

# Hanover

Engineering Associates Inc



January 27, 2016

Ms. Leslie Huhn, Acting Township Manager  
Lower Saucon Township  
3700 Old Philadelphia Pike  
Bethlehem, PA 18015

RE: IESI Bethlehem Landfill  
Southeastern Realignment  
Special Exception  
Technical Consultant Committee  
Response to 12/14/15 Review  
Hanover Project LS15-32

Dear Ms. Huhn:

We are in receipt of the Martin and Martin, Inc., January 11, 2016 letter that has responded to the December 14, 2015 review letter issued by Hanover Engineering Associates, Inc. on behalf of the Technical Consultant Committee (TCC) regarding the above-referenced project. Please refer to the full December 14, 2015 letter for the general limitations and assumptions used for the TCC review.

The comments generated by the Technical Consultant Committee (TCC) are presented in this letter for your consideration. These comments are based upon the committee's general and technical knowledge of Landfill Operations and, in particular the existing and planned operations of the IESI Bethlehem Landfill and the IESI plan and document submission for the above referenced application. Further, these comments are provided to a reasonable degree of engineering certainty.

This review is separate from reviews and comments this committee has regarding the IESI capability with PADEP regulations that may be covered by other review letters. Also, this review did not include a review of the IESI plan's capability with the Township Subdivision and Land Development Ordinance or the Township Zoning Ordinance. We understand that these reviews are being done by other consultants.

The review of IESI Southeastern Realignment documents is ongoing with regard to their various submissions to the PADEP and this review letter is limited to the review of the Special Exception Application. It does not cover all potential concerns with the proposed realignment and capacity expansion, since the review by TCC of the proposed expansion design will continue through the Phase 1 Environmental Assessment, the PADEP public hearing process and through the PADEP technical Phase 2 review period. Some of the review comments that the TCC has provided on the IESI Phase I Environmental Assessment have been incorporated into this letter for issues that may partially fall under the jurisdiction of the Special Exception review by the Zoning Board. Those comments are printed in italics and the application references use the P/CPADEP application section numbers. These comments have been modified in some cases because the more recent submissions by IESI to the Township have addressed comments that were previously identified. In other words the italicized sentences are not "verbatim quotes" in all cases

- S
- ROUTING
- Council
- Manager
- Asst. Mgr.
- Zoning
- Finance
- Police
- P. Works
- P/CPADEP
- P & R
- EAC
- Engineer
- Solicitor
- Planner
- Landfill
- EMC
- Other **ZHB**

Following are the TCC responses to each of the comments raised in the letter, highlighted in Red, for ease of reference.

### III. TECHNICAL CONSULTANT COMMITTEE REVIEW COMMENTS

#### A. GENERAL COMMENTS

1. Numerous citizen complaints of landfill odor have been received in the last two years.

**Refer to response C.1.a. Item 1 below.**

*See comment on C.1.a. Item 1 below.*

2. The Bethlehem Renewable Energy Plant has been built. This facility uses landfill gas to generate electricity.

**Acknowledged. The Southeastern Realignment Project proposes no changes to the Bethlehem Renewable Energy Plant.**

*No comment.*

3. Leachate flows in one section of the leachate detection system is a concern, in terms of both quantity and quality.

**Refer to response C.1.a. Item 1 below.**

*See comment C.1.a. Item 1 below.*

4. The truck delivery of offsite soils was not proposed in traffic studies for the last Special Exception and major permit modification. The applicant is now committing to the use of offsite soils for the construction and capping of this expansion. This raises issues regarding the trucks that will be used to haul soils to the site, including: the number of trucks involved; the traffic routes they will be allowed to take; whether they will be required to go through the truck wash, etc.

**All traffic will be required to follow the same route as do the waste delivery vehicles; PA-412 to Shimersville Road to Applebutter Road. The traffic to the landfill, including the waste delivery, cover soil, and construction materials vehicles, will remain the same as has been on the traffic route over the past few years. Nevertheless, Pennoni Associates has reevaluated the traffic route as requested. (See Attachment A) Attachment A shall be provided to the Township to be added to Section 3 of the Land Development Plan Supporting Documents Binder as supplemental information.**

*See Traffic comment below.*

5. The applicant is proposing to work on unlined sections of the original landfill. The applicant will be removing some of the existing Final Cover Soil and will be trenching through the existing Membrane Cap on a portion of the landfill that is closed. During this operation the limited exposure of old solid waste may result in the generation of leachate during precipitation. These areas were used as for solid waste disposal before liners and leachate collections system were required.

**As has been previously noted, there is no activity proposed in this Modification that has not already been approved by PA DEP and implemented by the Landfill. There is no proposal to trench through the existing membrane cap; membrane cap will be removed in areas of Phases I & II, leaving intact the underlying soil cover. The limited trenching through that soil cover into the old waste mass to install landfill gas transmission lines will be undertaken according to previously approved procedures as outlined in the NMCP and Cap Removal Procedure plans. All elements of the existing leachate management, including those in and adjacent to the Phase I & Phase II old waste areas, will remain in place and functional per this Application. We do not believe that there will be any accelerated leachate generation associated with this project.**

**No comment.**

6. The applicant is proposing major area where they will be placing waste over existing waste.

**As outlined within the project narrative the area of piggyback liner system over previously approved disposal areas is 22.5 acres of the +/-120 acre existing permitted area of disposal. Placement of waste atop existing waste at the IESI Bethlehem Landfill was first completed as part of the Phase III expansion in the early 1990's. The proposed project is a continuation of this effort.**

**No comment.**

7. The elevation of the proposed landfill cap is higher than currently approved and this higher elevation is proposed to extend over a large section of the property.

