4.10 WATER RESOURCES

4.10.1 Affected Environment

The Payne Gap site has two domestic single household wells located on the northern portion of the site. One well is at an elevation of 1,500 feet with water found at 60 feet below the surface. The second well is located at an elevation of 1,480 feet with water found at an elevation of 40 feet below the surface (KGS 2013). There are no groundwater wells on the Roxana site but there is a domestic single household well located north of the site at an elevation of 1,200 feet with a depth to water of 80 feet. Groundwater flow tends to follow the slope topography. Variations in groundwater conditions are expected based on location and elevation across the site, seasonal conditions, and weather patterns. Both sites are underlain by the Breathitt Group which is comprised of the Pikeville Formation and the Hyden Formation at both sites; however, only the Roxana site is also underlain by the Four Corners Formation. The Breathitt Group yields more than 500 gal/day in more than three-quarters of the wells drilled in valley bottoms, more than 500 gal/day in about three quarters of the wells on hillsides, and more than 100 gal/day to nearly all wells on ridges within Letcher County (KGS 2013). There are no sole source aquifers underlying either site (USEPA 2013b).

The quality of the groundwater in Letcher County ranges from moderately hard in most of the county to moderately soft south of Pine Mountain. Naturally occurring contaminants present in the groundwater consist of sulfate, salt (sodium chloride), iron, and manganese (University of Kentucky 2013b).

According to the Kentucky Division of Water, Groundwater Branch, Letcher County has areas of moderate and high sensitivity to groundwater pollution. The hydrogeologic sensitivity reflects the ease and speed with which a contaminant can move into and within a groundwater system. The hydrogeologic sensitivity of Letcher County has been given a value of three out of five, with five being the most susceptible to groundwater pollution and one being the least susceptible. The region is given a three due to subcutaneous drain and enlarged fractures influence groundwater recharge, fissure networks influence flow, and bidirectional dispersal patters influence overall dispersion (KDEP 1994).

4.10.1.1 Water Quality

Water Quality refers to the suitability of water for a particular use based on selected physical, chemical, and biological characteristics. Potential uses considered include potable water, irrigation, and water able to support life. For the purposes of this EIS, water quality is considered with the statutory requirements regarding water quality conditions.

Water Quality is regulated under the Federal Water Pollution Control Act (FWPCA), as amended by the CWA. The CWA prohibits spills, leaks, or other discharges of oil or hazardous substances into the waters of the U.S. in quantities that may be harmful. Direct discharges of effluents are regulated under the CWA through National Pollutant Discharge Elimination System (NPDES) permit program administered by the USEPA or under state NPDES programs approved by the USEPA. The CWA also requires each state to establish water quality standards for its surface waters derived from the amount of pollutants that can be assimilated by a body of water without deterioration of a designated use. Waters not meeting the water quality standards may require the establishment of a TMDL for the waterbody. Impaired waters requiring a TMDL are called 303 (d) listed waters (KDEP 2013).

According to Environmental Protection Agency data none of the streams on either site have been assessed. Subsequently there are no identified impaired waters or TMDLs for either of the sites (USEPA

2013). The closest assessed water body to the Payne Gap site is Fish Pond, located north of the site, on the opposite side on Kona Cut Road (Route 119). Fish Pond was determined to be good for secondary contact recreation water, warm water aquatic habitat, and cold water aquatic habitat. The closest assessed water body to the Roxana site is the North Fork of the Kentucky River, located north of the site on the opposite side of Route 588/ 160. The North Fork of the Kentucky River was assessed for primary contact recreation and was determined to be impaired as a result of elevated levels of fecal coliform. The elevated levels of fecal coliform were believed to be the result of point source discharges from sewage or packaging plants (USEPA 2013a).

4.10.1.2 Floodplains

EO 11988, *Floodplain Management*, sets forth the responsibilities of federal agencies for reducing the risk of flood loss or damage to personal property, minimizing the impacts of flood loss, and restoring the natural and beneficial functions of floodplains. This order was issued in furtherance of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

4.10.1.3 Wetlands and Waters of the U.S.

Wetland delineations were conducted in May 2011 and August 2014. Hydrology at the site has been highly disturbed as a result of historic mining activities. The delineation included the identification of wetlands and Waters of the U.S.

