, W/FE, AG	M
WV-KM378	Stream	30	<i>Carya ovata</i> <i>Acer rubrum</i> <i>Juglans nigra</i>	<i>Prunus serotina</i> <i>Carpinus caroliniana</i> <i>Crataegus</i> spp.	<i>Carya ovata</i> <i>Juglans nigra</i>	M	M	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees	W/FE	M
WV-KM379	Stream	0	<i>Platanus occidentalis</i> <i>Acer rubrum</i>	<i>Juglans nigra</i>	<i>Elaeagnus umbellata</i>	O	NA	Shrubs	M	Large Trees & Snags	OF	D

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
WV-KM380	Stream	0	<i>Tsuga canadensis</i> <i>Acer saccharum</i>	<i>Liriodendron tulipifera</i>	<i>Hamamelis virginiana</i> <i>Carpinus caroliniana</i>	C	M	Saplings	L	Snags	YU	M
WV-KM381	Stream	35	<i>Quercus alba</i> <i>Acer saccharum</i>	<i>Carya tomentosa</i> <i>Pinus strobus</i>	<i>Hamamelis virginiana</i>	C	M	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	YU	S
WV-KM382	Stream	1	<i>Acer saccharum</i> <i>Pinus strobus</i> <i>Quercus alba</i>	<i>Tsuga canadensis</i> <i>Quercus rubra</i> <i>Quercus montana</i>	<i>Acer saccharum</i> <i>Pinus strobus</i>	C	L	Lower Branches of Canopy Trees, Saplings	M	Large Trees	MU	S
WV-KM383	Stream	150	<i>Quercus alba</i> <i>Acer saccharum</i> <i>Liriodendron tulipifera</i>	<i>Quercus alba</i> <i>Acer saccharum</i> <i>Nyssa sylvatica</i>	<i>Nyssa sylvatica</i> <i>Quercus alba</i> <i>Acer saccharum</i>	C	L	Shrubs	L	Large Trees	MU, RLF, W/FE, OF	S
WV-KM386	Stream	10	<i>Liriodendron tulipifera</i> <i>Carya glabra</i> <i>Quercus rubra</i>	<i>Liriodendron tulipifera</i> <i>Nyssa sylvatica</i> <i>Fagus grandifolia</i>	<i>Lindera benzoin</i> <i>Liriodendron tulipifera</i> <i>Carya glabra</i>	C	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees	YU, W/FE, S/R, EW	M
WV-KM387	Pond	50	<i>Quercus alba</i> <i>Carya tomentosa</i> <i>Quercus montana</i>	<i>Acer rubrum</i> <i>Quercus alba</i> <i>Carya glabra</i>	<i>Acer</i> sp. <i>Acer rubrum</i> <i>Liriodendron tulipifera</i>	C	L	Saplings	L	Large Trees & Snags	MU	S
VA-KM243	Stream	1200	<i>Quercus montana</i> <i>Quercus alba</i> <i>Quercus coccinea</i>	<i>Acer rubrum</i> <i>Quercus montana</i> <i>Quercus coccinea</i>	<i>Nyssa sylvatica</i> <i>Acer rubrum</i> <i>Sassafras albidum</i>	C	L	Saplings	M	Large Trees & Snags	YU, RLF	S
VA-KM267	Stream	5	<i>Juglans nigra</i> <i>Fraxinus</i> sp. <i>Quercus velutina</i>	<i>Quercus alba</i> <i>Acer saccharum</i> <i>Pinus virginiana</i>	<i>Liriodendron tulipifera</i> <i>Platanus occidentalis</i> <i>Juglans nigra</i>	O	L	Lower Branches of Canopy Trees, Saplings	L	Large Trees	YU, W/FE, S/R	S

Site	Water Source		Tree species			Canopy Closure	Clutter		Roost Tree		Habitat Type	Herb. Cover
	Type	Distance (m)	Dominant Canopy	Subdominant Canopy	Subcanopy		Rating	Composition	Potential	Composition		
VA-KM268	Lake	512	<i>Quercus alba</i> <i>Acer saccharum</i> <i>Liriodendron tulipifera</i>	<i>Juglans nigra</i> <i>Ulmus rubra</i> <i>Liriodendron tulipifera</i>	<i>Cercis canadensis</i> <i>Acer saccharum</i> <i>Hamamelis virginiana</i>	C	M	Lower Branches of Canopy Trees, Saplings, Shrubs	M	Large Trees & Snags	YU, YL, S/R	M
VA-KM269	Lake	500	<i>Pinus strobus</i> <i>Carya glabra</i>	<i>Quercus montana</i> <i>Quercus alba</i> <i>Quercus velutina</i>	<i>Acer saccharum</i> <i>Cornus florida</i> <i>Nyssa sylvatica</i>	M	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Snags	YU	S
VA-KM292	Stream	600	<i>Liriodendron tulipifera</i> <i>Acer rubrum</i> <i>Quercus rubra</i>	<i>Liriodendron tulipifera</i> <i>Sassafras albidum</i> <i>Acer rubrum</i>	<i>Lindera benzoin</i> <i>Hamamelis virginiana</i> <i>Liriodendron tulipifera</i>	M	M	Lower Branches of Canopy Trees, Saplings, Shrubs	L	Large Trees & Snags	YU	M
VA-KM299	Stream	30	<i>Liriodendron tulipifera</i> <i>Quercus velutina</i> <i>Platanus occidentalis</i>	<i>Acer rubrum</i> <i>Pinus virginiana</i> <i>Liriodendron tulipifera</i>	<i>Robinia pseudoacacia</i> <i>Betula lenta</i> <i>Sassafras albidum</i>	M	M	Saplings	L	Large Trees & Snags	YU	S
VA-KM300	Stream	5	<i>Liriodendron tulipifera</i> <i>Juniperus virginiana</i>	<i>Ailanthus altissima</i> <i>Acer rubrum</i> <i>Prunus serotina</i>	<i>Lindera benzoin</i> <i>Ailanthus altissima</i> <i>Acer negundo</i>	O	NA	NA	L	Snags	YU, AG	D
VA-KM356	Pond	180	<i>Pinus virginiana</i> <i>Acer rubrum</i>	<i>Acer rubrum</i> <i>Pinus virginiana</i> <i>Quercus alba</i>	<i>Acer rubrum</i> <i>Carya sp.</i> <i>Quercus alba</i>	C	H	Saplings	L	Neither	YU	S
VA-KM357	NA	0	<i>Pinus virginiana</i> <i>Quercus alba</i> <i>Liriodendron tulipifera</i>	<i>Carya glabra</i> <i>Acer saccharum</i>	<i>Nyssa sylvatica</i> <i>Oxydendrum arboreum</i> <i>Quercus alba</i>	M	M	Lower Branches of Canopy Trees, Saplings	L	Snags	YU, W/FE, AG	S
VA-KM490	Pond	129	<i>Quercus rubra</i> <i>Quercus montana</i> <i>Pinus sp.</i>	<i>Quercus alba</i> <i>Quercus montana</i> <i>Quercus rubra</i>	<i>Carya tomentosa</i> <i>Carya ovata</i> <i>Fagus grandifolia</i>	M	H	Lower Branches of Canopy Trees, Saplings	M	Large Trees & Snags	MU, PP, W/FE, AG	S

Water Source Type: NA = Not Available

Tree Species: box elder (*Acer negundo*), black maple (*Acer nigrum*), red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), maple species (*Acer* sp.), Tree-of-Heaven (*Ailanthus altissima*), yellow birch (*Betula alleghaniensis*), black birch (*Betula lenta*), musclewood (*Carpinus caroliniana*), pignut hickory (*Carya glabra*), shagbark hickory (*Carya ovata*), mockernut hickory (*Carya tomentosa*), eastern redbud (*Cercis canadensis*), flowering dogwood (*Cornus florida*), hawthorn species (*Crataegus* spp.), autumn olive (*Elaeagnus umbellata*), American beech (*Fagus grandifolia*), white ash (*Fraxinus americana*), American witchhazel (*Hamamelis virginiana*), black walnut (*Juglans nigra*), eastern red cedar (*Juniperus virginiana*), spicebush (*Lindera benzoin*), tuliptree (*Liriodendron tulipifera*), cucumbertree (*Magnolia acuminata*), blackgum (*Nyssa sylvatica*), American hophornbeam (*Ostrya virginiana*), sourwood (*Oxydendrum arboreum*), pine species (*Pinus* sp.), eastern white pine (*Pinus strobus*), Virginia pine (*Pinus virginiana*), American sycamore (*Platanus occidentalis*), black cherry (*Prunus serotina*), white oak (*Quercus alba*), scarlet oak (*Quercus coccinea*), chestnut oak (*Quercus montana*), northern red oak (*Quercus rubra*), oak species (*Quercus* sp.), black oak (*Quercus velutina*), staghorn sumac (*Rhus typhina*), black locust (*Robinia pseudoacacia*), sassafras (*Sassafras albidum*), eastern hemlock (*Tsuga canadensis*), American elm (*Ulmus americana*), slippery elm (*Ulmus rubra*)

Canopy/Subcanopy Closure: C = Closed; M = Moderate; O = Open; NA = Not Available

Clutter Rating: H = High; M = Moderate; L = Low; NA = Not Available

Roost Potential Rating: H = High; M = Moderate; L = Low; NA = Not Available

Habitat Type: MU = Mature Upland Forest; ML = Mature Lowland Forest; YU = Young Upland Forest; YL = Young Lowland Forest; RLF = Recently Logged Forest; PP = Pine Plantation; W/FE = Woodlot/Forest Edge; OF = Old Field; AG = Crop/Pasture; S/R = Stream/River; EW = Emergent Wetland; FS = Forested Swamp; VP = Vernal Pool; L/P = Lake/Pond

Herb (Herbaceous) Cover: S = Sparse; M = Moderate; D = Dense

Table 8. Transmitter information for northern long-eared bats captured on MVP's Mountain Valley Pipeline Project in and within 5 miles of Virginia.

Bat Number	Date Captured	TimeSite Name	Sex ¹	Age ²	Reproductive Condition ³	Weight (g)	RFA (mm)	Belly ⁴	Transmitter Frequency
482	17 Jun 2015	00:32VA-KM573	F	AD	L	6.50	34	M	172.482

¹ F = Female

² AD = Adult

³ L = Lactating

⁴ M = Moderate

Table 9. Daily locations of northern long-eared bats in respective roosts along MVP's Mountain Valley Pipeline Project in and within 5 miles of Virginia.

Date (2015)	Bat Number
	482
17 Jun	Captured*
18 Jun	*
19 Jun	*
20 Jun	482-1
21 Jun	482-1

*Access to roost tree restricted by lack of land-owner permission

Table 10. Roost trees on MVP's Mountain Valley Pipeline Project in and within 5 miles of Virginia.

Roost	Tree Species	Tree Status	DBH (cm)	Exfoliating Bark (%)	Canopy Closure (%)	Roost Height (m)	
482-1	<i>Pinus resinosa</i>	Red pine	Dead	18	0	90	5

Table 11. Emergence counts for northern long-eared bat roosts on MVP's Mountain Valley Pipeline Project in and within 5 miles of Virginia.

Date (2015)	Roost
	482-1
20 Jun	5*
21 Jun	5*

*Tagged bat present in roost

APPENDIX E
MIST NET HABITAT AND BAT CAPTURE DATA SHEETS



Net Site Habitat Data

Project # 593.12 Date 05/29/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kiara Johnson
KM Site ID VA-KM229 Net ID VA-KM229A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 100.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus resinosa*
- 2 *Quercus montana*
- 3 *Acer rubrum*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Acer rubrum*
- 3 *Pinus resinosa*

Estimated DBH Range - Large 80 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Sassafras albidum*
- 2 *Robinia pseudoacacia*
- 3 *Oxydendrum arboreum*

Habitat Description Trail through upland forest

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/29/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Net placed across trail/road through forested corridor in Jefferson National Forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM229A			9	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/30/2015	A	<i>Lasiurus borealis</i>	10		Male	Ascended	13.00	40.0	Full	No damage	
5/30/2015	A	<i>Eptesicus fuscus</i>	120	Adult	Male	Ascended	16.50	45.0	Medium	No damage	
5/31/2015	A	<i>Lasiurus borealis</i>	2353	Adult	Male	Ascended	12.00	38.5	Full	No damage	
5/31/2015	A	<i>Eptesicus fuscus</i>	2300	Adult	Male	Descended	17.00	45.0	Full	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/29/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Net placed along road/trail through forested corridor in Jefferson National Forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM229B			6	9	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/30/2015	B	<i>Lasiurus borealis</i>	2143	Adult	Male	Ascended	11.00	38.0	Medium	No damage	
5/31/2015	B	<i>Lasiurus borealis</i>	25	Adult	Male	Ascended	12.50	39.5	Full	No damage	
5/31/2015	B	<i>Lasiurus borealis</i>	2322	Adult	Female	Pregnant	20.60	40.0	Full	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/29/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Net placed across road/trail through forested corridor in Jefferson National Forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM229C	37° 23' 32.051" N	80° 41' 27.370" W	9	9	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/31/2015	C	<i>Lasiurus borealis</i>	2215	Adult	Male	Ascended	13.00	39.0	Full	No damage	
5/31/2015	C	<i>Eptesicus fuscus</i>	2230	Adult	Male	Descended	16.00	45.0	Full	No damage	

Total # of Bats Captured 2



Net Site Habitat Data

Project # 593.12 Date 07/11/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Ben Ward
KM Site ID VA-KM230 Net ID VA-KM230A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 400.0 Type of water source Stream
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus rubra*
- 2 *Quercus montana*
- 3 *Quercus alba*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Quercus montana*
- 3 *Oxydendrum arboreum*

Estimated DBH Range - Large 85 Small 40 Estimated DBH Range Large 39 Small 17

Relative abundance dominant vs subdominant 1:3

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Decent snags adjacent to corridors, good chunk of forest

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Acer sp.*
- 2 *Acer rubrum*
- 3 *Hamamelis virginiana*

Habitat Description Upland oak, maple deciduous forest with forest service access rd. Forest older than approx. 30 years

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Montgomery County

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/11/2015

State Virginia

County Giles

Other Field Staff Ben Ward

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Stacked over trail through woods on hill top

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM230A			12	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/11/2015

State Virginia

County Giles

Other Field Staff Ben Ward

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Stacked over USFS road in upland mixed deciduous forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM230B			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/11/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Stacked over USFS road in upland oak and maple forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM230C			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 07/24/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Ben Ward
KM Site ID VA-KM231 Net ID VA-KM231A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Spring
Water Source Name Unk

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.10 Channel Width (m) 1.00 Stream width (m) 0.00
Substratum - Bedrock Yes Boulder Yes Cobble No Gravel Yes Sand Yes Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- Liriodendron tulipifera*
- Robinia pseudoacacia*
-

Subdominant Canopy Species (<40cm/16"dbh)

- Liriodendron tulipifera*
- Acer negundo*
- Nyssa sylvatica*

Estimated DBH Range - Large 70 Small 40 Estimated DBH Range Large 39 Small 18

Relative abundance dominant vs subdominant 1:13

Estimated canopy closure Moderate

Roost Tree Potential Consists snags

Roosting Potential Moderate

Roosting Potential Explanation Decent trees with exfoliating bark

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, shrubs

Common Subcanopy Species

- Cercis canadensis*
- Lindera benzoin*
- Cornus florida*

Habitat Description Fragmented young lowland forest with access road

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature Lowland Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young Lowland Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Historically habitat would hold more bats as well diversity

Additional Comments Giles county



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/24/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Nets stacked over access road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM231A			9	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/24/2015	A	<i>Lasiurus cinereus</i>	45	Juvenile	Male	Ascended	20.00	51.0	Medium	No damage	
7/24/2015	A	<i>Eptesicus fuscus</i>	2200	Adult	Male	Descended	16.50	46.5	Full	No damage	
7/24/2015	A	<i>Eptesicus fuscus</i>	2148	Adult	Male	Ascended	17.00	45.0	Full	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/24/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Stacked over access rd which is adjacent to vernal creek

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM231B			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/24/2015	B	<i>Eptesicus fuscus</i>	2215	Adult	Female	Post-Lactating	22.50	46.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/24/2015

State Virginia

County Giles

Other Field Staff Ben Ward

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Stacked over access rd which is adjacent to vernal creek

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM231C			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 07/23/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM232 Net ID VA-KM232A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 600.0 Type of water source Stream
Water Source Name Stony Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus velutina*
- 2 *Quercus coccinea*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus velutina*
- 2 *Liriodendron tulipifera*
- 3 *Robinia pseudoacacia*

Estimated DBH Range - Large 80 Small 40 Estimated DBH Range Large 39 Small 20

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Moderate

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation Only scattered small snags near the net site

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Cornus florida*
- 2 *Sassafras albidum*
- 3 *Elaeagnus umbellata*

Habitat Description Young upland deciduous forest containing several gravel driveways and lodgings. Only large trees present are within manicured lawn

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other Residence							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/23/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement At entrance to where one gravel driveway splits into 3 wooded corridors

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM232A			6	6	2050	150

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/23/2015	A	<i>Eptesicus fuscus</i>	2205	Adult	Female	Post-Lactating	22.50	47.0	Full	No damage	
7/23/2015	A	<i>Eptesicus fuscus</i>	2140	Juvenile	Male	Ascended	16.20	48.0	Empty	No damage	
7/25/2015	A	<i>Myotis leibii</i>	5	Adult	Female	Post-Lactating	5.75	31.0	Full	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 07/23/2015

Permitted Biologist Valerie Clarkston

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Giles

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Doug Gilbert

WV State Permit# 2015.2

Net Placement Over forested gravel driveway

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM232B			9	6	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/23/2015	B	<i>Eptesicus fuscus</i>	2200	Adult	Female	Post-Lactating	21.50	46.0	Full	No damage	
7/23/2015	B	<i>Eptesicus fuscus</i>	2140	Adult	Male	Ascended	17.20	45.0	Full	No damage	
7/23/2015	B	<i>Eptesicus fuscus</i>	2135	Juvenile	Female	Non-Reproductive	17.30	48.0	Full	No damage	
7/23/2015	B	<i>Lasiurus borealis</i>	2325	Juvenile	Male	Ascended	8.40	39.0	Medium	No damage	
7/24/2015	B	<i>Lasiurus borealis</i>	2210	Juvenile	Female	Non-Reproductive	9.70	40.0	Full	No damage	
7/24/2015	B	<i>Eptesicus fuscus</i>	2125	Adult	Female	Post-Lactating	17.50	48.0	Full	No damage	
7/24/2015	B	<i>Eptesicus fuscus</i>	2125	Adult	Female	Post-Lactating	20.50	47.0	Full	No damage	
7/24/2015	B	<i>Eptesicus fuscus</i>	2250	Juvenile	Female	Non-Reproductive	15.60	49.0	Full	No damage	

Total # of Bats Captured 8



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 07/23/2015

Permitted Biologist Valerie Clarkston

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Giles

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Doug Gilbert

WV State Permit# 2015.2

Net Placement Over forested gravel driveway

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM232C			9	9	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/23/2015	C	<i>Eptesicus fuscus</i>	2150	Juvenile	Male	Ascended	15.10	46.0	Full	No damage	
7/23/2015	C	<i>Lasiurus borealis</i>	2150	Juvenile	Male	Ascended	8.80	37.0	Medium	No damage	
7/23/2015	C	<i>Lasiurus borealis</i>	2150	Adult	Female	Post-Lactating	14.70	39.0	Medium	No damage	
7/24/2015	C	<i>Eptesicus fuscus</i>	2130	Juvenile	Female	Non-Reproductive	15.30	49.0	Full	No damage	

Total # of Bats Captured 4



Net Site Habitat Data

Project # 593.12 Date 07/25/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM233 Net ID VA-KM233A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 500.0 Type of water source Pond
Water Source Name No name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Quercus montana*
- 3 *Quercus coccinea*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Liriodendron tulipifera*
- 3 *Carpa tomentosa*

Estimated DBH Range - Large 61 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:25

Estimated canopy closure Closed

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Large trees are not ideal in terms of bark or crevices; no visible snags

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Cornus florida*
- 2 *Sassafras albidum*
- 3 *Acer rubrum*

Habitat Description Young upland deciduous forest; immediate area contains main gravel road and numerous stemming driveways/trails

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/25/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Over forested gravel road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM233A			9	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/25/2015	A	<i>Eptesicus fuscus</i>	2200	Adult	Male	Ascended	17.00	45.0	Full	No damage	
7/25/2015	A	<i>Eptesicus fuscus</i>	2100	Adult	Female	Non-Reproductive	19.50	45.0	Empty	No damage	
7/25/2015	A	<i>Eptesicus fuscus</i>	2135	Adult	Female	Post-Lactating	18.40	49.0	Full	No damage	
7/25/2015	A	<i>Lasiurus borealis</i>	2135	Adult	Female	Non-Reproductive	12.90	38.0	Empty	No damage	
7/25/2015	A	<i>Eptesicus fuscus</i>	2100	Juvenile	Female	Non-Reproductive	16.70	46.0	Full	No damage	
7/25/2015	A	<i>Lasiurus borealis</i>	2155	Juvenile	Female	Non-Reproductive	11.30	41.0	Medium	No damage	
7/25/2015	A	<i>Eptesicus fuscus</i>	55	Juvenile	Male	Ascended	17.20	46.0	Full	No damage	
7/25/2015	A	<i>Eptesicus fuscus</i>	2145	Adult	Female	Post-Lactating	20.90	47.0	Full	No damage	
7/25/2015	A	<i>Eptesicus fuscus</i>	2100	Juvenile	Female	Non-Reproductive	14.50	46.0	Full	No damage	
7/25/2015	A	<i>Eptesicus fuscus</i>	2230	Adult	Female	Non-Reproductive	20.00	47.0	Full	No damage	
7/25/2015	A	<i>Eptesicus fuscus</i>	2200	Juvenile	Female	Non-Reproductive	17.80	47.0	Full	No damage	
7/25/2015	A	<i>Eptesicus fuscus</i>	2145	Adult	Female	Post-Lactating	18.40	46.0	Medium	No damage	
7/26/2015	A	<i>Eptesicus fuscus</i>	2340	Adult	Male	Ascended	16.50	47.0	Medium	No damage	
7/26/2015	A	<i>Eptesicus fuscus</i>	2125	Adult	Female	Non-Reproductive	19.20	46.0	Full	No damage	
7/26/2015	A	<i>Lasiurus borealis</i>	2110	Juvenile	Female	Non-Reproductive	9.50	40.0	Empty	No damage	
7/26/2015	A	<i>Eptesicus fuscus</i>	2125	Adult	Male	Ascended	16.00	46.0	Medium	No damage	
7/26/2015	A	<i>Eptesicus fuscus</i>	2110	Adult	Female	Post-Lactating	19.10	48.0	Full	No damage	
7/26/2015	A	<i>Lasiurus borealis</i>	2130	Adult	Female		9.40	0.0		No damage	Escaped before RFA was measured
7/26/2015	A	<i>Eptesicus fuscus</i>	2055	Juvenile	Female	Non-Reproductive	17.90	46.0	Full	No damage	
7/26/2015	A	<i>Eptesicus fuscus</i>	2205	Juvenile	Male	Ascended	14.90	45.0	Full	No damage	
7/26/2015	A	<i>Lasiurus borealis</i>	2255	Juvenile	Female	Non-Reproductive	11.20	42.0	Full	No damage	
7/26/2015	A	<i>Eptesicus fuscus</i>	2100	Adult	Female	Post-Lactating	17.50	47.0	Full	No damage	

Total # of Bats Captured 22



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/25/2015

State Virginia

County Giles

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement Placed at entrance to trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM233B			6	9	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/25/2015

State Virginia

County Giles

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement Along overgrown trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM233C			9	6	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 07/12/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM235 Net ID VA-KM235A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 10.0 Type of water source Pond
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

-
-
-

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Platanus occidentalis*
- 2 *Robinia pseudoacacia*
- 3

Estimated DBH Range - Large 0 Small 0 Estimated DBH Range Large 15 Small 10

Relative abundance dominant vs subdominant NA

Estimated canopy closure Open

Roost Tree Potential Consists neither

Roosting Potential Low

Roosting Potential Explanation No large trees or snags; trees present lack suitable bark

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Elaeagnus umbellata*
- 2 *Platanus occidentalis*
- 3 *Juniperus virginiana*

Habitat Description Mix of grassland/ROW vegetation and remnant lowland forest. Several roads and paths leading to limestone quarry

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	Yes	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature Lowland Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	No
Young Lowland Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other	Powerline ROW						

Roost Tree Decay Stage

Comments No dominant canopy species. Mostly overgrown ROW with few shrubs and young trees

Additional Comments Limestone quarry



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/12/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Edge net; stretches across proposed access road and to edge of pond

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM235A			18	9	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/12/2015	A	<i>Lasiurus borealis</i>	2205				0.00	0.0			Net Escape
7/12/2015	A	<i>Eptesicus fuscus</i>	2345	Juvenile	Male	Ascended	14.90	48.0	Full	No damage	
7/20/2015	A	<i>Lasiurus borealis</i>	2235	Juvenile	Male	Ascended	8.70	38.0	Full	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/12/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Edge net; from tree/scrub line and across access road to open field

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM235B			12	6	2050	150

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/21/2015	B	<i>Eptesicus fuscus</i>	5	Juvenile	Male	Ascended	16.90	45.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/12/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Edge net; from tree line across access road and into open field

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM235C			9	6	2050	150

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/20/2015	C	<i>Eptesicus fuscus</i>	2335	Juvenile	Male	Ascended	18.20	47.0	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 07/21/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Rodger Rodriguez
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.041
Other Field Staff Justin Bower
KM Site ID VA-KM236 Net ID VA-KM236A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Fraxinus sp.*
- 2 *Quercus alba*
- 3 *Pinus strobus*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Juniperus virginiana*
- 2 *Ulmus rubra*
- 3 *Robinia pseudoacacia*

Estimated DBH Range - Large 50 Small 40 Estimated DBH Range Large 39 Small 10

Relative abundance dominant vs subdominant 1:8

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Several large trees and some snags, no noticeable exfoliating bark

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Cercis canadensis*
- 2 *Cornus florida*
- 3 *Juniperus virginiana*

Habitat Description Upland forest next to transmission corridor

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 07/21/2015

Permitted Biologist Rodger Rodriguez

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # N/A

Company Name MVP

County Giles

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Justin Bower

WV State Permit# 2015.041

Net Placement Across clearing in forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM236A			12	9	2015	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/21/2015	A	<i>Lasiurus borealis</i>	2100	Juvenile	Female	Non-Reproductive	9.50	39.0	Empty	No damage	
7/21/2015	A	<i>Eptesicus fuscus</i>	2220	Adult	Male	Ascended	18.00	48.0	Medium	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/21/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across old road through forest under partial canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM236B			6	6	2020	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/22/2015	B	<i>Lasiurus borealis</i>	130	Adult	Male	Descended	12.00	40.0	Empty	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/21/2015

State Virginia

County Giles

Other Field Staff Justin Bower

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.041

Net Placement Across old road through forest under partial canopy

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM236C			6	6	2025	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 07/10/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Rodger Rodriguez
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.041
Other Field Staff Justin Bower
KM Site ID VA-KM237 Net ID VA-KM237A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Fraxinus sp.*
- 2 *Juglans nigra*
- 3 *Acer rubrum*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Juglans nigra*
- 2 *Fraxinus sp.*
- 3

Estimated DBH Range - Large 40 Small 30 Estimated DBH Range Large 29 Small 10

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Open

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation A few large trees but no noticeable exfoliating bark or snags

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Juglans nigra*
- 2 *Juniperus virginiana*
- 3 *Cercis canadensis*

Habitat Description Upland forest adjacent to hayfield

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/10/2015

State Virginia

County Giles

Other Field Staff Justin Bower

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.041

Net Placement Perpendicular to forest edge in hayfield

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM237A			6	6	2015	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/10/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Perpendicular to forest edge in hayfield

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM237B			9	9	2020	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/11/2015	B	<i>Eptesicus fuscus</i>	2145	Adult	Male	Ascended	17.00	50.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/10/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Perpendicular to forest edge in hayfield

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM237C			9	9	2025	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/11/2015	C	<i>Eptesicus fuscus</i>	2145	Adult	Female	Lactating	22.00	50.0	Medium	No damage	
7/11/2015	C	<i>Eptesicus fuscus</i>	2145	Adult	Male	Ascended	17.00	48.0	Medium	No damage	

Total # of Bats Captured 2



Net Site Habitat Data

Project # 593.12 Date 07/07/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Rodger Rodriguez
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.041
Other Field Staff Justin Bower
KM Site ID VA-KM238 Net ID VA-KM238A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Pond
Water Source Name None

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.50 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.25 Water Clarity Low

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus velutina*
- 2 *Carya ovata*
- 3 *Fraxinus sp.*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Carya ovata*
- 2 *Acer saccharum*
- 3 *Juniperus virginiana*

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 39 Small 10

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees

Roosting Potential High

Roosting Potential Explanation Lots of trees with exfoliating bark (shagbark hickory)

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Cercis canadensis*
- 2 *Robinia pseudoacacia*
- 3 *Quercus velutina*

Habitat Description Upland forest adjacent to pasture with small ponds

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	Yes	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/07/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Adjacent to small pond (4x4m)

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM238A			9	6	2015	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/08/2015	A	<i>Eptesicus fuscus</i>	2200	Adult	Female	Lactating	21.50	51.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/07/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Adjacent to forest opening (trail) and forest edge

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM238B			9	9	2020	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/07/2015	B	<i>Eptesicus fuscus</i>	2130	Adult	Male	Ascended	16.00	44.0	Empty	No damage	
7/08/2015	B	<i>Lasiurus borealis</i>	50	Adult	Female	Lactating	13.50	40.0	Empty	No damage	
7/08/2015	B	<i>Lasiurus borealis</i>	50	Adult	Male	Ascended	11.50	40.0	Empty	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/07/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Adjacent to small pond (3x6m) and forest edge

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM238C			6	9	2025	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/07/2015	C	<i>Lasiurus borealis</i>	2110	Adult	Female	Lactating	13.00	43.0	Empty	No damage	
7/08/2015	C	<i>Eptesicus fuscus</i>	2130	Adult	Male	Ascended	16.50	48.0	Medium	No damage	

Total # of Bats Captured 2



Net Site Habitat Data

Project # 593.12 Date 07/02/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kiara Johnson
KM Site ID VA-KM239 Net ID VA-KM239A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 500.0 Type of water source Pond
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus velutina*
- 3 *Quercus montana*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Quercus montana*
- 3 *Acer rubrum*

Estimated DBH Range - Large 0 Small 0 Estimated DBH Range Large 0 Small 0

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Low for MYSO; moderate for MYSE

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Nyssa sylvatica*
- 2 *Robinia pseudoacacia*
- 3 *Sassafras albidum*

Habitat Description Young upland deciduous forest

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/02/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Nets stacked over forested gravel road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM239A			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/03/2015	A	<i>Eptesicus fuscus</i>	2220	Adult	Male	Descended	18.90	46.0	Full	No damage	
7/03/2015	A	<i>Lasiurus borealis</i>	2110	Adult	Female	Lactating	13.90	38.0	Full	No damage	Old lady, teeth well worn
7/03/2015	A	<i>Eptesicus fuscus</i>	2130	Adult	Male	Ascended	15.30	45.0	Full	No damage	
7/03/2015	A	<i>Eptesicus fuscus</i>	2230	Adult	Male	Ascended	16.50	47.0	Full	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/02/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Nets stacked over forested road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM239B			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/03/2015	B	<i>Myotis leibii</i>	2215	Adult	Female	Lactating	6.00	31.0	Full	No damage	
7/03/2015	B	<i>Eptesicus fuscus</i>	2315	Adult	Female	Lactating	22.50	47.0	Full	No damage	
7/03/2015	B	<i>Eptesicus fuscus</i>	2125	Adult	Male	Ascended	17.00	47.0	Full	No damage	
7/04/2015	B	<i>Eptesicus fuscus</i>	2145	Adult	Female	Lactating	23.00	46.0	Full	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 07/02/2015

Permitted Biologist Chris Boggs

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Giles

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Kiara Johnson

WV State Permit# 2015.197

Net Placement Net stacked over gravel road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM239C			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/03/2015	C	<i>Eptesicus fuscus</i>	2205	Adult	Male	Descended	20.40	46.5	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 07/01/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Mackenzie Gallien
Federal Permit ID N/A
VA State Permit ID N/A
WV State Permit ID N/A
Other Field Staff Anthony Marinelli
KM Site ID VA-KM240 Net ID VA-KM240A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Fraxinus pennsylvanica*
- 3 *Carpa laciniosa*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Liriodendron tulipifera*
- 3 *Quercus rubra*

Estimated DBH Range - Large 35 Small 22 Estimated DBH Range Large 16 Small 8

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Moderate amount of PRT's present in multiple corridors

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Crataegus spp.*
- 2
- 3

Habitat Description Mature hardwood forest dominated by *A. saccharum* with dense midstory and saplings throughout; forested corridors running throughout; can get very cluttered in corridors in some parts

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments VA-KM240B may be closer than 30m to VA-KM240C. This is due to a perpendicular corridor that runs approximately 30m S of VA-KM240C where VA-KM240B is placed

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/01/2015

State Virginia

County Giles

Other Field Staff Anthony Marinelli, Mackenzie Gallien

Permitted Biologist Chance Osborne

Federal Permit # TE62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.89

Net Placement Forested Corridor

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM240A			6	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/01/2015

State Virginia

County Giles

Other Field Staff Anthony Marinelli, Mackenzie Gallien

Permitted Biologist Chance Osborne

Federal Permit # TE62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.89

Net Placement Forested Corridor

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM240B			6	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/01/2015

State Virginia

County Giles

Other Field Staff Anthony Marinelli, Mackenzie Gallien

Permitted Biologist Chance Osborne

Federal Permit # TE62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.89

Net Placement Forested Corridor

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM240C			6	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 07/01/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Michelle Gillev
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.212
Other Field Staff Ben Ward
KM Site ID VA-KM242 Net ID VA-KM242A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 30.0 Type of water source Stream
Water Source Name Doe creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Acer saccharum*
- 3 *Carva ovata*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Ulmus rubra*
- 3 *Carva ovata*

Estimated DBH Range - Large 80 Small 25 Estimated DBH Range Large 20 Small 10

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential High

Roosting Potential Explanation Many large snags and trees with exfoliating bark with good sun exposure; open flyways

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Cercis canadensis*
- 2 *Robinia pseudoacacia*
- 3 *Juniperus virginiana*

Habitat Description Habitat is disturbed along farm road and steep, surrounding slopes. Mature trees are however dispersed throughout, along with mosaic patches of more mature upland woods containing oak, maple, and hickory.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Giles county

Additional Comments Other dominant canopy species include *Quercus montana*



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/01/2015 Permitted Biologist Michelle Gilley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.212

Net Placement Over farm road through oak-hickory forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM242A			6	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/01/2015	A	<i>Lasiurus borealis</i>	100	Adult	Male	Ascended	11.00	38.0		No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/01/2015 Permitted Biologist Michelle Gilley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.212

Net Placement Farm road through upland hardwood forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM242B			9	7	2015	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/01/2015	B	<i>Eptesicus fuscus</i>	2230	Adult	Male	Descended	21.50	48.0		No damage	
7/02/2015	B	<i>Eptesicus fuscus</i>	2200	Adult	Male	Descended	17.00	44.0		No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/01/2015 Permitted Biologist Michelle Gilley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.212

Net Placement Farm road through upland hardwood forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM242C			6	6	2015	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/02/2015	C	<i>Eptesicus fuscus</i>	2230	Adult	Male	Descended	19.50	48.5		No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 08/04/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM243 Net ID VA-KM243A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 1,200.0 Type of water source Stream
Water Source Name Tom's Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus montana*
- 2 *Quercus alba*
- 3 *Quercus coccinea*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Quercus montana*
- 3 *Quercus coccinea*

Estimated DBH Range - Large 65 Small 40 Estimated DBH Range Large 39 Small 20

Relative abundance dominant vs subdominant 1:30

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation A lot of small snags spread throughout site with good exfoliating bark

Subcanopy Clutter Low

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Nyssa sylvatica*
- 2 *Acer rubrum*
- 3 *Sassafras albidum*

Habitat Description Young upland deciduous forest; very open understory

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 08/04/2015

State Virginia

County Montgomery

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement In open woods across small ATV/foot path

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM243A			9	6	2030	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 08/04/2015

State Virginia

County Montgomery

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement Across small foot path in open woods

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM243B			6	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/04/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Across intersection of footpaths in open forest; net placed by two potential roosts

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM243C			9	9	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/24/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Rodger Rodriguez
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.041
Other Field Staff Justin Bower
KM Site ID VA-KM246 Net ID VA-KM246A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 112.0 Type of water source Pond
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus velutina*
- 2 *Acer saccharum*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus sp.*
- 2 *Quercus velutina*
- 3

Estimated DBH Range - Large 50 Small 40 Estimated DBH Range Large 39 Small 10

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Many large trees with some that have exfoliating bark and a few snags

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Quercus velutina*
- 2 *Pinus strobus*
- 3 *Carya sp.*

Habitat Description Upland forest patch adjacent to pasture with a pond

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/24/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across clearing in forest under partial canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM246A			9	9	2015	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/24/2015	A	<i>Eptesicus fuscus</i>	2250	Adult	Female	Lactating	20.50	47.0	Full	No damage	
6/24/2015	A	<i>Eptesicus fuscus</i>	2230	Adult	Female	Lactating	21.50	48.0	Full	No damage	
6/24/2015	A	<i>Lasiurus borealis</i>	2355	Adult	Male	Ascended	12.50	39.0	Empty	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/24/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across old road through forest under partial canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM246B			9	9	2020	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/24/2015	B	<i>Eptesicus fuscus</i>	20	Adult	Female	Lactating	20.00	47.0	Full	No damage	
6/24/2015	B	<i>Eptesicus fuscus</i>	2230	Adult	Female	Lactating	21.00	47.0	Full	No damage	
6/24/2015	B	<i>Eptesicus fuscus</i>	2250	Adult	Female	Lactating	20.00	48.0	Medium	No damage	
6/24/2015	B	<i>Eptesicus fuscus</i>	2250	Adult	Female	Lactating	23.00	48.0	Full	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/24/2015

State Virginia

County Montgomery

Other Field Staff Justin Bower

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.041

Net Placement Between trees adjacent to pasture and pond

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM246C			6	6	2025	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/24/2015	C	<i>Eptesicus fuscus</i>	55	Adult	Female	Lactating	19.50	46.0	Medium	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 06/26/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Rodger Rodriguez
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.041
Other Field Staff Justin Bower
KM Site ID VA-KM247 Net ID VA-KM247A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus velutina*
- 3 *Fraxinus sp.*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Carya sp.*
- 3

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 39 Small 10

Relative abundance dominant vs subdominant 1:5

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Many large trees with some that have exfoliating bark and a few snags

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Cornus florida* 2 *Acer saccharum* 3 *Fraxinus sp.*

Habitat Description Upland forest patch adjacent to pasture land

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/26/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across clearing in forest under partial canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM247A			9	9	2015	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/26/2015	A	<i>Eptesicus fuscus</i>	2100	Adult	Female	Lactating	19.00	49.0	Empty	No damage	
6/27/2015	A	<i>Eptesicus fuscus</i>	2105	Adult	Female	Lactating	17.00	48.0	Empty	No damage	
6/27/2015	A	<i>Eptesicus fuscus</i>	2225	Adult	Female	Lactating	21.50	50.0	Full	No damage	
6/28/2015	A	<i>Eptesicus fuscus</i>	2135	Adult	Female	Lactating	17.00	46.0	Empty	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/26/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across trail through forest under partial canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM247B			9	6	2020	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/26/2015	B	<i>Eptesicus fuscus</i>	2230	Adult	Female	Lactating	20.50	46.0	Medium	No damage	
6/28/2015	B	<i>Eptesicus fuscus</i>	2225	Adult	Female	Lactating	20.50	47.0	Medium	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/26/2015

State Virginia

County Montgomery

Other Field Staff Justin Bower

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.041

Net Placement Across trail through forest under partial canopy

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM247C			6	6	2025	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/25/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Chance Osborne
Federal Permit ID TE62778B-0
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.890
Other Field Staff Anthony Marinelli, Mackenzie Gallier
KM Site ID VA-KM248 Net ID VA-KM248A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 556.0 Type of water source Stream
Water Source Name Unknown tributary that runs into R

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus sp.*
- 2 *Quercus muehlenbergii*
- 3 *Quercus alba*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus sp.*
- 2
- 3

Estimated DBH Range - Large 45 Small 25 Estimated DBH Range Large 0 Small 0

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Very few PRT's

Subcanopy Clutter None

Subcanopy comprised of lower branches of canopy trees

Common Subcanopy Species

- 1 *Quercus sp.*
- 2
- 3

Habitat Description Mature hardwood forest dominated by *Quercus spp.* little-to-no midstory and understory. Nets are placed across 4x4 trail that crosses through forested area between two agricultural fields.

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Dominant tree species 1 as well as subdominant species 1 is *Q. marilandica*

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/25/2015

State Virginia

County Montgomery

Other Field Staff Anthony Marinelli, Mackenzie Gallien

Permitted Biologist Chance Osborne

Federal Permit # TE62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.89

Net Placement Placed at entry of 4x4 trail from field

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM248A			6	6	2042	142

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/25/2015 Permitted Biologist Chance Osborne
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE62778B-0
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Anthony Marinelli, Mackenzie Gallien WV State Permit# 2015.89

Net Placement Placed across 4x4 trail in mature hardwood forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM248B			9	6	2042	142

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/28/2015	B	<i>Eptesicus fuscus</i>	2130	Adult	Male	Non-Reproductive	15.50	47.5	Empty	No damage	
6/28/2015	B	<i>Eptesicus fuscus</i>	2130	Adult	Female	Lactating	18.25	48.1	Empty	No damage	
6/28/2015	B	<i>Eptesicus fuscus</i>	2130	Adult	Female	Lactating	19.50	52.0	Medium	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/25/2015

State Virginia

County Montgomery

Other Field Staff Anthony Marinelli, Mackenzie Gallien

Permitted Biologist Chance Osborne

Federal Permit # TE62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.89

Net Placement Placed across 4x4 trail in mature hardwood forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM248C			9	6	2042	142

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/29/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kiara Johnson
KM Site ID VA-KM249 Net ID VA-KM249A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 25.0 Type of water source Stream
Water Source Name Mossy creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus rubra*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Carya ovata*
- 2 *Pinus resinosa*
- 3 *Tilia americana*

Estimated DBH Range - Large 117 Small 40 Estimated DBH Range Large 39 Small 18

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation For *M. sodalis* potential is low but roost potential for *M. septentrionalis* is moderate.

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Cornus florida*
- 2 *Cercis canadensis*
- 3 *Quercus alba*

Habitat Description Mature upland forest with trails going through it and a small stream at the bottom.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/29/2015

State Virginia

County Montgomery

Other Field Staff Kiara Johnson

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Net placed across forested road/trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM249A			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/29/2015

State Virginia

County Montgomery

Other Field Staff Kiara Johnson

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Net placed across forested road/trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM249B			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/29/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Net placed across forested road/trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM249C			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/29/2015	C	<i>Eptesicus fuscus</i>	2200	Adult	Male	Ascended	16.00	44.5	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 06/26/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kiara Johnson
KM Site ID VA-KM250 Net ID VA-KM250A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Mill Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.25 Channel Width (m) 6.25 Stream width (m) 6.00
Substratum - Bedrock Yes Boulder No Cobble Yes Gravel Yes Sand No Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 1.00 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- Liriodendron tulipifera*
-
-

Subdominant Canopy Species (<40cm/16"dbh)

- Juglans nigra*
- Platanus occidentalis*
- Ulmus americana*

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 39 Small 18

Relative abundance dominant vs subdominant 1:18

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential Moderate

Roosting Potential Explanation Few real good snags with exfoliating bark. Not best location for solar exposure

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- Juniperus virginiana*
- Cercis canadensis*
- Lindera benzoin*

Habitat Description Riparian corridor

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	Yes	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	Yes	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	Yes	Crop/Pasture Land	No	Vernal Pool	Yes	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments It is very concerning that there was nothing but a few red bats captured at such a high caliber site

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/26/2015

State Virginia

County Montgomery

Other Field Staff Kiara Johnson

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Net placed across forested road near stream

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM250A			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/26/2015	A	Lasiurus borealis	0	Adult	Female	Lactating	13.00	39.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/26/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Net placed across forested road near stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM250B			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/28/2015	B	<i>Lasiurus borealis</i>	115	Adult	Male	Ascended	11.80	38.0	Full	No damage	
6/28/2015	B	<i>Lasiurus borealis</i>	2246	Adult	Male	Ascended	13.00	39.0	Full	No damage	
6/28/2015	B	<i>Lasiurus borealis</i>	2230	Adult	Male	Descended	12.50	38.5	Medium	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/26/2015

State Virginia

County Montgomery

Other Field Staff Kiara Johnson

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Net placed across stream through forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM250C			12	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/17/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kiara Johnson
KM Site ID VA-KM251 Net ID VA-KM251A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 1,500.0 Type of water source Stream
Water Source Name North Fork

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Acer saccharum*
- 3 *Quercus montana*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Carya ovata*
- 3 *Quercus alba*

Estimated DBH Range - Large 55 Small 40 Estimated DBH Range Large 39 Small 17

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential Moderate

Roosting Potential Explanation

Subcanopy Clutter Low

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Acer saccharum*
- 2 *Ostrya virginiana*
- 3 *Carya ovata*

Habitat Description Open woodlot with gravel road leading to open powerline corridor

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/17/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Nets stacked across gravel road through open woodlot going to powerline corridor

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM251A			12	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/21/2015	A	<i>Eptesicus fuscus</i>	45	Adult	Female	Lactating	21.20	47.0	Full	No damage	
6/21/2015	A	<i>Eptesicus fuscus</i>	2250	Adult	Female	Lactating	19.00	47.0	Full	No damage	
6/21/2015	A	<i>Eptesicus fuscus</i>	2350	Adult	Female	Lactating	19.90	50.0	Full	No damage	
6/21/2015	A	<i>Eptesicus fuscus</i>	2215	Adult	Female	Lactating	20.80	48.0	Full	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/17/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Nets stacked across gravel road going through open woodlot to powerline corridor

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM251B			12	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/18/2015	B	<i>Lasiurus borealis</i>	2145	Adult	Female	Lactating	15.50	39.0	Empty	No damage	
6/18/2015	B	<i>Eptesicus fuscus</i>	2230	Adult	Female	Lactating	18.50	46.0	Full		
6/18/2015	B	<i>Lasiurus borealis</i>	2143	Adult	Female	Lactating	17.00	39.5	Full	No damage	
6/18/2015	B	<i>Lasiurus borealis</i>	2144	Adult	Female	Lactating	16.00	39.0	Empty	No damage	
6/18/2015	B	<i>Lasiurus borealis</i>	2040	Adult	Female	Lactating	15.00	39.0	Empty	No damage	
6/19/2015	B	<i>Lasiurus borealis</i>	2340	Adult	Male	Ascended	12.00	38.0	Full	No damage	
6/19/2015	B	<i>Lasiurus borealis</i>	2245	Adult	Male	Ascended	11.80	38.0	Full	No damage	
6/21/2015	B	<i>Eptesicus fuscus</i>	2215	Adult	Male	Descended	15.80	45.0	Full	No damage	
6/21/2015	B	<i>Lasiurus borealis</i>	2045	Adult	Female	Lactating	14.60	41.0	Medium	No damage	
6/21/2015	B	<i>Eptesicus fuscus</i>	2240	Adult	Female	Lactating	18.70	47.0	Full	No damage	

Total # of Bats Captured 10



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/17/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Nets stacked over road corridor going through open forested woodlot going to powerline corridor

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM251C			12	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/18/2015	C	<i>Eptesicus fuscus</i>	2200	Adult	Female	Lactating	17.80	45.0	Full	No damage	
6/19/2015	C	<i>Eptesicus fuscus</i>	2245	Adult	Male	Ascended	15.00	44.5	Full	No damage	
6/19/2015	C	<i>Eptesicus fuscus</i>	2200	Adult	Female	Lactating	17.00	45.0	Medium	No damage	
6/19/2015	C	<i>Eptesicus fuscus</i>	2320	Adult	Female	Lactating	16.20	45.0	Medium	No damage	
6/21/2015	C	<i>Eptesicus fuscus</i>	2350	Adult	Female	Lactating	21.80	49.0	Full	No damage	

Total # of Bats Captured 5



Net Site Habitat Data

Project # 593.12 Date 06/22/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Rodger Rodriguez
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.041
Other Field Staff Justin Bower
KM Site ID VA-KM252 Net ID VA-KM252A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 805.0 Type of water source Stream
Water Source Name North Fork Roanoke River

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Liriodendron tulipifera*
- 3 *Fraxinus sp.*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Liriodendron tulipifera*
- 3 *Quercus alba*

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 39 Small 10

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Many large trees with a few that have exfoliating bark and a few snags.

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Cercis canadensis*
- 2 *Acer saccharum*
- 3 *Quercus alba*

Habitat Description Upland forest predominantly made up of oaks and poplars with road going through it

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/22/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across road through forest under partial canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM252A			6	6	2015	2035

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/22/2015	A	<i>Lasiurus borealis</i>	2150	Adult	Female	Lactating	14.00	41.0	Full	No damage	Recapture at 2157
6/23/2015	A	<i>Lasiurus borealis</i>	105	Adult	Male	Ascended	12.00	38.0	Empty	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/22/2015

State Virginia

County Montgomery

Other Field Staff Justin Bower

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.041

Net Placement Across road through forest under partial canopy

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM252B			6	9	2020	2040

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/22/2015

State Virginia

County Montgomery

Other Field Staff Justin Bower

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.041

Net Placement Across road through forest under partial canopy

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM252C			6	9	2025	2045

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/17/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Rodger Rodriguez
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.041
Other Field Staff Justin Bower
KM Site ID VA-KM253 Net ID VA-KM253A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name North Fork Roanoke River

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.00 Channel Width (m) 9.00 Stream width (m) 8.00
Substratum - Bedrock Yes Boulder Yes Cobble Yes Gravel Yes Sand Yes Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 12.00 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

1 *Platanus occidentalis*

2 *Juglans nigra*

3 *Juniperus virginiana*

Subdominant Canopy Species (<40cm/16"dbh)

1 *Acer saccharum*

2 *Platanus occidentalis*

3 *Aesculus flava*

Estimated DBH Range - Large 100 Small 40 Estimated DBH Range Large 39 Small 10

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Open

Roost Tree Potential Consists large trees

Roosting Potential Moderate

Roosting Potential Explanation Many large trees yet no noticeable exfoliating bark or snags.

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

1 *Carpinus caroliniana*

2 *Ulmus rubra*

3

Habitat Description Riparian area abutting forest edge

Does the Habitat consist of

Mature Upland Forest No

Young Upland Forest Yes

Mature LowLand Forest No

Young LowLand Forest No

Recently Logged Forest No

Other

Pine Plantation No

Woodlot Forest Edge Yes

Old Field No

Crop/Pasture Land Yes

Stream River Yes

Emergent Wetland No

Forested Swamp No

Shrub Scrub Swamp No

Vernal Pool No

Deepwater Lake Pond No

Herbaceous Cover:

Sparse Yes

Moderate No

Dense No

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/17/2015

Permitted Biologist Rodger Rodriguez

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # N/A

Company Name MVP

County Montgomery

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Justin Bower

WV State Permit# 2015.041

Net Placement Across river at edge of forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM253A			12	9	2015	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/18/2015	A	<i>Eptesicus fuscus</i>	2338	Adult	Female	Pregnant	20.00	47.0	Full	No damage	
6/18/2015	A	<i>Eptesicus fuscus</i>	0	Adult	Female	Pregnant	0.00	0.0			Escaped
6/19/2015	A	<i>Eptesicus fuscus</i>	130	Adult	Male	Ascended	16.00	46.0	Full	No damage	
6/19/2015	A	<i>Eptesicus fuscus</i>	130	Adult	Female	Lactating	18.00	46.0	Medium	No damage	
6/19/2015	A	<i>Eptesicus fuscus</i>	107	Adult	Female	Pregnant	23.50	49.0	Full	No damage	
6/19/2015	A	<i>Eptesicus fuscus</i>	2153	Adult	Female	Lactating	20.00	50.0	Full	No damage	
6/19/2015	A	<i>Eptesicus fuscus</i>	2218	Adult	Female	Lactating	19.50	48.0	Medium	No damage	
6/19/2015	A	<i>Eptesicus fuscus</i>	105	Adult	Female	Lactating	18.50	46.0	Medium	No damage	

Total # of Bats Captured 8



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/17/2015

Permitted Biologist Rodger Rodriguez

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # N/A

Company Name MVP

County Montgomery

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Justin Bower

WV State Permit# 2015.041

Net Placement Across river at edge of forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM253B			9	6	2020	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/17/2015	B	<i>Eptesicus fuscus</i>	2210	Adult	Female	Pregnant	21.00	47.0	Medium	Light damage	
6/18/2015	B	<i>Eptesicus fuscus</i>	2310	Adult	Female	Pregnant	20.50	47.0	Medium	No damage	
6/18/2015	B	<i>Eptesicus fuscus</i>	2304	Adult	Female	Lactating	19.50	49.0	Empty	Light damage	
6/18/2015	B	<i>Eptesicus fuscus</i>	2150	Adult	Female	Lactating	18.50	47.0	Empty	No damage	
6/18/2015	B	<i>Eptesicus fuscus</i>	2150	Adult	Female	Lactating	21.00	46.0	Medium	No damage	
6/19/2015	B	<i>Eptesicus fuscus</i>	2200	Adult	Female	Pregnant	20.00	47.0	Full	No damage	
6/19/2015	B	<i>Eptesicus fuscus</i>	2345	Adult	Female	Pregnant	21.00	46.0	Full	No damage	
6/19/2015	B	<i>Eptesicus fuscus</i>	2210	Adult	Male	Ascended	18.00	48.0	Full	No damage	

Total # of Bats Captured 8



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/17/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across river at edge of forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM253C			9	6	2025	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/17/2015	C	<i>Lasiurus cinereus</i>	2135	Adult	Female	Lactating	27.50	53.0	Empty	No damage	
6/18/2015	C	<i>Eptesicus fuscus</i>	27	Adult	Female	Lactating	19.00	47.0	Full	No damage	

Total # of Bats Captured 2



Net Site Habitat Data

Project # 593.12 Date 06/20/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Rodger Rodriguez
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.041
Other Field Staff Justin Bower
KM Site ID VA-KM254 Net ID VA-KM254A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 530.0 Type of water source Stream
Water Source Name North Fork Roanoke River

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Quercus alba*
- 3 *Fraxinus sp.*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Juglans nigra*
- 2 *Liriodendron tulipifera*
- 3 *Ulmus americana*

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 39 Small 10

Relative abundance dominant vs subdominant 1:8

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential High

Roosting Potential Explanation Several large trees with some having exfoliating bark and some snags.

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Liriodendron tulipifera*
- 2 *Carpinus caroliniana*
- 3 *Ulmus americana*

Habitat Description Upland forest with closed canopy

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/20/2015

State Virginia

County Montgomery

Other Field Staff Justin Bower

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.041

Net Placement Across old road through forest under closed canopy

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM254A			6	6	2025	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/20/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across old road through forest under closed canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM254B			6	6	2020	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/20/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across old road through forest under closed canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM254C			6	6	2015	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/29/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Michelle Gillev
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.212
Other Field Staff Ben Ward
KM Site ID VA-KM255 Net ID VA-KM255A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 1,000.0 Type of water source Stream
Water Source Name Flatwoods Branch

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus montana*
- 2 *Quercus alba*
- 3 *Quercus velutina*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus montana*
- 2 *Pinus virginiana*
- 3 *Nyssa sylvatica*

Estimated DBH Range - Large 75 Small 40 Estimated DBH Range Large 35 Small 20

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Many snags, & several that are large with cracks & exfoliating bark.

Subcanopy Clutter Low

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Carya glabra*
- 3 *Nyssa sylvatica*

Habitat Description Upland hardwood. Few pines.

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Montgomery County

Additional Comments Additional sub canopy: Amelanchier sp.



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/29/2015 Permitted Biologist Michelle Gilley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.212

Net Placement At the start of old driveway

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM255A			9	6	2020	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/29/2015

State Virginia

County Montgomery

Other Field Staff Ben Ward

Permitted Biologist Michelle Gilley

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.212

Net Placement

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM255B			6	6	2020	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/29/2015 Permitted Biologist Michelle Gilley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.212

Net Placement Over old road, just inside woods from open pasture

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM255C			9	9	2020	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/29/2015	C	<i>Eptesicus fuscus</i>	2210	Adult	Female	Lactating	20.50	49.0		No damage	
6/29/2015	C	<i>Lasiurus borealis</i>	100	Adult	Male	Descended	11.50	40.0		No damage	

Total # of Bats Captured 2



Net Site Habitat Data

Project # 593.12 Date 06/30/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Rodger Rodriguez
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.041
Other Field Staff Justin Bower
KM Site ID VA-KM256 Net ID VA-KM256A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 128.0 Type of water source Pond
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus virginiana*
- 2 *Quercus alba*
- 3 *Quercus montana*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Fraxinus sp.*
- 2 *Quercus velutina*
- 3 *Pinus virginiana*

Estimated DBH Range - Large 40 Small 30 Estimated DBH Range Large 29 Small 10

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Few large trees with some exfoliating bark and a few snags

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Robinia pseudoacacia*
- 2 *Liriodendron tulipifera*
- 3 *Acer saccharum*

Habitat Description Upland forest dominated by Virginia pine

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/30/2015

State Virginia

County Montgomery

Other Field Staff Justin Bower

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.041

Net Placement Across paved road through forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM256A			6	9	2015	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/30/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across paved road through forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM256B			6	6	2020	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/30/2015	B	<i>Eptesicus fuscus</i>	2310	Adult	Female	Lactating	21.00	47.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number	593.12	Date	06/30/2015	Permitted Biologist	Rodger Rodriguez
Project Name	Mountain Valley Pipeline Project	State	Virginia	Federal Permit #	N/A
Company Name	MVP	County	Montgomery	VA State Permit#	SC 050652 T&E 054097
Site Name	Mountain Valley Pipeline	Other Field Staff	Justin Bower	WV State Permit#	2015.041

Net Placement Across paved road through forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM256C			6	9	2025	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/24/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kiara Johnson
KM Site ID VA-KM257 Net ID VA-KM257A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 500.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus resinosa*
- 2 *Quercus rubra*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus montana*
- 2 *Quercus rubra*
- 3 *Pinus virginiana*

Estimated DBH Range - Large 45 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:30

Estimated canopy closure Moderate

Roost Tree Potential Consists snags

Roosting Potential Moderate

Roosting Potential Explanation Roosting moderate is for *Myotis septentrionalis*. Potential for *Myotis sodalis* would be low

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Sassafras albidum*
- 3 *Nyssa sylvatica*

Habitat Description Young upland woodlot near power line right of way

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/24/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.197

Net Placement Nets stacked across dirt trail leading into woods

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM257A			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/24/2015	A	<i>Lasiurus borealis</i>	2310	Adult	Female	Lactating	12.50	39.0	Medium	No damage	
6/24/2015	A	<i>Lasiurus borealis</i>	2330	Adult	Male	Ascended	11.00	38.0	Full	No damage	
6/24/2015	A	<i>Eptesicus fuscus</i>	2133	Adult	Female	Lactating	17.50	46.5	Full	Light damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/24/2015

State Virginia

County Montgomery

Other Field Staff Doug Gilbert

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Nets stacked over trail running through mixed pine woods that is parallel to access road and perpendicular to powerline ROW

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM257B			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/24/2015

State Virginia

County Montgomery

Other Field Staff Doug Gilbert

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Nets stacked over trail leading to adjacent access road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM257C			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/22/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kiara Johnson
KM Site ID VA-KM258 Net ID VA-KM258A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.50 Channel Width (m) 2.00 Stream width (m) 1.00
Substratum - Bedrock Yes Boulder No Cobble No Gravel No Sand Yes Silt/Clay No
Stillwater Present Yes Average Water depth (m) 0.20 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus strobus*
- 2 *Pinus resinosa*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Pinus resinosa*
- 3 *Acer rubrum*

Estimated DBH Range - Large 70 Small 40 Estimated DBH Range Large 39 Small 17

Relative abundance dominant vs subdominant 1:30

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential Moderate

Roosting Potential Explanation Low for sodalis, moderate for septentrionalis

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Cercis canadensis*
- 2 *Carpinus caroliniana*
- 3 *Pinus virginiana*

Habitat Description Young mixed forest with trail leading to powerline right of way and small cluttered creek

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/22/2015

State Virginia

County Montgomery

Other Field Staff Kiara Johnson

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Nets stacked over wet ruts on trail through wooded corridor leading to powerline right of way

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM258A			9	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/22/2015

State Virginia

County Montgomery

Other Field Staff Kiara Johnson

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Nets stacked over cluttered creek

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM258B			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/22/2015

State Virginia

County Montgomery

Other Field Staff Kiara Johnson

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Nets stacked over cluttered creek

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM258C			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/29/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Chance Osborne
Federal Permit ID TE62778B-0
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.890
Other Field Staff Anthony Marinelli, Mackenzie Gallier
KM Site ID VA-KM259 Net ID VA-KM259A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 1.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 10.00 Channel Width (m) 12.00 Stream width (m) 9.00
Substratum - Bedrock Yes Boulder Yes Cobble Yes Gravel Yes Sand Yes Silt/Clay No
Stillwater Present No Average Water depth (m) 0.50 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

1 *Platanus occidentalis*

2 *Pinus strobus*

3 *Acer saccharum*

Subdominant Canopy Species (<40cm/16"dbh)

1 *Betula nigra*

2 *Juglans nigra*

3 *Prunus serotina*

Estimated DBH Range - Large 18 Small 10 Estimated DBH Range Large 8 Small 6

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Moderate

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation Few PRT's present in nearby surroundings

Subcanopy Clutter

Subcanopy comprised of shrubs

Common Subcanopy Species

1 *Crataegus spp.* 2 3

Habitat Description Medium sized stream with very steep side banks; Vegetation surrounding stream is mixed hardwood/evergreen forest with saplings spread throughout

Does the Habitat consist of

Mature Upland Forest Yes

Young Upland Forest No

Mature LowLand Forest Yes

Young LowLand Forest No

Recently Logged Forest No

Other

Pine Plantation No

Woodlot Forest Edge No

Old Field No

Crop/Pasture Land No

Stream River Yes

Emergent Wetland No

Forested Swamp No

Shrub Scrub Swamp No

Vernal Pool No

Deepwater Lake Pond No

Herbaceous Cover:

Sparse No

Moderate Yes

Dense No

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/29/2015

State Virginia

County Montgomery

Other Field Staff Anthony Marinelli, Mackenzie Gallien

Permitted Biologist Chance Osborne

Federal Permit # TE62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.89

Net Placement Across stream

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM259A			9	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/29/2015

State Virginia

County Montgomery

Other Field Staff Anthony Marinelli, Mackenzie Gallien

Permitted Biologist Chance Osborne

Federal Permit # TE62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.89

Net Placement Across stream

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM259B			6	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/29/2015 Permitted Biologist Chance Osborne
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE62778B-0
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Anthony Marinelli, Mackenzie Gallien WV State Permit# 2015.89

Net Placement Across stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM259C			9	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/29/2015	C	<i>Eptesicus fuscus</i>	2155	Adult	Female	Lactating	17.50	49.7	Empty	No damage	
6/30/2015	C	<i>Eptesicus fuscus</i>	2115	Adult	Female	Lactating	20.00	50.2	Medium	No damage	

Total # of Bats Captured 2



Net Site Habitat Data

Project # 593.12 Date 06/15/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM260 Net ID VA-KM260A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 2,000.0 Type of water source Stream
Water Source Name North Fork Roanoke River

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Carya tomentosa*
- 2 *Carya glabra*
- 3 *Quercus velutina*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Carya glabra*
- 3 *Quercus montana*

Estimated DBH Range - Large 67 Small 40 Estimated DBH Range Large 39 Small 16

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Low number of potential roosting structures available. Mostly young forest

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Ostrya virginiana*
- 2 *Acer rubrum*
- 3 *Cercis canadensis*

Habitat Description Oak-hickory dominated forest. Upland, uneven-aged stand on south-facing slope. Gravel road intersecting forest

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Rubus spp. A large component of the understory

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/15/2015

State Virginia

County Montgomery

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement On gravel road along forested hillside

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM260A			6	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/15/2015

State Virginia

County Montgomery

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement On gravel road along forested hillside

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM260B			6	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/15/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On gravel road along forested hillside

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM260C			9	9	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/16/2015	C	<i>Perimyotis subflavus</i>	45	Adult	Male	Ascended	6.20	35.0	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 06/13/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kiara Johnson
KM Site ID VA-KM261 Net ID VA-KM261A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 800.0 Type of water source Stream
Water Source Name North fork roanoke

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus montana*
- 3 *Carya glabra*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Betula lenta*
- 2 *Acer rubrum*
- 3 *Quercus velutina*

Estimated DBH Range - Large 75 Small 40 Estimated DBH Range Large 39 Small 17

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation Low quality snags

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Ostrya virginiana*
- 2 *Acer rubrum*
- 3 *Carya glabra*

Habitat Description Forested road corridor on south side of hill. More towards top of ridge

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/13/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Nets stacked on forested road coming off of ridgetop

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM261A			6	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/14/2015	A	<i>Eptesicus fuscus</i>	2230	Adult	Female	Lactating	16.50	46.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/13/2015

State Virginia

County Montgomery

Other Field Staff Kiara Johnson

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Nets stacked over forested road coming off of ridge

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM261B			6	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/13/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Net stacked over forested road coming off ridge

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM261C			9	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/13/2015	C	<i>Eptesicus fuscus</i>	120	Adult	Male	Ascended	13.00	43.0	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 06/13/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM262 Net ID VA-KM262A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 3.000.0 Type of water source Stream
Water Source Name North Fork Roanoke River

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus montana*
- 2 *Quercus velutina*
- 3 *Carya ovata*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Pinus resinosa*
- 2 *Carya glabra*
- 3 *Quercus montana*

Estimated DBH Range - Large 75 Small 40 Estimated DBH Range Large 39 Small 16

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Low number of suitable roosting structures.

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Acer rubrum* 2 *Nyssa sylvatica* 3 *Quercus montana*

Habitat Description Upland oak-dominated, uneven-aged forest along ridge line. Xeric forest community.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/13/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On gravel road along forested ridge top

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM262A			6	9	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/13/2015	A	<i>Lasiurus borealis</i>	110	Adult	Male	Ascended	12.90	39.0	Medium	No damage	
6/13/2015	A	<i>Lasiurus borealis</i>	30	Adult	Male	Ascended	11.50	38.0	Full	No damage	
6/14/2015	A	<i>Eptesicus fuscus</i>	2200	Adult	Male	Ascended	14.50	44.0	Full	No damage	
6/14/2015	A	<i>Eptesicus fuscus</i>	2315	Adult	Male	Ascended	19.50	47.0	Full	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/13/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On gravel road along forested ridge

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM262B			6	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/13/2015	B	<i>Lasiurus borealis</i>	2225	Adult	Male	Ascended	12.50	38.0	Full	No damage	
6/14/2015	B	<i>Eptesicus fuscus</i>	2225	Adult	Female	Pregnant	19.80	47.0	Full	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/13/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On gravel road along forested ridge

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM262C			9	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/13/2015	C	<i>Eptesicus fuscus</i>	125	Adult	Female	Pregnant	19.50	46.0	Full	No damage	
6/13/2015	C	<i>Eptesicus fuscus</i>	2225	Adult	Female	Pregnant	21.20	45.0	Full	No damage	
6/13/2015	C	<i>Eptesicus fuscus</i>	2320	Adult	Female	Pregnant	19.00	44.0	Full	No damage	
6/13/2015	C	<i>Eptesicus fuscus</i>	50	Adult	Male	Ascended	17.60	44.0	Full	No damage	Swollen spot on right wing

Total # of Bats Captured 4



Net Site Habitat Data

Project # 593.12 Date 06/06/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Roanoke

Permitted Biologist Carme Ardito
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.203
Other Field Staff Dylan Little
KM Site ID VA-KM265 Net ID VA-KM265A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 20.0 Type of water source Pond
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Platanus occidentalis*
- 2 *Juglans nigra*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Ailanthus altissima*
- 2 *Robinia pseudoacacia*
- 3 *Acer neaundo*

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 40 Small 20

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Some large live *Platanus occidentalis* and several snags in woodlot and near pond in lowland area.

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Acer neaundo*
- 2 *Ailanthus altissima*
- 3 *Platanus occidentalis*

Habitat Description Lowland wooded area with in cow pasture. Sewer line trail runs through woods and a pond for cattle is at edge of woodlot/open pasture.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other	Pond for cattle						

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/06/2015 Permitted Biologist Carne Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Dylan Little WV State Permit# 2015.203

Net Placement Net placed over sewer line through lowland woodlot near opening to cow pasture

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM265A			12	9	2020	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/06/2015	A	<i>Lasiurus borealis</i>	2228				0.00	0.0			Net escape
6/06/2015	A	<i>Perimyotis subflavus</i>	106				0.00	0.0			Net escape. Most likely Perimyotis subflavus
6/06/2015	A	<i>Lasiurus borealis</i>	2228	Adult	Female	Pregnant	17.75	42.0	Medium	No damage	
6/07/2015	A	<i>Eptesicus fuscus</i>	140	Adult	Male	Descended	19.50	46.0	Medium	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/06/2015 Permitted Biologist Carme Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Dylan Little WV State Permit# 2015.203

Net Placement Net placed over grassy sewer line corridor through lowland woodlot in cow pasture. Cattle pond is very near net

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM265B			9	6	2020	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/06/2015	B	<i>Eptesicus fuscus</i>	2143	Adult	Male	Descended	19.75	47.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/06/2015 Permitted Biologist Carne Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Dylan Little WV State Permit# 2015.203

Net Placement Net placed over sewer line corridor through lowland woodlot. Corridor opens up to a pond for cattle and a hillside cow pasture is farther along the corridor.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM265C			9	9	2025	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/06/2015	C	<i>Eptesicus fuscus</i>	143	Adult	Male	Ascended	14.50	44.0	Empty	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 08/13/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Carme Ardito
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.203
Other Field Staff Kiara Johnson
KM Site ID VA-KM266 Net ID VA-KM266A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 10.0 Type of water source Stream
Water Source Name N/a

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Juglans nigra*
- 3 *Platanus occidentalis*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer nigrum*
- 2 *Platanus occidentalis*
- 3 *Ulmus rubra*

Estimated DBH Range - Large 20 Small 16 Estimated DBH Range Large 15 Small 6

Relative abundance dominant vs subdominant 1:50

Estimated canopy closure Open

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation A few snags with sun exposure but small woodlot

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Acer saccharum*
- 2 *Platanus occidentalis*
- 3 *Fraxinus americana*

Habitat Description Cow pasture with very small woodlot in lowland. Pasture leads to upland areas and a nearby recently logged woodlot

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature Lowland Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young Lowland Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 08/13/2015

State Virginia

County Montgomery

Other Field Staff Kiara Johnson

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Net stacked near woodlot edge in cow pasture

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM266A			6	9	2005	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/13/2015 Permitted Biologist Carme Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.203

Net Placement Net stacked between woodlot edge and lone tree in cow pasture.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM266B			12	9	2005	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/13/2015	B	<i>Lasiurus borealis</i>	2240	Juvenile	Male	Descended	9.75	38.0	Empty	No damage	
8/14/2015	B	<i>Eptesicus fuscus</i>	2115	Adult	Male	Descended	14.25	44.0	Medium	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 08/13/2015

State Virginia

County Montgomery

Other Field Staff Kiara Johnson

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Net placed on small wooded portion of cow trail along woodlot edge in cow pasture.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM266C			6	6	2005	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 07/19/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Roanoke

Permitted Biologist Rodger Rodriguez
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.041
Other Field Staff Justin Bower
KM Site ID VA-KM267 Net ID VA-KM267A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 5.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 2.00 Channel Width (m) 6.00 Stream width (m) 2.00
Substratum - Bedrock Yes Boulder No Cobble Yes Gravel Yes Sand No Silt/Clay Yes
Stillwater Present No Average Water depth (m) 0.08 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- Juqians nigra*
- Fraxinus sp.*
- Quercus velutina*

Subdominant Canopy Species (<40cm/16"dbh)

- Quercus alba*
- Acer saccharum*
- Pinus virginiana*

Estimated DBH Range - Large 40 Small 20 Estimated DBH Range Large 19 Small 5

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Open

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation A few large trees, no exfoliating bark or snags

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- Liriodendron tulipifera*
- Platanus occidentalis*
- Juglans nigra*

Habitat Description Tree row and forest with running creek in rural neighborhood

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/19/2015

State Virginia

County Roanoke

Other Field Staff Justin Bower

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.041

Net Placement Perpendicular to tree row and creek

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM267A			6	6	2015	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/20/2015	A	Lasiurus borealis	2140	Adult	Female	Post-Lactating	13.00	40.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/19/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Perpendicular to tree row and creek

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM267B			6	6	2020	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/19/2015	B	<i>Lasiurus borealis</i>	2325	Juvenile	Female	Non-Reproductive	9.50	41.0	Empty	No damage	
7/19/2015	B	<i>Lasiurus borealis</i>	2200	Juvenile	Female	Non-Reproductive	14.00	44.0	Medium	No damage	
7/19/2015	B	<i>Lasiurus borealis</i>	2120	Juvenile	Female	Non-Reproductive	9.00	40.0	Empty	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/19/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Facing path through trees out in opening

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM267C			6	6	2025	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/19/2015	C	<i>Eptesicus fuscus</i>	2120	Adult	Female	Post-Lactating	21.00	47.0	Medium	No damage	
7/19/2015	C	<i>Lasiurus borealis</i>	2200	Adult	Male	Descended	11.00	41.0	Empty	No damage	

Total # of Bats Captured 2



Net Site Habitat Data

Project # 593.12 Date 07/07/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Roanoke

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Ben Ward
KM Site ID VA-KM268 Net ID VA-KM268A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 512.0 Type of water source Lake
Water Source Name Spring Hollow Reservoir

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity Low

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Acer saccharum*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Juglans nigra*
- 2 *Ulmus rubra*
- 3 *Liriodendron tulipifera*

Estimated DBH Range - Large 55 Small 40 Estimated DBH Range Large 35 Small 15

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Decent flyways, open foraging ground, and proximal to a large body of water

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Cercis canadensis*
- 2 *Acer saccharum*
- 3 *Hamamelis virginiana*

Habitat Description Habitat follows stream corridor and adjacent access road through a young deciduous, lowland forest. To the east and west: steep, upland oak, maple and pine slopes rise above corridor.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature Lowland Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young Lowland Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Giles County

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/07/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Net is placed over access road and lowland, mixed deciduous forest. Net also parallels seasonal creek which is currently dry

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM268A			6	6	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/07/2015	A	<i>Eptesicus fuscus</i>	2220	Adult	Female	Post-Lactating	21.50	46.0		No damage	
7/08/2015	A	<i>Eptesicus fuscus</i>	2230	Adult	Female	Post-Lactating	20.00	46.5	Full	No damage	
7/08/2015	A	<i>Eptesicus fuscus</i>	2110	Adult	Female	Post-Lactating	19.50	47.0	Full	No damage	
7/08/2015	A	<i>Eptesicus fuscus</i>	2110	Adult	Female	Post-Lactating	21.00	46.0	Full	No damage	
7/08/2015	A	<i>Eptesicus fuscus</i>	2300	Adult	Female	Post-Lactating	19.00	45.5	Full	No damage	
7/08/2015	A	<i>Lasiurus borealis</i>	2300	Adult	Male	Descended	12.00	38.0	Full	No damage	
7/08/2015	A	<i>Eptesicus fuscus</i>	2230	Adult	Female	Post-Lactating	20.00	47.0	Full	No damage	
7/08/2015	A	<i>Eptesicus fuscus</i>	2230	Adult	Female	Post-Lactating	18.00	45.0	Full	No damage	
7/08/2015	A	<i>Eptesicus fuscus</i>	2110	Adult	Female	Post-Lactating	20.00	47.0	Full	No damage	

Total # of Bats Captured 9



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/07/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Net placed over old access road and seasonal creek in mixed deciduous lowland.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM268B			9	6	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/07/2015	B	<i>Eptesicus fuscus</i>	2300	Adult	Female	Post-Lactating	22.00	47.0	Full	No damage	
7/08/2015	B	<i>Eptesicus fuscus</i>	2300	Adult	Female	Post-Lactating	20.00	46.0	Full	No damage	
7/08/2015	B	<i>Eptesicus fuscus</i>	2230	Adult	Female	Post-Lactating	19.50	47.0	Full	No damage	
7/08/2015	B	<i>Eptesicus fuscus</i>	2200	Adult	Female	Post-Lactating	23.00	48.0	Full	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/07/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Placed over road in mixed deciduous lowland; just inside woods from land owners yard

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM268C			12	6	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/07/2015	C	<i>Eptesicus fuscus</i>	2300	Adult	Female	Post-Lactating	20.25	46.0	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 07/09/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Roanoke

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Ben Ward
KM Site ID VA-KM269 Net ID VA-KM269A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 500.0 Type of water source Lake
Water Source Name Spring hollow resevoir

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus strobus*
- 2 *Carya glabra*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus montana*
- 2 *Quercus alba*
- 3 *Quercus velutina*

Estimated DBH Range - Large 40 Small 40 Estimated DBH Range Large 35 Small 15

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Moderate

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation Some snags and open flight corridors, but few trees with exfoliating bark. Snags are not abundant

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Acer saccharum*
- 2 *Cornus florida*
- 3 *Nyssa sylvatica*

Habitat Description Young upland forest with road corridor and trails

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Many of the pines are in decline

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/09/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Over logging road in upland pine, oak, and maple forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM269A			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/09/2015	A	<i>Myotis leibii</i>	2300	Adult	Female	Post-Lactating	5.25	29.0		No damage	Mites present on ears

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/09/2015

State Virginia

County Roanoke

Other Field Staff Ben Ward

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Over logging road in upland pine, oak, and maple forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM269B			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/09/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Over logging road in upland pine, oak, and maple forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM269C			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/10/2015	C	<i>Eptesicus fuscus</i>	30	Juvenile	Female	Non-Reproductive	16.00	46.0	Full	No damage	
7/10/2015	C	<i>Eptesicus fuscus</i>	30	Adult	Male	Ascended	18.50	46.0	Full	No damage	
7/10/2015	C	<i>Eptesicus fuscus</i>	2215	Adult	Female	Post-Lactating	21.00	44.0		No damage	
7/10/2015	C	<i>Eptesicus fuscus</i>	2145	Adult	Female	Post-Lactating	17.50	49.0	Medium	No damage	Loss of belly and shoulder fur
7/10/2015	C	<i>Lasiurus borealis</i>	2215	Juvenile	Male	Ascended	7.00	37.5	Empty	No damage	1st juvenile of season

Total # of Bats Captured 5



Net Site Habitat Data

Project # 593.12 Date 07/14/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Roanoke

Permitted Biologist Rodger Rodriguez
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.041
Other Field Staff Justin Bower
KM Site ID VA-KM273 Net ID VA-KM273A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Bottom Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.00 Channel Width (m) 4.00 Stream width (m) 1.00
Substratum - Bedrock Yes Boulder No Cobble No Gravel Yes Sand No Silt/Clay Yes
Stillwater Present No Average Water depth (m) 0.07 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Quercus velutina*
- 3 *Robinia pseudoacacia*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Magnolia acuminata*
- 3 *Quercus montana*

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 39 Small 10

Relative abundance dominant vs subdominant 1:5

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential High

Roosting Potential Explanation Several large trees with exfoliating bark and some snags

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Platanus occidentalis*
- 2 *Tsuga canadensis*
- 3 *Hamamelis virginiana*

Habitat Description Upland forest with creek

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/14/2015

State Virginia

County Roanoke

Other Field Staff Justin Bower

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.041

Net Placement Across creek under partial canopy

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM273A			6	6	2015	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/14/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across trail junction under partial canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM273B			6	6	2020	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/16/2015	B	<i>Eptesicus fuscus</i>	2320	Adult	Male	Ascended	18.50	48.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/14/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across trail junction under partial canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM273C			6	6	2025	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/15/2015	C	<i>Eptesicus fuscus</i>	55				0.00	0.0			Escaped
7/15/2015	C	<i>Eptesicus fuscus</i>	2145	Adult	Male	Ascended	19.00	45.0	Medium	No damage	2245 - recapture
7/16/2015	C	<i>Eptesicus fuscus</i>	2320	Adult	Male	Ascended	18.00	45.0	Medium	No damage	
7/16/2015	C	<i>Eptesicus fuscus</i>	2320	Adult	Female	Non-Lactating	21.50	49.0	Full	No damage	

Total # of Bats Captured 4



Net Site Habitat Data

Project # 593.12 Date 07/08/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Roanoke

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM277 Net ID VA-KM277A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 500.0 Type of water source Stream
Water Source Name Bottom Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus strobus*
- 2 *Prunus serotina*
- 3 *Fraxinus americana*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Robinia pseudoacacia*
- 2 *Prunus serotina*
- 3 *Acer rubrum*

Estimated DBH Range - Large 72 Small 40 Estimated DBH Range Large 39 Small 16

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Limited amount of forested area with few potential roosting structures

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Quercus velutina*
- 2 *Acer rubrum*
- 3 *Fraxinus americana*

Habitat Description Young, uneven-aged upland forest adjacent to open grassy area. Gravel road intersects forested area.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Forest floor dense with multiflora rose

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/08/2015

State Virginia

County Roanoke

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement Over forested gravel/dirt road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM277A			6	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/08/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Over forested gravel road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM277B			9	9	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/08/2015	B	<i>Eptesicus fuscus</i>	120	Adult	Male	Ascended	18.90	45.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/08/2015

State Virginia

County Roanoke

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement Over gravel road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM277C			6	6	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/30/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Shawn McKinley
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.201
Other Field Staff Les Aaron
KM Site ID VA-KM282 Net ID VA-KM282A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 25.0 Type of water source Wetland
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present Yes Average Water depth (m) 0.00 Water Clarity None

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Acer rubrum*
- 3 *Betula nigra*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Betula nigra*
- 2 *Acer saccharum*
- 3 *Pinus strobus*

Estimated DBH Range - Large 24 Small 16 Estimated DBH Range Large 16 Small 10

Relative abundance dominant vs subdominant 1:3

Estimated canopy closure Open

Roost Tree Potential Consists neither

Roosting Potential Low

Roosting Potential Explanation Timbered forest

Subcanopy Clutter None

Subcanopy comprised of saplings

Common Subcanopy Species

1 *Pinus strobus* 2 *Betula nigra* 3

Habitat Description Timbered forest

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Quercus prinus

Additional Comments Rhododendron maximum



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/30/2015

State Virginia

County Franklin

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement Near last trees in wood lot

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM282A			6	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/30/2015

Permitted Biologist Shawn McKinley

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # N/A

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Les Aaron

WV State Permit# 2015.201

Net Placement Near last trees on woodlot

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM282B			6	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/31/2015	B	<i>Lasiurus borealis</i>	2035	Adult	Female	Pregnant	20.00	43.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/30/2015

State Virginia

County Franklin

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement On timber access road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM282C			6	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/26/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Shawn McKinley
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.201
Other Field Staff Les Aaron
KM Site ID VA-KM283 Net ID VA-KM283A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 25.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.30 Channel Width (m) 1.50 Stream width (m) 1.00
Substratum - Bedrock Yes Boulder No Cobble Yes Gravel No Sand Yes Silt/Clay Yes
Stillwater Present No Average Water depth (m) 0.10 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- Liriodendron tulipifera*
- Betula alleghaniensis*
- Betula nigra*

Subdominant Canopy Species (<40cm/16"dbh)

- Juglans nigra*
- Betula alleghaniensis*
- Betula nigra*

Estimated DBH Range - Large 20 Small 16 Estimated DBH Range Large 16 Small 10

Relative abundance dominant vs subdominant 1:4

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation High amount of clutter, low amount of snags

Subcanopy Clutter High

Subcanopy comprised of shrubs

Common Subcanopy Species

- Robinia pseudoacacia*
- Liriodendron tulipifera*
- Nyssa sylvatica*

Habitat Description High quality low land forest

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	Yes	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	Yes	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/26/2015

State Virginia

County Franklin

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement Over forested access road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM283A			9	6	2030	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/26/2015

State Virginia

County Franklin

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement Over forested access road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM283B			9	6	2030	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/26/2015

State Virginia

County Franklin

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement Over forested stream

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM283C			12	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/28/2015	C	Lasiurus borealis	2350	Adult	Male	Ascended	11.00	39.0	Medium	Light damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/19/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Shawn McKinley
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.201
Other Field Staff Les Aaron
KM Site ID VA-KM284 Net ID VA-KM284A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Spring
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.05 Water Clarity None

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Betula nigra*
- 3 *Quercus coccinea*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Quercus coccinea*
- 3 *Carya glabra*

Estimated DBH Range - Large 36 Small 16 Estimated DBH Range Large 16 Small 9

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Low number of snags

Subcanopy Clutter High

Subcanopy comprised of shrubs

Common Subcanopy Species

- 1 *Lindera benzoin*
- 2 *Betula nigra*
- 3 *Carya glabra*

Habitat Description Mature upland forest

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number	593.12	Date	05/19/2015	Permitted Biologist	Shawn McKinley
Project Name	Mountain Valley Pipeline Project	State	Virginia	Federal Permit #	N/A
Company Name	MVP	County	Franklin	VA State Permit#	SC 050652 T&E 054097
Site Name	Mountain Valley Pipeline	Other Field Staff	Les Aaron	WV State Permit#	2015.201

Net Placement Over forested game trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM284A			6	6	2020	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/19/2015

State Virginia

County Franklin

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement Over forested game trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM284B			6	6	2025	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/19/2015

Permitted Biologist Shawn McKinley

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # N/A

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Les Aaron

WV State Permit# 2015.201

Net Placement Over forested spring

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM284C			12	6	2030	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/19/2015	C	<i>Lasionycteris noctivagans</i>	125	Adult	Male	Ascended	9.50	41.0	Medium	Light damage	Small hole in left wing
5/20/2015	C	<i>Eptesicus fuscus</i>	2210	Adult	Male	Ascended	18.00	47.0	Full	Light damage	
5/20/2015	C	<i>Eptesicus fuscus</i>	2130	Adult	Female	Pregnant	18.00	44.0	Full	No damage	
5/20/2015	C	<i>Eptesicus fuscus</i>	2130	Adult	Female	Pregnant	25.00	45.0	Full		

Total # of Bats Captured 4



Net Site Habitat Data

Project # 593.12 Date 05/17/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Shawn McKinley
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.201
Other Field Staff Les Aaron
KM Site ID VA-KM285 Net ID VA-KM285A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.00 Channel Width (m) 6.00 Stream width (m) 5.00
Substratum - Bedrock Yes Boulder Yes Cobble Yes Gravel Yes Sand Yes Silt/Clay No
Stillwater Present No Average Water depth (m) 0.10 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Cercis canadensis*
- 3 *Quercus rubra*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Cercis canadensis*
- 3 *Quercus rubra*

Estimated DBH Range - Large 30 Small 16 Estimated DBH Range Large 16 Small 4

Relative abundance dominant vs subdominant 1:6

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation Low number of snags

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Cercis canadensis*
- 2 *Acer saccharum*
- 3 *Quercus rubra*

Habitat Description Young upland forest

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/17/2015 Permitted Biologist Shawn McKinley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Les Aaron WV State Permit# 2015.201

Net Placement Over forest access road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM285A			6	6	2010	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/17/2015	A	<i>Eptesicus fuscus</i>	2345	Adult	Female	Pregnant	21.50	45.0	Full	Light damage	
5/18/2015	A	<i>Lasiurus borealis</i>	115	Adult	Male	Ascended	10.00	37.0	Empty	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/17/2015 Permitted Biologist Shawn McKinley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Les Aaron WV State Permit# 2015.201

Net Placement Over forested access road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM285B			9	6	2020	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/17/2015	B	<i>Lasionycteris noctivagans</i>	2159	Adult	Male	Ascended	9.50	39.0	Medium	No damage	Contusion on right wing, bare spots on back.

