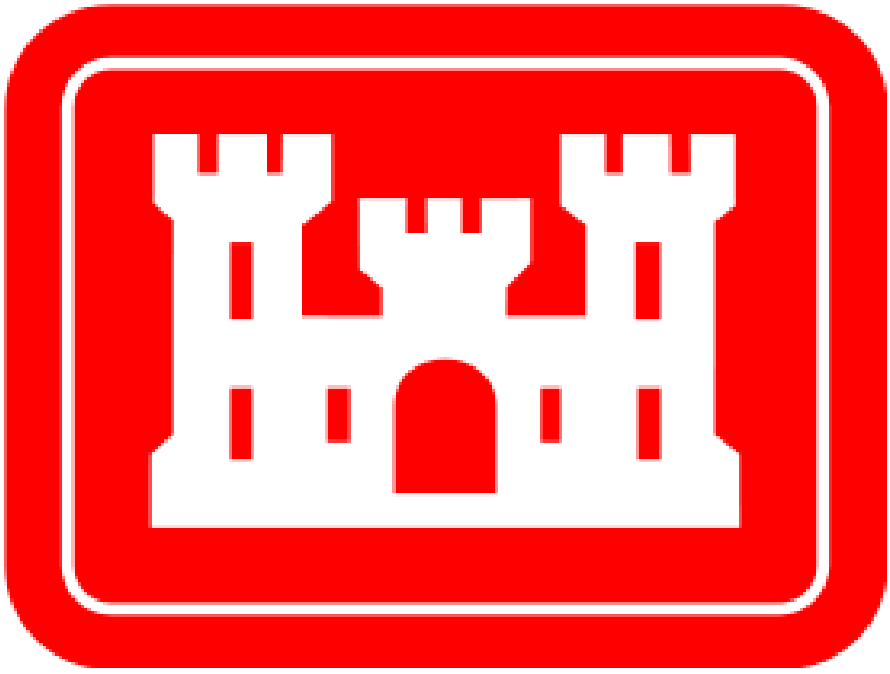
Draft Environmental Assessment
Section 340
Wastewater Treatment Plant Upgrade
And Lift Stations Replacement Project
Town of Alderson, West Virginia



U.S. Army Corps of Engineers
Huntington District
Huntington, West Virginia
December 2015

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Section 340
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And Lift Stations Replacement Project
Town of Alderson, West Virginia

Executive Summary

The Town of Alderson is proposing to construct an upgrade to provide a new treatment process at the Wastewater treatment plant (WWTP) to reduce phosphorus discharge levels, address WWTP deficiencies, and would also replace three failing lift stations. WWTP upgrades would ensure the Town of Alderson met specific phosphorus discharge limitations from May 1 to October 31, annually as specified in the Town's National Pollutant Discharge Elimination System (NPDES) permit. Currently, the Town of Alderson has no treatment process at their WWTP that is capable of meeting the permit requirements. The proposed upgrades would ensure that several other deficiencies at the WWTP would be brought into compliance with State and Federal code. Furthermore, replacing the proposed three lift stations would prevent untreated sewage from entering into surrounding homes and reaching the ground water. Currently, untreated sewage enters into surrounding areas and contributes to pollution within the watershed.

The Proposed Action Alternative would entail upgrading the WWTP using a new treatment process to reduce phosphorus discharge levels, address plant deficiencies, and replacement of three lift stations. There are four separate sites being analyzed for this project; the Alderson WWTP, Lift Station #1, Lift Station #2, and Lift Station #3.

The proposed project is a partnership agreement between the Town of Alderson and the US Army Corps of Engineers (Corps), established under the authority of Section 340 of the Water Resources Development Act of 1996. The Section 340 program provides design and construction assistance for water related environmental infrastructure projects to Non-Federal interests in southern West Virginia. Under this program the Corps may provide support in the form of design and construction assistance for water-related environmental infrastructure, water resource protection and development, and environmental restoration. Examples of possible projects that would qualify under this program could include wastewater treatment and related facilities, water supply, water storage, water treatment, water distribution facilities, and surface water resource protection and development. Funding, as established under Section 340, shall be shared 75% Federal and 25% Non-Federal (State and Local). This Environmental Assessment is prepared pursuant to the National Environmental Policy Act, Council on Environmental Quality Regulations (40 CFR 1500-1508), and Corps implementing regulation, ER 200-2-2.

The Environmental Assessment has concluded there are no significant adverse impacts to the human environment associated with the implementation of the proposed Town of Alderson Wastewater Treatment Plant Upgrades and Lift Station Replacement Project.

SECTION 340
TOWN OF ALDERSON
WASTEWATER TREATMENT PLANT UPGRADE
AND LIFT STATION REPLACEMENT PROJECT
TOWN OF ALDERSON, WEST VIRGINIA

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The brief and concise nature of this document is consistent with the 40 CFR requirements of the National Environmental Policy Act (NEPA) to reduce paperwork and delay by eliminating duplication with existing environmental documentation, incorporating pertinent material by reference, and by emphasizing interagency cooperation. The majority of data collection and analysis in this document was performed by Stafford Consultants, Inc in conjunction with the U.S. Army Corps of Engineers (Corps).