During delineations approximately 2.84 acres (1.15 hectares) of wetlands were identified within the proposed project area on the Payne Gap site. The majority of the wetlands are located immediately adjacent to an existing or historic road which has impacted water movement in the area. NWI does not depict any wetlands onsite, within or outside of the proposed project area. In addition, several intermittent, perennial and ephemeral streams were delineated on site (TEC, Inc. 2011b, TEC, Inc. 2011c and Cardno 2014c).

Hydrology supporting the wetlands is a result of both groundwater and surface water; runoff and direct precipitation. Dominant vegetation within the wetlands identified at the Payne Gap site consists of Eleocharis obtusa, Juncus effuses, Typha latifolia, and Carex lurida.

Figure 4-4 depicts the wetlands and streams delineated within the Payne Gap site and **Table 4-16** lists the acreages of wetland by type.

Table 4-16. Wetland and Streams Delineated at Payne Gap

Feature Type	Payne Gap Site	
	Acres	Linear Feet
Wetlands		
Palustrine Emergent	1.73	N/A
Palustrine Scrub-Shrub	0.69	N/A
Palustrine Forested	0.42	N/A
Riverine		
Jurisdictional Stream	N/A	14,693
Non-Jurisdictional Stream	N/A	-
TOTAL	**2.84**	**14,693**

Note: N/A = Not Applicable.