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/17/2015 Permitted Biologist Shawn McKinley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Les Aaron WV State Permit# 2015.201

Net Placement Over forested stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM285C			6	6	2015	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/19/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Elise Merrill
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.230
Other Field Staff Ben Benfer
KM Site ID VA-KM286 Net ID VA-KM286A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 228.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- Liriodendron tulipifera*
- Fagus grandifolia*
- Fraxinus pennsylvanica*

Subdominant Canopy Species (<40cm/16"dbh)

- Juniperus virginiana*
- Quercus alba*
-

Estimated DBH Range - Large 77 Small 45 Estimated DBH Range Large 50 Small 20

Relative abundance dominant vs subdominant 2:1

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- Juglans nigra*
- Acer rubrum*
-

Habitat Description Very dense understory with many vines, saplings and shrubs

Does the Habitat consist of

Mature Upland Forest Yes

Young Upland Forest Yes

Mature LowLand Forest No

Young LowLand Forest No

Recently Logged Forest No

Other

Pine Plantation No

Woodlot Forest Edge Yes

Old Field No

Crop/Pasture Land No

Stream River No

Emergent Wetland No

Forested Swamp No

Shrub Scrub Swamp No

Vernal Pool No

Deepwater Lake Pond No

Herbaceous Cover:

Sparse No

Moderate No

Dense Yes

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Elise Merrill
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Franklin VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Ben Benfer WV State Permit# 2015.23

Net Placement Perpendicular to forest edge, cutting across driveway

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM286A			18	10	2045	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/19/2015	A	<i>Lasiurus borealis</i>	15	Adult	Female	Pregnant	16.30	41.5	Medium	No damage	
5/20/2015	A	<i>Lasiurus borealis</i>	2330				0.00	0.0			Escaped

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Elise Merrill
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Franklin VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Ben Benfer WV State Permit# 2015.23

Net Placement Over trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM286B			6	8	2035	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number	593.12	Date	05/19/2015	Permitted Biologist	Elise Merrill
Project Name	Mountain Valley Pipeline Project	State	Virginia	Federal Permit #	TE38842A-3
Company Name	MVP	County	Franklin	VA State Permit#	N/A T&E 54100
Site Name	Mountain Valley Pipeline	Other Field Staff	Ben Benfer	WV State Permit#	2015.23

Net Placement Over foot path in woods

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM286C			6	5	2030	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/04/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kiara Johnson
KM Site ID VA-KM287 Net ID VA-KM287A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Spring
Water Source Name Tributary to blackwater

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 2.50 Channel Width (m) 2.50 Stream width (m) 0.50
Substratum - Bedrock No Boulder No Cobble No Gravel Yes Sand Yes Silt/Clay No
Stillwater Present Yes Average Water depth (m) 0.10 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Juqlans nigra*
- 2 *Liriodendron tulipifera*
- 3 *Quercus velutina*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Betula lenta*
- 2 *Robinia pseudoacacia*
- 3 *Acer rubrum*

Estimated DBH Range - Large 70 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential High

Roosting Potential Explanation Good locust snags with exposure to flight corridor and adjacent to good forage i.e. Ag field with good forest edge and a good sized creek(blackwater)

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Hamamelis virginiana*
- 2 *Lindera benzoin*
- 3 *Acer rubrum*

Habitat Description Young woodlot with cluttered trails to open field and springs, area is very sloped

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Area is has great roosting potential for myse and alright roosting potential for myso

Additional Comments Not catching any myotis species at this sight is a bad sign for what has become of the post white nose population in Virginia



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/04/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Net placed across forested trail/creek drainage

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM287A			9	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/06/2015	A	<i>Lasiurus borealis</i>	2140	Adult	Female	Pregnant	20.00	41.0	Full	No damage	
6/06/2015	A	<i>Lasiurus borealis</i>	125	Adult	Female	Pregnant	18.20	40.0	Full	No damage	
6/06/2015	A	<i>Lasiurus borealis</i>	2215	Adult	Male	Ascended	12.70	38.0	Full	No damage	
6/06/2015	A	<i>Lasiurus borealis</i>	2143	Adult	Male	Ascended	13.00	38.0	Full	No damage	
6/06/2015	A	<i>Lasiurus borealis</i>	2345	Adult	Male	Ascended	13.00	38.0	Full	No damage	
6/06/2015	A	<i>Lasiurus borealis</i>	2135	Adult	Male	Ascended	12.50	39.0	Full	No damage	
6/06/2015	A	<i>Lasiurus borealis</i>	2230	Adult	Female	Pregnant	18.50	40.0	Full	No damage	
6/06/2015	A	<i>Lasiurus borealis</i>	2330	Adult	Female	Pregnant	17.80	39.0	Full	No damage	
6/06/2015	A	<i>Lasionycteris noctivagans</i>	2315	Adult	Male	Ascended	14.00	39.0	Full	No damage	Got lip caught over right incisor
6/07/2015	A	<i>Lasiurus cinereus</i>	2320	Adult	Female	Lactating	27.50	50.0	Medium	No damage	

Total # of Bats Captured 10



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/04/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Net placed across juncture in forested trails

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM287B			12	9	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/07/2015	B	<i>Lasiurus borealis</i>	2335	Adult	Female	Pregnant	19.00	41.0	Full	No damage	
6/07/2015	B	<i>Lasiurus borealis</i>	100	Adult	Female	Pregnant	18.90	40.0	Full	No damage	
6/07/2015	B	<i>Lasiurus borealis</i>	2115	Adult	Female	Lactating	14.50	39.5	Full	No damage	First lactating female of the season. Pup has dropped
6/07/2015	B	<i>Lasiurus borealis</i>	2125	Adult	Female	Pregnant	18.90	39.5	Full	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/04/2015

State Virginia

County Franklin

Other Field Staff Kiara Johnson

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Net placed across forested trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM287C			6	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/28/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Shane Brodnick
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.198
Other Field Staff Keena Mullins
KM Site ID VA-KM288 Net ID VA-KM288A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.50 Channel Width (m) 5.00 Stream width (m) 3.00
Substratum - Bedrock No Boulder No Cobble Yes Gravel Yes Sand Yes Silt/Clay No
Stillwater Present No Average Water depth (m) 0.25 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Ailanthus altissima*
- 3 *Quercus rubra*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Fraxinus americana*
- 2 *Liriodendron tulipifera*
- 3 *Platanus occidentalis*

Estimated DBH Range - Large 75 Small 40 Estimated DBH Range Large 39 Small 25

Relative abundance dominant vs subdominant 50:50

Estimated canopy closure Closed

Roost Tree Potential Consists large trees

Roosting Potential Moderate

Roosting Potential Explanation Nets placed in Eastern Deciduous Forest containing large trees but few snags, over water source.

Subcanopy Clutter High

Subcanopy comprised of shrubs

Common Subcanopy Species

- 1 *Lindera benzoin*
- 2 *Liriodendron tulipifera*
- 3 *Ailanthus altissima*

Habitat Description Nets A and B are spanning the width of a healthy stream. Net C is covering an adjacent secondary stream. Subcanopy and growth along banks predominantly consist of Multiflora rose.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/28/2015 Permitted Biologist Shane Brodnick
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Keena Mullins WV State Permit# 2015.198

Net Placement Net placed along perennial stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM288A			6	9	2030	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/28/2015	A	<i>Lasiurus borealis</i>	2125	Adult	Male	Ascended	12.00	40.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/28/2015

State Virginia

County Franklin

Other Field Staff Keena Mullins

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Net placed over flowing stream in Eastern DeciduousForest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM288B			6	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/28/2015

State Virginia

County Franklin

Other Field Staff Keena Mullins

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Net placed over stream in Eastern DeciduousForest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM288C			6	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/11/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM292 Net ID VA-KM292A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 600.0 Type of water source Stream
Water Source Name Unnamed tributary to Maquodet C

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Acer rubrum*
- 3 *Quercus rubra*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Sassafras albidum*
- 3 *Acer rubrum*

Estimated DBH Range - Large 64 Small 40 Estimated DBH Range Large 39 Small 16

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation High elevation with low number of roosting structures available

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Lindera benzoin*
- 2 *Hamamelis virginiana*
- 3 *Liriodendron tulipifera*

Habitat Description Upland uneven-aged deciduous forest with an ATV trail and small stream through it.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number	593.12	Date	06/11/2015	Permitted Biologist	Valerie Clarkston
Project Name	Mountain Valley Pipeline Project	State	Virginia	Federal Permit #	TE02373A-9
Company Name	MVP	County	Franklin	VA State Permit#	SC 050652 T&E 054097
Site Name	Mountain Valley Pipeline	Other Field Staff	Doug Gilbert	WV State Permit#	2015.2

Net Placement On wooded ATV trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM292A			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/11/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On wooded ATV trail in upland forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM292B			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/11/2015	B	<i>Lasiurus borealis</i>	35	Adult	Male	Ascended	11.50	37.0	Medium	No damage	
6/12/2015	B	<i>Lasiurus borealis</i>	25	Adult	Female	Lactating	14.50	39.0	Full	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/11/2015

State Virginia

County Franklin

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement On wooded ATV trail in upland forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM292C			6	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/17/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Michelle Gillev
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.212
Other Field Staff Ben Ward
KM Site ID VA-KM299 Net ID VA-KM299A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 30.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.00 Channel Width (m) 3.00 Stream width (m) 1.50
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

1 *Liriodendron tulipifera*

2 *Quercus velutina*

3 *Platanus occidentalis*

Subdominant Canopy Species (<40cm/16"dbh)

1 *Acer rubrum*

2 *Pinus virginiana*

3 *Liriodendron tulipifera*

Estimated DBH Range - Large 70 Small 40 Estimated DBH Range Large 20 Small 12

Relative abundance dominant vs subdominant 1:25

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Some larger trees, but heavy new growth & anthropogenic disturbed areas. **Landowner mentioned presence of portal with bats.

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

1 *Robinia pseudoacacia*

2 *Betula lenta*

3 *Sassafras albidum*

Habitat Description Upland forest, primarily mixed hardwood. Narrow stream flowing throw property.

Does the Habitat consist of

Mature Upland Forest No

Young Upland Forest Yes

Mature LowLand Forest No

Young LowLand Forest No

Recently Logged Forest No

Other

Pine Plantation No

Woodlot Forest Edge No

Old Field No

Crop/Pasture Land No

Stream River No

Emergent Wetland No

Forested Swamp No

Shrub Scrub Swamp No

Vernal Pool No

Deepwater Lake Pond No

Herbaceous Cover:

Sparse Yes

Moderate No

Dense No

Roost Tree Decay Stage

Comments Landowner mentioned presence of portal with bats. Not verified.

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/17/2015

State Virginia

County Franklin

Other Field Staff Ben Ward

Permitted Biologist Michelle Gilley

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.212

Net Placement Placed over land owner's driveway, which is placed over drainage culvert

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM299A			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/17/2015

State Virginia

County Franklin

Other Field Staff Ben Ward

Permitted Biologist Michelle Gilley

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.212

Net Placement Inside woods over old road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM299B			9	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/17/2015

State Virginia

County Franklin

Other Field Staff Ben Ward

Permitted Biologist Michelle Gilley

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.212

Net Placement Placed inside woods from field over old road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM299C			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/07/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM300 Net ID VA-KM300A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 5.0 Type of water source Stream
Water Source Name Unknown tributary to Mill Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Juniperus virginiana*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Ailanthus altissima*
- 2 *Acer rubrum*
- 3 *Prunus serotina*

Estimated DBH Range - Large 76 Small 40 Estimated DBH Range Large 38 Small 16

Relative abundance dominant vs subdominant 1:30

Estimated canopy closure Open

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation Low number of roost trees that have limited roosting features

Subcanopy Clutter

Subcanopy comprised of

Common Subcanopy Species

- 1 *Lindera benzoin*
- 2 *Ailanthus altissima*
- 3 *Acer negundo*

Habitat Description Open pasture with gravel driveway intersecting. Driveway lined with mostly young upland woody vegetation (early successional species) with few large trees (tuliptree). Small stream is nearby.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Subcanopy clutter cannot be assessed because site is only a driveway lined with woody vegetation.

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/07/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On wooded driveway that intersects pasture.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM300A			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/09/2015	A	<i>Lasiurus borealis</i>	35	Adult	Male	Ascended	11.80	39.0	Medium	No damage	
6/09/2015	A	<i>Lasiurus borealis</i>	2105	Adult	Male	Ascended	0.00	0.0	Full	No damage	Escaped

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/07/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On wooded driveway that intersects pasture

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM300B			6	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/09/2015	B	<i>Lasiurus borealis</i>	2305	Adult	Male	Ascended	9.80	39.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/07/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On wooded driveway that intersects pasture

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM300C			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/07/2015	C	<i>Eptesicus fuscus</i>	2200	Adult	Male	Ascended	16.40	45.0	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/27/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Elise Merrill
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.230
Other Field Staff Ben Benfer
KM Site ID VA-KM301 Net ID VA-KM301A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.05 Channel Width (m) 0.00 Stream width (m) 6.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand Yes Silt/Clay No
Stillwater Present Yes Average Water depth (m) 0.10 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 Liriodendron tulipifera
- 2 Quercus alba
- 3 Quercus sp.

Subdominant Canopy Species (<40cm/16"dbh)

- 1 Platanus occidentalis
- 2 Carya tomentosa
- 3

Estimated DBH Range - Large 78 Small 40 Estimated DBH Range Large 38 Small 20

Relative abundance dominant vs subdominant 5:2

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential High

Roosting Potential Explanation

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 Liriodendron tulipifera 2 3

Habitat Description Transitional forest with large Quercus sp.; small stream on field/ forest edge

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/27/2015

Permitted Biologist Elise Merrill

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE38842A-3

Company Name MVP

County Franklin

VA State Permit# N/A T&E 54100

Site Name Mountain Valley Pipeline

Other Field Staff Ben Benfer

WV State Permit# 2015.23

Net Placement On forested, gravel driveway

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM301A			12	8	2045	149

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/27/2015	A	Lasiurus borealis	2335	Adult	Male	Ascended	11.70	40.0	Medium	Light damage	
5/28/2015	A	Lasiurus borealis	2220	Adult	Male	Ascended	11.30	39.0	Medium	Light damage	
5/28/2015	A	Lasiurus borealis	2240	Adult	Male	Ascended	11.70	40.0	Medium	No damage	
5/28/2015	A	Eptesicus fuscus	125	Adult	Female	Lactating	21.20	47.0	Full	No damage	
5/28/2015	A	Eptesicus fuscus	2220	Adult	Male	Ascended	17.80	47.0	Full	Light damage	
5/28/2015	A	Eptesicus fuscus	2345	Adult	Female	Lactating	21.50	47.0	Empty	No damage	
5/28/2015	A	Eptesicus fuscus	20	Adult	Female	Lactating	21.40	47.0	Full	No damage	
5/28/2015	A	Eptesicus fuscus	2345	Adult	Female	Lactating	20.40	46.0	Medium	No damage	
5/28/2015	A	Eptesicus fuscus	2145	Adult	Female	Lactating	24.10	48.5	Full	No damage	
5/28/2015	A	Eptesicus fuscus	145	Adult	Female	Lactating	18.50	47.0	Empty	No damage	

Total # of Bats Captured 10



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/27/2015

State Virginia

County Franklin

Other Field Staff Ben Benfer

Permitted Biologist Elise Merrill

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.23

Net Placement Over forested ATV trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM301B			6	5	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/27/2015 Permitted Biologist Elise Merrill
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Franklin VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Ben Benfer WV State Permit# 2015.23

Net Placement Over forested, paved driveway

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM301C			12	10	2050	150

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/27/2015	C	Eptesicus fuscus	46	Adult	Female	Lactating	22.80	50.0	Full	No damage	
5/27/2015	C	Eptesicus fuscus	2200	Adult	Female	Pregnant	32.70	49.5		Light damage	Very pregnant. Double checked weight.
5/28/2015	C	Eptesicus fuscus	2350	Adult	Female	Lactating	22.10	45.5	Full	No damage	
5/28/2015	C	Eptesicus fuscus	2350	Adult	Male	Ascended	17.60	46.0	Full	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/27/2015 Permitted Biologist Elise Merrill
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Franklin VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Ben Benfer WV State Permit# 2015.23

Net Placement Under bridge on stream running through property

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM301D			6	3	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/11/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Rodger Rodriguez
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.041
Other Field Staff Justin Bower
KM Site ID VA-KM302 Net ID VA-KM302A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Teel Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 2.00 Channel Width (m) 8.00 Stream width (m) 5.00
Substratum - Bedrock Yes Boulder No Cobble Yes Gravel Yes Sand No Silt/Clay Yes
Stillwater Present No Average Water depth (m) 0.15 Water Clarity Low

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Ailanthus altissima*
- 2 *Liriodendron tulipifera*
- 3 *Acer rubrum*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 Unknown
- 2 *Liriodendron tulipifera*
- 3 *Ailanthus altissima*

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 39 Small 20

Relative abundance dominant vs subdominant 1:5

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees

Roosting Potential Moderate

Roosting Potential Explanation Many large trees yet no noticeable exfoliating bark or snags.

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Lindera benzoin*
- 2 *Ailanthus altissima*
- 3 Unknown

Habitat Description Young upland forest with partial canopy closure and creek running nearby

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Unknown tree is Magnolia tripetala (umbrella magnolia)

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/11/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across field between two forest patches

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM302A			12	9	2015	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/11/2015	A	<i>Eptesicus fuscus</i>	35	Adult	Female	Lactating	20.00	46.0	Full	No damage	
6/11/2015	A	<i>Eptesicus fuscus</i>	2120	Adult	Female	Lactating	20.00	46.0	Medium	Light damage	
6/12/2015	A	<i>Eptesicus fuscus</i>	2305	Adult	Female	Lactating	23.50	46.0	Full	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/11/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across forest trail under partially closed canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM302B			6	9	2020	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/11/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across creek under partial canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM302C			6	6	2025	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/11/2015	C	<i>Lasiurus borealis</i>	2150	Adult	Female	Lactating	17.00	42.0	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/19/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Brian Cooper
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.034
Other Field Staff Ethan Okon
KM Site ID VA-KM303 Net ID VA-KM303A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 5.0 Type of water source Stream
Water Source Name Teels Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.00 Channel Width (m) 4.00 Stream width (m) 3.50
Substratum - Bedrock No Boulder Yes Cobble Yes Gravel Yes Sand Yes Silt/Clay No
Stillwater Present Yes Average Water depth (m) 0.30 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Platanus occidentalis*
- 2 *Juglans nigra*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer negundo*
- 2 *Ailanthus altissima*
- 3

Estimated DBH Range - Large 65 Small 50 Estimated DBH Range Large 20 Small 45

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Open

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, shrubs

Common Subcanopy Species

- 1 *Acer negundo*
- 2 *Lindera benzoin*
- 3

Habitat Description Stream with riparian zone bordering grassy field

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Brian Cooper
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Franklin VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Ethan Okon WV State Permit# 2015.034

Net Placement Forested trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM303A			4	5	2040	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/19/2015	A	<i>Eptesicus fuscus</i>	30	Adult	Male	Non-Reproductive	14.95	43.5	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Brian Cooper
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Franklin VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Ethan Okon WV State Permit# 2015.034

Net Placement Gap in tree line next to perennial stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM303B			9	8	2040	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/19/2015	B	<i>Lasionycteris noctivagans</i>	105	Adult	Male	Non-Reproductive	10.31	43.0	Full	No damage	
5/19/2015	B	<i>Lasionycteris noctivagans</i>	100	Adult	Male	Non-Reproductive	10.18	40.5	Full	No damage	
5/20/2015	B	<i>Lasiurus borealis</i>	2100	Adult	Male	Non-Reproductive	10.95	40.0	Medium	No damage	
5/20/2015	B	<i>Lasiurus borealis</i>	130	Adult	Female	Pregnant	20.25	43.0	Full	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Brian Cooper
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Franklin VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Ethan Okon WV State Permit# 2015.034

Net Placement "Flying V" configuration over drinking pool- 2 single high 6m combined.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM303C			12	3	2040	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/19/2015	C	<i>Lasiurus borealis</i>	2230	Adult	Female	Pregnant	17.50	40.5	Full	No damage	
5/19/2015	C	<i>Lasiurus borealis</i>	2340	Adult	Female	Pregnant	18.20	42.0	Full	No damage	
5/19/2015	C	<i>Lasiurus borealis</i>	2120	Adult	Female	Pregnant	13.90	41.0	Empty	No damage	
5/19/2015	C	<i>Lasiurus borealis</i>	2120	Adult	Female	Pregnant	18.24	40.0	Full	No damage	

Total # of Bats Captured 4



Net Site Habitat Data

Project # 593.12 Date 05/15/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Brian Cooper
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.034
Other Field Staff Ethan Okon
KM Site ID VA-KM304 Net ID VA-KM304A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 20.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Juglans nigra*
- 2 *Liriodendron tulipifera*
- 3 *Platanus occidentalis*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Juniperus virginiana*
- 2 *Liriodendron tulipifera*
- 3 *Acer rubrum*

Estimated DBH Range - Large 26 Small 20 Estimated DBH Range Large 12 Small 16

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation No suitable roosting habitat for *Myotis sodalis*. Some smaller dead snags have low roost potential for *Myotis septentrionalis*.

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Acer negundo*
- 2 *Liriodendron tulipifera*
- 3 *Carya sp.*

Habitat Description Lowland forest with small ephemeral stream, adjacent to power line corridors and agricultural fields.

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature Lowland Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young Lowland Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments DBH estimates are in inches

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/15/2015

State Virginia

County Franklin

Other Field Staff Ethan Okon

Permitted Biologist Brian Cooper

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.034

Net Placement Narrow opening between residential power line corridor and open foraging area.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM304A			6	8	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/15/2015 Permitted Biologist Brian Cooper
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Franklin VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Ethan Okon WV State Permit# 2015.034

Net Placement Opening between residential power line corridor and cluttered lowland foraging habitat.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM304B			9	8	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	B	<i>Lasiurus borealis</i>	20	Adult	Male	Non-Reproductive	10.40	40.0	Medium	Light damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/15/2015

State Virginia

County Franklin

Other Field Staff Ethan Okon

Permitted Biologist Brian Cooper

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.034

Net Placement Corner of wood lot/agricultural field edge.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM304C			18	8	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/17/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Brian Cooper
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.034
Other Field Staff Vance Nepomuceno
KM Site ID VA-KM305 Net ID VA-KM305A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Teels Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.00 Channel Width (m) 9.00 Stream width (m) 8.00
Substratum - Bedrock No Boulder Yes Cobble Yes Gravel No Sand Yes Silt/Clay No
Stillwater Present No Average Water depth (m) 0.35 Water Clarity Low

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- Juqians niqra*
- Quercus alba*
- Carva sp.*

Subdominant Canopy Species (<40cm/16"dbh)

- Quercus alba*
- Liriodendron tulipifera*
- Juqians niqra*

Estimated DBH Range - Large 75 Small 50 Estimated DBH Range Large 35 Small 60

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Large dead tree, 50% bark, slight exfoliation. 90% solar exposure. Some live shagbark hickory with low-moderate roosting potential.

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- Acer negundo*
- Lindera benzoin*
- Carpinus caroliniana*

Habitat Description Forested stream valley

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Franklin

Other Field Staff Vance Nepomuceno

Permitted Biologist Brian Cooper

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.034

Net Placement Perennial stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM305A			9	8	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Franklin

Other Field Staff Vance Nepomuceno

Permitted Biologist Brian Cooper

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.034

Net Placement ATV trail parallel to perennial stream

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM305B			4	5	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Franklin

Other Field Staff Vance Nepomuceno

Permitted Biologist Brian Cooper

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.034

Net Placement Perennial stream

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM305C			9	8	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/11/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Brian Dennis
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.204
Other Field Staff Karsen Shoger
KM Site ID VA-KM306 Net ID VA-KM306A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Little creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.00 Channel Width (m) 9.00 Stream width (m) 7.00
Substratum - Bedrock Yes Boulder Yes Cobble Yes Gravel Yes Sand Yes Silt/Clay Yes
Stillwater Present No Average Water depth (m) 0.25 Water Clarity Low

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Acer negundo*
- 2 *Platanus occidentalis*
- 3 *Juglans nigra*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer negundo*
- 2 *Platanus occidentalis*
- 3 *Juglans nigra*

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Open

Roost Tree Potential Consists neither

Roosting Potential Low

Roosting Potential Explanation No snags or large trees but great foraging area

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Platanus occidentalis*
- 2 *Ailanthus altissima*
- 3 *Acer negundo*

Habitat Description Stream through lowland Forest alongside agricultural field

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature Lowland Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young Lowland Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/11/2015

Permitted Biologist Brian Dennis

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Karsen Shoger

WV State Permit# 2015.204

Net Placement Placed over stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM306A			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/11/2015	A	<i>Lasiurus borealis</i>	2150				0.00	0.0			Escape
6/12/2015	A	<i>Lasiurus borealis</i>	2143	Adult	Male	Ascended	13.25	38.0	Full	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/11/2015

State Virginia

County Franklin

Other Field Staff Karsen Shoger

Permitted Biologist Brian Dennis

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.204

Net Placement Placed over stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM306B			9	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/11/2015 Permitted Biologist Brian Dennis
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Karsen Shoger WV State Permit# 2015.204

Net Placement Placed over stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM306C			9	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/12/2015	C	<i>Eptesicus fuscus</i>	2230	Adult	Female	Pregnant	19.50	47.0	Medium	Light damage	Infested with mites

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 08/10/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM307 Net ID VA-KM307A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Mill Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.50 Channel Width (m) 12.00 Stream width (m) 9.00
Substratum - Bedrock Yes Boulder No Cobble Yes Gravel Yes Sand Yes Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 1.00 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Fraxinus americana*
- 3 *Fagus grandifolia*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer negundo*
- 2 *Acer rubrum*
- 3 *Liriodendron tulipifera*

Estimated DBH Range - Large 75 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential High

Roosting Potential Explanation Nice open riparian corridor with numerous pools of water. Large snags are alongside stream with other large, live trees further up hill from stream

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Carpinus caroliniana*
- 2 *Acer negundo*
- 3

Habitat Description Riparian strip along Mill Creek between two cattle pastures; not far from where Mill Creek empties into the Blackwater River

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 08/10/2015

Permitted Biologist Valerie Clarkston

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Doug Gilbert

WV State Permit# 2015.2

Net Placement Over Mill Creek

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM307A			12	6	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/11/2015	A	<i>Lasiurus borealis</i>	2115	Juvenile	Female	Non-Reproductive	10.20	41.0	Full	No damage	
8/11/2015	A	<i>Lasiurus borealis</i>	2100	Adult	Female	Post-Lactating	12.00	42.0	Full	No damage	
8/12/2015	A	<i>Lasiurus borealis</i>	2050	Juvenile	Female	Non-Reproductive	11.90	41.0	Medium	No damage	
8/12/2015	A	<i>Lasiurus borealis</i>	2350	Adult	Female	Non-Reproductive	14.80	40.0	Full	No damage	
8/12/2015	A	<i>Lasiurus borealis</i>	2055	Juvenile	Female	Non-Reproductive	10.80	39.0	Medium	No damage	

Total # of Bats Captured 5



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/10/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Over Mill Creek

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM307B			9	6	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/11/2015	B	<i>Lasiurus borealis</i>	2040	Adult	Female	Non-Reproductive	15.60	40.0	Full	No damage	
8/11/2015	B	<i>Lasiurus borealis</i>	2110	Adult	Female	Non-Reproductive	12.20	40.0	Full	No damage	
8/12/2015	B	<i>Lasiurus cinereus</i>	2315	Juvenile	Male	Ascended	21.60	53.0	Full	No damage	
8/13/2015	B	<i>Lasiurus cinereus</i>	55	Juvenile	Male	Ascended	18.40	52.0	Full	No damage	
8/13/2015	B	<i>Lasiurus borealis</i>	30	Juvenile	Female	Non-Reproductive	10.20	40.0	Full	No damage	

Total # of Bats Captured 5



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/10/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Over Mill Creek

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM307C			9	9	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/11/2015	C	<i>Lasiurus borealis</i>	2315	Juvenile	Female	Non-Reproductive	10.80	39.0	Medium	No damage	
8/11/2015	C	<i>Lasiurus borealis</i>	2030	Juvenile	Female	Non-Reproductive	10.20	39.0	Empty	No damage	
8/11/2015	C	<i>Lasiurus borealis</i>	2035	Juvenile	Female	Non-Reproductive	11.60	40.0	Medium	No damage	

Total # of Bats Captured 3



Net Site Habitat Data

Project # 593.12 Date 06/13/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Rodger Rodriguez
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.041
Other Field Staff Justin Bower
KM Site ID VA-KM308 Net ID VA-KM308A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 175.0 Type of water source Stream
Water Source Name Blackwater River

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Fagus grandifolia*
- 2 *Quercus sp.*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Pinus virginiana*
- 2 *Liriodendron tulipifera*
- 3 *Fagus grandifolia*

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 39 Small 10

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Several large trees with a few snags and very little exfoliating bark

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Liriodendron tulipifera*
- 2 *Acer rubrum*
- 3 *Asimina triloba*

Habitat Description Moderately dense upland forest adjacent to pasture to the south and river to the north

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/13/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Adjacent to forest edge in field

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM308A			9	6	2015	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/14/2015	A	<i>Lasiurus borealis</i>	35	Adult	Female	Lactating	10.50	40.0	Empty	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/13/2015

State Virginia

County Franklin

Other Field Staff Justin Bower

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.041

Net Placement Across old logging road under canopy

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM308B			9	9	2020	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/13/2015

State Virginia

County Franklin

Other Field Staff Justin Bower

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.041

Net Placement Across old logging road under canopy

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM308C			6	6	2025	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/27/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Brian Cooper
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.034
Other Field Staff Ethan Okon
KM Site ID VA-KM309 Net ID VA-KM309A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.60 Channel Width (m) 1.50 Stream width (m) 1.00
Substratum - Bedrock No Boulder No Cobble Yes Gravel Yes Sand Yes Silt/Clay No
Stillwater Present No Average Water depth (m) 0.20 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Fagus grandifolia*
- 2 *Pinus strobus*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Juniperus virginiana*
- 3 *Liriodendron tulipifera*

Estimated DBH Range - Large 75 Small 55 Estimated DBH Range Large 55 Small 40

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential Moderate

Roosting Potential Explanation Some snags with moderate roost potential

Subcanopy Clutter High

Subcanopy comprised of saplings

Common Subcanopy Species

1 *Acer rubrum* 2 *Liriodendron tulipifera* 3

Habitat Description Young upland wood lot with small headwater stream.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/27/2015 Permitted Biologist Brian Cooper
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Franklin VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Ethan Okon WV State Permit# 2015.034

Net Placement Forest edge

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM309A			9	8	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/27/2015	A	<i>Lasiurus borealis</i>	0	Adult	Female	Pregnant	20.50	41.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/27/2015

Permitted Biologist Brian Cooper

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE38842A-3

Company Name MVP

County Franklin

VA State Permit# N/A T&E 54100

Site Name Mountain Valley Pipeline

Other Field Staff Ethan Okon

WV State Permit# 2015.034

Net Placement Stream corridor

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM309B			9	8	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/27/2015

State Virginia

County Franklin

Other Field Staff Ethan Okon

Permitted Biologist Brian Cooper

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.034

Net Placement Stream corridor

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM309C			6	8	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/14/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Shane Brodnick
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.198
Other Field Staff Keena Mullins
KM Site ID VA-KM310 Net ID VA-KM310A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 100.0 Type of water source Stream
Water Source Name N/A

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Juglans nigra*
- 2 *Acer negundo*
- 3 *Fraxinus americana*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Cercis canadensis*
- 2 *Prunus serotina*
- 3 *Fraxinus americana*

Estimated DBH Range - Large 45 Small 40 Estimated DBH Range Large 39 Small 25

Relative abundance dominant vs subdominant 4:6

Estimated canopy closure Open

Roost Tree Potential Consists large trees

Roosting Potential Moderate

Roosting Potential Explanation Large trees and water source are present

Subcanopy Clutter High

Subcanopy comprised of shrubs

Common Subcanopy Species

- 1 *Juniperus virginiana* 2 *Acer negundo* 3

Habitat Description Two cow pastures separated by dense hardwood forest adjacent to a river

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/14/2015

State Virginia

County Franklin

Other Field Staff Keena Mullins

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Net placed at the edge of a corridor separating two cow pastures

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM310A			12	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/14/2015

State Virginia

County Franklin

Other Field Staff Keena Mullins

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Net placed at field edge

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM310B			12	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/14/2015 Permitted Biologist Shane Brodnick
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Keena Mullins WV State Permit# 2015.198

Net Placement Net placed in corridor separating two cow pastures

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM310C			6	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/14/2015	C	<i>Lasiurus borealis</i>	58	Adult	Female	Pregnant	17.25	42.0	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 06/10/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Michelle Gillev
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.212
Other Field Staff Ben Ward
KM Site ID VA-KM311 Net ID VA-KM311A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 1.0 Type of water source
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 Liriodendron tulipifera
- 2
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 Acer negundo
- 2
- 3

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 15 Small 10

Relative abundance dominant vs subdominant 2:1

Estimated canopy closure Moderate

Roost Tree Potential Consists neither

Roosting Potential Low

Roosting Potential Explanation Disturbed area which is dominated by Kudzu

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 Acer negundo
- 2 Platanus occidentalis
- 3 Asimina triloba

Habitat Description Disturbed Riparian corridor/ pathway with heavy herbaceous cover. Intersecting power line to south of nets.
Area overgrown with Kudzu

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Dominant canopy species not in list: Juglans cinerea

Additional Comments KM311 is in Franklin County which is not listed in county list



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/10/2015

State Virginia

County Franklin

Other Field Staff Ben Ward

Permitted Biologist Michelle Gilley

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.212

Net Placement Net placed between river on elevated bank and small hillside

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM311A			6	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/10/2015 Permitted Biologist Michelle Gilley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.212

Net Placement Net placed between river on elevated bank and small hillside

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM311B			6	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/10/2015 Permitted Biologist Michelle Gilley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.212

Net Placement Edge net on yard and wooded area

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM311C			9	9	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/10/2015

State Virginia

County Franklin

Other Field Staff Ben Ward

Permitted Biologist Michelle Gilley

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.212

Net Placement Parallels yard and wooded area

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM311D			6	9	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/15/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM312 Net ID VA-KM312A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Blackwater River

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Acer rubrum*
- 3 *Pinus strobus*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Acer negundo*
- 3 *Pinus strobus*

Estimated DBH Range - Large 48 Small 40 Estimated DBH Range Large 40 Small 20

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Not many suitable trees available

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Acer negundo*
- 2 *Cornus florida*
- 3 *Fagus grandifolia*

Habitat Description Young, upland mixed deciduous-coniferous forest

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/15/2015

State Virginia

County Franklin

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement At entrance of cluttered, overgrown wooded corridor that is adjacent to a power line ROW

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM312A			12	5	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/15/2015

State Virginia

County Franklin

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement Along overgrown wooded corridor in close proximity to powerline ROW

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM312B			9	5	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/15/2015

State Virginia

County Franklin

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement In overgrown wooded corridor

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM312C			9	5	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/17/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM313 Net ID VA-KM313A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name unknown tributary to Blackwater R

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.00 Channel Width (m) 2.50 Stream width (m) 2.00
Substratum - Bedrock Yes Boulder No Cobble Yes Gravel Yes Sand Yes Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.15 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Acer rubrum*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Fagus grandifolia*
- 3

Estimated DBH Range - Large 65 Small 40 Estimated DBH Range Large 40 Small 20

Relative abundance dominant vs subdominant 1:5

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Some snags but they are spread apart - not clumped. Large live trees have small % exfoliating bark.

Subcanopy Clutter Moderate

Subcanopy comprised of shrubs

Common Subcanopy Species

- 1 *Asimina triloba* 2 *Carpinus caroliniana* 3 *Hamamelis virginiana*

Habitat Description Young lowland, deciduous forest containing a stream and multiple wooded corridors.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature Lowland Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young Lowland Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Turkey-foot oak and southern black oak are also dominant canopy species.

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/17/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Over wooded gravel road (private)

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM313A			9	9	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/17/2015	A	<i>Eptesicus fuscus</i>	2240	Adult	Male	Ascended	14.80	44.0	Full	No damage	
5/17/2015	A	<i>Eptesicus fuscus</i>	2217	Adult	Female	Pregnant	28.80	46.0	Full	No damage	
5/17/2015	A	<i>Lasionycteris noctivagans</i>	2340	Adult	Male	Ascended	10.00	40.0	Full	No damage	
5/18/2015	A	<i>Eptesicus fuscus</i>	2220	Adult	Male	Ascended	17.60	44.0	Full	No damage	
5/18/2015	A	<i>Lasionycteris noctivagans</i>	2250	Adult	Male	Ascended	10.20	41.0	Full	No damage	
5/18/2015	A	<i>Lasiurus borealis</i>	2220	Adult	Male	Ascended	9.40	37.0	Full	No damage	

Total # of Bats Captured 6



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Franklin

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement Over wooded ATV trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM313B			6	6	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Franklin

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement Over small stream

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM313C			6	6	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/19/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM314 Net ID VA-KM314A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 258.0 Type of water source Stream
Water Source Name Unknown Trib to Blackwater River

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Pinus sylvestris*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Carya tomentosa*
- 2 *Acer rubrum*
- 3 *Liriodendron tulipifera*

Estimated DBH Range - Large 100 Small 40 Estimated DBH Range Large 40 Small 16

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Low number of potential roost sites

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Liriodendron tulipifera*
- 2 *Nyssa sylvatica*
- 3 *Fagus grandifolia*

Habitat Description Mixed upland coniferous-deciduous, uneven-aged forest. Bordered by existing powerline ROW. Gravel road intersects habitat. Bordered by open fields

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Turkey foot oak (*Quercus laevis*) also dominant

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
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Project Number 593.12 Date 05/19/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Private gravel road through wooded area in between two open fields

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM314A			12	9	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/19/2015	A	<i>Lasiurus borealis</i>	115	Adult	Female	Pregnant	14.50	38.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Private gravel road through wooded area in between two open fields

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM314B			9	6	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/19/2015	B	<i>Lasiurus borealis</i>	35	Adult	Male	Ascended	10.60	38.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Private gravel road through wooded area in between two open fields

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM314C			6	6	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/19/2015	C	<i>Lasiurus borealis</i>	35	Adult	Female	Pregnant	16.80	40.0	Full	No damage	
5/19/2015	C	<i>Lasionycteris noctivagans</i>	2245	Adult	Male	Ascended	9.50	40.0	Full	No damage	
5/20/2015	C	<i>Eptesicus fuscus</i>	2220				0.00	0.0			Escaped from net
5/20/2015	C	<i>Lasiurus borealis</i>	2145	Adult	Female	Pregnant	16.50	39.0	Full	No damage	

Total # of Bats Captured 4



Net Site Habitat Data

Project # 593.12 Date 05/21/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM315 Net ID VA-KM315A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Unnamed tributary to Maagodee C

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.00 Channel Width (m) 3.00 Stream width (m) 2.00
Substratum - Bedrock No Boulder No Cobble Yes Gravel Yes Sand Yes Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.25 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Quercus sp.*
- 3 *Acer rubrum*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Acer rubrum*
- 3 *Nyssa sylvatica*

Estimated DBH Range - Large 80 Small 40 Estimated DBH Range Large 40 Small 16

Relative abundance dominant vs subdominant 1:5

Estimated canopy closure Open

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Open habitat with few to no potential roosts.

Subcanopy Clutter None

Subcanopy comprised of

Common Subcanopy Species

- 1 *Juniperus virginiana*
- 2 *Nyssa sylvatica*
- 3 *Acer rubrum*

Habitat Description Open fields with narrow forested riparian corridor along a small stream. Fields are used for hay and pasture

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Turkey foot oak (*Quercus laevis*) is dominant.

Additional Comments No subcanopy clutter.



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/21/2015

State Virginia

County Franklin

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement In narrow wooded riparian area along small stream.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM315A			3	6	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/21/2015

State Virginia

County Franklin

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement In narrow wooded riparian corridor beside small stream.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM315B			9	9	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/21/2015

State Virginia

County Franklin

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement In narrow wooded corridor along small stream and dirt road.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM315C			12	6	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/23/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Kyle Price
KM Site ID VA-KM316 Net ID VA-KM316A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 412.0 Type of water source Stream
Water Source Name Maqodee Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

1 *Liriodendron tulipifera*

2 *Acer rubrum*

3 *Pinus virginiana*

Subdominant Canopy Species (<40cm/16"dbh)

1 *Acer rubrum*

2 *Liriodendron tulipifera*

3 *Quercus sp.*

Estimated DBH Range - Large 75 Small 40 Estimated DBH Range Large 40 Small 20

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Not many available trees

Subcanopy Clutter Low

Subcanopy comprised of saplings

Common Subcanopy Species

1 *Cornus florida*

2 *Liriodendron tulipifera*

3 *Acer rubrum*

Habitat Description Residential area intermixed with young upland deciduous forest

Does the Habitat consist of

Mature Upland Forest No

Young Upland Forest Yes

Mature LowLand Forest No

Young LowLand Forest No

Recently Logged Forest No

Other Residential

Pine Plantation No

Woodlot Forest Edge No

Old Field No

Crop/Pasture Land No

Stream River No

Emergent Wetland No

Forested Swamp No

Shrub Scrub Swamp No

Vernal Pool No

Deepwater Lake Pond No

Herbaceous Cover:

Sparse Yes

Moderate No

Dense No

Roost Tree Decay Stage

Comments Turkey-foot oak in canopy as well

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/23/2015

Permitted Biologist Valerie Clarkston

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Kyle Price

WV State Permit# 2015.2

Net Placement Over private drive

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM316A			9	6	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/23/2015	A	<i>Lasiurus borealis</i>	2200	Adult	Female	Pregnant	14.10	37.5	Full	No damage	Small hole in right wing
5/24/2015	A	<i>Perimyotis subflavus</i>	100	Adult	Female	Pregnant	6.80	33.0	Full	No damage	
5/24/2015	A	<i>Lasiurus borealis</i>	28	Adult	Male	Ascended	9.80	37.0	Medium	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/23/2015

Permitted Biologist Valerie Clarkston

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Doug Gilbert

WV State Permit# 2015.2

Net Placement Over private drive

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM316B			9	6	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/23/2015	B	<i>Lasiurus borealis</i>	2220	Adult	Female	Pregnant	14.90	40.0	Full	No damage	
5/23/2015	B	<i>Lasiurus borealis</i>	2125	Adult	Male	Ascended	10.00	38.0	Full	No damage	
5/23/2015	B	<i>Lasiurus borealis</i>	2045	Adult	Female	Pregnant	15.80	39.0	Full	No damage	
5/24/2015	B	<i>Eptesicus fuscus</i>	2311	Adult	Male	Ascended	16.80	44.0	Full	No damage	
5/24/2015	B	<i>Lasiurus borealis</i>	2124	Adult	Female	Pregnant	17.80	39.0	Full	No damage	
5/24/2015	B	<i>Lasiurus borealis</i>	2300	Adult	Female	Pregnant	16.80	39.0	Full	No damage	

Total # of Bats Captured 6



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/23/2015

State Virginia

County Franklin

Other Field Staff Kyle Price

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement Over private drive

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM316C			6	6	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/01/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Shane Brodnick
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.198
Other Field Staff Keena keen
KM Site ID VA-KM317 Net ID VA-KM317A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Magdadee Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Liriodendron tulipifera*
- 3 *Fagus grandifolia*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Ailanthus altissima*
- 3 *Quercus rubra*

Estimated DBH Range - Large 70 Small 40 Estimated DBH Range Large 39 Small 12

Relative abundance dominant vs subdominant 40:60

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential High

Roosting Potential Explanation Large trees and snags are present and in close proximity to water source.

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Carpinus caroliniana*
- 2 *Acer rubrum*
- 3 *Asimina triloba*

Habitat Description Hardwood forest with trails leading to the magdadee creek.

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/01/2015

Permitted Biologist Shane Brodnick

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Keena Mullins

WV State Permit# 2015.198

Net Placement Net placed over forested road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM317A			6	9	2030	2100

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/04/2015	A	<i>Lasiurus borealis</i>	2105	Adult	Female	Pregnant	18.00	42.0	Full	No damage	
6/04/2015	A	<i>Lasiurus borealis</i>	2105	Adult	Female	Pregnant	16.00	40.0	Full	No damage	
6/04/2015	A	<i>Lasiurus borealis</i>	2154	Adult	Male	Pregnant	17.50	40.0	Medium	No damage	
6/05/2015	A	<i>Lasiurus borealis</i>	2130	Adult	Female	Lactating	14.25	40.0	Full	No damage	
6/05/2015	A	<i>Lasiurus borealis</i>	2140	Adult	Female	Pregnant	17.75	42.0	Full	No damage	

Total # of Bats Captured 5



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/01/2015 Permitted Biologist Shane Brodnick
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Keena Mullins WV State Permit# 2015.198

Net Placement Net stacked over forested road.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM317B			6	9	2030	2100

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/04/2015	B	<i>Lasiurus borealis</i>	2135	Adult	Female	Pregnant	17.00	42.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/01/2015

State Virginia

County Franklin

Other Field Staff Keena Mullins

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Net placed over forested road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM317C			9	9	2030	2100

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/01/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Elise Merrill
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.230
Other Field Staff Amelia Goebel
KM Site ID VA-KM318 Net ID VA-KM318A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 93.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.25 Stream width (m) 6.00
Substratum - Bedrock No Boulder Yes Cobble No Gravel Yes Sand No Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.20 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Liriodendron tulipifera*
- 3 *Platanus occidentalis*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Juglans nigra*
- 3

Estimated DBH Range - Large 83 Small 51 Estimated DBH Range Large 45 Small 25

Relative abundance dominant vs subdominant 3:5

Estimated canopy closure Moderate

Roost Tree Potential Consists snags

Roosting Potential Moderate

Roosting Potential Explanation

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Carpinus caroliniana*
- 2
- 3

Habitat Description

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/01/2015

State Virginia

County Franklin

Other Field Staff Amelia Goebel

Permitted Biologist Elise Merrill

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.23

Net Placement Over 4x4 trail running through the woods

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM318A			18	8	2045	155

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/01/2015 Permitted Biologist Elise Merrill
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Franklin VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Amelia Goebel WV State Permit# 2015.23

Net Placement Stacked over stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM318B			6	5	2043	155

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/06/2015	B	<i>Lasiurus borealis</i>	140	Adult	Male	Ascended	11.20	39.5	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/01/2015 Permitted Biologist Elise Merrill
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Franklin VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Amelia Goebel WV State Permit# 2015.23

Net Placement Cut-through to another pasture passing through a stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM318C			12	8	2050	200

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/02/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Brian Dennis
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.204
Other Field Staff Karsen Shoger
KM Site ID VA-KM319 Net ID VA-KM319A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus rubra*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Quercus sp.*
- 3 *Pinus strobus*

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential High

Roosting Potential Explanation Snag central in net site with excellent sun exposure

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Juniperus virginiana*
- 2 *Acer rubrum*
- 3 *Cornus florida*

Habitat Description Small fairly open wood lot in active cow pasture

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/02/2015

Permitted Biologist Brian Dennis

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Karsen Shoger

WV State Permit# 2015.204

Net Placement

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM319A			12	6	2030	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/04/2015	A	<i>Lasiurus borealis</i>	2203	Adult	Male	Ascended	11.00	40.0	Empty	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/02/2015

Permitted Biologist Brian Dennis

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Karsen Shoger

WV State Permit# 2015.204

Net Placement

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM319B			9	6	2032	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/04/2015	B	<i>Lasiurus borealis</i>	2102	Adult	Female	Pregnant	16.25	41.0	Empty	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/02/2015

Permitted Biologist Brian Dennis

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Karsen Shoger

WV State Permit# 2015.204

Net Placement

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM319C			9	6	2034	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/06/2015	C	<i>Lasiurus borealis</i>	140	Adult	Female	Pregnant	16.25	40.0	Medium	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 06/13/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Brian Dennis
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.204
Other Field Staff Karsen Shoger
KM Site ID VA-KM320 Net ID VA-KM320A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- Liriodendron tulipifera*
- Quercus alba*
-

Subdominant Canopy Species (<40cm/16"dbh)

- Liriodendron tulipifera*
- Robinia pseudoacacia*
- Quercus alba*

Estimated DBH Range - Large 50 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Open

Roost Tree Potential Consists neither

Roosting Potential None

Roosting Potential Explanation No snags, no dead trees, edge of hayfield

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- Liriodendron tulipifera*
- Quercus sp.*
- Robinia pseudoacacia*

Habitat Description Edge of open field and woodlot

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:
Young Upland Forest	No	Woodlot Forest	Edge Yes	Forested Swamp	No	Sparse Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No	
Other						

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/13/2015

Permitted Biologist Brian Dennis

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Karsen Shoger

WV State Permit# 2015.204

Net Placement

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM320A			12	6	2045	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/13/2015

Permitted Biologist Brian Dennis

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Karsen Shoger

WV State Permit# 2015.204

Net Placement

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM320B			9	6	2247	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/13/2015	B	<i>Eptesicus fuscus</i>	26	Adult	Female	Pregnant	24.00	47.0	Full	No damage	
6/13/2015	B	<i>Eptesicus fuscus</i>	2220	Adult	Female	Pregnant	23.25	48.0	Empty	No damage	
6/14/2015	B	<i>Lasiurus borealis</i>	2355	Adult	Male	Ascended	11.75	38.0	Empty	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/13/2015

Permitted Biologist Brian Dennis

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Karsen Shoger

WV State Permit# 2015.204

Net Placement

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM320C			9	6	2250	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/14/2015	C	<i>Lasiurus borealis</i>	107	Adult	Male	Ascended	12.25	37.0	Empty	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/19/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Carme Ardito
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.203
Other Field Staff Josiah Kleinhenz
KM Site ID VA-KM321 Net ID VA-KM321A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 800.0 Type of water source Pond
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 Quercus alba
- 2 Quercus rubra
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 Robinia pseudoacacia
- 2
- 3

Estimated DBH Range - Large 45 Small 40 Estimated DBH Range Large 40 Small 25

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Open

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Few large live Quercus alba in field

Subcanopy Clutter None

Subcanopy comprised of shrubs

Common Subcanopy Species

- 1 Juniperus virginiana
- 2
- 3

Habitat Description Cow pasture adjacent to hayfield with small clump of trees and thin strip of trees along fence line separating fields

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Carme Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Josiah Kleinhenz WV State Permit# 2015.203

Net Placement Net placed at edge of cow pasture along side old barn and scattered trees separating pasture from hayfield

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM321A			12	9	2005	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/19/2015	A	Eptesicus fuscus	2327	Adult	Female	Pregnant	29.50	45.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Carme Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Josiah Kleinhenz WV State Permit# 2015.203

Net Placement Net placed in cow pasture under canopy cover amongst clump of trees.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM321B			6	9	2005	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/20/2015	B	Lasiurus borealis	2139	Adult	Female	Pregnant	20.00	39.0	Full	No damage	Pinhole in left wing

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Carne Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Josiah Kleinhenz WV State Permit# 2015.203

Net Placement Net placed at edge of hayfield adjacent to cow pasture along thin strip of trees. Cluster of large Quercus alba located at other end of net creating a small corridor with no canopy cover.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM321C			9	6	2005	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/21/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Carme Ardito
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.203
Other Field Staff Josiah Kleinhenz
KM Site ID VA-KM322 Net ID VA-KM322A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 300.0 Type of water source Pond
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus rubra*
- 3 *Acer rubrum*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Nyssa sylvatica*
- 3 *Carpa alabra*

Estimated DBH Range - Large 42 Small 40 Estimated DBH Range Large 40 Small 20

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Several large live *Quercus alba* and a few snags present in woodlot surrounding driveway and adjacent to ag field

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Quercus velutina*
- 2 *Cornus florida*
- 3 *Quercus montana*

Habitat Description Gravel driveway to houses and ag fields surrounded by hound upland forested woodlot with some large, mature trees.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/21/2015 Permitted Biologist Carne Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Josiah Kleinhenz WV State Permit# 2015.203

Net Placement Net stacked over gravel driveway corridor under canopy cover. Driveway opens up into crop field beyond net.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM322A			9	6	2005	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/21/2015 Permitted Biologist Carme Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Josiah Kleinhenz WV State Permit# 2015.203

Net Placement Net stacked over gravel driveway corridor under canopy cover

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM322B			6	6	2005	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/21/2015	B	<i>Lasiurus borealis</i>	2134	Adult	Female	Pregnant	18.20	41.0	Medium	No damage	
5/21/2015	B	<i>Lasiurus borealis</i>	2137		Female		0.00	0.0			Net escape

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/21/2015 Permitted Biologist Carme Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Josiah Kleinhenz WV State Permit# 2015.203

Net Placement Net stacked over gravel driveway corridor under canopy cover

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM322C			6	6	2005	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/21/2015	C	<i>Lasiurus borealis</i>	2104		Female		0.00	0.0			Net escape

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/23/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Carme Ardito
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.203
Other Field Staff Dylan Little
KM Site ID VA-KM323 Net ID VA-KM323A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 100.0 Type of water source Pond
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Quercus alba*
- 3 *Quercus montana*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Robinia pseudoacacia*
- 3 *Fagus grandifolia*

Estimated DBH Range - Large 43 Small 40 Estimated DBH Range Large 40 Small 20

Relative abundance dominant vs subdominant 1:25

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation Some small snags in woodlot and very few large trees

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Robinia pseudoacacia*
- 3 *Quercus rubra*

Habitat Description Young upland woodlot, mixed hardwood and evergreen, bordering cornfield.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/23/2015 Permitted Biologist Carme Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Dylan Little WV State Permit# 2015.203

Net Placement Net placed at edge of corn field bordering woodlot

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM323A			12	9	2010	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/23/2015	A	<i>Lasiurus borealis</i>	2209	Adult	Female	Pregnant	20.75	41.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/23/2015 Permitted Biologist Carne Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Dylan Little WV State Permit# 2015.203

Net Placement Net placed at edge of corn field bordering woodlot

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM323B			18	6	2015	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/24/2015	B	<i>Lasiurus borealis</i>	149	Adult	Female	Pregnant	15.50	40.0	Full	No damage	
5/24/2015	B	<i>Lasiurus borealis</i>	35	Adult	Male	Ascended	11.00	39.0	Medium	No damage	
5/24/2015	B	<i>Lasiurus borealis</i>	135	Adult	Female	Pregnant	16.25	41.0	Medium	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/23/2015 Permitted Biologist Carme Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Dylan Little WV State Permit# 2015.203

Net Placement Net placed at edge of corn field bordering woodlot

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM323C			9	9	2020	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/02/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Rodger Rodriguez
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.041
Other Field Staff Justin Bower
KM Site ID VA-KM324 Net ID VA-KM324A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

1 *Liriodendron tulipifera*

2 *Acer rubrum*

3 *Quercus alba*

Subdominant Canopy Species (<40cm/16"dbh)

1 *Nyssa sylvatica*

2 *Ailanthus altissima*

3

Estimated DBH Range - Large 50 Small 40 Estimated DBH Range Large 40 Small 20

Relative abundance dominant vs subdominant 1:5

Estimated canopy closure Open

Roost Tree Potential Consists large trees

Roosting Potential Moderate

Roosting Potential Explanation Many large trees yet no noticeable exfoliating bark or snags.

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

1 *Liriodendron tulipifera*

2 *Magnolia acuminata*

3 *Quercus alba*

Habitat Description Forest edge along existing electric transmission corridor.

Does the Habitat consist of

Mature Upland Forest No

Young Upland Forest Yes

Mature LowLand Forest No

Young LowLand Forest No

Recently Logged Forest No

Other

Pine Plantation No

Woodlot Forest Edge Yes

Old Field No

Crop/Pasture Land No

Stream River No

Emergent Wetland No

Forested Swamp No

Shrub Scrub Swamp No

Vernal Pool No

Deepwater Lake Pond No

Herbaceous Cover:

Sparse No

Moderate No

Dense Yes

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/02/2015

State Virginia

County Franklin

Other Field Staff Justin Bower

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.041

Net Placement Along forest edge

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM324A			6	6	2025	155

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/02/2015

State Virginia

County Franklin

Other Field Staff Justin Bower

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.041

Net Placement Along forest edge

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM324B			6	6	2020	150

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/02/2015

State Virginia

County Franklin

Other Field Staff Justin Bower

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.041

Net Placement Along forest edge

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM324C			6	6	2015	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/27/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kiara Johnson
KM Site ID VA-KM325 Net ID VA-KM325A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.25 Channel Width (m) 6.00 Stream width (m) 2.00
Substratum - Bedrock Yes Boulder No Cobble Yes Gravel Yes Sand No Silt/Clay No
Stillwater Present Yes Average Water depth (m) 0.25 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- Liriodendron tulipifera*
- Platanus occidentalis*
- Juglans nigra*

Subdominant Canopy Species (<40cm/16"dbh)

- Fraxinus americana*
- Juglans nigra*
- Liriodendron tulipifera*

Estimated DBH Range - Large 65 Small 40 Estimated DBH Range Large 39 Small 17

Relative abundance dominant vs subdominant 1:5

Estimated canopy closure Open

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- Carpinus caroliniana*
- Cercis canadensis*
- Acer rubrum*

Habitat Description Pasture near creek beside woodlot

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/27/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Net edge following creek dividing hayfield/ pasture

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM325A			12	9	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/28/2015	A	<i>Lasiurus borealis</i>	2140	Adult	Female	Pregnant	20.50	41.0	Medium	No damage	
5/28/2015	A	<i>Perimyotis subflavus</i>	2055	Adult	Female	Pregnant	7.00	33.0	Medium	No damage	Healthy

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/27/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Across flyway at corner of cow pasture, near creek

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM325B			12	6	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/28/2015	B	<i>Lasiurus borealis</i>	2145	Adult	Male	Ascended	12.00	39.5	Medium	No damage	
5/28/2015	B	<i>Lasionycteris noctivagans</i>	2141	Adult	Male	Ascended	9.50	39.5	Medium	No damage	Removed ant head from exterior right side cheek
5/28/2015	B	<i>Lasiurus borealis</i>	2143	Adult	Female	Pregnant	19.20	41.0	Medium	No damage	Very pregnant bat

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/27/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Net stacked over creek in open woodlot at the end of pasture/hayfield

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM325C			6	6	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/28/2015	C	<i>Lasiurus borealis</i>	2220	Adult	Female	Pregnant	18.00	40.0	Medium	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 08/08/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Ben Ward
KM Site ID VA-KM326 Net ID VA-KM326A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

1
2
3

Subdominant Canopy Species (<40cm/16"dbh)

1
2
3

Estimated DBH Range - Large 0 Small 0 Estimated DBH Range Large 0 Small 0

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure

Roost Tree Potential Consists

Roosting Potential

Roosting Potential Explanation

Subcanopy Clutter

Subcanopy comprised of

Common Subcanopy Species

1 2 3

Habitat Description

Does the Habitat consist of

Mature Upland Forest No

Young Upland Forest No

Mature LowLand Forest No

Young LowLand Forest No

Recently Logged Forest No

Other

Pine Plantation No

Woodlot Forest Edge No

Old Field No

Crop/Pasture Land No

Stream River No

Emergent Wetland No

Forested Swamp No

Shrub Scrub Swamp No

Vernal Pool No

Deepwater Lake Pond No

Herbaceous Cover:

Sparse No

Moderate No

Dense No

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/08/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Stacked over access road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM326A			12	6	2020	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/08/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Stacked over access rd in wooded corridor.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM326B			6	9	2020	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/08/2015	B	<i>Lasiurus borealis</i>	2330	Adult	Male	Descended	10.50	40.0	Medium	No damage	
8/08/2015	B	<i>Lasiurus borealis</i>	2230	Adult	Male	Descended	14.00	38.0	Medium	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 08/08/2015

State Virginia

County Franklin

Other Field Staff Ben Ward

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Stacked across edge of pond

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM326C			9	6	2020	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/03/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM327 Net ID VA-KM327A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.50 Channel Width (m) 4.00 Stream width (m) 3.00
Substratum - Bedrock Yes Boulder No Cobble Yes Gravel Yes Sand Yes Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 1.00 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Platanus occidentalis*
- 2 *Acer rubrum*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Juglans nigra*
- 2 *Salix nigra*
- 3

Estimated DBH Range - Large 70 Small 40 Estimated DBH Range Large 32 Small 8

Relative abundance dominant vs subdominant 1:30

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Few number of potential roosts; large trees lack roosting structures; relatively open

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Juglans nigra*
- 2 *Salix nigra*
- 3 *Lindera benzoin*

Habitat Description Open pasture with narrow riparian corridor with small stream. Few large trees with most vegetation comprised of young trees

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments *Alnus serrulata* is understory

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/03/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Edge of pasture next to narrow riparian corridor

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM327A			9	9	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/06/2015	A	<i>Lasiurus borealis</i>	105	Adult	Female	Pregnant	19.50	40.0	Full	No damage	Two pinholes in uropatagium
6/06/2015	A	<i>Lasiurus borealis</i>	30	Adult	Male	Ascended	12.20	41.0	Full	No damage	
6/06/2015	A	<i>Lasiurus borealis</i>	50	Adult	Male	Ascended	11.00	41.0	Full	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/03/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Along stream in narrow riparian corridor; dirt road intersects stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM327B			6	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/06/2015	B	<i>Lasiurus borealis</i>	2120	Adult	Male	Ascended	9.80	38.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/03/2015

State Virginia

County Franklin

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement On small stream that intersects a pasture.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM327C			3	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/12/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Shane Brodnick
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.198
Other Field Staff Keena Mullins
KM Site ID VA-KM328 Net ID VA-KM328A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name N/A

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.00 Channel Width (m) 2.00 Stream width (m) 2.00
Substratum - Bedrock No Boulder No Cobble Yes Gravel Yes Sand Yes Silt/Clay No
Stillwater Present No Average Water depth (m) 0.10 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Ailanthus altissima*
- 2 *Liriodendron tulipifera*
- 3 *Acer rubrum*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus rubra*
- 2 *Robinia pseudoacacia*
- 3 *Fagus grandifolia*

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 39 Small 10

Relative abundance dominant vs subdominant 40:60

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees

Roosting Potential Moderate

Roosting Potential Explanation Large trees are present that would facilitate roosting habitat

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Lindera benzoin*
- 2 *Cercis canadensis*
- 3 *Carpinus caroliniana*

Habitat Description Eastern deciduous forest with low land corridor running next to an intermittent stream

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/12/2015

State Virginia

County Franklin

Other Field Staff Keena Mullins

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Net placed on forested trail and over a stream

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM328A			12	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/12/2015

State Virginia

County Franklin

Other Field Staff Keena Mullins

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Net placed on forested trail and over a stream

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM328B			12	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/12/2015 Permitted Biologist Shane Brodnick
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Keena Mullins WV State Permit# 2015.198

Net Placement Net placed on forested trail adjacent to stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM328C			6	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/12/2015	C	<i>Eptesicus fuscus</i>	2150				0.00	0.0			Escaped
6/12/2015	C	<i>Lasiurus borealis</i>	20	Adult	Female	Lactating	14.00	42.0	Full	No damage	

Total # of Bats Captured 2



Net Site Habitat Data

Project # 593.12 Date 05/17/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Carme Ardito
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.203
Other Field Staff Josiah Kleinhenz
KM Site ID VA-KM329 Net ID VA-KM329A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 350.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Ailanthus altissima*
- 2 *Juglans nigra*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Acer negundo*
- 3 *Acer rubrum*

Estimated DBH Range - Large 41 Small 40 Estimated DBH Range Large 40 Small 15

Relative abundance dominant vs subdominant 1:40

Estimated canopy closure Open

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation Very few small snags located in woodlot near net site

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Juniperus virginiana*
- 2 *Ailanthus altissima*
- 3 *Acer negundo*

Habitat Description Hayfield bordered by strip of trees on south side and adjacent to woodlot on west side.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other	Hayfield						

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Franklin

Other Field Staff Josiah Kleinhenz

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Net stacked over hayfield along strip of trees separating two hayfields.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM329A			18	6	2005	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/17/2015 Permitted Biologist Carme Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Josiah Kleinhenz WV State Permit# 2015.203

Net Placement Net stacked over field edge along strip of trees separating two hayfields

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM329B			9	9	2000	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/17/2015	B	<i>Eptesicus fuscus</i>	57	Adult	Female	Pregnant	27.50	49.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Franklin

Other Field Staff Josiah Kleinhenz

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Net stacked over hayfield at edge of wood lot

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM329C			12	9	2000	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/15/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Carme Ardito
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.203
Other Field Staff Josiah Kleinhenz
KM Site ID VA-KM330 Net ID VA-KM330A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 500.0 Type of water source Stream
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Ailanthus altissima*
- 3 *Acer rubrum*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Liriodendron tulipifera*
- 3 *Platanus occidentalis*

Estimated DBH Range - Large 35 Small 30 Estimated DBH Range Large 30 Small 15

Relative abundance dominant vs subdominant 1:50

Estimated canopy closure Moderate

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation Very cluttered wooded area with very few snags and no large trees

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Platanus occidentalis*
- 2 *Acer rubrum*
- 3 *Ailanthus altissima*

Habitat Description Old logging trail through early successional wooded lowland wood lot.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/15/2015 Permitted Biologist Carme Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Josiah Kleinhenz WV State Permit# 2015.203

Net Placement Net stacked over old logging road under canopy cover. Very near co hwy 40.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM330A			6	6	2000	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/15/2015 Permitted Biologist Carme Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Josiah Kleinhenz WV State Permit# 2015.203

Net Placement Net placed across small clearing on old logging road. No canopy cover above net but good cover on sides of net.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM330B			9	9	2000	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	B	<i>Lasiurus borealis</i>	2119	Adult	Female	Non-Reproductive	13.50	38.0	Full	No damage	
5/16/2015	B	<i>Lasiurus borealis</i>	2306	Adult	Female	Non-Reproductive	13.25	39.0	Full	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/15/2015

State Virginia

County Franklin

Other Field Staff Josiah Kleinhenz

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Net stacked over old logging road corridor

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM330C			6	6	2000	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/21/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Shane Brodnick
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.198
Other Field Staff Keena Mullins
KM Site ID VA-KM331 Net ID VA-KM331A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 200.0 Type of water source Stream
Water Source Name N/A

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- Juglans nigra*
- Ailanthus altissima*
-

Subdominant Canopy Species (<40cm/16"dbh)

- Juglans nigra*
- Liriodendron tulipifera*
- Robinia pseudoacacia*

Estimated DBH Range - Large 75 Small 40 Estimated DBH Range Large 39 Small 0

Relative abundance dominant vs subdominant 45:55

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential High

Roosting Potential Explanation Snags and large trees in close proximity to each other. Easy access to travel and water sources.

Subcanopy Clutter High

Subcanopy comprised of shrubs

Common Subcanopy Species

- Juniperus virginiana*
- Pinus sylvestris*
- Robinia pseudoacacia*

Habitat Description Mixed hardwood forest. Nets located in Forest edge adjacent to power line corridor.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/21/2015

State Virginia

County Franklin

Other Field Staff Keena Mullins

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Field edge net

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM331A			9	9	2000	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/21/2015

State Virginia

County Franklin

Other Field Staff Keena Mullins

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Field edge net

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM331B			9	9	2000	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/21/2015

Permitted Biologist Shane Brodnick

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Keena Mullins

WV State Permit# 2015.198

Net Placement Field edge net

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM331C			6	9	2000	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/22/2015	C	<i>Lasiurus borealis</i>	2245	Adult	Male	Ascended	10.50	38.0	Medium	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/22/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Michelle Gillev
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.212
Other Field Staff Natasha Brown
KM Site ID VA-KM332 Net ID VA-KM332A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 458.0 Type of water source Pond
Water Source Name Pond

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

-
-
-

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Pinus virginiana*
- 2 *Quercus nigra*
- 3 *Liriodendron tulipifera*

Estimated DBH Range - Large 0 Small 0 Estimated DBH Range Large 20 Small 10

Relative abundance dominant vs subdominant 0:1

Estimated canopy closure Closed

Roost Tree Potential Consists neither

Roosting Potential None

Roosting Potential Explanation Young pine plantation, with a few mixed, sapling hardwoods.

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Robinia pseudoacacia*
- 2 *Acer rubrum*
- 3 *Quercus nigra*

Habitat Description Jeep trail leading through young pine plantation, with a few mixed, sapling hardwoods. Large power line ROW bisects property to south.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	Yes	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/22/2015 Permitted Biologist Michelle Gilley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Natasha Brown WV State Permit# 2015.212

Net Placement Jeep trail at entrance to power line ROW

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM332A			6	9	2020	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/22/2015	A	<i>Lasiurus borealis</i>	2118	Adult	Female	Pregnant	14.50	42.0	Medium	No damage	
5/22/2015	A	<i>Lasiurus borealis</i>	2234	Adult	Female	Pregnant	15.50	40.0	Full	No damage	
5/22/2015	A	<i>Lasiurus borealis</i>	2118	Adult	Female	Pregnant	13.50	41.0	Medium	No damage	Large hole in tail membrane, see pic
5/22/2015	A	<i>Lasiurus borealis</i>	2345	Adult	Female		0.00	0.0			

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/22/2015

Permitted Biologist Michelle Gilley

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Michelle Gilley

WV State Permit# 2015.212

Net Placement Jeep trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM332B			6	6	2020	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/23/2015	B	<i>Lasiurus borealis</i>	2322	Adult	Male	Ascended	11.50	39.0	Medium	No damage	
5/23/2015	B	<i>Lasiurus borealis</i>	2210	Adult	Female	Pregnant	18.50	42.0	Full	No damage	
5/23/2015	B	<i>Lasiurus borealis</i>	2327	Adult	Female	Pregnant	15.00	41.5	Full	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/22/2015

Permitted Biologist Michelle Gilley

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Natasha Brown

WV State Permit# 2015.212

Net Placement Jeep trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM332C			6	6	2020	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/22/2015	C	<i>Lasiurus borealis</i>	2120	Adult	Female		0.00	0.0			Escaped from net
5/22/2015	C	<i>Lasiurus borealis</i>	2048	Adult	Female	Pregnant	13.00	38.5	Empty	No damage	
5/22/2015	C	<i>Lasiurus borealis</i>	2120	Adult	Male	Ascended	9.00	40.0	Empty	Light damage	Possible white nose scarring on wing and tail membranes, see pics

Total # of Bats Captured 3



Net Site Habitat Data

Project # 593.12 Date 06/07/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Shane Brodnick
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.198
Other Field Staff Keena Mullins
KM Site ID VA-KM333 Net ID VA-KM333A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 2.0 Type of water source Stream
Water Source Name N/A

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus sp.*
- 2 *Liriodendron tulipifera*
- 3 *Robinia pseudoacacia*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Acer rubrum*
- 3 *Quercus niara*

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 39 Small 8

Relative abundance dominant vs subdominant 50:50

Estimated canopy closure Closed

Roost Tree Potential Consists neither

Roosting Potential Moderate

Roosting Potential Explanation Presence of deciduous trees that can be potential roost trees for *M. septentrionalis*.

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Nyssa sylvatica*
- 3 *Robinia pseudoacacia*

Habitat Description Mixed hardwood forest with trail interconnecting two roads surrounded by pine plantation used by lumber industry.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	Yes	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Dominant canopy species pitch pine (*Pinus*)

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/07/2015

State Virginia

County Franklin

Other Field Staff Keena Mullins

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Net placed over trail in pine forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM333A			6	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/07/2015

State Virginia

County Franklin

Other Field Staff Keena Mullins

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Nets placed on forested trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM333B			9	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/07/2015

State Virginia

County Franklin

Other Field Staff Keena Mullins

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement Net placed on forested trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM333C			6	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Mist Net VA-KM334 Habitat Data is missing.



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/26/2015 Permitted Biologist Shane Brodnick
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Keena Mullins WV State Permit# 2015.198

Net Placement Net placed in intersection of 3 forested trails

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM334A			9	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/26/2015 Permitted Biologist Shane Brodnick
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Keena Mullins WV State Permit# 2015.198

Net Placement Net placed on forested trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM334B			9	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/26/2015	B	Lasiurus borealis	2345	Adult	Male	Ascended	11.00	38.0	Full	Moderate damage	Wing damage not due to wns

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/26/2015 Permitted Biologist Shane Brodnick
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Keena Mullins WV State Permit# 2015.198

Net Placement Net placed on forested trail adjacent to intermittent stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM334C			12	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/11/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kiara Johnson
KM Site ID VA-KM335 Net ID VA-KM335A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 200.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Fagus grandifolia*
- 2 *Liriodendron tulipifera*
- 3 *Quercus alba*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Liriodendron tulipifera*
- 3 *Nyssa sylvatica*

Estimated DBH Range - Large 45 Small 40 Estimated DBH Range Large 39 Small 16

Relative abundance dominant vs subdominant 1:25

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Cornus florida*
- 2 *Oxydendrum arboreum*
- 3 *Ostrya virginiana*

Habitat Description Young woodlot with large power line right of way dividing it

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/11/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Net placed across trail through forested corridor

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM335A			6	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/11/2015	A	<i>Lasiurus borealis</i>	2320	Adult	Female	Lactating	15.00	39.0	Medium	No damage	Removed ant head from right side of face

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/11/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Net placed across trail through forested corridor

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM335B			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/12/2015	B	<i>Eptesicus fuscus</i>	2200	Adult	Male	Ascended	15.50	45.0	Medium	No damage	
6/12/2015	B	<i>Eptesicus fuscus</i>	116	Adult	Male	Ascended	16.00	45.0	Full	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/11/2015

State Virginia

County Franklin

Other Field Staff Kiara Johnson

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Net placed across trail through forested corridor

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM335C			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/07/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Brian Dennis
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.204
Other Field Staff Karsen Shoger
KM Site ID VA-KM336 Net ID VA-KM336A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Liriodendron tulipifera*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Acer rubrum*
- 3 *Prunus serotina*

Estimated DBH Range - Large 45 Small 40 Estimated DBH Range Large 39 Small 10

Relative abundance dominant vs subdominant 1:50

Estimated canopy closure Closed

Roost Tree Potential Consists neither

Roosting Potential Low

Roosting Potential Explanation Dense young growth Forest, no snags or large trees

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Liriodendron tulipifera*
- 2 *Juniperus virginiana*
- 3 *Prunus serotina*

Habitat Description Sense young upland forest with atv trails alongside hayfield and road

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/07/2015

Permitted Biologist Brian Dennis

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Karsen Shoger

WV State Permit# 2015.204

Net Placement

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM336A			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/07/2015	A	<i>Lasiurus borealis</i>	2137				0.00	0.0			Escape
6/09/2015	A	<i>Lasiurus borealis</i>	130	Adult	Male	Ascended	11.00	38.0	Medium	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/07/2015

State Virginia

County Franklin

Other Field Staff Karsen Shoger

Permitted Biologist Brian Dennis

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.204

Net Placement

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM336B			6	6	2033	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/07/2015

State Virginia

County Franklin

Other Field Staff Karsen Shoger

Permitted Biologist Brian Dennis

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.204

Net Placement

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM336C			6	6	2036	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/10/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Rodger Rodriguez
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.041
Other Field Staff Justin Bower
KM Site ID VA-KM337 Net ID VA-KM337A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Owens Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.00 Channel Width (m) 10.00 Stream width (m) 2.00
Substratum - Bedrock Yes Boulder No Cobble No Gravel No Sand No Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.13 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Pinus strobus*
- 3 *Platanus occidentalis*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Pinus strobus*
- 3

Estimated DBH Range - Large 25 Small 17 Estimated DBH Range Large 15 Small 12

Relative abundance dominant vs subdominant 1:4

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees

Roosting Potential Moderate

Roosting Potential Explanation Many large trees yet no noticeable exfoliating bark or snags.