1.0 PROJECT DESCRIPTION

1.1 Project Background

This Environmental Assessment (EA) examines the potential environmental impacts of the Wastewater Treatment Plant (WWTP) Upgrade and Lift Stations Replacement project as proposed by the Town of Alderson (Town). The purpose of the EA is to analyze the potential environmental impacts of the proposed project and to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

1.2 Purpose, Need, and Authorization

The purpose of the proposed project is to design and construct a new tertiary treatment process at the Town's WWTP to reduce phosphorus discharge levels, address several deficiencies in the WWTP, and replace three failing lift stations. The Town's current WWTP discharges its treated effluent water into the Greenbrier River. Excessive algae complaints in the Greenbrier River prompted West Virginia Department of Environmental Protection (WVDEP) to launch an investigation determining that phosphorus is the most controllable parameter to limit excessive algae blooms. As a result, the Greenbrier River was listed as impaired by excessive algae growth in the 2012 Section 303(d) List. The need for the WWTP upgrades is to meet specific phosphorus discharge limitations from May 1 to October 31, annually as specified in the Town's National Pollutant Discharge Elimination System (NPDES) permit. Currently, the Town has no treatment process at their WWTP that is capable of meeting the permit requirements. The proposed upgrades would ensure that several other deficiencies at the WWTP would be brought into compliance with State and Federal code. Furthermore, replacing the proposed three lift stations would prevent untreated sewage from surcharging into surrounding homes and reaching the ground water that currently adds to the pollution of the area and watershed.

The proposed project is a partnership agreement between the Town of Alderson and the Corps established under the authority of Section 340 of the Water Resources Development Act (WRDA) of 1992 (Public Law 102-580), as amended, which provides authority for the Corps to establish a program to provide environmental assistance to Non-Federal interests in southern West Virginia. This law provides design and construction assistance for water related environmental infrastructure projects to Non-Federal interests in southern West Virginia, including projects for wastewater treatment and related facilities, water supply, water storage, water treatment, water distribution facilities, and surface water resource protection and development.

This EA is prepared pursuant to NEPA, Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508), and Corps implementing regulation, ER 200-2-2.

2.0 ALTERNATIVES DISMISSED FROM FURTHER CONSIDERATION

2.1 Greenbrier River Water Quality

2.1.1 Magnetite and Chemical Addition (Biological Ballasting)

The alternative explored the option of adding magnetites into the return activated sludge prior to being reintroduced into the existing oxidation ditches. The magnetites would cause rapid settling rates in the existing secondary clarifiers by creating a dense biological floc. A shear mill and magnetic drum separator would recover magnetites from the waste activated sludge. Chemicals such as ferric chloride or alum would be added between the oxidation ditches and the secondary clarifiers to cause phosphorus flocculation and precipitation. The alternative must be operated year round. The alternative's primary advantage would be to increase WWTP capacity; however, this is not currently needed nor is an anticipated requirement for the plant in the near future. Due to its year round operation requirement, the alternative would generate a very large operation and requires a large quantity of magnetites annually. Therefore, this alternative was dismissed from further consideration due to its construction and operation costs and lack of flexibility.

2.1.2 Enhanced Biological Phosphorus Removal (EBPR)

Enhanced Biological Phosphorus Removal (EBPR) treatment utilizes anaerobic ad aerobic zones to provide an environment that encourages the growth of phosphorus accumulating organism. The performance of an EBPR process would be highly dependent on the characteristics of influent wastewater. The influent must contain volatile fatty acids to biologically remove phosphorus from the water. The EBPR process would also require both a very high chemical oxygen demand and high biological chemical demand to total phosphorus ratios. The alterative was dismissed from further consideration because of its significant dependence on uncontrollable variables and its lack of a construction cost advantage when compared to other explored alternatives.

2.1.3 Membrane Biological Reactor Systems (MBRs) and Chemical Addition

Membrane Biological Reactor Systems (MBRs), utilize a suspended growth bioreactor and membrane to produce an extremely high quality effluent into a small footprint. In the past, MBRs were far too expensive to be used commonly for wastewater treatment; however, they have become far more affordable but are still expensive to operate and maintain in comparison to the other analyzed alternatives. The MBR alternative is being dismissed from a full analysis as a result of high operation and maintenance costs. Also, the existing site layout at the Alderson WWTP is not well suited for an MBR result. Therefore, this alternative is dismissed from further consideration.

2.2 Wastewater Treatment Plant Deficiencies

2.2.1 Existing Headworks Building Removal

The National Electrical Code Class1, Group D, Division 1 requirement only exists if the headwork's equipment exists within an enclosed space. Removing the walls of the existing building would remove both the electrical code requirement and the need for ventilation. The alternative was removed from further consideration due to decreasing equipment longevity (from being exposed to the elements), and the Town's preference for retaining the existing structure.

