

## **5.0 Environmental Impacts**

### **5.1 Description of the Impacts**

#### **5.1.1 Beneficial and Adverse Impacts**

Construction of a gas pipeline provides the benefit of retrieving the landfill gas, presently being released into air, and using it as an alternative fuel source for operating the waste water treatment plant as well as the drinking water plant.

Adverse impacts are limited to temporary measures required to install the landfill gas pipeline and the gas-to-energy plant. There are no long-term adverse impacts associated with the proposed project.

#### **5.1.2 Short-Term and Long-Term Impacts**

The majority of the gas pipeline system will be located in road right-of-ways, and easements along public roads and residential driveways. Gas pipeline construction will result in short term environmental impacts inherent to construction, which include; noise, dust, traffic congestion, minimal brush clearing, and aesthetic view of the countryside because of machinery presence.

The generator for the waste water treatment plant will be installed in the premises of the waste water treatment plant, which is away from the residential area as highlighted in Figures 2 and 3. The periodic maintenance activities required for the proper operation of the generator will result in minor interruption of service. This may constitute as the long term impact. However, since the generator is located away from the residential area, the periodic maintenance activities as well the noise from the generator should not cause any inconvenience to the residents.

#### **5.1.3 Irreversible or Irretrievable Resources**

The project proposes to retrieve the gas from the landfill and use it to provide alternative fuel source for the wastewater treatment plant. This landfill gas is otherwise released in the air. The installation of the generator is proposed to be done in the premises of the wastewater treatment plant. The gas pipeline will be located in the road right-of-ways, and easements along public roads and residential driveways. Thus, no additional land resources are being affected by the proposed project.

## **5.2 Analysis of the Impacts**

### **5.2.1 Direct Impacts**

Direct impact evaluation of the proposed project is discussed below:

**i. Cultural Resources**

There are no known historical or archaeological structures or sites in the facility property, and on adjacent properties. Documentation of efforts to establish the presence of historical or archaeological structures near the project site or lack thereof is documented in Appendix C

**ii. Air and Water Quality**

Construction activities will generate dust in the immediate work area. This will be limited to the work area and all exposed earth will be paved or mulched as work progresses. Exposed earthwork activities will be staggered. Soil erosion will be controlled in order to avoid entry of soil in to nearby ditches. Construction activities will also generate smoke and exhaust fumes from the construction vehicles. Where practicable, efforts will be made to limit these vehicles.

In a long-term, however, the air quality will improve as the release of the landfill gas will be restricted due to the proposed project.

**iii. Wetlands**

There are no wetlands located in the work area.

**iv. Coastal Zones**

No coastal zones are found within the project area. Therefore there are no direct impacts on any coastal zone.

**v. Floodplains**

The flood map shows that the project site is not in any designated flood zone.

**vi. Natural or Wild and Scenic Rivers**

There are no natural or wild and scenic rivers in and around the project site.

**vii. Major Surface Waters**

The project work will be confined to the area of work, which does not include parcels near major surface waters. Appropriate soil erosion and sedimentation control measures will be incorporated. There are no direct impacts on the surface waters.

**viii. Topography**

The proposed project will not adversely change or impact the topography. All areas disturbed by the project will be restored to existing grade.

**ix. Geology**

The proposed project will not adversely change or impact the geology of the area. There are no mining or deep excavations involved in the project. All work areas disturbed by the project will be restored to existing grade.

**x. Soils**

The proposed project will not adversely change or impact the soil conditions in the area.

**xi. Agricultural Resources**

The proposed project area does not have any designated agricultural resources.

**xii. Plant/animal Communities and Environmentally Sensitive Habitats**

No, known, environmentally sensitive habitats exist in the project area. Care will be taken to ensure that plant and animal communities are not disturbed.

**xiii. Aesthetics**

The location of the gas-to-energy facility will be away from the adjacent residences. Also, the proposed facility is housed within a proposed building. This project will not, therefore, create aesthetic issues. However, the visibility of construction machinery will have an aesthetic impact during construction.

**xiv. Human, Social and Economic Impacts**

Social impacts will be limited to congestion on roadways due to construction. Access to residential and commercial driveways will not be impacted for more than a few hours in a day.

**xv. Operational Impacts**

The factors like noise, odors, traffic etc. are considered under operational impacts of the project.

Noise due to construction activities such as vehicular traffic, excavation, drilling, compacting and boring will be kept to a minimum. The work hours will be maintained so as to not disturb the public.

The proposed gas-to-energy facility utilizes two reciprocating, internal combustion engines, specially designed to burn landfill gas to generate electricity. These engines create noise as a result of their operation, which is expected to be nearly continuous through their operating life. Because of the potential for a nuisance from noise, the proposed engines are housed within a proposed building. Also, an exhaust silencer is an integral component to the proposed design. These measures reduce the noise output of the gas-to-energy facility to levels comparable to existing operation at the WWTP.

The traffic will be interrupted due to the construction activities and the periodic maintenance of the gas lines. Other than these there should be no inconvenience or interruptions to the traffic due to the proposed project.

The project proposes to retrieve the landfill gas and using it as an alternative source of energy. Thus, the implementation of the project will help reduce any odors due to the release of the landfill gas in to the air.

### 5.2.2 Indirect Impacts

Indirect impact evaluation of the proposed project is discussed below:

**i. Development**

This project will not result in any exaggerated development in terms of increased population and/or commercial development.

**ii. Land Use**

No changes to existing or previously established future land use plans will occur as a result of this project.

**iii. Air and Water Quality**

There will be an improvement in the air quality due to controlled retrieval of the landfill gas. However, no secondary growth is expected as a result of this.

**iv. Plant/animal Communities and Environmentally Sensitive Habitats**

No known sensitive habitats exist in the project area. Also, the topography and extent of earth disturbance is expected to be minimal.

**v. Aesthetics**

The location of the gas-to-energy facility will be away from the adjacent residences. Also, the proposed facility is housed within a proposed building. This project will not, therefore, create aesthetic issues. However, the visibility of construction machinery will have an aesthetic impact during construction.

### 5.2.3 Cumulative Impacts

Based on the evaluation of beneficial, adverse, direct, indirect, short term and long term impacts associated with the proposed improvements at the wastewater treatment facility, there are no significant negative cumulative impacts.