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Liriodendron tulipifera*
- 2 *Pinus strobus*
- 3 *Platanus occidentalis*

Habitat Description White pine (*Pinus strobus*) stand with trails running through it. Creek under partial canopy of poplars and sycamores.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	Yes	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/07/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across forested trail (pines) under partial canopy cover.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM337A			6	9	2025	205

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/07/2015	A	<i>Eptesicus fuscus</i>	55	Adult	Female	Lactating	21.00	51.0	Full	No damage	
6/07/2015	A	<i>Lasiurus borealis</i>	15	Adult	Male	Ascended	13.00	40.0	Empty	No damage	
6/10/2015	A	<i>Lasiurus borealis</i>	10	Adult	Male	Ascended	12.00	38.0	Medium	No damage	
6/10/2015	A	<i>Lasiurus borealis</i>	10	Adult	Female	Lactating	18.00	45.0	Medium	Light damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/07/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across forested trail under partial canopy cover.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM337B			6	6	2100	210

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/07/2015	B	<i>Lasiurus borealis</i>	2250	Adult	Male	Ascended	12.00	39.0	Empty	Light damage	
6/07/2015	B	<i>Lasiurus borealis</i>	2135	Adult	Female	Lactating	15.00	41.0	Empty	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/07/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across creek under partially closed canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM337C			9	9	2100	215

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/07/2015	C	<i>Eptesicus fuscus</i>	2140	Adult	Female	Lactating	21.00	48.0	Medium	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 08/04/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Ben Ward
KM Site ID VA-KM338 Net ID VA-KM338A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Strawfield Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.50 Channel Width (m) 4.00 Stream width (m) 2.50
Substratum - Bedrock Yes Boulder Yes Cobble Yes Gravel Yes Sand Yes Silt/Clay Yes
Stillwater Present No Average Water depth (m) 0.25 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Fagus grandifolia*
- 2 *Liriodendron tulipifera*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Carpinus caroliniana*
- 2 *Carya glabra*
- 3 *Liriodendron tulipifera*

Estimated DBH Range - Large 50 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Large trees with exfoliating bark are not abundant. Site is proximal to water source and solar exposure

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Hamamelis virginiana*
- 2 *Acer rubrum*
- 3 *Platanus occidentalis*

Habitat Description Habitat lies in riparian lowland area at base of upland pasture and corn fields on either side. A small creek intersects habitat and is mostly surrounded canopied woods.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature Lowland Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young Lowland Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Franklin County

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/04/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Net stacked over pool in stream running in small woodlot between pasture and crop(corn)

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM338A			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/04/2015	A	<i>Eptesicus fuscus</i>	2115	Adult	Male	Descended	16.00	47.0	Empty		
8/04/2015	A	<i>Eptesicus fuscus</i>	2115	Adult	Female	Post-Lactating	20.00	47.5	Full	Light damage	
8/04/2015	A	<i>Lasiurus borealis</i>	2245	Adult	Female	Post-Lactating	17.00	40.5	Full	No damage	
8/04/2015	A	<i>Lasiurus borealis</i>	45	Adult	Male	Descended	15.00	39.0	Medium	No damage	
8/04/2015	A	<i>Eptesicus fuscus</i>	2115	Adult	Female	Post-Lactating	19.00	48.0	Medium	Moderate damage	
8/04/2015	A	<i>Eptesicus fuscus</i>	2215	Adult	Female	Post-Lactating	20.50	47.5	Medium	No damage	

Total # of Bats Captured 6



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 08/04/2015

State Virginia

County Franklin

Other Field Staff Ben Ward

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Stacked over narrow stream which parallels riparian woods and cropland

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM338B			3	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/04/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Stacked in lowland open area in between wooded corridor and corn field

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM338C			9	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/07/2015	C	<i>Lasiurus borealis</i>	2145	Juvenile	Female	Non-Reproductive	13.00	37.5	Medium	No damage	
8/07/2015	C	<i>Lasiurus borealis</i>	2145	Juvenile	Female	Non-Reproductive	13.50	38.0	Medium		

Total # of Bats Captured 2



Net Site Habitat Data

Project # 593.12 Date 05/15/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Dan Cox
Federal Permit ID TE62778B-0
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID N/A
Other Field Staff John Manuel
KM Site ID VA-KM339 Net ID VA-KM339A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 580.0 Type of water source Pond
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus sp.*
- 2 *Quercus alba*
- 3 *Quercus coccinea*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Pinus sp.*
- 3 *Liriodendron tulipifera*

Estimated DBH Range - Large 37 Small 25 Estimated DBH Range Large 10 Small 7

Relative abundance dominant vs subdominant 1:30

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Very few snags for *Myotis sodalis*

Subcanopy Clutter High

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Oxydendrum arboreum*
- 2 *Acer rubrum*
- 3 *Liriodendron tulipifera*

Habitat Description Pine plantation and mid-aged upland hardwoods. Very cluttered understory. Commuting corridor present.

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	Yes	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/15/2015 Permitted Biologist Dan Cox
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE62778B-0
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff John Manuel WV State Permit# _____

Net Placement Logging road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM339A	██████████	██████████	9	6	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	A	<i>Lasionycteris noctivagans</i>	115	Adult	Male	Ascended	10.25	40.0	Medium	No damage	
5/15/2015	A	<i>Lasiurus borealis</i>	44	Adult	Female	Non-Reproductive	13.50	40.0	Medium	No damage	
5/16/2015	A	<i>Eptesicus fuscus</i>	2300	Adult	Female	Non-Reproductive	29.25	49.0	Full	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/15/2015 Permitted Biologist Dan Cox
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE62778B-0
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff John Manuel WV State Permit# _____

Net Placement Logging road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM339B	██████████	██████████	6	6	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	B	<i>Lasiurus borealis</i>	2155	Adult	Female	Non-Reproductive	14.50	41.0	Medium	No damage	
5/15/2015	B	<i>Eptesicus fuscus</i>	2200	Adult	Female	Non-Reproductive	22.00	47.0	Full	Light damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/15/2015 Permitted Biologist Dan Cox
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE62778B-0
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff John Manuel WV State Permit# _____

Net Placement Logging road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM339C	██████████	██████████	6	6	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	C	<i>Eptesicus fuscus</i>	21	Adult	Female	Non-Reproductive	25.00	49.0	Full	Light damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/15/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist John Hootman
Federal Permit ID TE 62778B-0
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.810
Other Field Staff Sara Estep
KM Site ID VA-KM340 Net ID VA-KM340A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 365.0 Type of water source Stream
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Platanus occidentalis*
- 2 *Quercus alba*
- 3 *Acer rubrum*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Cornus florida*
- 3 *Celtis occidentalis*

Estimated DBH Range - Large 100 Small 70 Estimated DBH Range Large 50 Small 15

Relative abundance dominant vs subdominant 1:7

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation For Indiana's roost potential is low as big trees such as *P. occidentalis* and *Q. alba* aren't known for their maternity roosting potential.

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Cornus florida*
- 2 *Celtis occidentalis*
- 3

Habitat Description Lots of mature sycamores as the road with the nets is next to a dry creek bed. Wood lot is surrounded by ag land. There's a pine stand north of the site.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	Yes	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/15/2015

Permitted Biologist John Hootman

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE 62778B-0

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Sara Estep

WV State Permit# 2015.81

Net Placement Across wooded dirt road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM340A			9	6	2015	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	A	<i>Lasiurus borealis</i>	2120	Adult	Female	Pregnant	13.00	41.0	Medium	No damage	
5/17/2015	A	<i>Lasiurus borealis</i>	35	Adult	Male	Ascended	10.50	36.0	Medium	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/15/2015

Permitted Biologist John Hootman

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE 62778B-0

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Sara Estep

WV State Permit# 2015.81

Net Placement Over forested dirt road.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM340B			6	6	2017	122

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	B	<i>Lasionycteris noctivagans</i>	2319	Adult	Male	Ascended	0.00	0.0			Escaped from hand
5/15/2015	B	<i>Lasiurus borealis</i>	119	Adult	Female	Pregnant	15.00	42.0	Medium	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/15/2015

Permitted Biologist John Hootman

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE 62778B-0

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Sara Estep

WV State Permit# 2015.81

Net Placement Over forested dirt road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM340C			6	6	2019	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	C	<i>Lasiurus borealis</i>	2050	Adult	Male	Ascended	9.50	39.0	Empty	No damage	
5/16/2015	C	<i>Lasionycteris noctivagans</i>	2350	Adult	Male	Ascended	9.00	39.0	Medium	No damage	Spiderweb on wing. Bald spot on chest

Total # of Bats Captured 2



Net Site Habitat Data

Project # 593.12 Date 05/17/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist John Hootman
Federal Permit ID TE 62778B-0
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.810
Other Field Staff Sara Estep
KM Site ID VA-KM341 Net ID VA-KM341A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Unnamed

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.50 Channel Width (m) 3.00 Stream width (m) 2.00
Substratum - Bedrock No Boulder No Cobble Yes Gravel Yes Sand No Silt/Clay No
Stillwater Present Yes Average Water depth (m) 0.05 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Liriodendron tulipifera*
- 3 *Platanus occidentalis*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Fagus grandifolia*
- 3 *Quercus palustris*

Estimated DBH Range - Large 70 Small 50 Estimated DBH Range Large 50 Small 20

Relative abundance dominant vs subdominant 1:7

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Higher for *M. septentrionalis* than for *M. sodalis* since not many snags with exfoliating bark.

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Cornus florida*
- 2 *Cercis canadensis*
- 3 *Lindera benzoin*

Habitat Description Mixed age forest with good diversity. Stream is small and cluttered. Area is managed for hunting. Site is south of S.R. 40

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	Yes	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Pittsylvania

Other Field Staff Sara Estep

Permitted Biologist John Hootman

Federal Permit # TE 62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.81

Net Placement Placed adjacent to forest edge into hay field

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM341A			9	6	2015	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/17/2015 Permitted Biologist John Hootman
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE 62778B-0
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Sara Estep WV State Permit# 2015.81

Net Placement Over pool in small creek at a 4 wheeler crossing

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM341B			9	6	2017	124

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/18/2015	B	<i>Lasiurus borealis</i>	2200	Adult	Male	Ascended	11.00	39.0	Medium	No damage	
5/18/2015	B	<i>Lasiurus borealis</i>	2045	Adult			0.00	0.0			Escaped from net

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/17/2015 Permitted Biologist John Hootman
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE 62778B-0
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Sara Estep WV State Permit# 2015.81

Net Placement Across ATV trail rut

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM341C			12	6	2020	126

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/17/2015	C	<i>Eptesicus fuscus</i>	2310	Adult	Male	Descended	17.50	45.0	Medium	No damage	
5/18/2015	C	<i>Lasiurus borealis</i>	2155	Adult	Female	Pregnant	16.00	39.0	Medium	No damage	
5/18/2015	C	<i>Eptesicus fuscus</i>	2155	Adult	Male	Descended	16.00	46.0	Medium	No damage	

Total # of Bats Captured 3



Net Site Habitat Data

Project # 593.12 Date 05/17/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Dan Cox
Federal Permit ID TE62778B-0
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID N/A
Other Field Staff John Manuel
KM Site ID VA-KM342 Net ID VA-KM342A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Pond
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Liriodendron tulipifera*
- 3 *Pinus virginiana*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Oxydendrum arboreum*
- 2 *Liriodendron tulipifera*
- 3 *Fagus grandifolia*

Estimated DBH Range - Large 38 Small 25 Estimated DBH Range Large 13 Small 3

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Moderate potential exists for *M. Septentrionalis*. Healthy woodlot with little to no snags - little roosting opportunity for *sodalis*.

Subcanopy Clutter High

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Oxydendrum arboreum*
- 2 *Fagus grandifolia*
- 3 *Quercus montana*

Habitat Description Mature, upland woodlot bordered by pastureland. Woodlot is mostly hardwood, with component of virginia pine. Large, open pond accessible to bats for foraging and drinking. Good bat habitat.

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	Yes		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/17/2015 Permitted Biologist Dan Cox
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE62778B-0
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff John Manuel WV State Permit# _____

Net Placement Borders large, open pond and pasture

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM342A	██████████	██████████	9	6	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/17/2015	A	<i>Lasiurus borealis</i>	42	Adult	Male	Ascended	10.25	42.0	Medium	No damage	
5/17/2015	A	<i>Eptesicus fuscus</i>	21	Adult	Male	Ascended	17.50	45.0	Full	Light damage	
5/18/2015	A	<i>Lasiurus borealis</i>	2305	Adult	Male	Ascended	10.25	38.0	Medium	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Pittsylvania

Other Field Staff John Manuel

Permitted Biologist Dan Cox

Federal Permit # TE62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit#

Net Placement Gravel road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM342B			6	6	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/17/2015 Permitted Biologist Dan Cox
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE62778B-0
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff John Manuel WV State Permit# _____

Net Placement Gravel road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM342C	██████████	██████████	6	6	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/18/2015	C	<i>Perimyotis subflavus</i>	2305	Adult	Female	Non-Reproductive	5.25	34.0	Empty	Light damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/23/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Brian Cooper
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.034
Other Field Staff Ethan Okon
KM Site ID VA-KM343 Net ID VA-KM343A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 100.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus rubra*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Pinus virginiana*
- 2 *Carya glabra*
- 3 *Juniperus virginiana*

Estimated DBH Range - Large 75 Small 55 Estimated DBH Range Large 55 Small 40

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential Moderate

Roosting Potential Explanation Several large snags, but with poor solar exposure. Old cabins and buildings are also potential roosts.

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Carya sp.*
- 2 *Pinus virginiana*
- 3 *Quercus sp.*

Habitat Description Forested lot with old homestead, cabin, and sheds bordering a hayfield.

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Whip-Poor-Will

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/23/2015

State Virginia

County Pittsylvania

Other Field Staff Ethan Okon

Permitted Biologist Brian Cooper

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.034

Net Placement Trail opening

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM343A			6	8	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/23/2015	A	Lasiurus borealis	0	Adult	Female	Pregnant	17.43	40.5	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/23/2015

State Virginia

County Pittsylvania

Other Field Staff Ethan Okon

Permitted Biologist Brian Cooper

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.034

Net Placement Field edge

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM343B			18	8	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/23/2015	B	Lasiurus borealis	2230	Adult	Female	Pregnant	16.08	41.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/23/2015

Permitted Biologist Brian Cooper

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE38842A-3

Company Name MVP

County Pittsylvania

VA State Permit# N/A T&E 54100

Site Name Mountain Valley Pipeline

Other Field Staff Ethan Okon

WV State Permit# 2015.034

Net Placement Field edge

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM343C			9	8	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/24/2015	C	<i>Lasiurus borealis</i>	2020	Adult	Male	Non-Reproductive	9.80	39.0	Medium	No damage	
5/24/2015	C	<i>Eptesicus fuscus</i>	2100	Adult	Male	Non-Reproductive	12.75	43.0	Full	Light damage	
5/24/2015	C	<i>Lasiurus borealis</i>	2320	Adult	Male	Non-Reproductive	11.15	40.0	Medium	No damage	

Total # of Bats Captured 3



Net Site Habitat Data

Project # 593.12 Date 05/23/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Dan Cox
Federal Permit ID TE62778B-0
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID N/A
Other Field Staff John Manuel
KM Site ID VA-KM344 Net ID VA-KM344A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 380.0 Type of water source Pond
Water Source Name Farm pond

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus sp.*
- 2 *Quercus rubra*
- 3 *Quercus alba*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Pinus sp.*
- 2 *Prunus serotina*
- 3 *Carva sp.*

Estimated DBH Range - Large 30 Small 18 Estimated DBH Range Large 18 Small 10

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists neither

Roosting Potential Low

Roosting Potential Explanation Young, dense forest. Few large diameter trees. No large snags. Abundant small diameter snags.

Subcanopy Clutter High

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Cornus florida*
- 2 *Pinus sp.*
- 3 *Acer rubrum*

Habitat Description Dense, young, upland mixed hardwood/pine forest. Thick understory.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	Yes	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/23/2015

State Virginia

County Pittsylvania

Other Field Staff John Manuel

Permitted Biologist Dan Cox

Federal Permit # TE62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit#

Net Placement Forest road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM344A			6	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/23/2015

State Virginia

County Pittsylvania

Other Field Staff John Manuel

Permitted Biologist Dan Cox

Federal Permit # TE62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit#

Net Placement Forest road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM344B			6	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/23/2015

State Virginia

County Pittsylvania

Other Field Staff John Manuel

Permitted Biologist Dan Cox

Federal Permit # TE62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit#

Net Placement Forest road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM344C			6	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/20/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Michelle Gillev
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.212
Other Field Staff Doug Gilbert
KM Site ID VA-KM345 Net ID VA-KM345A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 402.0 Type of water source Pond
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus sp.*
- 2 *Quercus alba*
- 3 *Pinus sp.*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Pinus virginiana*
- 3

Estimated DBH Range - Large 81 Small 40 Estimated DBH Range Large 40 Small 16

Relative abundance dominant vs subdominant 1:50

Estimated canopy closure Closed

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Logged in near past (~20 yrs) and predominately pine stand. Low number of potential roosts.

Subcanopy Clutter High

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Carya tomentosa*
- 2 *Nyssa sylvatica*
- 3 *Pinus virginiana*

Habitat Description Cut in near past (~20 years). Mixed coniferous-deciduous upland forest with scattered hardwoods making up the canopy. ATV trail intersects habitat.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	Yes	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Turkey foot oak (*Quercus laevis*) and short leaf pine (*Pinus echinata*) are dominants

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/20/2015

State Virginia

County Pittsylvania

Other Field Staff Doug Gilbert

Permitted Biologist Michelle Gilley

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.212

Net Placement Along ATV trail that intersects mixed deciduous-coniferous forest.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM345A			6	6	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/20/2015 Permitted Biologist Michelle Gilley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.212

Net Placement ATV trail intersecting mixed coniferous / deciduous forest.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM345B			6	9	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/20/2015	B	<i>Lasiurus borealis</i>	2200	Adult	Female	Pregnant	17.50	41.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/20/2015 Permitted Biologist Michelle Gilley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.212

Net Placement ATV trail intersecting mixed coniferous / deciduous forest.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM345C			9	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/21/2015	C	<i>Lasionycteris noctivagans</i>	2335	Adult	Male	Ascended	10.50	42.0	Empty	No damage	Old scar on wing

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/23/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist John Hootman
Federal Permit ID TE 62778B-0
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.810
Other Field Staff Sara Estep
KM Site ID VA-KM346 Net ID VA-KM346A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 15.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Pinus sp.*
- 3 *Platanus occidentalis*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Pinus sp.*
- 2 *Liriodendron tulipifera*
- 3 *Platanus occidentalis*

Estimated DBH Range - Large 50 Small 30 Estimated DBH Range Large 30 Small 15

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Open

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Low for *M. sodalis* as there aren't many good snags and large live trees that the species prefers.
Moderate for *M. septentrionalis*.

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Liriodendron tulipifera*
- 2 *Juglans nigra*
- 3 *Pinus virginiana*

Habitat Description Early successional pine plantation butted up against a riparian area of an intermittent, cluttered stream.
Opening to pasture land to the north

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	Yes	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/23/2015

State Virginia

County Pittsylvania

Other Field Staff Sara Estep

Permitted Biologist John Hootman

Federal Permit # TE 62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.81

Net Placement Across logging road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM346A			6	6	2020	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/23/2015

Permitted Biologist John Hootman

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE 62778B-0

Company Name MVP

County Pittsylvania

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Sara Estep

WV State Permit# 2015.81

Net Placement Across logging road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM346B			9	9	2022	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/23/2015	B	<i>Lasiurus borealis</i>	0	Adult	Male	Ascended	9.50	37.0	Full	No damage	
5/23/2015	B	<i>Lasiurus borealis</i>	2100	Adult	Female	Pregnant	14.50	42.0	Medium	No damage	
5/24/2015	B	<i>Lasiurus borealis</i>	2130	Adult	Female	Pregnant	15.00	42.0	Medium	No damage	
5/24/2015	B	<i>Lasiurus borealis</i>	2230	Adult	Male	Ascended	10.50	39.0	Medium	Moderate damage	
5/24/2015	B	<i>Lasiurus borealis</i>	2135	Adult	Female	Pregnant	18.50	42.0	Medium	Light damage	
5/24/2015	B	<i>Lasiurus borealis</i>	2230	Adult	Male	Ascended	12.50	42.0	Empty	Light damage	

Total # of Bats Captured 6



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/23/2015

Permitted Biologist John Hootman

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE 62778B-0

Company Name MVP

County Pittsylvania

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Sara Estep

WV State Permit# 2015.81

Net Placement Across logging road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM346C			9	6	2025	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/23/2015	C	<i>Lasiurus borealis</i>	2130	Adult	Male	Ascended	11.00	38.0	Empty	Light damage	
5/23/2015	C	<i>Lasiurus borealis</i>	2230	Adult	Female	Pregnant	18.00	42.0	Medium	No damage	

Total # of Bats Captured 2



Net Site Habitat Data

Project # 593.12 Date 05/19/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Dan Cox
Federal Permit ID TE62778B-0
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID N/A
Other Field Staff John Manuel
KM Site ID VA-KM347 Net ID VA-KM347A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		W
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 400.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Pinus sp.*
- 3 *Pinus virginiana*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Acer rubrum*
- 3 *Betula lenta*

Estimated DBH Range - Large 50 Small 25 Estimated DBH Range Large 20 Small 3

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Low for sodalis - lack of snags and potential roost sites. High for northern's - good quality habitat and plenty of potential roosts

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Fagus grandifolia*
- 3 *Liriodendron tulipifera*

Habitat Description Mature upland forest with mixed hardwoods and pine. Bordered by pasture and early succession clear cuts.

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Dan Cox
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE62778B-0
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff John Manuel WV State Permit# _____

Net Placement Intersects forest road and pasture

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM347A	██████████	██████████	6	6	2022	122

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Dan Cox
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE62778B-0
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff John Manuel WV State Permit# _____

Net Placement Small dirt road through forest.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM347B	██████████	██████████	9	6	2022	122

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Dan Cox
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE62778B-0
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff John Manuel WV State Permit# _____

Net Placement Small dirt road through forest.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM347C	██████████	██████████	9	6	2022	122

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/19/2015	C	<i>Lasionycteris noctivagans</i>	40	Adult	Male	Ascended	10.50	43.0	Medium	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/19/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist John Hootman
Federal Permit ID TE 62778B-0
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.810
Other Field Staff Sara Estep
KM Site ID VA-KM348 Net ID VA-KM348A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 635.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus virginiana*
- 2
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Pinus virginiana*
- 2 *Quercus palustris*
- 3 *Liriodendron tulipifera*

Estimated DBH Range - Large 40 Small 20 Estimated DBH Range Large 18 Small 10

Relative abundance dominant vs subdominant 1:5

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential Moderate

Roosting Potential Explanation A few pine snags and cavities in deciduous trees

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Cornus florida*
- 2 *Acer rubrum*
- 3 *Pinus virginiana*

Habitat Description Pine plantation with clear cutting to the north. Deciduous trees line the trails.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	Yes	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/19/2015

Permitted Biologist John Hootman

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE 62778B-0

Company Name MVP

County Pittsylvania

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Sara Estep

WV State Permit# 2015.81

Net Placement Over ATV trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM348A			6	6	2020	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/20/2015	A	<i>Lasiurus borealis</i>	2320	Adult	Male	Ascended	11.50	39.0	Empty	Light damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/19/2015

State Virginia

County Pittsylvania

Other Field Staff Sara Estep

Permitted Biologist John Hootman

Federal Permit # TE 62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.81

Net Placement Over dirt road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM348B			6	6	2022	124

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/19/2015

Permitted Biologist John Hootman

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE 62778B-0

Company Name MVP

County Pittsylvania

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Sara Estep

WV State Permit# 2015.81

Net Placement Across dirt road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM348C			9	6	2022	122

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/19/2015	C	<i>Lasionycteris noctivagans</i>	2240	Adult	Male	Ascended	10.00	42.0	Medium	No damage	
5/19/2015	C	<i>Lasiurus borealis</i>	20	Adult	Female	Pregnant	16.00	40.0		Light damage	
5/20/2015	C	<i>Lasiurus borealis</i>	2120	Adult	Female	Pregnant	11.50	0.0			Escaped from hand
5/20/2015	C	<i>Lasiurus borealis</i>	2120	Adult	Male	Descended	10.50	39.0	Empty	Light damage	

Total # of Bats Captured 4



Net Site Habitat Data

Project # 593.12 Date 05/15/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Shane Brodnick
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.198
Other Field Staff Dylan Little
KM Site ID VA-KM349 Net ID VA-KM349A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 168.0 Type of water source Stream
Water Source Name Piqq River

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus resinosa*
- 2 *Quercus rubra*
- 3 *Quercus montana*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Pinus virginiana*
- 2 *Nyssa sylvatica*
- 3 *Acer rubrum*

Estimated DBH Range - Large 32 Small 15 Estimated DBH Range Large 14 Small 8

Relative abundance dominant vs subdominant 45:55

Estimated canopy closure Closed

Roost Tree Potential Consists neither

Roosting Potential Low

Roosting Potential Explanation Trees are present, however this is a young stand

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Prunus serotina*
- 3 *Oxydendrum arboreum*

Habitat Description Mixed hardwood forest with gravel access road bisecting the stand to reach a crop field to the northwest. This stand is possibly used by a tree nursery.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	Yes	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/15/2015

State Virginia

County Pittsylvania

Other Field Staff Dylan Little

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Net placed on forested access road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM349A			6	9	2000	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/15/2015 Permitted Biologist Shane Brodnick
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Dylan Little WV State Permit# 2015.198

Net Placement Net placed on forested access road.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM349B			6	6	2000	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	B	<i>Lasiurus borealis</i>	2320	Adult	Female	Pregnant	14.50	40.0	Medium	No damage	
5/15/2015	B	<i>Lasiurus borealis</i>	2250	Adult	Female	Non-Reproductive	15.25	40.0	Full	No damage	
5/16/2015	B	<i>Lasiurus borealis</i>	24	Adult	Female	Pregnant	15.25	40.0	Medium	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/15/2015

Permitted Biologist Shane Brodnick

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Pittsylvania

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Dylan Little

WV State Permit# 2015.198

Net Placement

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM349C			6	6	2000	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	C	<i>Lasiurus borealis</i>	2055	Adult	Female	Pregnant	17.50	39.0	Full	No damage	
5/15/2015	C	<i>Lasiurus borealis</i>	2155	Adult	Male	Ascended	10.50	36.0	Empty	No damage	
5/15/2015	C	<i>Lasiurus borealis</i>	2326	Adult	Female	Pregnant	16.50	41.0	Full	No damage	
5/16/2015	C	<i>Lasiurus borealis</i>	2325	Adult	Female	Non-Reproductive	12.50	42.0	Medium	No damage	
5/16/2015	C	<i>Lasiurus borealis</i>	50	Adult	Male	Ascended	10.25	40.0	Full	No damage	
5/16/2015	C	<i>Lasiurus borealis</i>	15	Adult	Female	Pregnant	15.50	38.0	Full	No damage	
5/16/2015	C	<i>Lasiurus borealis</i>	50	Adult	Male	Ascended	11.50	40.0	Full	No damage	

Total # of Bats Captured 7



Net Site Habitat Data

Project # 593.12 Date 05/15/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kyle Price
KM Site ID VA-KM350 Net ID VA-KM350A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 2.00 Channel Width (m) 6.00 Stream width (m) 4.00
Substratum - Bedrock No Boulder Yes Cobble No Gravel Yes Sand Yes Silt/Clay No
Stillwater Present No Average Water depth (m) 0.15 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus rubra*
- 2 *Fraxinus pennsylvanica*
- 3 *Platanus occidentalis*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Betula nigra*
- 2 *Fraxinus pennsylvanica*
- 3 *Acer negundo*

Estimated DBH Range - Large 110 Small 40 Estimated DBH Range Large 39 Small 17

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Open

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Large tree

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Juglans nigra*
- 2 *Ailanthus altissima*
- 3 *Acer negundo*

Habitat Description Small creek running through mowed hayfield and standing grass field

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/15/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kyle Price WV State Permit# 2015.197

Net Placement Forest edge

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM350A			12	9	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	A	<i>Lasiurus borealis</i>	2115	Adult	Female	Pregnant	15.10	40.0	Full	No damage	Healthy
5/16/2015	A	<i>Lasionycteris noctivagans</i>	2200	Adult	Male	Ascended	9.90	39.0	Medium	No damage	Agitated male
5/16/2015	A	<i>Lasiurus borealis</i>	2300	Adult	Female	Pregnant	13.50	40.0	Full	No damage	Healthy female

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/15/2015

State Virginia

County Pittsylvania

Other Field Staff Kyle Price

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Placed over creek

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM350B			6	9	2010	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/15/2015

Permitted Biologist Chris Boggs

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Pittsylvania

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Kyle Price

WV State Permit# 2015.197

Net Placement Forest edge

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM350C			12	6	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/16/2015	C	<i>Nycticeius humeralis</i>	2020	Adult	Male	Ascended	9.10	39.0	Full	No damage	Healthy male

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/17/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kyle Price
KM Site ID VA-KM351 Net ID VA-KM351A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.50 Channel Width (m) 9.00 Stream width (m) 6.00
Substratum - Bedrock No Boulder Yes Cobble Yes Gravel Yes Sand Yes Silt/Clay No
Stillwater Present No Average Water depth (m) 0.20 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Platanus occidentalis*
- 2 *Quercus rubra*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Ulmus rubra*
- 2 *Acer rubrum*
- 3 *Pinus resinosa*

Estimated DBH Range - Large 75 Small 40 Estimated DBH Range Large 39 Small 17

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Not fantastic suitable trees

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Asimina triloba*
- 2 *Lindera benzoin*
- 3 *Carpinus caroliniana*

Habitat Description Pasture running into small wood lot with stream

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Pittsylvania

Other Field Staff Kyle Price

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Forest edge

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM351A			9	6	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Pittsylvania

Other Field Staff Kyle Price

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Nets stacked over stream through pasture gates

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM351B			6	6	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Pittsylvania

Other Field Staff Kyle Price

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Nets stacked over stream

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM351C			9	6	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/17/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Shane Brodnick
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.198
Other Field Staff Keena Mullens
KM Site ID VA-KM352 Net ID VA-KM352A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name N/A

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.50 Channel Width (m) 1.00 Stream width (m) 0.75
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand Yes Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.25 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Fagus grandifolia*
- 3 *Pinus virginiana*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Ulmus americana*
- 2 *Acer rubrum*
- 3 *Nyssa sylvatica*

Estimated DBH Range - Large 100 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 40:60

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation High roosting potential tree species but low snag densities

Subcanopy Clutter Low

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Carpinus caroliniana*
- 2 *Lindera benzoin*
- 3 *Juniperus virginiana*

Habitat Description Mixed hardwood forest in between two open fields to the north and south. Stream running southwest.

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	Yes	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/17/2015 Permitted Biologist Shane Brodnick
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Dylan Little WV State Permit# 2015.198

Net Placement Net place on open intermittent stream.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM352A			9	9	2000	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/18/2015	A	<i>Lasionycteris noctivagans</i>	2354	Adult	Male	Ascended	9.00	41.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Pittsylvania

Other Field Staff Dylan Little

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Net place on open intermittent stream

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM352B			6	9	2000	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/17/2015 Permitted Biologist Shane Brodnick
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Dylan Little WV State Permit# 2015.198

Net Placement Net placed on open intermittent stream

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM352C			9	6	2000	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/17/2015	C	<i>Lasionycteris noctivagans</i>	132	Adult	Male	Descended	9.75	41.0	Medium	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/19/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Shane Brodnick
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.198
Other Field Staff Keena Mullins
KM Site ID VA-KM353 Net ID VA-KM353A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 20.0 Type of water source Stream
Water Source Name N/A

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus velutina*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus rubra*
- 2 *Carya cordiformis*
- 3 *Carya alabra*

Estimated DBH Range - Large 75 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists large trees

Roosting Potential High

Roosting Potential Explanation High density of *Quercus* sp.

Subcanopy Clutter Low

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Nyssa sylvatica*
- 2 *Oxydendrum arboreum*
- 3 *Cornus florida*

Habitat Description Hardwood Forest comprised of oaks. Trail North to South. Intermittent stream North of net sites.

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/19/2015

State Virginia

County Pittsylvania

Other Field Staff Keena Mullins

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Net placed in forested trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM353A			6	9	810	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/19/2015

Permitted Biologist Shane Brodnick

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Pittsylvania

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Keena Mullins

WV State Permit# 2015.198

Net Placement Net placed on forested trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM353B			6	9	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/19/2015	B	<i>Lasiurus borealis</i>	125	Adult	Female	Pregnant	16.50	41.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Shane Brodnick
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Keena Mullins WV State Permit# 2015.198

Net Placement Net placed on forested trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM353C			9	9	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/19/2015	C	<i>Nycticeius humeralis</i>	110	Adult	Male	Descended	8.50	35.0	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/19/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kyle Price
KM Site ID VA-KM354 Net ID VA-KM354A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 200.0 Type of water source Pond
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity Low

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Juglans nigra*
- 3 *Prunus serotina*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Pinus resinosa*
- 3 *Quercus velutina*

Estimated DBH Range - Large 67 Small 40 Estimated DBH Range Large 39 Small 17

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Large Tula poplar old buildings

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Carpinus caroliniana*
- 2 *Quercus alba*
- 3 *Acer rubrum*

Habitat Description Small wood lot with path leading to open power line corridor adjacent to agriculture field

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kyle Price WV State Permit# 2015.197

Net Placement Nets stacked over trail leading to power Line corridor

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM354A			12	6	2010	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/21/2015	A	<i>Lasiurus borealis</i>	49	Adult	Male	Ascended	11.50	37.5	Medium	No damage	Left eye old hemorrhage
5/21/2015	A	<i>Lasiurus borealis</i>	49	Adult	Female	Pregnant	16.00	39.0	Full	No damage	Flying with male

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/19/2015

State Virginia

County Pittsylvania

Other Field Staff Kyle Price

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Net stacked over trail leading to power line corridor

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM354B			9	6	2010	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/19/2015

State Virginia

County Pittsylvania

Other Field Staff Kyle Price

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Nets stacked at corridor of power line

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM354C			12	6	2010	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/21/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kyle Price
KM Site ID VA-KM355 Net ID VA-KM355A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Pond
Water Source Name N/A

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 3.00 Water Clarity Low

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Quercus alba*
- 3 *Acer rubrum*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Carya glabra*
- 2 *Nyssa sylvatica*
- 3 *Platanus occidentalis*

Estimated DBH Range - Large 80 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 3/1

Estimated canopy closure Open

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation

Subcanopy Clutter Low

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Juniperus virginiana*
- 2 *Nyssa sylvatica*
- 3

Habitat Description Forested woodlot on edge of pasture complete with emergent wetland with pond

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	Yes	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Forested wood lot on edge of cow pasture all trees in wood lot none in pasture, nets in pasture

Additional Comments Pasture is thick grass wood lot herbaceous cover low



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/21/2015

Permitted Biologist Chris Boggs

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Pittsylvania

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Kyle Price

WV State Permit# 2015.197

Net Placement Field edge

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM355A			12	9	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/21/2015	A	<i>Lasiurus borealis</i>	2110	Adult	Female	Non-Reproductive	17.00	40.0	Full	No damage	
5/21/2015	A	<i>Lasiurus borealis</i>	2110	Adult	Male	Ascended	11.00	38.0	Medium	No damage	
5/22/2015	A	<i>Lasiurus borealis</i>	2100	Adult	Male	Pregnant	14.30	41.0	Empty	No damage	
5/22/2015	A	<i>Lasiurus borealis</i>	1	Adult	Female	Pregnant	16.00	40.0	Full	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/21/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kyle Price WV State Permit# 2015.197

Net Placement Forest edge into pasture

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM355B			18	9	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/21/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kyle Price WV State Permit# 2015.197

Net Placement Edge of pond in pasture

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM355C			12	6	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Net Site Habitat Data

Project # 593.12 Date 05/21/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Dan Cox
Federal Permit ID TE62778B-0
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID N/A
Other Field Staff John Manuel
KM Site ID VA-KM356 Net ID VA-KM356A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 180.0 Type of water source Pond
Water Source Name Farm pond

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus virginiana*
- 2 *Acer rubrum*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Pinus virginiana*
- 3 *Quercus alba*

Estimated DBH Range - Large 20 Small 10 Estimated DBH Range Large 8 Small 3

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Closed

Roost Tree Potential Consists neither

Roosting Potential Low

Roosting Potential Explanation Very poor sodalis roosting habitat - young forest that was logged in the recent past. Low potential septentrionalis roosts - damaged young trees.

Subcanopy Clutter High

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Acer rubrum* 2 *Carya sp.* 3 *Quercus alba*

Habitat Description Young, mixed-hardwood/virginia pine woodlot surrounded by pastures. Woodlot looks to have been logged 10-15 years ago.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/21/2015 Permitted Biologist Dan Cox
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE62778B-0
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff John Manuel WV State Permit# _____

Net Placement Forest road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM356A	██████████	██████████	9	6	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/21/2015	A	<i>Lasiurus borealis</i>	2030	Adult	Female	Pregnant	13.25	41.0	Medium	No damage	
5/21/2015	A	<i>Lasiurus borealis</i>	50	Adult	Female	Pregnant	15.75	42.0	Medium	No damage	
5/21/2015	A	<i>Lasiurus borealis</i>	38	Adult	Female	Pregnant	16.00	41.0	Medium	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/21/2015 Permitted Biologist Dan Cox
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE62778B-0
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff John Manuel WV State Permit#

Net Placement Forest road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM356B			6	6	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/21/2015	B	<i>Lasiurus borealis</i>	2130	Adult	Female	Pregnant	13.75	43.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/21/2015

Permitted Biologist Dan Cox

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE62778B-0

Company Name MVP

County Pittsylvania

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff John Manuel

WV State Permit# _____

Net Placement Forest road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM356C	██████████	██████████	6	6	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/22/2015	C	<i>Lasiurus borealis</i>	2240	Adult	Female	Pregnant	13.50	39.0	Medium	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 06/23/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Michelle Gillev
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.212
Other Field Staff Ben Ward
KM Site ID VA-KM357 Net ID VA-KM357A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus virginiana*
- 2 *Quercus alba*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Carya glabra*
- 2 *Acer saccharum*
- 3

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 20 Small 10

Relative abundance dominant vs subdominant 1:2

Estimated canopy closure Moderate

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation Open fields and flyways, but few snags

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Nyssa sylvatica*
- 2 *Oxydendrum arboreum*
- 3 *Quercus alba*

Habitat Description Pine/oak woodland punctuated by fields. Habitat is fairly open except in a few areas where many young saplings are present, especially on field and road edges

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Pittsylvania County

Additional Comments Dominant canopy species #4: *Acer rubrum*



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/23/2015 Permitted Biologist Michelle Gilley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.212

Net Placement Placed over road leading into woodlot and grass field

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM357A			9	9	2015	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/23/2015	A	<i>Nycticeius humeralis</i>	55	Adult	Female	Lactating	13.00	36.0		No damage	
6/24/2015	A	<i>Eptesicus fuscus</i>	120	Juvenile	Male	Ascended	13.50	45.0		No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/23/2015 Permitted Biologist Michelle Gilley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.212

Net Placement Edge net; hay field and woods

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM357B			9	9	2015	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/23/2015	B	<i>Nycticeius humeralis</i>	0	Adult	Male	Ascended	10.00	35.0		No damage	
6/23/2015	B	<i>Nycticeius humeralis</i>	2330	Adult	Female	Lactating	20.00	34.0	Full	No damage	Weight includes female pup

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/23/2015 Permitted Biologist Michelle Gilley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.212

Net Placement Placed over road in woodlot

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM357C			6	9	2015	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/23/2015	C	<i>Lasiurus borealis</i>	20	Adult	Female	Lactating	16.00	41.0		Light damage	
6/23/2015	C	<i>Lasiurus borealis</i>	20	Adult	Female	Lactating	17.00	45.0		No damage	
6/23/2015	C	<i>Nycticeius humeralis</i>	20	Adult	Female	Lactating	11.50	35.0		No damage	
6/24/2015	C	<i>Lasiurus borealis</i>	2300	Adult	Female	Lactating	15.50	41.0		No damage	

Total # of Bats Captured 4



Net Site Habitat Data

Project # 593.12 Date 05/21/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Shawn McKinley
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.201
Other Field Staff Les Aaron
KM Site ID VA-KM358 Net ID VA-KM358A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.50 Channel Width (m) 9.00 Stream width (m) 8.00
Substratum - Bedrock No Boulder No Cobble Yes Gravel Yes Sand Yes Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.00 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

1 *Platanus occidentalis*

2 *Betula alleghaniensis*

3 *Acer rubrum*

Subdominant Canopy Species (<40cm/16"dbh)

1 *Platanus occidentalis*

2 *Betula alleghaniensis*

3 *Carpinus caroliniana*

Estimated DBH Range - Large 24 Small 16 Estimated DBH Range Large 10 Small 8

Relative abundance dominant vs subdominant 1:9

Estimated canopy closure Moderate

Roost Tree Potential Consists

Roosting Potential

Roosting Potential Explanation

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

1 *Platanus occidentalis*

2 *Carpinus caroliniana*

3 *Betula alleghaniensis*

Habitat Description Forested stream bordered by a county road

Does the Habitat consist of

Mature Upland Forest No

Young Upland Forest No

Mature LowLand Forest No

Young LowLand Forest Yes

Recently Logged Forest No

Other

Pine Plantation No

Woodlot Forest Edge Yes

Old Field No

Crop/Pasture Land No

Stream River Yes

Emergent Wetland No

Forested Swamp No

Shrub Scrub Swamp No

Vernal Pool No

Deepwater Lake Pond No

Herbaceous Cover:

Sparse No

Moderate No

Dense Yes

Roost Tree Decay Stage

Comments Many, many invasive species.

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/21/2015

State Virginia

County Pittsylvania

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement Over stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM358A			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/21/2015 Permitted Biologist Shawn McKinley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Les Aaron WV State Permit# 2015.201

Net Placement Over grassy area

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM358B			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/22/2015	B	<i>Lasionycteris noctivagans</i>	20	Adult	Male	Ascended	10.00	40.0	Empty	Light damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/21/2015

Permitted Biologist Shawn McKinley

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # N/A

Company Name MVP

County Pittsylvania

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Les Aaron

WV State Permit# 2015.201

Net Placement Over stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM358C			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/23/2015	C	<i>Lasionycteris noctivagans</i>	124	Adult	Male	Ascended	11.50	40.0	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/15/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Jeremy Sheets
Federal Permit ID TE35518B-0
VA State Permit ID SC53786 - T&E 053787
WV State Permit ID 2015.135
Other Field Staff Aimee Bjornstad
KM Site ID VA-KM359 Net ID VA-KM359A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Cherrystone Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.20 Channel Width (m) 6.00 Stream width (m) 3.00
Substratum - Bedrock No Boulder No Cobble No Gravel Yes Sand Yes Silt/Clay No
Stillwater Present Yes Average Water depth (m) 0.40 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Platanus occidentalis*
- 2 *Acer saccharum*
- 3 *Prunus serotina*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Platanus occidentalis*
- 2 *Liriodendron tulipifera*
- 3 *Acer neaundo*

Estimated DBH Range - Large 66 Small 40 Estimated DBH Range Large 38 Small 8

Relative abundance dominant vs subdominant 1:100

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Larger trees up slope

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Platanus occidentalis*
- 2 *Acer saccharum*
- 3 *Lindera benzoin*

Habitat Description Small stream and young forest

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Pittsylvania County

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/15/2015 Permitted Biologist Jeremy Sheets
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE35518B-0
Company Name MVP County Pittsylvania VA State Permit# SC53786 T&E 053787
Site Name Mountain Valley Pipeline Other Field Staff Aimee Bjornstad WV State Permit# 2015.135

Net Placement Over stream, Pittsylvania County

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM359A			6	9	2000	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/15/2015

State Virginia

County Pittsylvania

Other Field Staff Aimee Bjornstad

Permitted Biologist Jeremy Sheets

Federal Permit # TE35518B-0

VA State Permit# SC53786 T&E 053787

WV State Permit# 2015.135

Net Placement Over stream, Pittsylvania County

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM359B			6	6	1930	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/15/2015

State Virginia

County Pittsylvania

Other Field Staff Aimee Bjornstad

Permitted Biologist Jeremy Sheets

Federal Permit # TE35518B-0

VA State Permit# SC53786 T&E 053787

WV State Permit# 2015.135

Net Placement Over stream, Pittsylvania County

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM359C			6	9	1945	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/17/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Jeremy Sheets
Federal Permit ID TE35518B-0
VA State Permit ID SC53786 - T&E 053787
WV State Permit ID 2015.135
Other Field Staff Aimee Bjornstad
KM Site ID VA-KM360 Net ID VA-KM360A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 380.0 Type of water source Pond
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus sp.*
- 2 *Quercus sp.*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Quercus sp.*
- 3 *Acer rubrum*

Estimated DBH Range - Large 46 Small 38 Estimated DBH Range Large 38 Small 8

Relative abundance dominant vs subdominant 1:100

Estimated canopy closure Moderate

Roost Tree Potential Consists neither

Roosting Potential Low

Roosting Potential Explanation

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Liriodendron tulipifera* 2 *Quercus sp.* 3 *Pinus sp.*

Habitat Description Upland mixed forest. In early successional openings.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Quercus species is blackjack oak. Pinus species is Jack pine.

Additional Comments Pittsylvania County



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Pittsylvania

Other Field Staff Aimee Bjornstad

Permitted Biologist Jeremy Sheets

Federal Permit # TE35518B-0

VA State Permit# SC53786 T&E 053787

WV State Permit# 2015.135

Net Placement Across trail, Pettsylvania County

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM360A			9	9	1930	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/17/2015 Permitted Biologist Jeremy Sheets
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE35518B-0
Company Name MVP County Pittsylvania VA State Permit# SC53786 T&E 053787
Site Name Mountain Valley Pipeline Other Field Staff Aimee Bjornstad WV State Permit# 2015.135

Net Placement Across trail, Pittsylvania County

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM360B			6	9	1945	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/17/2015	B	<i>Lasionycteris noctivagans</i>	2324	Adult	Male	Ascended	9.50	42.0	Medium	No damage	Cobwebs on wings.
5/18/2015	B	<i>Nycticeius humeralis</i>	20	Adult	Male	Ascended	25.00	34.0	Medium	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/17/2015 Permitted Biologist Jeremy Sheets
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE35518B-0
Company Name MVP County Pittsylvania VA State Permit# SC53786 T&E 053787
Site Name Mountain Valley Pipeline Other Field Staff Aimee Bjornstad WV State Permit# 2015.135

Net Placement Across trail, Pittsylvania County

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM360C			6	9	1953	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/18/2015	C	<i>Eptesicus fuscus</i>	50	Adult	Male	Ascended	14.00	47.0	Medium	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/19/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Jeremy Sheets
Federal Permit ID TE35518B-0
VA State Permit ID SC53786 - T&E 053787
WV State Permit ID 2015.135
Other Field Staff Aimee Bjornstad
KM Site ID VA-KM361 Net ID VA-KM361A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 390.0 Type of water source Pond
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Quercus alba*
- 3 *Juglans nigra*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Juglans nigra*
- 3 *Juniperus virginiana*

Estimated DBH Range - Large 91 Small 40 Estimated DBH Range Large 38 Small 8

Relative abundance dominant vs subdominant 1:100

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Carpinus caroliniana*
- 2 *Liriodendron tulipifera*
- 3 *Juniperus virginiana*

Habitat Description Upland forest near old field.

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Pittsylvania County

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/19/2015

State Virginia

County Pittsylvania

Other Field Staff Aimee Bjornstad

Permitted Biologist Jeremy Sheets

Federal Permit # TE35518B-0

VA State Permit# SC53786 T&E 053787

WV State Permit# 2015.135

Net Placement Pittsylvania County, across trail head

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM361A			6	9	1930	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Jeremy Sheets
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE35518B-0
Company Name MVP County Pittsylvania VA State Permit# SC53786 T&E 053787
Site Name Mountain Valley Pipeline Other Field Staff Aimee Bjornstad WV State Permit# 2015.135

Net Placement Pittsylvania County, across trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM361B			6	9	1945	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/19/2015	B	<i>Lasiurus borealis</i>	2120	Adult	Male	Ascended	10.50	40.0	Medium	No damage	
5/19/2015	B	<i>Lasiurus borealis</i>	2206		Male		0.00	0.0			Out of net
5/20/2015	B	<i>Eptesicus fuscus</i>	2210	Adult	Male	Ascended	16.00	45.0	Empty	No damage	
5/20/2015	B	<i>Lasiurus borealis</i>	2140	Adult	Male	Ascended	16.00	40.0	Empty	No damage	Possible recapture from last night.

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Jeremy Sheets
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE35518B-0
Company Name MVP County Pittsylvania VA State Permit# SC53786 T&E 053787
Site Name Mountain Valley Pipeline Other Field Staff Aimee Bjornstad WV State Permit# 2015.135

Net Placement Pittsylvania County, across trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM361C			9	9	2000	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/20/2015	C	<i>Nycticeius humeralis</i>	35	Adult	Male	Ascended	8.75	34.0	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/21/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Jeremy Sheets
Federal Permit ID TE35518B-0
VA State Permit ID SC53786 - T&E 053787
WV State Permit ID 2015.135
Other Field Staff Aimee Bjornstad
KM Site ID VA-KM362 Net ID VA-KM362A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.20 Channel Width (m) 0.50 Stream width (m) 0.50
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay Yes
Stillwater Present No Average Water depth (m) 0.10 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Juglans nigra*
- 3 *Acer rubrum*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Juglans nigra*
- 3 *Acer rubrum*

Estimated DBH Range - Large 86 Small 40 Estimated DBH Range Large 38 Small 8

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Old cabins.

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Liriodendron tulipifera*
- 2 *Carpinus caroliniana*
- 3 *Acer rubrum*

Habitat Description Small riparian corridor near old field.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Pittsylvania County

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/21/2015

State Virginia

County Pittsylvania

Other Field Staff Aimee Bjornstad

Permitted Biologist Jeremy Sheets

Federal Permit # TE35518B-0

VA State Permit# SC53786 T&E 053787

WV State Permit# 2015.135

Net Placement Edge of riparian and old field, Pittsylvania County

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM362A			9	9	1930	122

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/21/2015 Permitted Biologist Jeremy Sheets
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE35518B-0
Company Name MVP County Pittsylvania VA State Permit# SC53786 T&E 053787
Site Name Mountain Valley Pipeline Other Field Staff Aimee Bjornstad WV State Permit# 2015.135

Net Placement Pittsylvania County, across small stream/corridor

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM362B			6	9	1945	122

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/21/2015	B	<i>Lasiurus borealis</i>	2115	Adult	Male	Ascended	10.00	37.0	Empty	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/21/2015

State Virginia

County Pittsylvania

Other Field Staff Aimee Bjornstad

Permitted Biologist Jeremy Sheets

Federal Permit # TE35518B-0

VA State Permit# SC53786 T&E 053787

WV State Permit# 2015.135

Net Placement Pittsylvania County, across small stream/corridor.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM362C			6	9	2000	122

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/27/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Jennifer Dreibelbis
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.035
Other Field Staff Vance Nepomuceno
KM Site ID VA-KM363 Net ID VA-KM363A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 45.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.50 Channel Width (m) 1.00 Stream width (m) 0.30
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand Yes Silt/Clay Yes
Stillwater Present No Average Water depth (m) 0.01 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Acer rubrum*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Acer rubrum*
- 3 *Robinia pseudoacacia*

Estimated DBH Range - Large 91 Small 36 Estimated DBH Range Large 25 Small 15

Relative abundance dominant vs subdominant 1:1

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Liriodendron tulipifera*
- 2 *Acer rubrum*
- 3 *Robinia pseudoacacia*

Habitat Description Mature forested track through a pine plantation with a small stream.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	Yes	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	Yes	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/27/2015 Permitted Biologist Jennifer Dreibelbis
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Pittsylvania VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Vance Nepomuceno WV State Permit# 2015.035

Net Placement Road corridor through pine plantation

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM363A			9	8	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/28/2015	A	<i>Eptesicus fuscus</i>	2210	Adult	Male	Non-Reproductive	15.52	48.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/27/2015 Permitted Biologist Jennifer Dreibelbis
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Pittsylvania VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Vance Nepomuceno WV State Permit# 2015.035

Net Placement Forested corridor over small stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM363B			6	8	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/27/2015	B	<i>Nycticeius humeralis</i>	115	Adult	Male	Descended	9.48	36.5	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/27/2015

State Virginia

County Pittsylvania

Other Field Staff Vance Nepomuceno

Permitted Biologist Jennifer Dreibelbis

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.035

Net Placement Forested corridor

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM363C			6	5	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/24/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Jeremy Sheets
Federal Permit ID TE35518B-0
VA State Permit ID SC53786 - T&E 053787
WV State Permit ID 2015.135
Other Field Staff Aimee Bjornstad
KM Site ID VA-KM364 Net ID VA-KM364A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source
Water Source Name N/A

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand Yes Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.20 Water Clarity None

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus rubra*
- 3 *Acer rubrum*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Quercus alba*
- 3 *Quercus sp.*

Estimated DBH Range - Large 81 Small 14 Estimated DBH Range Large 25 Small 25

Relative abundance dominant vs subdominant 1:100

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Snags and man made structures are present.

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Carya cordiformis*
- 3 *Quercus alba*

Habitat Description Corridor through upland woodlot with large road rutt connecting a field to a pine plantation.

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	Yes	Stream River	No	Deepwater Lake Pond	No		
Other	Road rutt						

Roost Tree Decay Stage

Comments Water source is a road rutt.

Additional Comments Pittsylvania County



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/24/2015 Permitted Biologist Jeremy Sheets
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE35518B-0
Company Name MVP County Pittsylvania VA State Permit# SC53786 T&E 053787
Site Name Mountain Valley Pipeline Other Field Staff Aimee Bjornstad WV State Permit# 2015.135

Net Placement Across trail over road rut. Pittsylvania County

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM364A			6	9	1930	124

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/24/2015	A	<i>Lasiurus borealis</i>	2200	Adult	Female	Pregnant	15.50	39.0	Medium	No damage	
5/24/2015	A	<i>Lasiurus borealis</i>	2330	Adult	Male	Ascended	9.50	39.0	Medium	No damage	
5/24/2015	A	<i>Lasiurus borealis</i>	2110				0.00	0.0			Escaped net before handled.

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/24/2015 Permitted Biologist Jeremy Sheets
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE35518B-0
Company Name MVP County Pittsylvania VA State Permit# SC53786 T&E 053787
Site Name Mountain Valley Pipeline Other Field Staff Aimee Bjornstad WV State Permit# 2015.135

Net Placement Across trail, Pittsylvania County

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM364B			9	9	1945	124

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/24/2015	B	<i>Lasiurus borealis</i>	2130	Adult	Female	Non-Reproductive	16.50	40.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/24/2015 Permitted Biologist Jeremy Sheets
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE35518B-0
Company Name MVP County Pittsylvania VA State Permit# SC53786 T&E 053787
Site Name Mountain Valley Pipeline Other Field Staff Aimee Bjornstad WV State Permit# 2015.135

Net Placement Across trail head, Pittsylvania County

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM364C			6	9	2000	124

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/25/2015	C	<i>Lasiurus borealis</i>	2300	Adult	Female	Pregnant	15.75	41.0	Medium	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/18/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Darwin Brack
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.209
Other Field Staff Dylan Little
KM Site ID VA-KM365 Net ID VA-KM365A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 400.0 Type of water source Pond
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus muehlenbergii*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Carya tomentosa*
- 3 *Acer rubrum*

Estimated DBH Range - Large 22 Small 16 Estimated DBH Range Large 12 Small 8

Relative abundance dominant vs subdominant 1:8

Estimated canopy closure Moderate

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation A few low quality snags.

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Liriodendron tulipifera*
- 2 *Quercus alba*
- 3 *Nyssa sylvatica*

Habitat Description Young upland hardwood forest adjacent to agricultural fields.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/18/2015

State Virginia

County Pittsylvania

Other Field Staff Dylan Little

Permitted Biologist Darwin Brack

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.209

Net Placement

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM365A			6	6	2000	100

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/18/2015

Permitted Biologist Darwin Brack

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Pittsylvania

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Dylan Little

WV State Permit# 2015.209

Net Placement

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM365B			6	6	2000	100

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/18/2015	B	<i>Lasiurus borealis</i>	2335	Adult	Female	Pregnant	19.50	39.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/18/2015

Permitted Biologist Darwin Brack

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Pittsylvania

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Dylan Little

WV State Permit# 2015.209

Net Placement

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM365C			9	6	2000	100

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/18/2015	C	<i>Lasiurus borealis</i>	2125	Adult	Female	Pregnant	14.00	41.0	Empty	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/20/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Darwin Brack
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.209
Other Field Staff Dylan Little
KM Site ID VA-KM366 Net ID VA-KM366A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 100.0 Type of water source Stream
Water Source Name N/A

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.30 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel Yes Sand Yes Silt/Clay Yes
Stillwater Present No Average Water depth (m) 0.00 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus virginiana*
- 2 *Quercus alba*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Pinus virginiana*
- 2 *Gleditsia triacanthos*
- 3

Estimated DBH Range - Large 24 Small 16 Estimated DBH Range Large 15 Small 8

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Moderate

Roost Tree Potential Consists neither

Roosting Potential Low

Roosting Potential Explanation No visible potential roosts

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

1 *Pinus virginiana* 2 *Quercus alba* 3 *Acer rubrum*

Habitat Description Young upland forest cut in the last 10 years with few large trees throughout. Powerline ROW bisects the property several times, with sets running perpendicular. Small drainage present as well. New and old access

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/20/2015 Permitted Biologist Darwin Brack
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Dylan Little WV State Permit# 2015.209

Net Placement Net over graveled access road through very young upland

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM366A			9	6	2000	100

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/20/2015	A	<i>Lasiurus borealis</i>	2115	Adult	Female	Pregnant	19.00	41.0	Medium	No damage	
5/21/2015	A	<i>Lasionycteris noctivagans</i>	110	Adult	Male	Ascended	9.25	39.0	Empty	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/20/2015

State Virginia

County Pittsylvania

Other Field Staff Dylan Little

Permitted Biologist Darwin Brack

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.209

Net Placement Net over old access road through young upland

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM366B			6	6	2000	100

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/20/2015

State Virginia

County Pittsylvania

Other Field Staff Dylan Little

Permitted Biologist Darwin Brack

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.209

Net Placement Net over old dirt access road through young upland

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM366C			9	6	2000	100

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/21/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Jennifer Dreibelbis
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.035
Other Field Staff Ben Benfer
KM Site ID VA-KM368 Net ID VA-KM368A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 100.0 Type of water source Stream
Water Source Name Little Cherrystone Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus palustris*
- 2 *Liriodendron tulipifera*
- 3 Unknown

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 Unknown
- 3

Estimated DBH Range - Large 71 Small 25 Estimated DBH Range Large 25 Small 10

Relative abundance dominant vs subdominant 3:1

Estimated canopy closure Open

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees

Common Subcanopy Species

- 1 Unknown
- 2 *Platanus occidentalis*
- 3 *Carpinus caroliniana*

Habitat Description Cow pasture with small forested sections and a stream.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Unknown species is liquidambar styraciflua

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/21/2015

Permitted Biologist Jennifer Dreibelbis

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE38842A-3

Company Name MVP

County Pittsylvania

VA State Permit# N/A T&E 54100

Site Name Mountain Valley Pipeline

Other Field Staff Ben Benfer

WV State Permit# 2015.035

Net Placement Corridor along field edge.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM368A			18	8	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/21/2015	A	<i>Lasiurus borealis</i>	2310	Adult	Female	Pregnant	15.21	40.0	Medium	No damage	
5/23/2015	A	<i>Eptesicus fuscus</i>	2145	Adult	Female	Pregnant	28.82	49.0	Medium	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/21/2015

Permitted Biologist Jennifer Dreibelbis

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE38842A-3

Company Name MVP

County Pittsylvania

VA State Permit# N/A T&E 54100

Site Name Mountain Valley Pipeline

Other Field Staff Ben Benfer

WV State Permit# 2015.035

Net Placement Forested road corridor.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM368B			12	8	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/21/2015	B	<i>Lasiurus borealis</i>	2140	Adult	Female	Pregnant	17.99	41.5	Medium	No damage	
5/21/2015	B	<i>Lasiurus borealis</i>	2110	Adult	Female	Pregnant	15.86	42.0	Medium		
5/22/2015	B	<i>Lasiurus borealis</i>	2050	Adult	Female	Pregnant	14.26	42.0	Empty	No damage	
5/22/2015	B	<i>Lasiurus borealis</i>	2140	Adult	Male	Non-Reproductive	10.78	40.0	Empty	No damage	
5/23/2015	B	<i>Lasiurus borealis</i>	2310	Adult	Male	Non-Reproductive	9.70	38.5	Medium	No damage	
5/23/2015	B	<i>Eptesicus fuscus</i>	2120	Adult	Female	Non-Reproductive	15.60	46.0	Empty	No damage	
5/23/2015	B	<i>Lasiurus borealis</i>	2310	Adult	Female	Pregnant	16.78	41.0	Medium	No damage	

Total # of Bats Captured 7



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number	593.12	Date	05/21/2015	Permitted Biologist	Jennifer Dreibelbis
Project Name	Mountain Valley Pipeline Project	State	Virginia	Federal Permit #	TE38842A-3
Company Name	MVP	County	Pittsylvania	VA State Permit#	N/A T&E 54100
Site Name	Mountain Valley Pipeline	Other Field Staff	Ben Benfer	WV State Permit#	2015.035

Net Placement Farm road across stream corridor.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM368C			6	5	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/17/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Jennifer Dreibelbis
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.035
Other Field Staff Ethan Okon
KM Site ID VA-KM369 Net ID VA-KM369A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Little Cherrystone Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.00 Channel Width (m) 6.00 Stream width (m) 4.50
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand Yes Silt/Clay Yes
Stillwater Present No Average Water depth (m) 0.00 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- Unknown
- Platanus occidentalis
- Acer rubrum

Subdominant Canopy Species (<40cm/16"dbh)

- Carpinus caroliniana
-
-

Estimated DBH Range - Large 76 Small 23 Estimated DBH Range Large 15 Small 8

Relative abundance dominant vs subdominant 4:1

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Many snags in the area.

Subcanopy Clutter Moderate

Subcanopy comprised of

Common Subcanopy Species

- Carpinus caroliniana
- Cornus florida
-

Habitat Description Mature lowland forest with small creek surrounded by pasture and crop fields.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature Lowland Forest	Yes	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young Lowland Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Unknown tree species is liquidambar styraciflua.

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/17/2015

Permitted Biologist Jennifer Dreibelbis

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE38842A-3

Company Name MVP

County Pittsylvania

VA State Permit# N/A T&E 54100

Site Name Mountain Valley Pipeline

Other Field Staff Ethan Okon

WV State Permit# 2015.035

Net Placement Forested stream corridor

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM369A			6	8	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/18/2015	A	<i>Lasiurus borealis</i>	130	Adult	Female	Pregnant	14.35	41.5	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/17/2015 Permitted Biologist Jennifer Dreibelbis
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Pittsylvania VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Ethan Okon WV State Permit# 2015.035

Net Placement Forested overgrown fence line corridor.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM369B			9	8	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/17/2015	B	<i>Lasiurus borealis</i>	15	Adult	Male	Non-Reproductive	11.67	41.0	Empty	No damage	
5/17/2015	B	<i>Lasiurus borealis</i>	100	Adult	Female	Pregnant	15.60	41.0	Medium	No damage	
5/18/2015	B	<i>Eptesicus fuscus</i>	2340	Adult	Male	Non-Reproductive	14.70	46.0	Full	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Pittsylvania

Other Field Staff Ethan Okon

Permitted Biologist Jennifer Dreibelbis

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.035

Net Placement Forested stream corridor

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM369C			6	5	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/15/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Jennifer Dreibelbis
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.035
Other Field Staff Ben Benfer
KM Site ID VA-KM370 Net ID VA-KM370A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 6.0 Type of water source Pond
Water Source Name No name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present Yes Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus resinosa*
- 2 *Pinus virginiana*
- 3 *Acer rubrum*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus velutina*
- 2 *Carya glabra*
- 3 *Liriodendron tulipifera*

Estimated DBH Range - Large 14 Small 6 Estimated DBH Range Large 4 Small 1

Relative abundance dominant vs subdominant 1:1

Estimated canopy closure Open

Roost Tree Potential Consists neither

Roosting Potential Low

Roosting Potential Explanation

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Quercus velutina* 2 *Carya glabra* 3 *Juniperus virginiana*

Habitat Description Mostly open overgrown field bordering a pine plantation and large pond. Small mature forested patch adjacent.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	Yes	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/15/2015 Permitted Biologist Jennifer Dreibelbis
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Pittsylvania VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Ben Benfer WV State Permit# 2015.035

Net Placement Road corridor through pine plantation

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM370A			9	8	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	A	<i>Lasiurus borealis</i>	30	Adult	Female	Non-Reproductive	12.98	42.0	Medium	No damage	
5/15/2015	A	<i>Lasiurus borealis</i>	2050	Adult	Female	Pregnant	16.03	41.0	Empty	No damage	
5/16/2015	A	<i>Lasiurus borealis</i>	2320	Adult	Female	Pregnant	16.17	41.0	Medium	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/15/2015

Permitted Biologist Jennifer Dreibelbis

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE38842A-3

Company Name MVP

County Pittsylvania

VA State Permit# N/A T&E 54100

Site Name Mountain Valley Pipeline

Other Field Staff Ben Benfer

WV State Permit# 2015.035

Net Placement Along tree line in open field

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM370B			18	8	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	B	<i>Lasiurus borealis</i>	2210	Adult	Female	Non-Reproductive	12.95	38.0	Empty	No damage	
5/15/2015	B	<i>Lasiurus borealis</i>	2050	Adult	Female	Pregnant	13.40	38.0	Empty	No damage	Very stressed bat. Quickly released.
5/16/2015	B	<i>Lasiurus borealis</i>	100	Adult	Male	Non-Reproductive	10.74	40.0	Full	No damage	
5/16/2015	B	<i>Lasiurus borealis</i>	120	Adult	Male	Non-Reproductive	10.10	39.0	Medium	No damage	
5/16/2015	B	<i>Lasiurus borealis</i>	20	Adult	Female	Non-Reproductive	13.90	40.0	Medium	No damage	
5/16/2015	B	<i>Lasiurus borealis</i>	50	Adult	Female	Pregnant	14.30	41.0	Medium	No damage	

Total # of Bats Captured 6



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/15/2015 Permitted Biologist Jennifer Dreibelbis
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Pittsylvania VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Ben Benfer WV State Permit# 2015.035

Net Placement Over a small forested stream corridor

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM370C			6	5	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/16/2015	C	<i>Lasionycteris noctivagans</i>	140	Adult	Male	Non-Reproductive	9.54	41.5	Medium	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/19/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Jennifer Dreibelbis
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.035
Other Field Staff Vance Nepomuceno
KM Site ID VA-KM371 Net ID VA-KM371A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 560.0 Type of water source Pond
Water Source Name None

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus sp.*
- 2
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1
- 2
- 3

Estimated DBH Range - Large 36 Small 20 Estimated DBH Range Large 0 Small 0

Relative abundance dominant vs subdominant 1:0

Estimated canopy closure Moderate

Roost Tree Potential Consists neither

Roosting Potential Low

Roosting Potential Explanation

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Acer rubrum* 2 *Unknown* 3 *Nyssa sylvatica*

Habitat Description *Pinus taeda* plantation next to existing pump station and new pump station under construction.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	Yes	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments *Pinus sp* is *Pinus taeda*

Additional Comments Unknown sub canopy species is *Liquidambar styraciflua*.



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Jennifer Dreibelbis
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Pittsylvania VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Vance Nepomuceno WV State Permit# 2015.035

Net Placement Corridor within pine plantation

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM371A			12	8	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/19/2015	A	<i>Eptesicus fuscus</i>	2200	Adult	Male	Non-Reproductive	15.58	44.0	Empty	No damage	
5/19/2015	A	<i>Eptesicus fuscus</i>	2130	Adult	Female	Pregnant	26.60	46.0	Medium	No damage	
5/20/2015	A	<i>Perimyotis subflavus</i>	140	Adult	Female	Non-Reproductive	6.66	36.0	Medium	No damage	
5/20/2015	A	<i>Eptesicus fuscus</i>	2110	Adult	Female	Pregnant	25.48	46.0	Medium	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/19/2015

State Virginia

County Pittsylvania

Other Field Staff Vance Nepomuceno

Permitted Biologist Jennifer Dreibelbis

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.035

Net Placement Small corridor in pine plantation

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM371B			6	5	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/19/2015 Permitted Biologist Jennifer Dreibelbis
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Pittsylvania VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Vance Nepomuceno WV State Permit# 2015.035

Net Placement Corridor from pump station into pine plantation

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM371C			9	8	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/02/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Roanoke

Permitted Biologist Carme Ardito
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.203
Other Field Staff Dylan Little
KM Site ID VA-KM415 Net ID VA-KM415A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.00 Channel Width (m) 10.00 Stream width (m) 6.00
Substratum - Bedrock No Boulder No Cobble Yes Gravel No Sand No Silt/Clay No
Stillwater Present Yes Average Water depth (m) 0.20 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Platanus occidentalis*
- 2 *Juglans nigra*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Robinia pseudoacacia*
- 2 *Pinus virginiana*
- 3 *Cornus florida*

Estimated DBH Range - Large 50 Small 40 Estimated DBH Range Large 40 Small 20

Relative abundance dominant vs subdominant 1:25

Estimated canopy closure Open

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Some larger live trees near edge of creek, few pine snags

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Platanus occidentalis*
- 2 *Cercis canadensis*
- 3 *Cornus florida*

Habitat Description Lowland stream going through cow pasture. Small pond in pasture as well. Trees located along bank of pond and woodlot adjacent to pasture.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other	Pond						

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number	593.12	Date	06/02/2015	Permitted Biologist	Carne Ardito
Project Name	Mountain Valley Pipeline Project	State	Virginia	Federal Permit #	TE02373A-9
Company Name	MVP	County	Roanoke	VA State Permit#	SC 050652 T&E 054097
Site Name	Mountain Valley Pipeline	Other Field Staff	Dylan Little	WV State Permit#	2015.203

Net Placement Net stacked over stream corridor with trees along banks

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM415A			9	6	2015	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/02/2015 Permitted Biologist Carme Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Dylan Little WV State Permit# 2015.203

Net Placement Net stacked over stream corridor over pool of still water. Trees located along banks and canopy cover over top of net

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM415B			18	6	2015	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/04/2015	B	<i>Lasiurus borealis</i>	2137	Adult	Male	Ascended	11.50	37.0	Empty	No damage	
6/05/2015	B	<i>Perimyotis subflavus</i>	2216	Adult	Male	Ascended	5.25	34.0	Medium	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/02/2015

State Virginia

County Roanoke

Other Field Staff Les Aron

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Net placed over edge of pond in cow pasture

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM415C			12	9	2020	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/27/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Roanoke

Permitted Biologist Carme Ardito
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.203
Other Field Staff Dylan Little
KM Site ID VA-KM419 Net ID VA-KM419A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 2,000.0 Type of water source Stream
Water Source Name North Fork Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Carya glabra*
- 3 *Quercus velutina*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus montana*
- 2 *Rhus typhina*
- 3 *Cercis canadensis*

Estimated DBH Range - Large 42 Small 40 Estimated DBH Range Large 40 Small 18

Relative abundance dominant vs subdominant 1:25

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Some live *Quercus alba* and a few small snags present along ATV trail in woodlot

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Robinia pseudoacacia*
- 3 *Rhus typhina*

Habitat Description Wooded southeast facing hillside with ATV trails running through. Open grassy field on property adjacent to woodlot.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/27/2015

State Virginia

County Roanoke

Other Field Staff Dylan Little

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Net placed at entrance of ATV trail through woodlot

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM419A			9	9	2015	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/27/2015 Permitted Biologist Carme Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Dylan Little WV State Permit# 2015.203

Net Placement Net starched over ATV trail through wooded hillside

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM419B			6	6	2015	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/27/2015	B	<i>Lasionycteris noctivagans</i>	14	Adult	Male	Ascended	9.75	39.0	Empty	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/27/2015

State Virginia

County Roanoke

Other Field Staff Dylan Little

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Net stacked over ATV trail through wooded hillside

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM419C			6	6	2010	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 08/13/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Jeremy Van Deventer
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.218
Other Field Staff Savannah Shafer
KM Site ID VA-KM449 Net ID VA-KM449A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 20.0 Type of water source Stream
Water Source Name N/a

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Juglans nigra*
- 3 *Platanus occidentalis*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Pinus strobus*
- 3 *Ulmus americana*

Estimated DBH Range - Large 30 Small 16 Estimated DBH Range Large 15 Small 6

Relative abundance dominant vs subdominant 1:50

Estimated canopy closure Open

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Snags and large trees with ample sun exposure

Subcanopy Clutter Low

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Acer saccharum*
- 2 *Platanus occidentalis*
- 3 *Fraxinus americana*

Habitat Description Cow pasture leading to recently logged woodlot from lowland to upland forest. Woodlot contains mostly young trees. One section of woodlot is comprised of young pine plantation. Small foot wide stream runs from upland

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature Lowland Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young Lowland Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	Yes	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/13/2015 Permitted Biologist Jeremy Van Deventer
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Savannah Shafer WV State Permit# 2015.218

Net Placement Net stacked across wooded road through cow pasture near woodlot edge

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM449A			9	9	2005	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/14/2015	A	<i>Eptesicus fuscus</i>	2110	Adult	Male	Descended	15.90	43.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 08/13/2015

State Virginia

County Montgomery

Other Field Staff Savannah Shafer

Permitted Biologist Jeremy Van Deventer

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.218

Net Placement Net stacked across wooded road through cow pasture

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM449B			9	6	2005	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/13/2015 Permitted Biologist Jeremy Van Deventer
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Savannah Shafer WV State Permit# 2015.218

Net Placement Net stacked across wooded road through cow pasture

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM449C			9	6	2005	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/14/2015	C	<i>Eptesicus fuscus</i>	2235	Adult	Female	Post-Lactating	21.25	45.0	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 07/21/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Roanoke

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Ben Ward
KM Site ID VA-KM452 Net ID VA-KM452A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 2,344.0 Type of water source Lake
Water Source Name Spring Hollow reservoir

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus coccinea*
- 2 *Quercus montana*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Carya glabra*
- 3 *Quercus montana*

Estimated DBH Range - Large 90 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Many large trees and snags on top of exposed, sunny ridge. However, location is not proximal to water source and except for road, is fairly cluttered

Subcanopy Clutter High

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Ostrya virginiana*
- 3 *Magnolia acuminata*

Habitat Description Habitat follows ridge top road which is the main flight corridor. Upland forest dominated by oaks and hickory, with many maple saplings.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Roanoke county

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/21/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Stacked over ridge top road in upland oak, hickory and maple forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM452A			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/21/2015	A	<i>Eptesicus fuscus</i>	2120	Adult	Female		19.50	47.5		Light damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/21/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Nets stacked over wooded trail on ridge

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM452B			9	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/21/2015	B	<i>Eptesicus fuscus</i>	2120	Adult	Male	Ascended	16.50	47.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/21/2015

State Virginia

County Roanoke

Other Field Staff Ben Ward

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Nets stacked over wooded the trail on ridge

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM452C			9	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 07/21/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Roanoke

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM453 Net ID VA-KM453A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 500.0 Type of water source Stream
Water Source Name Unnamed tributary to Brake Branc

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus montana*
- 2 *Quercus coccinea*
- 3 *Quercus velutina*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus coccinea*
- 2 *Carya glabra*
- 3 *Quercus montana*

Estimated DBH Range - Large 68 Small 40 Estimated DBH Range Large 39 Small 16

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Snags scattered throughout forest. Most consist of roosting structures with limited capacity for bats.

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Ostrya virginiana*
- 2 *Carya glabra*
- 3 *Nyssa sylvatica*

Habitat Description Upland uneven-aged forest dominated by oaks. On ridge top with a dirt ATV trail intersecting forest.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/21/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On ATV trail on top of forested ridge.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM453A			9	6	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/21/2015	A	<i>Eptesicus fuscus</i>	45	Adult	Female	Non-Reproductive	22.20	46.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/21/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On dirt ATV trail on forested ridge.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM453B			6	6	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/21/2015	B	<i>Eptesicus fuscus</i>	2150	Adult	Female	Non-Reproductive	19.80	49.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/21/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On dirt ATV trail on forested ridge.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM453C			6	6	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/21/2015	C	<i>Eptesicus fuscus</i>	2110	Adult	Male	Ascended	15.20	44.0	Medium	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 07/29/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Roanoke

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Ben Ward
KM Site ID VA-KM454 Net ID VA-KM454A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Vernal Pool
Water Source Name Not applicable

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.10 Channel Width (m) 4.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.20 Water Clarity Low

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus rubra*
- 2 *Prunus serotina*
- 3 *Betula lenta*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Betula lenta*
- 3 *Quercus alba*

Estimated DBH Range - Large 79 Small 40 Estimated DBH Range Large 39 Small 17

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Hamamelis virginiana*
- 2 *Nyssa sylvatica*
- 3 *Ostrya virginiana*

Habitat Description Young upland mixed hardwood forest with dirt roads on a ridge adjacent to gravel road

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments The water source our net is over is an ephemeral pool not a vernal pool

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/29/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Nets stacked over ephemeral pool in wooded corridor adjacent to gravel road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM454A			18	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/29/2015	A	<i>Eptesicus fuscus</i>	45	Adult	Female	Post-Lactating	20.00	47.0	Full	No damage	
7/29/2015	A	<i>Eptesicus fuscus</i>	2100	Adult	Male	Descended	17.00	47.0	Medium	No damage	
7/29/2015	A	<i>Myotis leibii</i>	11	Juvenile	Male	Ascended	4.00	30.0	Full	No damage	
7/29/2015	A	<i>Eptesicus fuscus</i>	2145	Juvenile	Male	Ascended	16.00	46.0	Medium	No damage	
7/29/2015	A	<i>Lasiurus borealis</i>	2150	Adult	Male	Ascended	13.50	38.0	Medium	No damage	
7/29/2015	A	<i>Lasiurus borealis</i>	2100	Adult	Male	Descended	14.00	39.0	Full	No damage	
7/30/2015	A	<i>Myotis leibii</i>	2100	Adult	Male	Descended	5.00	31.0	Medium	No damage	

Total # of Bats Captured 7



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/29/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Nets stacked over dirt road with wooded corridor

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM454B			6	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/29/2015	B	<i>Myotis leibii</i>	2100	Juvenile	Male	Ascended	5.50	30.0	Medium	No damage	
7/29/2015	B	<i>Myotis leibii</i>	2100	Juvenile	Male	Ascended	5.00	29.0	Medium	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/29/2015

State Virginia

County Roanoke

Other Field Staff Ben Ward

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Stacked over access road in upland forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM454C			12	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 07/14/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Roanoke

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM455 Net ID VA-KM455A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 750.0 Type of water source Stream
Water Source Name Bottom Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

-
-
-

Subdominant Canopy Species (<40cm/16"dbh)

- Robinia pseudoacacia
- Ailanthus altissima
- Acer rubrum

Estimated DBH Range - Large 0 Small 0 Estimated DBH Range Large 15 Small 7

Relative abundance dominant vs subdominant N/A

Estimated canopy closure Open

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation Snags scattered throughout area. Decent solar exposure. Snags small with potential to fall.

Subcanopy Clutter High

Subcanopy comprised of saplings

Common Subcanopy Species

- Robinia pseudoacacia
- Acer sp.
- Betula lenta

Habitat Description Early successional forest. Recently logged. Upland, south-facing slope. Snags scattered throughout area.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Princess tree, Rubus spp., and Acer pennsylvanica in understory

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/14/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On logging road on relatively recently logged early successional forest.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM455A			9	9	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/15/2015	A	<i>Eptesicus fuscus</i>	2200	Adult	Male	Ascended	19.20	46.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/14/2015

State Virginia

County Roanoke

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement On logging road in relatively recently logged early successional forest.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM455B			9	6	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/14/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On logging road in relatively recently logged early successional forest.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM455C			6	6	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/15/2015	C	<i>Eptesicus fuscus</i>	2220	Adult	Male	Descended	15.70	44.0	Full	No damage	
7/15/2015	C	<i>Eptesicus fuscus</i>	2220	Juvenile	Female	Non-Reproductive	20.50	47.0	Full	No damage	
7/15/2015	C	<i>Eptesicus fuscus</i>	2200	Adult	Male	Ascended	16.50	44.0	Full	No damage	
7/15/2015	C	<i>Eptesicus fuscus</i>	2220	Adult	Male	Descended	17.30	45.0	Full	No damage	
7/15/2015	C	<i>Eptesicus fuscus</i>	2220	Juvenile	Male	Ascended	15.20	45.0	Full	No damage	

Total # of Bats Captured 5



Net Site Habitat Data

Project # 593.12 Date 05/30/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Shane Brodnick
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.198
Other Field Staff Keena Mullins
KM Site ID VA-KM457 Net ID VA-KM457A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name N/A

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.50 Channel Width (m) 6.00 Stream width (m) 4.00
Substratum - Bedrock No Boulder No Cobble Yes Gravel Yes Sand Yes Silt/Clay No
Stillwater Present No Average Water depth (m) 0.25 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Platanus occidentalis*
- 2 *Liriodendron tulipifera*
- 3 *Acer rubrum*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Juglans nigra*
- 2 *Acer rubrum*
- 3 *Ailanthus altissima*

Estimated DBH Range - Large 75 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 4:6

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees

Roosting Potential Moderate

Roosting Potential Explanation Large trees and water source are present. Adjacent to field.

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Lindera benzoin*
- 2 *Carpinus caroliniana*
- 3 *Acer negundo*

Habitat Description Nets A and B are placed over a stream with forested banks and fields on each side. Net C is placed over a road separating forest from a field.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/30/2015 Permitted Biologist Shane Brodnick
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Keenan Mullins WV State Permit# 2015.198

Net Placement Net placed over stream Eastern deciduous forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM457A			6	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/30/2015

State Virginia

County Franklin

Other Field Staff Keena Mullins

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Net placed over stream in Eastern deciduous forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM457B			6	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number	593.12	Date	05/30/2015	Permitted Biologist	Shane Brodnick
Project Name	Mountain Valley Pipeline Project	State	Virginia	Federal Permit #	TE02373A-9
Company Name	MVP	County	Franklin	VA State Permit#	SC 050652 T&E 054097
Site Name	Mountain Valley Pipeline	Other Field Staff	Keena Mullins	WV State Permit#	2015.198

Net Placement Net placed over a road separating a field from forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM457C			9	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/20/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Michelle Gillev
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.212
Other Field Staff Ben Ward
KM Site ID VA-KM458 Net ID VA-KM458A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Tributary to Blackwater River

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.50 Channel Width (m) 7.50 Stream width (m) 5.00
Substratum - Bedrock No Boulder No Cobble Yes Gravel Yes Sand Yes Silt/Clay No
Stillwater Present No Average Water depth (m) 0.25 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Betula lenta*
- 3

Estimated DBH Range - Large 60 Small 30 Estimated DBH Range Large 20 Small 10

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Very few large snags and cluttered flyways

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Carpinus caroliniana*
- 2 *Lindera benzoin*
- 3 *Liriodendron tulipifera*

Habitat Description Young upland forest dominated by *Liriodendron tulipifera* and riparian area with quick moving stream. Slope leading down to creek is very steep; canopy and tree cover is very dense on slope and stream.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Franklin county

Additional Comments Though recently logged, some larger trees are present



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/20/2015

State Virginia

County Franklin

Other Field Staff Ben Ward

Permitted Biologist Michelle Gilley

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.212

Net Placement Net placed over old road-enclosed canopy

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM458A			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number	593.12	Date	06/20/2015	Permitted Biologist	Michelle Gilley
Project Name	Mountain Valley Pipeline Project	State	Virginia	Federal Permit #	TE02373A-9
Company Name	MVP	County	Franklin	VA State Permit#	SC 050652 T&E 054097
Site Name	Mountain Valley Pipeline	Other Field Staff	Ben Ward	WV State Permit#	2015.212

Net Placement Net placed over stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM458B			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/20/2015

State Virginia

County Franklin

Other Field Staff Ben Ward

Permitted Biologist Michelle Gilley

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.212

Net Placement Net placed over stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM458C			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/15/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Rodger Rodriguez
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.041
Other Field Staff Justin Bower
KM Site ID VA-KM460 Net ID VA-KM460A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 145.0 Type of water source Stream
Water Source Name No name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Pinus strobus*
- 3 *Quercus alba*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Liriodendron tulipifera*
- 3 *Juglans nigra*

Estimated DBH Range - Large 80 Small 40 Estimated DBH Range Large 39 Small 10

Relative abundance dominant vs subdominant 1:5

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Several large trees with a few that have exfoliating bark and a few snags.