2.2.2 Consolidating Backup Power Source

The possibility of replacing the existing generator with a larger unit to supply backup power to the entire WWTP and its proposed upgrades was explored. The alternative was considered in order to reduce complication and consolidate all backup power needs into one unit. After further exploration, it was found that the plant operates on two separate voltages. Due to this arrangement, a transformer would be required to bridge the gap between the two electrical services. This complication would prove to increase cost significantly with no explicit advantage over having two separate generators; therefore, this alternative was dismissed from further consideration.

2.3 Lift Stations

2.3.1 Replace Existing List Stations with Same Type and Configuration

The alternative explored the option of replacing the existing lift stations with the same configuration that is currently in place (wet-well/dry pit). The existing structure at all three lift stations are in poor condition and likely cannot be reused. The existing configuration also creates a problem for pump removal and servicing due to a small diameter access tube leading to the dry-pit which houses the existing pumps. The Town has had past experiences with this configuration and has found it is difficult to work on and repair. The Town has expressed interest in a different option that would be easier to maintain and operate. This alternative is also more costly than other comparable configurations. As a result of the increased cost and maintenance issues and concerns, this alternative was dismissed from further consideration.

2.3.2 Renovate Existing Lift Stations

The existing pump manufacturer was contacted to inquire about renovating the three existing lift stations. As a result of the existing dry-wells size, variable frequency drives cannot be used. This would increase ongoing electrical operation costs. Also, the existing dry-well has corroded significantly, creating concern regarding the structural integrity. It is difficult to ascertain whether the dry-well's structural integrity has been compromised without exploratory excavation. This alternative was dismissed from further consideration due to the inability to retrofit the pump motors with variable frequency drives and the likelihood that the steel dry-wells have corroded beyond repair. This assumption has been made as a result of little to no ongoing maintenance at the stations.

3.0 PROPOSED ACTIONS AND ALTERNATIVES

3.1 Proposed Action Alternative (PAA)

The PAA would upgrade the existing WWTP using a tertiary treatment process to reduce phosphorus discharge levels, address WWTP deficiencies, and replace three lift stations. The PAA consists of converting the existing chlorine contact tank into reaction and mixing tanks for coagulant and magnetite addition and mixing, which would cause flocculation, precipitation, and settling of phosphates (in turn reducing total phosphorus that is discharged at the WWTP). A single tertiary clarifier would be constructed to allow for settling of the flocculated particles. An ultraviolet (UV) disinfection system would be constructed to replace the current chlorine disinfection tankage that would be repurposed. To house the chemical dosage equipment and control panels, a building would be constructed within the footprint of the existing WWTP. An intermediate lift station would be constructed between the tertiary clarifier and the UV disinfection system to facilitate the tertiary treatment process. Also, the existing effluent line and non-potable water system at the WWTP is currently too high of an elevation to accommodate the tertiary treatment process and would have to be reconstructed lower elevation and at a different location.

To address deficiencies at the WWTP, the PAA would leave the Headwork's Building as is but the electrical and control panels would be installed outside under a small canopy to protect them from the elements. All equipment, panels, disconnects, and conduit, within the building would meet code requirements. Louvers and non-sparking fans would be installed in the existing headwork's building to ventilate the space properly. The mechanical bar screen would be replaced, a new screenings washing compactor would be in installed and the vortex grit removal system would also be replaced. The existing secondary clarifier railing would be replaced with aluminum handrails to provide a safe working environment for the WWTP operators. In addition, a new separate diesel generator would be installed at the WWTP to provide backup power to all equipment that is currently not backed up and all new proposed equipment within this project. This would ensure the plant could remain fully operational during a power outage.

The PAA would also replace three existing lift stations with a new type of submersible station. All three lift stations generator and control structures would be brush blasted, primed, and painted. The existing lift stations would be demolished and disposed of after the new proposed submersible lift stations are constructed and are operational. Two temporary sanitary sewer overflow (SSO) may need to be constructed to control and mitigate the effects of sanitary sewer discharges until the Town can reduce Inflow & Infiltration (I&I) within their existing collection system.

2.2 No Action Alternative (NAA)

Under the NAA, the Corps would not provide funding for the project. The Town does not currently have funding to update the WWTP to comply with phosphorus removal or code violations. In the future, rehabilitation or replacement of the three lift stations would have to be undertaken to prevent sewer surcharge into surrounding areas. This alternative was considered

unacceptable due to health and safety hazards for the community in the proposed project area and continued water quality impacts to the Greenbrier River.

4.0 ENVIRONMENTAL SETTING AND CONSEQUENCES

4.1 Location

There are four separate sites for this project; the Alderson WWTP, Lift Station #1, Lift Station #2, and Lift Station #3. All project sites are located in West Virginia. Table 1 below summarizes the proposed site location data. Project location mapping can be found in Appendix A.