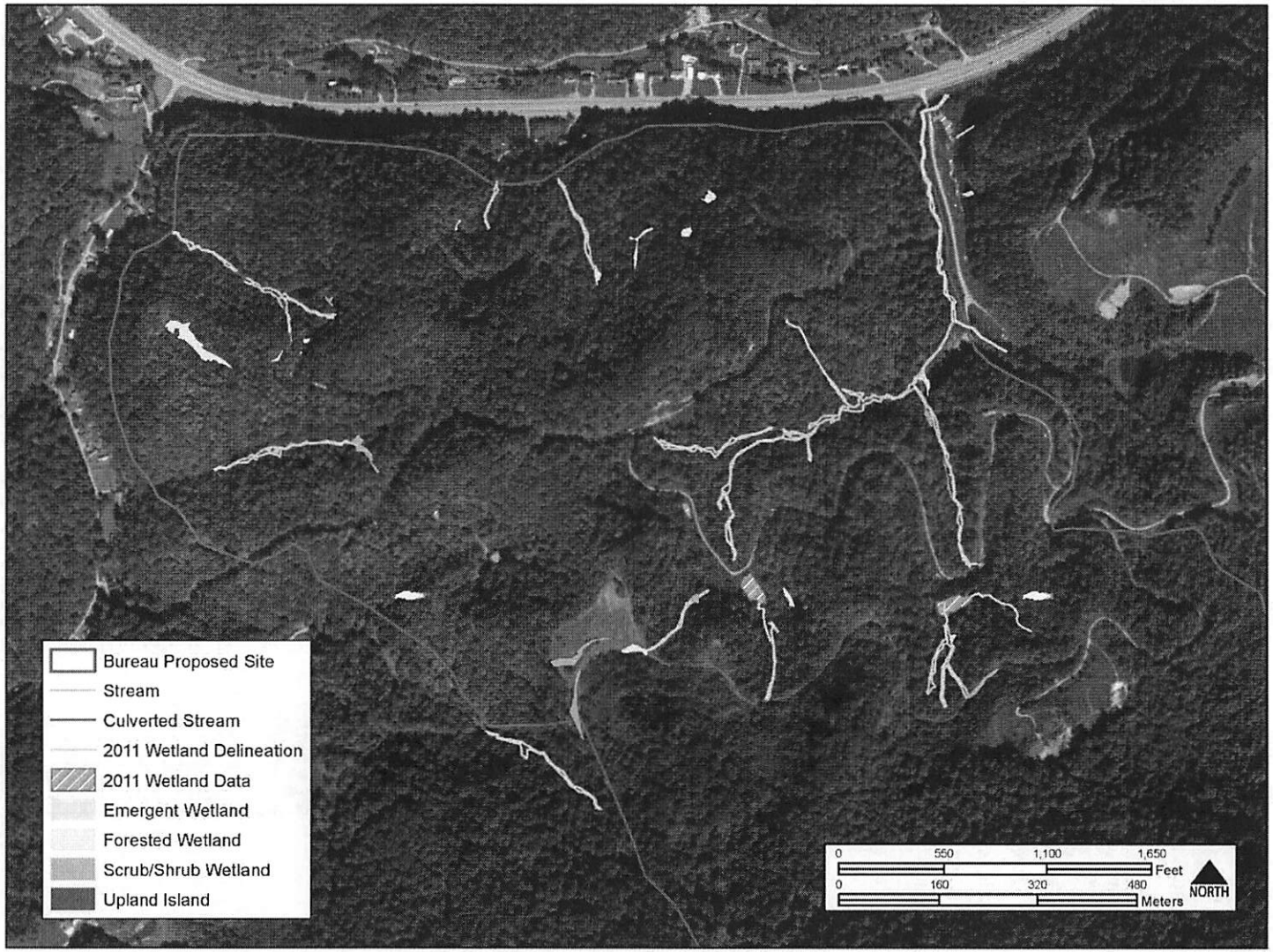

Figure 4-4. Payne Gap Wetlands and Waters of the U.S.

Based on Federal Emergency Management Agency floodplain mapping, there are no 100-year floodplains at the Payne Gap site (Marshall Miller 2012a).

4.10.2 Environmental Consequences

Implementation of the proposed action is not anticipated to affect groundwater, as excavation and construction activities are anticipated to occur at elevations well above the groundwater table.

It is not anticipated that water quality of nearby streams and wetlands would be adversely impacted by on site construction. BMPs would be implemented based on an approved erosion and sediment control plan that would minimize sediment and pollutants from the construction site being carried into nearby water courses.

Implementation of the proposed action at the Payne Gap site would result in approximately 9,072 linear feet of stream impacts, 0.38 acres (0.15 hectares) of impacts to palustrine emergent wetlands, 0.42 acres (0.17 hectares) of impact to palustrine forested wetland and 0.69 acres (0.28 hectares) of impacts to palustrine scrub-shrub wetlands. These impacts would be to the streams and wetlands delineated in 2011 and 2014 (refer to **Table 4-16**) and would result primarily from the excavation and grading activities that would be required to prepare the site for the development of the USP, FPC, ancillary buildings, and roads.

No floodplains are present on the Payne Gap site; therefore no impacts to floodplains would occur.

4.10.3 No Action Alternative

Under the No Action Alternative, the Payne Gap site would not be developed and no impacts to surface waters or wetlands would occur.

4.10.4 Mitigation

Mitigation would be based on the requirements outlined in the Section 404 permit obtained for the project and may include stream restoration, wetland mitigation, or payment into a wetland bank or in-lieu fee program. The Bureau would coordinate the appropriate mitigation with the USACE and KDEP. Additionally, BMPs such as sediment fencing would be placed adjacent to wetlands and streams to minimize sediment from the construction site from being deposited in these areas. Other BMPs may include the placement of a buffer around these resources to reduce the chance of construction equipment encroaching on these resources. A jurisdictional determination would be conducted with the USACE for the preferred alternative to officially receive concurrence from the USACE on the wetland and stream delineation and identify appropriate mitigation. During an August 2013 site visit, the USACE reviewed areas of wetlands and streams delineated during the 2011 wetland delineation. Based on the areas viewed, the USACE agreed with the approach and methodology.