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Liriodendron tulipifera*
- 3 *Asimina triloba*

Habitat Description Upland forest with closed canopy made of predominantly poplars

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature Lowland Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young Lowland Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/15/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across established road through forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM460A			6	6	2015	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/15/2015	A	<i>Lasiurus borealis</i>	2230	Adult	Male	Ascended	11.50	40.0	Medium	No damage	
6/15/2015	A	<i>Lasiurus borealis</i>	2300	Adult	Female	Lactating	14.50	41.0	Medium	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/15/2015 Permitted Biologist Rodger Rodriguez
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Justin Bower WV State Permit# 2015.041

Net Placement Across established road through forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM460B			6	9	2020	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/15/2015	B	<i>Lasiurus borealis</i>	2358	Adult	Female	Lactating	15.00	41.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/15/2015

State Virginia

County Franklin

Other Field Staff Justin Bower

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.041

Net Placement Across old road through forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM460C			6	6	2025	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/15/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Elise Merrill
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.230
Other Field Staff Vance Nepomuceno
KM Site ID VA-KM461 Net ID VA-KM461A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 640.0 Type of water source Pond
Water Source Name Pond on Private property

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Quercus montana*
- 3 *Quercus rubra*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Pinus strobus*
- 3

Estimated DBH Range - Large 61 Small 41 Estimated DBH Range Large 40 Small 20

Relative abundance dominant vs subdominant 5:2

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation

Subcanopy Clutter Moderate

Subcanopy comprised of

Common Subcanopy Species

- 1 *Hamamelis virginiana*
- 2 *Cornus florida*
- 3

Habitat Description

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage Stage 1 - Live

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/15/2015

State Virginia

County Franklin

Other Field Staff Vance Nepomuceno

Permitted Biologist Elise Merrill

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.23

Net Placement ATV trail leading to opening where house sits

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM461A			6	8	2034	134

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/15/2015 Permitted Biologist Elise Merrill
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Franklin VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Vance Nepomuceno WV State Permit# 2015.23

Net Placement Ravine/drainage

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM461B			18	8	2030	131

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	B	<i>Lasiurus borealis</i>	10				0.00	0.0			Escaped
5/15/2015	B	<i>Lasionycteris noctivagans</i>	10	Adult	Male	Ascended	9.90	39.5	Full	No damage	
5/15/2015	B	<i>Lasionycteris noctivagans</i>	2225	Adult	Male	Ascended	10.80	42.5	Empty	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/15/2015 Permitted Biologist Elise Merrill
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Franklin VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Vance Nepomuceno WV State Permit# 2015.23

Net Placement Ridge top trail through transitional forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM461C			9	8	2028	128

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	C	<i>Lasionycteris noctivagans</i>	110	Adult	Male	Ascended	9.80	41.5	Medium	No damage	
5/15/2015	C	<i>Lasionycteris noctivagans</i>	2143	Adult	Male	Ascended	10.70	42.0	Medium	No damage	

Total # of Bats Captured 2



Net Site Habitat Data

Project # 593.12 Date 08/11/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Ben Ward
KM Site ID VA-KM462 Net ID VA-KM462A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 950.0 Type of water source
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Pinus strobus*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Oxydendrum arboreum*
- 2 *Pinus virginiana*
- 3 *Quercus alba*

Estimated DBH Range - Large 65 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Many snags with exfoliating bark and hollows but habitat is not proximal to water source. Many good flyway corridors

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Pinus strobus*
- 2 *Fagus grandifolia*
- 3 *Acer rubrum*

Habitat Description Upland pine/oak/maple woodland with many intersecting logging roads and trails. Habitat is adjacent to a clear cut area.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Habitat area would historically have been populated with *Myotis septentrionalis*

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/11/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Stacked over logging road in upland oak and pine woodland

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM462A			6	6	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/12/2015	A	<i>Eptesicus fuscus</i>	2015	Adult	Female		22.00	48.0	Full	Light damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/11/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Stacked over logging road in upland oak and pine woodland

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM462B			6	6	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/11/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Stacked over old trail in upland oak and pine woodland

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM462C			9	6	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/12/2015	C	<i>Eptesicus fuscus</i>	0	Adult	Female	Post-Lactating	19.75	48.0	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/17/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Elise Merrill
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.230
Other Field Staff Ben Benfer
KM Site ID VA-KM463 Net ID VA-KM463A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 206.0 Type of water source Pond
Water Source Name Landowner's pond

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

1 *Liriodendron tulipifera*

2 *Acer rubrum*

3 *Fagus grandifolia*

Subdominant Canopy Species (<40cm/16"dbh)

1 *Quercus coccinea*

2 *Platanus occidentalis*

3 *Betula lenta*

Estimated DBH Range - Large 56 Small 41 Estimated DBH Range Large 44 Small 20

Relative abundance dominant vs subdominant 3:1

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

1 *Pinus strobus*

2 *Acer rubrum*

3 *Liriodendron tulipifera*

Habitat Description Relatively young forest with dense understory of saplings. 4x4 trails transversing property.

Does the Habitat consist of

Mature Upland Forest No

Young Upland Forest Yes

Mature LowLand Forest No

Young LowLand Forest No

Recently Logged Forest No

Other

Pine Plantation No

Woodlot Forest Edge No

Old Field No

Crop/Pasture Land No

Stream River No

Emergent Wetland No

Forested Swamp No

Shrub Scrub Swamp No

Vernal Pool Yes

Deepwater Lake Pond No

Herbaceous Cover:

Sparse Yes

Moderate No

Dense No

Roost Tree Decay Stage

Comments Whip-poor-will observed at 2055 on 5/17; 2040 on 5/18

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Franklin

Other Field Staff Ben Benfer

Permitted Biologist Elise Merrill

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.23

Net Placement Over forested road and vernal pool

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM463A			12	8	2034	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/17/2015 Permitted Biologist Elise Merrill
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Franklin VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Ben Benfer WV State Permit# 2015.23

Net Placement Over 4x4 roads running through forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM463B			12	8	2035	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/17/2015	B	<i>Lasionycteris noctivagans</i>	135	Adult	Male	Ascended	9.60	40.0	Empty	No damage	
5/18/2015	B	<i>Lasiurus borealis</i>	2125	Adult	Female	Pregnant	13.70	39.5	Medium	No damage	
5/18/2015	B	<i>Lasionycteris noctivagans</i>	135	Adult	Male	Ascended	10.20	42.5	Medium	No damage	
5/18/2015	B	<i>Lasiurus borealis</i>	5	Adult	Female	Pregnant	15.60	41.0	Medium	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/17/2015

State Virginia

County Franklin

Other Field Staff Ben Benfer

Permitted Biologist Elise Merrill

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.23

Net Placement Stacked over 'Y' in 4x4 road and ATV trail running through young forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM463C			15	5	2030	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/21/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Brian Cooper
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.034
Other Field Staff Ethan Okon
KM Site ID VA-KM464 Net ID VA-KM464A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 165.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Pinus strobus*
- 3 *Carya sp.*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Carya sp.*
- 3 *Quercus sp.*

Estimated DBH Range - Large 75 Small 55 Estimated DBH Range Large 50 Small 20

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Carya sp.*
- 3 *Lonicera spp.*

Habitat Description Upland forest with ATV trails.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/21/2015

State Virginia

County Franklin

Other Field Staff Ethan Okon

Permitted Biologist Brian Cooper

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.034

Net Placement Forest trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM464A			9	8	2030	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/21/2015 Permitted Biologist Brian Cooper
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Franklin VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Ethan Okon WV State Permit# 2015.034

Net Placement Forest trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM464B			6	8	2030	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/21/2015	B	<i>Lasiurus borealis</i>	2145	Adult	Male	Non-Reproductive	11.25	39.0	Full	No damage	
5/22/2015	B	<i>Lasiurus borealis</i>	2120	Adult	Male	Non-Reproductive	9.24	36.5	Medium	Light damage	Small bat

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/21/2015

State Virginia

County Franklin

Other Field Staff Ethan Okon

Permitted Biologist Brian Cooper

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.034

Net Placement Forest trails

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM464C			6	8	2030	0

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/27/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Jeremy Sheets
Federal Permit ID TE35518B-0
VA State Permit ID SC53786 - T&E 053787
WV State Permit ID 2015.135
Other Field Staff Aimee Bjornstad
KM Site ID VA-KM465 Net ID VA-KM465A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.50 Channel Width (m) 4.00 Stream width (m) 4.00
Substratum - Bedrock No Boulder No Cobble Yes Gravel Yes Sand Yes Silt/Clay No
Stillwater Present Yes Average Water depth (m) 0.10 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Juglans nigra*
- 3 *Quercus sp.*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Juglans nigra*
- 3 *Fagus grandifolia*

Estimated DBH Range - Large 69 Small 40 Estimated DBH Range Large 38 Small 8

Relative abundance dominant vs subdominant 1:100

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Cornus florida*
- 2 *Liriodendron tulipifera*
- 3 *Acer rubrum*

Habitat Description Small stream next to upland ridge and crop field.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Franklin County

Additional Comments Quercia sp. is Quercus bicolor.



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/27/2015

State Virginia

County Franklin

Other Field Staff Aimee Bjornstad

Permitted Biologist Jeremy Sheets

Federal Permit # TE35518B-0

VA State Permit# SC53786 T&E 053787

WV State Permit# 2015.135

Net Placement Franklin County, across stream. No bats.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM465A			6	9	2000	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/27/2015

State Virginia

County Franklin

Other Field Staff Aimee Bjornstad

Permitted Biologist Jeremy Sheets

Federal Permit # TE35518B-0

VA State Permit# SC53786 T&E 053787

WV State Permit# 2015.135

Net Placement Franklin County, across stream.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM465B			6	6	1930	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/27/2015

State Virginia

County Franklin

Other Field Staff Aimee Bjornstad

Permitted Biologist Jeremy Sheets

Federal Permit # TE35518B-0

VA State Permit# SC53786 T&E 053787

WV State Permit# 2015.135

Net Placement Franklin County, across stream.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM465C			9	9	1945	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/27/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist John Hootman
Federal Permit ID TE 62778B-0
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.810
Other Field Staff Sara Estep
KM Site ID VA-KM466 Net ID VA-KM466A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 850.0 Type of water source Pond
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- Liriodendron tulipifera*
- Quercus rubra*
- Pinus sp.*

Subdominant Canopy Species (<40cm/16"dbh)

- Liriodendron tulipifera*
- Acer rubrum*
-

Estimated DBH Range - Large 40 Small 30 Estimated DBH Range Large 30 Small 20

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation L. tulipifera dominant forest

Subcanopy Clutter High

Subcanopy comprised of saplings

Common Subcanopy Species

- Liriodendron tulipifera*
- Acer rubrum*
- Robinia pseudoacacia*

Habitat Description Upland large wood lot dominated by L. tulipifera

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/29/2015

Permitted Biologist John Hootman

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE 62778B-0

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Sara Estep

WV State Permit# 2015.81

Net Placement Across end of pond

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM466-1A			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/29/2015	A	<i>Lasiurus borealis</i>	2340	Adult	Male	Ascended	10.50	40.0	Medium	Moderate damage	
5/29/2015	A	<i>Lasiurus borealis</i>	2140	Adult	Female	Pregnant	20.00	42.0	Medium	Light damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/29/2015

State Virginia

County Franklin

Other Field Staff Sara Estep

Permitted Biologist John Hootman

Federal Permit # TE 62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.81

Net Placement Across ATV trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM466-1B			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/29/2015

State Virginia

County Franklin

Other Field Staff Sara Estep

Permitted Biologist John Hootman

Federal Permit # TE 62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.81

Net Placement Across trail at edge of pond

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM466-1C			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/29/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist John Hootman
Federal Permit ID TE 62778B-0
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.810
Other Field Staff Sara Estep
KM Site ID VA-KM466-1 Net ID VA-KM466-1A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Pond
Water Source Name Unnamed

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.50 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.00 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Quercus montana*
- 3 *Acer rubrum*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Acer rubrum*
- 3

Estimated DBH Range - Large 70 Small 40 Estimated DBH Range Large 40 Small 30

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential Moderate

Roosting Potential Explanation A few snags along the edge of the pond

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Hamamelis virginiana*
- 2 *Betula lenta*
- 3 *Carpinus caroliniana*

Habitat Description Forest edge butted up to a pond and field. Rocky outcroppings

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	Yes	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	Yes		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/27/2015

Permitted Biologist John Hootman

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE 62778B-0

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Sara Estep

WV State Permit# 2015.81

Net Placement Across logging road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM466A			9	6	2025	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/27/2015	A	<i>Lasiurus borealis</i>	2200	Adult	Female	Pregnant	18.50	40.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/27/2015

State Virginia

County Franklin

Other Field Staff Sara Estep

Permitted Biologist John Hootman

Federal Permit # TE 62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.81

Net Placement Across logging trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM466B			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/27/2015 Permitted Biologist John Hootman
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE 62778B-0
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Sara Estep WV State Permit# 2015.81

Net Placement Across logging road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM466C			6	6	2020	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/10/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Shane Brodnick
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.198
Other Field Staff Keena Mullins
KM Site ID VA-KM467 Net ID VA-KM467A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 200.0 Type of water source Spring
Water Source Name N/A

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus montana*
- 2 *Quercus coccinea*
- 3 *Nyssa sylvatica*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Oxydendrum arboreum*
- 3 *Pinus strobus*

Estimated DBH Range - Large 80 Small 40 Estimated DBH Range Large 39 Small 20

Relative abundance dominant vs subdominant 45:55

Estimated canopy closure Closed

Roost Tree Potential Consists large trees

Roosting Potential Moderate

Roosting Potential Explanation Area consists of large trees with access to water source and travel corridors/foraging areas. High insect population here.

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Pinus strobus*
- 2 *Oxydendrum arboreum*
- 3 *Liriodendron tulipifera*

Habitat Description Hardwood forest with access to intermittent stream to the west. Mixed hardwood understory. Trails are present that interconnect and provide high accessibility to bat needs

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Stream is an intermittent stream

Additional Comments Understory also consists of *Kalmia latifolia*, which is not on our list.



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/10/2015

State Virginia

County Franklin

Other Field Staff Keena Mullins

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Net placed over forested drive way.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM467A			6	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/10/2015

State Virginia

County Franklin

Other Field Staff Keena Mullins

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.198

Net Placement Net placed over forested drive way.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM467B			9	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/10/2015 Permitted Biologist Shane Brodnick
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Keena Mullins WV State Permit# 2015.198

Net Placement Net placed over forested drive way

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM467C			6	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/24/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Shawn McKinley
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.201
Other Field Staff Les Aaron
KM Site ID VA-KM468 Net ID VA-KM468A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 500.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus coccinea*
- 2 *Pinus strobus*
- 3 *Nyssa sylvatica*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Nyssa sylvatica*
- 2 *Liriodendron tulipifera*
- 3 *Robinia pseudoacacia*

Estimated DBH Range - Large 20 Small 16 Estimated DBH Range Large 16 Small 10

Relative abundance dominant vs subdominant 1:3

Estimated canopy closure Closed

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Very cluttered forest

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Nyssa sylvatica*
- 2 *Liriodendron tulipifera*
- 3 *Pinus virginiana*

Habitat Description Undeveloped forest bordering residential areas

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/24/2015

Permitted Biologist Shawn McKinley

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # N/A

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Les Aaron

WV State Permit# 2015.201

Net Placement On county road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM468A			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/25/2015	A	<i>Lasiurus borealis</i>	2240	Adult	Female	Pregnant	18.50	39.0	Full	Light damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/24/2015

State Virginia

County Franklin

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement On county road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM468B			6	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/25/2015	B	Lasiurus borealis	2145	Adult	Male	Ascended	11.00	39.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/24/2015

Permitted Biologist Shawn McKinley

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # N/A

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Les Aaron

WV State Permit# 2015.201

Net Placement On county road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM468C			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/24/2015	C	<i>Eptesicus fuscus</i>	2245	Adult	Female	Pregnant	26.50	46.0	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/24/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Elise Merrill
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.230
Other Field Staff Jonathan Suever
KM Site ID VA-KM469 Net ID VA-KM469A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Pond
Water Source Name Personal pond

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Juniperus virginiana*
- 3 *Pinus virginiana*

Subdominant Canopy Species (<40cm/16"dbh)

- 1
- 2
- 3

Estimated DBH Range - Large 46 Small 21 Estimated DBH Range Large 0 Small 0

Relative abundance dominant vs subdominant 1:0

Estimated canopy closure Open

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation Few snags with good solar exposure, not many other trees of roosting potential.

Subcanopy Clutter High

Subcanopy comprised of saplings

Common Subcanopy Species

1 *Pinus sp.* 2 *Acer rubrum* 3

Habitat Description Pine plantation. Recently logged area with small saplings, many shrubs. Agricultural fields

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	Yes	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/24/2015 Permitted Biologist Elise Merrill
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Pittsylvania VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Jonathan Suever WV State Permit# 2015.23

Net Placement Edge of a pine plantation over a corn field

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM469A			18	8	2050	150

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/24/2015 Permitted Biologist Elise Merrill
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Pittsylvania VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Jonathan Suever WV State Permit# 2015.23

Net Placement Edge net over agricultural field

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM469B			18	8	2055	155

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/24/2015	B	<i>Lasiurus borealis</i>	130	Adult	Male	Ascended	12.40	41.0	Full	No damage	
5/24/2015	B	<i>Lasiurus borealis</i>	20	Adult	Male	Ascended	10.10	38.0	Full	No damage	
5/24/2015	B	<i>Lasiurus borealis</i>	2340				0.00	0.0			Escaped
5/25/2015	B	<i>Lasiurus borealis</i>	2240	Adult	Male	Ascended	11.30	39.0	Empty	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/24/2015

State Virginia

County Pittsylvania

Other Field Staff Jonathan Suever

Permitted Biologist Elise Merrill

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.23

Net Placement Overgrown(with saplings) trail to waters edge

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM469C			6	5	2055	200

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/09/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kiara Johnson
KM Site ID VA-KM471 Net ID VA-KM471A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 1.0 Type of water source Stream
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Acer rubrum*
- 3 *Platanus occidentalis*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Acer rubrum*
- 3 *Sassafras albidum*

Estimated DBH Range - Large 45 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Not great roost trees

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Carpinus caroliniana*
- 2 *Sassafras albidum*
- 3 *Liriodendron tulipifera*

Habitat Description Young lowland forested corridor following riparian corridor

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature Lowland Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young Lowland Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	Yes	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/09/2015

Permitted Biologist Chris Boggs

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Pittsylvania

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Kiara Johnson

WV State Permit# 2015.197

Net Placement Placed over Old Red Eye Road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM471A			12	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/09/2015	A	<i>Lasiurus borealis</i>	2039	Adult	Female	Pregnant	18.50	40.0	Empty	No damage	
6/09/2015	A	<i>Lasiurus borealis</i>	2038	Adult	Female	Pregnant	17.50	39.0	Empty	No damage	
6/09/2015	A	<i>Lasiurus borealis</i>	2107	Adult	Male	Ascended	12.00	38.0	Empty	No damage	
6/09/2015	A	<i>Lasiurus borealis</i>	2142	Adult	Female	Pregnant	18.00	39.5	Medium	No damage	
6/09/2015	A	<i>Lasiurus borealis</i>	110	Adult	Female	Pregnant	17.00	38.0	Full	No damage	
6/09/2015	A	<i>Lasiurus borealis</i>	25	Adult	Female	Lactating	16.00	39.0	Medium	No damage	
6/10/2015	A	<i>Lasiurus borealis</i>	2205	Adult	Female	Pregnant	17.00	39.0	Medium	No damage	

Total # of Bats Captured 7



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/09/2015

State Virginia

County Pittsylvania

Other Field Staff Kiara Johnson

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Placed over Old Red Eye Road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM471B			12	9	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/09/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Placed over Old Red Eye Road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM471C			9	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/09/2015	C	<i>Lasiurus borealis</i>	25	Adult	Female	Lactating	16.00	39.0	Medium	No damage	
6/09/2015	C	<i>Lasiurus borealis</i>	110	Adult	Female	Pregnant	17.00	38.0	Full	No damage	
6/09/2015	C	<i>Lasiurus borealis</i>	2039	Adult	Female	Pregnant	18.50	40.0	Empty	No damage	
6/09/2015	C	<i>Lasiurus borealis</i>	2107	Adult	Male	Ascended	12.00	38.0	Medium	No damage	
6/09/2015	C	<i>Lasiurus borealis</i>	2038	Adult	Female	Pregnant	17.50	39.0	Empty	No damage	
6/09/2015	C	<i>Lasiurus borealis</i>	2142	Adult	Female	Pregnant	18.00	39.5	Full	No damage	
6/10/2015	C	<i>Lasiurus borealis</i>	2205	Adult	Female	Pregnant	18.50	40.0	Full	No damage	

Total # of Bats Captured 7



Net Site Habitat Data

Project # 593.12 Date 05/21/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Elise Merrill
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.230
Other Field Staff Vance Nepomuceno
KM Site ID VA-KM472 Net ID VA-KM472A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 10.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.25 Channel Width (m) 0.50 Stream width (m) 3.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.15 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

1 *Liriodendron tulipifera*

2 *Acer rubrum*

3 *Fagus arandifolia*

Subdominant Canopy Species (<40cm/16"dbh)

1 *Juniperus virginiana*

2 *Juglans nigra*

3 *Salix nigra*

Estimated DBH Range - Large 81 Small 40

Estimated DBH Range Large 40 Small 20

Relative abundance dominant vs subdominant 2:5

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential Moderate

Roosting Potential Explanation

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

1

2

3

Habitat Description

Does the Habitat consist of

Mature Upland Forest No

Young Upland Forest No

Mature LowLand Forest No

Young LowLand Forest No

Recently Logged Forest No

Other

Pine Plantation No

Woodlot Forest Edge Yes

Old Field No

Crop/Pasture Land Yes

Stream River Yes

Emergent Wetland No

Forested Swamp No

Shrub Scrub Swamp No

Vernal Pool No

Deepwater Lake Pond No

Herbaceous Cover:

Sparse No

Moderate No

Dense Yes

Roost Tree Decay Stage

Comments Dominant tree- Liquidambar styraciflua

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/21/2015 Permitted Biologist Elise Merrill
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Pittsylvania VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Vance Nepomuceno WV State Permit# 2015.23

Net Placement An opening in fence row where it meets forest edge; on field edge

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM472A			18	8	2050	150

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/21/2015	A	<i>Lasiurus borealis</i>	2115	Adult	Female	Pregnant	16.70	41.0	Medium	No damage	
5/21/2015	A	<i>Lasiurus borealis</i>	2115	Adult	Female	Pregnant	17.90	42.5	Medium	No damage	
5/22/2015	A	<i>Eptesicus fuscus</i>	2115	Adult	Female	Pregnant	21.20	47.5	Empty	Light damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/21/2015

Permitted Biologist Elise Merrill

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE38842A-3

Company Name MVP

County Pittsylvania

VA State Permit# N/A T&E 54100

Site Name Mountain Valley Pipeline

Other Field Staff Vance Nepomuceno

WV State Permit# 2015.23

Net Placement Over field, over stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM472B			12	8	2045	134

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/21/2015	B	<i>Eptesicus fuscus</i>	2115				0.00	0.0			Escaped
5/21/2015	B	<i>Eptesicus fuscus</i>	2115	Adult	Female	Pregnant	22.00	46.0	Medium	No damage	
5/21/2015	B	<i>Eptesicus fuscus</i>	2115	Adult	Female	Pregnant	27.80	46.5	Medium	No damage	
5/21/2015	B	<i>Eptesicus fuscus</i>	2115	Adult	Female	Pregnant	25.60	47.0	Medium	No damage	
5/21/2015	B	<i>Eptesicus fuscus</i>	2115	Adult	Female	Pregnant	27.00	46.5	Medium	No damage	
5/22/2015	B	<i>Lasiurus borealis</i>	2230	Adult	Female	Pregnant	13.70	43.5	Medium	No damage	
5/22/2015	B	<i>Eptesicus fuscus</i>	2115	Adult	Female	Pregnant	23.70	45.5	Empty	No damage	
5/23/2015	B	<i>Eptesicus fuscus</i>	2115	Adult	Female	Pregnant	19.40	47.5	Empty	No damage	
5/23/2015	B	<i>Eptesicus fuscus</i>	2128	Adult	Female	Pregnant	23.30	50.0	Medium	Light damage	
5/23/2015	B	<i>Lasiurus borealis</i>	115	Adult	Male	Ascended	10.60	41.5	Full	No damage	
5/23/2015	B	<i>Eptesicus fuscus</i>	2115	Adult	Male	Ascended	15.20	46.5	Medium	Light damage	

Total # of Bats Captured 11



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/21/2015

State Virginia

County Pittsylvania

Other Field Staff Vance Nepomuceno

Permitted Biologist Elise Merrill

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.23

Net Placement Over stream in forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM472C			6	5	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/24/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Jennifer Dreibelbis
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.035
Other Field Staff Ben Benfer
KM Site ID VA-KM473 Net ID VA-KM473A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus sp.*
- 2 *Quercus alba*
- 3 *Quercus sp.*

Subdominant Canopy Species (<40cm/16"dbh)

- 1
- 2
- 3

Estimated DBH Range - Large 76 Small 20 Estimated DBH Range Large 0 Small 0

Relative abundance dominant vs subdominant 0:0

Estimated canopy closure Open

Roost Tree Potential Consists neither

Roosting Potential None

Roosting Potential Explanation

Subcanopy Clutter High

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Quercus sp.*
- 2 *Acer rubrum*
- 3 Unknown

Habitat Description Old hay field and clear cut forest next to Pinus taeda plantation.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Quercus so is Quercus bicolor. Unknown subcanopy species is Liquidambar styraciflua.

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/24/2015

State Virginia

County Pittsylvania

Other Field Staff Ben Benfer

Permitted Biologist Jennifer Dreibelbis

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.035

Net Placement Forested field edge

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM473A			18	8	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/24/2015

State Virginia

County Pittsylvania

Other Field Staff Ben Benfer

Permitted Biologist Jennifer Dreibelbis

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.035

Net Placement Forested field edge

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM473B			12	8	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/24/2015

Permitted Biologist Jennifer Dreibelbis

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE38842A-3

Company Name MVP

County Pittsylvania

VA State Permit# N/A T&E 54100

Site Name Mountain Valley Pipeline

Other Field Staff Ben Benfer

WV State Permit# 2015.035

Net Placement Forested field edge

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM473C			9	5	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/24/2015	C	<i>Lasiurus borealis</i>	2350	Adult	Male	Non-Reproductive	10.09	39.0	Medium	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 05/24/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kyle Price
KM Site ID VA-KM474 Net ID VA-KM474A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 500.0 Type of water source Stream
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.10 Channel Width (m) 0.25 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.20 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Juglans nigra*
- 2 *Acer rubrum*
- 3 *Liriodendron tulipifera*

Estimated DBH Range - Large 40 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Moderate

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Ailanthus altissima*
- 2 *Acer rubrum*
- 3 *Liriodendron tulipifera*

Habitat Description Thick woodlot with trail leading from ag. Field to power line right of way

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Canopy is open in right of way and closed to moderately open in woods and trail. Forest is thick on both sides of the trail but a lot vounaer on one side with no trees over 17cm dbh

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
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Project Number 593.12 Date 05/24/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kyle Price WV State Permit# 2015.197

Net Placement Forest edge along power line

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM474A			12	6	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/25/2015	A	<i>Lasiurus borealis</i>	23	Adult	Male	Ascended	13.00	39.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/24/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kyle Price WV State Permit# 2015.197

Net Placement Nets stacked over wooded corridor path to powerline

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM474B			12	6	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/24/2015	B	<i>Lasiurus borealis</i>	2300	Adult	Male	Ascended	12.00	39.0	Full	No damage	
5/24/2015	B	<i>Lasiurus borealis</i>	2100	Adult	Female	Pregnant	15.50	39.0	Full	No damage	

Total # of Bats Captured 2



Bat Capture Data

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Project Number 593.12 Date 05/24/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kyle Price WV State Permit# 2015.197

Net Placement Nets stacked over wooded corridor path to powerline

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM474C			9	6	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/24/2015	C	<i>Lasiurus borealis</i>	2110	Adult	Female	Pregnant	17.00	40.0	Full	No damage	
5/24/2015	C	<i>Lasiurus borealis</i>	2147	Adult	Female	Pregnant	15.00	39.0	Full	No damage	
5/25/2015	C	<i>Lasiurus borealis</i>	28	Adult	Female	Ascended	16.00	40.0	Full	No damage	

Total # of Bats Captured 3



Net Site Habitat Data

Project # 593.12 Date 07/16/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Roanoke

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Ben Ward
KM Site ID VA-KM482 Net ID VA-KM482A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 1,000.0 Type of water source Stream
Water Source Name Bottom Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus rubra*
- 2 *Quercus alba*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Quercus rubra*
- 3 *Maanolia acuminata*

Estimated DBH Range - Large 42 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Open flight corridor along road as well as ridge top exposure to sun. However, adjacent woods are cluttered and no water source is proximal.

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Ostrya virginiana*
- 2 *Tsuga canadensis*
- 3 *Hamamelis virginiana*

Habitat Description Upland oak and maple forest that is very cluttered except for, ~4 meter gravel road where all three nets are stacked. Habitat is also on top of ridge.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Roanoke county

Additional Comments



Bat Capture Data

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4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/16/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Stacked over gravel road on top of ridge in upland oak and maple forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM482A			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/16/2015	A	<i>Lasiurus borealis</i>	120	Adult	Male	Ascended	12.50	39.0	Full	No damage	
7/16/2015	A	<i>Eptesicus fuscus</i>	2300	Juvenile	Male	Ascended	16.00	45.0		No damage	
7/17/2015	A	<i>Lasiurus borealis</i>	12	Adult	Male	Ascended	12.50	38.0	Full	No damage	
7/17/2015	A	<i>Eptesicus fuscus</i>	45	Adult	Female	Non-Lactating	21.00	48.0		No damage	
7/17/2015	A	<i>Eptesicus fuscus</i>	45	Adult	Female	Post-Lactating	17.50	45.5		No damage	
7/17/2015	A	<i>Eptesicus fuscus</i>	2300	Juvenile	Female	Non-Reproductive	16.00	46.0			
7/17/2015	A	<i>Eptesicus fuscus</i>	2300	Adult	Male	Post-Lactating	20.80	48.0		No damage	
7/17/2015	A	<i>Eptesicus fuscus</i>	0	Adult	Female	Post-Lactating	20.50	48.0		Light damage	
7/17/2015	A	<i>Eptesicus fuscus</i>	0	Adult	Male	Ascended	18.00	47.0		No damage	
7/17/2015	A	<i>Eptesicus fuscus</i>	0	Juvenile	Female	Non-Reproductive	27.00	47.5		No damage	

Total # of Bats Captured 10



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/16/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Stacked on gravel road on top of ridge in upland oak and maple forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM482B			12	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/16/2015	B	<i>Lasiurus borealis</i>	2330	Adult	Male	Ascended	11.50	39.0	Medium	No damage	Scarring on right wing probably from briars
7/17/2015	B	<i>Lasiurus cinereus</i>	2300	Juvenile	Male	Ascended	20.00	50.0	Full	No damage	
7/17/2015	B	<i>Eptesicus fuscus</i>	2235	Adult	Female	Post-Lactating	21.50	48.0		No damage	

Total # of Bats Captured 3



Bat Capture Data

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4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/16/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Stacked over gravel road on top of ridge in upland oak and maple forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM482C			12	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/16/2015	C	<i>Eptesicus fuscus</i>	2315	Adult	Female	Post-Lactating	20.00	47.0		No damage	
7/16/2015	C	<i>Eptesicus fuscus</i>	47	Adult	Female	Post-Lactating	20.50	48.0		No damage	
7/16/2015	C	<i>Lasiurus borealis</i>	45	Adult	Male	Ascended	12.00	38.0	Full	No damage	
7/16/2015	C	<i>Eptesicus fuscus</i>	2315	Juvenile	Male	Ascended	16.50	45.0		No damage	
7/16/2015	C	<i>Lasiurus borealis</i>	2230	Juvenile	Male	Non-Reproductive	11.00	40.0		No damage	
7/16/2015	C	<i>Eptesicus fuscus</i>	2230	Adult	Female	Post-Lactating	20.50	48.0		No damage	
7/16/2015	C	<i>Eptesicus fuscus</i>	2250	Adult	Male	Ascended	15.00	45.0		No damage	
7/17/2015	C	<i>Eptesicus fuscus</i>	2325	Adult	Male	Ascended	15.50	46.0		No damage	
7/17/2015	C	<i>Eptesicus fuscus</i>	2325	Adult	Female	Non-Reproductive	20.50	48.0		No damage	
7/17/2015	C	<i>Eptesicus fuscus</i>	2325	Juvenile	Female	Non-Reproductive	15.00	46.5		No damage	
7/17/2015	C	<i>Eptesicus fuscus</i>	2150	Adult	Male	Ascended	16.50	45.0		No damage	
7/17/2015	C	<i>Eptesicus fuscus</i>	2015	Adult	Female	Post-Lactating	20.50	47.0	Full	No damage	

Total # of Bats Captured 12



Net Site Habitat Data

Project # 593.12 Date 07/12/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Roanoke

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Ben Ward
KM Site ID VA-KM484 Net ID VA-KM484A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.10 Channel Width (m) 0.67 Stream width (m) 0.30
Substratum - Bedrock No Boulder No Cobble No Gravel Yes Sand Yes Silt/Clay No
Stillwater Present No Average Water depth (m) 0.17 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Pinus strobus*
- 2 *Betula lenta*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Pinus strobus*
- 2 *Acer rubrum*
- 3 *Prunus serotina*

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation For listed species moderate due to roost species and position of site to foraging area

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Prunus serotina*
- 3 *Lindera benzoin*

Habitat Description Consists of upland pine forest which gives way to lowland fallow fields and seasonal wet area. A small portion of the lowland area is bisected by a small, clear-flowing stream. Forest edge is present.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature Lowland Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	Yes
Young Lowland Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Roanoke county

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 07/12/2015

Permitted Biologist Chris Boggs

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Roanoke

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Ben Ward

WV State Permit# 2015.197

Net Placement Wooded corridor

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM484A			9	6	2030	150

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/14/2015	A	<i>Eptesicus fuscus</i>	2105	Juvenile	Female	Non-Reproductive	11.00	43.0		No damage	
7/14/2015	A	<i>Eptesicus fuscus</i>	0	Adult	Male	Ascended	18.50	46.0	Full	No damage	Scar on right forearm.appeared to be from thorn
7/14/2015	A	<i>Eptesicus fuscus</i>	2100	Adult	Female	Post-Lactating	19.00	47.5		No damage	
7/14/2015	A	<i>Lasiurus borealis</i>	2105	Adult	Female	Post-Lactating	15.00	42.0		No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/12/2015

State Virginia

County Roanoke

Other Field Staff Ben Ward

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Edge of fallow field next to narrow tree line.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM484B			12	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/12/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Roanoke VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Edge of lowland field in between two forest edges.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM484C			12	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/14/2015	C	<i>Lasiurus borealis</i>	45	Adult	Male	Ascended	13.00	38.0		No damage	
7/14/2015	C	<i>Eptesicus fuscus</i>	121	Adult	Female	Post-Lactating	22.00	48.0		No damage	
7/14/2015	C	<i>Eptesicus fuscus</i>	45	Juvenile	Male	Non-Reproductive	14.20	44.0		No damage	
7/14/2015	C	<i>Eptesicus fuscus</i>	2139	Juvenile	Male	Ascended	13.50	43.0		No damage	
7/14/2015	C	<i>Eptesicus fuscus</i>	2355	Adult	Male	Ascended	20.00	47.5		No damage	
7/15/2015	C	<i>Eptesicus fuscus</i>	2250	Juvenile	Female	Non-Reproductive	15.50	49.0		No damage	
7/15/2015	C	<i>Eptesicus fuscus</i>	2230	Adult	Male	Ascended	16.50	45.0		No damage	
7/15/2015	C	<i>Eptesicus fuscus</i>	2300	Juvenile	Female	Non-Reproductive	17.50	48.0		No damage	
7/15/2015	C	<i>Eptesicus fuscus</i>	2300	Juvenile	Female	Non-Reproductive	13.50	45.0		No damage	
7/15/2015	C	<i>Eptesicus fuscus</i>	2055	Adult	Female	Post-Lactating	19.00	46.0		No damage	
7/15/2015	C	<i>Nycticeius humeralis</i>	2053	Juvenile	Male	Ascended	8.50	40.0		No damage	
7/15/2015	C	<i>Eptesicus fuscus</i>	2150	Juvenile	Male	Ascended	14.00	45.0	Medium	No damage	
7/15/2015	C	<i>Lasiurus borealis</i>	47	Juvenile	Female	Non-Reproductive	11.50	39.0		No damage	

Total # of Bats Captured 13



Net Site Habitat Data

Project # 593.12 Date 05/28/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Shawn McKinley
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.201
Other Field Staff Les Aaron
KM Site ID VA-KM485 Net ID VA-KM485A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.10 Channel Width (m) 5.00 Stream width (m) 4.00
Substratum - Bedrock Yes Boulder No Cobble No Gravel Yes Sand Yes Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.05 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Betula alleghaniensis*
- 2 *Liriodendron tulipifera*
- 3 *Pinus strobus*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Pinus strobus*
- 2 *Nyssa sylvatica*
- 3 *Betula alleghaniensis*

Estimated DBH Range - Large 22 Small 16 Estimated DBH Range Large 16 Small 11

Relative abundance dominant vs subdominant 1:4

Estimated canopy closure Closed

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Very cluttered, little to no good sun exposure

Subcanopy Clutter High

Subcanopy comprised of shrubs

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Acer rubrum*
- 3 *Pinus strobus*

Habitat Description Mature lowland forest dissected by an access road

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature Lowland Forest	Yes	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young Lowland Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Rhododendron maximum

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/28/2015 Permitted Biologist Shawn McKinley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Les Aaron WV State Permit# 2015.201

Net Placement Over unimproved road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM485A			6	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/28/2015 Permitted Biologist Shawn McKinley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Les Aaron WV State Permit# 2015.201

Net Placement Over unimproved road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM485B			6	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/28/2015	B	<i>Lasiurus borealis</i>	115	Adult	Male	Ascended	10.00	41.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/28/2015

State Virginia

County Franklin

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement Over stream

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM485C			6	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/15/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Shawn McKinley
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.201
Other Field Staff Les Aaron
KM Site ID VA-KM486 Net ID VA-KM486A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 20.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.00 Channel Width (m) 5.00 Stream width (m) 6.00
Substratum - Bedrock Yes Boulder No Cobble Yes Gravel No Sand Yes Silt/Clay No
Stillwater Present No Average Water depth (m) 0.20 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Platanus occidentalis*
- 2 *Liriodendron tulipifera*
- 3 *Cercis canadensis*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Pinus virginiana*
- 3

Estimated DBH Range - Large 20 Small 16 Estimated DBH Range Large 16 Small 6

Relative abundance dominant vs subdominant 1:8

Estimated canopy closure Closed

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Low

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Liriodendron tulipifera*
- 2
- 3 *Ostrya virginiana*

Habitat Description Stream and field separated by a road

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Sub dominant tree 3 Austria virginiana. Sub canopy tree 2 prunus virginiana.

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/15/2015

Permitted Biologist Shawn McKinley

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # N/A

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Les Aaron

WV State Permit# 2015.201

Net Placement Over stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM486A			6	6	2020	120

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	A	<i>Lasionycteris noctivagans</i>	2235	Adult	Male	Ascended	10.50	42.0	Full	No damage	Small hole on left wing
5/16/2015	A	<i>Lasiurus borealis</i>	2235	Adult	Female	Pregnant	10.50	40.0	Empty	No damage	Puncture wounds on wings.
5/16/2015	A	<i>Lasionycteris noctivagans</i>	2305	Adult	Male	Ascended	10.50	42.0	Medium	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/15/2015

Permitted Biologist Shawn McKinley

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # N/A

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Les Aaron

WV State Permit# 2015.201

Net Placement Over flyway off stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM486B			6	6	2020	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/15/2015	B	<i>Lasiurus borealis</i>	2320	Adult	Female	Pregnant	14.50	39.0	Medium	No damage	
5/15/2015	B	<i>Lasiurus borealis</i>	2233	Adult	Male	Ascended	11.50	41.0	Full	No damage	
5/15/2015	B	<i>Lasiurus borealis</i>	2135	Adult	Female	Pregnant	14.50	41.0	Medium	No damage	Light non-white nose scarring

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/15/2015 Permitted Biologist Shawn McKinley
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # N/A
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Les Aaron WV State Permit# 2015.201

Net Placement Off the road to block foraging

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM486C			6	6	2020	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 08/07/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM487 Net ID VA-KM487A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 500.0 Type of water source Stream
Water Source Name Jacks Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Liriodendron tulipifera*
- 3 *Quercus montana*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus coccinea*
- 2 *Quercus velutina*
- 3 *Pinus virginiana*

Estimated DBH Range - Large 58 Small 40 Estimated DBH Range Large 39 Small 16

Relative abundance dominant vs subdominant 1:25

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Relatively few PRT present with limited available roosting structures

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Nyssa sylvatica*
- 2 *Sassafras albidum*
- 3 *Acer rubrum*

Habitat Description Upland uneven-aged stand dominated by deciduous trees with few conifers interspersed. Adjacent to open lawn and to row crops. Road intersects survey area.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/07/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Over forested driveway

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM487A			6	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/07/2015	A	<i>Lasiurus borealis</i>	0	Juvenile	Female	Non-Reproductive	11.30	41.0	Medium	No damage	
8/07/2015	A	<i>Lasiurus borealis</i>	2055	Adult	Male	Descended	10.00	39.0	Medium	No damage	
8/08/2015	A	<i>Lasiurus borealis</i>	2345	Juvenile	Female	Non-Reproductive	9.90	41.0	Full	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/07/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Over forested driveway

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM487B			9	9	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/08/2015	B	<i>Lasiurus borealis</i>	2220	Juvenile	Male	Ascended	10.10	38.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 08/07/2015

State Virginia

County Franklin

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement Over forested driveway

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM487C			6	6	2025	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/15/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Michelle Gillev
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.212
Other Field Staff Ben Ward
KM Site ID VA-KM489 Net ID VA-KM489A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Pinus virginiana*
- 3 *Acer saccharum*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Acer saccharum*
- 3

Estimated DBH Range - Large 70 Small 30 Estimated DBH Range Large 15 Small 10

Relative abundance dominant vs subdominant 1:2

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Few snags; most of the dominant species are *Liriodendron tulipifera* and do not provide places to roost under bark

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Carya glabra*
- 2 *Acer saccharum*
- 3

Habitat Description Park like woodland next to grazing pasture, woods are relatively open with few shrubs and herbaceous cover

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Franklin County

Additional Comments *Quercus alba* is NOT a subdominant tree species. The field was mistakenly entered



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/15/2015

State Virginia

County Franklin

Other Field Staff Ben Ward

Permitted Biologist Michelle Gilley

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.212

Net Placement In corridor leading into woods from pasture

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM489A			9	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/15/2015

State Virginia

County Franklin

Other Field Staff Ben Ward

Permitted Biologist Michelle Gilley

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.212

Net Placement Edge net, on pasture next to tree line

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM489B			9	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number	593.12	Date	06/15/2015	Permitted Biologist	Michelle Gilley
Project Name	Mountain Valley Pipeline Project	State	Virginia	Federal Permit #	TE02373A-9
Company Name	MVP	County	Franklin	VA State Permit#	SC 050652 T&E 054097
Site Name	Mountain Valley Pipeline	Other Field Staff	Ben Ward	WV State Permit#	2015.212

Net Placement Corridor connecting two pasture fields

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM489C			6	9	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/21/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Pittsylvania

Permitted Biologist John Hootman
Federal Permit ID TE 62778B-0
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.810
Other Field Staff Sara Estep
KM Site ID VA-KM490 Net ID VA-KM490A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 129.0 Type of water source Pond
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus rubra*
- 2 *Quercus montana*
- 3 *Pinus sp.*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus montana*
- 3 *Quercus rubra*

Estimated DBH Range - Large 60 Small 30 Estimated DBH Range Large 30 Small 20

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Few snags and *C. ovata* not mature enough for roosting. Moderate for northerns. Low for indians

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Carya tomentosa*
- 2 *Carya ovata*
- 3 *Fagus grandifolia*

Habitat Description Predominately oak forest with shortleaf pines mixed in. Wood lots surrounded by agricultural hay fields

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	Yes	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/21/2015 Permitted Biologist John Hootman
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE 62778B-0
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Sara Estep WV State Permit# 2015.81

Net Placement Across farm trail in wood lot in between two hay fields

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM490A			9	6	2015	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/21/2015	A	<i>Lasiurus borealis</i>	2120	Adult	Female	Pregnant	16.50	40.0	Medium	No damage	
5/21/2015	A	<i>Lasiurus borealis</i>	2125	Adult	Female	Pregnant	15.50	39.0	Medium	No damage	
5/22/2015	A	<i>Lasiurus borealis</i>	30	Adult	Female	Pregnant	19.00	39.0	Medium	No damage	
5/22/2015	A	<i>Lasiurus borealis</i>	120	Adult	Female	Pregnant	13.00	38.0	Medium	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/21/2015

State Virginia

County Pittsylvania

Other Field Staff Sara Estep

Permitted Biologist John Hootman

Federal Permit # TE 62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.81

Net Placement Across farm trail mouth opening to a field

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM490B			6	6	2020	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/21/2015 Permitted Biologist John Hootman
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE 62778B-0
Company Name MVP County Pittsylvania VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Sara Estep WV State Permit# 2015.81

Net Placement Across farm trail in a wood lot that connects a field with an old school house

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM490C			6	6	2020	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/21/2015	C	<i>Lasionycteris noctivagans</i>	2230	Adult	Male	Ascended	10.50	41.0	Medium	No damage	
5/21/2015	C	<i>Lasiurus borealis</i>	2120	Adult	Female	Pregnant	17.00	38.0	Medium	No damage	
5/21/2015	C	<i>Lasionycteris noctivagans</i>	2230	Adult	Male	Ascended	11.50	41.0	Medium	No damage	
5/22/2015	C	<i>Lasiurus borealis</i>	120	Adult	Female	Pregnant	13.00	38.0	Medium	No damage	

Total # of Bats Captured 4



Net Site Habitat Data

Project # 593.12 Date 05/29/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM562 Net ID VA-KM562A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 500.0 Type of water source Stream
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus montana*
- 2 *Quercus alba*
- 3 *Quercus velutina*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Magnolia acuminata*
- 3 *Acer rubrum*

Estimated DBH Range - Large 76 Small 40 Estimated DBH Range Large 40 Small 8

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Relatively young forest with low number of potential roosts

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Magnolia acuminata*
- 2 *Oxydendrum arboreum*
- 3 *Acer rubrum*

Habitat Description Upland deciduous mixed mesophytic, uneven-aged forest with Forest Service Road intersecting KM.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/29/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Over Forest Service Road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM562A			6	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/30/2015	A	<i>Lasiurus borealis</i>	2115	Adult	Male	Ascended	9.70	38.0	Full	No damage	
5/30/2015	A	<i>Eptesicus fuscus</i>	15	Adult	Male	Ascended	17.20	46.0	Full	Moderate damage	Missing nearly all dorsal fur.
5/30/2015	A	<i>Lasiurus borealis</i>	2125	Adult	Female	Pregnant	19.20	39.0	Full	No damage	
5/31/2015	A	<i>Eptesicus fuscus</i>	2150	Adult	Male	Ascended	16.50	44.0	Full	No damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/29/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Over Forest Service Road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM562B			6	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/30/2015	B	<i>Myotis leibii</i>	2255	Adult	Male	Ascended	4.80	31.0	Medium	No damage	Unknown eggs on left ear

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/29/2015

Permitted Biologist Valerie Clarkston

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Giles

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Doug Gilbert

WV State Permit# 2015.2

Net Placement Over Forest Service Road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM562C			9	9	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/30/2015	C	<i>Eptesicus fuscus</i>	2215	Adult	Male	Ascended	16.70	45.0	Full	No damage	
5/30/2015	C	<i>Lasiurus borealis</i>	2215	Adult	Male	Ascended	11.50	41.0	Full	No damage	
5/30/2015	C	<i>Eptesicus fuscus</i>	2255	Adult	Male	Ascended	16.00	45.0	Full	No damage	

Total # of Bats Captured 3



Net Site Habitat Data

Project # 593.12 Date 05/29/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Elise Merrill
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.230
Other Field Staff Vance Nepomuceno
KM Site ID VA-KM563 Net ID VA-KM563A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Spring
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.10 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus montana*
- 2 *Liriodendron tulipifera*
- 3 *Quercus rubra*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Quercus sp.*
- 3 *Liriodendron tulipifera*

Estimated DBH Range - Large 75 Small 50 Estimated DBH Range Large 43 Small 20

Relative abundance dominant vs subdominant 2:5

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Castanea dentata*
- 3 *Hamamelis virginiana*

Habitat Description Upland transitional forest

Does the Habitat consist of

Mature Upland Forest Yes

Young Upland Forest Yes

Mature LowLand Forest No

Young LowLand Forest No

Recently Logged Forest No

Other

Pine Plantation No

Woodlot Forest Edge No

Old Field No

Crop/Pasture Land No

Stream River Yes

Emergent Wetland No

Forested Swamp No

Shrub Scrub Swamp No

Vernal Pool No

Deepwater Lake Pond No

Herbaceous Cover:

Sparse No

Moderate Yes

Dense No

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/29/2015 Permitted Biologist Elise Merrill
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Giles VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Vance Nepomuceno WV State Permit# 2015.23

Net Placement Stacked over Pocahontas road(FR)

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM563A			9	8	2052	152

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/30/2015	A	<i>Lasiurus borealis</i>	110				0.00	0.0			Escaped
5/30/2015	A	<i>Eptesicus fuscus</i>	2155	Adult	Male	Ascended	16.60	46.0	Full	Light damage	
5/30/2015	A	<i>Myotis leibii</i>	2130	Adult	Male	Ascended	4.40	31.5	Empty	No damage	No band applied
5/30/2015	A	<i>Eptesicus fuscus</i>	110	Adult	Male	Ascended	16.80	46.0	Full	No damage	
5/31/2015	A	<i>Eptesicus fuscus</i>	15	Adult	Male	Ascended	17.40	47.5	Full	Light damage	
5/31/2015	A	<i>Lasiurus borealis</i>	15				0.00	0.0			Escaped
5/31/2015	A	<i>Eptesicus fuscus</i>	15	Adult	Male	Ascended	16.30	47.0	Full	Light damage	

Total # of Bats Captured 7



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/29/2015

State Virginia

County Giles

Other Field Staff Vance Nepomuceno

Permitted Biologist Elise Merrill

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.23

Net Placement Over stream running through forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM563B			6	5	2042	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/29/2015 Permitted Biologist Elise Merrill
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE38842A-3
Company Name MVP County Giles VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Vance Nepomuceno WV State Permit# 2015.23

Net Placement Grassy road through young upland forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM563C			12	8	2047	150

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/30/2015	C	<i>Myotis lucifugus</i>	20	Adult	Male	Ascended	8.70	37.0	Medium	No damage	
5/31/2015	C	<i>Lasiurus borealis</i>	2330	Adult	Male	Ascended	11.10	40.0	Medium	Light damage	
5/31/2015	C	<i>Myotis leibii</i>	2225	Adult	Female	Pregnant	6.00	32.0	Empty	Light damage	

Total # of Bats Captured 3



Net Site Habitat Data

Project # 593.12 Date 05/29/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Carme Ardito
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.203
Other Field Staff Dylan Little
KM Site ID VA-KM564 Net ID VA-KM564A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 2,000.0 Type of water source Stream
Water Source Name New River

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus montana*
- 2 *Quercus rubra*
- 3 *Pinus strobus*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Magnolia acuminata*
- 2 *Quercus montana*
- 3 *Quercus rubra*

Estimated DBH Range - Large 50 Small 40 Estimated DBH Range Large 40 Small 15

Relative abundance dominant vs subdominant 1:30

Estimated canopy closure Moderate

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation Few snags and large trees present.

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Cornus florida*
- 2 *Nyssa sylvatica*
- 3 *Pinus strobus*

Habitat Description Young upland hardwood forest. Forest service access roads cross net sites.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/29/2015 Permitted Biologist Carme Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Dylan Little WV State Permit# 2015.203

Net Placement Net placed on forested access road under canopy cover

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM564A			9	6	2015	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/30/2015	A	<i>Eptesicus fuscus</i>	2305	Adult	Male	Descended	14.75	44.0	Medium	Light damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/29/2015 Permitted Biologist Carme Ardito
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Dylan Little WV State Permit# 2015.203

Net Placement Net placed over forested access road.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM564B			6	6	2020	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/31/2015	B	<i>Lasiurus borealis</i>	2231	Adult	Male	Ascended	11.50	38.0	Full	Light damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number	593.12	Date	05/29/2015	Permitted Biologist	Carme Ardito
Project Name	Mountain Valley Pipeline Project	State	Virginia	Federal Permit #	TE02373A-9
Company Name	MVP	County	Giles	VA State Permit#	SC 050652 T&E 054097
Site Name	Mountain Valley Pipeline	Other Field Staff	Dylan Little	WV State Permit#	2015.203

Net Placement Net placed over forested access road.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM564C			6	9	2020	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 05/30/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist John Hootman
Federal Permit ID TE 62778B-0
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.810
Other Field Staff Sara Estep
KM Site ID VA-KM565 Net ID VA-KM565A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 400.0 Type of water source Stream
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus coccinea*
- 2 *Quercus velutina*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus montana*
- 3 *Quercus coccinea*

Estimated DBH Range - Large 50 Small 40 Estimated DBH Range Large 30 Small 25

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Open

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Not a lot of snags and large trees are not ideal for roosting

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Quercus montana*
- 3 *Sassafras albidum*

Habitat Description Rich contiguous upland forest

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Mountain laurel is abundant, a few Hemlocks

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 05/30/2015 Permitted Biologist John Hootman
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE 62778B-0
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Sara Estep WV State Permit# 2015.81

Net Placement Over forest road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM565A			12	6	2030	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/31/2015	A	<i>Eptesicus fuscus</i>	45	Adult	Male	Descended	15.50	45.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 05/30/2015

Permitted Biologist John Hootman

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE 62778B-0

Company Name MVP

County Giles

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Sara Estep

WV State Permit# 2015.81

Net Placement Forest road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM565B			9	6	2034	134

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
5/30/2015	B	<i>Eptesicus fuscus</i>	2340	Adult	Male	Descended	14.50	48.0	Medium	Light damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 05/30/2015

State Virginia

County Giles

Other Field Staff Sara Estep

Permitted Biologist John Hootman

Federal Permit # TE 62778B-0

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.81

Net Placement Over forest road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM565C			9	9	2030	134

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/26/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM566 Net ID VA-KM566A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 500.0 Type of water source Stream
Water Source Name Glendennin Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Quercus montana*
- 3 *Quercus alba*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Quercus velutina*
- 3 *Pinus strobus*

Estimated DBH Range - Large 79 Small 40 Estimated DBH Range Large 39 Small 16

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Very few potential roosting structures present.

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Magnolia acuminata*
- 2 *Pinus strobus*
- 3 *Sassafras albidum*

Habitat Description Upland, uneven-aged, deciduous forest dominated by oak species. South-facing slope. Gravel road intersects forest. A ROW corridor intersects KM.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/26/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Over forested gravel road near powerline ROW

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM566A			9	9	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/26/2015	A	<i>Eptesicus fuscus</i>	2245	Adult	Male	Descended	18.50	48.0	Full	No damage	
6/28/2015	A	<i>Lasiurus borealis</i>	2140	Adult	Male	Ascended	13.90	39.0	Empty	No damage	
6/28/2015	A	<i>Lasiurus borealis</i>	53	Adult	Male	Ascended	14.20	40.0	Full	No damage	
6/29/2015	A	<i>Eptesicus fuscus</i>	15	Adult	Male	Ascended	17.90	47.0	Full	No damage	
6/29/2015	A	<i>Eptesicus fuscus</i>	2215	Adult	Female	Pregnant	20.40	48.0	Full	No damage	
6/29/2015	A	<i>Eptesicus fuscus</i>	2305	Adult	Male	Ascended	16.00	45.0	Full	No damage	
6/29/2015	A	<i>Eptesicus fuscus</i>	2140	Adult	Male	Ascended	16.40	47.0	Full	No damage	

Total # of Bats Captured 7



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/26/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Over forested gravel road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM566B			6	6	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/28/2015	B	<i>Lasiurus borealis</i>	115	Adult	Female	Non-Reproductive	14.50	40.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/26/2015

Permitted Biologist Valerie Clarkston

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Giles

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Doug Gilbert

WV State Permit# 2015.2

Net Placement Over forested gravel road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM566C			9	6	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/27/2015	C	<i>Eptesicus fuscus</i>	2150	Adult	Male	Ascended	15.50	46.0	Empty	No damage	
6/28/2015	C	<i>Eptesicus fuscus</i>	2230	Adult	Male	Ascended	15.50	47.0	Full	No damage	
6/29/2015	C	<i>Eptesicus fuscus</i>	2140	Adult	Male	Ascended	18.00	46.0	Full	No damage	
6/29/2015	C	<i>Eptesicus fuscus</i>	30	Adult	Male	Descended	17.60	48.0	Full	No damage	
6/29/2015	C	<i>Eptesicus fuscus</i>	2150	Adult	Male	Ascended	15.70	45.0	Medium	No damage	Small hole in right wing; not WNS
6/29/2015	C	<i>Eptesicus fuscus</i>	2325	Adult	Male	Ascended	18.30	46.0	Medium	No damage	
6/30/2015	C	<i>Eptesicus fuscus</i>	30	Adult	Female	Lactating	20.20	45.0	Full	No damage	

Total # of Bats Captured 7



Net Site Habitat Data

Project # 593.12 Date 06/26/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Michelle Gillev
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.212
Other Field Staff Ben Ward
KM Site ID VA-KM567 Net ID VA-KM567A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 2,400.0 Type of water source Stream
Water Source Name New River

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- Liriodendron tulipifera*
- Pinus strobus*
-

Subdominant Canopy Species (<40cm/16"dbh)

- Betula lenta*
- Acer rubrum*
- Liriodendron tulipifera*

Estimated DBH Range - Large 42 Small 40 Estimated DBH Range Large 22 Small 12

Relative abundance dominant vs subdominant 1:50

Estimated canopy closure Moderate

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation Mostly young upland forest with few small snags and large trees.

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- Quercus montana*
- Betula lenta*
- Sassafras albidum*

Habitat Description Jefferson Forest. Young upland forest mostly mixed hardwoods with few large white pines. Nets over gravel access road and jeep trails running through woods.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/26/2015

Permitted Biologist Michelle Gilley

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Giles

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Ben Ward

WV State Permit# 2015.212

Net Placement Over Forest Service road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM567A			9	9	2015	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/26/2015	A	<i>Eptesicus fuscus</i>	2200	Adult	Male	Ascended	18.00	41.5		No damage	
6/27/2015	A	<i>Lasiurus borealis</i>	100	Adult	Male	Ascended	12.50	39.5		No damage	
6/27/2015	A	<i>Lasiurus borealis</i>	2330	Adult	Male	Ascended	13.50	40.0		No damage	
6/27/2015	A	<i>Lasiurus borealis</i>	2240	Adult	Male	Ascended	12.50	40.0		No damage	
6/27/2015	A	<i>Eptesicus fuscus</i>	2200	Adult	Male	Descended	18.00	49.0		No damage	
6/27/2015	A	<i>Lasiurus borealis</i>	100				0.00	0.0			Escaped
6/27/2015	A	<i>Eptesicus fuscus</i>	2330	Adult	Male	Ascended	19.00	49.0		No damage	
6/27/2015	A	<i>Lasiurus borealis</i>	2245	Adult	Male	Ascended	13.00	41.0		No damage	
6/28/2015	A	<i>Lasiurus borealis</i>	45	Adult	Male	Ascended	12.50	38.5		Light damage	

Total # of Bats Captured 9



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/26/2015

State Virginia

County Giles

Other Field Staff Ben Ward

Permitted Biologist Michelle Gilley

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.212

Net Placement Over old forest service 4x4 road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM567B			6	6	2020	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/26/2015

State Virginia

County Giles

Other Field Staff Ben Ward

Permitted Biologist Michelle Gilley

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.212

Net Placement Over old forest service/4x4 road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM567C			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/30/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM568 Net ID VA-KM568A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 150.0 Type of water source Stream
Water Source Name Clendennin

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus montana*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Betula lenta*
- 2 *Acer rubrum*
- 3 *Quercus montana*

Estimated DBH Range - Large 60 Small 40 Estimated DBH Range Large 39 Small 20

Relative abundance dominant vs subdominant 1:25

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Oxydendrum arboreum*
- 2 *Cornus florida*
- 3 *Nyssa sylvatica*

Habitat Description Young upland forest split by forest service road

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/30/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Over Forest Service Road; forested gravel road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM568A			6	6	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/30/2015	A	<i>Eptesicus fuscus</i>	2135	Adult	Female	Lactating	0.00	0.0	Full	No damage	Let go due to approaching storm.
6/30/2015	A	<i>Eptesicus fuscus</i>	2130	Adult	Female	Lactating	19.40	48.0	Full	No damage	
7/01/2015	A	<i>Eptesicus fuscus</i>	2140	Adult	Male	Ascended	14.00	45.0	Full	No damage	
7/01/2015	A	<i>Eptesicus fuscus</i>	2140	Adult	Female	Lactating	15.00	48.0	Full	No damage	
7/01/2015	A	<i>Eptesicus fuscus</i>	2140	Adult	Female	Lactating	15.50	48.0	Full	No damage	
7/02/2015	A	<i>Eptesicus fuscus</i>	2135	Adult	Male	Ascended	10.50	47.0	Medium	No damage	
7/02/2015	A	<i>Eptesicus fuscus</i>	2255	Adult	Male	Ascended	15.50	48.0	Full	No damage	
7/02/2015	A	<i>Eptesicus fuscus</i>	2125	Adult	Female	Lactating	14.00	49.0	Medium	No damage	

Total # of Bats Captured 8



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/30/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Over forested gravel riad

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM568B			12	9	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/01/2015	B	<i>Eptesicus fuscus</i>	2205	Adult	Female	Lactating	19.80	47.0	Full	No damage	
7/01/2015	B	<i>Lasiurus borealis</i>	2100	Adult	Male	Ascended	11.40	39.0	Medium	No damage	
7/01/2015	B	<i>Eptesicus fuscus</i>	2125	Adult	Female	Lactating	20.40	50.0	Full	No damage	

Total # of Bats Captured 3



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/30/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Over Forest Service Road; forested gravel road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM568C			9	9	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/30/2015	C	<i>Eptesicus fuscus</i>	2140	Adult	Female	Lactating	0.00	0.0	Full	No damage	Let go due to approaching storm. Did not take weight or RFA measurements.
7/01/2015	C	<i>Eptesicus fuscus</i>	2210	Adult	Male	Ascended	16.90	47.0	Medium	No damage	
7/01/2015	C	<i>Eptesicus fuscus</i>	2210	Adult	Male	Descended	16.90	45.0	Full	No damage	
7/01/2015	C	<i>Eptesicus fuscus</i>	2155	Adult	Male	Descended	17.60	48.0	Full	No damage	
7/02/2015	C	<i>Eptesicus fuscus</i>	2210	Adult	Female	Lactating	22.20	48.0	Full	No damage	

Total # of Bats Captured 5



Net Site Habitat Data

Project # 593.12 Date 07/26/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Ben Ward
KM Site ID VA-KM569 Net ID VA-KM569A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 105.8 Type of water source Stream
Water Source Name Stony Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 2.00 Channel Width (m) 3.50 Stream width (m) 3.00
Substratum - Bedrock No Boulder No Cobble Yes Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Platanus occidentalis*
- 2 *Tilia americana*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Betula lenta*
- 2 *Acer rubrum*
- 3 *Aesculus glabra*

Estimated DBH Range - Large 80 Small 40 Estimated DBH Range Large 30 Small 15

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Many small trees in cluttered deciduous forest. Large trees and snags are present, but are not abundant. Area is also very shady.

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Cercis canadensis*
- 3 *Aesculus glabra*

Habitat Description Nets are all located at the base of steep-sided hillsides. An access road runs adjacent to vernal creek which is wet, but not flowing. Ravine descends from upland forest to riparian area. Habitat is steep and narrow with

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	Yes	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Giles County

Additional Comments Habitat would normally be excellent corridor for catching bats



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/26/2015

State Virginia

County Giles

Other Field Staff Ben Ward

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Stacked over access road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM569A			6	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/26/2015

State Virginia

County Giles

Other Field Staff Ben Ward

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Nets stacked over access road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM569B			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 07/26/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Giles VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Ben Ward WV State Permit# 2015.197

Net Placement Stacked over access road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM569C			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
7/27/2015	C	<i>Myotis leibii</i>	130	Adult	Male	Ascended	5.50	30.0	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 07/27/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM570 Net ID VA-KM570A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 1,000.0 Type of water source Pond
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Liriodendron tulipifera*
- 3 *Fraxinus americana*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Quercus montana*
- 3 *Liriodendron tulipifera*

Estimated DBH Range - Large 75 Small 40 Estimated DBH Range Large 39 Small 20

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Several large trees and snags; open understory with trail that provides good flight corridor; no nearby standing water

Subcanopy Clutter Low

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Acer saccharum*
- 2 *Carpinus caroliniana*
- 3 *Aesculus glabra*

Habitat Description Young upland deciduous forest; several rock outcrops and boulders piled on surface along Stony Creek Road

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/27/2015

State Virginia

County Giles

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement Placed at entrance to trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM570A			9	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/27/2015

State Virginia

County Giles

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement Over forested trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM570B			6	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 07/27/2015

State Virginia

County Giles

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement Over forested trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM570C			6	9	2040	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/17/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM571 Net ID VA-KM571A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 1,500.0 Type of water source Stream
Water Source Name North Fork Roanoke River

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus rubra*
- 3 *Carpa tomentosa*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus rubra*
- 2 *Liriodendron tulipifera*
- 3 *Acer rubrum*

Estimated DBH Range - Large 78 Small 40 Estimated DBH Range Large 39 Small 16

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Moderate considering MYSE and MYSO. Large trees and snags found throughout area. Number of roosting structures vary per tree from high to low.

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Cercis canadensis*
- 2 *Cornus florida*
- 3 *Quercus alba*

Habitat Description Upland uneven-aged oak-hickory dominated forest. Gravel road and a trail intersects forest.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/17/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On dirt trail intersecting forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM571A			6	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/21/2015	A	<i>Eptesicus fuscus</i>	130	Adult	Male	Ascended	12.50	39.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

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4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/17/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On gravel road intersecting forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM571B			9	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/18/2015	B	<i>Eptesicus fuscus</i>	2225	Adult	Female	Lactating	18.70	44.0	Full	No damage	
6/18/2015	B	<i>Lasiurus borealis</i>	2225	Adult	Female	Lactating	13.50	39.0	Full	No damage	
6/18/2015	B	<i>Lasiurus borealis</i>	2325	Adult	Female	Lactating	13.40	41.0	Full	No damage	
6/19/2015	B	<i>Lasiurus borealis</i>	2200	Adult	Female	Lactating	12.50	40.0	Medium	No damage	
6/21/2015	B	<i>Eptesicus fuscus</i>	2315	Adult	Female	Lactating	17.00	48.0	Full	No damage	

Total # of Bats Captured 5



Bat Capture Data

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Project Number 593.12 Date 06/17/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On gravel road intersecting forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM571C			12	9	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/19/2015	C	<i>Lasiurus borealis</i>	30	Adult	Female	Lactating	13.80	39.0	Full	No damage	

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 06/22/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM572 Net ID VA-KM572A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 2,000.0 Type of water source Stream
Water Source Name North Fork Roanoke River

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus montana*
- 2 *Quercus velutina*
- 3 *Quercus alba*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Carya tomentosa*
- 2 *Quercus velutina*
- 3 *Oxydendrum arboreum*

Estimated DBH Range - Large 79 Small 40 Estimated DBH Range Large 39 Small 16

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Some trees with decent roosting structures (i.e., loose bark; hollows; cracks; crevices) are relatively common in this young forest.

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Cornus florida*
- 2 *Cercis canadensis*
- 3 *Quercus alba*

Habitat Description Oak-dominated stand. Upland, uneven-aged, deciduous forest with slight slope to the southeast. Gravel road intersects forest.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/22/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement On gravel road that intersects forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM572A			9	9	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/22/2015	A	<i>Lasiurus borealis</i>	2315	Adult	Female	Lactating	8.50	39.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/22/2015

State Virginia

County Montgomery

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement On gravel road intersecting forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM572B			9	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/22/2015

State Virginia

County Montgomery

Other Field Staff Doug Gilbert

Permitted Biologist Valerie Clarkston

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.2

Net Placement On gravel road intersecting forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM572C			6	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/15/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Kiara Johnson
KM Site ID VA-KM573 Net ID VA-KM573A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 15.0 Type of water source Stream
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus montana*
- 3 *Quercus velutina*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Carya tomentosa*
- 3 *Quercus alba*

Estimated DBH Range - Large 75 Small 40 Estimated DBH Range Large 39 Small 20

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Good large snags with water and flight corridors. Snags have good structure but not typical species

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Sassafras albidum*
- 2 *Nyssa sylvatica*
- 3 *Cornus florida*

Habitat Description Fairly large block of forest with good mast stand trees

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/15/2015

State Virginia

County Montgomery

Other Field Staff Kiara Johnson

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Nets stacked across forested trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM573A			9	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/15/2015

State Virginia

County Montgomery

Other Field Staff Kiara Johnson

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Nets stacked over trail in forested plot

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM573B			9	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/15/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Kiara Johnson WV State Permit# 2015.197

Net Placement Nets stacked on trail in large forested plot

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM573C			12	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/16/2015	C	<i>Myotis septentrionalis</i>	32	Adult	Female	Lactating	6.50	34.0	Medium	No damage	Transmitter number 172.482. Extremely docile. Flew S from capture site.

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 08/01/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Chris Boags
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.197
Other Field Staff Ben Ward
KM Site ID VA-KM574 Net ID VA-KM574A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 2.00 Channel Width (m) 3.00 Stream width (m) 0.00
Substratum - Bedrock Yes Boulder No Cobble Yes Gravel Yes Sand No Silt/Clay No
Stillwater Present Yes Average Water depth (m) 0.03 Water Clarity None

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Acer rubrum*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Pinus virginiana*
- 3 *Quercus rubra*

Estimated DBH Range - Large 40 Small 39 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:23

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential Moderate

Roosting Potential Explanation Existing buffer for *Myotis Septentrionalis* caught this season

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Ostrya virginiana*
- 3 *Fraxinus americana*

Habitat Description Young lowland forest

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature Lowland Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young Lowland Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Creek is dried up but has small pockets of water

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/01/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.197

Net Placement Stacked over dirt road with wooded canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM574A			12	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/01/2015	A	<i>Lasiurus borealis</i>	100	Adult	Female	Non-Lactating	14.50	39.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/01/2015 Permitted Biologist Chris Boggs
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Montgomery VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.197

Net Placement Stacked over trail with canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM574B			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/01/2015	B	<i>Lasiurus borealis</i>	2300	Juvenile	Female	Non-Lactating	15.00	38.0	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 08/01/2015

State Virginia

County Montgomery

Other Field Staff Doug Gilbert

Permitted Biologist Chris Boggs

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.197

Net Placement Nets stacked over dirt road with canopy

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM574C			9	6	2030	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 08/13/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Franklin

Permitted Biologist Valerie Clarkston
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.200
Other Field Staff Doug Gilbert
KM Site ID VA-KM577 Net ID VA-KM577A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Maple Branch Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 1.00 Channel Width (m) 5.00 Stream width (m) 3.00
Substratum - Bedrock Yes Boulder No Cobble Yes Gravel Yes Sand No Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 1.00 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Platanus occidentalis*
- 2 *Quercus alba*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Juglans nigra*
- 2 *Pinus virginiana*
- 3 *Nyssa sylvatica*

Estimated DBH Range - Large 70 Small 40 Estimated DBH Range Large 39 Small 15

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Some decent snags near stream; good flight corridors leading to open fields and cattle ponds

Subcanopy Clutter Low

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Acer rubrum*
- 2 *Carpinus caroliniana*
- 3 *Nyssa sylvatica*

Habitat Description Young lowland forest interspersed with cattle pastures

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature Lowland Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young Lowland Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/13/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Over Maple Branch Creek

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM577A			9	9	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/13/2015	A	<i>Eptesicus fuscus</i>	2110	Juvenile	Female	Non-Reproductive	0.00	46.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 08/13/2015

Permitted Biologist Valerie Clarkston

Project Name Mountain Valley Pipeline Project

State Virginia

Federal Permit # TE02373A-9

Company Name MVP

County Franklin

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Doug Gilbert

WV State Permit# 2015.2

Net Placement Over forested driveway

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM577B			9	6	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/13/2015	B	<i>Lasiurus borealis</i>	2050	Adult	Male	Descended	10.00	38.0	Medium	No damage	
8/13/2015	B	<i>Lasiurus borealis</i>	2045	Juvenile	Male	Ascended	10.10	39.0	Medium	No damage	
8/13/2015	B	<i>Lasiurus borealis</i>	2145	Juvenile	Female	Non-Reproductive	12.20	39.0	Full	No damage	
8/13/2015	B	<i>Lasiurus borealis</i>	2100	Adult	Male	Ascended	9.50	39.0	Medium	No damage	
8/13/2015	B	<i>Eptesicus fuscus</i>	2150	Adult	Female	Non-Reproductive	19.50	44.0	Full	No damage	
8/13/2015	B	<i>Lasiurus borealis</i>	2015	Juvenile	Male	Ascended	10.20	39.0	Empty	No damage	
8/13/2015	B	<i>Eptesicus fuscus</i>	2130	Adult	Female	Non-Reproductive	16.80	47.0	Full	No damage	
8/13/2015	B	<i>Eptesicus fuscus</i>	2120	Adult	Female	Non-Reproductive	14.50	44.0	Medium	No damage	
8/13/2015	B	<i>Eptesicus fuscus</i>	2145	Adult	Male	Ascended	15.20	45.0	Full	No damage	
8/14/2015	B	<i>Eptesicus fuscus</i>	2130	Adult	Male	Descended	14.20	46.0	Full	No damage	

Total # of Bats Captured 10



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 08/13/2015 Permitted Biologist Valerie Clarkston
Project Name Mountain Valley Pipeline Project State Virginia Federal Permit # TE02373A-9
Company Name MVP County Franklin VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Doug Gilbert WV State Permit# 2015.2

Net Placement Over Board Lane

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM577C			6	6	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
8/13/2015	C	<i>Lasiurus borealis</i>	2020	Juvenile	Female	Non-Reproductive	11.00	40.0	Empty	No damage	
8/14/2015	C	<i>Eptesicus fuscus</i>	2118	Adult	Female	Non-Reproductive	15.60	47.0	Full	No damage	
8/14/2015	C	<i>Lasiurus borealis</i>	2120	Juvenile	Male	Ascended	9.00	36.0	Medium	No damage	

Total # of Bats Captured 3



Net Site Habitat Data

Project # 593.12 Date 08/11/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Carme Ardito
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.203
Other Field Staff Kiara Johnson
KM Site ID VA-KM578 Net ID VA-KM578A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 3.500.0 Type of water source Stream
Water Source Name Crooked Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus montana*
- 2 *Quercus rubra*
- 3 *Quercus alba*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Oxydendrum arboreum*
- 3 *Quercus montana*

Estimated DBH Range - Large 65 Small 40 Estimated DBH Range Large 40 Small 15

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Several large live *Quercus alba* and many snags with exfoliating bark, cracks, and hollows in area.

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Hamamelis virginiana*
- 2 *Acer sp.*
- 3 *Cornus florida*

Habitat Description Upland wooded ridgetop through Jefferson National Forest with old logging road corridor.

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments Sub canopy includes *Acer pennsylvanicum* and *Magnolia acuminata*.

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 08/11/2015

State Virginia

County Giles

Other Field Staff Kiara Johnson

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Nets stacked across forested trail on ridge top.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM578A			6	9	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 08/11/2015

State Virginia

County Giles

Other Field Staff Kiara Johnson

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Nets stacked across forested trail on ridge top.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
VA-KM578B			12	6	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 08/11/2015

State Virginia

County Giles

Other Field Staff Kiara Johnson

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Nets stacked across forested trail on ridge top.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM578C			9	6	2010	110

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 08/11/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Giles

Permitted Biologist Jeremy Van Deventer
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.218
Other Field Staff Savannah Shafer
KM Site ID VA-KM579 Net ID VA-KM579A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 1,000.0 Type of water source Stream
Water Source Name N/a

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus rubra*
- 2 *Quercus velutina*
- 3 *Quercus alba*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Diospyros virginiana*
- 3 *Quercus montana*

Estimated DBH Range - Large 20 Small 16 Estimated DBH Range Large 15 Small 7

Relative abundance dominant vs subdominant 1:40

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential Moderate

Roosting Potential Explanation Many snags in forest, some under canopy and others in open canopy

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Hamamelis virginiana*
- 2 *Oxydendrum arboreum*
- 3 *Acer rubrum*

Habitat Description Mature upland forested dominated by oak species on ridgetop. JNF road/trail runs through forest

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 08/11/2015

State Virginia

County Giles

Other Field Staff Savannah Shafer

Permitted Biologist Jeremy Van Deventer

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.218

Net Placement Net stacked over forested JNF road/trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM579A			12	6	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 08/11/2015

State Virginia

County Giles

Other Field Staff Savannah Shafer

Permitted Biologist Jeremy Van Deventer

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.218

Net Placement Net stacked over forest JNF road/trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM579B			6	9	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 08/11/2015

State Virginia

County Giles

Other Field Staff Savannah Shafer

Permitted Biologist Jeremy Van Deventer

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.218

Net Placement Net stacked over forested JNF road/trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	VA-KM579C			9	9	2015	115

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/09/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Shawn McKinley
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.201
Other Field Staff Les Aaron
KM Site ID WV-KM218 Net ID WV-KM218A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.50 Channel Width (m) 1.00 Stream width (m) 0.30
Substratum - Bedrock No Boulder No Cobble No Gravel Yes Sand No Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.00 Water Clarity None

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Prunus serotina*
- 3 *Jualans niara*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Aesculus glabra*
- 3 *Quercus rubra*

Estimated DBH Range - Large 16 Small 16 Estimated DBH Range Large 16 Small 6

Relative abundance dominant vs subdominant 1:15

Estimated canopy closure Closed

Roost Tree Potential Consists neither

Roosting Potential Low

Roosting Potential Explanation Immature trees combined with a lack of snags

Subcanopy Clutter High

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Aesculus glabra*
- 2 *Fraxinus americana*
- 3 *Quercus rubra*

Habitat Description Recovering forest, primarily lowland species

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	Yes	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/09/2015

Permitted Biologist Shawn McKinley

Project Name Mountain Valley Pipeline Project

State West Virginia

Federal Permit # N/A

Company Name MVP

County Monroe

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Les Aaron

WV State Permit# 2015.201

Net Placement Edge net over stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM218A			6	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/09/2015	A	<i>Lasiurus borealis</i>	2245	Adult	Male	Ascended	12.00	38.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/09/2015

State West Virginia

County Monroe

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement Edge net over stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM218B			6	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/09/2015

State West Virginia

County Monroe

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement Edge net over stream

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM218C			6	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/13/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Carme Ardito
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.203
Other Field Staff Dylan Little
KM Site ID WV-KM219 Net ID WV-KM219A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 75.0 Type of water source Wetland
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Fraxinus americana*
- 3 *Jualans niqra*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Fraxinus americana*
- 3 *Quercus rubra*

Estimated DBH Range - Large 63 Small 40 Estimated DBH Range Large 40 Small 15

Relative abundance dominant vs subdominant 1:25

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Very large *Quercus alba* with flaky bark and a few dead branches near net C. Several smaller snags in woodlot along trail, some with exfoliating bark

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Quercus rubra*
- 2 *Cercis canadensis*
- 3 *Robinia pseudoacacia*

Habitat Description Young upland wooded hilltop with some large trees. Mold logging road goes through woods. Hayfield on hillside is adjacent to woodlot

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number	593.12	Date	06/13/2015	Permitted Biologist	Carme Ardito
Project Name	Mountain Valley Pipeline Project	State	West Virginia	Federal Permit #	TE02373A-9
Company Name	MVP	County	Monroe	VA State Permit#	SC 050652 T&E 054097
Site Name	Mountain Valley Pipeline	Other Field Staff	Dylan Little	WV State Permit#	2015.203

Net Placement Net placed at entrance to old logging trail through woodlot from hayfield.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM219A			12	6	2030	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/13/2015

State West Virginia

County Monroe

Other Field Staff Dylan Little

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Net placed on small, narrow side trail branching off old logging trail through upland woodlot.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM219B			3	3	2030	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/13/2015

State West Virginia

County Monroe

Other Field Staff Dylan Little

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Net placed over old logging road corridor through upland wooded hilltop.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM219C			9	9	2030	150

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/07/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Doug Kozioł
Federal Permit ID TE38842A-3
VA State Permit ID N/A
WV State Permit ID 2015.228
Other Field Staff Kodie Smith
KM Site ID WV-KM220 Net ID WV-KM220A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 75.0 Type of water source Pond
Water Source Name Pasture Pond

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Liriodendron tulipifera*
- 3 *Jualans niara*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus rubra*
- 2
- 3

Estimated DBH Range - Large 70 Small 44 Estimated DBH Range Large 40 Small 30

Relative abundance dominant vs subdominant 2:5

Estimated canopy closure Open

Roost Tree Potential Consists large trees

Roosting Potential Moderate

Roosting Potential Explanation

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Sassafras albidum*
- 2 *Carpinus caroliniana*
- 3

Habitat Description Cattle pasture with high grass surrounded by scattered sections of trees. Farm road cuts through tree section to pasture on hilltop. Cattle present.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number	593.12	Date	06/07/2015	Permitted Biologist	Doug Koziol
Project Name	Mountain Valley Pipeline Project	State	West Virginia	Federal Permit #	TE38842A-3
Company Name	MVP	County	Monroe	VA State Permit#	N/A N/A
Site Name	Mountain Valley Pipeline	Other Field Staff	Kodie Smith	WV State Permit#	2015.228

Net Placement Stacked over farm road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM220A			6	8	2055	158

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/07/2015

State West Virginia

County Monroe

Other Field Staff Kodie Smith

Permitted Biologist Doug Koziol

Federal Permit # TE38842A-3

VA State Permit# N/A N/A

WV State Permit# 2015.228

Net Placement Stacked on edge of pasture

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM220B			18	8	2100	201

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/06/2015	B	Lasiurus borealis	130				0.00	0.0			Escaped

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/07/2015

State West Virginia

County Monroe

Other Field Staff Kodie Smith

Permitted Biologist Doug Koziol

Federal Permit # TE38842A-3

VA State Permit# N/A N/A

WV State Permit# 2015.228

Net Placement Stacked on side trail of pasture

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM220C			6	5	2050	152

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/07/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Elise Merrill
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.230
Other Field Staff Kat Cummings
KM Site ID WV-KM221 Net ID WV-KM221A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Pond
Water Source Name On property

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.25 Channel Width (m) 0.00 Stream width (m) 18.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 1.70 Water Clarity Low

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus rubra*
- 2 *Magnolia acuminata*
- 3 *Aesculus flava*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Juglans nigra*
- 2 *Liriodendron tulipifera*
- 3 *Quercus sp.*

Estimated DBH Range - Large 73 Small 43 Estimated DBH Range Large 40 Small 30

Relative abundance dominant vs subdominant 2:5

Estimated canopy closure Open

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation

Subcanopy Clutter High

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Carpinus caroliniana*
- 2 *Juniperus virginiana*
- 3

Habitat Description Forested lot in pasture

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	Yes		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/07/2015

State West Virginia

County Monroe

Other Field Staff Kat Cummings

Permitted Biologist Elise Merrill

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.23

Net Placement Stacked over farm road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM221A			12	8	2055	155

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/07/2015	A	Lasiurus borealis	2	Adult	Male	Ascended	11.70	41.0	Medium	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/07/2015

Permitted Biologist Elise Merrill

Project Name Mountain Valley Pipeline Project

State West Virginia

Federal Permit # TE38842A-3

Company Name MVP

County Monroe

VA State Permit# N/A T&E 54100

Site Name Mountain Valley Pipeline

Other Field Staff Kat Cummings

WV State Permit# 2015.23

Net Placement Over pond

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM221B			18	8	2100	200

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/07/2015	B	<i>Lasiurus borealis</i>	2135	Adult	Male	Ascended	12.00	41.0	Medium	No damage	
6/09/2015	B	<i>Eptesicus fuscus</i>	2355	Adult	Male	Ascended	15.90	48.0	Medium	No damage	
6/09/2015	B	<i>Lasiurus borealis</i>	2245				0.00	0.0			escaped
6/09/2015	B	<i>Eptesicus fuscus</i>	2220	Adult	Female	Lactating	23.40	50.0	Full	Light damage	

Total # of Bats Captured 4



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/07/2015

State West Virginia

County Monroe

Other Field Staff Kat Cummings

Permitted Biologist Elise Merrill

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.23

Net Placement Stacked over farm road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM221C			6	5	2105	205

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/07/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Aaron Covalt
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.237
Other Field Staff Amelia Goebel
KM Site ID WV-KM222 Net ID WV-KM222A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 30.0 Type of water source Stream
Water Source Name No name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus rubra*
- 3 *Acer rubrum*

Subdominant Canopy Species (<40cm/16"dbh)

- 1
- 2
- 3

Estimated DBH Range - Large 25 Small 15 Estimated DBH Range Large 15 Small 5

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees

Roosting Potential Moderate

Roosting Potential Explanation Mature forest and mostly living trees with some dead branches

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees, shrubs

Common Subcanopy Species

- 1 *Carya tomentosa*
- 2
- 3

Habitat Description Mature forest on the side of a mountain. ATV trails in woods. Dry stream bed runs down the mountain

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/07/2015

State West Virginia

County Monroe

Other Field Staff Amelia Goebel

Permitted Biologist Aaron Covalt

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.237

Net Placement On a small ATV trail going up a mountain. Mature forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM222A			6	5	1830	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/07/2015

State West Virginia

County Monroe

Other Field Staff Amelia Goebel

Permitted Biologist Aaron Covalt

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.237

Net Placement In a old dry stream bed.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM222B			6	8	1830	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/07/2015

State West Virginia

County Monroe

Other Field Staff Amelia Goebel

Permitted Biologist Aaron Covalt

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.237

Net Placement On a ATV trail leading to a open area

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM222C			9	5	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/11/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Carme Ardito
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.203
Other Field Staff Dylan Little
KM Site ID WV-KM223 Net ID WV-KM223A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 100.0 Type of water source Stream
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Juglans nigra*
- 3 *Fraxinus americana*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Carya ovata*
- 2 *Juglans nigra*
- 3 *Robinia pseudoacacia*

Estimated DBH Range - Large 48 Small 40 Estimated DBH Range Large 40 Small 17

Relative abundance dominant vs subdominant 1:35

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation Many snags or partial snags. One large partial *Quercus alba* located near net C

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Crataegus spp.* 2 *Carya ovata* 3 *Juglans nigra*

Habitat Description Upland woodlot adjacent to cow pasture (cows have access to woods). Relatively low clutter in area near trail.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	Yes	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/11/2015

State West Virginia

County Monroe

Other Field Staff Dylan Little

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Net placed at entrance to woodlot over trail leading to open pasture land on hillside

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM223A			9	6	2030	150

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/11/2015

State West Virginia

County Monroe

Other Field Staff Dylan Little

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Net placed over trail through woodlot. Net extends into open woods (minimal clutter in some areas)

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM223B			18	6	2030	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/11/2015 Permitted Biologist Carme Ardito
Project Name Mountain Valley Pipeline Project State West Virginia Federal Permit # TE02373A-9
Company Name MVP County Monroe VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Dylan Little WV State Permit# 2015.203

Net Placement Net placed over trail through upland woodlot within cow pasture land.