Table 1: Proposed Project Sites

Site Name	County	Latitude	Longitude
WWTP	Monroe	37.727167°	-80.658497°
Lift Station #1	Greenbrier	37.727378°	-80.647642°
Lift Station #2	Monroe	37.726244°	-80.653058°
Lift Station #3	Summers	37.721625°	-80.670919°

4.2 Land Use

Land use in the vicinity of the PAA is rural, consisting primarily of residential and small commercial purposes. All proposed work at the WWTP would occur on property currently owned by the Town of Alderson, which has been used as a sewage treatment plant for over 30 years. The majority of the land surrounding the WWTP is used primarily for residential purposes. Existing Lift Station #1, #2 and #3 are situated on land owned by the Town. The proposed replacement of Lift Station #1 and Lift Station #3 would be constructed on vacant lot property adjacent to the existing lift stations. Replacement of Lift Station #2 would occur on property immediately adjacent to the existing lift station. As a result, the proposed work at the WWTP and lift stations would occur in previously disturbed areas.

There would be no impacts to land use as a result of either the PAA or NAA.

4.3 Climate

Executive Order (E.O.) 13653 requires Federal actions to address climate change. The Greenbrier River Watershed's mid-latitude position makes it susceptible to highly variable weather throughout the year. The watershed's climate is greatly influenced by oceanic and atmospheric interactions. The watershed experiences seasonal weather patterns throughout the year, with climatic conditions typical of summer, fall, winter, and spring seasons for the Mid-Atlantic and Southeast Regions of the United States. Variability in weather tends to be greater during the late winter, spring, and fall seasons within the watershed. Summers are usually characterized by warm to hot weather with periods of high humidity. Winters within the watershed are typically mild, with areas at higher elevations experiencing slightly harsher winters and greater snowfall. Fall is typically the driest season within the watershed, while spring is typically the wettest.

The PAA would not involve any activity that could affect the environment in regard to climate change. This region is not projected to experience severe drought conditions and is instead expected to experience more precipitation in the future. As a result, the condition of the PAA would not likely be influenced by future climate change. For the same reasons, there are also no impacts expected with respect to climate as a result of the NAA.

4.4 Terrestrial Habitat

The majority of the PAA would be constructed on previously disturbed areas, including the WWTP; therefore, potential impacts to vegetation would be minimal and temporary. Construction activities associated with the lift station replacements would take place in previously disturbed areas adjacent to the existing lift stations. Only short-term minimal impacts during construction are anticipated to occur from the PAA as the majority of the proposed action would occur on previously disturbed land. Long-term beneficial positive impacts would occur from the PAA with the elimination of sewage surcharges and water quality improvements.

As the selection of the NAA would entail no changes to the project area, there are no impacts to terrestrial habitat anticipated as part of the NAA.

4.5 Floodplains

Executive Order 11988 requires Federal agencies to consider the potential effects of their proposed actions to floodplains. In order to determine the PAA's potential floodplain impact, the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) was reviewed for all four separate sites and the proposed project area is located within the base floodplain or the area that has a 1-percent chance or greater of having a flood in any given year (https://www.fema.gov/floodplain-management/flood-zones). Although construction will take place within the 1-percent floodplain as part of the PAA, the majority of the work will occur underground with little to no change in grade or pre-construction elevation. The underground tank volume will increase; however, the partial demolition of the existing tanks will allow for greater underground water storage. All underground storage tanks will either be sealed to ensure that no flood water could penetrate the structure or would be built higher than the 1-percent annual chance flood elevation. Control and electrical panels would be placed above the floodplain to ensure uninterrupted and unaffected operation.

Therefore, no impacts to floodplains are anticipated to occur from the PAA or NAA.

4.6 Prime and Unique Farmland

The Farmland Protection Policy Act (FPPA) requires Federal agencies to minimize the conversion of prime and unique farmland to non-agricultural uses. The project area is within the footprint of the existing WWTP and the proposed lift station replacements would occur in previously disturbed areas. Based upon review of the project, the Natural Resource Conservation Service (NRCS) determined that the proposed WWTP upgrades and lift station replacements will not impact Prime, Statewide, or Locally Important Farmlands because the area is already converted to urban use. Based upon the NRCS determination, a Farmland Conversion Impact

Rating does not need to be completed and the PAA would have no impact on Prime or Unique, Statewide, or Locally important farmland (Appendix B).

There are no impacts to Prime and Unique Farmland anticipated as part of the NAA.

4.7 Aquatic Habitat/Water Quality

The Town is located within the Greenbrier Watershed. The Greenbrier River is listed on West Virginia's 2012 Section 303 (d) list of impaired waters. Implementation of the PAA would not result in any new discharges of a pollutant. Currently, excessive algae are present in the Greenbrier River. Dissolved phosphorus is currently discharged from the WWTP into the Greenbrier River and combines with nitrates causing excessive algae blooms. Phosphorus is particularly harmful to the Greenbrier River because of existing river conditions such as alkalinity, hardness, turbidity levels, temperature, and presence of phosphorus and nitrogen. The PAA would protect the overall quality of the Greenbrier River by reducing the amount of phosphorus discharged from the WWTP into the river and comply with the Town's NPDES permit requirements. In addition, replacing the three lift stations and installation of temporary overflows would protect the overall water quality in the area by preventing sewage overflow and backflow of stream water. Best Management Practices (BMPs) would be used throughout the project.