4.11 Biological Resources

4.11.1 Affected Environment

Biological resources include living, native, or naturalized plant and animal species and the habitats where they occur. Habitat can be defined as the resources and conditions present in an area that supports the existence of a plant or animal (Hall et al. 1997). Although the existence and preservation of biological resources are intrinsically valuable, these resources also provide aesthetic, recreational, and socioeconomic values to society.

This analysis focuses on species and vegetation types that are important to the function of the ecosystem, of special societal importance, or are protected under Federal or state law or statute. For the purposes of this EIS, these resources are divided into three major categories: vegetation, wildlife, and special-status species.

Vegetation includes terrestrial plant communities and the analysis focuses on vegetation types that are important to the function of the ecosystem or are protected under Federal or State law.

Wildlife includes all common animal species, with the exception of those identified as special-status species (see below). The wildlife category includes invertebrates, fish, amphibians, reptiles, mammals, and birds, including native bird species protected under the Migratory Bird Treaty Act (MBTA).

Special-status species includes plant and animal species that are listed or proposed for listing by USFWS as threatened and endangered or are candidate species under the ESA. ESA candidate species are plant or animal species for which USFWS has sufficient information on file regarding biological vulnerability and threats to support a proposal that would list them as endangered or threatened under the ESA, based on the most recent candidate review. In addition, designated and proposed critical habitat for ESA-listed species are also included in this EIS, as appropriate. Critical habitat is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. This section also addresses species that are listed by the State of Kentucky as threatened or endangered.

4.11.1.1 Vegetation

The Payne Gap site is primarily covered in mature hardwood forest with herbaceous and scrub shrub vegetation dominating areas previously disturbed by historic strip mining activities and along the shoulders of the site access roads. Site observations indicate upland vegetation on the Payne Gap site includes, American beech (*Fagus grandifolia*), tuliptree (*Liriodendron tulipifera*), northern red oak (*Quercus rubra*), sourwood (*Oxydendrum arboreum*), American elm (*Ulmus americana*), Allegheny blackberry (*Rubus allegheniensis*), autumn olive (*Elaeagnus umbellata*), white clover (*Trifolium repens*), sericea lespedeza (*Lespedeza cuneata*), multiflora rose (*Rosa multiflora*), Kentucky bluegrass (*Poa pratensis*), and summer grape (*Vitis aestivalis*). Wetland vegetation includes American sycamore (*Platanus occidentalis*), black willow (*Salix nigra*), green ash (*Fraxinus pennsylvanica*), jewelweed (*Impatiens capensis*), common rush (*Juncus effusus*), broadleaf cattail (*Typha latifolia*), fowl mannagrass (*Glyceria striata*), sallow sedge (*Carex lurida*), and woolgrass (*Scirpus cyperinus*).

4.11.1.2 Wildlife

Due to relative proximity wildlife on both sites are believed to be similar; however, during a site visit a herd of eastern elk (*Cervus elaphus*) was observed on the Payne Gap site. Species likely to be found on both sites includes red-winged blackbirds (*Agelaius phoeniceus*), tufted titmouses (*Baeolophus bicolor*), red-tailed hawks (*Buteo jamaicensis*), coyotes (*Canis latrans*), Virginia opossums (*Dipelphis virginiana*), American black bears (*Ursus americanus*), eastern gray squirrels (*Sciurus carolinensis*), green frogs (*Rana clamitans melanota*), American toads (*Bufo americanus*), black rat snakes (*Elaphe obsoleta obsolete*), southern flying squirrels (*Glaucomys volans*), eastern spotted skunks (*Spilogale putorius*), copperheads (*Agkistrodon contortrix*), eastern hognose snakes (*Heterodon platirhinos*), fence lizards (*Sceloporus undulates*), ,wild turkeys (*Meleagris gallopavo*), and white tailed deer (*Odocoileus virginianus*) (Kentucky Department of Fish and Wildlife Resources 2013).

The MBTA is the primary legislation established to conserve migratory birds. The act prohibits taking, killing, or possessing migratory birds unless permitted by regulation.