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM223C			12	9	2030	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/09/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Carme Ardito
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.203
Other Field Staff Dylan Little
KM Site ID WV-KM224 Net ID WV-KM224A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Unknown

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.15 Channel Width (m) 1.00 Stream width (m) 0.50
Substratum - Bedrock No Boulder No Cobble Yes Gravel Yes Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.12 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Platanus occidentalis*
- 2 *Acer saccharum*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Juglans nigra*
- 2 *Carya ovata*
- 3 *Quercus alba*

Estimated DBH Range - Large 57 Small 40 Estimated DBH Range Large 40 Small 15

Relative abundance dominant vs subdominant 1:20

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Low

Roosting Potential Explanation Some large live trees but very few snags present.

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Carpinus caroliniana*
- 2 *Acer saccharum*
- 3 *Tilia americana*

Habitat Description Lowland woodland with ATV trail and stream corridor running through. Woodlot is adjacent to open grassy field which is adjacent to WV route 219.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature Lowland Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young Lowland Forest	Yes	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/09/2015

State West Virginia

County Monroe

Other Field Staff Dylan Little

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Net stacked over ATV trail and small stream corridor through woodlot. Stream corridor runs parallel and directly adjacent to ATV trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM224A			12	9	2030	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/09/2015

State West Virginia

County Monroe

Other Field Staff Dylan Little

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Net placed over ATV trail through woodlot.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM224B			9	6	2030	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/09/2015

State West Virginia

County Monroe

Other Field Staff Dylan Little

Permitted Biologist Carne Ardito

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.203

Net Placement Net stretched across ATV trail and small stream corridor (which runs parallel and directly alongside ATV trail) through lowland woodlot.

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM224C			18	6	2025	2045

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/06/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Jeremy Van Deventer
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.218
Other Field Staff Savannah Shafer
KM Site ID WV-KM225 Net ID WV-KM225A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 10.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus rubra*
- 3 *Pinus sp.*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Acer rubrum*
- 2 *Carya ovata*
- 3 *Quercus alba*

Estimated DBH Range - Large 20 Small 16 Estimated DBH Range Large 15 Small 5

Relative abundance dominant vs subdominant 1:100

Estimated canopy closure Closed

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Not very many suitable trees

Subcanopy Clutter Low

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Carpinus caroliniana*
- 2 *Hamamelis virginiana*
- 3 *Carya ovata*

Habitat Description Less mature woodlot, open sub canopy, old trail goes up through wood lot to top of hill

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/06/2015

State West Virginia

County Monroe

Other Field Staff Savannah Shafer

Permitted Biologist Jeremy Van Deventer

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.218

Net Placement Nets stacked over forested trail in woodlot

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM225A			6	6	2030	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/06/2015

State West Virginia

County Monroe

Other Field Staff Savannah Shafer

Permitted Biologist Jeremy Van Deventer

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.218

Net Placement Nets stacked over forested trail in woodlot

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM225B			6	9	2030	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/06/2015

State West Virginia

County Monroe

Other Field Staff Savannah Shafer

Permitted Biologist Jeremy Van Deventer

Federal Permit # TE02373A-9

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.218

Net Placement Nets stacked over forested trail in wood lot

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM225C			6	6	2030	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/04/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Jeremy Van Deventer
Federal Permit ID TE02373A-9
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.218
Other Field Staff Savannah Shafer
KM Site ID WV-KM226 Net ID WV-KM226A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 400.0 Type of water source Stream
Water Source Name N/a

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Quercus rubra*
- 3 *Robinia pseudoacacia*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Robinia pseudoacacia*
- 2 *Sassafras albidum*
- 3 *Quercus alba*

Estimated DBH Range - Large 30 Small 16 Estimated DBH Range Large 15 Small 7

Relative abundance dominant vs subdominant 1:30

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Large trees along road, very few snags in woodlot across from road

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Carya glabra*
- 2 *Robinia pseudoacacia*
- 3

Habitat Description Forested green valley rd under moderate canopy cover. Pasture to north of road after one row of mature oaks and small wood lot to south containing less mature trees

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other	Road						

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/04/2015 Permitted Biologist Jeremy Van Deventer
Project Name Mountain Valley Pipeline Project State West Virginia Federal Permit # TE02373A-9
Company Name MVP County Monroe VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Savannah Shafer WV State Permit# 2015.218

Net Placement Net placed over green valley road under canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM226A			6	6	2030	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/04/2015	A	<i>Lasiurus borealis</i>	23	Adult	Female	Pregnant	17.90	39.5	Full	No damage	
6/05/2015	A	<i>Eptesicus fuscus</i>	22	Adult	Male	Ascended	16.80	45.0	Full	Light damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/04/2015 Permitted Biologist Jeremy Van Deventer
Project Name Mountain Valley Pipeline Project State West Virginia Federal Permit # TE02373A-9
Company Name MVP County Monroe VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Savannah Shafer WV State Permit# 2015.218

Net Placement Net placed over green valley rd under canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM226B			6	6	2030	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/05/2015	B	<i>Eptesicus fuscus</i>	22	Adult	Male	Descended	16.00	45.0	Full	Moderate damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/04/2015 Permitted Biologist Jeremy Van Deventer
Project Name Mountain Valley Pipeline Project State West Virginia Federal Permit # TE02373A-9
Company Name MVP County Monroe VA State Permit# SC 050652 T&E 054097
Site Name Mountain Valley Pipeline Other Field Staff Savannah Shafer WV State Permit# 2015.218

Net Placement Net placed over green valley rd under canopy

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM226C			6	9	2030	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/04/2015	C	<i>Eptesicus fuscus</i>	23	Adult	Male	Ascended	15.20	44.0	Medium	Light damage	
6/05/2015	C	<i>Lasiurus borealis</i>	22	Adult	Female	Pregnant	18.00	39.0	Full	No damage	
6/05/2015	C	<i>Lasiurus borealis</i>	115	Adult	Male	Ascended	10.60	38.0	Medium	Light damage	

Total # of Bats Captured 3



Net Site Habitat Data

Project # 593.12 Date 06/06/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Shawn McKinley
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.201
Other Field Staff Les Aaron
KM Site ID WV-KM227 Net ID WV-KM227A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E	37° 24' 27.349" N	80° 42' 6.327" W
Net F	37° 24' 23.230" N	80° 42' 6.148" W
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 500.0 Type of water source Pond
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 Quercus coccinea
- 2 Acer rubrum
- 3 Acer saccharum

Subdominant Canopy Species (<40cm/16"dbh)

- 1 Juglans nigra
- 2 Acer rubrum
- 3 Liriodendron tulipifera

Estimated DBH Range - Large 20 Small 16 Estimated DBH Range Large 16 Small 7

Relative abundance dominant vs subdominant 1:6

Estimated canopy closure Closed

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Very dense forest

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 Juglans nigra 2 Liriodendron tulipifera 3 Acer saccharum

Habitat Description Forest edge next to an agriculture field

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	Yes	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/06/2015

State West Virginia

County Monroe

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement In agriculture field

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM227A			6	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/06/2015

State West Virginia

County Monroe

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement In agriculture field

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM227B			6	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number	593.12	Date	06/06/2015	Permitted Biologist	Shawn McKinley
Project Name	Mountain Valley Pipeline Project	State	West Virginia	Federal Permit #	N/A
Company Name	MVP	County	Monroe	VA State Permit#	SC 050652 T&E 054097
Site Name	Mountain Valley Pipeline	Other Field Staff	Les Aaron	WV State Permit#	2015.201

Net Placement In agriculture field

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM227C			6	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/06/2015

State West Virginia

County Monroe

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement On forested trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM227D			6	6	2025	130

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/07/2015	D	Lasiurus borealis	35				0.00	0.0			Escape

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/06/2015

State West Virginia

County Monroe

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement Over forested trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM227E			6	6	2030	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/06/2015

State West Virginia

County Monroe

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement Over forested trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM227F			6	6	2025	125

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/13/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Aaron Covalt
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.237
Other Field Staff Kodie Smith
KM Site ID WV-KM378 Net ID WV-KM378A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 30.0 Type of water source Stream
Water Source Name None

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Carya ovata*
- 2 *Acer rubrum*
- 3 *Juglans nigra*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Prunus serotina*
- 2 *Carpinus caroliniana*
- 3 *Crataegus spp.*

Estimated DBH Range - Large 70 Small 20 Estimated DBH Range Large 0 Small 0

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Moderate

Roost Tree Potential Consists large trees

Roosting Potential Moderate

Roosting Potential Explanation Shag bark

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

1 *Carya ovata* 2 *Juglans nigra* 3

Habitat Description Field edge with large fields and woodlots

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/13/2015 Permitted Biologist Aaron Covalt
Project Name Mountain Valley Pipeline Project State West Virginia Federal Permit # TE38842A-3
Company Name MVP County Monroe VA State Permit# N/A T&E 54100
Site Name Mountain Valley Pipeline Other Field Staff Kodie Smith WV State Permit# 2015.237

Net Placement On the edge of a old field

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM378A			12	8	2100	200

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/13/2015	A	<i>Lasiurus borealis</i>	2350	Adult	Male	Non-Reproductive	10.10	39.5	Full	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/13/2015

State West Virginia

County Monroe

Other Field Staff Kodie Smith

Permitted Biologist Aaron Covalt

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.237

Net Placement Between two big trees

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM378B			9	5	2055	155

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/13/2015

State West Virginia

County Monroe

Other Field Staff Kodie Smith

Permitted Biologist Aaron Covalt

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.237

Net Placement Over a old trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM378C			6	5	2050	150

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/15/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Doug Koziol
Federal Permit ID TE38842A-3
VA State Permit ID N/A
WV State Permit ID 2015.228
Other Field Staff Sean McLaughlin
KM Site ID WV-KM379 Net ID WV-KM379A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Turkey Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.50 Channel Width (m) 8.00 Stream width (m) 7.50
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand Yes Silt/Clay No
Stillwater Present No Average Water depth (m) 0.30 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Platanus occidentalis*
- 2 *Acer rubrum*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Juglans nigra*
- 2
- 3

Estimated DBH Range - Large 72 Small 45 Estimated DBH Range Large 40 Small 30

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Open

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation

Subcanopy Clutter

Subcanopy comprised of shrubs

Common Subcanopy Species

- 1 *Elaeagnus umbellata*
- 2
- 3

Habitat Description Grassy field and creek running along base of mountain with old logging road.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	Yes
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/15/2015 Permitted Biologist Doug Koziol
Project Name Mountain Valley Pipeline Project State West Virginia Federal Permit # TE38842A-3
Company Name MVP County Monroe VA State Permit# N/A N/A
Site Name Mountain Valley Pipeline Other Field Staff Sean McLaughlin WV State Permit# 2015.228

Net Placement Stacked over calm spot in creek

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM379A			9	5	2100	200

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/15/2015	A	<i>Lasiurus borealis</i>	2130	Adult	Male	Ascended	12.00	39.0	Empty	No damage	
6/15/2015	A	<i>Lasiurus borealis</i>	2300				0.00	0.0			Escaped
6/15/2015	A	<i>Eptesicus fuscus</i>	2220	Adult	Female	Lactating	20.50	42.0	Medium	No damage	
6/15/2015	A	<i>Lasiurus borealis</i>	2240	Adult	Male	Descended	12.40	40.0	Empty	No damage	
6/16/2015	A	<i>Lasiurus borealis</i>	140	Adult	Male	Ascended	13.80	41.0	Full	Light damage	

Total # of Bats Captured 5



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/15/2015 Permitted Biologist Doug Koziol
Project Name Mountain Valley Pipeline Project State West Virginia Federal Permit # TE38842A-3
Company Name MVP County Monroe VA State Permit# N/A N/A
Site Name Mountain Valley Pipeline Other Field Staff Sean McLaughlin WV State Permit# 2015.228

Net Placement Stacked over grassy road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM379B			9	5	2055	155

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/15/2015	B	<i>Lasiurus borealis</i>	2130	Adult	Male	Ascended	11.90	39.0	Empty	No damage	

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/15/2015 Permitted Biologist Doug Koziol
Project Name Mountain Valley Pipeline Project State West Virginia Federal Permit # TE38842A-3
Company Name MVP County Monroe VA State Permit# N/A N/A
Site Name Mountain Valley Pipeline Other Field Staff Sean McLaughlin WV State Permit# 2015.228

Net Placement Stacked over grassy road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM379C			6	5	2050	150

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/15/2015	C	<i>Lasiurus borealis</i>	2300				0.00	0.0			Escaped

Total # of Bats Captured 1



Net Site Habitat Data

Project # 593.12 Date 06/13/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Doug Koziol
Federal Permit ID TE38842A-3
VA State Permit ID N/A
WV State Permit ID 2015.228
Other Field Staff Kat Cummings
KM Site ID WV-KM380 Net ID WV-KM380A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 0.0 Type of water source Stream
Water Source Name Turkey Creek

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.50 Channel Width (m) 7.50 Stream width (m) 8.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.20 Water Clarity Moderate

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Tsuga canadensis*
- 2 *Acer saccharum*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2
- 3

Estimated DBH Range - Large 70 Small 45 Estimated DBH Range Large 40 Small 25

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists snags

Roosting Potential Low

Roosting Potential Explanation

Subcanopy Clutter Moderate

Subcanopy comprised of saplings

Common Subcanopy Species

- 1 *Hamamelis virginiana*
- 2 *Carpinus caroliniana*
- 3

Habitat Description Dirt roads and overgrown logging roads running along forested mountainside. Creek flows along base of mountain.

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/13/2015 Permitted Biologist Doug Koziol
Project Name Mountain Valley Pipeline Project State West Virginia Federal Permit # TE38842A-3
Company Name MVP County Monroe VA State Permit# N/A N/A
Site Name Mountain Valley Pipeline Other Field Staff Kat Cummings WV State Permit# 2015.228

Net Placement Stacked over old logging road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM380A			9	5	2043	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/13/2015 Permitted Biologist Doug Koziol
Project Name Mountain Valley Pipeline Project State West Virginia Federal Permit # TE38842A-3
Company Name MVP County Monroe VA State Permit# N/A N/A
Site Name Mountain Valley Pipeline Other Field Staff Kat Cummings WV State Permit# 2015.228

Net Placement Stacked over stagnant pool in creek

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM380B			9	5	2040	141

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/13/2015	B	<i>Lasiurus borealis</i>	2300				0.00	0.0			Escaped

Total # of Bats Captured 1



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/13/2015

State West Virginia

County Monroe

Other Field Staff Kat Cummings

Permitted Biologist Doug Koziol

Federal Permit # TE38842A-3

VA State Permit# N/A N/A

WV State Permit# 2015.228

Net Placement Stacked over dirt road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM380C			12	5	2045	148

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/11/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Doug Koziol
Federal Permit ID TE38842A-3
VA State Permit ID N/A
WV State Permit ID 2015.228
Other Field Staff Amelia Goebel
KM Site ID WV-KM381 Net ID WV-KM381A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 35.0 Type of water source Stream
Water Source Name Stream on property

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Acer saccharum*
- 3

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Carya tomentosa*
- 2 *Pinus strobus*
- 3

Estimated DBH Range - Large 52 Small 40 Estimated DBH Range Large 38 Small 25

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists large trees and snags

Roosting Potential Moderate

Roosting Potential Explanation

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Hamamelis virginiana*
- 2
- 3

Habitat Description Old logging roads throughout forested mountain with small streams present

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/11/2015

State West Virginia

County Monroe

Other Field Staff Amelia Goebel

Permitted Biologist Doug Koziol

Federal Permit # TE38842A-3

VA State Permit# N/A N/A

WV State Permit# 2015.228

Net Placement Stacked over dirt road in forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM381A			9	8	2035	136

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/11/2015

State West Virginia

County Monroe

Other Field Staff Amelia Goebel

Permitted Biologist Doug Koziol

Federal Permit # TE38842A-3

VA State Permit# N/A N/A

WV State Permit# 2015.228

Net Placement Stacked over dirt road in forest

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM381B			12	8	2040	142

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12 Date 06/11/2015 Permitted Biologist Doug Koziol
Project Name Mountain Valley Pipeline Project State West Virginia Federal Permit # TE38842A-3
Company Name MVP County Monroe VA State Permit# N/A N/A
Site Name Mountain Valley Pipeline Other Field Staff Amelia Goebel WV State Permit# 2015.228

Net Placement Stacked over dirt road in forest

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM381C			6	5	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Net Site Habitat Data

Project # 593.12 Date 06/11/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Aaron Covalt
Federal Permit ID TE38842A-3
VA State Permit ID T&E 54100
WV State Permit ID 2015.237
Other Field Staff Kat Cummings
KM Site ID WV-KM382 Net ID WV-KM382A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 1.0 Type of water source Stream
Water Source Name No name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Acer saccharum*
- 2 *Pinus strobus*
- 3 *Quercus alba*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Tsuga canadensis*
- 2 *Quercus rubra*
- 3 *Quercus montana*

Estimated DBH Range - Large 70 Small 50 Estimated DBH Range Large 50 Small 30

Relative abundance dominant vs subdominant 1:10

Estimated canopy closure Closed

Roost Tree Potential Consists large trees

Roosting Potential Moderate

Roosting Potential Explanation Most are large alive trees with some dead branches

Subcanopy Clutter Low

Subcanopy comprised of lower branches of canopy trees, saplings

Common Subcanopy Species

- 1 *Acer saccharum*
- 2 *Pinus strobus*
- 3

Habitat Description Mature wooded area with small stream in small valley. Old trails running through the woods

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	No	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	No	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/11/2015

State West Virginia

County Monroe

Other Field Staff Kat Cummings

Permitted Biologist Aaron Covalt

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.237

Net Placement Over a small stream

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM382A			9	8	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/11/2015

State West Virginia

County Monroe

Other Field Staff Kat Cummings

Permitted Biologist Aaron Covalt

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.237

Net Placement Small stream valley

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM382B			6	8	2045	145

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/11/2015

State West Virginia

County Monroe

Other Field Staff Kat Cummings

Permitted Biologist Aaron Covalt

Federal Permit # TE38842A-3

VA State Permit# N/A T&E 54100

WV State Permit# 2015.237

Net Placement Over a old ATV trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM382C			6	5	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Net Site Habitat Data

Project # 593.12 Date 06/12/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Shawn McKinley
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.201
Other Field Staff Les Aaron
KM Site ID WV-KM383 Net ID WV-KM383A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 150.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.00 Channel Width (m) 0.00 Stream width (m) 0.00
Substratum - Bedrock No Boulder No Cobble No Gravel No Sand No Silt/Clay No
Stillwater Present No Average Water depth (m) 0.00 Water Clarity

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Acer saccharum*
- 3 *Liriodendron tulipifera*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Quercus alba*
- 2 *Acer saccharum*
- 3 *Nyssa sylvatica*

Estimated DBH Range - Large 121 Small 40 Estimated DBH Range Large 40 Small 25

Relative abundance dominant vs subdominant 1:9

Estimated canopy closure Closed

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Low number of snags

Subcanopy Clutter Low

Subcanopy comprised of shrubs

Common Subcanopy Species

- 1 *Nyssa sylvatica*
- 2 *Quercus alba*
- 3 *Acer saccharum*

Habitat Description Mature maintained upland forest bordering an active farm

Does the Habitat consist of

Mature Upland Forest	Yes	Pine Plantation	Yes	Emergent Wetland	No	Herbaceous Cover:	
Young Upland Forest	No	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	Yes
Mature LowLand Forest	No	Old Field	Yes	Shrub Scrub Swamp	No	Moderate	No
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	No	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Date 06/12/2015

Permitted Biologist Shawn McKinley

Project Name Mountain Valley Pipeline Project

State West Virginia

Federal Permit # N/A

Company Name MVP

County Monroe

VA State Permit# SC 050652 T&E 054097

Site Name Mountain Valley Pipeline

Other Field Staff Les Aaron

WV State Permit# 2015.201

Net Placement Over forested access road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM383A			9	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
6/12/2015	A	<i>Eptesicus fuscus</i>	2358		Male		0.00	0.0			Escape
6/13/2015	A	<i>Lasiurus borealis</i>	30	Adult	Female	Lactating	17.00	41.0	Full	No damage	

Total # of Bats Captured 2



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number	593.12	Date	06/12/2015	Permitted Biologist	Shawn McKinley
Project Name	Mountain Valley Pipeline Project	State	West Virginia	Federal Permit #	N/A
Company Name	MVP	County	Monroe	VA State Permit#	SC 050652 T&E 054097
Site Name	Mountain Valley Pipeline	Other Field Staff	Les Aaron	WV State Permit#	2015.201

Net Placement Over forested access road

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM383B			6	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/12/2015

State West Virginia

County Monroe

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement Over forested access road

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM383C			6	6	2035	135

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Net Site Habitat Data

Project # 593.12 Date 06/14/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State West Virginia County Monroe

Permitted Biologist Shawn McKinley
Federal Permit ID N/A
VA State Permit ID SC 050652 - T&E 054097
WV State Permit ID 2015.201
Other Field Staff Les Aaron
KM Site ID WV-KM386 Net ID WV-KM386A

Net ID	Latitude (DMS)	Longitude (DMS)
Net A		
Net B		
Net C		
Net D		

Net ID	Latitude (DMS)	Longitude (DMS)
Net E		
Net F		
Net G		
Net H		

No values for Latitude (DMS) and Longitude (DMS) indicate no Net setup for that Net ID

Distance to water (m) 10.0 Type of water source Stream
Water Source Name

ESTIMATED WATER SOURCE CHARACTERISTICS (IF UNDER NETS OR DETECTOR):

Bank Height (m) 0.50 Channel Width (m) 2.00 Stream width (m) 1.80
Substratum - Bedrock No Boulder No Cobble No Gravel Yes Sand Yes Silt/Clay Yes
Stillwater Present Yes Average Water depth (m) 0.03 Water Clarity High

VEGETATION:

Dominant Canopy Species (>40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Carya glabra*
- 3 *Quercus rubra*

Subdominant Canopy Species (<40cm/16"dbh)

- 1 *Liriodendron tulipifera*
- 2 *Nyssa sylvatica*
- 3 *Fagus grandifolia*

Estimated DBH Range - Large 45 Small 32 Estimated DBH Range Large 32 Small 20

Relative abundance dominant vs subdominant 1:8

Estimated canopy closure Closed

Roost Tree Potential Consists large trees

Roosting Potential Low

Roosting Potential Explanation Virtually no snag presence

Subcanopy Clutter Moderate

Subcanopy comprised of lower branches of canopy trees, saplings, shrubs

Common Subcanopy Species

- 1 *Lindera benzoin*
- 2 *Liriodendron tulipifera*
- 3 *Carya glabra*

Habitat Description Maintained forest for sporting purposes

Does the Habitat consist of

Mature Upland Forest	No	Pine Plantation	No	Emergent Wetland	Yes	Herbaceous Cover:	
Young Upland Forest	Yes	Woodlot Forest Edge	Yes	Forested Swamp	No	Sparse	No
Mature LowLand Forest	No	Old Field	No	Shrub Scrub Swamp	No	Moderate	Yes
Young LowLand Forest	No	Crop/Pasture Land	No	Vernal Pool	No	Dense	No
Recently Logged Forest	No	Stream River	Yes	Deepwater Lake Pond	No		
Other							

Roost Tree Decay Stage

Comments

Additional Comments



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/14/2015

State West Virginia

County Monroe

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement Over forested trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM386A			6	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
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Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/14/2015

State West Virginia

County Monroe

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement Over forested trail

Net Information	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
	WV-KM386B			6	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------



Bat Capture Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

Date 06/14/2015

State West Virginia

County Monroe

Other Field Staff Les Aaron

Permitted Biologist Shawn McKinley

Federal Permit # N/A

VA State Permit# SC 050652 T&E 054097

WV State Permit# 2015.201

Net Placement Forested trail

Net Information

Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
WV-KM386C			12	6	2040	140

Capture Information (Note: No data = No captures)

Date	Net ID	Species	Time	Age	Sex	Reproduction	Wt. (g)	RFA (mm)	Belly (F/M/E)	Wing Index (0-3)	Comments
------	--------	---------	------	-----	-----	--------------	---------	----------	---------------	------------------	----------

APPENDIX F
REPRESENTATIVE PHOTOGRAPHS

REPRESENTATIVE MIST NET PHOTOGRAPHS



VA-KM253B



VA-KM253C



VA-KM255A



VA-KM255B



VA-KM260A



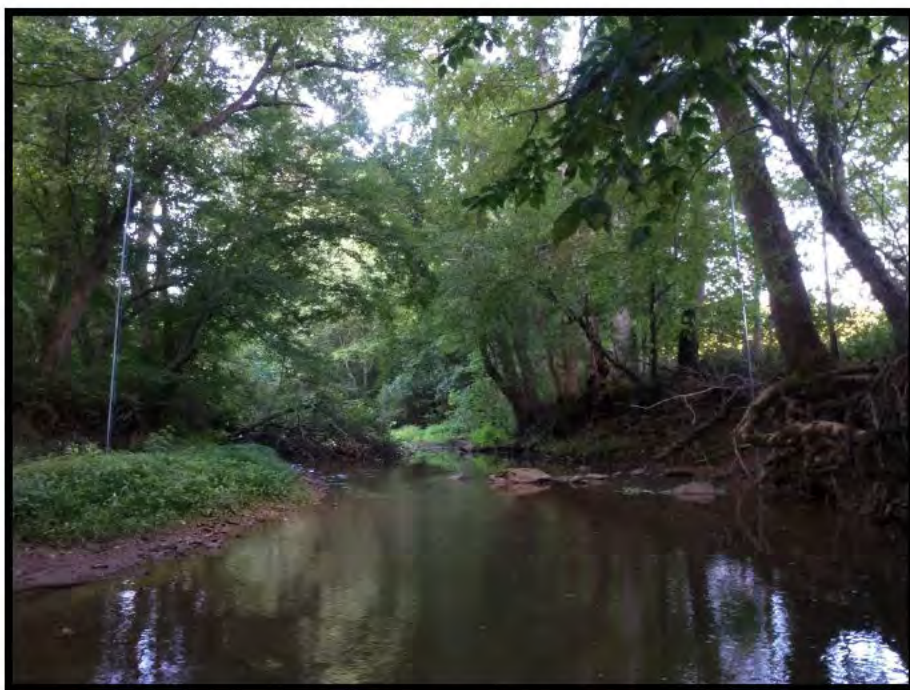
VA-KM260C



VA-KM300A



VA-KM300C



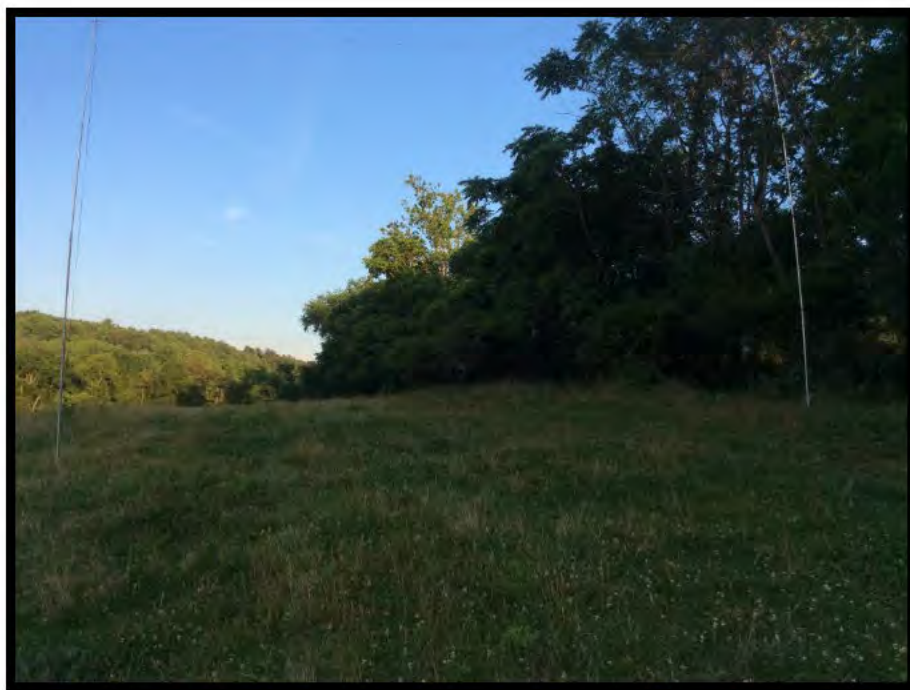
VA-KM307A



VA-KM307B



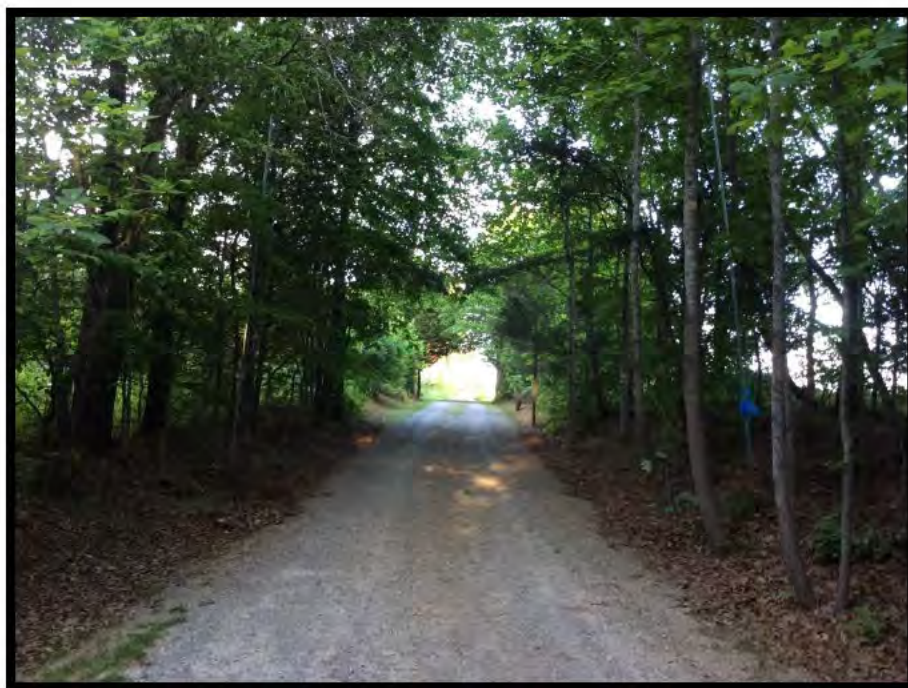
VA-KM310A



VA-KM310B



VA-KM316B



VA-KM316C



VA-KM329A



VA-KM329C



VA-KM349A



VA-KM359C



VA-KM365B



VA-KM368C

RADIO-TRANSMITTED BAT PHOTOGRAPHS



Bat 482



Bat 482

ROOST TREE PHOTOGRAPHS



Roost 482-1, red pine, (*Pinus resinosa*)

APPENDIX G
WEATHER DATA SHEETS



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Net placed across trail/road through forested corridor in Jefferson National Forest

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kiara Johnson

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM229A			9	6	2025	125

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/29/2015	2020			100%	RAINOUT	Rain Out
5/30/2015	2030	24.06	0	15%		N/A
5/30/2015	2100	19.28	0	10%		N/A
5/30/2015	2130	17.89	0	10%		N/A
5/30/2015	2200	16.78	0	0%		N/A
5/30/2015	2230	16.72	0	0%		N/A
5/30/2015	2300	16.61	0	0%		N/A
5/30/2015	2330	16.61	0	0%		N/A
5/30/2015	0	16.50	0	0%		N/A
5/30/2015	30	16.22	1 - 3	0%		N/A
5/30/2015	100	16.22	0	0%		N/A
5/30/2015	130	15.78	0	0%		N/A
5/31/2015	2030	21.06	1 - 3	70%		N/A
5/31/2015	2100	19.11	0	70%		N/A
5/31/2015	2130	18.11	0	50%		N/A
5/31/2015	2200	17.22	0	40%		N/A
5/31/2015	2230	16.61	0	20%		N/A
5/31/2015	2300	16.61	1 - 3	60%		N/A
5/31/2015	2330	16.39	1 - 3	45%		N/A
5/31/2015	0	16.11	1 - 3	45%		N/A
5/31/2015	30	15.78	1 - 3	40%		N/A
5/31/2015	100	16.11	1 - 3	40%		N/A
5/31/2015	130	15.78	1 - 3	40%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Stacked over trail through woods on hill top

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM230A	37° 23' 12.518" N	80° 41' 2.709" W	12	6	2035	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/11/2015	2030	19.50	19 - 24	%	Tree canopy can't tell cloud cover	N/A
7/11/2015	2100	19.00	19 - 24	%		N/A
7/11/2015	2130	18.90	19 - 24	%		N/A
7/11/2015	2200	18.70	8 - 12	%		N/A
7/11/2015	2230	18.50	19 - 24	0%		N/A
7/11/2015	2300	18.00	19 - 24	0%		N/A
7/11/2015	2330	17.90	8 - 12	10%		N/A
7/11/2015	0	17.60	8 - 12	0%		N/A
7/11/2015	30	17.67	8 - 12	15%		N/A
7/11/2015	100	17.20	8 - 12	0%		N/A
7/11/2015	130	17.20	4 - 7	0%		N/A
7/12/2015	2030	16.60	1 - 3	100%	Rain before dusk	N/A
7/12/2015	2100	16.60	0	100%		N/A
7/12/2015	2130	17.20	1 - 3	100%		N/A
7/12/2015	2200	17.61	0	100%		N/A
7/12/2015	2230	17.90	1 - 3	100%	Foggy	N/A
7/12/2015	2300	17.50	1 - 3	100%	Some lightning	N/A
7/12/2015	2330	17.20	0	100%		N/A
7/12/2015	0	17.60	1 - 3	50%	Some thunder	N/A
7/12/2015	30	17.00	4 - 7	80%	RAIN OUT	Rain Out
7/19/2015	2030	23.00	0	%	Can't tell cloud cover at this moment	N/A
7/19/2015	2100	22.70	0	%	Can't tell	N/A
7/19/2015	2130	22.22	0	%		N/A
7/19/2015	2200	21.80	0	%		N/A
7/19/2015	2230	21.30	8 - 12	%	Too hard to tell cloud cover. Breeze has picked up	N/A
7/19/2015	2300	22.20	4 - 7	%		N/A
7/19/2015	2330	22.20	8 - 12	%		N/A
7/19/2015	0	22.20	1 - 3	%		N/A
7/19/2015	30	22.22	4 - 7	%		N/A
7/19/2015	100	22.00	8 - 12	%		N/A
7/19/2015	130	21.00	13 - 18	%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Nets stacked over access road

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM231A	37° 22' 51.276" N	80° 40' 37.638" W	9	6	2035	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/24/2015	2030	20.50	0	5%		N/A
7/24/2015	2100	20.00	1 - 3	5%		N/A
7/24/2015	2130	19.80	1 - 3	5%		N/A
7/24/2015	2200	18.80	1 - 3	0%		N/A
7/24/2015	2230	18.50	0	5%		N/A
7/24/2015	2300	18.00	1 - 3	2%		N/A
7/24/2015	30	17.70	1 - 3	70%		N/A
7/24/2015	30	19.50	0	20%		N/A
7/24/2015	100	17.60	1 - 3	50%		N/A
7/24/2015	130	17.20	0	30%		N/A
7/25/2015	2030	23.00	0	50%		N/A
7/25/2015	2100	22.78	0	65%		N/A
7/25/2015	2130	22.78	0	65%		N/A
7/25/2015	2200	20.80	0	0%		N/A
7/25/2015	2230	20.50	1 - 3	32%		N/A
7/25/2015	2300	20.00	0	20%		N/A
7/25/2015	2330	20.00	0	20%		N/A
7/25/2015	0	17.30	1 - 3	25%		N/A
7/25/2015	0	19.70	0	40%		N/A
7/25/2015	100	19.50	0	20%		N/A
7/25/2015	130	19.50	0	20%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement At entrance to where one gravel driveway splits into 3 wooded corridors

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM232A	37° 22' 47.673" N	80° 40' 39.772" W	6	6	2050	150

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/23/2015	2030	21.10	1 - 3	25%		N/A
7/23/2015	2100	21.00	1 - 3	25%		N/A
7/23/2015	2130	20.30	0	0%		N/A
7/23/2015	2200	20.40	1 - 3	50%		N/A
7/23/2015	2230	20.40	0	30%		N/A
7/23/2015	2300	20.00	1 - 3	20%		N/A
7/23/2015	2330	19.00	0	0%		N/A
7/23/2015	0	19.30	1 - 3	0%		N/A
7/23/2015	30	19.10	0	0%		N/A
7/23/2015	100	18.90	0	0%		N/A
7/23/2015	130	18.60	0	0%		N/A
7/24/2015	2030	23.30	8 - 12	0%		N/A
7/24/2015	2100	23.00	8 - 12	0%		N/A
7/24/2015	2130	21.70	8 - 12	0%		N/A
7/24/2015	2200	21.00	4 - 7	0%		N/A
7/24/2015	2230	21.00	1 - 3	0%		N/A
7/24/2015	2300	19.60	1 - 3	10%		N/A
7/24/2015	2330	18.90	0	0%		N/A
7/24/2015	0	18.90	0	0%		N/A
7/24/2015	30	18.70	0	0%		N/A
7/24/2015	100	18.50	0	10%		N/A
7/24/2015	130	18.10	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Over forested gravel road

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM233A	37° 22' 11.990" N	80° 41' 16.181" W	9	6	2040	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/25/2015	2030	25.10	1 - 3	25%		N/A
7/25/2015	2100	24.10	0	50%		N/A
7/25/2015	2130	23.70	0	0%		N/A
7/25/2015	2200	23.10	0	50%		N/A
7/25/2015	2230	22.80	0	15%		N/A
7/25/2015	2300	22.50	0	25%		N/A
7/25/2015	2330	22.20	0	0%		N/A
7/25/2015	0	21.70	0	30%		N/A
7/25/2015	30	21.10	0	10%		N/A
7/25/2015	100	20.80	0	0%		N/A
7/25/2015	130	20.50	0	10%		N/A
7/26/2015	2030	27.40	0	50%		N/A
7/26/2015	2100	26.60	1 - 3	15%		N/A
7/26/2015	2130	24.30	0	0%		N/A
7/26/2015	2200	23.40	0	0%		N/A
7/26/2015	2230	22.60	0	0%		N/A
7/26/2015	2300	22.20	0	0%		N/A
7/26/2015	2330	21.70	0	0%		N/A
7/26/2015	0	21.00	0	0%		N/A
7/26/2015	30	20.70	0	0%		N/A
7/26/2015	100	20.50	0	0%		N/A
7/26/2015	130	20.50	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Edge net; stretches across proposed access road and to edge of pond

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM235A	37° 21' 38.437" N	80° 40' 46.851" W	18	9	2045	145

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/12/2015	2045	22.40	1 - 3	80%		N/A
7/12/2015	2115	22.40	0	85%		N/A
7/12/2015	2145	19.20	1 - 3	100%		N/A
7/12/2015	2215	19.00	0	50%	Lightning in distance	N/A
7/12/2015	2245	18.90	1 - 3	100%		N/A
7/12/2015	2315	18.80	1 - 3	100%	Lightning to the northwest	N/A
7/12/2015	2345	19.20	1 - 3	100%	Thunder and lightning near	N/A
7/12/2015	0	19.20	8 - 12	100%	Intense lightning; light rain	N/A
7/12/2015	15	19.00	8 - 12	100%	RAIN OUT; heavy rain and lightning	Rain Out
7/13/2015	2030	23.00	25 - 31	100%	Large thunderstorm; high winds and heavy rain;	N/A
7/13/2015	2100	22.50	32 - 38	100%	RAIN OUT	Rain Out
7/19/2015	2030	27.20	0	100%		N/A
7/19/2015	2100	22.90	0	100%	Very humid	N/A
7/19/2015	2130	22.00	1 - 3	90%		N/A
7/19/2015	2200	21.40	0	25%		N/A
7/19/2015	2230	21.10	0	10%		N/A
7/19/2015	2300	20.50	0	50%		N/A
7/19/2015	2330	20.50	0	100%	Thin fog	N/A
7/19/2015	0	20.70	0	100%		N/A
7/19/2015	100	20.70	1 - 3	10%		N/A
7/19/2015	130	20.30	0	0%		N/A
7/20/2015	2030	25.00	0	75%		N/A
7/20/2015	2100	22.10	0	30%		N/A
7/20/2015	2130	21.20	0	25%		N/A
7/20/2015	2200	23.00	1 - 3	100%		N/A
7/20/2015	2230	21.90	0	45%		N/A
7/20/2015	2300	21.40	0	10%		N/A
7/20/2015	2330	21.30	0	50%		N/A
7/20/2015	0	21.20	0	100%		N/A
7/20/2015	30	21.10	1 - 3	100%		N/A
7/20/2015	100	20.90	0	50%		N/A
7/20/2015	130	20.70	0	90%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Across clearing in forest

Permitted Biologist Rodger Rodriguez
Federal Permit # N/A
WV State Permit# 2015.041
VA State Permit# SC 050652 T&E 054097
Other Field Staff Justin Bower

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM236A	37° 20' 59.317" N	80° 40' 0.045" W	12	9	2015	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/21/2015	2030	24.00	0	100%		N/A
7/21/2015	2100	22.00	0	100%		N/A
7/21/2015	2130	21.00	0	100%		N/A
7/21/2015	2200	20.00	0	20%		N/A
7/21/2015	2230	19.00	0	50%		N/A
7/21/2015	2300	19.00	0	0%		N/A
7/21/2015	2330	19.00	0	20%		N/A
7/21/2015	0	20.00	0	0%		N/A
7/21/2015	30	21.00	0	0%		N/A
7/21/2015	100	21.00	0	0%		N/A
7/21/2015	130	20.00	0	0%		N/A
7/22/2015	2030	22.00	0	20%		N/A
7/22/2015	2100	20.00	0	10%		N/A
7/22/2015	2130	19.00	0	5%		N/A
7/22/2015	2200	19.00	0	20%		N/A
7/22/2015	2230	18.00	0	0%		N/A
7/22/2015	2300	18.00	0	10%		N/A
7/22/2015	2330	17.00	0	40%		N/A
7/22/2015	0	17.00	0	90%		N/A
7/22/2015	30	17.00	0	50%		N/A
7/22/2015	100	17.00	0	80%		N/A
7/22/2015	130	17.00	0	80%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Perpendicular to forest edge in hayfield

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

WV State Permit# 2015.041

VA State Permit# SC 050652 T&E 054097

Other Field Staff Justin Bower

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM237A	37° 20' 56.704" N	80° 39' 24.086" W	6	6	2015	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/10/2015	2030	22.00	0	0%		N/A
7/10/2015	2100	21.00	0	0%		N/A
7/10/2015	2130	21.00	0	0%		N/A
7/10/2015	2200	21.00	0	0%		N/A
7/10/2015	2230	20.00	0	0%		N/A
7/10/2015	2300	19.00	0	0%		N/A
7/10/2015	2330	19.00	0	15%		N/A
7/10/2015	0	19.00	0	100%		N/A
7/10/2015	30	19.00	0	100%		N/A
7/10/2015	100	19.00	0	100%		N/A
7/10/2015	130	19.00	0	80%		N/A
7/11/2015	2030	21.00	0	30%		N/A
7/11/2015	2100	19.00	0	5%		N/A
7/11/2015	2130	19.00	0	5%		N/A
7/11/2015	2200	19.00	0	0%		N/A
7/11/2015	2230	19.00	0	0%		N/A
7/11/2015	2300	18.00	0	0%		N/A
7/11/2015	2330	18.00	0	0%		N/A
7/11/2015	0	17.00	0	0%		N/A
7/11/2015	30	17.00	0	0%		N/A
7/11/2015	100	16.00	0	0%		N/A
7/11/2015	130	16.00	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Adjacent to small pond (4x4m)

Permitted Biologist Rodger Rodriguez
Federal Permit # N/A
WV State Permit# 2015.041
VA State Permit# SC 050652 T&E 054097
Other Field Staff Justin Bower

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM238A	37° 20' 56.841" N	80° 38' 50.762" W	9	6	2015	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/7/2015	2030	24.00	0	70%		N/A
7/7/2015	2100	21.00	1 - 3	80%		N/A
7/7/2015	2130	22.00	1 - 3	80%		N/A
7/7/2015	2200	21.00	0	0%		N/A
7/7/2015	2230	21.00	1 - 3	5%		N/A
7/7/2015	2300	21.00	0	5%		N/A
7/7/2015	2330	21.00	0	0%		N/A
7/7/2015	0	21.00	0	40%		N/A
7/7/2015	30	21.00	0	20%		N/A
7/7/2015	100	21.00	0	10%		N/A
7/7/2015	130	21.00	1 - 3	15%		N/A
7/8/2015	2030	21.00	0	95%		N/A
7/8/2015	2100	20.00	0	100%		N/A
7/8/2015	2130	20.00	0	100%		N/A
7/8/2015	2200	20.00	1 - 3	100%		N/A
7/8/2015	2230	20.00	1 - 3	100%	Slight intermittent fog	N/A
7/8/2015	2300	20.00	0	100%		N/A
7/8/2015	2330	20.00	0	100%		N/A
7/8/2015	0	20.00	0	100%		N/A
7/8/2015	30	20.00	0	100%		N/A
7/8/2015	100	20.00	0	100%		N/A
7/8/2015	130	19.00	0	60%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Nets stacked over forested gravel road

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kiara Johnson

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM239A	37° 20' 41.966" N	80° 38' 10.330" W	9	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/2/2015	2000	21.10	0	100%		N/A
7/2/2015	2030	20.50	0	100%		N/A
7/2/2015	2100	20.00	0	100%		N/A
7/2/2015	2100	20.00	0	100%		N/A
7/2/2015	2200	18.89	0	100%		N/A
7/2/2015	2230	18.89	0	100%		N/A
7/2/2015	2300	18.89	0	100%		N/A
7/2/2015	2330	18.33	0	100%		N/A
7/2/2015	0	18.33	0	100%		N/A
7/2/2015	30	17.78	0	100%		N/A
7/2/2015	100	17.78	0	100%		N/A
7/2/2015	130	17.78	0	100%		N/A
7/3/2015	2030	18.90	0	100%		N/A
7/3/2015	2100	18.80	0	100%		N/A
7/3/2015	2130	18.30	0	100%		N/A
7/3/2015	2200	18.50	0	100%		N/A
7/3/2015	2230	18.50	0	100%	Rain off trees	N/A
7/3/2015	2300	18.00	0	100%		N/A
7/3/2015	2330	18.50	0	100%	RAIN OUT	Rain Out
7/4/2015	2045	21.70	0	50%		N/A
7/4/2015	2115	20.00	1 - 3	45%		N/A
7/4/2015	2145	20.00	0	0%		N/A
7/4/2015	2215	19.60	1 - 3	0%		N/A
7/4/2015	2245	18.89	0	70%		N/A
7/4/2015	2245	19.00	1 - 3	0%		N/A
7/4/2015	2315	18.30	1 - 3	0%		N/A
7/4/2015	2345	18.40	1 - 3	0%		N/A
7/4/2015	15	18.00	1 - 3	15%		N/A
7/4/2015	45	17.80	1 - 3	25%		N/A
7/4/2015	115	17.00	1 - 3	15%		N/A
7/4/2015	130	16.50	4 - 7	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Forested Corridor

Permitted Biologist Chance Osborne
Federal Permit # TE62778B-0
WV State Permit# 2015.89
VA State Permit# SC 050652 T&E 054097
Other Field Staff Anthony Marinelli, Mackenzie Gallien

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM240A	37° 20' 36.558" N	80° 37' 49.436" W	6	6	2040	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/1/2015	2040	19.74	1 - 3	30%		N/A
7/1/2015	2110	19.74	1 - 3	30%		N/A
7/1/2015	2140	19.74	1 - 3	10%		N/A
7/1/2015	2210	19.74	1 - 3	15%		N/A
7/1/2015	2240	19.74	4 - 7	20%		N/A
7/1/2015	2310	19.74	1 - 3	50%		N/A
7/1/2015	2340	18.89	0	65%		N/A
7/1/2015	10	18.89	0	50%		N/A
7/1/2015	40	18.89	0	50%		N/A
7/1/2015	140	18.89	0	75%		N/A
7/2/2015	2040	18.89	0	40%		N/A
7/2/2015	2110	18.89	0	60%		N/A
7/2/2015	2140	17.78	1 - 3	60%		N/A
7/2/2015	2210	17.78	0	50%		N/A
7/2/2015	2240	17.78	0	50%		N/A
7/2/2015	2310	17.78	0	50%		N/A
7/2/2015	2340	17.78	0	50%		N/A
7/2/2015	10	17.78	1 - 3	50%		N/A
7/2/2015	40	17.78	1 - 3	40%		N/A
7/2/2015	110	18.89	0	50%		N/A
7/2/2015	110	17.78	1 - 3	60%		N/A
7/2/2015	140	17.78	4 - 7	65%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Over farm road through oak-hickory forest

Permitted Biologist Michelle Gilley
Federal Permit # TE02373A-9
WV State Permit# 2015.212
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM242A	37° 20' 28.122" N	80° 36' 20.204" W	6	9	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/1/2015	2030	19.90	1 - 3	100%		N/A
7/1/2015	2100	19.60	1 - 3	100%		N/A
7/1/2015	2130	19.50	0	100%		N/A
7/1/2015	2200	19.00	0	100%		N/A
7/1/2015	2230	19.00	0	100%		N/A
7/1/2015	2300	18.70	1 - 3	100%		N/A
7/1/2015	2330	18.70	0	100%		N/A
7/1/2015	0	18.70	0	100%		N/A
7/1/2015	30	18.80	0	100%		N/A
7/1/2015	100	18.30	0	100%		N/A
7/1/2015	130	18.20	0	100%		N/A
7/2/2015	2100	18.10	0	100%		N/A
7/2/2015	2130	18.30	0	100%		N/A
7/2/2015	2230	18.00	0	100%		N/A
7/2/2015	2300	18.00	0	100%		N/A
7/2/2015	2330	17.90	0	100%		N/A
7/2/2015	0	18.00	0	100%		N/A
7/2/2015	1	17.70	0	95%		N/A
7/2/2015	30	17.70	0	100%		N/A
7/2/2015	130	17.50	0	100%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement In open woods across small ATV/foot path

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM243A	37° 17' 13.397" N	80° 25' 27.432" W	9	6	2030	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
8/4/2015	2030	25.50	4 - 7	85%	Thunder in distance	N/A
8/4/2015	2100	23.40	1 - 3	50%		N/A
8/4/2015	2130	22.70	1 - 3	100%		N/A
8/4/2015	2200	22.50	8 - 12	100%		N/A
8/4/2015	2230	21.80	8 - 12	100%		N/A
8/4/2015	2300	21.10	13 - 18	0%		N/A
8/4/2015	2330	21.00	8 - 12	15%		N/A
8/4/2015	0	21.00	8 - 12	55%		N/A
8/4/2015	30	19.70	8 - 12	75%		N/A
8/4/2015	100	19.50	4 - 7	100%	Sprinkle	N/A
8/4/2015	130	19.40	1 - 3	100%		N/A
8/5/2015	2030	26.10	0	5%		N/A
8/5/2015	2100	24.80	1 - 3	0%		N/A
8/5/2015	2130	25.20	0	0%	Thunder in distance	N/A
8/5/2015	2200	25.00	0	100%	Thunder to the south	N/A
8/5/2015	2230	23.00	8 - 12	100%	Thunder closer	N/A
8/5/2015	2300	21.40	0	100%	Mist	N/A
8/5/2015	2330	21.10	4 - 7	100%	Light rain; lasted for 10 minutes	N/A
8/5/2015	0	21.00	0	100%		N/A
8/5/2015	30	19.80	1 - 3	100%		N/A
8/5/2015	100	20.00	0	100%		N/A
8/5/2015	130	19.60	1 - 3	75%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

State Virginia

County Montgomery

Net Placement Across clearing in forest under partial canopy

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

WV State Permit# 2015.041

VA State Permit# SC 050652 T&E 054097

Other Field Staff Justin Bower

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM246A	37° 16' 52.233" N	80° 23' 32.553" W	9	9	2015	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/24/2015	2030	21.00	1 - 3	5%		N/A
6/24/2015	2100	21.00	0	0%		N/A
6/24/2015	2130	19.00	1 - 3	0%	Moon 1/2 waxing	N/A
6/24/2015	2200	19.00	1 - 3	0%		N/A
6/24/2015	2230	19.00	1 - 3	30%		N/A
6/24/2015	2300	19.00	1 - 3	0%		N/A
6/24/2015	2330	20.00	0	5%		N/A
6/24/2015	0	19.00	0	0%		N/A
6/24/2015	30	20.00	0	0%		N/A
6/24/2015	100	20.00	0	5%		N/A
6/24/2015	130	20.00	0	5%		N/A
6/25/2015	2030	24.00	1 - 3	40%		N/A
6/25/2015	2100	23.00	0	5%		N/A
6/25/2015	2130	23.00	0	50%		N/A
6/25/2015	2200	23.00	0	50%		N/A
6/25/2015	2230	23.00	0	100%		N/A
6/25/2015	2300	23.00	0	100%		N/A
6/25/2015	2330	22.00	1 - 3	100%		N/A
6/25/2015	0	22.00	1 - 3	100%		N/A
6/25/2015	30	22.00	0	100%		N/A
6/25/2015	100	22.00	1 - 3	100%		N/A
6/25/2015	130	22.00	1 - 3	95%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement Across clearing in forest under partial canopy

Permitted Biologist Rodger Rodriguez
Federal Permit # N/A
WV State Permit# 2015.041
VA State Permit# SC 050652 T&E 054097
Other Field Staff Justin Bower

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM247A	37° 16' 27.357" N	80° 23' 15.357" W	9	9	2015	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/26/2015	2030	23.00	0	80%		N/A
6/26/2015	2100	22.00	0	40%		N/A
6/26/2015	2130	21.00	0	90%		N/A
6/26/2015	2200	21.00	0	100%		N/A
6/26/2015	2230	21.00	0	100%		N/A
6/26/2015	2300	21.00	1 - 3	100%		N/A
6/26/2015	2330	21.00	1 - 3	100%	Light rain started	N/A
6/26/2015	0	21.00	0	100%		N/A
6/26/2015	30		<null>	%	RAIN OUT	Rain Out
6/27/2015	2030	21.00	0	70%		N/A
6/27/2015	2100	20.00	0	70%		N/A
6/27/2015	2130	20.00	0	30%		N/A
6/27/2015	2200	19.00	0	100%		N/A
6/27/2015	2230	19.00	19 - 24	90%	Strong wind started at 2205, medium-sized branches	N/A
6/27/2015	2300	19.00	19 - 24	80%	WIND OUT - Strong wind sustained at ~10-20 mph for	Wind Out
6/28/2015	2030	19.00	0	20%		N/A
6/28/2015	2100	17.00	0	40%		N/A
6/28/2015	2130	16.00	0	15%		N/A
6/28/2015	2200	16.00	0	5%		N/A
6/28/2015	2230	13.00	0	0%		N/A
6/28/2015	2300	14.00	0	0%		N/A
6/28/2015	2330	14.00	0	0%		N/A
6/28/2015	0	13.00	0	0%		N/A
6/28/2015	30	13.00	0	0%		N/A
6/28/2015	100	13.00	0	0%		N/A
6/28/2015	130	13.00	0	0%		N/A
6/29/2015	2030	20.00	0	30%		N/A
6/29/2015	2100	18.00	0	40%		N/A
6/29/2015	2130	17.00	0	50%		N/A
6/29/2015	2200	17.00	0	100%		N/A
6/29/2015	2230	16.00	0	100%		N/A
6/29/2015	2300	16.00	0	40%		N/A
6/29/2015	2330	16.00	0	100%		N/A
6/29/2015	0	16.00	0	80%		N/A
6/29/2015	30	16.00	0	100%		N/A
6/29/2015	100	16.00	0	100%		N/A
6/29/2015	130	16.00	0	100%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement Placed at entry of 4x4 trail from field

Permitted Biologist Chance Osborne
Federal Permit # TE62778B-0
WV State Permit# 2015.89
VA State Permit# SC 050652 T&E 054097
Other Field Staff Anthony Marinelli, Mackenzie Gallien

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM248A	37° 16' 27.700" N	80° 22' 20.915" W	6	6	2042	142

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/25/2015	2042	23.89	1 - 3	5%		N/A
6/25/2015	2112	23.89	1 - 3	5%		N/A
6/25/2015	2142	23.89	4 - 7	5%		N/A
6/25/2015	2212	23.89	19 - 24	60%	Thunder	N/A
6/25/2015	2242	22.78	8 - 12	60%	Thunder	N/A
6/25/2015	2312	23.89	4 - 7	65%	Thunder	N/A
6/25/2015	2342	22.78	13 - 18	65%	Thunder	N/A
6/25/2015	12	22.22	4 - 7	50%		N/A
6/25/2015	42	22.22	1 - 3	30%		N/A
6/25/2015	112	22.22	4 - 7	25%		N/A
6/25/2015	142	22.22	1 - 3	15%		N/A
6/26/2015	2043	23.89	4 - 7	65%	Heavy thunder	N/A
6/26/2015	2113	21.67	13 - 18	85%		N/A
6/26/2015	2143	21.67	13 - 18	85%		N/A
6/26/2015	2213	21.67	25 - 31	85%		N/A
6/26/2015	2243	21.11	13 - 18	85%		N/A
6/26/2015	2313	21.11	13 - 18	85%		N/A
6/26/2015	2343	20.56	19 - 24	85%	Rain at 2338	N/A
6/26/2015	18	20.56	25 - 31	90%	RAIN OUT at 0018	Rain Out
6/27/2015	2042	20.56	8 - 12	35%		N/A
6/27/2015	2112	20.56	8 - 12	40%		N/A
6/27/2015	2142	18.89	8 - 12	40%		N/A
6/27/2015	2212	18.89	39 - 46	55%	Constant wind estimated at 30+ mph starting at 2201	N/A
6/27/2015	2242	18.89	39 - 46	45%	WIND OUT called at 22:31 due to excessive winds at	Wind Out
6/28/2015	2042	17.78	4 - 7	15%		N/A
6/28/2015	2112	17.78	4 - 7	15%		N/A
6/28/2015	2142	16.67	4 - 7	15%		N/A
6/28/2015	2212	16.67	4 - 7	10%		N/A
6/28/2015	2242	15.56	4 - 7	15%		N/A
6/28/2015	2312	15.56	4 - 7	20%		N/A
6/28/2015	2342	15.56	4 - 7	10%		N/A
6/28/2015	12	15.00	4 - 7	10%		N/A
6/28/2015	42	15.00	4 - 7	10%		N/A
6/28/2015	112	15.00	4 - 7	5%		N/A
6/28/2015	142	15.00	1 - 3	5%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement Net placed across forested road/trail

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kiara Johnson

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM249A	37° 16' 10.771" N	80° 21' 33.816" W	6	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/29/2015	2000	23.33	0	0%		N/A
6/29/2015	2030	21.11	0	0%		N/A
6/29/2015	2100	20.50	0	0%		N/A
6/29/2015	2130	18.33	0	0%		N/A
6/29/2015	2200	17.50	0	0%		N/A
6/29/2015	2230	17.00	0	45%	Covered by canopy no more cloud estimates	N/A
6/29/2015	2300	16.70	0	%		N/A
6/29/2015	2330	15.83	0	55%		N/A
6/29/2015	0	16.11	1 - 3	55%		N/A
6/29/2015	30	16.11	0	60%		N/A
6/29/2015	100	16.11	0	60%		N/A
6/29/2015	130	16.11	0	60%		N/A
6/30/2015	2000	22.00	0	40%		N/A
6/30/2015	2030	20.61	0	45%		N/A
6/30/2015	2100	19.89	0	50%		N/A
6/30/2015	2130	19.28	0	50%		N/A
6/30/2015	2200	19.00	1 - 3	100%	Thunder and lightning creeping.	N/A
6/30/2015	2230	19.00	8 - 12	100%	Thunder lightning rain	N/A
6/30/2015	2300	18.00	4 - 7	100%	RAIN OUT	Rain Out
7/1/2015	2000	22.22	0	100%		N/A
7/1/2015	2030	21.22	0	100%		N/A
7/1/2015	2100	20.89	1 - 3	100%		N/A
7/1/2015	2130	20.50	0	%	Can't see clouds under canopy	N/A
7/1/2015	2200	19.78	0	%		N/A
7/1/2015	2230	20.50	0	100%		N/A
7/1/2015	2300	19.89	0	100%		N/A
7/1/2015	2330	19.61	0	100%		N/A
7/1/2015	0	19.61	1 - 3	100%		N/A
7/1/2015	30	19.61	1 - 3	100%		N/A
7/1/2015	100	19.50	0	100%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement Net placed across forested road near stream

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kiara Johnson

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM250A	37° 16' 26.819" N	80° 20' 49.097" W	6	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/26/2015	2030	23.33	0	80%		N/A
6/26/2015	2100	21.61	0	60%		N/A
6/26/2015	2130	21.39	0	60%		N/A
6/26/2015	2200	21.61	0	65%		N/A
6/26/2015	2230	20.56	1 - 3	100%		N/A
6/26/2015	2300	20.56	1 - 3	100%		N/A
6/26/2015	2330	20.56	1 - 3	100%	RAIN OUT @ 11:30pm	Rain Out
6/27/2015	2000	22.50	0	60%		N/A
6/27/2015	2030	21.67	0	60%		N/A
6/27/2015	2100	21.39	0	60%		N/A
6/27/2015	2130	20.28	0	60%		N/A
6/27/2015	2200	19.72	0	45%		N/A
6/27/2015	2230	19.11	1 - 3	50%		N/A
6/27/2015	2300	18.78	0	75%		N/A
6/27/2015	2330	17.78	1 - 3	45%		N/A
6/27/2015	0	16.72	1 - 3	40%		N/A
6/27/2015	30	16.22	1 - 3	35%		N/A
6/27/2015	100	15.50	1 - 3	30%		N/A
6/27/2015	130	15.11	1 - 3	35%		N/A
6/28/2015	2000	17.22	0	15%		N/A
6/28/2015	2030	17.10	0	10%		N/A
6/28/2015	2100	16.00	0	5%		N/A
6/28/2015	2130	16.00	0	5%		N/A
6/28/2015	2200	15.56	0	5%		N/A
6/28/2015	2230	15.56	0	5%		N/A
6/28/2015	2300	15.00	0	5%		N/A
6/28/2015	2330	14.50	0	5%		N/A
6/28/2015	0	13.00	0	5%		N/A
6/28/2015	30	12.00	0	0%		N/A
6/28/2015	100	12.00	0	0%		N/A
6/28/2015	130	11.11	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement Nets stacked across gravel road through open woodlot going to powerline corridor

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kiara Johnson

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM251A	37° 16' 24.127" N	80° 20' 17.169" W	12	6	2035	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/17/2015	2030	24.44	0	40%		N/A
6/17/2015	2100	24.00	4 - 7	50%		N/A
6/17/2015	2130	24.00	4 - 7	75%	Storm coming in lightning, specs of rain	N/A
6/17/2015	2200	24.00	4 - 7	75%	RAIN OUT	Rain Out
6/18/2015	2030	21.67	0	45%		N/A
6/18/2015	2100	21.50	0	45%		N/A
6/18/2015	2130	21.20	0	50%		N/A
6/18/2015	2200	20.56	1 - 3	55%		N/A
6/18/2015	2230	20.56	1 - 3	50%		N/A
6/18/2015	2300	20.00	4 - 7	70%		N/A
6/18/2015	2330	20.00	8 - 12	85%		N/A
6/18/2015	0	20.00	13 - 18	100%	Wind picked up and lightning few sprinkles	N/A
6/18/2015	30	20.00	19 - 24	100%	Nets furled	N/A
6/18/2015	45	20.00	19 - 24	100%	Lightning. RAIN OUT	Rain Out
6/19/2015	2030	22.22	0	45%		N/A
6/19/2015	2200	22.00	0	45%		N/A
6/19/2015	2230	21.67	0	30%		N/A
6/19/2015	2300	21.11	0	15%		N/A
6/19/2015	2330	21.11	1 - 3	2%		N/A
6/19/2015	0	20.56	1 - 3	2%		N/A
6/19/2015	30	20.00	1 - 3	0%		N/A
6/19/2015	100	20.00	0	0%		N/A
6/19/2015	130	19.44	0	0%		N/A
6/20/2015	2030	21.10	19 - 24	100%		N/A
6/20/2015	2100	20.90	25 - 31	100%	Wind out due to very strong winds	Wind Out
6/21/2015	2030	20.50	4 - 7	100%		N/A
6/21/2015	2100	19.40	4 - 7	75%		N/A
6/21/2015	2130	19.40	4 - 7	60%		N/A
6/21/2015	2200	19.10	8 - 12	75%		N/A
6/21/2015	2230	19.80	4 - 7	75%		N/A
6/21/2015	2300	19.40	4 - 7	75%		N/A
6/21/2015	2330	19.30	0	50%		N/A
6/21/2015	0	18.80	1 - 3	45%		N/A
6/21/2015	30	18.50	4 - 7	50%		N/A
6/21/2015	100	18.80	8 - 12	50%		N/A
6/21/2015	130	18.40	8 - 12	50%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement Across road through forest under partial canopy

Permitted Biologist Rodger Rodriguez
Federal Permit # N/A
WV State Permit# 2015.041
VA State Permit# SC 050652 T&E 054097
Other Field Staff Justin Bower

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM252A	37° 16' 18.691" N	80° 19' 39.692" W	6	6	2015	2035

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/22/2015	2030	25.00	0	10%		N/A
6/22/2015	2100	23.00	0	10%		N/A
6/22/2015	2130	23.00	0	0%		N/A
6/22/2015	2200	22.00	0	0%		N/A
6/22/2015	2230	22.00	0	0%		N/A
6/22/2015	2300	21.00	0	0%		N/A
6/22/2015	2330	21.00	0	0%		N/A
6/22/2015	0	21.00	0	0%		N/A
6/22/2015	30	21.00	0	0%		N/A
6/22/2015	100	20.00	0	0%		N/A
6/22/2015	130	20.00	0	0%		N/A
6/23/2015	2030	26.00	1 - 3	90%		N/A
6/23/2015	2100	26.00	0	90%		N/A
6/23/2015	2130	26.00	1 - 3	100%		N/A
6/23/2015	2200	26.00	4 - 7	100%		N/A
6/23/2015	2230	26.00	4 - 7	100%		N/A
6/23/2015	2300	24.00	0	100%		N/A
6/23/2015	2330	24.00	0	100%		N/A
6/23/2015	0	24.00	0	100%		N/A
6/23/2015	30	24.00	0	100%		N/A
6/23/2015	100	24.00	1 - 3	100%		N/A
6/23/2015	130	23.00	0	100%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement Across river at edge of forest

Permitted Biologist Rodger Rodriguez
Federal Permit # N/A
WV State Permit# 2015.041
VA State Permit# SC 050652 T&E 054097
Other Field Staff Justin Bower

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM253A	37° 16' 0.594" N	80° 18' 59.772" W	12	9	2015	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/17/2015	2030	27.00	0	50%		N/A
6/17/2015	2100	23.00	0	40%		N/A
6/17/2015	2130	23.00	1 - 3	80%		N/A
6/17/2015	2200	23.00	4 - 7	70%		N/A
6/17/2015	2230		<null>	%	Rainout	Rain Out
6/18/2015	2030	21.00	1 - 3	30%		N/A
6/18/2015	2100	21.00	1 - 3	90%		N/A
6/18/2015	2130	20.00	1 - 3	100%		N/A
6/18/2015	2200	20.00	1 - 3	100%		N/A
6/18/2015	2230	20.00	1 - 3	100%		N/A
6/18/2015	2300	20.00	1 - 3	80%		N/A
6/18/2015	2330	20.00	1 - 3	100%		N/A
6/18/2015	0	20.00	4 - 7	100%		N/A
6/18/2015	30	20.00	4 - 7	100%		N/A
6/18/2015	100	20.00	0	100%		N/A
6/18/2015	130	20.00	0	100%		N/A
6/19/2015	2030	23.00	0	90%		N/A
6/19/2015	2100	22.00	0	60%		N/A
6/19/2015	2130	21.00	0	50%		N/A
6/19/2015	2200	21.00	1 - 3	50%		N/A
6/19/2015	2230	20.00	0	80%		N/A
6/19/2015	2300	20.00	4 - 7	80%		N/A
6/19/2015	2330	19.00	0	20%		N/A
6/19/2015	0	19.00	0	50%		N/A
6/19/2015	30	19.00	0	40%		N/A
6/19/2015	100	19.00	1 - 3	30%		N/A
6/19/2015	130	18.00	0	30%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement Across old road through forest under closed canopy

Permitted Biologist Rodger Rodriguez
Federal Permit # N/A
WV State Permit# 2015.041
VA State Permit# SC 050652 T&E 054097
Other Field Staff Justin Bower

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM254A	37° 15' 56.607" N	80° 18' 31.788" W	6	6	2025	145

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/20/2015	2030	24.00	0	100%		N/A
6/20/2015	2100	22.00	0	100%		N/A
6/20/2015	2130	21.00	0	10%	Rain started at 2105	N/A
6/20/2015	2200	21.00	0	100%	Intermittent rain	N/A
6/20/2015	2230	21.00	0	100%		N/A
6/20/2015	2300	21.00	8 - 12	100%	Can hear strong wind above canopy but occasional	N/A
6/20/2015	2330	21.00	4 - 7	100%		N/A
6/20/2015	0	21.00	0	100%		N/A
6/20/2015	30	21.00	8 - 12	50%		N/A
6/20/2015	100	21.00	4 - 7	50%		N/A
6/20/2015	130	21.00	4 - 7	50%		N/A
6/21/2015	2030	22.00	0	95%		N/A
6/21/2015	2100	19.00	0	95%		N/A
6/21/2015	2130	19.00	0	100%		N/A
6/21/2015	2200	19.00	0	100%		N/A
6/21/2015	2230	19.00	0	100%		N/A
6/21/2015	2300	19.00	0	100%		N/A
6/21/2015	2330	19.00	0	100%		N/A
6/21/2015	0	19.00	0	100%		N/A
6/21/2015	30	19.00	0	100%		N/A
6/21/2015	100	19.00	0	100%		N/A
6/21/2015	130	19.00	0	100%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement At the start of old driveway

Permitted Biologist Michelle Gilley
Federal Permit # TE02373A-9
WV State Permit# 2015.212
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM255A	37° 15' 22.303" N	80° 17' 36.583" W	9	6	2020	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/29/2015	2030	18.30	0	0%		N/A
6/29/2015	2100	18.20	0	0%		N/A
6/29/2015	2130	17.50	1 - 3	0%		N/A
6/29/2015	2200	17.60	0	50%		N/A
6/29/2015	2230	17.10	1 - 3	0%		N/A
6/29/2015	2300	16.80	0	0%		N/A
6/29/2015	2330	16.20	0	0%		N/A
6/29/2015	0	17.20	0	50%		N/A
6/29/2015	30	16.20	1 - 3	50%		N/A
6/29/2015	100	16.60	0	70%		N/A
6/29/2015	130	17.00	0	70%		N/A
6/30/2015	2030	20.10	0	75%		N/A
6/30/2015	2100	20.00	1 - 3	75%		N/A
6/30/2015	2130	20.00	1 - 3	50%		N/A
6/30/2015	2130	19.60	0	70%	Distant lightning	N/A
6/30/2015	2200	19.30	1 - 3	80%	Distant thunder and lightning	N/A
6/30/2015	2230	20.50	13 - 18	100%	Passing thunder, lightning; some rain	N/A
6/30/2015	2300	18.30	4 - 7	100%	Some rain	N/A
6/30/2015	2330	17.50	0	100%		N/A
6/30/2015	30	15.70	0	100%		N/A
6/30/2015	100	15.20	0	100%		N/A
6/30/2015	130	16.10	0	0%		N/A
6/30/2015	0	16.30	1 - 3	50%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement Across paved road through forest

Permitted Biologist Rodger Rodriguez
Federal Permit # N/A
WV State Permit# 2015.041
VA State Permit# SC 050652 T&E 054097
Other Field Staff Justin Bower

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM256A	37° 15' 30.696" N	80° 17' 5.529" W	6	9	2015	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/30/2015	2030	22.00	0	10%		N/A
6/30/2015	2100	21.00	0	50%		N/A
6/30/2015	2130	20.00	0	5%		N/A
6/30/2015	2200	20.00	0	50%		N/A
6/30/2015	2230	20.00	0	100%		N/A
6/30/2015	2300	19.00	4 - 7	100%		N/A
6/30/2015	2330	18.00	0	95%		N/A
6/30/2015	0	18.00	0	100%		N/A
6/30/2015	30	17.00	0	100%		N/A
6/30/2015	100	16.00	0	100%		N/A
6/30/2015	130	16.00	0	100%		N/A
7/1/2015	2030	24.00	1 - 3	100%		N/A
7/1/2015	2100	23.00	1 - 3	100%		N/A
7/1/2015	2130	22.00	0	100%		N/A
7/1/2015	2200	22.00	0	100%		N/A
7/1/2015	2230	22.00	0	100%		N/A
7/1/2015	2300	21.00	0	100%		N/A
7/1/2015	2330	21.00	0	100%		N/A
7/1/2015	0	21.00	0	100%		N/A
7/1/2015	30	21.00	0	100%		N/A
7/1/2015	100	21.00	0	100%		N/A
7/1/2015	130	21.00	0	100%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement Nets stacked across dirt trail leading into woods

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM257A	37° 15' 17.703" N	80° 16' 16.893" W	9	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/24/2015	2000	23.89	1 - 3	35%		N/A
6/24/2015	2030	23.50	1 - 3	40%		N/A
6/24/2015	2100	23.37	1 - 3	35%		N/A
6/24/2015	2130	22.50	4 - 7	9%		N/A
6/24/2015	2200	20.00	4 - 7	5%		N/A
6/24/2015	2230	19.44	1 - 3	35%		N/A
6/24/2015	2300	18.33	1 - 3	5%		N/A
6/24/2015	2330	18.33	1 - 3	5%		N/A
6/24/2015	0	18.30	1 - 3	5%		N/A
6/24/2015	30	18.00	4 - 7	10%		N/A
6/24/2015	100	18.00	1 - 3	45%		N/A
6/24/2015	130	17.78	1 - 3	55%		N/A
6/25/2015	2000	26.66	0	70%	Humid	N/A
6/25/2015	2030	26.00	0	80%		N/A
6/25/2015	2100	25.80	0	90%		N/A
6/25/2015	2130	25.55	0	95%		N/A
6/25/2015	2200	24.44	0	100%		N/A
6/25/2015	2230	24.40	0	100%		N/A
6/25/2015	2300	23.80	0	100%		N/A
6/25/2015	0	24.44	1 - 3	100%		N/A
6/25/2015	30	23.89	0	100%		N/A
6/25/2015	100	23.89	1 - 3	100%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement Nets stacked over wet ruts on trail through wooded corridor leading to powerline right of way

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kiara Johnson

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM258A	37° 15' 16.084" N	80° 15' 57.202" W	9	6	2035	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/22/2015	2030	25.98	0	40%		N/A
6/22/2015	2100	23.89	0	35%		N/A
6/22/2015	2130	23.28	0	35%		N/A
6/22/2015	2200	22.89	0	40%		N/A
6/22/2015	2230	22.22	0	50%		N/A
6/22/2015	2300	21.78	0	50%		N/A
6/22/2015	2330	21.28	0	50%		N/A
6/22/2015	0	21.00	0	50%		N/A
6/22/2015	30	20.72	0	50%		N/A
6/22/2015	100	21.50	0	50%		N/A
6/22/2015	130	20.39	0	50%		N/A
6/23/2015	2000	25.56	0	35%	Light rain	N/A
6/23/2015	2030	25.56	0	75%		N/A
6/23/2015	2100	24.44	0	75%		N/A
6/23/2015	2130	24.44	0	100%		N/A
6/23/2015	2200	23.89	1 - 3	100%	Slight pickup and gusts of air. Thunder in distance	N/A
6/23/2015	2230	23.61	0	100%		N/A
6/23/2015	2300	23.61	0	100%	There is a slight gust every once in a while	N/A
6/23/2015	2330	23.33	0	100%		N/A
6/23/2015	0	23.33	4 - 7	100%	Breeze comes and goes	N/A
6/23/2015	30	23.70	4 - 7	100%	Breeze comes and goes. Storm off in the distance	N/A
6/23/2015	100	23.33	0	100%	Light breeze here and again	N/A
6/23/2015	130	22.78	4 - 7	100%	Breeze is off and on	N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement Across stream

Permitted Biologist Chance Osborne
Federal Permit # TE62778B-0
WV State Permit# 2015.89
VA State Permit# SC 050652 T&E 054097
Other Field Staff Anthony Marinelli, Mackenzie Gallien