The PAA would require work to take place on the banks of the Greenbrier River at the WWTP, Lift Station #1, and Lift Station #2. The proposed work on the river bank consists of installing a new effluent discharge line at the WWTP and a temporary SSO at both Lift Station #1 and Lift Station #2. Construction on activities associated with this fall under Nationwide Permit #3, Maintenance Activities (Appendix B). A Stream Activity Application was also applied for with the West Virginia Division of Natural Resources (WVDNR); however, it was determined that Right of Entry permits were not required for the proposed project. A modification to the existing NPDES permit would also be required for the proposed project.

In the long term, the implementation of the PAA is expected to have a positive impact on the aquatic habitat and water quality within the proposed project area. Implementation of the PAA would have an overall positive effect on the Greenbrier River via phosphorus reduction and overflow mitigation.

Under the NAA, aquatic impacts would continue due to the excessive algae in the Greenbrier River and sewer overflow during storm events. Water quality in the project area would remain impaired and the NAA would have continued adverse impact to the Greenbrier River's water quality, contributing directly to the identified algae growth problem. The NAA would also likely result in large fines issued to the Town, which could indirectly affect the Towns ability to operate their existing municipality.

4.8 Wetlands

An Investigation and Survey was conducted for the proposed project area to determine if the PAA would impact wetlands. The investigation found no wetland hydrology nor hydric soils

present at all four project sites. Furthermore, no hydrophytic vegetation was found at the WWTP, Lift Station #1, and Lift Station #3. Hydrophytic vegetation was found at Lift Station #2 but it was not dominate at the site. The PAA will require work to take place on the banks of the Greenbrier River at WWTP, Lift Station #1, and Lift Station #2. These areas along the river banks were excluded from the wetlands investigation but covered under the Nationwide Permit Number 7 "Outfall Structures and Associated Intake Structures". No impacts to wetlands are anticipated as part of the PAA or NAA.

4.9 Wild and Scenic Rivers

No designated State Wild or Scenic Rivers are present within the Project Area. Therefore, no impacts to these resources are anticipated as part of the PAA or NAA.

4.10 Hazardous, Toxic, and Radioactive Waste (HTRW)

A Phase 1 HTRW Environmental Site Assessment was conducted for the Town of Alderson WWTP Upgrade and Lift Station Replacement Project to identify environmental conditions and to identify the potential presence of HTRW contamination located within the project's construction work limits. Below are the following Phase 1 HTRW findings:

The Corps HTRW staff determined the Phase 1 HTRW Investigation Report is acceptable and no further HTRW action is required. Therefore, no impacts to HTRW are anticipated with the PAA.

The NAA would not result in ground disturbing activities at the WWTP and any lift station activities would occur within the same footprint of the existing lift stations or adjacent to the current lift stations that have already been evaluated for HTRW impacts in the Phase 1 HTRW Investigation Report, and would not disturb areas of HTRW contamination; therefore, there are no HTRW impacts associated with the NAA. A clearance memorandum was signed by Corps HTRW staff October 15, 2015.

4.11 Cultural Resources

Coordination with the West Virginia Division of Culture and History (SHPO) under Section 106 of the National Historic Preservation Act (NHPA) was initiated by Stafford Consultants, Inc. A Phase 1 Archeological Literature Review and Reconnaissance Survey were prepared on June 30, 2014 for all four project sites by Archeological Consultants of the Midwest, Inc. The Phase 1 archaeological survey found that the proposed activities at all three lift stations would have no affect on any archeological resources that are eligible for inclusion on the National Register of Historic Places, but there was a possibility for encountering subsurface archeological deposits at the WWTP. As no viable alternative exists for avoiding the identified site, a Phase II National Register Assessment was performed and a technical report was prepared December 2, 2014.

In a letter dated, 5 January 2015, SHPO concurred with the conclusion of the Phase II survey that the portion of the site within the current effluent line project area is not eligible for inclusion in the National Register of Historic Places and recommended that no additional investigation is necessary within the current project area. No further consultation under Section 106 of the

NHPA is necessary (Appendix B). There are no architectural resources eligible for or listed in the National Register of Historic Places that would be impacted by this project; therefore, no additional consultation is necessary for architectural resources. Should the project area change at the WWTP, SHPO shall be notified and further consultation may be necessary.

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, the Corps has made the determination that no historic properties, within the Area of Potential Effect, will be affected by the PAA. Additionally, there would be no impacts associated with the NAA. Pursuant to 36 CFR 800.4(d)(1), the Corps is providing the documentation of these findings to Federally Recognized Tribes who claim cultural affiliation to the area.

4.12 Threatened and Endangered Species

According to the U.S. Fish and Wildlife Service (USFWS) website, the project area is within the range of the Red knot (*Calidris canutus rufa*), Small whorled pagonia (*Isotria medeoloides*), Virginia spiraea (*Spiraea virginiana*), Shale barren rock cress (*Arabis serotina*), Indiana Bat *(Myotis sodalis*), and Northern Long-eared bat (*Myotis septentrionalis*).