4.11.1.3 Federally Threatened and Endangered and State Listed Special Status Species

Due to the number of state listed species listed by Kentucky as potentially occurring in Letcher County and subsequently on the two proposed sites the following section will focus on federal listed species. A full list of special status species and their status is included in **Table 4-17.**

The gray bat (*Myotis grisescens*) is federally listed as endangered and listed by Kentucky as threatened. The gray bat roosts in caves throughout the year although suitable caves are rare. For winter hibernacula the bats require vertical caves with domed halls. The winter caves must also have a temperature of between 6 and 11 degrees Celsius. Forested areas along the banks of streams and lakes provide important protection for adults and young. Summer caves are always within 1 km of a river or reservoir where the bats forage. Forests provide important feeding areas for young bats, which will not forage in areas where the forests have been cleared (Natureserve 2013a).

The Indiana bat (*Myotis sodalis*) is federally listed as endangered and is listed by Kentucky as endangered. The Indiana bat hibernates in caves; however, maternity sites are generally behind loose bark of dead or dying trees or in tree cavities. They forage in riparian areas, upland forests, ponds, and fields, but forested landscapes are the most important habitat. They typically hibernate in the coldest area of a cave to ensure a low enough metabolic rate in order to conserve fat reserves throughout the winter; however they will move away from areas that dip below freezing. Known roost tree species include elm, oak, beech, hickory, maple, ash, sassafras, birch, sycamore, locust, aspen, cottonwood, pine, and hemlock with a preference for trees with exfoliating bark (Natureserve 2013b).

According to the USFWS there is no federal designated Critical Habitat on either site (USFWS 2013).

Based on coordination with USFWS the Payne Gap site is considered to have the potential for Indiana bat as well as gray bat. A Phase I survey conducted in December 2014 confirmed the presence of both winter and summer habitat (Copperhead Environmental Consulting 2014).

In addition, the Kentucky arrow darter is known to exist in the upper Kentucky River basin. Habitat for the species consists of pools and transitional areas between riffles and pools in moderate to high gradient streams. The streams within the project area are primarily small channels that do not contain riffle and pool complexes (USFWS 2013).

Table 4-17. State and Federal Report of Endangered, Threatened, and Special Concern Plants, Animals, and Natural Communities of Letcher County, Kentucky

Scientific Name	Common Name	Status (State/Federal)
Liverworts		
Plagiochila caduciloba	Gorge Leafy Liverwort	E/N
Mosses		
Anomodon rugelii	None	T/N
Brachythecium populeum	Matted Feather Moss	E/N
Cirriphyllum piliferum	None	T/N
Dicranodontium asperulum	None	E/N
Entodon brevisetus	None	E/N
Neckera pennata	None	T/N
Oncophorus raui	None	E/N