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM259A	37° 14' 58.623" N	80° 15' 31.443" W	9	6	2040	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/29/2015	2040	21.11	1 - 3	5%		N/A
6/29/2015	2110	19.44	4 - 7	10%		N/A
6/29/2015	2140	17.78	1 - 3	5%		N/A
6/29/2015	2140	17.78	1 - 3	5%		N/A
6/29/2015	2210	17.78	1 - 3	0%		N/A
6/29/2015	2240	17.78	1 - 3	5%		N/A
6/29/2015	2310	17.78	0	5%		N/A
6/29/2015	2340	16.67	1 - 3	5%		N/A
6/29/2015	10	16.67	1 - 3	10%		N/A
6/29/2015	40	16.67	0	25%		N/A
6/29/2015	110	15.56	1 - 3	85%		N/A
6/29/2015	140	15.56	1 - 3	85%		N/A
6/30/2015	2038	24.44	1 - 3	10%		N/A
6/30/2015	2108	20.00	1 - 3	50%		N/A
6/30/2015	2138	20.00	1 - 3	40%		N/A
6/30/2015	2208	20.00	1 - 3	60%		N/A
6/30/2015	2238	17.78	19 - 24	100%		N/A
6/30/2015	2308	17.78	8 - 12	65%		N/A
6/30/2015	2338	17.78	1 - 3	30%		N/A
6/30/2015	8	15.56	1 - 3	35%		N/A
6/30/2015	38	15.56	4 - 7	65%		N/A
6/30/2015	108	15.56	1 - 3	65%		N/A
6/30/2015	138	15.56	4 - 7	20%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement On gravel road along forested hillside

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM260A	37° 15' 10.478" N	80° 14' 12.997" W	6	6	2040	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/15/2015	2030	25.30	4 - 7	10%		N/A
6/15/2015	2100	23.20	4 - 7	5%		N/A
6/15/2015	2130	23.60	1 - 3	23. 600000381469 7%		N/A
6/15/2015	2200	23.20	4 - 7	0%		N/A
6/15/2015	2230	23.00	4 - 7	0%		N/A
6/15/2015	2300	23.00	4 - 7	0%		N/A
6/15/2015	2330	22.70	1 - 3	0%		N/A
6/15/2015	0	22.30	0	0%		N/A
6/15/2015	30	22.80	1 - 3	0%		N/A
6/15/2015	100	22.40	0	0%		N/A
6/15/2015	130	22.20	0	0%		N/A
6/16/2015	2030	21.60	19 - 24	75%		N/A
6/16/2015	2100	21.40	4 - 7	80%		N/A
6/16/2015	2130	21.60	1 - 3	100%		N/A
6/16/2015	2200	21.60	4 - 7	100%		N/A
6/16/2015	2230	21.50	4 - 7	100%		N/A
6/16/2015	2300	21.20	0	100%		N/A
6/16/2015	2330	20.40	0	45%		N/A
6/16/2015	0	20.50	1 - 3	0%		N/A
6/16/2015	30	20.00	0	0%		N/A
6/16/2015	100	19.80	0	0%		N/A
6/16/2015	130	19.40	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement Nets stacked on forested road coming off of ridgetop

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kiara Johnson

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM261A	37° 15' 15.377" N	80° 14' 5.170" W	6	6	2035	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/13/2015	2000	22.78	0	30%		N/A
6/13/2015	2030	22.66	0	20%		N/A
6/13/2015	2100	22.00	0	20%		N/A
6/13/2015	2130	21.67	0	10%		N/A
6/13/2015	2200	21.67	0	10%		N/A
6/13/2015	2230	21.50	1 - 3	5%		N/A
6/13/2015	2300	21.30	1 - 3	5%		N/A
6/13/2015	2330	21.11	1 - 3	5%		N/A
6/13/2015	0	21.10	4 - 7	5%		N/A
6/13/2015	30	21.00	4 - 7	5%		N/A
6/13/2015	100	21.00	4 - 7	5%		N/A
6/13/2015	130	20.56	8 - 12	5%		N/A
6/14/2015	2000	23.33	0	30%		N/A
6/14/2015	2030	23.00	0	25%		N/A
6/14/2015	2100	23.00	0	20%		N/A
6/14/2015	2130	22.00	0	15%		N/A
6/14/2015	2200	22.00	0	15%		N/A
6/14/2015	2230	21.87	0	10%		N/A
6/14/2015	2300	21.67	0	10%		N/A
6/14/2015	2330	21.00	0	10%		N/A
6/14/2015	0	21.00	0	5%		N/A
6/14/2015	30	22.22	4 - 7	5%		N/A
6/14/2015	100	22.78	4 - 7	5%		N/A
6/14/2015	130	22.78	4 - 7	10%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement On gravel road along forested ridge top

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM262A	37° 15' 33.424" N	80° 13' 28.154" W	6	9	2035	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/13/2015	2030	22.00	1 - 3	25%		N/A
6/13/2015	2100	21.70	0	10%		N/A
6/13/2015	2130	21.70	0	5%		N/A
6/13/2015	2200	21.40	0	5%		N/A
6/13/2015	2230	21.00	0	0%		N/A
6/13/2015	2300	21.40	4 - 7	5%		N/A
6/13/2015	2330	20.70	4 - 7	0%		N/A
6/13/2015	0	20.20	8 - 12	0%		N/A
6/13/2015	30	20.20	8 - 12	5%		N/A
6/13/2015	100	20.10	8 - 12	0%		N/A
6/13/2015	130	20.00	8 - 12	0%		N/A
6/14/2015	2030	23.60	0	15%		N/A
6/14/2015	2100	23.50	1 - 3	5%		N/A
6/14/2015	2130	21.90	0	5%		N/A
6/14/2015	2200	21.60	4 - 7	15%		N/A
6/14/2015	2230	25.40	1 - 3	0%		N/A
6/14/2015	2300	22.20	1 - 3	15%		N/A
6/14/2015	2330	22.00	1 - 3	10%		N/A
6/14/2015	0	22.40	1 - 3	0%		N/A
6/14/2015	30	22.20	4 - 7	0%		N/A
6/14/2015	100	21.20	4 - 7	0%		N/A
6/14/2015	130	20.40	8 - 12	5%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Roanoke
Net Placement Net placed over sewer line through lowland woodlot near opening to cow pasture

Permitted Biologist Carme Ardito
Federal Permit # TE02373A-9
WV State Permit# 2015.203
VA State Permit# SC 050652 T&E 054097
Other Field Staff Dylan Little

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM265A	37° 14' 25.862" N	80° 11' 45.742" W	12	9	2020	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/6/2015	2030	23.00	1 - 3	10%		N/A
6/6/2015	2100	20.30	0	20%		N/A
6/6/2015	2130	20.50	1 - 3	50%		N/A
6/6/2015	2200	19.80	1 - 3	95%		N/A
6/6/2015	2230	19.90	1 - 3	70%		N/A
6/6/2015	2300	20.40	1 - 3	85%		N/A
6/6/2015	2330	19.80	1 - 3	90%		N/A
6/6/2015	0	20.40	4 - 7	70%		N/A
6/6/2015	30	20.40	1 - 3	85%		N/A
6/6/2015	100	20.40	4 - 7	60%		N/A
6/6/2015	130	20.40	4 - 7	45%		N/A
6/6/2015	200	20.40	8 - 12	80%		N/A
6/7/2015	2000	20.60	1 - 3	35%		N/A
6/7/2015	2030	19.90	1 - 3	20%		N/A
6/7/2015	2100	19.90	0	35%		N/A
6/7/2015	2130	20.40	0	75%		N/A
6/7/2015	2200	19.90	0	15%		N/A
6/7/2015	2230	20.40	1 - 3	40%		N/A
6/7/2015	2300	20.30	1 - 3	70%		N/A
6/7/2015	2330	20.40	0	90%		N/A
6/7/2015	0	20.20	0	20%		N/A
6/7/2015	20	20.10	1 - 3	65%		N/A
6/7/2015	30	20.40	0	90%		N/A
6/7/2015	100	20.40	1 - 3	55%		N/A
6/7/2015	130	20.30	1 - 3	35%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

State Virginia

County Montgomery

Net Placement Net stacked near woodlot edge in cow pasture

Permitted Biologist Carme Ardito

Federal Permit # TE02373A-9

WV State Permit# 2015.203

VA State Permit# SC 050652 T&E 054097

Other Field Staff Kiara Johnson

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM266A	37° 13' 38.201" N	80° 12' 0.649" W	6	9	2005	115

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
8/13/2015	2000	20.60	1 - 3	15%		N/A
8/13/2015	2030	18.61	1 - 3	10%		N/A
8/13/2015	2100	18.00	1 - 3	15%		N/A
8/13/2015	2130	18.00	1 - 3	30%		N/A
8/13/2015	2200	17.30	1 - 3	35%		N/A
8/13/2015	2230	16.90	1 - 3	60%		N/A
8/13/2015	2300	16.10	1 - 3	0%		N/A
8/13/2015	2330	15.30	1 - 3	0%		N/A
8/13/2015	0	15.40	1 - 3	0%		N/A
8/13/2015	30	14.90	1 - 3	0%		N/A
8/13/2015	100	14.90	1 - 3	50%		N/A
8/14/2015	2000	22.30	1 - 3	80%		N/A
8/14/2015	2030	21.60	1 - 3	70%		N/A
8/14/2015	21.5	21.50	1 - 3	70%		N/A
8/14/2015	2130	21.90	1 - 3	70%		N/A
8/14/2015	2200	20.10	1 - 3	0%		N/A
8/14/2015	2230	19.40	1 - 3	0%		N/A
8/14/2015	2300	19.60	1 - 3	0%		N/A
8/14/2015	2330	18.60	1 - 3	10%		N/A
8/14/2015	0	18.20	1 - 3	20%		N/A
8/14/2015	30	17.40	1 - 3	50%		N/A
8/14/2015	100	18.20	1 - 3	80%		N/A
8/14/2015	130	14.70	1 - 3	0%		N/A
8/14/2015	130	17.90	1 - 3	40%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Roanoke
Net Placement Perpendicular to tree row and creek

Permitted Biologist Rodger Rodriguez
Federal Permit # N/A
WV State Permit# 2015.041
VA State Permit# SC 050652 T&E 054097
Other Field Staff Justin Bower

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM267A	37° 13' 29.847" N	80° 11' 20.204" W	6	6	2015	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/19/2015	2030	27.00	0	30%		N/A
7/19/2015	2100	24.00	0	40%		N/A
7/19/2015	2130	23.00	0	85%		N/A
7/19/2015	2200	23.00	0	100%		N/A
7/19/2015	2230	23.00	0	50%		N/A
7/19/2015	2300	23.00	0	0%		N/A
7/19/2015	2330	23.00	0	20%		N/A
7/19/2015	0	22.00	0	40%		N/A
7/19/2015	30	23.00	0	50%		N/A
7/19/2015	100	23.00	0	95%		N/A
7/19/2015	130	23.00	0	50%		N/A
7/20/2015	2030	25.00	0	80%		N/A
7/20/2015	2100	24.00	0	0%		N/A
7/20/2015	2130	24.00	0	0%		N/A
7/20/2015	2200	23.00	0	0%		N/A
7/20/2015	2230	23.00	0	0%		N/A
7/20/2015	2300	23.00	0	0%		N/A
7/20/2015	2330	22.00	0	20%		N/A
7/20/2015	0	22.00	0	20%		N/A
7/20/2015	30	22.00	0	40%		N/A
7/20/2015	100	22.00	0	100%		N/A
7/20/2015	130	22.00	0	80%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Roanoke

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Placement Net is placed over access road and lowland, mixed deciduous forest. Net also parallels seasonal creek which is currently dry

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM268A	37° 13' 21.948" N	80° 10' 58.818" W	6	6	2045	145

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/7/2015	2030	24.40	4 - 7	100%		N/A
7/7/2015	2100	23.00	0	100%		N/A
7/7/2015	2130	22.70	0	50%		N/A
7/7/2015	2200	21.60	0	0%		N/A
7/7/2015	2230	21.00	0	10%		N/A
7/7/2015	2300	21.00	0	5%	Humid	N/A
7/7/2015	2330	20.87	0	5%		N/A
7/7/2015	0	21.00	0	80%		N/A
7/7/2015	30	20.00	1 - 3	90%		N/A
7/7/2015	100	20.00	0	70%		N/A
7/7/2015	130	20.10	0	90%		N/A
7/8/2015	2030	24.00	0	100%		N/A
7/8/2015	2100	23.00	0	100%		N/A
7/8/2015	2130	22.00	0	100%		N/A
7/8/2015	2200	22.00	0	100%		N/A
7/8/2015	2230	21.00	0	100%		N/A
7/8/2015	2300	21.00	1 - 3	100%		N/A
7/8/2015	2330	21.00	0	100%		N/A
7/8/2015	0	21.00	4 - 7	100%		N/A
7/8/2015	30	20.00	0	100%		N/A
7/8/2015	100	20.20	4 - 7	80%		N/A
7/8/2015	130	20.00	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Roanoke
Net Placement Over logging road in upland pine, oak, and maple forest

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM269A	37° 12' 39.738" N	80° 10' 35.231" W	6	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/10/2015	2030	25.20	0	0%		N/A
7/10/2015	2100	24.70	1 - 3	0%		N/A
7/10/2015	2130	23.80	0	0%		N/A
7/10/2015	2200	22.70	0	0%		N/A
7/10/2015	2230	22.30	0	0%		N/A
7/10/2015	2300	21.80	0	0%		N/A
7/10/2015	2330	21.50	0	5%		N/A
7/10/2015	0	21.10	1 - 3	50%		N/A
7/10/2015	30	21.10	0	95%		N/A
7/10/2015	100	21.11	0	100%		N/A
7/9/2015	2030	25.00	8 - 12	%	Cannot see clouds through canopy	N/A
7/9/2015	2100	25.00	8 - 12	%		N/A
7/9/2015	2200	25.00	13 - 18	%		N/A
7/9/2015	2230	24.00	8 - 12	%		N/A
7/9/2015	2300	24.00	4 - 7	%		N/A
7/9/2015	2330	24.00	8 - 12	%		N/A
7/9/2015	0	24.00	13 - 18	%		N/A
7/9/2015	30	24.00	19 - 24	%		N/A
7/9/2015	100	23.00	8 - 12	%		N/A
7/9/2015	130	23.00	13 - 18	%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Roanoke
Net Placement Across creek under partial canopy

Permitted Biologist Rodger Rodriguez
Federal Permit # N/A
WV State Permit# 2015.041
VA State Permit# SC 050652 T&E 054097
Other Field Staff Justin Bower

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM273A	37° 11' 21.775" N	80° 8' 53.775" W	6	6	2015	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/14/2015	2030		<null>	%	RAIN OUT	Rain Out
7/15/2015	2030	20.00	0	20%		N/A
7/15/2015	2100	18.00	4 - 7	0%		N/A
7/15/2015	2130	18.00	4 - 7	5%		N/A
7/15/2015	2200	18.00	0	20%		N/A
7/15/2015	2230	18.00	8 - 12	80%		N/A
7/15/2015	2300	18.00	1 - 3	50%		N/A
7/15/2015	2330	18.00	0	30%		N/A
7/15/2015	0	17.00	0	100%		N/A
7/15/2015	30	18.00	1 - 3	100%		N/A
7/15/2015	100	18.00	4 - 7	100%		N/A
7/15/2015	130	18.00	0	10%		N/A
7/16/2015	2030	21.00	0	100%		N/A
7/16/2015	2100	20.00	0	100%		N/A
7/16/2015	2130	19.00	0	100%		N/A
7/16/2015	2200	19.00	0	80%		N/A
7/16/2015	2230	19.00	0	100%		N/A
7/16/2015	2300	19.00	1 - 3	100%		N/A
7/16/2015	2330	19.00	0	100%		N/A
7/16/2015	0	18.00	0	40%		N/A
7/16/2015	30	18.00	0	100%		N/A
7/16/2015	100	17.00	0	40%		N/A
7/16/2015	130	17.00	0	100%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Roanoke
Net Placement Over forested gravel/dirt road

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM277A	37° 9' 29.257" N	80° 8' 7.515" W	6	6	2040	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/8/2015	2030	20.90	1 - 3	100%		N/A
7/8/2015	2100	20.90	4 - 7	100%		N/A
7/8/2015	2130	20.40	4 - 7	100%		N/A
7/8/2015	2200	20.40	4 - 7	75%		N/A
7/8/2015	2230	19.80	4 - 7	85%		N/A
7/8/2015	2300	20.20	4 - 7	100%		N/A
7/8/2015	2330	19.80	4 - 7	100%		N/A
7/8/2015	0	19.70	1 - 3	100%		N/A
7/8/2015	30	19.40	1 - 3	100%		N/A
7/8/2015	100	20.00	8 - 12	100%		N/A
7/8/2015	130	19.00	4 - 7	50%		N/A
7/9/2015	2000	22.00	0	5%	Landowner asked us to leave; gathered equipment and	N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Near last trees in wood lot

Permitted Biologist Shawn McKinley
Federal Permit # N/A
WV State Permit# 2015.201
VA State Permit# SC 050652 T&E 054097
Other Field Staff Les Aaron

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM282A	37° 7' 26.468" N	80° 7' 16.814" W	6	6	2025	125

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/30/2015	2030	19.00	0	0%		N/A
5/30/2015	2100	18.20	1 - 3	50%		N/A
5/30/2015	2130	17.50	0	80%		N/A
5/30/2015	2200	16.20	0	30%		N/A
5/30/2015	2230	16.00	0	45%		N/A
5/30/2015	2300	15.20	1 - 3	30%		N/A
5/30/2015	2330	14.60	0	0%		N/A
5/30/2015	0	13.80	0	0%		N/A
5/30/2015	30	13.90	1 - 3	30%		N/A
5/31/2015	2030	20.20	0	25%		N/A
5/31/2015	2100	19.50	1 - 3	10%		N/A
5/31/2015	2130	17.80	0	15%		N/A
5/31/2015	2200	17.90	0	30%		N/A
5/31/2015	2230	17.40	0	20%		N/A
5/31/2015	2300	17.00	0	20%		N/A
5/31/2015	2330	16.60	0	15%		N/A
5/31/2015	0	16.20	0	10%		N/A
5/31/2015	30	16.00	0	10%		N/A
5/31/2015	100	15.80	0	30%		N/A
5/31/2015	130	15.70	0	10%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Over forested access road

Permitted Biologist Shawn McKinley
Federal Permit # N/A
WV State Permit# 2015.201
VA State Permit# SC 050652 T&E 054097
Other Field Staff Les Aaron

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM283A	37° 7' 38.074" N	80° 6' 36.949" W	9	6	2030	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/26/2015	2030	18.00	1 - 3	50%		N/A
5/26/2015	2100	17.80	1 - 3	40%		N/A
5/26/2015	2130	17.50	0	80%		N/A
5/26/2015	2200	16.70	4 - 7	25%		N/A
5/26/2015	2230	17.10	8 - 12	80%		N/A
5/26/2015	2300	16.70	1 - 3	80%		N/A
5/26/2015	2330	16.50	8 - 12	90%		N/A
5/26/2015	0	16.80	1 - 3	80%		N/A
5/26/2015	30	17.00	4 - 7	80%		N/A
5/26/2015	100	16.70	4 - 7	90%		N/A
5/26/2015	130	16.70	4 - 7	90%		N/A
5/27/2015	2030	17.90	0	80%		N/A
5/27/2015	2100	17.80	1 - 3	0%		N/A
5/27/2015	2130	16.40	0	30%		N/A
5/27/2015	2200	15.80	1 - 3	30%		N/A
5/27/2015	2230	14.80	1 - 3	50%		N/A
5/27/2015	2300	14.90	4 - 7	30%		N/A
5/27/2015	2330	14.90	0	30%		N/A
5/27/2015	0	14.80	1 - 3	60%		N/A
5/27/2015	30	13.90	1 - 3	35%		N/A
5/27/2015	100	13.50	1 - 3	20%		N/A
5/27/2015	130	12.90	0	20%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Over forested game trail

Permitted Biologist Shawn McKinley
Federal Permit # N/A
WV State Permit# 2015.201
VA State Permit# SC 050652 T&E 054097
Other Field Staff Les Aaron

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM284A	37° 7' 30.985" N	80° 6' 26.234" W	6	6	2020	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/19/2015	2030	22.77	0	10%		N/A
5/19/2015	2100	21.11	0	0%		N/A
5/19/2015	2130	20.00	0	0%		N/A
5/19/2015	2200	20.00	8 - 12	10%		N/A
5/19/2015	2230	19.44	4 - 7	10%		N/A
5/19/2015	2300	18.88	4 - 7	10%		N/A
5/19/2015	2330	18.33	8 - 12	0%		N/A
5/19/2015	0	17.77	4 - 7	0%		N/A
5/19/2015	30	16.66	8 - 12	0%		N/A
5/19/2015	100	16.11	8 - 12	15%		N/A
5/19/2015	130	16.11	13 - 18	20%		N/A
5/20/2015	2030	17.10	0	0%		N/A
5/20/2015	2100	16.70	0	40%		N/A
5/20/2015	2130	16.30	0	45%		N/A
5/20/2015	2200	16.00	0	50%		N/A
5/20/2015	2230	15.60	0	0%		N/A
5/20/2015	2300	16.40	0	50%		N/A
5/20/2015	2330	16.00	4 - 7	40%		N/A
5/20/2015	0	15.70	0	10%		N/A
5/20/2015	30	15.80	1 - 3	35%		N/A
5/20/2015	100	14.00	8 - 12	10%		N/A
5/20/2015	130	13.70	4 - 7	10%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Over forest access road

Permitted Biologist Shawn McKinley
Federal Permit # N/A
WV State Permit# 2015.201
VA State Permit# SC 050652 T&E 054097
Other Field Staff Les Aaron

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM285A	37° 7' 32.181" N	80° 5' 10.023" W	6	6	2010	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/17/2015	2000	18.80	0	80%		N/A
5/17/2015	2030	18.90	0	80%		N/A
5/17/2015	2100	18.80	0	80%		N/A
5/17/2015	2130	18.70	0	80%		N/A
5/17/2015	2200	19.30	0	80%		N/A
5/17/2015	2230	18.90	0	75%	Light rain	N/A
5/17/2015	2300	19.50	1 - 3	90%		N/A
5/17/2015	2330	18.80	0	90%		N/A
5/17/2015	0	18.60	0	100%		N/A
5/17/2015	30	18.30	1 - 3	10%		N/A
5/18/2015	2000	20.20	0	90%		N/A
5/18/2015	2030	20.20	1 - 3	90%		N/A
5/18/2015	2100	20.10	1 - 3	90%		N/A
5/18/2015	2130	19.80	0	90%		N/A
5/18/2015	2200	19.20	4 - 7	50%		N/A
5/18/2015	2230	19.20	4 - 7	40%		N/A
5/18/2015	2300	19.50	8 - 12	35%		N/A
5/18/2015	100	18.50	4 - 7	10%		N/A
5/18/2015	130	18.20	4 - 7	10%		N/A
5/18/2015	2330	19.30	4 - 7	85%		N/A
5/18/2015	0	19.00	4 - 7	80%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Perpendicular to forest edge, cutting across driveway

Permitted Biologist Elise Merrill
Federal Permit # TE38842A-3
WV State Permit# 2015.23
VA State Permit# N/A T&E 54100
Other Field Staff Ben Benfer

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM286A	37° 7' 26.213" N	80° 4' 49.425" W	18	10	2045	0

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/19/2015	2045	18.90	0	10%		N/A
5/19/2015	2115	18.50	1 - 3	5%		N/A
5/19/2015	2145	18.20	1 - 3	5%		N/A
5/19/2015	2215	17.90	0	0%		N/A
5/19/2015	2245	19.10	4 - 7	0%		N/A
5/19/2015	2315	19.60	4 - 7	0%		N/A
5/19/2015	2345	19.90	8 - 12	0%		N/A
5/19/2015	15	19.40	4 - 7	0%		N/A
5/19/2015	45	20.80	8 - 12	0%		N/A
5/19/2015	115	21.20	13 - 18	0%		N/A
5/19/2015	145	20.50	4 - 7	0%		N/A
5/20/2015	2045	16.90	0	20%		N/A
5/20/2015	2115	16.10	0	15%		N/A
5/20/2015	2145	15.40	0	10%		N/A
5/20/2015	2215	15.70	0	65%		N/A
5/20/2015	2245	15.40	0	40%		N/A
5/20/2015	2315	15.60	0	75%		N/A
5/20/2015	2345	15.70	1 - 3	65%		N/A
5/20/2015	15	15.60	0	55%		N/A
5/20/2015	45	16.60	4 - 7	50%		N/A
5/20/2015	115	16.50	1 - 3	10%		N/A
5/20/2015	145	17.10	0	40%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Net placed across forested trail/creek drainage

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kiara Johnson

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM287A	37° 7' 34.988" N	80° 4' 17.933" W	9	6	2025	125

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/4/2015	2030	20.56	0	85%		N/A
6/4/2015	2100	16.28	0	85%		N/A
6/4/2015	2130	15.22	0	90%		N/A
6/4/2015	2200	15.00	0	100%	Heavy misting	N/A
6/4/2015	2230	16.11	0	100%	Heavy mist	N/A
6/4/2015	2300	15.00	0	100%	Heavy mist	N/A
6/4/2015	2330	14.78	0	100%	Persistent light rain starting at 2315	N/A
6/4/2015	0	14.44	0	100%	Persistent medium light rain in open light under canopy	Rain Out
6/5/2015	2000	22.00	0	100%	Humid	N/A
6/5/2015	2030	21.90	0	100%	Light rain shower before setup	N/A
6/5/2015	2100	21.00	0	100%	Humid with a bit of fog	N/A
6/5/2015	2130	19.50	0	100%		N/A
6/5/2015	2200	18.70	0	100%		N/A
6/5/2015	2230	17.50	0	100%		N/A
6/5/2015	2300	17.20	1 - 3	100%	Light to moderate rain, thunder	N/A
6/5/2015	2330	17.50	1 - 3	100%	Light to moderate rain in and out	N/A
6/5/2015	0	17.20	1 - 3	100%	Light to medium persistent rain RAINOUT	Rain Out
6/6/2015	2000	22.22	0	75%	Humid	N/A
6/6/2015	2030	21.11	0	75%	Humid	N/A
6/6/2015	2100	21.00	0	75%		N/A
6/6/2015	2130	20.80	0	75%		N/A
6/6/2015	2200	20.56	0	75%		N/A
6/6/2015	2230	20.00	1 - 3	80%		N/A
6/6/2015	2300	18.89	0	90%		N/A
6/6/2015	2330	18.89	1 - 3	100%		N/A
6/6/2015	0	18.33	0	100%		N/A
6/6/2015	30	18.33	1 - 3	100%		N/A
6/6/2015	100	18.89	1 - 3	100%		N/A
6/6/2015	130	18.78	0	100%		N/A
6/7/2015	2000	21.67	0	50%		N/A
6/7/2015	2030	21.00	0	50%		N/A
6/7/2015	2130	19.89	0	45%		N/A
6/7/2015	2200	18.68	0	35%		N/A
6/7/2015	2230	18.33	0	15%		N/A
6/7/2015	2300	18.33	0	10%		N/A
6/7/2015	2330	17.89	0	10%		N/A
6/7/2015	0	17.22	0	5%		N/A
6/7/2015	21	20.78	0	50%		N/A
6/7/2015	30	17.22	0	5%		N/A
6/7/2015	100	17.22	0	5%		N/A
6/7/2015	130	17.22	0	5%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Net placed along perennial stream

Permitted Biologist Shane Brodnick
Federal Permit # TE02373A-9
WV State Permit# 2015.198
VA State Permit# SC 050652 T&E 054097
Other Field Staff Keena Mullins

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM288A	37° 7' 7.123" N	80° 3' 38.917" W	6	9	2030	0

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/28/2015	2030	20.60	0	100%		N/A
5/28/2015	2100	21.00	0	100%		N/A
5/28/2015	2130	20.60	0	100%		N/A
5/28/2015	2200	20.20	0	100%		N/A
5/28/2015	2230	19.80	0	100%		N/A
5/28/2015	2300	19.40	0	100%		N/A
5/28/2015	2330	18.90	0	100%		N/A
5/28/2015	0	18.40	0	100%		N/A
5/28/2015	30	18.40	0	100%		N/A
5/28/2015	100	18.20	0	100%		N/A
5/28/2015	130	17.90	0	100%		N/A
5/29/2015	2030	20.10	1 - 3	0%		N/A
5/29/2015	2100	19.60	1 - 3	0%		N/A
5/29/2015	2130	19.20	1 - 3	0%		N/A
5/29/2015	2200	18.50	1 - 3	0%		N/A
5/29/2015	2230	18.20	1 - 3	30%		N/A
5/29/2015	2300	17.90	1 - 3	40%		N/A
5/29/2015	2330	17.60	1 - 3	40%		N/A
5/29/2015	0	17.90	1 - 3	30%		N/A
5/29/2015	30	17.40	1 - 3	90%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement On wooded ATV trail

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM292A	37° 7' 14.550" N	80° 1' 31.046" W	6	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/11/2015	2030	27.80	0	55%		N/A
6/11/2015	2100	23.00	4 - 7	85%		N/A
6/11/2015	2130	22.00	1 - 3	90%		N/A
6/11/2015	2200	21.50	4 - 7	90%		N/A
6/11/2015	2230	22.40	8 - 12	90%		N/A
6/11/2015	2300	21.70	4 - 7	15%		N/A
6/11/2015	2330	20.40	4 - 7	25%		N/A
6/11/2015	0	20.70	8 - 12	0%		N/A
6/11/2015	30	20.80	4 - 7	5%		N/A
6/11/2015	100	20.00	8 - 12	0%		N/A
6/11/2015	130	19.60	8 - 12	0%		N/A
6/12/2015	2030	23.90	1 - 3	15%		N/A
6/12/2015	2100	20.00	1 - 3	0%		N/A
6/12/2015	2130	19.30	1 - 3	0%		N/A
6/12/2015	2200	19.50	4 - 7	15%		N/A
6/12/2015	2230	19.50	1 - 3	60%		N/A
6/12/2015	2300	21.40	1 - 3	85%		N/A
6/12/2015	2330	21.80	4 - 7	95%		N/A
6/12/2015	0	21.60	8 - 12	50%		N/A
6/12/2015	30	22.60	8 - 12	25%		N/A
6/12/2015	100	21.70	8 - 12	35%		N/A
6/12/2015	130	21.80	8 - 12	25%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Placed over land owner's driveway, which is placed over drainage culvert

Permitted Biologist Michelle Gilley
Federal Permit # TE02373A-9
WV State Permit# 2015.212
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM299A	37° 6' 10.704" N	79° 57' 32.305" W	6	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/17/2015	2130	23.30	0	0%		N/A
6/17/2015	2200	21.80	0	35%	Lightning and thunder in distance. Cloud cover	N/A
6/17/2015	2230	21.20	0	40%		Rain Out
6/18/2015	2030	20.90	0	100%		N/A
6/18/2015	2100	20.60	0	100%		N/A
6/18/2015	2130	20.70	0	99%		N/A
6/18/2015	2200	20.20	0	50%	Distant lightning	N/A
6/18/2015	2230	20.20	1 - 3	99%		N/A
6/18/2015	2300	20.20	0	100%		N/A
6/18/2015	2330	20.30	0	100%	Light rain	N/A
6/18/2015	0	20.30	0	100%	Light rain; distant lightning	N/A
6/18/2015	30	20.10	0	100%		N/A
6/18/2015	100	20.20	0	85%	Rain stopped	N/A
6/18/2015	130	20.00	0	100%		N/A
6/19/2015	2030	22.20	0	90%		N/A
6/19/2015	2100	21.60	0	95%		N/A
6/19/2015	2130	20.80	0	50%		N/A
6/19/2015	2200	20.80	0	79%		N/A
6/19/2015	2230	20.60	0	75%		N/A
6/19/2015	2300	20.30	0	5%		N/A
6/19/2015	2330	20.10	0	13%		N/A
6/19/2015	0	20.00	0	0%		N/A
6/19/2015	30	20.00	0	17%		N/A
6/19/2015	100	19.60	0	10%		N/A
6/19/2015	130	19.50	0	5%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement On wooded driveway that intersects pasture.

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM300A	37° 5' 39.032" N	79° 57' 6.312" W	6	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/7/2015	2030	22.10	0	85%		N/A
6/7/2015	2100	21.00	0	100%		N/A
6/7/2015	2130	20.50	1 - 3	50%		N/A
6/7/2015	2200	20.50	0	30%		N/A
6/7/2015	2230	20.50	0	85%		N/A
6/7/2015	2300	20.50	0	100%		N/A
6/7/2015	2330	20.40	0	100%		N/A
6/7/2015	0	19.90	0	60%		N/A
6/7/2015	30	19.30	0	10%		N/A
6/7/2015	100	19.10	0	75%		N/A
6/7/2015	130	19.00	0	95%		N/A
6/8/2015	2025	18.60	8 - 12	100%	Light rain; thunder/lightning	N/A
6/8/2015	2100	18.00	13 - 18	100%	Steady rain; large storm approaching; rain out at 2100	Rain Out
6/9/2015	2030	22.50	0	5%		N/A
6/9/2015	2100	20.80	0	5%		N/A
6/9/2015	2130	17.50	0	10%		N/A
6/9/2015	2200	17.20	0	5%		N/A
6/9/2015	2230	16.70	0	5%		N/A
6/9/2015	2300	16.60	0	5%		N/A
6/9/2015	0	15.90	0	5%		N/A
6/9/2015	30	15.10	0	0%		N/A
6/9/2015	100	14.60	0	10%		N/A
6/9/2015	130	14.40	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement On forested, gravel driveway

Permitted Biologist Elise Merrill
Federal Permit # TE38842A-3
WV State Permit# 2015.23
VA State Permit# N/A T&E 54100
Other Field Staff Ben Benfer

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM301A	37° 5' 12.970" N	79° 57' 12.572" W	12	8	2045	149

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/27/2015	2045	21.20	0	5%		N/A
5/27/2015	2115	20.80	0	0%		N/A
5/27/2015	2145	20.00	0	10%		N/A
5/27/2015	2215	19.00	0	45%		N/A
5/27/2015	2245	19.00	0	80%		N/A
5/27/2015	2315	18.50	0	70%		N/A
5/27/2015	2345	18.60	0	20%		N/A
5/27/2015	15	18.20	0	10%		N/A
5/27/2015	45	18.40	0	5%		N/A
5/27/2015	115	18.20	1 - 3	0%		N/A
5/27/2015	145	18.30	1 - 3	0%		N/A
5/28/2015	2045	22.80	0	65%		N/A
5/28/2015	2115	22.60	0	90%		N/A
5/28/2015	2145	22.00	0	100%		N/A
5/28/2015	2215	21.50	0	100%		N/A
5/28/2015	2245	20.60	0	100%		N/A
5/28/2015	2315	20.40	0	80%		N/A
5/28/2015	2345	19.80	0	90%		N/A
5/28/2015	15	19.40	0	20%		N/A
5/28/2015	45	19.10	0	40%		N/A
5/28/2015	115	19.10	0	40%		N/A
5/28/2015	145	18.80	0	65%	Light precipitation	N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Across field between two forest patches

Permitted Biologist Rodger Rodriguez

Federal Permit # N/A

WV State Permit# 2015.041

VA State Permit# SC 050652 T&E 054097

Other Field Staff Justin Bower

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM302A	37° 4' 51.049" N	79° 56' 38.308" W	12	9	2015	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/11/2015	2030	26.00	0	90%		N/A
6/11/2015	2100	25.00	0	90%		N/A
6/11/2015	2130	23.00	0	90%		N/A
6/11/2015	2200	23.00	0	90%		N/A
6/11/2015	2230	22.00	0	90%	A few rain drops	N/A
6/11/2015	2300	22.00	0	60%		N/A
6/11/2015	2330	21.00	0	0%		N/A
6/11/2015	0	21.00	0	0%		N/A
6/11/2015	30	21.00	0	0%		N/A
6/11/2015	100	20.00	0	0%		N/A
6/11/2015	130	20.00	0	0%		N/A
6/12/2015	2030	25.00	0	10%		N/A
6/12/2015	2100	22.22	1 - 3	0%		N/A
6/12/2015	2130	22.00	1 - 3	0%		N/A
6/12/2015	2200	21.00	0	0%		N/A
6/12/2015	2230	21.00	0	0%		N/A
6/12/2015	2300	21.00	0	100%		N/A
6/12/2015	2330	21.00	0	90%		N/A
6/12/2015	0	21.00	0	5%		N/A
6/12/2015	30	21.00	1 - 3	0%		N/A
6/12/2015	100	20.00	0	0%		N/A
6/12/2015	130	20.00	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Forested trail

Permitted Biologist Brian Cooper
Federal Permit # TE38842A-3
WV State Permit# 2015.034
VA State Permit# N/A T&E 54100
Other Field Staff Ethan Okon

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM303A	37° 4' 25.781" N	79° 56' 24.499" W	4	5	2040	0

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/19/2015	2030	21.00	0	30%		N/A
5/19/2015	2100	20.30	1 - 3	10%		N/A
5/19/2015	2130	18.80	0	0%		N/A
5/19/2015	2200	18.40	0	0%		N/A
5/19/2015	2230	17.80	0	0%		N/A
5/19/2015	2300	17.60	0	0%		N/A
5/19/2015	2330	17.20	0	0%		N/A
5/19/2015	0	17.60	1 - 3	0%		N/A
5/19/2015	30	17.50	1 - 3	0%		N/A
5/19/2015	100	17.20	0	0%		N/A
5/19/2015	130	16.90	1 - 3	5%		N/A
5/20/2015	2030	18.90	1 - 3	30%		N/A
5/20/2015	2100	18.00	1 - 3	5%		N/A
5/20/2015	2130	17.00	1 - 3	0%		N/A
5/20/2015	2200	16.30	1 - 3	10%		N/A
5/20/2015	2230	15.70	1 - 3	10%		N/A
5/20/2015	2300	15.50	1 - 3	15%		N/A
5/20/2015	2330	15.50	1 - 3	10%		N/A
5/20/2015	0	15.70	1 - 3	10%		N/A
5/20/2015	30	15.70	1 - 3	15%		N/A
5/20/2015	130	15.90	1 - 3	10%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Narrow opening between residential power line corridor and open foraging area.

Permitted Biologist Brian Cooper
Federal Permit # TE38842A-3
WV State Permit# 2015.034
VA State Permit# N/A T&E 54100
Other Field Staff Ethan Okon

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM304A	37° 4' 9.296" N	79° 55' 31.604" W	6	8	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/15/2015	2030	19.10	0	0%	Light fog	N/A
5/15/2015	2100	17.30	0	0%		N/A
5/15/2015	2130	16.60	0	0%		N/A
5/15/2015	2200	16.30	0	0%		N/A
5/15/2015	2230	15.30	0	0%		N/A
5/15/2015	2300	15.10	0	0%		N/A
5/15/2015	2330	14.90	0	0%		N/A
5/15/2015	0	14.60	0	0%		N/A
5/15/2015	30	14.30	0	0%		N/A
5/15/2015	100	13.10	0	0%		N/A
5/15/2015	130	13.70	0	0%		N/A
5/16/2015	2030	21.40	0	15%		N/A
5/16/2015	2100	19.90	0	10%		N/A
5/16/2015	2130	19.50	1 - 3	10%		N/A
5/16/2015	2200	19.10	0	10%		N/A
5/16/2015	2230	18.80	0	50%		N/A
5/16/2015	2300	18.60	0	80%		N/A
5/16/2015	2330	18.40	0	70%		N/A
5/16/2015	0	18.40	0	50%		N/A
5/16/2015	30	18.40	0	40%		N/A
5/16/2015	100	18.20	0	60%		N/A
5/16/2015	130	18.10	0	65%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Perennial stream

Permitted Biologist Brian Cooper
Federal Permit # TE38842A-3
WV State Permit# 2015.034
VA State Permit# N/A T&E 54100
Other Field Staff Vance Nepomuceno

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM305A	37° 3' 46.053" N	79° 55' 16.135" W	9	8	2035	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/17/2015	2030	23.20	0	90%		N/A
5/17/2015	2030	19.10	0	60%		N/A
5/17/2015	2100	22.00	0	100%		N/A
5/17/2015	2130	20.00	1 - 3	100%		N/A
5/17/2015	2200	19.50	0	80%		N/A
5/17/2015	2300	19.40	0	40%		N/A
5/17/2015	2330	19.20	1 - 3	50%		N/A
5/17/2015	0	18.60	0	80%		N/A
5/17/2015	30	18.30	0	90%		N/A
5/17/2015	100	18.10	1 - 3	40%		N/A
5/17/2015	130	18.00	1 - 3	30%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Placed over stream

Permitted Biologist Brian Dennis
Federal Permit # TE02373A-9
WV State Permit# 2015.204
VA State Permit# SC 050652 T&E 054097
Other Field Staff Karsen Shoger

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM306A	37° 3' 29.052" N	79° 55' 7.509" W	9	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/11/2015	2030	27.30	1 - 3	70%		N/A
6/11/2015	2100	26.50	1 - 3	80%		N/A
6/11/2015	2130	25.80	1 - 3	100%		N/A
6/11/2015	2200	24.10	0	100%	Slight drizzle	N/A
6/11/2015	2230	22.20	1 - 3	95%		N/A
6/11/2015	2300	21.80	1 - 3	100%		N/A
6/11/2015	2330	21.60	1 - 3	0%		N/A
6/11/2015	0	20.80	1 - 3	0%		N/A
6/11/2015	30	20.50	1 - 3	0%		N/A
6/11/2015	100	20.10	1 - 3	0%		N/A
6/11/2015	130	19.80	1 - 3	0%		N/A
6/12/2015	2030	25.40	1 - 3	10%		N/A
6/12/2015	2100	21.80	1 - 3	10%		N/A
6/12/2015	2130	21.20	1 - 3	10%		N/A
6/12/2015	2200	20.80	1 - 3	0%		N/A
6/12/2015	2230	20.40	1 - 3	0%		N/A
6/12/2015	2300	20.50	1 - 3	90%		N/A
6/12/2015	2330	20.50	1 - 3	85%		N/A
6/12/2015	0	20.20	0	0%		N/A
6/12/2015	30	20.00	0	0%		N/A
6/12/2015	100	19.90	1 - 3	70%		N/A
6/12/2015	130	19.80	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Over Mill Creek

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM307A	37° 3' 9.163" N	79° 54' 25.309" W	12	6	2015	115

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
8/10/2015	2015	25.00	0	100%		N/A
8/10/2015	2045	25.00	0	100%		N/A
8/10/2015	2115	24.90	4 - 7	100%	Light rain	N/A
8/10/2015	2145	25.00	8 - 12	100%	RAIN OUT	Rain Out
8/11/2015	2015	23.10	0	5%		N/A
8/11/2015	2045	22.30	0	0%		N/A
8/11/2015	2115	23.30	0	0%		N/A
8/11/2015	2145	20.90	0	0%		N/A
8/11/2015	2215	20.90	0	0%		N/A
8/11/2015	2315	20.20	0	0%		N/A
8/11/2015	2345	19.90	0	0%		N/A
8/11/2015	15	19.70	1 - 3	15%		N/A
8/11/2015	45	19.70	0	35%		N/A
8/11/2015	115	19.60	1 - 3	50%		N/A
8/12/2015	2015	23.30	0	50%		N/A
8/12/2015	2045	20.10	0	20%		N/A
8/12/2015	2115	20.20	0	40%		N/A
8/12/2015	2145	19.20	0	10%		N/A
8/12/2015	2215	18.40	0	0%		N/A
8/12/2015	2245	17.90	0	0%		N/A
8/12/2015	2315	17.50	0	0%		N/A
8/12/2015	2345	16.80	0	0%		N/A
8/12/2015	15	16.50	1 - 3	0%		N/A
8/12/2015	45	16.40	1 - 3	0%		N/A
8/12/2015	115	16.00	1 - 3	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Adjacent to forest edge in field

Permitted Biologist Rodger Rodriguez
Federal Permit # N/A
WV State Permit# 2015.041
VA State Permit# SC 050652 T&E 054097
Other Field Staff Justin Bower

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM308A	37° 2' 39.699" N	79° 54' 23.775" W	9	6	2015	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/13/2015	2030	27.00	0	80%		N/A
6/13/2015	2100	23.00	0	80%		N/A
6/13/2015	2130	22.00	1 - 3	90%		N/A
6/13/2015	2200	22.00	4 - 7	20%		N/A
6/13/2015	2230	21.00	1 - 3	0%		N/A
6/13/2015	2300	21.00	4 - 7	0%		N/A
6/13/2015	2330	21.00	8 - 12	0%		N/A
6/13/2015	0	21.00	4 - 7	0%		N/A
6/13/2015	30	20.00	0	0%		N/A
6/13/2015	100	20.00	1 - 3	5%		N/A
6/13/2015	130	20.00	1 - 3	5%		N/A
6/14/2015	2030	24.00	1 - 3	50%		N/A
6/14/2015	2100	23.00	1 - 3	10%		N/A
6/14/2015	2130	23.00	1 - 3	10%		N/A
6/14/2015	2200	23.00	1 - 3	0%		N/A
6/14/2015	2230	23.00	4 - 7	0%		N/A
6/14/2015	2300	22.00	4 - 7	10%		N/A
6/14/2015	2330	22.00	4 - 7	10%		N/A
6/14/2015	0	22.00	4 - 7	0%		N/A
6/14/2015	30	22.00	4 - 7	0%		N/A
6/14/2015	100	22.00	4 - 7	5%		N/A
6/14/2015	130	22.00	4 - 7	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Forest edge

Permitted Biologist Brian Cooper
Federal Permit # TE38842A-3
WV State Permit# 2015.034
VA State Permit# N/A T&E 54100
Other Field Staff Ethan Okon

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM309A	37° 2' 50.787" N	79° 53' 22.879" W	9	8	2040	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/27/2015	2100	22.00	1 - 3	10%		N/A
5/27/2015	2130	21.10	0	15%		N/A
5/27/2015	2200	21.00	0	5%		N/A
5/27/2015	2230	21.00	0	0%		N/A
5/27/2015	2300	19.60	0	10%		N/A
5/27/2015	2330	18.90	0	10%		N/A
5/27/2015	0	18.90	0	10%		N/A
5/27/2015	30	18.70	0	5%		N/A
5/27/2015	100	18.20	0	0%		N/A
5/27/2015	130	17.90	0	0%		N/A
5/28/2015	2100	22.50	0	80%		N/A
5/28/2015	2130	21.10	0	90%		N/A
5/28/2015	2200	20.20	1 - 3	90%		N/A
5/28/2015	2230	20.00	0	40%		N/A
5/28/2015	2300	19.80	0	50%		N/A
5/28/2015	2330	18.90	0	30%		N/A
5/28/2015	0	18.20	0	20%		N/A
5/28/2015	30	18.40	0	70%		N/A
5/28/2015	100	18.40	0	60%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Net placed at the edge of a corridor separating two cow pastures

Permitted Biologist Shane Brodnick
Federal Permit # TE02373A-9
WV State Permit# 2015.198
VA State Permit# SC 050652 T&E 054097
Other Field Staff Keena Mullins

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM310A	37° 2' 36.604" N	79° 52' 54.440" W	12	9	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/14/2015	2030	24.50	0	60%		N/A
6/14/2015	2100	23.40	0	50%		N/A
6/14/2015	2130	22.80	0	50%		N/A
6/14/2015	2200	22.60	0	40%		N/A
6/14/2015	2230	22.50	0	40%		N/A
6/14/2015	2300	22.50	0	30%		N/A
6/14/2015	2330	22.00	0	20%		N/A
6/14/2015	0	22.00	0	20%		N/A
6/14/2015	30	21.90	0	20%		N/A
6/14/2015	100	21.60	0	20%		N/A
6/14/2015	130	21.50	0	20%		N/A
6/15/2015	2030	24.20	0	20%		N/A
6/15/2015	2100	24.90	0	20%		N/A
6/15/2015	2130	24.20	0	10%		N/A
6/15/2015	2200	23.40	0	10%		N/A
6/15/2015	2230	23.20	0	10%		N/A
6/15/2015	2300	23.20	0	10%		N/A
6/15/2015	2330	23.00	0	10%		N/A
6/15/2015	0	22.50	0	0%		N/A
6/15/2015	30	22.30	0	0%		N/A
6/15/2015	100	22.10	0	0%		N/A
6/15/2015	130	22.00	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Net placed between river on elevated bank and small hillside

Permitted Biologist Michelle Gilley
Federal Permit # TE02373A-9
WV State Permit# 2015.212
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM311A	37° 2' 36.574" N	79° 52' 19.453" W	6	9	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/10/2015	2200	20.00	0	0%		N/A
6/10/2015	2230	18.80	0	0%		N/A
6/10/2015	2300	18.30	0	0%		N/A
6/10/2015	2330	18.20	0	0%		N/A
6/10/2015	0	18.20	0	0%		N/A
6/10/2015	30	12.80	0	0%		N/A
6/10/2015	100	17.10	0	0%		N/A
6/10/2015	130	17.50	0	0%		N/A
6/11/2015	2030	23.50	0	50%		N/A
6/11/2015	2100	23.50	0	50%		N/A
6/11/2015	2130	23.20	0	80%	Periods of light rain	N/A
6/11/2015	2200	22.70	0	90%	Periods of light rain	N/A
6/11/2015	2230	22.00	0	95%	Periods of light rain	N/A
6/11/2015	2300	21.60	0	85%		N/A
6/11/2015	2330	20.80	0	0%		N/A
6/11/2015	0	20.20	0	0%		N/A
6/11/2015	30	20.10	0	0%		N/A
6/11/2015	100	19.70	1 - 3	0%		N/A
6/11/2015	130	19.70	1 - 3	0%		N/A
6/14/2015	2030	23.20	0	10%		N/A
6/14/2015	2100	23.20	0	10%		N/A
6/14/2015	2130	22.30	0	5%		N/A
6/14/2015	2200	22.20	0	0%		N/A
6/14/2015	2230	22.10	0	0%		N/A
6/14/2015	2300	21.80	0	5%		N/A
6/14/2015	2330	21.70	0	5%		N/A
6/14/2015	0	21.60	0	0%		N/A
6/14/2015	30	21.20	0	0%		N/A
6/14/2015	100	21.00	0	50%		N/A
6/14/2015	130	21.00	0	10%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement At entrance of cluttered, overgrown wooded corridor that is adjacent to a power line ROW

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM312A	37° 2' 54.244" N	79° 52' 5.853" W	12	5	2020	120

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/15/2015	2030	20.00	0	2%		N/A
5/15/2015	2100	17.90	0	10%		N/A
5/15/2015	2130	17.40	0	5%		N/A
5/15/2015	2200	17.40	0	5%		N/A
5/15/2015	2230	17.10	0	5%		N/A
5/15/2015	2300	16.60	0	5%		N/A
5/15/2015	2330	16.40	0	5%		N/A
5/15/2015	0	16.50	0	5%		N/A
5/15/2015	30	15.90	0	0%		N/A
5/15/2015	100	15.90	1 - 3	0%		N/A
5/16/2015	2030	21.80	0	10%	Humid	N/A
5/16/2015	2100	21.40	0	10%		N/A
5/16/2015	2130	20.60	0	10%		N/A
5/16/2015	2200	20.50	0	5%		N/A
5/16/2015	2230	20.40	0	85%		N/A
5/16/2015	2300	20.10	0	65%		N/A
5/16/2015	2330	20.20	0	50%		N/A
5/16/2015	0	20.10	0	55%		N/A
5/16/2015	30	19.70	0	25%		N/A
5/16/2015	100	19.70	0	5%		N/A
5/16/2015	130	19.40	0	5%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Over wooded gravel road (private)

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM313A	37° 3' 21.069" N	79° 51' 48.590" W	9	9	2010	110

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/17/2015	2030	21.05	0	100%	Sprinkle	N/A
5/17/2015	2100	20.40	0	75%		N/A
5/17/2015	2130	20.40	0	90%		N/A
5/17/2015	2200	19.80	0	65%		N/A
5/17/2015	2230	19.70	0	75%		N/A
5/17/2015	2300	19.70	0	5%		N/A
5/17/2015	0	19.80	0	0%		N/A
5/17/2015	30	20.50	0	25%		N/A
5/17/2015	100	19.60	0	15%		N/A
5/17/2015	130	19.40	0	25%		N/A
5/18/2015	2030	20.10	1 - 3	100%	Overcast; passing rainstorm	N/A
5/18/2015	2100	19.90	0	95%	Passing rain shower	N/A
5/18/2015	2130	19.90	0	95%		N/A
5/18/2015	2200	19.90	0	90%		N/A
5/18/2015	2230	19.70	1 - 3	25%		N/A
5/18/2015	2300	19.90	0	95%		N/A
5/18/2015	2330	19.70	1 - 3	5%		N/A
5/18/2015	0	19.10	1 - 3	0%		N/A
5/18/2015	30	18.50	0	0%		N/A
5/18/2015	100	18.70	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Private gravel road through wooded area in between two open fields

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM314A	37° 3' 34.612" N	79° 51' 19.780" W	12	9	2015	115

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/19/2015	2030	21.20	0	10%		N/A
5/19/2015	2100	20.40	1 - 3	0%		N/A
5/19/2015	2130	20.70	1 - 3	0%		N/A
5/19/2015	2200	20.70	1 - 3	0%		N/A
5/19/2015	2230	19.30	4 - 7	0%		N/A
5/19/2015	2300	20.80	4 - 7	0%		N/A
5/19/2015	2330	19.70	4 - 7	0%		N/A
5/19/2015	0	18.50	8 - 12	0%		N/A
5/19/2015	30	19.70	4 - 7	0%		N/A
5/19/2015	100	18.00	4 - 7	0%		N/A
5/20/2015	2030	17.80	1 - 3	5%		N/A
5/20/2015	2100	17.40	1 - 3	0%		N/A
5/20/2015	2130	16.20	4 - 7	0%		N/A
5/20/2015	2200	15.90	4 - 7	0%		N/A
5/20/2015	2230	15.70	4 - 7	0%		N/A
5/20/2015	2300	15.20	4 - 7	0%		N/A
5/20/2015	2330	15.00	8 - 12	0%		N/A
5/20/2015	0	15.60	4 - 7	0%		N/A
5/20/2015	30	15.70	4 - 7	0%		N/A
5/20/2015	100	16.10	4 - 7	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement In narrow wooded riparian area along small stream.

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM315A	37° 3' 36.058" N	79° 50' 27.282" W	3	6	2010	110

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/21/2015	2030	18.00	0	100%		N/A
5/21/2015	2100	16.60	4 - 7	100%		N/A
5/21/2015	2130	17.10	8 - 12	85%		N/A
5/21/2015	2200	16.40	13 - 18	50%		N/A
5/21/2015	2230	15.60	8 - 12	50%		N/A
5/21/2015	2300	14.80	4 - 7	30%		N/A
5/21/2015	2330	14.10	4 - 7	5%		N/A
5/21/2015	0	12.60	4 - 7	0%		N/A
5/21/2015	30	17.20	8 - 12	0%		N/A
5/22/2015	2030	18.30	1 - 3	5%		N/A
5/22/2015	2100	14.20	1 - 3	0%		N/A
5/22/2015	2130	17.20	1 - 3	0%		N/A
5/22/2015	2200	16.50	1 - 3	0%		N/A
5/22/2015	2230	16.10	0	0%		N/A
5/22/2015	2300	13.90	0	0%		N/A
5/22/2015	2330	12.80	0	0%		N/A
5/22/2015	0	11.70	0	0%		N/A
5/22/2015	30	11.20	0	0%		N/A
5/22/2015	100	14.20	4 - 7	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Over private drive

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kyle Price

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM316A	37° 3' 13.161" N	79° 50' 4.845" W	9	6	2015	115

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/23/2015	2030	18.80	0	5%		N/A
5/23/2015	2100	17.20	1 - 3	0%		N/A
5/23/2015	2130	16.40	0	0%		N/A
5/23/2015	2200	16.50	1 - 3	0%		N/A
5/23/2015	2230	16.70	1 - 3	0%		N/A
5/23/2015	2300	15.90	1 - 3	0%		N/A
5/23/2015	2330	15.10	4 - 7	0%		N/A
5/23/2015	0	14.80	4 - 7	0%		N/A
5/23/2015	30	13.10	1 - 3	0%		N/A
5/23/2015	100	11.90	1 - 3	0%		N/A
5/24/2015	2000	23.28	1 - 3	0%		N/A
5/24/2015	2030	21.72	4 - 7	0%		N/A
5/24/2015	2100	20.30	0	0%		N/A
5/24/2015	2130	20.22	1 - 3	0%		N/A
5/24/2015	2200	19.28	0	0%		N/A
5/24/2015	2230	18.00	0	0%		N/A
5/24/2015	2300	17.89	1 - 3	0%		N/A
5/24/2015	2330	16.78	0	0%		N/A
5/24/2015	0	16.00	1 - 3	0%		N/A
5/24/2015	30	15.50	0	0%		N/A
5/24/2015	100	14.89	1 - 3	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Net placed over forested road

Permitted Biologist Shane Brodnick
Federal Permit # TE02373A-9
WV State Permit# 2015.198
VA State Permit# SC 050652 T&E 054097
Other Field Staff Keena Mullins

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM317A	37° 3' 22.598" N	79° 49' 32.340" W	6	9	2030	2100

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/1/2015	2030	21.70	13 - 18	100%	RAIN OUT @ emergence	Rain Out
6/3/2015	2030	14.70	8 - 12	100%	Consistent rain	N/A
6/3/2015	2100	14.70	4 - 7	100%	RAIN OUT @ 2100	Rain Out
6/4/2015	2030	16.30	4 - 7	100%	Raining	N/A
6/4/2015	2100	16.20	8 - 12	100%	Raining	N/A
6/4/2015	2130	16.10	4 - 7	100%	Raining	N/A
6/4/2015	2200	15.70	4 - 7	100%	Raining	N/A
6/4/2015	2230	15.40	8 - 12	100%	Rainout @ 2230	Rain Out
6/5/2015	2030	19.70	1 - 3	50%		N/A
6/5/2015	2100	19.30	4 - 7	40%		N/A
6/5/2015	2130	18.70	4 - 7	30%		N/A
6/5/2015	2200	18.60	4 - 7	20%		N/A
6/5/2015	2230	18.30	4 - 7	20%		N/A
6/5/2015	2300	17.90	1 - 3	20%		N/A
6/5/2015	2330	18.00	1 - 3	20%		N/A
6/5/2015	0	17.90	4 - 7	100%		N/A
6/5/2015	30	18.10	4 - 7	100%		N/A
6/5/2015	100	17.80	1 - 3	100%		N/A
6/5/2015	130	17.70	1 - 3	80%		N/A
6/6/2015	2030	22.20	0	40%		N/A
6/6/2015	2100	21.60	0	40%		N/A
6/6/2015	2130	20.80	0	40%		N/A
6/6/2015	2200	20.50	0	30%		N/A
6/6/2015	2230	20.40	0	50%		N/A
6/6/2015	2300	20.40	0	40%		N/A
6/6/2015	2330	20.10	0	50%		N/A
6/6/2015	0	20.40	0	60%		N/A
6/6/2015	30	19.60	0	30%		N/A
6/6/2015	100	19.50	1 - 3	30%		N/A
6/6/2015	130	19.10	0	30%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Over 4x4 trail running through the woods

Permitted Biologist Elise Merrill
Federal Permit # TE38842A-3
WV State Permit# 2015.23
VA State Permit# N/A T&E 54100
Other Field Staff Amelia Goebel

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM318A	37° 3' 7.958" N	79° 49' 12.992" W	18	8	2045	155

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/1/2015	2000		<null>	100%	RAIN OUT	Rain Out
6/2/2015	2100		<null>	100%	RAIN OUT	Rain Out
6/3/2015	2030	15.50	4 - 7	100%	Misting	N/A
6/3/2015	2100	15.40	1 - 3	100%	Light misting	N/A
6/3/2015	2300		<null>	100%	RAIN OUT	Rain Out
6/4/2015	2030	16.90	1 - 3	100%		N/A
6/4/2015	2100	16.50	4 - 7	100%	Stray sprinkles	N/A
6/4/2015	2130	16.20	4 - 7	100%	Mist	N/A
6/4/2015	2200	16.00	8 - 12	100%	Mist, light rain from 2137-2145	N/A
6/4/2015	2230	15.90	8 - 12	100%	Light rain 2205-2230	N/A
6/4/2015	2230		<null>	100%	RAIN OUT	Rain Out
6/5/2015	2030	20.10	0	40%		N/A
6/5/2015	2100	19.80	1 - 3	30%		N/A
6/5/2015	2130	19.10	1 - 3	45%		N/A
6/5/2015	2200	19.10	1 - 3	75%		N/A
6/5/2015	2230	18.70	4 - 7	40%		N/A
6/5/2015	2300	18.40	1 - 3	40%		N/A
6/5/2015	2330	18.50	0	75%		N/A
6/5/2015	0	18.70	1 - 3	100%		N/A
6/5/2015	30	18.60	0	100%	Light rain 0023-0030	N/A
6/5/2015	100	18.80	0	45%		N/A
6/5/2015	130	18.30	8 - 12	95%		N/A
6/5/2015	200	17.80	4 - 7	10%		N/A
6/6/2015	2045	22.10	0	55%		N/A
6/6/2015	2115	21.20	0	85%		N/A
6/6/2015	2145	21.20	0	85%		N/A
6/6/2015	2215	20.90	0	80%		N/A
6/6/2015	2245	20.40	0	85%		N/A
6/6/2015	2315	21.00	0	100%		N/A
6/6/2015	2345	20.70	0	70%		N/A
6/6/2015	15	21.50	0	50%		N/A
6/6/2015	45	19.50	0	40%		N/A
6/6/2015	115	20.70	1 - 3	100%		N/A
6/6/2015	145	20.90	0	100%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement

Permitted Biologist Brian Dennis
Federal Permit # TE02373A-9
WV State Permit# 2015.204
VA State Permit# SC 050652 T&E 054097
Other Field Staff Karsen Shoger

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM319A	37° 2' 33.825" N	79° 48' 37.838" W	12	6	2030	0

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/2/2015	2000		<null>	100%	RAIN OUT!	Rain Out
6/2/2015	20		<null>	%	RAIN OUT	Rain Out
6/3/2015	2037	15.00	8 - 12	100%	Slight drizzle	N/A
6/3/2015	21	14.00	8 - 12	100%	RAIN OUT	Rain Out
6/4/2015	2030	15.00	13 - 18	100%	Misting/drizzle	N/A
6/4/2015	2100	15.00	13 - 18	100%	Light drizzle	N/A
6/4/2015	2130	15.20	13 - 18	100%	Misting/light drizzle	N/A
6/4/2015	2200	15.20	13 - 18	100%	Mist/light drizzle	N/A
6/4/2015	2230	15.00	13 - 18	100%	RAIN OUT	Rain Out
6/5/2015	2030	22.20	0	40%		N/A
6/5/2015	2100	21.30	0	20%		N/A
6/5/2015	2130	18.60	1 - 3	0%		N/A
6/5/2015	2200	18.70	1 - 3	100%		N/A
6/5/2015	2230	18.50	0	0%		N/A
6/5/2015	2300	18.10	1 - 3	0%		N/A
6/5/2015	2330	17.70	0	100%		N/A
6/5/2015	0	17.60	1 - 3	100%	Light drizzle	N/A
6/5/2015	30	17.80	1 - 3	100%		N/A
6/5/2015	100	17.70	0	90%		N/A
6/5/2015	130	17.10	1 - 3	90%		N/A
6/6/2015	2030		1 - 3	65%	28.4	N/A
6/6/2015	2100	22.60	0	30%		N/A
6/6/2015	2130	22.50	0	90%		N/A
6/6/2015	2200	22.00	1 - 3	20%		N/A
6/6/2015	2230	22.00	1 - 3	100%		N/A
6/6/2015	2300	20.60	1 - 3	90%		N/A
6/6/2015	2330	20.80	4 - 7	100%		N/A
6/6/2015	0	20.70	8 - 12	0%		N/A
6/6/2015	30	20.30	13 - 18	0%		N/A
6/6/2015	100	20.00	4 - 7	90%		N/A
6/6/2015	130	19.90	13 - 18	90%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement

Permitted Biologist Brian Dennis
Federal Permit # TE02373A-9
WV State Permit# 2015.204
VA State Permit# SC 050652 T&E 054097
Other Field Staff Karsen Shoger

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM320A	37° 2' 27.081" N	79° 48' 10.689" W	12	6	2045	0

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/13/2015	2100	22.80	0	75%		N/A
6/13/2015	2130	21.40	4 - 7	90%		N/A
6/13/2015	2200	21.40	1 - 3	50%		N/A
6/13/2015	2230	23.70	1 - 3	70%		N/A
6/13/2015	2230	21.30	8 - 12	10%		N/A
6/13/2015	2300	21.30	4 - 7	10%		N/A
6/13/2015	2330	21.10	4 - 7	0%		N/A
6/13/2015	0	21.30	8 - 12	0%		N/A
6/13/2015	30	19.70	0	0%		N/A
6/13/2015	100	21.20	4 - 7	4%		N/A
6/13/2015	130	20.90	1 - 3	2%		N/A
6/14/2015	2030	26.10	1 - 3	30%		N/A
6/14/2015	2100	25.60	0	60%		N/A
6/14/2015	2130	22.60	1 - 3	10%		N/A
6/14/2015	2200	23.20	4 - 7	0%		N/A
6/14/2015	2300	23.20	1 - 3	0%		N/A
6/14/2015	0	21.10	0	0%		N/A
6/14/2015	30	21.10	0	15%		N/A
6/14/2015	100	21.10	0	5%		N/A
6/14/2015	130	20.30	4 - 7	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Net placed at edge of cow pasture along side old barn and scattered trees separating pasture from hayfield

Permitted Biologist Carme Ardito
Federal Permit # TE02373A-9
WV State Permit# 2015.203
VA State Permit# SC 050652 T&E 054097
Other Field Staff Josiah Kleinhenz

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM321A	37° 2' 2.688" N	79° 47' 41.024" W	12	9	2005	120

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/19/2015	2000	23.40	4 - 7	10%		N/A
5/19/2015	2030	22.00	1 - 3	10%		N/A
5/19/2015	2100	20.70	4 - 7	0%		N/A
5/19/2015	2130	20.10	1 - 3	0%		N/A
5/19/2015	2200	19.00	1 - 3	0%		N/A
5/19/2015	2230	18.70	1 - 3	0%		N/A
5/19/2015	2300	21.40	4 - 7	0%		N/A
5/19/2015	2330	21.00	4 - 7	0%		N/A
5/19/2015	0	21.00	1 - 3	0%		N/A
5/19/2015	30	19.60	4 - 7	0%		N/A
5/19/2015	100	18.70	4 - 7	0%		N/A
5/19/2015	130	19.60	4 - 7	0%		N/A
5/20/2015	2000	18.70	4 - 7	15%		N/A
5/20/2015	2030	20.20	1 - 3	5%		N/A
5/20/2015	2100	18.30	1 - 3	0%		N/A
5/20/2015	2130	16.90	1 - 3	15%		N/A
5/20/2015	2200	16.50	0	0%		N/A
5/20/2015	2230	14.50	1 - 3	35%		N/A
5/20/2015	2300	16.20	8 - 12	45%		N/A
5/20/2015	2330	16.50	4 - 7	50%		N/A
5/20/2015	0	16.60	8 - 12	50%		N/A
5/20/2015	30	16.50	13 - 18	55%		N/A
5/20/2015	100	16.50	8 - 12	15%		N/A
5/20/2015	130	16.00	8 - 12	10%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin

Permitted Biologist Carme Ardito
Federal Permit # TE02373A-9
WV State Permit# 2015.203
VA State Permit# SC 050652 T&E 054097
Other Field Staff Josiah Kleinhenz

Net Placement Net stacked over gravel driveway corridor under canopy cover. Driveway opens up into crop field beyond net.

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM322A	37° 1' 42.650" N	79° 46' 55.397" W	9	6	2005	120

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/21/2015	2000	16.90	8 - 12	95%		N/A
5/21/2015	2030	16.80	4 - 7	100%		N/A
5/21/2015	2100	16.50	8 - 12	90%		N/A
5/21/2015	2130	16.50	8 - 12	90%		N/A
5/21/2015	2200	15.50	8 - 12	100%		N/A
5/21/2015	2230	14.90	8 - 12	10%		N/A
5/21/2015	2300	14.10	4 - 7	20%		N/A
5/21/2015	2330	13.10	1 - 3	25%		N/A
5/21/2015	0	13.10	4 - 7	5%		N/A
5/21/2015	30	13.10	4 - 7	0%		N/A
5/21/2015	100	12.60	8 - 12	0%		N/A
5/21/2015	130	12.60	8 - 12	15%		N/A
5/22/2015	2000	18.80	4 - 7	15%		N/A
5/22/2015	2030	17.30	4 - 7	15%		N/A
5/22/2015	2030	15.40	0	0%		N/A
5/22/2015	2100	17.00	1 - 3	10%		N/A
5/22/2015	2130	16.10	1 - 3	10%		N/A
5/22/2015	2200	16.00	1 - 3	0%		N/A
5/22/2015	2300	15.30	1 - 3	0%		N/A
5/22/2015	2330	14.30	1 - 3	0%		N/A
5/22/2015	0	14.00	0	0%		N/A
5/22/2015	30	13.70	1 - 3	0%		N/A
5/22/2015	100	13.10	1 - 3	0%		N/A
5/22/2015	130	12.70	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Net placed at edge of corn field bordering woodlot

Permitted Biologist Carme Ardito
Federal Permit # TE02373A-9
WV State Permit# 2015.203
VA State Permit# SC 050652 T&E 054097
Other Field Staff Dylan Little

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM323A	37° 1' 40.102" N	79° 46' 49.973" W	12	9	2010	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/23/2015	2000	19.30	1 - 3	15%		N/A
5/23/2015	2030	17.10	1 - 3	15%		N/A
5/23/2015	2100	15.20	0	5%		N/A
5/23/2015	2130	16.50	1 - 3	0%		N/A
5/23/2015	2200	14.80	0	0%		N/A
5/23/2015	2230	14.70	1 - 3	0%		N/A
5/23/2015	2300	12.90	0	0%		N/A
5/23/2015	2330	13.40	0	0%		N/A
5/23/2015	0	12.40	0	0%		N/A
5/23/2015	30	12.20	1 - 3	0%		N/A
5/23/2015	100	10.90	1 - 3	0%		N/A
5/23/2015	130	10.70	0	0%		N/A
5/24/2015	2000	20.60	4 - 7	5%		N/A
5/24/2015	2030	20.60	1 - 3	0%		N/A
5/24/2015	2100	21.80	1 - 3	5%		N/A
5/24/2015	2130	19.40	0	0%		N/A
5/24/2015	2200	18.80	0	0%		N/A
5/24/2015	2230	18.00	1 - 3	0%		N/A
5/24/2015	2300	18.50	1 - 3	0%		N/A
5/24/2015	2330	19.50	4 - 7	0%		N/A
5/24/2015	0	18.90	0	0%		N/A
5/24/2015	30	16.60	0	0%		N/A
5/24/2015	100	16.20	0	0%		N/A
5/24/2015	130	15.60	0	0%		N/A
5/24/2015	200	15.10	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Along forest edge

Permitted Biologist Rodger Rodriguez
Federal Permit # N/A
WV State Permit# 2015.041
VA State Permit# SC 050652 T&E 054097
Other Field Staff Justin Bower

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM324A	37° 1' 32.516" N	79° 46' 0.596" W	6	6	2025	155

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/2/2015	1900		<null>	%	Rainout	Rain Out
6/3/2015	2115		<null>	%	Rainout	Rain Out
6/4/2015	2030	17.00	0	100%	Very light rain - sprinkling	N/A
6/4/2015	2100	17.00	0	100%	Very light rain, insects flying	N/A
6/4/2015	2130	16.00	0	100%	Very light rain, insects flying	N/A
6/4/2015	2200	16.00	0	100%	Very light rain	N/A
6/4/2015	2220	16.00	0	100%	Rainout	Rain Out
6/5/2015	2030	21.00	0	45%		N/A
6/5/2015	2100	20.00	0	10%		N/A
6/5/2015	2130	19.00	0	5%		N/A
6/5/2015	2200	18.00	0	30%		N/A
6/5/2015	2230	18.00	0	45%		N/A
6/5/2015	2300	18.00	0	0%		N/A
6/5/2015	2330	18.00	0	50%		N/A
6/5/2015	0	18.00	0	100%	Moon 3/4 waxing	N/A
6/5/2015	30	18.00	0	100%	Very light rain - drops	N/A
6/5/2015	100	18.00	0	100%		N/A
6/5/2015	130	18.00	0	60%		N/A
6/6/2015	2030	24.00	0	40%		N/A
6/6/2015	2100	21.00	4 - 7	35%		N/A
6/6/2015	2130	21.00	0	20%		N/A
6/6/2015	2200	21.00	0	10%		N/A
6/6/2015	2230	20.00	0	40%		N/A
6/6/2015	2300	20.00	0	10%		N/A
6/6/2015	2330	21.00	4 - 7	90%		N/A
6/6/2015	0	20.00	4 - 7	80%		N/A
6/6/2015	30	19.00	8 - 12	10%	Moon 2/3 waning	N/A
6/6/2015	100	19.00	8 - 12	90%		N/A
6/6/2015	130	20.00	13 - 18	90%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Net edge following creek dividing hayfield/ pasture

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kiara Johnson

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM325A	37° 0' 49.864" N	79° 45' 42.946" W	12	9	2020	120

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/27/2015	2000	25.00	0	10%		N/A
5/27/2015	2030	23.33	1 - 3	15%		N/A
5/27/2015	2100	21.67	1 - 3	15%		N/A
5/27/2015	2130	19.44	1 - 3	15%		N/A
5/27/2015	2200	18.89	1 - 3	15%		N/A
5/27/2015	2230	18.61	1 - 3	15%		N/A
5/27/2015	2300	18.00	1 - 3	20%		N/A
5/27/2015	2330	17.50	1 - 3	25%		N/A
5/27/2015	0	17.22	1 - 3	20%		N/A
5/27/2015	30	16.94	4 - 7	30%		N/A
5/27/2015	100	16.89	4 - 7	35%		N/A
5/28/2015	2000	23.90	0	90%		N/A
5/28/2015	2030	22.30	1 - 3	90%		N/A
5/28/2015	2100	21.40	0	90%		N/A
5/28/2015	2130	20.50	0	90%		N/A
5/28/2015	2200	20.00	0	90%		N/A
5/28/2015	2230	19.00	0	90%		N/A
5/28/2015	2300	18.33	1 - 3	90%		N/A
5/28/2015	2330	17.89	1 - 3	90%		N/A
5/28/2015	0	17.28	0	90%		N/A
5/28/2015	30	17.11	0	85%		N/A
5/28/2015	100	17.39	1 - 3	35%		N/A
5/28/2015	130	17.39	0	85%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Stacked over access road

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM326A	37° 0' 23.345" N	79° 45' 5.501" W	12	6	2020	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
8/8/2015	2030	22.60	0	45%		N/A
8/8/2015	2100	22.20	0	20%		N/A
8/8/2015	2130	21.60	0	5%		N/A
8/8/2015	2200	21.60	0	75%		N/A
8/8/2015	2230	21.20	1 - 3	15%		N/A
8/8/2015	2300	21.00	0	60%		N/A
8/8/2015	2330	20.80	0	70%		N/A
8/8/2015	0	20.80	0	66%		N/A
8/8/2015	30	20.80	0	90%		N/A
8/8/2015	100	20.40	1 - 3	99%		N/A
8/8/2015	130	20.70	0	99%		N/A
8/9/2015	2000	24.44	0	25%		N/A
8/9/2015	2030	23.89	0	25%		N/A
8/9/2015	2100	23.33	0	25%		N/A
8/9/2015	2130	22.89	0	5%		N/A
8/9/2015	2200	22.89	0	15%		N/A
8/9/2015	2230	22.70	0	80%		N/A
8/9/2015	2300	22.70	0	65%		N/A
8/9/2015	2330	22.70	0	25%		N/A
8/9/2015	0	22.70	0	50%		N/A
8/9/2015	30	22.50	0	0%		N/A
8/9/2015	100	21.60	1 - 3	0%		N/A
8/9/2015	130	21.50	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Edge of pasture next to narrow riparian corridor

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM327A	36° 59' 58.831" N	79° 44' 43.902" W	9	9	2025	125

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/3/2015	2030	14.40	1 - 3	100%	Rain out; Raining steadily	Rain Out
6/4/2015	2030	16.00	0	100%	Light mist	N/A
6/4/2015	2100	16.00	0	100%	Light mist	N/A
6/4/2015	2130	16.00	0	100%	Light rain; closed nets	N/A
6/4/2015	2200	16.00	4 - 7	100%	Rain ceased; opened nets	N/A
6/4/2015	2215	15.70	8 - 12	100%	Rain resumed; closed nets; rain out	Rain Out
6/5/2015	2030	21.00	0	75%		N/A
6/5/2015	2100	20.90	0	45%		N/A
6/5/2015	2130	20.40	0	30%		N/A
6/5/2015	2200	20.10	1 - 3	10%		N/A
6/5/2015	2230	19.40	0	0%		N/A
6/5/2015	2300	16.94	1 - 3	0%	Lightning in distance	N/A
6/5/2015	2330	19.80	1 - 3	0%		N/A
6/5/2015	0	19.90	1 - 3	15%		N/A
6/5/2015	30	17.20	4 - 7	90%	Thunder in distance	N/A
6/5/2015	100	16.70	0	100%	Mist	N/A
6/5/2015	130	16.40	1 - 3	100%		N/A
6/6/2015	2030	21.90	0	50%		N/A
6/6/2015	2100	20.70	0	60%		N/A
6/6/2015	2130	19.10	0	100%		N/A
6/6/2015	2200	15.50	1 - 3	75%		N/A
6/6/2015	2230	18.60	1 - 3	30%		N/A
6/6/2015	2300	18.20	0	70%		N/A
6/6/2015	2330	18.10	0	75%		N/A
6/6/2015	0	18.00	0	95%		N/A
6/6/2015	30	17.50	0	25%		N/A
6/6/2015	100	17.70	1 - 3	40%		N/A
6/6/2015	115	17.50	1 - 3	50%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

State Virginia

County Franklin

Net Placement Net placed on forested trail and over a stream

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

WV State Permit# 2015.198

VA State Permit# SC 050652 T&E 054097

Other Field Staff Keena Mullins

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM328A	36° 59' 43.372" N	79° 43' 56.616" W	12	9	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/12/2015	2030	24.20	0	40%		N/A
6/12/2015	2100	23.40	0	40%		N/A
6/12/2015	2130	23.20	0	30%		N/A
6/12/2015	2200	22.30	0	40%		N/A
6/12/2015	2230	22.80	0	30%		N/A
6/12/2015	2300	22.40	0	30%		N/A
6/12/2015	2330	22.20	0	20%		N/A
6/12/2015	0	22.00	0	20%		N/A
6/12/2015	30	21.70	0	20%		N/A
6/12/2015	100	21.60	0	20%		N/A
6/12/2015	130	21.40	0	20%		N/A
6/13/2015	2030	24.10	0	70%		N/A
6/13/2015	2100	22.40	0	70%		N/A
6/13/2015	2130	22.00	0	50%		N/A
6/13/2015	2200	21.70	0	50%		N/A
6/13/2015	2230	21.50	0	50%		N/A
6/13/2015	2300	21.40	0	40%		N/A
6/13/2015	2330	21.20	0	40%		N/A
6/13/2015	0	21.00	0	20%		N/A
6/13/2015	30	20.80	0	20%		N/A
6/13/2015	100	20.60	0	30%		N/A
6/13/2015	130	20.40	0	20%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Net stacked over hayfield along strip of trees separating two hayfields.

Permitted Biologist Carme Ardito
Federal Permit # TE02373A-9
WV State Permit# 2015.203
VA State Permit# SC 050652 T&E 054097
Other Field Staff Josiah Kleinhenz

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM329A	36° 59' 31.269" N	79° 43' 36.143" W	18	6	2005	120

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/17/2015	2000	21.70	1 - 3	85%		N/A
5/17/2015	2030	21.50	1 - 3	80%		N/A
5/17/2015	2100	21.30	1 - 3	90%		N/A
5/17/2015	2130	21.10	1 - 3	25%		N/A
5/17/2015	2200	21.00	1 - 3	10%		N/A
5/17/2015	2230	21.00	1 - 3	40%		N/A
5/17/2015	2300	20.30	1 - 3	5%		N/A
5/17/2015	2330	20.90	0	5%		N/A
5/17/2015	0	20.00	1 - 3	15%		N/A
5/17/2015	30	20.30	1 - 3	80%		N/A
5/17/2015	100	20.20	1 - 3	85%		N/A
5/17/2015	130	20.40	0	75%		N/A
5/18/2015	2000	21.30	8 - 12	70%		N/A
5/18/2015	2030	21.10	4 - 7	55%		N/A
5/18/2015	2100	20.30	1 - 3	70%		N/A
5/18/2015	2130	19.20	4 - 7	50%		N/A
5/18/2015	2200	18.70	1 - 3	15%		N/A
5/18/2015	2230	18.60	1 - 3	50%		N/A
5/18/2015	2300	18.50	1 - 3	35%		N/A
5/18/2015	2330	18.30	1 - 3	20%		N/A
5/18/2015	100	19.10	0	20%		N/A
5/18/2015	130	18.20	0	30%		N/A
5/18/2015	0	18.70	0	5%		N/A
5/18/2015	30	18.50	0	5%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Net stacked over old logging road under canopy cover. Very near co hwy 40.