In correspondence dated, August 2012, USFWS made a "no effect" determination that the project will not affect Federally-listed endangered or threatened species. However, during the Corps Regulatory Nationwide Permit #3 evaluation in April 2015, USFWS required surveys for the proposed outfall locations due to the potential existence of the Federally-listed Virginia spiraea. A biological investigation and survey for the Virginia spiraea was performed on May 12, 2015 at all four project area sites to further consider the presence of the Federally listed species. The survey found that suitable habitat for the Virginia spiraea was only present at Lift Station #2. As a result, a botanical survey was conducted at Lift Station #2 on June 30, 2015 and a report dated July 9, 2015 was produced. According to the botanical survey report, 'no federally listed species were found within the area of interest". USFWS concurred July 14,2015, that there are no instances of Virginia spiraea located at any of the four survey sites and that the project would have no effect to the Indiana Bat, Northern Long-eared bat, and Virginia spiraea. No further Section 7 consultation under the Endangered Species Act is required.

No impacts to threatened or endangered species are anticipated to occur from the PAA or the NAA.

3.13 Air Quality

According to U.S. Environmental Protection Agency (USEPA) website, the counties of Greenbrier, Monroe, and Summers, West Virginia are classified as "in attainment" (maintaining applicable standards) for all criteria pollutants. Emissions from construction equipment would occur during the construction period. Contractors would operate all equipment in accordance with local, State, and Federal regulations. The PAA is exempted by 40 CFR Part 93.153 from making a conformity determination, since estimated emissions from construction equipment would not be expected to exceed *deminimis* levels, direct emissions of a criteria pollutant, or its precursors. The majority of impacts would be short-term, localized, and would occur only during construction phase activities. Air quality effects may continue to occur after construction

due to the proposed generators but impacts would be minor and the generators have already been permitted through the West Virginia Department of Environmental Protection (WVDEP). Therefore, impacts to air quality under the PAA would be minor.

No impacts to air quality are anticipated to occur as part of the NAA.

3.14 Noise

Noise associated with the PAA would be limited to that generated during construction. The noise associated with construction would be short in duration and would only occur during daylight hours. Noise is measured as Day Night average noise levels (DNL) in "A-weighted" decibels that the human ear is most sensitive to (dBA). There are no Federal standards for allowable noise levels. According to the Department of Housing and Urban Development Guidelines, DNLs below 65 dBA are normally acceptable levels of exterior noise in residential areas. The Federal Aviation Administration (FAA) denotes a DNL above 65 dBA as the level of significant noise impact. Several other agencies, including the Federal Energy Regulatory Commission, use a DNL criterion of 55 dBA as the threshold for defining noise impacts in suburban and rural residential areas. According to Dr. Paul Schomer in his 2001 Whitepaper, while there are numerous thresholds for acceptable noise in residential areas, research suggests an area's current noise environment, which has experienced noise in the past, may reasonably expect to tolerate a level of noise about 5 dBA higher than the general guidelines. The Corps Safety and Health Requirements Manual provides criteria for temporary permissible noise exposure levels (see Table 3.1 below), for consideration of hearing protection or the need to administer sound reduction controls.

Table 1 - Permissible Non-Department of Defense Noise Exposures

Duration/day (hours)	Noise level (dBA)
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105

Construction noise would be similar to that of farm equipment and other small machinery used in the local area. A backhoe, end loader, road grader and/or vibratory roller are examples of equipment that is likely to be used during construction. Each emits noise levels around 85 dBA at 45 feet. Construction equipment would be operated during daylight hours when many residents are at work; therefore a reasonable exposure time of two hours would be expected during the time residents may be home during the day. Peak outdoor noise levels ranging from 78-90 dBA would occur during the time in which equipment is directly in front of or in proximity to homes and businesses (within 25-100 feet). A maximum noise exposure of approximately 98 dBA, for one hour could occur if equipment were within 10 feet of homes and business. The noise projections do not account for screening objects, such as trees, outbuildings

or other objects that muffle and reduce the noise being emitted. The outdoor construction noise would be further muffled while residents are inside their homes. While the construction noise generated would be considered unacceptable according to HUD and FAA standards, these limited exposures and time intervals are still within allowable Corps safety levels. Further, they are similar to typical neighborhood noise generated by gas powered lawnmowers in the local area, which could range from 90-95 dBA at three feet and 70-75 dBA at 100 feet. Residents being exposed to these noise levels would occur if and/or when residents are home and outdoors.

Due to daytime construction and the short and limited duration of elevated noise levels associated with the PAA, impacts from the noise to local residences would be temporary and minor. There would be no change in noise with the NAA.

3.15 Socioeconomic Conditions

Executive Order (E.O.) 12898 requires Federal actions to address environmental justice in minority populations and low-income populations. According to the U.S. Census Bureau, the 2014 population estimate for Greenbrier County was 35,450, Monroe County 13,582, and Summers County 13,417 and does not contain significant minority populations.