Table 4-17. State and Federal Report of Endangered, Threatened, and Special Concern Plants, Animals, and Natural Communities of Letcher County, Kentucky		
Scientific Name	**Common Name**	**Status (State/Federal)**
Polytrichum pallidisetum	A Hair Cap Moss	T/N
Polytrichum strictum	None	E/N
Sphagnum quinquefarium	Five-ranked Bogmoss	E/N
Vascular Plants		
Adlumia fungosa	Allegheny-vine	H/N
Angelica triquinata	Filmy Angelica	E/N
Baptisia tinctoria	Yellow Wild Indigo	T/N
Botrychium matricariifolium	Matricary Grape-fern	E/N
Boykinia aconitifolia	Brook Saxifrage	E/N
Carex aestivalis	Summer Sedge	E/N
Carex appalachica	Appalachian Sedge	T/N
Castanea pumila	Allegheny Chinkapin	T/N
Circaea alpine	Small Enchanter's Nightshade	S/N
Corydalis sempervirens	Rock Harlequin	S/N
Cymophyllus fraserianus	Fraser's Sedge	E/N
Cypripedium parviflorum	Small Yellow Lady's-slipper	T/N
Eupatorium steelei	Steele's Joe-pye-weed	T/N
Gentiana decora	Showy Gentian	S/N
Hexastylis contracta	Southern Heartleaf	E/SOMC
Houstonia serpyllifolia	Michaux's Bluets	E/N
Hydrophyllum virginianum	Eastern Waterleaf	T/N
Juglans cinerea	White Walnut	T/SOMC
Leucothoe recurve	Red-twig Doghobble	E/N
Lilium superbum	Turk's Cap Lily	T/N
Listera smallii	Kidney-leaf Twayblade	T/N
Monotropsis odorata	Sweet Pinesap	T/SOMC
Oenothera oakesiana	Evening Primrose	H/N
Oenothera perennis	Small Sundrops	E/N
Orontium aquaticum	Golden Club	T/N
Pogonia ophioglossoides	Rose Pogonia	E/N
Prosartes maculate	Nodding Mandarin	S/N
Sanguisorba Canadensis	Canada Burnet	E/N
Saxifraga michauxii	Michaux's Saxifrage	T/N
Saxifraga micranthidifolia	Lettuce-leaf Saxifrage	E/N
Solidago curtisii	Curtis' Goldenrod	S/N
Trillium undulatum	Painted Trillium	T/N
Terrestrial Snails		
Glyphyalinia rhoadsi	Sculpted Glyph	T/N
Neohelix dentifera	Big-tooth Whitelip	T/N
Patera panselenus	Virginia Bladetooth	S/N
Crustaceans		
Cambarus bunting	Longclaw Crayfish	S/N
Cambarus parvoculus	Mountain Midget Crayfish	T/N
Insects		
Amphiagrion saucium	Eastern Red Damsel	E/N
Calephelis borealis	Northern Metalmark T /	T/N
Erora laeta	Early Hairstreak	T/N
Litobrancha recurvate	A Burrowing Mayfly	S/N
Papaipema speciosissima	Osmunda Borer Moth	E/N
Phyciodes batesii	Tawny Crescent	H/SOMC

Table 4-17. State and Federal Report of Endangered, Threatened, and Special Concern Plants, Animals, and Natural Communities of Letcher County, Kentucky		
Scientific Name	**Common Name**	**Status (State/Federal)**
Stylurus notatus	Elusive Clubtail	E/SOMC
Stylurus scudderi	Zebra Clubtail	E/N
Fishes		
Chrosomus cumberlandensis	Blackside Dace	T/LT
Etheostoma sagitta	Cumberland Arrow Darter	S/C
Amphibians		
Cryptobranchus alleganiensis alleganiensis	Eastern Hellbender	E / SOMC
Plethodon wehrlei	Wehrle's Salamander	E/N
Breeding Birds		
Accipiter striatus	Sharp-shinned Hawk	S/N
Corvus corax	Common Raven	T/N
Pheucticus ludovicianus	Rose-breasted Grosbeak	S/N
Tyto alba	Barn Owl	S/N
Vermivora chrysoptera	Golden-winged Warbler	T/SOMC
Mammals		
Clethrionomys gapperi maurus	Kentucky Red-backed Vole	S/SOMC
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	S/SOMC
Mustela nivalis	Least Weasel	S/N
Myotis leibii	Eastern Small-footed Myotis	T/SOMC
Myotis sodalist	Indiana Bat	E/LE
Sorex cinereus	Cinereus Shrew	S/N
Sorex dispar blitchi	Long-tailed Shrew	E/N
Spilogale putorius	Eastern Spotted Skunk	S/N
Ursus americanus	American Black Bear	S/N
Communities		
Appalachian seep/bog	Appalachian seep/bog	T/N

Notes: N – None, E – Endangered, T – Threatened, S - Special Concern, SOMC - Species of Management Concern, H – Historic.
Source: KSNPC 2013.

4.11.2 Environmental Consequences

4.11.2.1 Vegetation

Approximately 218 acres (88 hectares) of forested area would be impacted by the proposed action. These impacts would be the result of excavation and grading activities required to prepare the site for development.