Permitted Biologist Carne Ardito
Federal Permit # TE02373A-9
WV State Permit# 2015.203
VA State Permit# SC 050652 T&E 054097
Other Field Staff Josiah Kleinhenz

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM330A	36° 59' 35.228" N	79° 43' 12.449" W	6	6	2000	120

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/15/2015	2000	19.40	1 - 3	15%		N/A
5/15/2015	2030	18.90	1 - 3	5%		N/A
5/15/2015	2100	18.70	1 - 3	5%		N/A
5/15/2015	2130	18.20	1 - 3	5%		N/A
5/15/2015	2200	18.30	1 - 3	0%		N/A
5/15/2015	2230	17.80	1 - 3	0%		N/A
5/15/2015	2300	17.20	1 - 3	0%		N/A
5/15/2015	2330	17.30	1 - 3	0%		N/A
5/15/2015	0	17.20	1 - 3	0%		N/A
5/15/2015	30	17.00	1 - 3	0%		N/A
5/15/2015	100	17.10	1 - 3	0%		N/A
5/16/2015	2000	23.70	4 - 7	10%		N/A
5/16/2015	2030	22.30	1 - 3	5%		N/A
5/16/2015	2100	22.60	1 - 3	0%		N/A
5/16/2015	2130	22.20	4 - 7	0%		N/A
5/16/2015	2200	22.50	1 - 3	85%		N/A
5/16/2015	2230	21.70	1 - 3	100%		N/A
5/16/2015	2300	21.00	1 - 3	100%		N/A
5/16/2015	2330	20.70	1 - 3	100%		N/A
5/16/2015	0	20.60	1 - 3	100%		N/A
5/16/2015	30	20.50	1 - 3	10%		N/A
5/16/2015	100	20.60	4 - 7	90%		N/A
5/16/2015	130	16.50	0	0%		N/A
5/16/2015	130	19.70	1 - 3	90%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Field edge net

Permitted Biologist Shane Brodnick
Federal Permit # TE02373A-9
WV State Permit# 2015.198
VA State Permit# SC 050652 T&E 054097
Other Field Staff Keena Mullins

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM331A	36° 59' 17.682" N	79° 42' 32.268" W	9	9	2000	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/21/2015	2000	16.20	1 - 3	100%		N/A
5/21/2015	2030	15.60	1 - 3	100%		N/A
5/21/2015	2100	14.40	1 - 3	100%		N/A
5/21/2015	2130	14.40	13 - 18	100%		N/A
5/21/2015	2200	14.50	13 - 18	100%		N/A
5/21/2015	2230	14.40	13 - 18	50%		N/A
5/21/2015	2300	13.80	13 - 18	30%		N/A
5/21/2015	2330	13.20	13 - 18	30%		N/A
5/21/2015	0	12.20	1 - 3	10%		N/A
5/21/2015	30	10.90	1 - 3	10%		N/A
5/21/2015	100	11.40	1 - 3	10%		N/A
5/21/2015	130	11.00	0	10%		N/A
5/22/2015	2000	17.70	0	10%		N/A
5/22/2015	2030	17.90	0	10%		N/A
5/22/2015	2100	16.80	0	10%		N/A
5/22/2015	2130	14.60	0	10%		N/A
5/22/2015	2200	14.20	0	10%		N/A
5/22/2015	2230	14.50	1 - 3	10%		N/A
5/22/2015	2300	15.10	0	10%		N/A
5/22/2015	2330	12.50	0	10%		N/A
5/22/2015	0	12.50	0	10%		N/A
5/22/2015	30	13.40	0	10%		N/A
5/22/2015	100	12.00	0	10%		N/A
5/22/2015	130	10.20	0	10%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Jeep trail at entrance to power line ROW

Permitted Biologist Michelle Gilley
Federal Permit # TE02373A-9
WV State Permit# 2015.212
VA State Permit# SC 050652 T&E 054097
Other Field Staff Natasha Brown

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM332A	36° 59' 11.722" N	79° 41' 44.015" W	6	9	2020	0

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/22/2015	2030	17.17	4 - 7	0%		N/A
5/22/2015	2100	16.72	1 - 3	0%		N/A
5/22/2015	2130	14.77	4 - 7	0%		N/A
5/22/2015	2200	15.27	4 - 7	0%		N/A
5/22/2015	2230	15.11	1 - 3	0%		N/A
5/22/2015	2300	13.90	0	0%		N/A
5/22/2015	2330	13.00	1 - 3	0%		N/A
5/22/2015	7	12.11	0	0%		N/A
5/22/2015	30	12.27	0	0%		N/A
5/22/2015	100	10.88	1 - 3	0%		N/A
5/22/2015	120	10.16	0	0%		N/A
5/23/2015	2030	17.77	0	0%		N/A
5/23/2015	2100	17.00	1 - 3	0%		N/A
5/23/2015	2130	16.33	0	0%		N/A
5/23/2015	2200	15.78	1 - 3	0%		N/A
5/23/2015	2230	15.00	0	0%		N/A
5/23/2015	2300	14.78	0	0%		N/A
5/23/2015	2330	14.61	1 - 3	0%		N/A
5/23/2015	0	13.39	0	0%		N/A
5/23/2015	30	13.39	0	0%		N/A
5/23/2015	100	13.39	0	0%		N/A
5/23/2015	130	12.50	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Net placed over trail in pine forest

Permitted Biologist Shane Brodnick
Federal Permit # TE02373A-9
WV State Permit# 2015.198
VA State Permit# SC 050652 T&E 054097
Other Field Staff Keena Mullins

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM333A	36° 59' 8.732" N	79° 41' 25.420" W	6	9	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/7/2015	2030	22.00	1 - 3	100%		N/A
6/7/2015	2100	20.00	1 - 3	100%		N/A
6/7/2015	2130	19.70	1 - 3	100%		N/A
6/7/2015	2200	19.60	1 - 3	100%		N/A
6/7/2015	2230	19.90	0	50%		N/A
6/7/2015	2300	20.10	0	20%		N/A
6/7/2015	2330	20.00	0	20%		N/A
6/7/2015	0	19.10	0	20%		N/A
6/7/2015	30	19.00	0	20%		N/A
6/7/2015	100	19.30	0	100%		N/A
6/7/2015	130	19.10	0	100%		N/A
6/9/2015	2030	26.40	0	70%		N/A
6/9/2015	2100	19.70	0	70%		N/A
6/9/2015	2130	19.30	0	80%		N/A
6/9/2015	2200	18.70	0	80%		N/A
6/9/2015	2230	18.20	0	80%		N/A
6/9/2015	2300	18.00	0	30%		N/A
6/9/2015	2330	17.60	0	20%		N/A
6/9/2015	0	17.30	0	20%		N/A
6/9/2015	30	16.90	0	30%		N/A
6/9/2015	100	16.70	0	20%		N/A
6/9/2015	130	16.50	0	10%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

State Virginia

County Franklin

Net Placement Net placed in intersection of 3 forested trails

Permitted Biologist Shane Brodnick

Federal Permit # TE02373A-9

WV State Permit# 2015.198

VA State Permit# SC 050652 T&E 054097

Other Field Staff Keena Mullins

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM334A	36° 58' 33.825" N	79° 40' 26.072" W	9	9	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/26/2015	2030	24.70	0	85%		N/A
5/26/2015	2100	24.10	0	85%		N/A
5/26/2015	2130	24.00	0	80%		N/A
5/26/2015	2200	22.40	0	70%		N/A
5/26/2015	2230	21.70	0	60%		N/A
5/26/2015	2300	21.40	0	85%		N/A
5/26/2015	2330	22.90	0	85%		N/A
5/26/2015	0	22.40	1 - 3	85%		N/A
5/26/2015	30	22.20	8 - 12	85%		N/A
5/26/2015	100	22.50	13 - 18	100%		N/A
5/26/2015	130	23.20	13 - 18	100%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Net placed across trail through forested corridor

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kiara Johnson

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM335A	36° 58' 30.770" N	79° 40' 23.474" W	6	6	2035	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/11/2015	2000	28.33	0	40%	Humid	N/A
6/11/2015	2030	26.11	0	40%	Humid	N/A
6/11/2015	2100	25.39	0	90%	Hot and muggy	N/A
6/11/2015	2130	25.30	0	100%	Still hot. Lots of bugs	N/A
6/11/2015	2200	24.00	0	95%		N/A
6/11/2015	2230	24.10	0	100%	Really humid	N/A
6/11/2015	2300	23.80	0	30%	Quick shower at 2240	N/A
6/11/2015	2330	22.28	0	23%		N/A
6/11/2015	0	21.50	0	15%		N/A
6/11/2015	30	20.50	0	10%		N/A
6/11/2015	100	20.50	4 - 7	5%		N/A
6/11/2015	130	20.00	1 - 3	0%		N/A
6/12/2015	2000	26.67	0	10%	Humid	N/A
6/12/2015	2030	23.89	0	10%	Humid	N/A
6/12/2015	2100	23.78	0	10%	Humid	N/A
6/12/2015	2130	23.78	1 - 3	23%	Humid humid humid	N/A
6/12/2015	2200	23.39	0	20%		N/A
6/12/2015	2230	22.61	0	15%		N/A
6/12/2015	2300	22.22	0	5%	Still humid	N/A
6/12/2015	2330	22.22	0	10%		N/A
6/12/2015	0	21.67	0	10%		N/A
6/12/2015	30	21.00	0	5%		N/A
6/12/2015	100	20.72	0	5%	Some light air but generally calm	N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement

Permitted Biologist Brian Dennis
Federal Permit # TE02373A-9
WV State Permit# 2015.204
VA State Permit# SC 050652 T&E 054097
Other Field Staff Karsen Shoger

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM336A	36° 58' 7.861" N	79° 39' 35.593" W	6	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/7/2015	2030	21.60	0	10%		N/A
6/7/2015	2100	20.80	0	20%		N/A
6/7/2015	2130	20.70	0	20%		N/A
6/7/2015	2200	20.80	0	20%		N/A
6/7/2015	2230	20.90	0	10%		N/A
6/7/2015	2300	20.90	1 - 3	10%		N/A
6/7/2015	2330	20.40	4 - 7	30%		N/A
6/7/2015	0	20.20	1 - 3	20%		N/A
6/7/2015	30	19.90	8 - 12	80%		N/A
6/7/2015	100	20.10	8 - 12	80%		N/A
6/7/2015	130	20.20	4 - 7	70%		N/A
6/8/2015	2000		<null>	%	RAIN OUT	Rain Out
6/9/2015	2100	22.20	0	0%		N/A
6/9/2015	2130	21.30	0	0%		N/A
6/9/2015	2200	20.20	0	0%		N/A
6/9/2015	2230	19.90	1 - 3	0%		N/A
6/9/2015	2300	19.40	1 - 3	0%		N/A
6/9/2015	2330	18.10	1 - 3	0%		N/A
6/9/2015	0	18.50	1 - 3	0%		N/A
6/9/2015	30	18.10	1 - 3	0%		N/A
6/9/2015	100	18.00	1 - 3	0%		N/A
6/9/2015	130	17.90	1 - 3	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Across forested trail (pines) under partial canopy cover.

Permitted Biologist Rodger Rodriguez
Federal Permit # N/A
WV State Permit# 2015.041
VA State Permit# SC 050652 T&E 054097
Other Field Staff Justin Bower

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM337A	36° 58' 19.437" N	79° 38' 48.033" W	6	9	2025	205

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/10/2015	2030	22.00	0	60%		N/A
6/10/2015	2100	22.00	0	50%		N/A
6/10/2015	2130	21.00	1 - 3	10%		N/A
6/10/2015	2200	21.00	0	0%		N/A
6/10/2015	2230	20.00	0	0%		N/A
6/10/2015	2300	19.00	0	0%		N/A
6/10/2015	2330	19.00	0	0%		N/A
6/10/2015	0	19.00	0	0%		N/A
6/10/2015	30	19.00	0	0%		N/A
6/10/2015	100	18.00	0	0%		N/A
6/10/2015	130	18.00	0	0%		N/A
6/7/2015	2045	25.00	0	30%		N/A
6/7/2015	2100	25.00	0	30%		N/A
6/7/2015	2130	21.00	0	30%		N/A
6/7/2015	2200	21.00	0	30%		N/A
6/7/2015	2230	21.00	0	90%		N/A
6/7/2015	2300	21.00	0	90%		N/A
6/7/2015	2330	21.00	0	40%		N/A
6/7/2015	0	19.00	0	0%		N/A
6/7/2015	30	19.00	0	0%		N/A
6/7/2015	100	20.00	4 - 7	100%		N/A
6/7/2015	130	20.00	1 - 3	100%		N/A
6/7/2015	200	20.00	1 - 3	95%		N/A
6/8/2015	2030		<null>	%	Rainout	Rain Out



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Net stacked over pool in stream running in small woodlot between pasture and crop(corn)

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM338A	36° 58' 12.036" N	79° 38' 26.395" W	6	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
8/4/2015	2030	22.70	0	15%	Air is very still and humid	N/A
8/4/2015	2100	22.20	0	15%		N/A
8/4/2015	2130	22.00	0	5%		N/A
8/4/2015	2200	21.70	0	5%		N/A
8/4/2015	2230	20.60	0	30%		N/A
8/4/2015	2300	20.20	0	50%		N/A
8/4/2015	2330	20.40	0	60%		N/A
8/4/2015	0	19.79	0	60%		N/A
8/4/2015	30	19.80	0	90%		N/A
8/4/2015	100	19.80	0	65%		N/A
8/4/2015	130	20.10	0	70%		N/A
8/5/2015	2030	22.80	0	0%		N/A
8/5/2015	2100	22.40	0	0%		N/A
8/5/2015	2130	22.20	0	50%		N/A
8/5/2015	2200	22.00	0	45%	Lightning in the distance	N/A
8/5/2015	2230	21.50	8 - 12	75%	Light rain and lightning and thunder	N/A
8/5/2015	2300	21.50	8 - 12	90%	RAIN OUT	Rain Out
8/6/2015	130		<null>	%	RAIN OUT	Rain Out
8/7/2015	2030	21.00	4 - 7	95%		N/A
8/7/2015	2100	20.50	0	100%		N/A
8/7/2015	2130	20.30	1 - 3	95%		N/A
8/7/2015	2200	20.30	1 - 3	100%		N/A
8/7/2015	2230	20.30	1 - 3	100%		N/A
8/7/2015	2300	20.70	0	100%		N/A
8/7/2015	2330	20.70	4 - 7	100%		N/A
8/7/2015	0	20.70	1 - 3	100%		N/A
8/7/2015	30	20.60	1 - 3	100%		N/A
8/7/2015	100	20.60	1 - 3	100%		N/A
8/7/2015	130	20.50	1 - 3	130%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Logging road

Permitted Biologist Dan Cox
Federal Permit # TE62778B-0
WV State Permit#
VA State Permit# SC 050652 T&E 054097
Other Field Staff John Manuel

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM339A	36° 57' 54.755" N	79° 37' 23.791" W	9	6	2015	115

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/15/2015	2015	22.00	0	10%		N/A
5/15/2015	2115	17.00	0	0%		N/A
5/15/2015	2215	16.00	0	0%		N/A
5/15/2015	2315	16.00	0	0%		N/A
5/15/2015	115	15.00	0	0%		N/A
5/16/2015	2020	18.00	0	15%		N/A
5/16/2015	2120	19.00	0	0%		N/A
5/16/2015	2220	19.00	0	60%		N/A
5/16/2015	2320	18.50	0	0%		N/A
5/16/2015	15	15.00	0	0%		N/A
5/16/2015	20	18.00	0	0%		N/A
5/16/2015	110	18.00	4 - 7	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Across wooded dirt road

Permitted Biologist John Hootman
Federal Permit # TE 62778B-0
WV State Permit# 2015.81
VA State Permit# SC 050652 T&E 054097
Other Field Staff Sara Estep

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM340A	36° 57' 47.877" N	79° 36' 56.739" W	9	6	2015	120

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/15/2015	2019	21.00	1 - 3	10%		N/A
5/15/2015	2119	18.90	0	0%		N/A
5/15/2015	2219	18.90	1 - 3	0%		N/A
5/15/2015	2319	17.80	1 - 3	0%		N/A
5/16/2015	2020	22.20	1 - 3	15%		N/A
5/16/2015	2120	21.67	1 - 3	10%		N/A
5/16/2015	2220	21.11	0	80%		N/A
5/16/2015	2320	20.56	0	100%		N/A
5/16/2015	19	17.20	0	0%		N/A
5/16/2015	119	16.10	1 - 3	0%		N/A
5/15/2015	20	20.00	0	50%		N/A
5/15/2015	120	20.00	4 - 7	60%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12

Project Name Mountain Valley Pipeline Project

Company Name MVP

Site Name Mountain Valley Pipeline

State Virginia

County Pittsylvania

Net Placement Placed adjacent to forest edge into hay field

Permitted Biologist John Hootman

Federal Permit # TE 62778B-0

WV State Permit# 2015.81

VA State Permit# SC 050652 T&E 054097

Other Field Staff Sara Estep

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM341A	36° 58' 4.229" N	79° 35' 53.531" W	9	6	2015	125

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/17/2015	2021	21.10	0	100%	Some fog at sunset	N/A
5/17/2015	2121	20.90	0	100%		N/A
5/17/2015	2221	20.00	0	80%		N/A
5/17/2015	2321	19.80	0	10%		N/A
5/18/2015	2022	22.22	0	100%	Slight sprinkle at sunset	N/A
5/18/2015	2122	21.67	0	100%		N/A
5/18/2015	2222	18.89	1 - 3	30%		N/A
5/18/2015	2322	18.33	1 - 3	80%		N/A
5/17/2015	21	19.80	0	100%		N/A
5/17/2015	121	18.70	0	100%		N/A
5/18/2015	22	18.33	1 - 3	0%		N/A
5/18/2015	122	17.78	1 - 3	60%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Borders large, open pond and pasture

Permitted Biologist Dan Cox
Federal Permit # TE62778B-0
WV State Permit#
VA State Permit# SC 050652 T&E 054097
Other Field Staff John Manuel

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM342A	36° 58' 3.674" N	79° 35' 47.641" W	9	6	2020	120

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/17/2015	2020	21.00	1 - 3	100%	Light fog	N/A
5/17/2015	2120	20.00	0	30%	Light fog	N/A
5/17/2015	2220	20.00	0	0%	Fog lifted	N/A
5/17/2015	2320	19.00	0	0%		N/A
5/17/2015	20	18.50	1 - 3	100%		N/A
5/18/2015	2030	20.00	1 - 3	100%		N/A
5/18/2015	2130	19.00	1 - 3	0%		N/A
5/18/2015	2230	19.00	1 - 3	0%		N/A
5/18/2015	2330	18.50	0	0%		N/A
5/18/2015	30	18.00	1 - 3	0%		N/A
5/18/2015	130	18.00	1 - 3	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Trail opening

Permitted Biologist Brian Cooper
Federal Permit # TE38842A-3
WV State Permit# 2015.034
VA State Permit# N/A T&E 54100
Other Field Staff Ethan Okon

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM343A	36° 57' 21.346" N	79° 35' 2.088" W	6	8	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/23/2015	2030	21.40	0	10%		N/A
5/23/2015	2100	20.60	0	0%		N/A
5/23/2015	2130	17.50	1 - 3	5%		N/A
5/23/2015	2200	16.70	0	0%		N/A
5/23/2015	2230	15.90	0	0%		N/A
5/23/2015	2300	15.30	0	0%		N/A
5/23/2015	2330	15.20	0	0%		N/A
5/23/2015	0	14.30	0	0%		N/A
5/23/2015	30	13.90	0	5%		N/A
5/23/2015	100	13.90	0	0%		N/A
5/23/2015	130	13.90	0	0%		N/A
5/24/2015	2030	19.90	0	5%		N/A
5/24/2015	2100	19.20	0	5%		N/A
5/24/2015	2130	18.40	0	0%		N/A
5/24/2015	2200	18.50	1 - 3	0%		N/A
5/24/2015	2230	17.80	0	0%		N/A
5/24/2015	2300	17.20	0	0%		N/A
5/24/2015	2330	17.40	0	0%		N/A
5/24/2015	0	17.20	0	0%		N/A
5/24/2015	30	15.60	0	0%		N/A
5/24/2015	100	15.20	0	0%		N/A
5/24/2015	130	15.60	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Forest road

Permitted Biologist Dan Cox
Federal Permit # TE62778B-0
WV State Permit#
VA State Permit# SC 050652 T&E 054097
Other Field Staff John Manuel

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM344A	36° 56' 56.355" N	79° 34' 37.652" W	6	6	2025	125

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/23/2015	2030	16.00	1 - 3	0%		N/A
5/23/2015	2130	15.50	1 - 3	0%		N/A
5/23/2015	2230	16.50	1 - 3	0%		N/A
5/23/2015	2330	15.00	0	0%		N/A
5/23/2015	30	13.00	1 - 3	0%		N/A
5/23/2015	130	13.50	0	0%		N/A
5/24/2015	2030	19.00	1 - 3	0%		N/A
5/24/2015	2130	18.00	1 - 3	0%		N/A
5/24/2015	2230	17.00	0	0%		N/A
5/24/2015	2330	15.00	0	0%		N/A
5/24/2015	30	16.00	0	0%		N/A
5/24/2015	130	16.00	1 - 3	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Along ATV trail that intersects mixed deciduous-coniferous forest.

Permitted Biologist Michelle Gilley
Federal Permit # TE02373A-9
WV State Permit# 2015.212
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM345A	36° 56' 54.128" N	79° 34' 33.643" W	6	6	2020	120

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/20/2015	2030	21.80	0	0%		N/A
5/20/2015	2100	20.60	0	0%		N/A
5/20/2015	2130	20.00	0	0%		N/A
5/20/2015	2200	19.10	0	0%		N/A
5/20/2015	2230	18.60	0	0%		N/A
5/20/2015	2300	18.10	4 - 7	15%		N/A
5/20/2015	2330	18.20	13 - 18	0%		N/A
5/20/2015	0	18.00	4 - 7	0%		N/A
5/20/2015	30	17.90	4 - 7	0%		N/A
5/20/2015	100	17.60	4 - 7	0%		N/A
5/21/2015	2000	14.72	0	100%		N/A
5/21/2015	2030	14.00	1 - 3	100%		N/A
5/21/2015	2100	13.94	1 - 3	100%		N/A
5/21/2015	2130	15.27	1 - 3	100%		N/A
5/21/2015	2200	13.61	4 - 7	100%		N/A
5/21/2015	2230	14.16	1 - 3	100%		N/A
5/21/2015	2300	13.61	4 - 7	100%		N/A
5/21/2015	2330	11.88	4 - 7	100%		N/A
5/21/2015	0	11.50	4 - 7	0%		N/A
5/21/2015	30	11.11	0	0%		N/A
5/21/2015	100	10.77	4 - 7	0%		N/A
5/21/2015	120	10.72	1 - 3	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Across logging road

Permitted Biologist John Hootman
Federal Permit # TE 62778B-0
WV State Permit# 2015.81
VA State Permit# SC 050652 T&E 054097
Other Field Staff Sara Estep

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM346A	36° 56' 20.037" N	79° 33' 41.305" W	6	6	2020	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/23/2015	2025	18.89	0	0%		N/A
5/23/2015	2225	11.11	0	0%		N/A
5/23/2015	2325	11.00	0	0%		N/A
5/24/2015	2025	17.78	0	0%		N/A
5/24/2015	2125	15.56	0	0%		N/A
5/24/2015	2225	14.80	0	0%		N/A
5/24/2015	2325	13.33	1 - 3	0%		N/A
5/23/2015	25	10.40	0	0%		N/A
5/23/2015	125	10.10	0	0%		N/A
5/24/2015	25	13.00	0	0%		N/A
5/23/2015	125	12.00	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Intersects forest road and pasture

Permitted Biologist Dan Cox
Federal Permit # TE62778B-0
WV State Permit#
VA State Permit# SC 050652 T&E 054097
Other Field Staff John Manuel

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM347A	36° 56' 10.387" N	79° 33' 11.632" W	6	6	2022	122

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/19/2015	2030	22.00	4 - 7	0%		N/A
5/19/2015	2130	20.00	4 - 7	0%		N/A
5/19/2015	2230	18.00	0	0%		N/A
5/19/2015	2330	16.00	4 - 7	0%		N/A
5/19/2015	30	16.00	4 - 7	0%		N/A
5/20/2015	2030	17.00	0	10%		N/A
5/20/2015	2130	15.00	1 - 3	10%		N/A
5/20/2015	2230	14.00	1 - 3	10%		N/A
5/20/2015	2330	15.00	4 - 7	0%		N/A
5/20/2015	30	15.00	4 - 7	10%		N/A
5/20/2015	130	15.00	8 - 12	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Over ATV trail

Permitted Biologist John Hootman
Federal Permit # TE 62778B-0
WV State Permit# 2015.81
VA State Permit# SC 050652 T&E 054097
Other Field Staff Sara Estep

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM348A	36° 56' 4.068" N	79° 32' 44.712" W	6	6	2020	125

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/19/2015	2022	28.89	8 - 12	10%		N/A
5/19/2015	2122	23.33	8 - 12	0%		N/A
5/19/2015	2222	20.56	1 - 3	0%		N/A
5/19/2015	2322	18.89	1 - 3	0%		N/A
5/20/2015	2022	18.33	0	5%		N/A
5/20/2015	2122	16.67	0	0%		N/A
5/20/2015	2222	16.67	1 - 3	0%		N/A
5/20/2015	2322	16.11	8 - 12	0%		N/A
5/19/2015	122	17.22	1 - 3	0%		N/A
5/20/2015	22	15.56	8 - 12	5%		N/A
5/20/2015	122	16.11	8 - 12	60%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Net placed on forested access road

Permitted Biologist Shane Brodnick
Federal Permit # TE02373A-9
WV State Permit# 2015.198
VA State Permit# SC 050652 T&E 054097
Other Field Staff Dylan Little

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM349A	36° 56' 11.475" N	79° 32' 11.399" W	6	9	2000	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/15/2015	2000	25.50	1 - 3	45%		N/A
5/15/2015	2030	19.80	1 - 3	50%		N/A
5/15/2015	2100	18.70	1 - 3	20%		N/A
5/15/2015	2130	18.70	0	10%		N/A
5/15/2015	2200	18.10	0	10%		N/A
5/15/2015	2230	17.90	0	0%		N/A
5/15/2015	2300	17.10	0	0%		N/A
5/15/2015	2330	17.10	0	0%		N/A
5/15/2015	0	17.90	0	0%		N/A
5/15/2015	0	16.90	1 - 3	0%		N/A
5/15/2015	30	16.90	4 - 7	0%		N/A
5/15/2015	100	17.10	4 - 7	0%		N/A
5/16/2015	2000	23.50	4 - 7	20%		N/A
5/16/2015	2030	22.60	4 - 7	20%		N/A
5/16/2015	2100	22.20	0	0%		N/A
5/16/2015	2130	21.70	0	0%		N/A
5/16/2015	2200	21.30	0	0%		N/A
5/16/2015	2230	21.10	0	0%		N/A
5/16/2015	2300	20.50	0	0%		N/A
5/16/2015	2330	20.50	0	0%		N/A
5/16/2015	0	20.10	0	0%		N/A
5/16/2015	30	19.90	0	0%		N/A
5/16/2015	100	19.60	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Forest edge

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kyle Price

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM350A	36° 55' 37.089" N	79° 31' 28.077" W	12	9	2010	110

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/15/2015	2000	16.90	4 - 7	0%		N/A
5/15/2015	2030	17.00	4 - 7	0%		N/A
5/15/2015	2100	17.10	4 - 7	0%		N/A
5/15/2015	2130	17.10	4 - 7	0%		N/A
5/15/2015	2200	17.10	4 - 7	0%		N/A
5/15/2015	2230	17.10	4 - 7	0%		N/A
5/15/2015	2300	15.55	4 - 7	0%		N/A
5/15/2015	2330	15.50	4 - 7	0%		N/A
5/16/2015	2000	23.50	0	80%		N/A
5/16/2015	2030	23.40	0	80%		N/A
5/16/2015	2100	23.00	0	80%		N/A
5/16/2015	2130	21.90	0	80%		N/A
5/16/2015	2200	21.50	0	70%		N/A
5/16/2015	2230	21.00	0	0%		N/A
5/16/2015	2300	20.00	0	70%		N/A
5/16/2015	2330	19.60	1 - 3	80%	More hazy than cloudy	N/A
5/16/2015	0	19.00	1 - 3	75%	Hazy	N/A
5/16/2015	30	18.30	1 - 3	75%	Hazy	N/A
5/16/2015	100	17.20	0	90%		N/A
5/15/2015	0	20.00	4 - 7	20%		N/A
5/15/2015	30	20.00	4 - 7	20%		N/A
5/15/2015	100	19.90	4 - 7	20%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Forest edge

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kyle Price

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM351A	36° 55' 19.079" N	79° 31' 4.217" W	9	6	2010	110

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/17/2015	2000	26.11	0	98. 199996948242 2%		N/A
5/17/2015	2000	26.11	0	98.2%		N/A
5/17/2015	2030	25.50	0	98. 199996948242 2%		N/A
5/17/2015	2030	25.50	0	98.2%		N/A
5/17/2015	2100	24.50	0	98. 199996948242 2%		N/A
5/17/2015	2100	24.50	0	98.2%		N/A
5/17/2015	2130	24.00	0	98. 199996948242 2%		N/A
5/17/2015	2130	24.00	0	98.2%		N/A
5/17/2015	2200	20.00	0	98. 199996948242 2%		N/A
5/17/2015	2200	20.00	0	98.2%		N/A
5/17/2015	2230	20.00	0	98%		N/A
5/17/2015	2230	20.00	0	98%		N/A
5/17/2015	2300	20.00	0	90%		N/A
5/17/2015	2300	20.00	0	90%		N/A
5/17/2015	0	19.00	0	80%	Small amount of mist in the air and humid.	N/A
5/18/2015	0	19.00	0	80%	Small amount of mist in the air. Humid	N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Net place on open intermittent stream.

Permitted Biologist Shane Brodnick
Federal Permit # TE02373A-9
WV State Permit# 2015.198
VA State Permit# SC 050652 T&E 054097
Other Field Staff Dylan Little

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM352A	36° 55' 7.790" N	79° 30' 34.676" W	9	9	2000	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/17/2015	2000	23.40	0	80%		N/A
5/17/2015	2030	22.70	0	80%		N/A
5/17/2015	2100	22.20	0	70%		N/A
5/17/2015	2130	21.70	0	60%		N/A
5/17/2015	2200	21.40	0	70%		N/A
5/17/2015	2230	20.90	0	50%		N/A
5/17/2015	2300	20.50	0	40%		N/A
5/17/2015	2330	20.40	0	50%		N/A
5/17/2015	0	20.10	0	50%		N/A
5/17/2015	30	20.10	0	50%		N/A
5/17/2015	100	19.90	0	50%		N/A
5/18/2015	2000	24.70	8 - 12	80%		N/A
5/18/2015	2030	23.40	8 - 12	80%		N/A
5/18/2015	2100	21.80	8 - 12	50%		N/A
5/18/2015	2130	21.40	8 - 12	40%		N/A
5/18/2015	2200	21.70	8 - 12	20%		N/A
5/18/2015	2230	21.00	0	20%		N/A
5/18/2015	2300	20.60	0	20%		N/A
5/18/2015	2330	20.90	4 - 7	40%		N/A
5/18/2015	0	20.30	8 - 12	40%		N/A
5/18/2015	30	19.90	4 - 7	40%		N/A
5/18/2015	100	19.70	8 - 12	30%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Net placed in forested trail

Permitted Biologist Shane Brodnick
Federal Permit # TE02373A-9
WV State Permit# 2015.198
VA State Permit# SC 050652 T&E 054097
Other Field Staff Keena Mullins

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM353A	36° 54' 59.879" N	79° 29' 49.962" W	6	9	810	110

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/19/2015	2100	26.80	0	30%		N/A
5/19/2015	2100	22.10	1 - 3	30%		N/A
5/19/2015	2130	21.30	0	30%		N/A
5/19/2015	2200	20.90	4 - 7	20%		N/A
5/19/2015	2230	24.30	0	30%		N/A
5/19/2015	2230	23.90	4 - 7	30%		N/A
5/19/2015	2300	23.70	4 - 7	30%		N/A
5/19/2015	2330	21.60	4 - 7	20%		N/A
5/19/2015	0	20.60	4 - 7	20%		N/A
5/19/2015	30	19.00	4 - 7	20%		N/A
5/19/2015	100	17.80	1 - 3	20%		N/A
5/20/2015	2000	19.10	1 - 3	10%		N/A
5/20/2015	2030	18.50	1 - 3	10%		N/A
5/20/2015	2100	18.30	1 - 3	10%		N/A
5/20/2015	2130	17.90	1 - 3	10%		N/A
5/20/2015	2200	16.80	1 - 3	10%		N/A
5/20/2015	2230	16.20	8 - 12	10%		N/A
5/20/2015	2300	15.80	13 - 18	10%		N/A
5/20/2015	2330	16.80	8 - 12	10%		N/A
5/20/2015	0	17.10	8 - 12	10%		N/A
5/20/2015	30	17.00	8 - 12	10%		N/A
5/20/2015	100	16.50	13 - 18	10%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Nets stacked over trail leading to power Line corridor

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kyle Price

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM354A	36° 54' 59.811" N	79° 29' 18.696" W	12	6	2010	0

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/19/2015	2000	24.50	1 - 3	30%		N/A
5/19/2015	2030	24.00	1 - 3	20%		N/A
5/19/2015	2130	23.00	1 - 3	0%		N/A
5/19/2015	2200	20.00	4 - 7	0%		N/A
5/19/2015	2230	20.00	8 - 12	0%		N/A
5/19/2015	2300	20.50	8 - 12	0%		N/A
5/19/2015	2300	18.90	1 - 3	0%		N/A
5/19/2015	2330	18.80	1 - 3	0%		N/A
5/19/2015	1	17.20	4 - 7	0%		N/A
5/19/2015	21	23.50	0	0%		N/A
5/20/2015	2000	22.78	0	5%		N/A
5/20/2015	2030	21.60	0	5%		N/A
5/20/2015	2100	20.60	0	5%		N/A
5/20/2015	2130	17.50	0	0%		N/A
5/20/2015	2200	17.22	0	0%		N/A
5/20/2015	2230	17.20	13 - 18	0%		N/A
5/20/2015	2300	16.67	13 - 18	0%	Variable or gusting	N/A
5/20/2015	2330	16.67	13 - 18	0%	Variable or gusting	N/A
5/20/2015	0	18.70	1 - 3	0%	0	N/A
5/20/2015	0	16.67	13 - 18	0%	Variable or gusting	N/A
5/20/2015	1	16.11	13 - 18	0%	Variable or gusting	N/A
5/20/2015	30	16.11	13 - 18	0%	Variable or gusting	N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Field edge

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kyle Price

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM355A	36° 54' 46.034" N	79° 28' 2.176" W	12	9	2015	115

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/21/2015	2000	18.30	13 - 18	100%		N/A
5/21/2015	2030	17.50	13 - 18	100%		N/A
5/21/2015	2100	16.50	13 - 18	100%		N/A
5/21/2015	2130	15.56	13 - 18	100%		N/A
5/21/2015	2200	13.89	13 - 18	100%		N/A
5/21/2015	2230	13.89	13 - 18	100%		N/A
5/22/2015	2230	13.89	13 - 18	100%		N/A
5/21/2015	2300	13.89	13 - 18	70%		N/A
5/21/2015	2330	13.89	13 - 18	50%		N/A
5/22/2015	2000	16.11	1 - 3	25%		N/A
5/22/2015	2030	15.56	1 - 3	10%		N/A
5/22/2015	2100	15.56	1 - 3	5%		N/A
5/22/2015	2130	12.78	1 - 3	0%		N/A
5/22/2015	2200	12.78	1 - 3	0%		N/A
5/22/2015	2300	11.67	13 - 18	50%		N/A
5/22/2015	2330	11.67	13 - 18	30%		N/A
5/21/2015	0	11.67	13 - 18	20%		N/A
5/21/2015	1	11.11	13 - 18	0%		N/A
5/21/2015	30	11.67	13 - 18	10%		N/A
5/22/2015	0	12.22	4 - 7	0%		N/A
5/22/2015	1	11.33	8 - 12	0%		N/A
5/22/2015	30	13.33	8 - 12	0%		N/A
5/22/2015	130	11.67	13 - 18	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Forest road

Permitted Biologist Dan Cox
Federal Permit # TE62778B-0
WV State Permit#
VA State Permit# SC 050652 T&E 054097
Other Field Staff John Manuel

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM356A	36° 54' 47.325" N	79° 27' 55.043" W	9	6	2020	120

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/21/2015	2030	13.50	0	75%		N/A
5/21/2015	2130	12.50	1 - 3	30%		N/A
5/21/2015	2230	12.50	1 - 3	25%		N/A
5/21/2015	2330	12.00	4 - 7	0%		N/A
5/21/2015	30	10.50	4 - 7	15%		N/A
5/21/2015	130	10.00	8 - 12	10%		N/A
5/22/2015	2030	16.00	1 - 3	0%		N/A
5/22/2015	2130	14.50	1 - 3	0%		N/A
5/22/2015	2230	14.00	0	0%		N/A
5/22/2015	2330	13.00	1 - 3	0%		N/A
5/22/2015	30	13.00	8 - 12	0%		N/A
5/22/2015	130	12.00	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Placed over road leading into woodlot and grass field

Permitted Biologist Michelle Gilley
Federal Permit # TE02373A-9
WV State Permit# 2015.212
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM357A	36° 54' 19.092" N	79° 26' 57.913" W	9	9	2015	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/23/2015	2030	29.40	1 - 3	0%		N/A
6/23/2015	2100	29.10	4 - 7	0%		N/A
6/23/2015	2130	27.90	1 - 3	80%		N/A
6/23/2015	2200	28.00	0	20%		N/A
6/23/2015	2230	26.70	0	50%		N/A
6/23/2015	2300	26.50	1 - 3	30%	Very distant lightning; moon approx. half full	N/A
6/23/2015	2330	25.80	1 - 3	80%	Distant lightning and thunder	N/A
6/23/2015	0	26.30	1 - 3	80%	Distant lightning	N/A
6/23/2015	30	25.50	0	100%		N/A
6/23/2015	100	25.60	0	95%		N/A
6/23/2015	130	26.00	0	5%		N/A
6/24/2015	2100	23.30	0	0%		N/A
6/24/2015	2130	23.10	0	0%		N/A
6/24/2015	2200	22.60	0	0%		N/A
6/24/2015	2230	22.20	0	0%		N/A
6/24/2015	2300	22.10	0	0%		N/A
6/24/2015	2330	20.90	0	5%		N/A
6/24/2015	0	21.50	0	0%		N/A
6/24/2015	30	21.60	0	0%		N/A
6/24/2015	100	20.90	0	0%		N/A
6/24/2015	130	20.10	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Over stream

Permitted Biologist Shawn McKinley
Federal Permit # N/A
WV State Permit# 2015.201
VA State Permit# SC 050652 T&E 054097
Other Field Staff Les Aaron

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM358A	36° 53' 50.183" N	79° 26' 52.141" W	9	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/21/2015	2030	14.60	0	30%		N/A
5/21/2015	2100	14.10	0	50%		N/A
5/21/2015	2130	14.00	0	50%		N/A
5/21/2015	2200	13.60	0	80%		N/A
5/21/2015	2230	13.20	0	80%		N/A
5/21/2015	2300	13.20	0	90%		N/A
5/21/2015	2330	12.90	0	90%		N/A
5/21/2015	0	12.30	0	40%		N/A
5/21/2015	30	10.90	0	80%		N/A
5/21/2015	100	10.50	0	40%		N/A
5/21/2015	130	10.20	0	50%		N/A
5/22/2015	2030	14.00	0	20%		N/A
5/22/2015	2100	13.40	0	30%		N/A
5/22/2015	2130	11.90	0	30%		N/A
5/22/2015	2200	10.60	0	10%		N/A
5/22/2015	2300	10.00	0	10%		N/A
5/22/2015	2330	9.60	0	10%	Cold out	Cold Out
5/23/2015	2030	15.80	0	20%		N/A
5/23/2015	2100	14.70	0	20%		N/A
5/23/2015	2130	14.00	0	55%		N/A
5/23/2015	2200	13.60	1 - 3	60%		N/A
5/23/2015	2230	12.50	1 - 3	30%		N/A
5/23/2015	2300	11.90	1 - 3	10%		N/A
5/23/2015	2330	11.90	0	25%		N/A
5/23/2015	0	11.40	0	10%		N/A
5/23/2015	30	10.50	0	10%		N/A
5/23/2015	100	10.30	0	30%		N/A
5/23/2015	130	10.20	0	25%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Over stream, Pittsylvania County

Permitted Biologist Jeremy Sheets
Federal Permit # TE35518B-0
WV State Permit# 2015.135
VA State Permit# SC53786 T&E 053787
Other Field Staff Aimee Bjornstad

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM359A	36° 53' 34.360" N	79° 26' 44.013" W	6	9	2000	120

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/15/2015	2010	23.00	0	15%		N/A
5/15/2015	2050	19.00	0	15%		N/A
5/15/2015	2120	18.00	0	0%		N/A
5/15/2015	2151	17.00	0	0%		N/A
5/15/2015	2219	17.00	0	0%		N/A
5/15/2015	2250	16.00	0	0%		N/A
5/15/2015	2320	16.00	0	0%		N/A
5/15/2015	2350	15.00	0	0%		N/A
5/15/2015	20	15.00	0	0%		N/A
5/15/2015	50	15.00	0	0%		N/A
5/15/2015	110	15.00	1 - 3	0%		N/A
5/16/2015	2010	25.00	0	5%		N/A
5/16/2015	2050	20.00	0	5%		N/A
5/16/2015	2122	20.00	0	5%		N/A
5/16/2015	2200	19.00	0	0%		N/A
5/16/2015	2220	18.00	0	0%		N/A
5/16/2015	2250	18.00	0	0%		N/A
5/16/2015	2320	18.00	0	0%		N/A
5/16/2015	2350	18.00	0	0%		N/A
5/16/2015	20	18.00	0	0%		N/A
5/16/2015	51	18.00	0	0%		N/A
5/16/2015	110	17.00	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Across trail, Pettsylvania County

Permitted Biologist Jeremy Sheets
Federal Permit # TE35518B-0
WV State Permit# 2015.135
VA State Permit# SC53786 T&E 053787
Other Field Staff Aimee Bjornstad

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM360A	36° 53' 11.293" N	79° 25' 42.941" W	9	9	1930	120

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/17/2015	2020	22.00	1 - 3	100%		N/A
5/17/2015	2050	22.00	1 - 3	100%		N/A
5/17/2015	2120	22.00	1 - 3	100%		N/A
5/17/2015	2150	21.00	1 - 3	0%		N/A
5/17/2015	2220	21.00	1 - 3	0%		N/A
5/17/2015	2250	20.00	1 - 3	0%		N/A
5/17/2015	2320	20.00	1 - 3	100%		N/A
5/17/2015	2350	20.00	1 - 3	100%	Light drizzle	N/A
5/17/2015	20	20.00	1 - 3	100%		N/A
5/17/2015	50	20.00	1 - 3	100%		N/A
5/17/2015	120	20.00	1 - 3	100%		N/A
5/18/2015	2010	19.00	0	0%		N/A
5/18/2015	2020	23.00	1 - 3	50%		N/A
5/18/2015	2120	22.00	1 - 3	60%	Drizzling.	N/A
5/18/2015	2150	21.00	0	60%	Drizzle stopped at 2140.	N/A
5/18/2015	2220	21.00	1 - 3	0%		N/A
5/18/2015	2250	22.00	1 - 3	50%		N/A
5/18/2015	2250	20.00	0	0%		N/A
5/18/2015	2320	20.00	0	0%		N/A
5/18/2015	2350	20.00	0	0%		N/A
5/18/2015	10	19.00	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Pittsylvania County, across trail head

Permitted Biologist Jeremy Sheets
Federal Permit # TE35518B-0
WV State Permit# 2015.135
VA State Permit# SC53786 T&E 053787
Other Field Staff Aimee Bjornstad

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM361A	36° 52' 44.283" N	79° 25' 14.336" W	6	9	1930	120

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/19/2015	2040	22.00	0	0%		N/A
5/19/2015	2050	21.00	0	0%		N/A
5/19/2015	2120	20.00	0	0%		N/A
5/19/2015	2150	19.00	0	0%		N/A
5/19/2015	2220	19.00	0	0%		N/A
5/19/2015	2250	18.00	0	0%		N/A
5/19/2015	2320	17.00	0	0%		N/A
5/19/2015	2350	17.00	0	0%		N/A
5/19/2015	20	16.00	0	0%		N/A
5/19/2015	50	15.00	0	0%		N/A
5/19/2015	120	15.00	0	0%		N/A
5/20/2015	2016	20.00	0	10%		N/A
5/20/2015	2055	18.00	0	0%		N/A
5/20/2015	2120	17.00	0	0%		N/A
5/20/2015	2150	16.00	0	0%		N/A
5/20/2015	2220	15.00	0	0%		N/A
5/20/2015	2250	15.00	4 - 7	0%		N/A
5/20/2015	2320	16.00	4 - 7	0%		N/A
5/20/2015	2350	17.00	4 - 7	0%		N/A
5/20/2015	50	17.00	4 - 7	0%		N/A
5/20/2015	120	17.00	4 - 7	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Edge of riparian and old field, Pittsylvania County

Permitted Biologist Jeremy Sheets
Federal Permit # TE35518B-0
WV State Permit# 2015.135
VA State Permit# SC53786 T&E 053787
Other Field Staff Aimee Bjornstad

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM362A	36° 52' 22.978" N	79° 24' 59.876" W	9	9	1930	122

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/21/2015	2012	14.00	1 - 3	90%		N/A
5/21/2015	2120	13.00	1 - 3	50%		N/A
5/21/2015	2150	12.00	1 - 3	50%		N/A
5/21/2015	2220	13.00	0	100%		N/A
5/21/2015	2250	14.00	1 - 3	95%		N/A
5/21/2015	2250	13.00	1 - 3	100%		N/A
5/21/2015	2320	13.00	1 - 3	95%		N/A
5/21/2015	2350	11.00	1 - 3	0%		N/A
5/21/2015	20	10.00	1 - 3	0%		N/A
5/21/2015	50	10.00	1 - 3	0%		N/A
5/21/2015	120	10.00	1 - 3	0%		N/A
5/22/2015	2010	15.00	0	10%		N/A
5/22/2015	2050	13.00	0	5%		N/A
5/22/2015	2120	13.00	0	0%		N/A
5/22/2015	2150	12.00	0	0%		N/A
5/22/2015	2220	11.00	0	0%		N/A
5/22/2015	2250	9.00	0	0%	Cold out	Cold Out
5/23/2015	2020	16.00	1 - 3	5%		N/A
5/23/2015	2050	14.00	1 - 3	5%		N/A
5/23/2015	2120	15.00	1 - 3	0%		N/A
5/23/2015	2150	15.00	1 - 3	0%		N/A
5/23/2015	2220	14.00	1 - 3	0%		N/A
5/23/2015	2250	13.00	1 - 3	0%		N/A
5/23/2015	2320	12.00	0	0%		N/A
5/23/2015	2350	12.00	1 - 3	0%		N/A
5/23/2015	20	11.00	1 - 3	0%		N/A
5/23/2015	50	10.00	1 - 3	0%		N/A
5/23/2015	125	10.00	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Road corridor through pine plantation

Permitted Biologist Jennifer Dreibelbis
Federal Permit # TE38842A-3
WV State Permit# 2015.035
VA State Permit# N/A T&E 54100
Other Field Staff Vance Nepomuceno

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM363A	36° 52' 15.640" N	79° 24' 17.918" W	9	8	2045	145

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/27/2015	2045	22.30	0	0%		N/A
5/27/2015	2115	20.90	0	10%		N/A
5/27/2015	2145	20.00	0	10%		N/A
5/27/2015	2215	19.60	0	0%		N/A
5/27/2015	2245	19.30	0	0%		N/A
5/27/2015	2315	19.40	0	0%		N/A
5/27/2015	2345	19.30	0	0%		N/A
5/27/2015	15	19.40	1 - 3	0%		N/A
5/27/2015	45	19.00	0	0%		N/A
5/27/2015	115	18.60	0	0%		N/A
5/27/2015	145	18.40	0	0%		N/A
5/28/2015	2045	20.60	0	100%		N/A
5/28/2015	2115	19.60	0	100%		N/A
5/28/2015	2145	19.40	0	100%		N/A
5/28/2015	2215	19.00	0	100%		N/A
5/28/2015	2245	18.80	0	100%		N/A
5/28/2015	2315	18.40	0	50%		N/A
5/28/2015	2345	18.30	0	0%		N/A
5/28/2015	15	18.00	0	0%		N/A
5/28/2015	45	17.60	0	0%		N/A
5/28/2015	115	17.40	0	50%		N/A
5/28/2015	145	17.40	0	30%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Across trail over road rut. Pittsylvania County

Permitted Biologist Jeremy Sheets
Federal Permit # TE35518B-0
WV State Permit# 2015.135
VA State Permit# SC53786 T&E 053787
Other Field Staff Aimee Bjornstad

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM364A	36° 51' 37.418" N	79° 23' 52.933" W	6	9	1930	124

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/24/2015	2020	23.00	1 - 3	0%		N/A
5/24/2015	2120	19.00	0	0%		N/A
5/24/2015	2150	20.00	0	0%		N/A
5/24/2015	2220	19.00	0	0%		N/A
5/24/2015	2250	20.00	0	0%		N/A
5/24/2015	2250	18.00	0	0%		N/A
5/24/2015	2320	17.00	0	0%		N/A
5/24/2015	2350	17.00	0	0%		N/A
5/24/2015	20	16.00	0	0%		N/A
5/24/2015	50	18.00	1 - 3	0%		N/A
5/24/2015	120	18.00	1 - 3	0%		N/A
5/25/2015	2020	27.00	0	5%		N/A
5/25/2015	2050	21.00	0	0%		N/A
5/25/2015	2120	19.00	0	0%		N/A
5/25/2015	2150	17.00	0	0%		N/A
5/25/2015	2220	18.00	0	0%		N/A
5/25/2015	2320	17.00	0	0%		N/A
5/25/2015	20	17.00	0	0%		N/A
5/25/2015	50	17.00	1 - 3	0%		N/A
5/25/2015	120	18.00	0	0%		N/A
5/25/2015	2350	17.00	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement

Permitted Biologist Darwin Brack
Federal Permit # TE02373A-9
WV State Permit# 2015.209
VA State Permit# SC 050652 T&E 054097
Other Field Staff Dylan Little

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM365A	36° 51' 28.446" N	79° 23' 36.108" W	6	6	2000	100

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/18/2015	2000	23.60	4 - 7	50%		N/A
5/18/2015	2030	22.90	4 - 7	60%		N/A
5/18/2015	2100	22.30	1 - 3	60%		N/A
5/18/2015	2130	21.70	1 - 3	80%		N/A
5/18/2015	2200	21.30	0	100%		N/A
5/18/2015	2230	21.30	0	50%		N/A
5/18/2015	2300	20.40	0	0%		N/A
5/18/2015	2330	20.00	0	0%		N/A
5/18/2015	0	20.00	0	0%		N/A
5/18/2015	30	19.90	0	0%		N/A
5/18/2015	100	20.10	0	0%		N/A
5/19/2015	2000	23.20	0	10%		N/A
5/19/2015	2030	21.40	0	10%		N/A
5/19/2015	2100	20.20	0	0%		N/A
5/19/2015	2130	19.70	0	10%		N/A
5/19/2015	2200	19.30	0	0%		N/A
5/19/2015	2230	19.20	1 - 3	0%		N/A
5/19/2015	2300	18.40	0	0%		N/A
5/19/2015	2330	18.00	0	0%		N/A
5/19/2015	0	17.50	0	0%		N/A
5/19/2015	30	16.90	0	0%		N/A
5/19/2015	100	16.60	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Net over graveled access road through very young upland

Permitted Biologist Darwin Brack
Federal Permit # TE02373A-9
WV State Permit# 2015.209
VA State Permit# SC 050652 T&E 054097
Other Field Staff Dylan Little

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM366A	36° 51' 13.694" N	79° 23' 19.453" W	9	6	2000	100

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/20/2015	2000	18.60	0	20%		N/A
5/20/2015	2030	18.50	0	0%		N/A
5/20/2015	2100	17.90	0	0%		N/A
5/20/2015	2130	17.10	0	0%		N/A
5/20/2015	2200	16.70	0	0%		N/A
5/20/2015	2230	16.10	0	0%		N/A
5/20/2015	2300	18.20	8 - 12	0%		N/A
5/20/2015	0	17.30	4 - 7	0%		N/A
5/20/2015	30	17.00	4 - 7	0%		N/A
5/20/2015	100	16.60	4 - 7	0%		N/A
5/21/2015	2000	14.90	0	80%		N/A
5/21/2015	2100	13.20	1 - 3	70%		N/A
5/21/2015	2130	12.70	0	70%		N/A
5/21/2015	2200	12.00	0	70%		N/A
5/21/2015	2230	13.80	0	80%		N/A
5/21/2015	2230	12.30	0	80%		N/A
5/21/2015	2300	13.00	0	90%		N/A
5/21/2015	2330	12.50	1 - 3	70%		N/A
5/21/2015	0	11.40	1 - 3	10%		N/A
5/21/2015	30	10.90	0	0%		N/A
5/21/2015	100	11.70	4 - 7	10%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Corridor along field edge.

Permitted Biologist Jennifer Dreibelbis
Federal Permit # TE38842A-3
WV State Permit# 2015.035
VA State Permit# N/A T&E 54100
Other Field Staff Ben Benfer

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM368A	36° 50' 29.441" N	79° 22' 4.234" W	18	8	2040	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/21/2015	2040	13.40	0	10%		N/A
5/21/2015	2110	13.00	0	20%		N/A
5/21/2015	2140	12.80	0	20%		N/A
5/21/2015	2210	12.40	0	30%		N/A
5/21/2015	2240	12.50	0	100%		N/A
5/21/2015	2310	12.60	0	50%		N/A
5/21/2015	2340	13.30	8 - 12	20%		N/A
5/21/2015	10	12.80	4 - 7	0%		N/A
5/21/2015	40	12.00	4 - 7	0%		N/A
5/21/2015	110	10.90	4 - 7	0%		N/A
5/21/2015	140	10.60	0	0%		N/A
5/22/2015	2045	12.80	0	0%		N/A
5/22/2015	2115	11.80	0	0%		N/A
5/22/2015	2145	11.40	0	0%		N/A
5/22/2015	2215	10.70	0	0%		N/A
5/22/2015	2245	10.40	0	0%		N/A
5/22/2015	2315	10.20	1 - 3	0%		N/A
5/22/2015	2345	9.90	0	0%	Cold out at 2345 on May 22	Cold Out
5/22/2015	15	9.40	0	0%	Cold out	Cold Out
5/23/2015	2045	15.70	0	0%		N/A
5/23/2015	2115	14.70	0	0%		N/A
5/23/2015	2145	13.70	0	0%		N/A
5/23/2015	2215	13.60	0	0%		N/A
5/23/2015	2315	12.40	0	0%		N/A
5/23/2015	2345	11.90	0	0%		N/A
5/23/2015	15	11.50	0	0%		N/A
5/23/2015	45	11.30	0	0%		N/A
5/23/2015	115	11.10	0	0%		N/A
5/23/2015	145	10.70	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Forested stream corridor

Permitted Biologist Jennifer Dreibelbis
Federal Permit # TE38842A-3
WV State Permit# 2015.035
VA State Permit# N/A T&E 54100
Other Field Staff Ethan Okon

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM369A	36° 50' 2.073" N	79° 21' 34.144" W	6	8	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/17/2015	2030	25.89	0	100%		N/A
5/17/2015	2100	22.38	0	100%		N/A
5/17/2015	2130	21.44	0	100%		N/A
5/17/2015	2200	21.00	0	100%		N/A
5/17/2015	2230	20.33	0	100%		N/A
5/17/2015	2300	20.16	0	100%		N/A
5/17/2015	2330	19.78	0	100%		N/A
5/17/2015	0	19.55	0	100%		N/A
5/17/2015	30	19.55	0	100%		N/A
5/17/2015	100	19.55	0	100%		N/A
5/17/2015	130	19.55	0	100%		N/A
5/18/2015	2030	24.22	4 - 7	100%		N/A
5/18/2015	2100	21.78	0	100%		N/A
5/18/2015	2130	21.50	0	100%		N/A
5/18/2015	2200	21.00	4 - 7	100%		N/A
5/18/2015	2230	21.28	0	100%		N/A
5/18/2015	2300	20.50	0	100%		N/A
5/18/2015	2330	20.06	0	100%		N/A
5/18/2015	0	20.00	0	100%		N/A
5/18/2015	30	20.39	0	100%		N/A
5/18/2015	100	20.39	0	100%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Road corridor through pine plantation

Permitted Biologist Jennifer Dreibelbis
Federal Permit # TE38842A-3
WV State Permit# 2015.035
VA State Permit# N/A T&E 54100
Other Field Staff Ben Benfer

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM370A	36° 49' 57.181" N	79° 21' 11.555" W	9	8	2040	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/15/2015	2040	18.06	0	5%	Humid	N/A
5/15/2015	2110	17.28	0	10%		N/A
5/15/2015	2140	17.28	0	10%		N/A
5/15/2015	2210	17.17	0	0%		N/A
5/15/2015	2240	16.56	0	0%		N/A
5/15/2015	2310	16.28	0	0%		N/A
5/15/2015	2340	16.17	0	0%		N/A
5/15/2015	10	15.78	0	0%		N/A
5/15/2015	40	15.16	0	0%		N/A
5/15/2015	110	15.33	0	0%		N/A
5/15/2015	140	15.17	0	0%		N/A
5/16/2015	2040	19.17	0	20%		N/A
5/16/2015	2110	18.17	0	15%		N/A
5/16/2015	2140	17.78	0	5%		N/A
5/16/2015	2210	17.56	0	5%		N/A
5/16/2015	2240	17.56	0	25%		N/A
5/16/2015	2310	17.50	0	10%		N/A
5/16/2015	2340	17.78	0	0%		N/A
5/16/2015	10	17.66	0	0%		N/A
5/16/2015	40	17.67	0	0%		N/A
5/16/2015	110	17.78	0	5%		N/A
5/16/2015	140	17.76	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Corridor within pine plantation

Permitted Biologist Jennifer Dreibelbis
Federal Permit # TE38842A-3
WV State Permit# 2015.035
VA State Permit# N/A T&E 54100
Other Field Staff Vance Nepomuceno

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM371A	36° 50' 0.197" N	79° 20' 24.288" W	12	8	2040	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/19/2015	2040	19.56	0	40%		N/A
5/19/2015	2110	19.00	0	0%		N/A
5/19/2015	2140	18.78	0	0%		N/A
5/19/2015	2210	17.78	0	0%		N/A
5/19/2015	2240	17.00	0	0%		N/A
5/19/2015	2310	16.72	0	0%		N/A
5/19/2015	2340	16.00	0	0%		N/A
5/19/2015	10	15.89	0	0%		N/A
5/19/2015	40	14.89	0	0%		N/A
5/19/2015	110	14.55	1 - 3	0%		N/A
5/19/2015	140	14.67	1 - 3	0%		N/A
5/20/2015	2040	16.89	0	0%		N/A
5/20/2015	2110	14.78	0	0%		N/A
5/20/2015	2140	13.78	0	0%		N/A
5/20/2015	2210	13.28	0	0%		N/A
5/20/2015	2240	15.23	4 - 7	0%		N/A
5/20/2015	2310	14.56	4 - 7	0%		N/A
5/20/2015	2340	16.00	8 - 12	0%		N/A
5/20/2015	10	15.78	4 - 7	0%		N/A
5/20/2015	40	15.78	4 - 7	0%		N/A
5/20/2015	110	15.50	1 - 3	0%		N/A
5/20/2015	140	16.39	8 - 12	60%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Roanoke
Net Placement Net stacked over stream corridor with trees along banks

Permitted Biologist Carme Ardito
Federal Permit # TE02373A-9
WV State Permit# 2015.203
VA State Permit# SC 050652 T&E 054097
Other Field Staff Dylan Little

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM415A	37° 17' 37.918" N	80° 13' 55.331" W	9	6	2015	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/2/2015	2015	17.20	4 - 7	100%	RAIN OUT at 2225 on 2 June 2015	Rain Out
6/3/2015	2000	19.80	4 - 7	100%		N/A
6/3/2015	2030	19.40	4 - 7	100%		N/A
6/3/2015	2041	19.20	4 - 7	100%	RAIN OUT at 2041 on 3 June 2015	Rain Out
6/4/2015	2000	17.50	1 - 3	100%		N/A
6/4/2015	2030	18.00	1 - 3	95%		N/A
6/4/2015	2100	17.20	1 - 3	100%		N/A
6/4/2015	2200	16.40	1 - 3	100%		N/A
6/4/2015	2230	16.10	4 - 7	100%		N/A
6/4/2015	2300	15.90	1 - 3	100%		N/A
6/4/2015	2330	16.20	1 - 3	100%		N/A
6/4/2015	0	16.10	1 - 3	100%		N/A
6/4/2015	30	16.10	1 - 3	100%		N/A
6/4/2015	100	15.90	1 - 3	100%		N/A
6/4/2015	130	15.70	1 - 3	100%		N/A
6/4/2015	200	16.00	1 - 3	100%		N/A
6/5/2015	2000	19.00	1 - 3	65%		N/A
6/5/2015	2030	17.90	4 - 7	75%		N/A
6/5/2015	2100	18.20	1 - 3	75%		N/A
6/5/2015	2130	18.00	1 - 3	80%		N/A
6/5/2015	2200	20.80	1 - 3	95%		N/A
6/5/2015	2230	20.40	0	50%		N/A
6/5/2015	2300	20.40	0	50%		N/A
6/5/2015	2330	20.40	1 - 3	20%		N/A
6/5/2015	0	20.50	0	100%		N/A
6/5/2015	30	20.50	1 - 3	100%		N/A
6/5/2015	100	20.30	1 - 3	100%	Foggy	N/A
6/5/2015	130	20.40	1 - 3	100%		N/A
6/5/2015	200	19.80	0	100%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Roanoke
Net Placement Net placed at entrance of ATV trail through woodlot

Permitted Biologist Carme Ardito
Federal Permit # TE02373A-9
WV State Permit# 2015.203
VA State Permit# SC 050652 T&E 054097
Other Field Staff Dylan Little

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM419A	37° 15' 54.422" N	80° 12' 55.470" W	9	9	2015	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/27/2015	2000	22.40	8 - 12	25%		N/A
5/27/2015	2030	21.10	4 - 7	30%		N/A
5/27/2015	2100	20.20	4 - 7	10%		N/A
5/27/2015	2130	19.50	4 - 7	15%		N/A
5/27/2015	2200	19.20	4 - 7	50%		N/A
5/27/2015	2230	18.90	4 - 7	35%		N/A
5/27/2015	2300	18.40	4 - 7	25%		N/A
5/27/2015	2330	17.90	4 - 7	15%		N/A
5/27/2015	0	17.70	4 - 7	5%		N/A
5/27/2015	30	17.50	8 - 12	0%		N/A
5/27/2015	100	17.40	8 - 12	5%		N/A
5/27/2015	130	12.30	8 - 12	0%		N/A
5/27/2015	145	17.00	4 - 7	0%		N/A
5/28/2015	2000	20.50	8 - 12	80%		N/A
5/28/2015	2030	20.30	8 - 12	75%		N/A
5/28/2015	2100	20.10	4 - 7	90%		N/A
5/28/2015	2130	20.10	4 - 7	75%		N/A
5/28/2015	2200	19.40	4 - 7	90%		N/A
5/28/2015	2230	19.60	4 - 7	70%		N/A
5/28/2015	2300	18.80	1 - 3	30%		N/A
5/28/2015	2330	18.60	1 - 3	10%		N/A
5/28/2015	0	18.10	4 - 7	15%		N/A
5/28/2015	30	17.80	1 - 3	10%		N/A
5/28/2015	100	17.60	1 - 3	15%		N/A
5/28/2015	130	18.10	4 - 7	10%		N/A
5/28/2015	200	18.00	1 - 3	20%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement Net stacked across wooded road through cow pasture near woodlot edge

Permitted Biologist Jeremy Van Deventer
Federal Permit # TE02373A-9
WV State Permit# 2015.218
VA State Permit# SC 050652 T&E 054097
Other Field Staff Savannah Shafer

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM449A	37° 13' 30.632" N	80° 11' 52.598" W	9	9	2005	115

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
8/13/2015	2000	20.60	1 - 3	15%		N/A
8/13/2015	2030	18.61	1 - 3	10%		N/A
8/13/2015	2100	18.00	1 - 3	15%		N/A
8/13/2015	2130	18.00	1 - 3	35%		N/A
8/13/2015	2200	17.30	1 - 3	35%		N/A
8/13/2015	2230	16.90	1 - 3	60%		N/A
8/13/2015	2300	16.10	1 - 3	0%		N/A
8/13/2015	2330	15.30	1 - 3	0%		N/A
8/13/2015	0	15.40	1 - 3	0%		N/A
8/13/2015	30	14.90	1 - 3	0%		N/A
8/13/2015	100	14.90	1 - 3	50%		N/A
8/13/2015	130	14.70	1 - 3	0%		N/A
8/14/2015	2000	22.30	1 - 3	80%		N/A
8/14/2015	2030	21.60	1 - 3	70%		N/A
8/14/2015	2100	21.50	1 - 3	70%		N/A
8/14/2015	2130	21.90	1 - 3	70%		N/A
8/14/2015	2200	20.10	1 - 3	0%		N/A
8/14/2015	2230	19.40	1 - 3	0%		N/A
8/14/2015	2300	19.40	1 - 3	0%		N/A
8/14/2015	2330	18.60	1 - 3	10%		N/A
8/14/2015	0	18.20	1 - 3	20%		N/A
8/14/2015	30	17.40	1 - 3	50%		N/A
8/14/2015	100	18.20	1 - 3	80%		N/A
8/14/2015	130	17.90	1 - 3	40%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Roanoke
Net Placement Stacked over ridge top road in upland oak, hickory and maple forest

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM452A	37° 11' 50.328" N	80° 10' 48.662" W	6	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/21/2015	2030	20.70	8 - 12	50%		N/A
7/21/2015	2100	20.50	8 - 12	80%		N/A
7/21/2015	2130	20.00	8 - 12	80%		N/A
7/21/2015	2200	19.80	4 - 7	20%		N/A
7/21/2015	2230	19.50	4 - 7	20%		N/A
7/21/2015	2300	19.30	8 - 12	10%		N/A
7/21/2015	2330	19.20	8 - 12	0%		N/A
7/21/2015	0	19.20	8 - 12	0%		N/A
7/21/2015	30	19.20	13 - 18	0%		N/A
7/21/2015	100	19.00	8 - 12	0%		N/A
7/21/2015	130	19.20	13 - 18	80%		N/A
7/22/2015	2030	21.00	1 - 3	30%		N/A
7/22/2015	2100	20.80	1 - 3	30%		N/A
7/22/2015	2130	20.30	4 - 7	40%		N/A
7/22/2015	2200	20.20	1 - 3	0%		N/A
7/22/2015	2230	19.60	1 - 3	0%		N/A
7/22/2015	2300	19.80	0	0%		N/A
7/22/2015	2330	20.00	0	0%		N/A
7/22/2015	0	19.80	1 - 3	0%		N/A
7/22/2015	30	19.30	8 - 12	0%		N/A
7/22/2015	100	19.50	13 - 18	0%		N/A
7/22/2015	130	19.40	4 - 7	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Roanoke
Net Placement On ATV trail on top of forested ridge.

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM453A	37° 11' 36.984" N	80° 10' 36.399" W	9	6	2045	145

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/21/2015	2030	20.60	13 - 18	0%		N/A
7/21/2015	2100	19.80	8 - 12	75%		N/A
7/21/2015	2130	19.60	13 - 18	0%		N/A
7/21/2015	2200	19.40	4 - 7	0%		N/A
7/21/2015	2230	18.90	4 - 7	0%		N/A
7/21/2015	2300	19.00	8 - 12	0%		N/A
7/21/2015	2330	18.80	8 - 12	0%		N/A
7/21/2015	0	18.90	4 - 7	0%		N/A
7/21/2015	30	18.90	4 - 7	0%		N/A
7/21/2015	100	18.40	0	0%		N/A
7/21/2015	130	18.30	8 - 12	100%	Sprinkle	N/A
7/22/2015	2030	20.50	0	50%		N/A
7/22/2015	2100	20.40	0	40%		N/A
7/22/2015	2130	20.10	1 - 3	35%		N/A
7/22/2015	2200	19.80	0	%	Can't determine cloud cover through canopy	N/A
7/22/2015	2230	19.60	1 - 3	0%		N/A
7/22/2015	2300	19.40	1 - 3	0%		N/A
7/22/2015	2330	19.50	0	0%		N/A
7/22/2015	0	19.40	1 - 3	0%		N/A
7/22/2015	30	19.00	8 - 12	0%		N/A
7/22/2015	100	19.20	8 - 12	0%		N/A
7/22/2015	130	19.10	1 - 3	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Roanoke
Net Placement Nets stacked over ephemeral pool in wooded corridor adjacent to gravel road

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM454A	37° 11' 16.036" N	80° 10' 24.941" W	18	6	2035	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/29/2015	2030	21.00	0	30%		N/A
7/29/2015	2100	20.80	1 - 3	25%		N/A
7/29/2015	2130	20.00	1 - 3	20%		N/A
7/29/2015	2200	19.80	1 - 3	13%		N/A
7/29/2015	2230	19.20	4 - 7	5%		N/A
7/29/2015	2300	19.00	4 - 7	10%		N/A
7/29/2015	2330	18.70	8 - 12	0%		N/A
7/29/2015	0	18.70	8 - 12	20%		N/A
7/29/2015	30	18.70	13 - 18	10%		N/A
7/29/2015	100	18.70	13 - 18	55%		N/A
7/29/2015	130	19.50	13 - 18	10%	Fog	N/A
7/30/2015	2030	20.00	4 - 7	22%		N/A
7/30/2015	2100	19.60	13 - 18	30%		N/A
7/30/2015	2130	18.60	13 - 18	30%		N/A
7/30/2015	2200	18.30	8 - 12	25%		N/A
7/30/2015	2230	17.80	8 - 12	25%		N/A
7/30/2015	2300	17.80	8 - 12	25%		N/A
7/30/2015	2330	17.20	4 - 7	10%		N/A
7/30/2015	0	17.10	4 - 7	10%		N/A
7/30/2015	30	17.00	8 - 12	5%		N/A
7/30/2015	100	17.20	8 - 12	20%		N/A
7/30/2015	130	17.30	4 - 7	10%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Roanoke
Net Placement On logging road on relatively recently logged early successional forest.

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM455A	37° 11' 23.242" N	80° 9' 15.844" W	9	9	2045	145

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/14/2015	2030	21.30	39 - 46	100%	Strong winds and lightning. Large storm moving in. Bad	Rain Out
7/15/2015	2030	19.00	0	50%		N/A
7/15/2015	2100	18.00	0	30%		N/A
7/15/2015	2130	17.10	1 - 3	0%		N/A
7/15/2015	2200	17.10	4 - 7	0%		N/A
7/15/2015	2230	17.50	4 - 7	0%		N/A
7/15/2015	2300	17.80	0	0%		N/A
7/15/2015	2330	16.70	1 - 3	50%		N/A
7/15/2015	0	17.00	4 - 7	85%		N/A
7/15/2015	30	16.80	0	90%		N/A
7/15/2015	100	16.90	0	100%		N/A
7/15/2015	100	17.60	0	100%		N/A
7/15/2015	130	16.70	0	100%		N/A
7/16/2015	2030	20.30	4 - 7	85%		N/A
7/16/2015	2100	19.20	4 - 7	100%		N/A
7/16/2015	2130	19.00	4 - 7	100%	Some fog	N/A
7/16/2015	2200	18.40	8 - 12	100%		N/A
7/16/2015	2230	18.40	4 - 7	100%		N/A
7/16/2015	2300	18.10	8 - 12	100%		N/A
7/16/2015	2330	17.60	8 - 12	100%		N/A
7/16/2015	0	17.50	8 - 12	100%		N/A
7/16/2015	30	17.30	8 - 12	100%		N/A
7/16/2015	100	16.50	1 - 3	50%		N/A
7/16/2015	130	16.50	8 - 12	75%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Net placed over stream Eastern deciduous forest

Permitted Biologist Shane Brodnick
Federal Permit # TE02373A-9
WV State Permit# 2015.198
VA State Permit# SC 050652 T&E 054097
Other Field Staff Keenan Mullins

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM457A	37° 6' 59.169" N	80° 3' 38.016" W	6	9	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/30/2015	2030	20.30	1 - 3	0%		N/A
5/30/2015	2100	19.50	1 - 3	0%		N/A
5/30/2015	2130	18.80	1 - 3	0%		N/A
5/30/2015	2200	18.30	0	0%		N/A
5/30/2015	2230	17.80	1 - 3	0%		N/A
5/30/2015	2300	17.90	1 - 3	0%		N/A
5/30/2015	2330	16.90	1 - 3	0%		N/A
5/30/2015	0	16.70	1 - 3	0%		N/A
5/30/2015	30	16.50	1 - 3	0%		N/A
5/30/2015	100	16.30	1 - 3	0%		N/A
5/30/2015	130	16.30	4 - 7	0%		N/A
5/31/2015	2030	20.70	1 - 3	20%		N/A
5/31/2015	2100	19.90	1 - 3	0%		N/A
5/31/2015	2130	19.20	1 - 3	20%		N/A
5/31/2015	2200	18.80	1 - 3	20%		N/A
5/31/2015	2230	18.20	1 - 3	20%		N/A
5/31/2015	2300	18.00	1 - 3	75%		N/A
5/31/2015	2330	17.80	1 - 3	50%		N/A
5/31/2015	0	16.70	1 - 3	40%		N/A
5/31/2015	100	16.30	1 - 3	40%		N/A
5/31/2015	130	16.20	1 - 3	50%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Net placed over old road-enclosed canopy

Permitted Biologist Michelle Gilley
Federal Permit # TE02373A-9
WV State Permit# 2015.212
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM458A	37° 6' 39.530" N	80° 3' 34.607" W	6	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/20/2015	2230	23.60	25 - 31	40%	Intermittent gusts of wind	N/A
6/20/2015	2300	23.80	32 - 38	30%	Very strong wind gusts-wind out	Wind Out
6/20/2015	2030	18.70	0	100%	Drizzle	N/A
6/20/2015	2100	18.70	0	100%		N/A
6/21/2015	2130	20.00	0	100%		N/A
6/21/2015	2200	20.00	0	100%	Occasional, light breeze	N/A
6/21/2015	2230	20.00	4 - 7	100%		N/A
6/21/2015	2300	20.20	8 - 12	100%		N/A
6/21/2015	2330	20.20	1 - 3	100%		N/A
6/21/2015	0	20.40	8 - 12	100%		N/A
6/21/2015	30	20.80	8 - 12	100%		N/A
6/21/2015	140	21.20	8 - 12	100%		N/A
6/21/2015	2030	23.00	0	50%		N/A
6/21/2015	2100	22.50	0	50%		N/A
6/22/2015	2130	22.20	0	50%		N/A
6/22/2015	2200	22.20	0	50%	Very smoky	N/A
6/22/2015	2230	21.60	0	35%		N/A
6/22/2015	2300	21.20	0	35%		N/A
6/22/2015	2330	21.00	0	35%		N/A
6/22/2015	0	20.70	1 - 3	0%		N/A
6/22/2015	30	20.60	0	35%		N/A
6/22/2015	100	20.30	0	0%		N/A
6/22/2015	130	20.30	0	0%		N/A
6/20/2015	2100	24.90	19 - 24	50%	Intermittent gusts of wind	N/A
6/20/2015	2130	24.80	19 - 24	50%	Intermittent gusts of wind	N/A
6/20/2015	2200	23.40	19 - 24	50%	Intermittent gusts of wind	N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Across established road through forest

Permitted Biologist Rodger Rodriguez
Federal Permit # N/A
WV State Permit# 2015.041
VA State Permit# SC 050652 T&E 054097
Other Field Staff Justin Bower

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM460A	37° 6' 3.682" N	80° 2' 27.058" W	6	6	2015	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/15/2015	2030	26.00	0	0%		N/A
6/15/2015	2130	24.00	0	0%		N/A
6/15/2015	2200	26.00	0	0%		N/A
6/15/2015	2200	23.00	0	0%		N/A
6/15/2015	2230	23.00	0	0%		N/A
6/15/2015	2300	22.00	4 - 7	0%		N/A
6/15/2015	2330	22.00	1 - 3	0%		N/A
6/15/2015	0	22.00	1 - 3	0%		N/A
6/15/2015	30	22.00	8 - 12	0%		N/A
6/15/2015	100	22.00	1 - 3	0%		N/A
6/15/2015	130	22.00	4 - 7	0%		N/A
6/16/2015	2030	23.00	0	10%		N/A
6/16/2015	2100	22.00	0	10%		N/A
6/16/2015	2130	22.00	8 - 12	10%		N/A
6/16/2015	2200	22.00	0	0%		N/A
6/16/2015	2230	22.00	1 - 3	0%		N/A
6/16/2015	2300	22.00	4 - 7	0%		N/A
6/16/2015	2330	22.00	1 - 3	0%		N/A
6/16/2015	0	22.00	0	0%		N/A
6/16/2015	30	22.00	0	0%		N/A
6/16/2015	100	22.00	0	0%		N/A
6/16/2015	130	22.00	8 - 12	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement ATV trail leading to opening where house sits

Permitted Biologist Elise Merrill
Federal Permit # TE38842A-3
WV State Permit# 2015.23
VA State Permit# N/A T&E 54100
Other Field Staff Vance Nepomuceno

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM461A	37° 5' 40.516" N	80° 2' 0.770" W	6	8	2034	134

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/15/2015	2030	19.80	0	0%		N/A
5/15/2015	2100	19.00	0	0%		N/A
5/15/2015	2130	19.30	0	0%		N/A
5/15/2015	2200	17.90	0	0%		N/A
5/15/2015	2230	19.10	0	0%		N/A
5/15/2015	2300	19.20	0	0%		N/A
5/15/2015	2330	19.80	0	0%		N/A
5/15/2015	0	19.00	0	0%		N/A
5/15/2015	30	18.90	1 - 3	0%		N/A
5/15/2015	100	19.40	1 - 3	0%		N/A
5/15/2015	130	19.10	1 - 3	0%		N/A
5/16/2015	2030	23.80	0	40%		N/A
5/16/2015	2100	23.20	0	40%		N/A
5/16/2015	2130	23.40	1 - 3	40%		N/A
5/16/2015	2200	22.20	1 - 3	50%		N/A
5/16/2015	2230	23.00	1 - 3	85%		N/A
5/16/2015	2300	22.90	0	90%		N/A
5/16/2015	2330	22.80	1 - 3	90%		N/A
5/16/2015	0	22.70	0	85%		N/A
5/16/2015	30	22.40	0	55%		N/A
5/16/2015	100	22.30	0	85%		N/A
5/16/2015	120	22.40	0	75%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Stacked over logging road in upland oak and pine woodland

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM462A	37° 4' 58.493" N	80° 1' 1.689" W	6	6	2020	120

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
8/11/2015	2030	22.70	0	10%		N/A
8/11/2015	2100	22.10	0	10%		N/A
8/11/2015	2130	22.20	0	10%		N/A
8/11/2015	2200	21.80	0	0%		N/A
8/11/2015	2230	21.60	1 - 3	0%		N/A
8/11/2015	2300	20.90	1 - 3	0%		N/A
8/11/2015	2330	21.60	1 - 3	0%		N/A
8/11/2015	0	21.00	0	0%		N/A
8/11/2015	30	20.50	1 - 3	20. 899999618530 3%		N/A
8/11/2015	100	20.00	1 - 3	0%		N/A
8/11/2015	130	20.00	0	0%		N/A
8/12/2015	2020	22.20	1 - 3	20%		N/A
8/12/2015	2100	20.60	1 - 3	0%		N/A
8/12/2015	2130	20.70	0	10%		N/A
8/12/2015	2200	20.50	1 - 3	0%		N/A
8/12/2015	2230	20.70	0	0%		N/A
8/12/2015	2300	20.20	0	0%		N/A
8/12/2015	2330	20.20	1 - 3	0%		N/A
8/12/2015	0	19.50	1 - 3	0%		N/A
8/12/2015	30	19.60	1 - 3	0%		N/A
8/12/2015	100	17.60	1 - 3	0%		N/A
8/12/2015	120	18.80	1 - 3	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Over forested road and vernal pool

Permitted Biologist Elise Merrill
Federal Permit # TE38842A-3
WV State Permit# 2015.23
VA State Permit# N/A T&E 54100
Other Field Staff Ben Benfer

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM463A	37° 5' 24.676" N	80° 0' 51.397" W	12	8	2034	0

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/17/2015	2030	20.90	0	75%		N/A
5/17/2015	2100	20.10	0	60%		N/A
5/17/2015	2130	19.90	0	85%		N/A
5/17/2015	2200	19.90	0	60%		N/A
5/17/2015	2230	20.10	0	35%		N/A
5/17/2015	2300	19.80	0	60%		N/A
5/17/2015	2330	19.60	0	35%		N/A
5/17/2015	0	19.50	1 - 3	80%		N/A
5/17/2015	30	19.40	1 - 3	90%		N/A
5/17/2015	100	19.30	0	85%		N/A
5/17/2015	130	19.40	0	80%		N/A
5/18/2015	2035	20.90	1 - 3	40%		N/A
5/18/2015	2105	20.50	0	55%		N/A
5/18/2015	2135		<null>	%		N/A
5/18/2015	2135	20.50	0	65%		N/A
5/18/2015	2205	20.40	1 - 3	20%		N/A
5/18/2015	2230	20.40	1 - 3	15%		N/A
5/18/2015	2305	20.20	4 - 7	35%		N/A
5/18/2015	2335	20.30	4 - 7	15%		N/A
5/18/2015	5	20.10	4 - 7	30%		N/A
5/18/2015	35	21.80	4 - 7	15%		N/A
5/18/2015	105	20.80	0	5%		N/A
5/18/2015	128	20.30	0	55%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Forest trail

Permitted Biologist Brian Cooper
Federal Permit # TE38842A-3
WV State Permit# 2015.034
VA State Permit# N/A T&E 54100
Other Field Staff Ethan Okon

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM464A	37° 5' 26.200" N	80° 0' 12.589" W	9	8	2030	0

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/21/2015	2030	14.80	1 - 3	80%		N/A
5/21/2015	2100	14.60	1 - 3	75%		N/A
5/21/2015	2130	14.30	1 - 3	80%		N/A
5/21/2015	2200	13.10	1 - 3	80%		N/A
5/21/2015	2200	12.80	1 - 3	70%		N/A
5/21/2015	2230	12.30	1 - 3	60%		N/A
5/21/2015	2300	12.30	8 - 12	10%		N/A
5/21/2015	2330	12.00	4 - 7	0%		N/A
5/21/2015	0	11.80	8 - 12	0%		N/A
5/21/2015	30	11.60	4 - 7	0%		N/A
5/21/2015	100	11.70	1 - 3	0%		N/A
5/21/2015	130	11.30	1 - 3	0%		N/A
5/22/2015	2030	15.20	1 - 3	10%		N/A
5/22/2015	2100	13.60	1 - 3	0%		N/A
5/22/2015	2130	12.90	1 - 3	0%		N/A
5/22/2015	2200	12.50	1 - 3	0%		N/A
5/22/2015	2230	11.90	1 - 3	0%		N/A
5/22/2015	2300	11.60	1 - 3	0%		N/A
5/22/2015	2330	11.60	0	0%		N/A
5/22/2015	0	11.60	0	0%		N/A
5/22/2015	30	11.40	0	0%		N/A
5/22/2015	100	12.40	1 - 3	0%		N/A
5/22/2015	130	12.60	1 - 3	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Franklin County, across stream. No bats.