The 2013 census indicates Greenbrier County is 94.6% white and has a median household income of $37,895 compared with the median household income of $41,043 for the State of West Virginia. Individuals residing in the county below the poverty level is 19.7% compared to 17.9% statewide. The 2013 census indicates Monroe County is 97.3% white and has a median household income of $41,234 compared with the median household income of $41,043 for the State of West Virginia. Individuals residing in the county below the poverty level is 13.6% compared to 17.9% statewide. The 2013 census indicates Summers County is 92.6% white and has a median household income of $33,784 compared with the median household income of $41,043 for the State of West Virginia. Individuals residing in the county below the poverty level is 19.0% compared to 17.9% statewide.

Implementation of the PAA would aid in protection of ground water quality in the Greenbrier River and keep sewage from surcharging into surrounding homes and yards during storm events, thereby improving the living environment for all residents. Some visual changes would occur at each site; however, they would be very similar to existing structures already located at the sites. No homes or buildings would be impacted by the proposed project; therefore, the PAA meets the directive of EO 12898 by avoiding any disproportionately high adverse human health or environmental effects on minority or low income populations.

No impacts to minority or low income populations are anticipated to occur from the NAA.

4.16 Aesthetics

The project area is rural, primarily consisting of residential properties, some commercial businesses, roads, wooded land, and railroad tracks. The Greenbrier River meanders past all four project sites in the low-lying areas. Temporary disturbance of the local aesthetics would be anticipated during construction of the WWTP upgrades and replacement of lift stations; however

after construction, the project area would mostly be restored to its preconstruction conditions. New structures or alterations to existing structures would be minor; adding very little visual impact after construction.

Neither the PAA nor NAA would significantly impact local aesthetics.

3.17 Transportation and Traffic

Roads around the project that are commonly used to access the Town of Alderson are West Virginia Route 3, West Virginia Route 12, and West Virginia Route 63. Of these, only West Virginia Route 12 would be within the proposed project area. Other roads in the project area are Glenray Road and Greenbrier River Estates Road at the WWTP, Howell Street and Railroad Avenue at Lift Station #2, and Glen Ray Road at Lift Station #3.

As part of the PAA, a pipe must be installed under West Virginia Route 12 at Lift Station #1 and under Greenbrier River Estates Road at the WWTP. A West Virginia Division of Highways (WVDOH) permit has been secured for the proposed construction activities. Both the pipe at the WWTP (new effluent line) and the pipe (temporary SSO) at Lift Station #1 would be installed using trenchless excavation methods to ensure that road impacts are kept to a minimum. If it becomes necessary to close a lane of traffic for construction, road traffic control measures would be employed to ensure that both traffic flow impacts are kept to a minimum and travelers and construction workers safety is ensured. These effects would only be experienced during construction. All appropriate WVDOH guidelines for traffic control would be implemented and emergency access would be maintained. Impacts anticipated to occur from the PAA would be minimal and temporary.

No impacts to transportation and traffic are anticipated to occur from the NAA.

4.18 Health and Safety

The PAA has been designed to reduce uncontrolled sewage overflows to surrounding areas in the Town and would reduce the amount of phosphorus discharging into the Greenbrier River. As previously stated, the WWTP also needs upgrades to address code violations to provide a safe working environment for WWTP operators. Lift station replacement is necessary to prevent untreated sewage from surcharging into surrounding homes and reaching ground water and polluting streams. Reducing phosphorus discharge levels by adding a new tertiary treatment process would help reduce algae in the Greenbrier River. Therefore, the PAA is anticipated to have a long term beneficial impact on health and safety of the project area.

Under the NAA, current uncontrolled sewage during storm events and high phosphorus discharges into the Greenbrier River would continue; perpetuating health and safety concerns. Plant deficiencies would continue leading to possible failing equipment and occupational health safety hazards.

4.19 Cumulative Effects

The Corps must consider the cumulative effects of the proposed project on the environment as stipulated in the NEPA. Cumulative effects are "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or Non-Federal) or person undertakes such actions". Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR Part 1508.7 Council on Environmental Quality [CEQ] Regulations).

The cumulative effects analysis is based on the potential effects of the proposed project when added to similar impacts from other projects in the region. An inherent part of the cumulative effects analysis is the uncertainty surrounding actions that have not yet been fully developed. The CEQ regulations provide for the inclusion of uncertainties in the analysis and states that "when an agency is evaluating reasonably foreseeable significant adverse effects on the human environment...and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking" (40 CFR 1502.22).

Temporal and geographical limits for this project must be established in order to frame the analysis. These limits can vary by the resources that are affected. The WWTP upgrades and lift station replacements would have minimal and insignificant negative impacts on the environment. Long term beneficial effects will result from the project and would include health, safety, and water quality. The temporal limits for assessment of this impact would initiate in 1972 with the passage of the Clean Water Act and end 50 years after completion of this project. The geographical extent would be broadened to consider effects beyond the PAA. The geographical extent considered is the Greenbrier Watershed.