4.11.2.2 Wildlife

Wildlife species found on the sites would likely be displaced during construction activities due to the loss of habitat and increases in noise. However, over 535 acres (217 hectares) of the site itself would remain undisturbed and continue to provide habitat, including breeding and foraging areas, for wildlife species found on-site. Additionally, the site is surrounded by similar habitat that could accommodate species that are displaced by construction activities. Based on the available habitat that will remain on site and habitat adjacent to the site (Jefferson National Forest), it is anticipated that these impacts would not adversely affect wildlife species that are currently present on-site.

Use of the non-lethal/lethal fence has the potential to result in adverse impacts to small animals and avian species, should they pass through the outer fences and into the area of the non-lethal/lethal fence fence.

4.11.2.3 Federally Threatened and Endangered and State Listed Special Status Species

Implementation of the proposed action at the Payne Gap site has the potential to impact Indiana bats and gray bats. Phase I bat habitat surveys conducted in December 2014 at the Payne Gap site have identified the presence of both summer and winter habitat. The Phase I survey is currently under review by the USFWS and based on the outcome of the review, the Bureau would coordinate with USFWS to determine if additional studies are required and the potential for impacts to the Indiana bats and gray bats. The Bureau, through coordination with USFWS, would avoid or minimize impacts to a degree where they can be considered insignificant or discountable. The impact assessment would include the potential noise from the proposed outdoor firing range. The range would be used approximately once a month for small arms training and maintenance.

It is not anticipated that the Kentucky arrow darter would be impacted by the project. The streams within the project site are small channels and do not contain riffle pool complexes. Additionally conductivity measurements were taken within streams on the project site. Conductivity measurements ranged from 562 microseconds (µS) to 1,970 µS. Studies have demonstrated that Kentucky arrow darters are not likely to be present when conductivity levels exceed approximately 250 µS; therefore no impacts to Kentucky arrow darter are anticipated (USFWS 2010).

4.11.3 No Action Alternative

Under the No Action Alternative, the Payne Gap site would not be developed and there would be no impacts to vegetation, wildlife, or threatened and endangered species.

4.11.4 Mitigation

Mitigation measures for construction impacts to vegetation and wildlife would be to minimize disturbance of existing vegetation to the greatest extent possible. An open area with a direct line of site is required for the areas surrounding the USP and FPC; however upon completion of construction disturbed areas would be revegetated to the maximum extent possible while maintaining the Bureau's site requirements.

Mitigation and minimization measures for threatened and endangered species would be dependent on USFWS comments and coordination between USFWS and the Bureau would be ongoing to determine appropriate mitigation measures. Mitigation measures may include:

- Timbering restrictions
- Minimization of sedimentation/erosion impacts to streams. The erosion and sedimentation control plan that would be developed prior to construction would account for the implementation of BMPs to minimize impacts to streams
- Mitigation fund for habitat removal based on time of year habitat is removed
- Minimize noise from the firing range through use of noise shielding structures
- Times when firing range is used

The Bureau has conducted prior EAs regarding the installation of non-lethal/lethal fences for potential impacts, especially to avian and small mammal species. These prior assessments have found less than

significant adverse impacts and less than significant impacts are anticipated with the non-lethal/lethal fence to be installed as part of this proposed action. However, following activation of the non-lethal/lethal fence, the Bureau would monitor the fence line to determine if wildlife, particularly avian species are being adversely effected. The Bureau would collect data regarding these occurrences including identification of species and photographs. The data collected would be used to document and analyze emerging trends. If adverse effects were identified through the analysis of data collected the Bureau would contact USFWS and appropriate state wildlife agencies to determine if changes to the operation of the fence are warranted.

4.12 HAZARDOUS MATERIALS AND WASTE

4.12.1 Affected Environment

4.12.1.1 Hazardous Materials

The proposed USP and FPC construction site is located in a relatively undeveloped area. No hazardous materials are known to be in storage or in use in this area. According the USEPA "Cleanups In My Community" mapping tool, there are no Brownfield, Superfund or RCRA Corrective Action sites in the vicinity of the proposed project area. No sites in the town of Payne Gap were listed in USEPAs TSCA, TRI or RCRA databases. No hazardous materials or evidence of their presence (i.e. stressed vegetation, stained soils, drums) on the site were observed during site visits conducted by Cardno in 2011, 2013, and 2014.