Permitted Biologist Jeremy Sheets
Federal Permit # TE35518B-0
WV State Permit# 2015.135
VA State Permit# SC53786 T&E 053787
Other Field Staff Aimee Bjornstad

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM465A	37° 5' 26.692" N	79° 59' 24.729" W	6	9	2000	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/27/2015	2030	25.00	0	0%		N/A
5/27/2015	2100	21.00	0	0%		N/A
5/27/2015	2130	20.00	0	0%		N/A
5/27/2015	2200	20.00	0	0%		N/A
5/27/2015	2230	19.00	0	0%		N/A
5/27/2015	2330	18.00	0	0%		N/A
5/27/2015	0	18.00	0	0%		N/A
5/27/2015	30	18.00	0	0%		N/A
5/27/2015	100	18.00	0	0%		N/A
5/27/2015	130	17.00	0	0%		N/A
5/28/2015	2030	23.00	0	50%		N/A
5/28/2015	2100	23.00	0	100%		N/A
5/28/2015	2130	21.00	0	100%		N/A
5/28/2015	2200	21.00	0	100%		N/A
5/28/2015	2230	20.00	0	100%		N/A
5/28/2015	2300	20.00	0	50%		N/A
5/28/2015	2330	20.00	0	90%		N/A
5/28/2015	0	19.00	0	100%		N/A
5/28/2015	30	19.00	0	95%		N/A
5/28/2015	100	19.00	0	100%		N/A
5/28/2015	130	19.00	0	50%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Across end of pond

Permitted Biologist John Hootman
Federal Permit # TE 62778B-0
WV State Permit# 2015.81
VA State Permit# SC 050652 T&E 054097
Other Field Staff Sara Estep

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM466-1A	37° 5' 53.257" N	79° 58' 37.993" W	9	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/29/2015	2030	21.11	1 - 3	80%		N/A
5/29/2015	2130	20.00	1 - 3	75%		N/A
5/29/2015	2230	18.90	0	50%		N/A
5/29/2015	2330	18.30	0	30%		N/A
5/30/2015	30	18.90	1 - 3	30%		N/A
5/30/2015	130	17.80	0	30%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Across logging road

Permitted Biologist John Hootman
Federal Permit # TE 62778B-0
WV State Permit# 2015.81
VA State Permit# SC 050652 T&E 054097
Other Field Staff Sara Estep

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM466A	37° 5' 22.140" N	79° 58' 36.905" W	9	6	2025	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/27/2015	2030	23.00	0	5%		N/A
5/27/2015	2130	20.00	0	5%		N/A
5/27/2015	2230	20.00	0	20%		N/A
5/27/2015	2330	20.00	0	5%		N/A
5/28/2015	2030	23.33	1 - 3	100%		N/A
5/28/2015	2100		<null>	%	Had to tear down due to landowner land dispute	N/A
5/28/2015	30	20.00	0	0%		N/A
5/28/2015	130	19.67	0	5%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Net placed over forested drive way.

Permitted Biologist Shane Brodnick
Federal Permit # TE02373A-9
WV State Permit# 2015.198
VA State Permit# SC 050652 T&E 054097
Other Field Staff Keena Mullins

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM467A	37° 5' 32.451" N	79° 58' 18.155" W	6	9	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/10/2015	2030	25.60	1 - 3	70%		N/A
6/10/2015	2100	24.30	0	50%		N/A
6/10/2015	2130	21.20	1 - 3	20%		N/A
6/10/2015	2200	20.90	1 - 3	20%		N/A
6/10/2015	2230	20.40	1 - 3	10%		N/A
6/10/2015	2300	20.40	1 - 3	10%		N/A
6/10/2015	2330	20.10	4 - 7	0%		N/A
6/10/2015	0	19.50	1 - 3	10%		N/A
6/10/2015	30	19.50	1 - 3	10%		N/A
6/10/2015	100	19.10	1 - 3	0%		N/A
6/10/2015	130	19.10	1 - 3	20%		N/A
6/11/2015	2030	23.40	0	20%		N/A
6/11/2015	2100	23.10	0	20%		N/A
6/11/2015	2130	22.80	0	20%		N/A
6/11/2015	2200	22.80	0	20%		N/A
6/11/2015	2230	22.50	0	20%		N/A
6/11/2015	2300	22.00	0	20%		N/A
6/11/2015	2330	21.60	0	15%		N/A
6/11/2015	0	21.30	0	15%		N/A
6/11/2015	30	20.90	0	10%		N/A
6/11/2015	100	21.00	0	10%		N/A
6/11/2015	130	20.80	0	10%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement On county road

Permitted Biologist Shawn McKinley
Federal Permit # N/A
WV State Permit# 2015.201
VA State Permit# SC 050652 T&E 054097
Other Field Staff Les Aaron

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM468A	37° 5' 7.298" N	79° 57' 24.261" W	6	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/24/2015	2030	18.70	0	60%		N/A
5/24/2015	2100	18.00	0	33%		N/A
5/24/2015	2130	17.70	0	50%		N/A
5/24/2015	2200	16.70	0	25%		N/A
5/24/2015	2230	16.50	1 - 3	30%		N/A
5/24/2015	2300	16.20	1 - 3	20%		N/A
5/24/2015	2330	16.10	0	40%		N/A
5/24/2015	0	15.80	1 - 3	10%		N/A
5/24/2015	30	15.20	1 - 3	0%		N/A
5/24/2015	100	14.60	1 - 3	0%		N/A
5/24/2015	130	14.20	0	0%		N/A
5/25/2015	2030	20.50	0	0%		N/A
5/25/2015	2100	20.10	0	0%		N/A
5/25/2015	2130	19.70	0	0%		N/A
5/25/2015	2200	17.70	0	10%		N/A
5/25/2015	2300	17.60	1 - 3	0%		N/A
5/25/2015	2330	17.10	0	20%		N/A
5/25/2015	0	16.80	1 - 3	60%		N/A
5/25/2015	30	15.90	0	50%		N/A
5/25/2015	100	15.20	0	50%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Edge of a pine plantation over a corn field

Permitted Biologist Elise Merrill
Federal Permit # TE38842A-3
WV State Permit# 2015.23
VA State Permit# N/A T&E 54100
Other Field Staff Jonathan Suever

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM469A	36° 54' 26.763" N	79° 28' 52.696" W	18	8	2050	150

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/24/2015	2045	20.10	0	15%		N/A
5/24/2015	2115	19.70	1 - 3	10%		N/A
5/24/2015	2145	17.60	0	0%		N/A
5/24/2015	2215	16.90	1 - 3	0%		N/A
5/24/2015	2245	15.90	1 - 3	0%		N/A
5/24/2015	2315	16.90	1 - 3	0%		N/A
5/24/2015	2345	16.70	0	0%		N/A
5/24/2015	15	16.80	1 - 3	0%		N/A
5/24/2015	45	16.20	0	15%		N/A
5/24/2015	115	18.50	1 - 3	10%		N/A
5/24/2015	145	18.40	4 - 7	10%		N/A
5/25/2015	2045	18.90	0	15%		N/A
5/25/2015	2115	18.30	0	10%		N/A
5/25/2015	2145	18.40	1 - 3	5%		N/A
5/25/2015	2215	18.20	1 - 3	0%		N/A
5/25/2015	2245	17.20	1 - 3	10%		N/A
5/25/2015	2315	17.50	0	20%		N/A
5/25/2015	2345	17.80	1 - 3	20%		N/A
5/25/2015	15	16.90	1 - 3	15%		N/A
5/25/2015	45	16.60	1 - 3	35%		N/A
5/25/2015	115	16.50	1 - 3	30%		N/A
5/25/2015	145	19.50	4 - 7	40%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Placed over Old Red Eye Road

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kiara Johnson

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM471A	36° 53' 59.873" N	79° 27' 27.695" W	12	6	2025	125

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/10/2015	2030	23.60	0	0%		N/A
6/10/2015	2100	21.30	0	0%		N/A
6/10/2015	2130	20.80	0	0%		N/A
6/10/2015	2200	20.30	0	0%		N/A
6/10/2015	2230	19.90	0	0%		N/A
6/10/2015	2300	19.20	0	0%		N/A
6/10/2015	2330	19.00	0	0%		N/A
6/10/2015	0	18.70	0	0%		N/A
6/10/2015	30	18.30	0	0%		N/A
6/10/2015	100	18.00	0	0%		N/A
6/10/2015	130	17.50	0	0%		N/A
6/9/2015	2030	21.50	0	20%		N/A
6/9/2015	2100	20.50	0	20%		N/A
6/9/2015	2130	20.00	0	20%		N/A
6/9/2015	2200	18.60	0	20%		N/A
6/9/2015	2230	18.40	0	20%		N/A
6/9/2015	2300	18.20	0	20%		N/A
6/9/2015	2330	17.80	0	15%		N/A
6/9/2015	0	17.50	0	15%		N/A
6/9/2015	30	16.90	0	10%		N/A
6/9/2015	100	16.80	0	10%		N/A
6/9/2015	130	16.50	0	10%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement An opening in fence row where it meets forest edge; on field edge

Permitted Biologist Elise Merrill
Federal Permit # TE38842A-3
WV State Permit# 2015.23
VA State Permit# N/A T&E 54100
Other Field Staff Vance Nepomuceno

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM472A	36° 50' 34.983" N	79° 21' 29.770" W	18	8	2050	150

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/21/2015	2045	14.00	0	33%		N/A
5/21/2015	2115	13.30	0	80%		N/A
5/21/2015	2145	13.00	0	40%		N/A
5/21/2015	2215	13.00	0	65%		N/A
5/21/2015	2245	13.40	0	90%		N/A
5/21/2015	2315	13.40	0	75%		N/A
5/21/2015	2345	13.90	4 - 7	15%		N/A
5/21/2015	15	13.80	4 - 7	0%		N/A
5/21/2015	45	13.10	4 - 7	100%		N/A
5/21/2015	115	11.90	4 - 7	0%		N/A
5/21/2015	145	11.00	4 - 7	0%		N/A
5/22/2015	2045	14.10	0	5%		N/A
5/22/2015	2115	11.70	0	7%		N/A
5/22/2015	2145	11.10	0	5%		N/A
5/22/2015	2215	10.70	0	7%		N/A
5/22/2015	2245	10.00	0	0%		N/A
5/22/2015	2315	9.80	0	0%	COLD OUT	Cold Out
5/23/2015	2045	15.10	0	10%		N/A
5/23/2015	2115	13.80	0	5%		N/A
5/23/2015	2145	13.20	0	0%		N/A
5/23/2015	2215	12.90	0	3%		N/A
5/23/2015	2245	12.10	0	4%		N/A
5/23/2015	2315	11.50	0	0%		N/A
5/23/2015	2345	11.00	0	0%		N/A
5/23/2015	15	11.20	0	0%		N/A
5/23/2015	45	10.70	0	0%		N/A
5/23/2015	115	10.40	0	0%		N/A
5/23/2015	145	10.20	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Forested field edge

Permitted Biologist Jennifer Dreibelbis
Federal Permit # TE38842A-3
WV State Permit# 2015.035
VA State Permit# N/A T&E 54100
Other Field Staff Ben Benfer

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM473A	36° 50' 13.985" N	79° 20' 46.741" W	18	8	2045	145

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/24/2015	2045	17.50	0	0%		N/A
5/24/2015	2115	16.00	0	0%		N/A
5/24/2015	2145	15.60	0	0%		N/A
5/24/2015	2215	15.30	0	0%		N/A
5/24/2015	2245	15.00	0	0%		N/A
5/24/2015	2315	14.70	0	0%		N/A
5/24/2015	2345	14.40	0	0%		N/A
5/24/2015	15	14.60	0	0%		N/A
5/24/2015	45	15.30	1 - 3	0%		N/A
5/24/2015	115	16.90	8 - 12	0%		N/A
5/24/2015	145	16.70	4 - 7	0%		N/A
5/25/2015	2045	20.50	0	0%		N/A
5/25/2015	2115	17.50	0	0%		N/A
5/25/2015	2145	16.50	0	0%		N/A
5/25/2015	2215	15.80	0	0%		N/A
5/25/2015	2315	15.30	0	0%		N/A
5/25/2015	2345	15.30	0	0%		N/A
5/25/2015	15	15.00	0	0%		N/A
5/25/2015	45	15.00	0	0%		N/A
5/25/2015	145	16.80	4 - 7	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Forest edge along power line

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kyle Price

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM474A	36° 50' 5.364" N	79° 19' 52.447" W	12	6	2010	110

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/24/2015	2000	19.44	0	0%		N/A
5/24/2015	2030	18.50	0	0%		N/A
5/24/2015	2100	18.00	0	0%		N/A
5/24/2015	2130	17.22	0	0%		N/A
5/24/2015	2200	17.22	0	0%		N/A
5/24/2015	2230	16.11	0	0%	A little hazy and humid	N/A
5/25/2015	2300	16.11	0	0%		N/A
5/25/2015	2330	15.56	0	0%		N/A
5/25/2015	0	15.56	0	0%		N/A
5/25/2015	1	15.00	4 - 7	0%		N/A
5/25/2015	30	15.56	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Roanoke
Net Placement Stacked over gravel road on top of ridge in upland oak and maple forest

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM482A	37° 11' 3.767" N	80° 9' 39.301" W	9	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/16/2015	2030	18.00	1 - 3	100%	Foggy	N/A
7/16/2015	2100	18.00	4 - 7	100%	Foggy	N/A
7/16/2015	2130	17.80	4 - 7	100%	Foggy	N/A
7/16/2015	2200	17.60	4 - 7	100%	Foggy	N/A
7/16/2015	2230	17.44	4 - 7	90%		N/A
7/16/2015	2300	16.80	8 - 12	100%	Foggy	N/A
7/16/2015	2330	16.20	8 - 12	100%		N/A
7/16/2015	2330	16.80	8 - 12	100%		N/A
7/16/2015	0	16.80	13 - 18	100%		N/A
7/16/2015	0	16.80	4 - 7	100%		N/A
7/16/2015	30	16.50	8 - 12	50%		N/A
7/16/2015	100	15.70	8 - 12	0%		N/A
7/16/2015	130	16.00	4 - 7	50%	Stars came out for about 20 minutes	N/A
7/17/2015	2030	20.50	8 - 12	5%		N/A
7/17/2015	2100	20.20	8 - 12	5%		N/A
7/17/2015	2130	20.00	8 - 12	5%		N/A
7/17/2015	2200	20.00	13 - 18	5%		N/A
7/17/2015	2230	19.80	13 - 18	0%		N/A
7/17/2015	2300	20.10	13 - 18	80%		N/A
7/17/2015	2330	20.20	13 - 18	95%		N/A
7/17/2015	0	20.10	13 - 18	90%		N/A
7/17/2015	30	20.20	8 - 12	100%		N/A
7/17/2015	100	20.00	19 - 24	50%		N/A
7/17/2015	130	20.00	19 - 24	45%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Roanoke
Net Placement Wooded corridor

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM484A	37° 8' 17.846" N	80° 7' 50.609" W	9	6	2030	150

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/12/2015	2000		<null>	%	RAIN OUT	Rain Out
7/14/2015	2130	20.50	25 - 31	89%		N/A
7/14/2015	2200	19.70	19 - 24	100%		N/A
7/14/2015	2230	19.80	19 - 24	100%		N/A
7/14/2015	2300	18.70	19 - 24	100%		N/A
7/14/2015	2330	18.10	19 - 24	50%		N/A
7/14/2015	0	18.10	25 - 31	50%		N/A
7/14/2015	30	18.20	13 - 18	80%		N/A
7/14/2015	100	18.00	13 - 18	75%		N/A
7/14/2015	130	17.80	4 - 7	0%		N/A
7/15/2015	2030	20.00	0	0%		N/A
7/15/2015	2100	19.60	0	0%		N/A
7/15/2015	2130	19.00	0	0%		N/A
7/15/2015	2200	18.10	0	0%		N/A
7/15/2015	2230	18.60	0	5%		N/A
7/15/2015	2300	17.80	0	0%		N/A
7/15/2015	2330	18.05	1 - 3	60%		N/A
7/15/2015	0	18.05	1 - 3	80%		N/A
7/15/2015	30	18.20	1 - 3	90%		N/A
7/15/2015	100	18.70	0	80%		N/A
7/15/2015	130	18.30	0	100%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Over unimproved road

Permitted Biologist Shawn McKinley
Federal Permit # N/A
WV State Permit# 2015.201
VA State Permit# SC 050652 T&E 054097
Other Field Staff Les Aaron

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM485A	37° 7' 23.081" N	80° 6' 54.204" W	6	6	2035	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/28/2015	2035	20.00	0	50%		N/A
5/28/2015	2105	19.80	0	50%		N/A
5/28/2015	2135	19.70	0	45%		N/A
5/28/2015	2200	19.60	0	50%		N/A
5/28/2015	2230	18.40	1 - 3	30%		N/A
5/28/2015	2300	18.00	1 - 3	20%		N/A
5/28/2015	2330	17.40	0	25%		N/A
5/28/2015	0	17.00	1 - 3	45%		N/A
5/28/2015	30	16.50	0	60%		N/A
5/28/2015	100	15.90	4 - 7	75%		N/A
5/29/2015	2030	19.70	0	30%		N/A
5/29/2015	2100	18.70	0	10%		N/A
5/29/2015	2130	18.20	0	0%		N/A
5/29/2015	2200	18.20	0	0%		N/A
5/29/2015	2230	17.60	1 - 3	0%		N/A
5/29/2015	2300	16.30	0	0%		N/A
5/29/2015	2330	16.00	0	0%		N/A
5/29/2015	0	15.90	0	0%		N/A
5/29/2015	30	16.80	4 - 7	70%		N/A
5/29/2015	100	16.60	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Over stream

Permitted Biologist Shawn McKinley
Federal Permit # N/A
WV State Permit# 2015.201
VA State Permit# SC 050652 T&E 054097
Other Field Staff Les Aaron

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM486A	37° 6' 49.813" N	80° 5' 50.279" W	6	6	2020	120

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/15/2015	2030	14.60	0	0%		N/A
5/15/2015	2100	14.80	0	0%		N/A
5/15/2015	2130	14.60	0	0%		N/A
5/15/2015	2200	14.60	0	0%		N/A
5/15/2015	2230	13.30	0	0%		N/A
5/15/2015	2300	13.30	0	0%		N/A
5/15/2015	2330	13.00	0	45%		N/A
5/15/2015	0	12.80	0	50%		N/A
5/15/2015	30	12.80	0	40%		N/A
5/15/2015	100	12.70	1 - 3	40%		N/A
5/15/2015	130	12.80	0	60%		N/A
5/16/2015	2030	18.50	0	65%		N/A
5/16/2015	2100	18.20	0	80%		N/A
5/16/2015	2130	18.20	0	80%		N/A
5/16/2015	2200	18.20	0	80%		N/A
5/16/2015	2230	18.00	0	90%		N/A
5/16/2015	2300	17.70	0	90%		N/A
5/16/2015	2330	17.80	0	90%		N/A
5/16/2015	0	17.70	0	90%		N/A
5/16/2015	30	17.60	0	85%		N/A
5/16/2015	100	17.40	0	80%		N/A
5/16/2015	130	17.30	0	80%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Over forested driveway

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM487A	36° 59' 34.438" N	79° 43' 1.379" W	6	6	2025	125

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
8/7/2015	2015	20.70	4 - 7	100%	Overcast	N/A
8/7/2015	2045	20.10	4 - 7	100%		N/A
8/7/2015	2115	20.00	1 - 3	100%		N/A
8/7/2015	2145	20.00	1 - 3	85%		N/A
8/7/2015	2215	19.90	4 - 7	100%		N/A
8/7/2015	2245	20.00	0	100%		N/A
8/7/2015	2315	20.00	0	100%	Mist	N/A
8/7/2015	2345	19.90	0	100%		N/A
8/7/2015	15	19.80	0	100%		N/A
8/7/2015	115	20.00	0	100%		N/A
8/8/2015	2015	23.10	0	100%		N/A
8/8/2015	2045	21.50	0	0%		N/A
8/8/2015	2115	22.60	0	90%		N/A
8/8/2015	2145	22.00	0	0%		N/A
8/8/2015	2215	21.30	0	100%		N/A
8/8/2015	2245	21.30	0	100%		N/A
8/8/2015	2315	21.20	0	0%		N/A
8/8/2015	2345	20.70	0	0%		N/A
8/8/2015	15	20.60	0	0%		N/A
8/8/2015	45	20.30	0	0%		N/A
8/8/2015	115	20.30	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement In corridor leading into woods from pasture

Permitted Biologist Michelle Gilley
Federal Permit # TE02373A-9
WV State Permit# 2015.212
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM489A	36° 58' 53.994" N	79° 40' 30.935" W	9	9	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/15/2015	2030	25.60	0	0%		N/A
6/15/2015	2100	25.70	0	0%		N/A
6/15/2015	2130	25.70	0	0%		N/A
6/15/2015	2200	25.60	1 - 3	0%		N/A
6/15/2015	2230	25.70	1 - 3	0%		N/A
6/15/2015	2300	24.50	0	0%		N/A
6/15/2015	2330	24.30	1 - 3	0%		N/A
6/15/2015	0	24.30	1 - 3	0%		N/A
6/15/2015	30	24.10	0	0%		N/A
6/15/2015	100	23.30	0	0%		N/A
6/15/2015	130	23.30	0	0%		N/A
6/16/2015	2030	23.80	0	30%		N/A
6/16/2015	2100	23.30	0	20%		N/A
6/16/2015	2130	23.20	0	15%		N/A
6/16/2015	2200	23.80	4 - 7	5%		N/A
6/16/2015	2230	23.70	1 - 3	15%		N/A
6/16/2015	2300	23.20	1 - 3	5%		N/A
6/16/2015	2330	23.00	1 - 3	5%		N/A
6/16/2015	0	23.20	1 - 3	5%		N/A
6/16/2015	30	24.90	4 - 7	10%		N/A
6/16/2015	100	24.00	1 - 3	12%		N/A
6/16/2015	130	23.60	1 - 3	10%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Pittsylvania
Net Placement Across farm trail in wood lot in between two hay fields

Permitted Biologist John Hootman
Federal Permit # TE 62778B-0
WV State Permit# 2015.81
VA State Permit# SC 050652 T&E 054097
Other Field Staff Sara Estep

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM490A	36° 54' 41.145" N	79° 26' 45.829" W	9	6	2015	125

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/21/2015	2023	13.33	1 - 3	80%		N/A
5/21/2015	2123	13.00	1 - 3	90%		N/A
5/21/2015	2323	14.00	4 - 7	20%		N/A
5/22/2015	2025	16.67	0	0%		N/A
5/22/2015	2125	14.22	0	0%		N/A
5/22/2015	2225	13.90	0	5%		N/A
5/22/2015	2325	15.00	4 - 7	5%		N/A
5/21/2015	23	11.11	4 - 7	0%		N/A
5/21/2015	123	11.00	1 - 3	10%		N/A
5/22/2015	25	15.00	8 - 12	0%		N/A
5/22/2015	125	11.11	1 - 3	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Over Forest Service Road

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM562A	37° 23' 17.316" N	80° 41' 40.314" W	6	6	2025	125

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/29/2015	2020	20.00	4 - 7	100%	Rain out	Rain Out
5/30/2015	2030	20.80	4 - 7	0%		N/A
5/30/2015	2100	19.60	4 - 7	5%		N/A
5/30/2015	2130	19.20	1 - 3	0%		N/A
5/30/2015	2200	18.90	1 - 3	0%		N/A
5/30/2015	2230	18.70	4 - 7	0%		N/A
5/30/2015	2300	18.50	1 - 3	0%		N/A
5/30/2015	2330	18.30	1 - 3	0%		N/A
5/30/2015	0	18.20	1 - 3	0%		N/A
5/30/2015	0	16.30	1 - 3	10%		N/A
5/30/2015	30	17.90	4 - 7	0%		N/A
5/30/2015	100	17.90	1 - 3	5%		N/A
5/30/2015	130	17.80	8 - 12	0%		N/A
5/31/2015	2030	19.00	0	85%		N/A
5/31/2015	2100	18.70	0	90%		N/A
5/31/2015	2130	17.90	0	30%		N/A
5/31/2015	2200	17.90	0	75%		N/A
5/31/2015	2230	17.80	0	10%		N/A
5/31/2015	2300	17.20	4 - 7	45%		N/A
5/31/2015	2330	17.00	0	90%		N/A
5/31/2015	30	16.20	0	0%		N/A
5/31/2015	100	15.90	4 - 7	35%		N/A
5/31/2015	130	15.60	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Stacked over Pocahontas road(FR)

Permitted Biologist Elise Merrill
Federal Permit # TE38842A-3
WV State Permit# 2015.23
VA State Permit# N/A T&E 54100
Other Field Staff Vance Nepomuceno

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM563A	37° 22' 55.532" N	80° 42' 25.063" W	9	8	2052	152

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/29/2015	2030		<null>	100%	RAIN OUT	Rain Out
5/30/2015	2045	19.80	0	15%		N/A
5/30/2015	2115	19.40	1 - 3	10%		N/A
5/30/2015	2145	18.70	0	5%		N/A
5/30/2015	2215	18.80	1 - 3	0%		N/A
5/30/2015	2245	18.50	1 - 3	0%		N/A
5/30/2015	2315	18.40	4 - 7	0%		N/A
5/30/2015	2345	18.10	1 - 3	0%		N/A
5/30/2015	15	18.20	1 - 3	10%		N/A
5/30/2015	45	18.00	0	15%		N/A
5/30/2015	115	17.70	0	0%		N/A
5/30/2015	145	18.10	0	0%		N/A
5/31/2015	2045	21.00	0	45%		N/A
5/31/2015	2115	18.30	0	60%		N/A
5/31/2015	2145	18.00	0	70%		N/A
5/31/2015	2245	16.80	0	20%		N/A
5/31/2015	2315	16.50	1 - 3	60%		N/A
5/31/2015	2345	16.40	1 - 3	30%		N/A
5/31/2015	15	16.30	1 - 3	25%		N/A
5/31/2015	45	16.00	1 - 3	15%		N/A
5/31/2015	145	15.90	1 - 3	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Net placed on forested access road under canopy cover

Permitted Biologist Carme Ardito
Federal Permit # TE02373A-9
WV State Permit# 2015.203
VA State Permit# SC 050652 T&E 054097
Other Field Staff Dylan Little

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM564A	37° 22' 54.428" N	80° 42' 53.043" W	9	6	2015	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/29/2015	2016	20.50	4 - 7	100%	RAIN OUT 2016 29 May 2015	Rain Out
5/30/2015	2000	21.20	4 - 7	20%		N/A
5/30/2015	2030	20.50	1 - 3	15%		N/A
5/30/2015	2100	19.80	1 - 3	10%		N/A
5/30/2015	2130	18.90	1 - 3	5%		N/A
5/30/2015	2200	18.00	1 - 3	0%		N/A
5/30/2015	2230	18.10	1 - 3	5%		N/A
5/30/2015	2300	17.70	1 - 3	0%		N/A
5/30/2015	2330	17.20	1 - 3	0%		N/A
5/30/2015	0	17.10	1 - 3	10%		N/A
5/30/2015	30	16.80	1 - 3	20%		N/A
5/30/2015	100	15.80	0	0%		N/A
5/30/2015	130	15.30	1 - 3	0%		N/A
5/31/2015	2000	22.50	1 - 3	80%		N/A
5/31/2015	2030	21.00	1 - 3	55%		N/A
5/31/2015	2100	20.40	1 - 3	35%		N/A
5/31/2015	2130	19.20	1 - 3	50%		N/A
5/31/2015	2200	18.60	1 - 3	55%		N/A
5/31/2015	2230	17.30	1 - 3	25%		N/A
5/31/2015	2300	16.60	1 - 3	70%		N/A
5/31/2015	2330	16.00	1 - 3	50%		N/A
5/31/2015	0	15.80	0	70%		N/A
5/31/2015	30	15.20	0	50%		N/A
5/31/2015	100	15.10	0	20%		N/A
5/31/2015	130	14.80	0	10%		N/A
5/31/2015	200	14.50	0	5%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Over forest road

Permitted Biologist John Hootman
Federal Permit # TE 62778B-0
WV State Permit# 2015.81
VA State Permit# SC 050652 T&E 054097
Other Field Staff Sara Estep

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM565A	37° 22' 49.131" N	80° 43' 5.987" W	12	6	2030	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
5/30/2015	2037	23.00	4 - 7	10%		N/A
5/30/2015	2133	18.00	4 - 7	0%		N/A
5/30/2015	2237	17.00	8 - 12	0%		N/A
5/31/2015	2037	20.00	4 - 7	60%		N/A
5/31/2015	2137	18.00	4 - 7	45%		N/A
5/31/2015	2237	18.00	1 - 3	20%		N/A
5/31/2015	2337	18.00	1 - 3	40%		N/A
5/31/2015	34	12.00	4 - 7	20%		N/A
5/31/2015	124	12.00	0	10%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Over forested gravel road near powerline ROW

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM566A	37° 22' 29.638" N	80° 43' 38.840" W	9	9	2045	145

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/26/2015	2030	24.70	1 - 3	0%		N/A
6/26/2015	2100	22.60	1 - 3	0%		N/A
6/26/2015	2130	21.60	0	0%		N/A
6/26/2015	2200	21.40	8 - 12	30%		N/A
6/26/2015	2230	22.00	13 - 18	50%		N/A
6/26/2015	2300	21.90	13 - 18	50%	Light rain; lightning	N/A
6/26/2015	2330	21.50	13 - 18	100%	Moderate to heavy rain; RAIN OUT	Rain Out
6/27/2015	2030	19.80	1 - 3	75%		N/A
6/27/2015	2100	19.80	8 - 12	100%		N/A
6/27/2015	2130	19.20	25 - 31	100%	Light drizzle	N/A
6/27/2015	2200	18.80	39 - 46	100%	Strong wind.	N/A
6/27/2015	2230	19.30	39 - 46	100%	Very strong winds. WIND OUT	Wind Out
6/28/2015	2030	16.80	0	0%		N/A
6/28/2015	2100	15.00	1 - 3	5%		N/A
6/28/2015	2200	13.90	1 - 3	0%	Full moon	N/A
6/28/2015	2230	12.90	1 - 3	0%		N/A
6/28/2015	2300	12.80	4 - 7	0%		N/A
6/28/2015	2330	12.50	1 - 3	0%		N/A
6/28/2015	0	12.10	1 - 3	0%		N/A
6/28/2015	30	11.60	1 - 3	0%		N/A
6/28/2015	100	11.40	1 - 3	0%		N/A
6/28/2015	145	11.10	1 - 3	0%		N/A
6/29/2015	2030	20.00	0	0%		N/A
6/29/2015	2100	20.00	1 - 3	0%		N/A
6/29/2015	2130	19.80	1 - 3	0%		N/A
6/29/2015	2200	19.80	1 - 3	0%		N/A
6/29/2015	2230	19.70	0	0%		N/A
6/29/2015	2300	18.30	0	100%		N/A
6/29/2015	2330	18.30	0	100%		N/A
6/29/2015	0	18.70	0	100%		N/A
6/29/2015	30	19.20	1 - 3	100%		N/A
6/29/2015	100	19.20	4 - 7	100%		N/A
6/29/2015	130	19.60	4 - 7	100%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Over Forest Service road

Permitted Biologist Michelle Gilley
Federal Permit # TE02373A-9
WV State Permit# 2015.212
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM567A	37° 22' 16.034" N	80° 44' 11.249" W	9	9	2015	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/26/2015	2100	21.40	0	85%		N/A
6/26/2015	2130	21.20	1 - 3	100%		N/A
6/26/2015	2200	22.20	4 - 7	50%		N/A
6/26/2015	2230	22.30	8 - 12	80%	Distant lightning	N/A
6/26/2015	2300	22.10	1 - 3	100%		N/A
6/26/2015	2330	20.50	4 - 7	100%	Rain-out	Rain Out
6/27/2015	2030	19.70	0	60%		N/A
6/27/2015	2100	19.30	0	80%		N/A
6/27/2015	2130	19.20	13 - 18	100%		N/A
6/27/2015	2200	18.00	13 - 18	100%		N/A
6/27/2015	2230	17.60	13 - 18	40%		N/A
6/27/2015	2300	17.80	13 - 18	50%		N/A
6/27/2015	2330	16.30	0	70%		N/A
6/27/2015	0	16.00	1 - 3	85%		N/A
6/27/2015	30	16.20	8 - 12	35%		N/A
6/27/2015	100	15.70	13 - 18	30%		N/A
6/27/2015	130	14.80	4 - 7	60%		N/A
6/28/2015	2030	15.70	0	5%		N/A
6/28/2015	2100	15.20	0	0%		N/A
6/28/2015	2130	15.00	1 - 3	0%		N/A
6/28/2015	2200	14.60	0	0%		N/A
6/28/2015	2230	13.70	0	0%		N/A
6/28/2015	2300	13.80	1 - 3	0%		N/A
6/28/2015	2330	13.90	0	0%		N/A
6/28/2015	0	13.00	0	0%		N/A
6/28/2015	30	13.20	0	0%		N/A
6/28/2015	100	13.20	0	0%		N/A
6/28/2015	130	12.00	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Over Forest Service Road; forested gravel road

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM568A	37° 21' 56.862" N	80° 44' 55.988" W	6	6	2045	145

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/30/2015	2045	20.00	0	50%		N/A
6/30/2015	2115	20.00	4 - 7	100%	Thunder in distant	N/A
6/30/2015	2145	20.00	25 - 31	100%	Strong rain. Closed nets.	N/A
6/30/2015	2215	19.60	25 - 31	100%	RAIN OUT.	Rain Out
7/1/2015	2045	21.30	0	100%		N/A
7/1/2015	2115	21.00	0	100%		N/A
7/1/2015	2145	19.00	0	100%		N/A
7/1/2015	2215	18.80	0	100%		N/A
7/1/2015	2245	18.00	0	90%		N/A
7/1/2015	2315	18.50	0	100%		N/A
7/1/2015	2345	18.30	0	100%		N/A
7/1/2015	15	18.30	0	100%		N/A
7/1/2015	45	18.20	0	100%		N/A
7/1/2015	115	18.00	0	100%		N/A
7/1/2015	145	17.80	0	100%		N/A
7/2/2015	2030	23.30	0	50%		N/A
7/2/2015	2100	19.60	0	75%		N/A
7/2/2015	2130	19.10	0	100%		N/A
7/2/2015	2200	17.50	0	100%		N/A
7/2/2015	2230	17.20	0	100%		N/A
7/2/2015	2300	17.50	1 - 3	100%		N/A
7/2/2015	2330	17.50	0	100%		N/A
7/2/2015	0	17.60	0	100%		N/A
7/2/2015	30	17.10	0	100%		N/A
7/2/2015	100	16.70	0	100%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Stacked over access road

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Ben Ward

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM569A	37° 22' 53.429" N	80° 39' 59.455" W	6	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/26/2015	2030	23.30	0	80%		N/A
7/26/2015	2100	22.70	1 - 3	20%		N/A
7/26/2015	2130	21.70	1 - 3	0%		N/A
7/26/2015	2200	21.20	0	0%		N/A
7/26/2015	2230	21.10	0	0%		N/A
7/26/2015	2300	20.50	1 - 3	5%		N/A
7/26/2015	2330	21.00	1 - 3	10%		N/A
7/26/2015	0	20.70	1 - 3	10%		N/A
7/26/2015	30	20.10	1 - 3	0%		N/A
7/26/2015	100	19.80	1 - 3	40%		N/A
7/26/2015	130	19.80	1 - 3	37%		N/A
7/27/2015	2030	24.00	1 - 3	90%		N/A
7/27/2015	2100	23.33	1 - 3	80%		N/A
7/27/2015	2130	22.22	0	80%	Humid	N/A
7/27/2015	2200	21.80	0	90%		N/A
7/27/2015	2230	21.67	1 - 3	80%		N/A
7/27/2015	2300	21.30	1 - 3	30%		N/A
7/27/2015	2330	21.20	1 - 3	10%		N/A
7/27/2015	0	20.80	1 - 3	0%		N/A
7/27/2015	30	20.50	1 - 3	0%		N/A
7/27/2015	100	20.20	0	0%		N/A
7/27/2015	130	20.10	1 - 3	70%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Placed at entrance to trail

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM570A	37° 21' 31.995" N	80° 39' 50.215" W	9	6	2040	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
7/27/2015	2030	24.00	0	25%		N/A
7/27/2015	2100	23.50	0	0%		N/A
7/27/2015	2130	22.70	0	75%	Humid. No breeze	N/A
7/27/2015	2200	22.00	0	0%		N/A
7/27/2015	2230	21.80	0	0%		N/A
7/27/2015	2300	21.00	1 - 3	0%		N/A
7/27/2015	0	19.80	0	0%		N/A
7/27/2015	30	19.70	0	0%		N/A
7/27/2015	100	19.30	1 - 3	0%		N/A
7/27/2015	130	19.00	0	0%		N/A
7/29/2015	2030	25.50	1 - 3	75%		N/A
7/29/2015	2100	25.00	0	50%		N/A
7/29/2015	2130	23.90	0	65%		N/A
7/29/2015	2200	22.70	0	50%		N/A
7/29/2015	2230	22.50	0	50%		N/A
7/29/2015	2300	22.50	1 - 3	100%		N/A
7/29/2015	2330	22.30	0	75%		N/A
7/29/2015	0	21.10	0	75%		N/A
7/29/2015	30	21.00	1 - 3	45%		N/A
7/29/2015	100	20.00	0	25%		N/A
7/29/2015	130	20.00	0	100%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement On dirt trail intersecting forest

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM571A	37° 16' 36.949" N	80° 20' 3.271" W	6	6	2040	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/17/2015	2030	23.70	0	5%		N/A
6/17/2015	2100	25.20	0	5%		N/A
6/17/2015	2130	25.00	1 - 3	80%	Hear thunder in distance	N/A
6/17/2015	2200	25.50	8 - 12	100%	Lightning; took nets off. Strong storm approaching	N/A
6/17/2015	2215	24.00	13 - 18	100%	RAIN OUT at 2215; strong storm overhead	Rain Out
6/18/2015	2030	20.40	0	50%		N/A
6/18/2015	2100	19.70	0	100%		N/A
6/18/2015	2130	19.90	0	100%		N/A
6/18/2015	2200	19.70	0	100%		N/A
6/18/2015	2230	19.90	0	100%		N/A
6/18/2015	2300	19.90	0	100%		N/A
6/18/2015	2330	19.90	0	100%		N/A
6/18/2015	0	20.50	13 - 18	100%	Lightning overhead; closed nets	N/A
6/18/2015	30	20.00	13 - 18	100%	Lightning; moderate gusts; nets still closed	N/A
6/18/2015	45	20.00	13 - 18	100%	Light rain; RAIN OUT	Rain Out
6/19/2015	2030	22.20	0	0%		N/A
6/19/2015	2100	22.00	0	5%		N/A
6/19/2015	2130	20.90	0	0%		N/A
6/19/2015	2200	20.50	0	50%		N/A
6/19/2015	2230	20.30	0	45%		N/A
6/19/2015	2300	20.20	0	65%		N/A
6/19/2015	2330	20.00	0	25%		N/A
6/19/2015	0	19.80	0	25%		N/A
6/19/2015	30	19.30	0	0%		N/A
6/19/2015	100	19.30	0	10%		N/A
6/19/2015	130	19.10	0	0%		N/A
6/20/2015	2030	21.10	13 - 18	100%		N/A
6/20/2015	2100	20.90	25 - 31	100%	Wind out due to very strong winds	Wind Out
6/21/2015	2030	20.50	4 - 7	100%		N/A
6/21/2015	2100	19.40	4 - 7	75%		N/A
6/21/2015	2130	19.40	4 - 7	65%		N/A
6/21/2015	2200	19.10	8 - 12	75%		N/A
6/21/2015	2230	19.80	4 - 7	75%		N/A
6/21/2015	2300	19.40	4 - 7	75%		N/A
6/21/2015	2330	19.30	0	50%		N/A
6/21/2015	0	18.80	1 - 3	45%		N/A
6/21/2015	30	18.50	4 - 7	50%		N/A
6/21/2015	100	18.80	8 - 12	50%		N/A
6/21/2015	130	18.40	8 - 12	50%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement On gravel road that intersects forest

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM572A	37° 16' 29.001" N	80° 19' 47.275" W	9	9	2040	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/22/2015	2030	23.90	0	0%		N/A
6/22/2015	2100	23.70	0	0%		N/A
6/22/2015	2130	22.60	0	5%		N/A
6/22/2015	2200	22.40	0	10%		N/A
6/22/2015	2300	21.30	0	0%		N/A
6/22/2015	2330	20.90	0	0%		N/A
6/22/2015	0	20.60	0	0%		N/A
6/22/2015	30	20.80	0	0%		N/A
6/22/2015	100	20.60	0	0%		N/A
6/22/2015	130	20.40	0	0%		N/A
6/23/2015	2030	24.30	1 - 3	100%		N/A
6/23/2015	2100	23.80	4 - 7	100%		N/A
6/23/2015	2130	23.10	1 - 3	100%		N/A
6/23/2015	2200	23.00	4 - 7	100%		N/A
6/23/2015	2230	22.60	4 - 7	75%		N/A
6/23/2015	2300	22.40	4 - 7	85%		N/A
6/23/2015	2330	22.20	0	50%		N/A
6/23/2015	0	21.70	0	50%		N/A
6/23/2015	30	21.80	0	40%		N/A
6/23/2015	100	21.40	0	25%		N/A
6/23/2015	130	21.30	1 - 3	50%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement Nets stacked across forested trail

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kiara Johnson

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM573A	37° 15' 52.837" N	80° 14' 28.824" W	9	6	2035	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/15/2015	2000	24.44	0	5%		N/A
6/15/2015	2030	24.20	0	5%		N/A
6/15/2015	2100	24.00	1 - 3	5%		N/A
6/15/2015	2130	23.75	1 - 3	5%		N/A
6/15/2015	2200	23.33	1 - 3	5%		N/A
6/15/2015	2230	22.78	1 - 3	5%		N/A
6/15/2015	2300	22.22	0	5%		N/A
6/15/2015	2330	22.00	0	5%		N/A
6/15/2015	0	21.67	0	5%		N/A
6/15/2015	30	21.11	0	5%		N/A
6/15/2015	100	20.56	0	5%		N/A
6/15/2015	130	20.56	0	5%		N/A
6/16/2015	2000	23.33	0	95%	Humid, earlier pop up rain	N/A
6/16/2015	2030	22.22	0	95%		N/A
6/16/2015	2100	22.22	1 - 3	95%		N/A
6/16/2015	2130	22.22	0	95%	Small gust worked up 15 min. Ago, storm coming?	N/A
6/16/2015	2130	21.67	0	95%		N/A
6/16/2015	2200	22.00	1 - 3	95%		N/A
6/16/2015	2300	21.11	0	55%		N/A
6/16/2015	2330	20.50	1 - 3	45%		N/A
6/16/2015	0	20.50	1 - 3	40%		N/A
6/16/2015	30	20.50	1 - 3	10%		N/A
6/16/2015	100	20.50	1 - 3	5%		N/A
6/16/2015	130	20.50	1 - 3	5%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Montgomery
Net Placement Stacked over dirt road with wooded canopy

Permitted Biologist Chris Boggs
Federal Permit # TE02373A-9
WV State Permit# 2015.197
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM574A	37° 15' 56.052" N	80° 14' 46.430" W	12	6	2030	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
8/1/2015	2030	21.67	0	68%		N/A
8/1/2015	2100	21.00	0	50%		N/A
8/1/2015	2130	19.00	0	40%		N/A
8/1/2015	2200	18.87	0	40%		N/A
8/1/2015	2230	17.00	0	35%		N/A
8/1/2015	2300	17.00	0	30%		N/A
8/1/2015	2330	16.00	0	25%		N/A
8/1/2015	0	15.00	0	30%		N/A
8/1/2015	30	15.00	0	30%		N/A
8/1/2015	100	14.40	0	20%		N/A
8/1/2015	130	14.44	0	30%		N/A
8/2/2015	2030	21.11	0	20%		N/A
8/2/2015	2100	21.00	0	30%		N/A
8/2/2015	2130	19.00	0	20%		N/A
8/2/2015	2200	17.00	0	25%		N/A
8/2/2015	2300	17.00	0	25%		N/A
8/2/2015	2300	17.00	0	30%		N/A
8/2/2015	2330	16.00	0	0%		N/A
8/2/2015	0	14.80	0	0%		N/A
8/2/2015	30	14.80	0	0%		N/A
8/2/2015	100	14.28	0	10%		N/A
8/2/2015	130	14.26	0	10%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Franklin
Net Placement Over Maple Branch Creek

Permitted Biologist Valerie Clarkston
Federal Permit # TE02373A-9
WV State Permit# 2015.2
VA State Permit# SC 050652 T&E 054097
Other Field Staff Doug Gilbert

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM577A	37° 2' 35.867" N	79° 49' 24.182" W	9	9	2015	115

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
8/13/2015	2015	21.00	0	10%		N/A
8/13/2015	2045	20.90	0	0%		N/A
8/13/2015	2115	20.60	0	35%		N/A
8/13/2015	2145	18.80	1 - 3	0%		N/A
8/13/2015	2215	18.50	0	0%		N/A
8/13/2015	2245	18.00	1 - 3	0%		N/A
8/13/2015	2315	17.60	1 - 3	0%		N/A
8/13/2015	2345	17.10	1 - 3	0%		N/A
8/13/2015	15	16.70	1 - 3	0%		N/A
8/13/2015	45	16.60	1 - 3	0%		N/A
8/13/2015	115	16.00	0	0%		N/A
8/14/2015	2015	22.50	1 - 3	0%		N/A
8/14/2015	2045	20.70	0	0%		N/A
8/14/2015	2115	19.40	0	0%		N/A
8/14/2015	2145	19.20	0	0%		N/A
8/14/2015	2215	18.70	0	0%		N/A
8/14/2015	2245	18.20	0	0%		N/A
8/14/2015	2315	17.50	0	0%		N/A
8/14/2015	2345	16.50	0	0%		N/A
8/14/2015	15	16.10	0	0%		N/A
8/14/2015	45	16.00	0	0%		N/A
8/14/2015	115	15.80	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Nets stacked across forested trail on ridge top.

Permitted Biologist Carme Ardito
Federal Permit # TE02373A-9
WV State Permit# 2015.203
VA State Permit# SC 050652 T&E 054097
Other Field Staff Kiara Johnson

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM578A	37° 23' 52.988" N	80° 40' 54.803" W	6	9	2010	110

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
8/11/2015	2000	22.80	1 - 3	35%		N/A
8/11/2015	2030	21.70	1 - 3	10%		N/A
8/11/2015	2100	20.10	4 - 7	50%		N/A
8/11/2015	2130	20.10	4 - 7	65%		N/A
8/11/2015	2200	20.10	8 - 12	80%	Breeze is intermittent.	N/A
8/11/2015	2230	18.61	4 - 7	70%	Breeze is intermittent.	N/A
8/11/2015	2300	18.40	4 - 7	80%		N/A
8/11/2015	2330	18.00	4 - 7	20%		N/A
8/11/2015	0	17.90	1 - 3	10%		N/A
8/11/2015	30	17.90	1 - 3	50%		N/A
8/11/2015	100	17.80	4 - 7	40%		N/A
8/11/2015	130	17.60	1 - 3	35%		N/A
8/12/2015	2000	21.50	0	60%		N/A
8/12/2015	2030	20.70	1 - 3	70%		N/A
8/12/2015	2130	16.40	1 - 3	30%		N/A
8/12/2015	2200	16.00	0	25%		N/A
8/12/2015	2230	16.40	1 - 3	45%		N/A
8/12/2015	2300	16.40	1 - 3	15%		N/A
8/12/2015	2330	16.30	1 - 3	10%		N/A
8/12/2015	0	16.80	1 - 3	10%		N/A
8/12/2015	30	16.30	1 - 3	10%		N/A
8/12/2015	100	15.80	1 - 3	0%		N/A
8/12/2015	130	15.70	1 - 3	0%		N/A
8/12/2015	2100	18.00	1 - 3	75%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State Virginia
County Giles
Net Placement Net stacked over forested JNF road/trail

Permitted Biologist Jeremy Van Deventer
Federal Permit # TE02373A-9
WV State Permit# 2015.218
VA State Permit# SC 050652 T&E 054097
Other Field Staff Savannah Shafer

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	VA-KM579A	37° 23' 25.337" N	80° 40' 46.773" W	12	6	2015	115

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
8/11/2015	2000	20.40	13 - 18	60%		N/A
8/11/2015	2030	19.80	13 - 18	50%		N/A
8/11/2015	2100	19.20	8 - 12	50%		N/A
8/11/2015	2130	19.20	4 - 7	80%		N/A
8/11/2015	2200	19.00	4 - 7	100%	Light rain	N/A
8/11/2015	2230	18.40	13 - 18	85%		N/A
8/11/2015	2300	18.20	13 - 18	85%		N/A
8/11/2015	2330	18.00	13 - 18	20%		N/A
8/11/2015	0	17.80	8 - 12	20%		N/A
8/11/2015	30	17.70	8 - 12	20%		N/A
8/11/2015	100	17.80	8 - 12	20%		N/A
8/11/2015	130	17.70	8 - 12	20%		N/A
8/12/2015	2000	18.00	4 - 7	30%		N/A
8/12/2015	2030	18.10	4 - 7	20%		N/A
8/12/2015	2100	17.80	4 - 7	20%		N/A
8/12/2015	2130	17.40	1 - 3	0%		N/A
8/12/2015	2200	17.20	1 - 3	0%		N/A
8/12/2015	2230	17.00	1 - 3	0%		N/A
8/12/2015	2300	16.90	4 - 7	0%		N/A
8/12/2015	2330	16.80	4 - 7	0%		N/A
8/12/2015	0	16.50	4 - 7	0%		N/A
8/12/2015	30	16.20	4 - 7	0%		N/A
8/12/2015	100	15.90	4 - 7	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe
Net Placement Edge net over stream

Permitted Biologist Shawn McKinley
Federal Permit # N/A
WV State Permit# 2015.201
VA State Permit# SC 050652 T&E 054097
Other Field Staff Les Aaron

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM218A	37° 28' 11.200" N	80° 40' 33.597" W	6	6	2040	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/11/2015	2030	22.70	1 - 3	35%		N/A
6/11/2015	2100	21.50	0	35%		N/A
6/11/2015	2130	21.30	1 - 3	70%		N/A
6/11/2015	2200	20.00	1 - 3	20%		N/A
6/11/2015	2230	18.90	1 - 3	10%		N/A
6/11/2015	2300	18.50	1 - 3	10%		N/A
6/11/2015	2330	17.90	0	10%		N/A
6/11/2015	0	17.70	0	0%		N/A
6/11/2015	30	17.10	0	10%		N/A
6/11/2015	100	16.70	0	10%		N/A
6/11/2015	130	16.50	0	10%		N/A
6/9/2015	2030	17.50	0	30%		N/A
6/9/2015	2030	12.70	0	10%		N/A
6/9/2015	2100	16.90	1 - 3	35%		N/A
6/9/2015	2130	15.30	0	45%		N/A
6/9/2015	2200	14.70	0	40%		N/A
6/9/2015	2230	15.30	0	40%		N/A
6/9/2015	2300	14.90	0	40%		N/A
6/9/2015	2330	13.80	0	35%		N/A
6/9/2015	0	13.50	1 - 3	50%		N/A
6/9/2015	30	12.90	0	25%		N/A
6/9/2015	100	12.20	0	30%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe
Net Placement Net placed at entrance to old logging trail through woodlot from hayfield.

Permitted Biologist Carme Ardito
Federal Permit # TE02373A-9
WV State Permit# 2015.203
VA State Permit# SC 050652 T&E 054097
Other Field Staff Dylan Little

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM219A	37° 28' 4.736" N	80° 40' 37.832" W	12	6	2030	145

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/13/2015	2030	21.70	1 - 3	25%		N/A
6/13/2015	2100	21.10	0	40%		N/A
6/13/2015	2130	19.70	1 - 3	30%		N/A
6/13/2015	2200	20.30	1 - 3	60%		N/A
6/13/2015	2230	19.40	1 - 3	45%		N/A
6/13/2015	2300	19.90	1 - 3	25%		N/A
6/13/2015	2330	19.30	1 - 3	15%		N/A
6/13/2015	0	19.00	1 - 3	10%		N/A
6/13/2015	30	19.10	1 - 3	20%		N/A
6/13/2015	100	18.90	1 - 3	70%		N/A
6/13/2015	130	19.70	0	60%		N/A
6/13/2015	200	19.70	1 - 3	80%		N/A
6/14/2015	2030	25.90	1 - 3	5%		N/A
6/14/2015	2100	24.70	4 - 7	20%		N/A
6/14/2015	2130	23.90	1 - 3	30%		N/A
6/14/2015	2200	23.50	1 - 3	30%		N/A
6/14/2015	2230	22.30	1 - 3	25%		N/A
6/14/2015	2300	22.20	1 - 3	30%		N/A
6/14/2015	2330	22.10	1 - 3	5%		N/A
6/14/2015	0	21.20	1 - 3	0%		N/A
6/14/2015	30	21.00	0	10%		N/A
6/14/2015	100	21.00	1 - 3	15%		N/A
6/14/2015	130	20.80	0	5%		N/A
6/14/2015	200	19.60	0	5%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe
Net Placement Stacked over farm road

Permitted Biologist Doug Koziol
Federal Permit # TE38842A-3
WV State Permit# 2015.228
VA State Permit# N/A N/A
Other Field Staff Kodie Smith

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM220A	37° 27' 18.267" N	80° 39' 49.604" W	6	8	2055	158

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/7/2015	2100	23.00	13 - 18	20%		N/A
6/7/2015	2130	23.10	13 - 18	20%		N/A
6/7/2015	2200	21.30	13 - 18	0%		N/A
6/7/2015	2230	21.50	13 - 18	0%		N/A
6/7/2015	2300	20.50	13 - 18	0%		N/A
6/7/2015	2330	20.60	13 - 18	0%		N/A
6/7/2015	0	20.50	13 - 18	0%		N/A
6/7/2015	30	20.00	13 - 18	0%		N/A
6/7/2015	100	20.50	13 - 18	0%		N/A
6/7/2015	130	19.80	13 - 18	0%		N/A
6/7/2015	200	20.40	13 - 18	0%		N/A
6/8/2015	2130		<null>	%	RAIN OUT	Rain Out
6/9/2015	2100	17.00	1 - 3	10%		N/A
6/9/2015	2130	16.20	1 - 3	0%		N/A
6/9/2015	2200	15.30	1 - 3	0%		N/A
6/9/2015	2230	14.70	0	0%		N/A
6/9/2015	2300	14.30	0	0%		N/A
6/9/2015	2330	14.20	0	0%		N/A
6/9/2015	0	14.50	0	0%		N/A
6/9/2015	30	13.30	0	0%		N/A
6/9/2015	100	13.20	0	0%		N/A
6/9/2015	130	13.10	1 - 3	0%		N/A
6/9/2015	200	13.00	1 - 3	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe
Net Placement Stacked over farm road

Permitted Biologist Elise Merrill
Federal Permit # TE38842A-3
WV State Permit# 2015.23
VA State Permit# N/A T&E 54100
Other Field Staff Kat Cummings

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM221A	37° 27' 13.927" N	80° 39' 52.930" W	12	8	2055	155

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/7/2015	2100	23.00	13 - 18	20%		N/A
6/7/2015	2130	23.10	13 - 18	25%		N/A
6/7/2015	2200	21.30	13 - 18	5%		N/A
6/7/2015	2230	21.50	13 - 18	0%		N/A
6/7/2015	2300	20.50	13 - 18	10%		N/A
6/7/2015	2330	20.60	8 - 12	0%		N/A
6/7/2015	0	21.80	13 - 18	0%		N/A
6/7/2015	30	20.00	13 - 18	0%		N/A
6/7/2015	100	20.50	13 - 18	0%		N/A
6/7/2015	130	19.80	8 - 12	0%		N/A
6/7/2015	200	20.40	13 - 18	0%		N/A
6/9/2015	2100	17.00	0	20%		N/A
6/9/2015	2130	16.20	0	5%		N/A
6/9/2015	2200	15.30	0	0%		N/A
6/9/2015	2230	14.70	0	0%		N/A
6/9/2015	2300	14.30	0	0%		N/A
6/9/2015	2330	14.20	0	5%		N/A
6/9/2015	0	13.70	0	0%		N/A
6/9/2015	30	13.30	0	0%		N/A
6/9/2015	100	13.20	0	0%		N/A
6/9/2015	130	13.10	0	0%		N/A
6/9/2015	200	12.90	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe
Net Placement On a small ATV trail going up a mountain. Mature forest

Permitted Biologist Aaron Covalt
Federal Permit # TE38842A-3
WV State Permit# 2015.237
VA State Permit# N/A T&E 54100
Other Field Staff Amelia Goebel

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM222A	37° 26' 24.011" N	80° 40' 8.095" W	6	5	1830	130

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/7/2015	2035	20.80	8 - 12	20%		N/A
6/7/2015	2135	20.50	8 - 12	30%		N/A
6/7/2015	2135	20.40	8 - 12	30%		N/A
6/7/2015	2205	20.50	8 - 12	10%		N/A
6/7/2015	2235	20.40	13 - 18	0%		N/A
6/7/2015	2305	20.20	13 - 18	0%		N/A
6/7/2015	2335	20.30	13 - 18	0%		N/A
6/7/2015	5	20.10	13 - 18	0%		N/A
6/7/2015	35	20.40	13 - 18	0%		N/A
6/7/2015	105	19.80	13 - 18	0%		N/A
6/7/2015	135	20.20	13 - 18	0%		N/A
6/8/2015	2100		<null>	100%	RAIN OUT	Rain Out
6/9/2015	2035	19.10	0	10%		N/A
6/9/2015	2105	18.60	0	10%		N/A
6/9/2015	2135	18.30	0	0%		N/A
6/9/2015	2205	18.10	8 - 12	0%		N/A
6/9/2015	2235	16.50	0	0%		N/A
6/9/2015	2305	15.80	0	0%		N/A
6/9/2015	2335	15.10	0	0%		N/A
6/9/2015	5	14.80	0	0%		N/A
6/9/2015	35	14.50	0	0%		N/A
6/9/2015	105	14.20	0	0%		N/A
6/9/2015	135	14.00	1 - 3	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe
Net Placement Net placed at entrance to woodlot over trail leading to open pasture land on hillside

Permitted Biologist Carme Ardito
Federal Permit # TE02373A-9
WV State Permit# 2015.203
VA State Permit# SC 050652 T&E 054097
Other Field Staff Dylan Little

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM223A	37° 26' 27.198" N	80° 40' 46.893" W	9	6	2030	150

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/11/2015	2030	24.30	1 - 3	35%		N/A
6/11/2015	2100	23.40	0	40%		N/A
6/11/2015	2130	23.00	4 - 7	50%		N/A
6/11/2015	2200	22.40	4 - 7	25%		N/A
6/11/2015	2230	22.00	4 - 7	20%		N/A
6/11/2015	2300	21.90	1 - 3	0%		N/A
6/11/2015	2330	21.30	1 - 3	0%		N/A
6/11/2015	0	20.90	1 - 3	0%		N/A
6/11/2015	30	20.90	1 - 3	0%		N/A
6/11/2015	100	20.40	1 - 3	0%		N/A
6/11/2015	130	20.40	1 - 3	0%		N/A
6/11/2015	200	20.30	1 - 3	0%		N/A
6/12/2015	2030	24.80	4 - 7	25%		N/A
6/12/2015	2100	24.00	4 - 7	30%		N/A
6/12/2015	2130	23.60	1 - 3	15%		N/A
6/12/2015	2200	23.20	1 - 3	10%		N/A
6/12/2015	2230	22.50	1 - 3	25%		N/A
6/12/2015	2300	22.40	1 - 3	20%		N/A
6/12/2015	2330	22.10	1 - 3	30%		N/A
6/12/2015	0	22.00	4 - 7	40%		N/A
6/12/2015	30	21.90	4 - 7	40%		N/A
6/12/2015	100	21.60	4 - 7	30%		N/A
6/12/2015	130	21.40	1 - 3	45%		N/A
6/12/2015	200	21.10	1 - 3	40%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe

Permitted Biologist Carme Ardito
Federal Permit # TE02373A-9
WV State Permit# 2015.203
VA State Permit# SC 050652 T&E 054097
Other Field Staff Dylan Little

Net Placement Net stacked over ATV trail and small stream corridor through woodlot. Stream corridor runs parallel and directly adjacent to ATV trail

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM224A	37° 26' 10.644" N	80° 41' 31.388" W	12	9	2030	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/10/2015	2030	20.40	1 - 3	20%		N/A
6/10/2015	2100	20.10	1 - 3	75%		N/A
6/10/2015	2130	19.70	1 - 3	0%		N/A
6/10/2015	2200	19.20	0	10%		N/A
6/10/2015	2230	18.70	1 - 3	10%		N/A
6/10/2015	2300	18.20	0	55%		N/A
6/10/2015	2330	17.80	0	50%		N/A
6/10/2015	0	17.80	0	60%		N/A
6/10/2015	30	16.80	0	50%		N/A
6/10/2015	100	17.30	0	60%		N/A
6/10/2015	130	17.40	0	35%		N/A
6/10/2015	200	17.10	0	75%		N/A
6/9/2015	2030	19.20	4 - 7	50%		N/A
6/9/2015	2100	18.50	1 - 3	90%		N/A
6/9/2015	2130	17.90	1 - 3	20%		N/A
6/9/2015	2200	17.40	1 - 3	25%		N/A
6/9/2015	2230	16.70	1 - 3	0%		N/A
6/9/2015	2300	16.50	0	0%		N/A
6/9/2015	2330	15.70	1 - 3	0%		N/A
6/9/2015	0	15.30	0	0%		N/A
6/9/2015	30	15.10	0	0%		N/A
6/9/2015	100	14.60	0	0%		N/A
6/9/2015	130	14.50	0	0%		N/A
6/9/2015	200	13.90	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe
Net Placement Nets stacked over forested trail in woodlot

Permitted Biologist Jeremy Van Deventer
Federal Permit # TE02373A-9
WV State Permit# 2015.218
VA State Permit# SC 050652 T&E 054097
Other Field Staff Savannah Shafer

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM225A	37° 25' 30.295" N	80° 41' 35.482" W	6	6	2030	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/6/2015	2040	18.00	0	60%		N/A
6/6/2015	2100	18.00	0	35%		N/A
6/6/2015	2130	18.00	0	30%		N/A
6/6/2015	2200	18.00	0	20%		N/A
6/6/2015	2230	18.00	0	20%		N/A
6/6/2015	2300	18.00	0	20%		N/A
6/6/2015	0	18.00	1 - 3	10%		N/A
6/6/2015	30	17.00	1 - 3	10%		N/A
6/6/2015	100	17.00	1 - 3	0%		N/A
6/6/2015	130	17.00	1 - 3	0%		N/A
6/7/2015	2030	23.00	13 - 18	25%		N/A
6/7/2015	2100	22.00	13 - 18	20%		N/A
6/7/2015	2130	22.00	8 - 12	25%		N/A
6/7/2015	2200	22.00	8 - 12	20%		N/A
6/7/2015	2230	22.00	8 - 12	0%		N/A
6/7/2015	2300	21.00	8 - 12	0%		N/A
6/7/2015	2330	21.00	13 - 18	0%		N/A
6/7/2015	0	21.00	13 - 18	0%		N/A
6/7/2015	30	21.00	13 - 18	0%		N/A
6/7/2015	100	21.00	8 - 12	0%		N/A
6/7/2015	140	21.00	13 - 18	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe
Net Placement Net placed over green valley road under canopy

Permitted Biologist Jeremy Van Deventer
Federal Permit # TE02373A-9
WV State Permit# 2015.218
VA State Permit# SC 050652 T&E 054097
Other Field Staff Savannah Shafer

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM226A	37° 25' 21.262" N	80° 41' 22.690" W	6	6	2030	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/4/2015	2030	19.00	4 - 7	50%		N/A
6/4/2015	2100	18.00	4 - 7	50%		N/A
6/4/2015	2130	17.00	8 - 12	30%		N/A
6/4/2015	2200	17.00	8 - 12	20%		N/A
6/4/2015	2230	17.00	4 - 7	20%		N/A
6/4/2015	2300	17.00	1 - 3	30%		N/A
6/4/2015	2330	17.00	4 - 7	30%		N/A
6/4/2015	0	16.00	4 - 7	40%		N/A
6/4/2015	1	17.00	4 - 7	90%		N/A
6/4/2015	30	17.00	4 - 7	60%		N/A
6/4/2015	130	17.00	4 - 7	80%		N/A
6/5/2015	2030	19.00	1 - 3	60%		N/A
6/5/2015	2100	18.00	1 - 3	30%		N/A
6/5/2015	2130	18.00	1 - 3	70%		N/A
6/5/2015	2200	18.00	1 - 3	50%		N/A
6/5/2015	2230	17.00	8 - 12	10%		N/A
6/5/2015	2300	17.00	8 - 12	10%		N/A
6/5/2015	2330	17.00	4 - 7	15%		N/A
6/5/2015	0	16.00	4 - 7	15%		N/A
6/5/2015	1	16.00	4 - 7	25%		N/A
6/5/2015	30	16.00	4 - 7	15%		N/A
6/5/2015	140	15.00	4 - 7	25%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe
Net Placement In agriculture field

Permitted Biologist Shawn McKinley
Federal Permit # N/A
WV State Permit# 2015.201
VA State Permit# SC 050652 T&E 054097
Other Field Staff Les Aaron

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM227A	37° 24' 36.216" N	80° 42' 12.939" W	6	6	2035	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/6/2015	2030	19.10	1 - 3	25%		N/A
6/6/2015	2100	17.70	0	25%		N/A
6/6/2015	2130	17.40	0	25%		N/A
6/6/2015	2200	17.50	0	25%		N/A
6/6/2015	2230	18.50	0	30%		N/A
6/6/2015	2300	17.70	0	100%		N/A
6/6/2015	2330	17.30	0	50%		N/A
6/6/2015	0	17.90	0	50%		N/A
6/6/2015	30	18.80	1 - 3	40%		N/A
6/6/2015	100	18.50	0	35%		N/A
6/7/2015	2030	20.10	4 - 7	45%		N/A
6/7/2015	2100	20.00	8 - 12	50%		N/A
6/7/2015	2130	20.00	1 - 3	60%		N/A
6/7/2015	2200	19.20	8 - 12	40%		N/A
6/7/2015	2230	19.40	4 - 7	50%		N/A
6/7/2015	2300	19.20	4 - 7	50%		N/A
6/7/2015	2330	19.20	8 - 12	50%		N/A
6/7/2015	0	18.80	8 - 12	20%		N/A
6/7/2015	30	18.40	4 - 7	50%		N/A
6/7/2015	100	18.00	4 - 7	60%		N/A
6/7/2015	130	17.90	0	60%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe
Net Placement On the edge of a old field

Permitted Biologist Aaron Covalt
Federal Permit # TE38842A-3
WV State Permit# 2015.237
VA State Permit# N/A T&E 54100
Other Field Staff Kodie Smith

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM378A	37° 31' 58.802" N	80° 30' 49.755" W	12	8	2100	200

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/13/2015	2050	19.30	1 - 3	50%		N/A
6/13/2015	2120	18.90	1 - 3	50%		N/A
6/13/2015	2150	18.80	0	40%		N/A
6/13/2015	2220	18.50	0	30%		N/A
6/13/2015	2250	19.00	0	0%		N/A
6/13/2015	2320	18.70	0	0%		N/A
6/13/2015	2350	18.10	0	0%		N/A
6/13/2015	20	17.90	0	0%		N/A
6/13/2015	50	17.60	0	0%		N/A
6/13/2015	120	17.40	0	0%		N/A
6/13/2015	150	17.40	0	0%		N/A
6/14/2015	2050	21.80	0	50%		N/A
6/14/2015	2120	21.10	0	20%		N/A
6/14/2015	2150	20.90	0	10%		N/A
6/14/2015	2220	20.50	0	0%		N/A
6/14/2015	2250	19.90	0	0%		N/A
6/14/2015	2320	19.30	0	0%		N/A
6/14/2015	20	19.20	0	0%		N/A
6/14/2015	55	18.70	0	0%		N/A
6/14/2015	120	18.30	0	0%		N/A
6/14/2015	150	17.90	0	0%		N/A
6/14/2015	2350	19.10	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe
Net Placement Stacked over calm spot in creek

Permitted Biologist Doug Koziol
Federal Permit # TE38842A-3
WV State Permit# 2015.228
VA State Permit# N/A N/A
Other Field Staff Sean McLaughlin

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM379A	37° 31' 59.543" N	80° 30' 23.086" W	9	5	2100	200

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/15/2015	2100	21.00	0	50%		N/A
6/15/2015	2130	18.90	0	50%		N/A
6/15/2015	2200	18.70	0	0%		N/A
6/15/2015	2230	18.00	0	0%		N/A
6/15/2015	2300	17.80	0	0%		N/A
6/15/2015	2330	17.60	0	0%		N/A
6/15/2015	0	17.60	0	0%		N/A
6/15/2015	30	17.10	0	0%		N/A
6/15/2015	100	17.00	1 - 3	0%		N/A
6/15/2015	130	17.00	0	0%		N/A
6/15/2015	200	16.60	0	0%		N/A
6/16/2015	2100	20.70	0	70%		N/A
6/16/2015	2130	20.40	0	20%		N/A
6/16/2015	2200	19.70	0	10%		N/A
6/16/2015	2230	18.50	0	0%		N/A
6/16/2015	2300	18.70	0	0%		N/A
6/16/2015	2330	18.00	0	0%		N/A
6/16/2015	0	17.30	0	0%		N/A
6/16/2015	18	18.00	0	0%		N/A
6/16/2015	30	17.50	0	10%		N/A
6/16/2015	100	17.20	0	5%		N/A
6/16/2015	130	17.30	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe
Net Placement Stacked over old logging road

Permitted Biologist Doug Koziol
Federal Permit # TE38842A-3
WV State Permit# 2015.228
VA State Permit# N/A N/A
Other Field Staff Kat Cummings

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM380A	37° 31' 41.018" N	80° 30' 12.073" W	9	5	2043	145

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/13/2015	2100	19.70	1 - 3	50%		N/A
6/13/2015	2130	19.30	1 - 3	50%		N/A
6/13/2015	2200	19.00	1 - 3	50%		N/A
6/13/2015	2230	18.70	1 - 3	35%		N/A
6/13/2015	2300	18.60	4 - 7	10%		N/A
6/13/2015	2330	18.40	4 - 7	10%		N/A
6/13/2015	0	18.00	4 - 7	0%		N/A
6/13/2015	30	17.80	4 - 7	0%		N/A
6/13/2015	100	17.60	4 - 7	0%		N/A
6/13/2015	130	17.40	4 - 7	0%		N/A
6/14/2015	2100	21.20	1 - 3	10%		N/A
6/14/2015	2130	20.80	1 - 3	10%		N/A
6/14/2015	2200	20.60	4 - 7	0%		N/A
6/14/2015	2230	20.30	4 - 7	0%		N/A
6/14/2015	2300	20.00	4 - 7	0%		N/A
6/14/2015	2330	19.40	4 - 7	0%		N/A
6/14/2015	0	19.00	8 - 12	0%		N/A
6/14/2015	30	18.90	4 - 7	0%		N/A
6/14/2015	100	18.70	8 - 12	0%		N/A
6/14/2015	130	18.40	8 - 12	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe
Net Placement Stacked over dirt road in forest

Permitted Biologist Doug Koziol
Federal Permit # TE38842A-3
WV State Permit# 2015.228
VA State Permit# N/A N/A
Other Field Staff Amelia Goebel

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM381A	37° 31' 16.667" N	80° 29' 54.780" W	9	8	2035	136

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/11/2015	2100	21.10	0	25%		N/A
6/11/2015	2130	20.40	0	10%		N/A
6/11/2015	2200	19.50	0	0%		N/A
6/11/2015	2230	19.10	0	0%		N/A
6/11/2015	2300	19.20	0	0%		N/A
6/11/2015	2330	18.20	0	0%		N/A
6/11/2015	0	18.50	0	0%		N/A
6/11/2015	30	17.70	0	0%		N/A
6/11/2015	100	17.50	0	0%		N/A
6/11/2015	130	17.00	0	0%		N/A
6/12/2015	2100	20.60	0	10%		N/A
6/12/2015	2130	19.90	1 - 3	10%		N/A
6/12/2015	2200	19.40	1 - 3	0%		N/A
6/12/2015	2230	18.90	0	0%		N/A
6/12/2015	2300	18.40	0	0%		N/A
6/12/2015	2330	18.30	0	0%		N/A
6/12/2015	0	18.00	1 - 3	0%		N/A
6/12/2015	30	17.90	0	0%		N/A
6/12/2015	100	17.70	0	0%		N/A
6/12/2015	130	17.80	0	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe
Net Placement Over a small stream

Permitted Biologist Aaron Covalt
Federal Permit # TE38842A-3
WV State Permit# 2015.237
VA State Permit# N/A T&E 54100
Other Field Staff Kat Cummings

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM382A	37° 31' 8.731" N	80° 29' 24.636" W	9	8	2045	145

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/11/2015	2045	20.90	0	20%		N/A
6/11/2015	2115	20.50	0	10%		N/A
6/11/2015	2145	19.90	0	50%		N/A
6/11/2015	2215	19.20	0	50%		N/A
6/11/2015	2245	18.80	0	50%		N/A
6/11/2015	2315	18.20	0	50%		N/A
6/11/2015	2345	18.20	1 - 3	50%		N/A
6/11/2015	15	18.10	0	50%		N/A
6/11/2015	45	18.00	<null>	40%		N/A
6/11/2015	115	17.90	0	40%		N/A
6/11/2015	145	17.70	0	40%		N/A
6/12/2015	2040	21.50	1 - 3	30%		N/A
6/12/2015	2110	20.50	0	20%		N/A
6/12/2015	2140	19.90	1 - 3	10%		N/A
6/12/2015	2210	19.30	1 - 3	10%		N/A
6/12/2015	2240	18.80	0	10%		N/A
6/12/2015	2310	18.40	1 - 3	0%		N/A
6/12/2015	2340	18.20	1 - 3	0%		N/A
6/12/2015	10	18.10	4 - 7	0%		N/A
6/12/2015	40	17.90	1 - 3	0%		N/A
6/12/2015	110	17.90	1 - 3	0%		N/A
6/12/2015	140	17.70	1 - 3	1%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe
Net Placement Over forested access road

Permitted Biologist Shawn McKinley
Federal Permit # N/A
WV State Permit# 2015.201
VA State Permit# SC 050652 T&E 054097
Other Field Staff Les Aaron

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM383A	37° 30' 44.380" N	80° 28' 53.547" W	9	6	2035	135

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/12/2015	2030	21.10	0	30%		N/A
6/12/2015	2100	20.20	0	0%		N/A
6/12/2015	2130	20.00	0	0%		N/A
6/12/2015	2200	19.00	0	35%		N/A
6/12/2015	2230	18.70	1 - 3	10%		N/A
6/12/2015	2300	17.70	0	0%		N/A
6/12/2015	2330	17.90	1 - 3	25%		N/A
6/12/2015	0	18.30	0	10%		N/A
6/12/2015	30	18.10	0	0%		N/A
6/12/2015	100	17.80	1 - 3	0%		N/A
6/12/2015	130	17.40	1 - 3	0%		N/A
6/13/2015	2030	21.20	1 - 3	30%		N/A
6/13/2015	2100	19.30	1 - 3	40%		N/A
6/13/2015	2130	19.60	1 - 3	60%		N/A
6/13/2015	2200	18.80	0	30%		N/A
6/13/2015	2230	18.20	1 - 3	0%		N/A
6/13/2015	2300	17.70	1 - 3	0%		N/A
6/13/2015	2330	17.10	1 - 3	0%		N/A
6/13/2015	0	16.60	1 - 3	0%		N/A
6/13/2015	30	16.30	1 - 3	15%		N/A
6/13/2015	100	16.20	0	0%		N/A
6/13/2015	130	15.90	1 - 3	0%		N/A



Bat Weather Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue. Cincinnati, OH 45232 (Phone: 513-451-1777)

Project Number 593.12
Project Name Mountain Valley Pipeline Project
Company Name MVP
Site Name Mountain Valley Pipeline
State West Virginia
County Monroe
Net Placement Over forested trail

Permitted Biologist Shawn McKinley
Federal Permit # N/A
WV State Permit# 2015.201
VA State Permit# SC 050652 T&E 054097
Other Field Staff Les Aaron

Net Site	Net Site ID	Latitude DMS	Longitude DMS	Length(m)	Height(m)	Time Up	Time Down
Details	WV-KM386A	37° 27' 33.629" N	80° 25' 22.005" W	6	6	2040	140

Date	Time	Temp (C)	Wind Speed	% Cloud Cover	Comments	WeatherOut
6/14/2015	2030	21.50	0	10%		N/A
6/14/2015	2100	20.90	0	20%		N/A
6/14/2015	2130	20.10	0	20%		N/A
6/14/2015	2200	19.60	<null>	%		N/A
6/14/2015	2230	19.10	0	0%		N/A
6/14/2015	2300	19.10	0	0%		N/A
6/14/2015	2330	18.60	0	0%		N/A
6/14/2015	0	18.70	0	0%		N/A
6/14/2015	30	17.90	0	0%		N/A
6/14/2015	100	18.20	0	0%		N/A
6/14/2015	130	18.20	0	0%		N/A
6/15/2015	2030	21.20	0	50%		N/A
6/15/2015	2100	20.70	0	60%		N/A
6/15/2015	2130	20.10	0	50%		N/A
6/15/2015	2200	19.80	0	60%		N/A
6/15/2015	2230	19.50	0	30%		N/A
6/15/2015	2300	19.40	0	0%		N/A
6/15/2015	2330	19.10	0	20%		N/A
6/15/2015	0	19.00	0	0%		N/A
6/15/2015	30	18.70	0	20%		N/A
6/15/2015	100	18.40	0	0%		N/A
6/15/2015	130	18.20	0	0%		N/A

APPENDIX H
BAT TRANSMITTER DATA SHEETS



Bat Transmitter Data

Project Number	593.12	Company Name	MVP
Project Name	Mountain Valley Pipeline	State	Virginia
Site Name	Mountain Valley Pipeline	County	Montgomery
Date	06/16/2015	Latitude DMS	
Net Site ID	VA-KM573C	Longitude DMS	
Permitted Biologist	Chris Boggs	Field Technician	Kiara Johnson

Bat Vitals:

Capture Time (Military)	32
Bat Species	<i>Myotis septentrionalis</i>
Age	Adult
Sex	Female
Reproductive	Lactating
Weight (g)	6.50
RFA (mm)	34

Transmitter Information:

Transmitter Weight (g)	0.25
Transmitter + Bat Total Weight (g)	6.75
Frequency Number	172.482
Band Color and Number	VDGIF A51381

Final Check:

- 1). Is Transmitter Attached (Y/N)? Yes
- 2). Signal Receiving (frequency) Yes
- 3). Signal Receiving (frequency) 172.482
- 4). Is band fully attached (Y/N)? Yes
- 5). Condition of Bat at release Great. Extremely docile almost lethargic.
- 6) Description of Release Bat flew south from hand at capture site

Release Time (military) 102 Total Hold Time (minutes) 30

Release Location VA-KM573C net site

Comments Behavior was probably due to recently giving birth

Additional
Comments

APPENDIX I
ROOST TREE AND EMERGENCE DATA SHEETS



Roost Tree with Emergence Data

Property of: Environmental Solutions & Innovations, Inc
4525 Este Avenue, Cincinnati, OH 45232 (Phone: 513-451-1777)

Project # 593.12 Date 06/20/2015
Project Name: Mountain Valley Pipeline Project
Site Name Mountain Valley Pipeline
Company Name MVP
State Virginia County Montgomery

Permitted Biologist Chris Boggs
Federal Permit ID TE02373A-9
West Virginia Permit ID 2015.197
Virginia Permit SC 050652 T&E 054097
Other Field Staff Kiara Johnson

TRANSMITTERED BAT DATA

Bat Species Myotis septentrionalis Sex Female Age Adult Reproductive Lactating
Capture Date 06/16/2015 Capture Site Frequency Number 172.482

ROOST TREE DATA

Roost Tree ID <u>482-1</u>	Bat Vocalizations <u>No</u>
Roost Tree species <u>Pinus resinosa</u>	Guano on ground or foliage <u>No</u>
Tree DBH (centimeters) <u>18.00</u>	Is guano fresh? <u>No</u>
Tree Health <u>Dead</u>	Guano volume <u>Not Applicable</u>
Height to Roost from ground (m.) <u>5.00</u>	Observed Roost Exfoliating Bark <u>No</u>
Tree Height (meters) <u>9.00</u>	Potential Cracks <u>Yes</u>
Exfoliating Bark % <u>0%</u>	Hollow <u>Yes</u>
Distance From Capture (KM) <u>1.00</u>	Unknown <u> </u>

DESCRIPTION OF SURROUNDING HABITAT

Dominant Canopy Species (>40cm/16") <u>Quercus montana</u>	Subdominant Canopy Species (< 40 cm/16") <u>Quercus montana</u> <u>Quercus rubra</u>	Est canopy closure at roost <u>90%</u> Slope <u>Steep</u> Slope aspect <u>West</u> Subcanopy Clutter <u>High</u>
Estimated DBH Large <u>40.00</u> Ranges (cm): Small <u>40.00</u>	Estimated DBH Large <u>39.00</u> Ranges (cm): Small <u>17.00</u>	Distance to Water source <u>1,500.00</u> nearest(m): Flight corridor <u>0.00</u>

Habitat Description: Uneven aged young oak upland forest with ridges and valleys.

Mature Upland Forest	<u>No</u>	Pine Plantation	<u>No</u>	Emergent Wetland	<u>No</u>	Other
Young Upland Forest	<u>Yes</u>	Woodlot Forest Edge	<u>No</u>	Forested Swamp	<u>No</u>	
Mature LowLand Forest	<u>No</u>	Old Field	<u>No</u>	Shrub Scrub Swamp	<u>No</u>	
Young LowLand Forest	<u>No</u>	Crop/Pasture Land	<u>No</u>	Vernal Pool	<u>No</u>	
Recently Logged Forest	<u>No</u>	Stream/River	<u>No</u>	Deepwater Lake Pond	<u>No</u>	

Roost Tree Decay Stage Stage 6 - Broken

Comments Distance to nearest useable water source is about a mile. There is a small cluttered trickle about a tenth of a mile

EMERGENCE COUNT DATA

Date	Radio tagged Bat Present	Radio Frequency	Survey Times		Total Bats Counted	Emergence Description	
		Bat 1	Bat 2	Arrival	Departure		
06/20/2015	Yes	172.482		2015	2145	5	Circled southwest towards valley. Transmitter never left tree
06/21/2015	Yes	172.482		2015	2145	5	No bats emerged. It is my opinion that the bat shed its transmitter emerging the previous night