The Greenbrier Watershed is listed on West Virginia's 2012 Section 303(d) list of impaired waters due to excessive algae and biological criteria. In 2007, WVDEP launched an investigation in the watershed to identify the cause of excessive algae as the algae impacted water quality, recreation, and fishing in the watershed. In 2013, the WVDEP prepared the "Greenbrier River Restoration Plan" which outlined strategies to address the Greenbrier River's phosphorus impairment. Watershed associations such as the Greenbrier River Watershed Association and the Friends of the Lower Greenbrier River are active in the watershed. The Greenbrier River Watershed Association's purpose is to "promote the maintenance, preservation, protection, and restoration of the ecological integrity of the Greenbrier River and its watershed". The Greenbrier River Watershed is currently working on securing conservation easements to protect land in the watershed. Friends of the Lower Greenbrier River was founded in 1990 with the mission to strengthen appreciation of the river and as essential to the quality of life and will be a voice for the watershed while working to restore, protect, and promote the significance of the watershed. Friends of the Lower Greenbrier River initially organized to protect the river and safety of local drinking water in the Town of Alderson. Today, Friends of the Lower Greenbrier River sponsors river cleans-ups, watershed education programs, and community water monitoring. In the future, watershed programs may address water quality and conservation activities. Impairment of the Greenbrier Watershed is expected to continue but if the proposed actions are implemented, a cleaner, healthier watershed would be promoted. Water quality standards and regulations are expected to remain as stringent today as in the future.

Section 4.0 documents the existing environment and potential environmental effects of the PAA and NAA with respect to existing conditions. The effects of the PAA, as discussed beforehand, are localized and minor. Past actions that may result in similar effects may include upgrading of other wastewater utilities in the watershed. No reasonably foreseeable future actions that would have similar impacts as the proposed action were identified. In scoping cumulative effects issues, no resources were identified as having a potential to be significantly affected. Only minor and temporary impacts to ecological resources would be sustained with the implementation of the PAA. These resources would be reestablished upon completion of construction.

The availability of Federal funds through programs, such as the 340 Program, to assist communities with installation and construction of water-related environmental infrastructure and resource protection and development projects in West Virginia is an additional benefit to the area. The significance of this action on health, safety, and water quality would be positive. Given the current program is in place for the foreseeable future and the overall beneficial effect from implementation of the PAA, there is expected to be a positive, though small, cumulative effect on health and safety based on past, present, and reasonably foreseeable actions.

5.0 Status of Environmental Compliance

The PAA is in full compliance with all local, State, and Federal statutes as well as Executive Orders. Compliance is documented below in Table 2

Table 2 - Environmental Compliance Status

Statute/Executive Order	Full	Partial	N/A
National Environmental Policy Act (considered partial until the FONSI is signed)		X	
Fish and Wildlife Coordination Act	X		
Endangered Species Act	X		
Clean Water Act	X		
Wild and Scenic Rivers Act	X		
Clean Air Act	X		
National Historic Preservation Act	X		
Archeological Resources Protection Act			N/A
Comprehensive, Environmental Response, Compensation and Liability Act	X		
Resource Conservation and Recovery Act	X		
Toxic Substances Control Act	X		
Quite Communities Act	X		
Farmland Protection Act	X		
Executive Order 11988 Floodplain Management	X		
Executive Order 11990 Protection of Wetlands	X		
Executive Order 12898 Environmental Justice in Minority Populations and Low-Income Populations	X		

*Anticipated FONSI signature to occur after public review

6.0 REQUIRED COORDINATION

6.1 Agencies Contacted

Direct coordination with the USFWS, USDA, WVDNR, WVDEP, SHPO and respective county Floodplain Managers was completed prior to publication of the EA. Agency correspondence is included in Appendix B.

6.2 Public Review and Comments

The EA and FONSI will be made available for public review and comment for a period of 30 days, as required under NEPA. A Notice of Availability will be published in the local newspaper, The West Virginia Daily News, advising the public of this document's availability for review and comment. A copy of the EA will also be placed in the Alderson Public Library and made available on-line at ***http://www.lrh.Corps.army.mil/Missions/PublicReview.aspx***. The mailing list for the EA is located in Appendix C.

7.0 CONCLUSION

The Town's WWTP is currently not in compliance with state phosphorus discharge limitations, experiences other deficiencies at the WWTP, and has three lift stations that are failing and have reached the end of their useful life cycle. The proposed project would provide the Town with a WWTP that is in compliance with all applicable permits and codes, thus minimizing phosphorus discharge into the Greenbrier River. In addition, the proposed project would prevent untreated sewage from surcharging into surrounding homes and reaching the ground water. No significant adverse impacts have been identified as a result of implementation of the proposed WWTP updates and lift station replacements.

Construction would mainly take place on previously disturbed land. Health and safety would be realized immediately with project implementation. Effects associated with construction would be minor and temporary. BMPs would be implemented during construction to minimize impacts to residents and the environment. Therefore, the PAA would not be expected to have significant impacts on the human environment.