4.12.1.2 Hazardous Wastes

The proposed USP and FPC construction site is located in a relatively undeveloped area. No hazardous wastes are known to be in storage or generated in this area. According the USEPA Cleanups In My Community mapping tool, there are no Brownfield, Superfund or RCRA Corrective Action sites in the vicinity of the proposed project area. No sites in the town of Payne Gap were listed in USEPAs TSCA, TRI or RCRA databases. No hazardous wastes or evidence of their presence (i.e. stressed vegetation, stained soils, drums, batteries) on the site and no evidence of acid mine drainage was observed during site visits conducted by Cardno in 2011, 2013, and 2014.

4.12.1.3 Radon

The USEPA classifies Letcher County as having a moderate potential for radon intrusion (Zone 2). Zone 2 counties have a predicted average indoor radon screening level between 2 and 4 pCi/L. The USEPA action level for radon is 4 pCi/L.

4.12.2 Environmental Consequences

4.12.2.1 Hazardous Materials

Construction activities would require the use of hazardous materials. The majority of the hazardous materials expected to be used are common to construction and include diesel fuel, gasoline, and propane to fuel the construction equipment; hydraulic fluids, oils, and lubricants; and batteries. The transport and use of hazardous materials would have the potential to result in accidental spills that could adversely impact soil and groundwater on and adjacent to the construction site or along transportation routes. Hazardous materials associated with construction activities would be delivered and stored in a manner that would prevent these materials from leaking, spilling, and potentially polluting soils or groundwater,

and in accordance with applicable federal, state, and local environmental and public and occupational health and safety regulations. With the implementation of appropriate handling and management procedures, hazardous materials used during construction would have no significant impacts to the environment.

4.12.2.2 Hazardous Wastes

Hazardous waste would be generated during construction activities and would include but not be limited to empty containers, spent solvents, waste oil, spill cleanup materials (if used), and lead-acid batteries from construction equipment. Construction contractors would be responsible for safely removing these construction-generated wastes from the construction site and for arranging for recycling or disposal in accordance with applicable regulations. The total monthly generation of hazardous waste during construction is anticipated to be less than 100 kilograms during a calendar month. The construction contractor would be responsible for determining their regulatory status regarding hazardous waste generation during construction, and obtaining and maintaining compliance in accordance with federal and state laws. Hazardous wastes associated with construction activities would be handled and stored in a manner that would minimize human exposure to these materials and prevent these materials from polluting soils or groundwater, and in accordance with applicable federal, state, and local environmental and human health and safety regulations. Adherence to these policies, procedures, and regulations would minimize the potential impacts from exposure and accidental releases during revetment construction. In the event of an accidental release, contaminated media would be treated on-site or would be promptly removed and disposed of in accordance with applicable federal and state regulations. With the implementation of appropriate handling and management procedures, hazardous wastes generated during construction would have no significant impacts to the environment.

Operation of the UPC and FPC would require the use of small amounts of hazardous materials such as petroleum, oils and lubricants for lawn maintenance equipment, pesticides and paints. These materials would be acquired as needed and large volumes would not be stored on site. Those volumes that are stored on site would be stored, used and disposed in accordance with applicable regulations and would have no significant impacts on the environment.

Expended lead and brass from firing range operations would be recovered and recycled as part of general range maintenance activities and would have no significant impacts to the environment.

Radon

Structures intended for human occupancy may be equipped with radon detectors or may incorporate best management practices for radon control into their design to ensure there are no impacts from radon.

4.12.3 No Action Alternative

Under the No Action Alternative, the Payne Gap site would not be developed and there would be no impacts associated with hazardous materials and waste.

4.12.4 Mitigation

Alternative 1 would have no significant impacts to hazardous materials and wastes; therefore, no mitigation is required.