**The Southeastern Realignment proposes to restore the peak elevation previously approved in 2003 as part of the Phase IV expansion while limiting peaks to this same previously approved elevation (725') within the piggyback area of the Southeastern Realignment.**

**No comment.**

## **B. SPECIFIC REVIEW COMMENTS FOR THE SPECIAL EXCEPTION APPLICATION**

Attachment 1

Preliminary/Final Land Development Plan and Site Plan and Revised October 2015

Sheet 4 of 17 shows Existing Conditions but the southeastern area labelled as "Soil Stockpile Area" is not labeled accurately. This is the general area that was labelled "Potential Soil Stockpile Area" on previously approved plans, but we do not believe it was ever used.

**The soil stockpile area as depicted on Plan Sheet 5 of 18 has not been developed to date as per the approved plans. Similarly, the elevations and contouring depicted on Sheet 5 of 18 represent current approved conditions. Thus, the "soil stockpile area", being an approved location, has been depicted on the plans as such. For clarity we have relabeled the soil stockpile as "Approved Soil Stockpile" as provided on the revised Land Development and Site Plans submitted to the Township on January 4, 2016.**

**No comment.**

Sheet 13 of 17 provides a "Landfill Time Line" it would be important for the applicant to provide information about the number of months scheduled between the end of the completion of filling of a cell and the installation of the final cap and resurface restoration. (See comments below regarding Closure).

**Plan Sheet 14 of 18 has been revised to include a more detailed timeline between the completion of cell filling and installation of temporary and final cap systems as noted on the chart provided on Plan Sheet 14 of 18 in the revised Land Development and Site Plans submitted to the Township on January 4, 2016.**

**No comment.**

The main perimeter access road is shown in many areas to be constructed over top of the waste pack containing the Final Cap and Gas Collection System. This poses concerns including: (1) the ability the access road to distribute the truck loads in a manner that will achieve an acceptable weigh distribution into the waste pack; (2) differential settlement of the waste below the road creating potential for access road failure and potential damage to the underlying cap system; (3) the sequencing of construction of the road as it relates to filling and Final Cap construction along these sections.

**The access road currently serving IESI Bethlehem Landfill is constructed atop waste which has been capped and contains active gas collection systems. Upon development of the Southeastern Realignment, this situation will remain (road atop waste). In order to address any concerns with regard to loading, settlement and sequencing we offer the following:**

- 1. For stability and distribution of loading, additional subbase material totaling 18 inches in depth shall be utilized for roadway construction atop waste as detailed on Plan Sheet 14 of 18 of the revised Land Development Plans**

**submitted on January 4, 2016 to the Township. Additionally, bi-axial geogrid as well as geotextile, shall be provided to provide structural support.**

- 2. As noted above, the additional subbase along with geogrid will provide for the structural stability necessary to bridge any differential settlement. Additionally, the construction of the roadway would be staged to allow for an aggregate roadway when initial settlement of waste will occur. Prior to closure the access road would be paved as necessary in accordance with the detail provided on Plan Sheet 14 of 18 of the revised Land Development Plans submitted on January 4, 2016 to the Township.**
- 3. Sequencing of the roadway construction and capping is provided on Plan Sheet 15 of 18 of the revised Land Development Plans submitted on January 4, 2016 to the Township.**

**No comment.**

The road profiles shown on Sheet 13 of 17 indicate a road construction depth of at least 12 inches into the final two feet of cap soil cover material. Applicant should demonstrate how the road material meets the criteria of the required Final Cover and criteria for access and haul roads which are required to bear fully loaded truck weight without damage to the cap.

**The Plans, Profile and Details associated with the access road have been revised to depict and propose the roadway section (subbase to final paving) to lie above the final cap system including the two feet of cap soil cover material. These details are provided on Plan Sheet 14 of 18 of the revised Land Development and Site Plans submitted on January 4, 2016.**

**The profile of the access road still shows the new road surface at or below the existing final cap of soil. See Sheet 14 of 18, Station 20+00 through 26+00.**

Attachment 3

Narrative (November 2015 Section 2)

This narrative describes some of the relief the applicant is requesting from zoning ordinance provisions, but this may not be a complete list of the relief items that may be needed. A full review of the Zoning Ordinance and Subdivision and Land Development Ordinance provisions is being conducted by the Township Planner and Engineer and it is recommended that the Zoning Hearing Board be provided with their comments.

**The latest comments received associated with the review of the Land Development Plan and Site Plan were issued on December 15, 2015. Responses to each comment are provided in a response letter provided under separate cover dated January 4, 2016.**

**No comment**

Additional the Township and IESI have entered into many agreements over the years. Provisions of these agreements should be reviewed for any impacts they may have on the current application. Specifically, IESI should describe how their proposal will comply with the restrictions in Section 3 of the Township-IESI agreement dated August 31, 2014.

**See attached drawing dated 12-2015 entitled “Affirmative Covenant Area”, which depicts the scope of the referenced restriction in the 2005 First Modification to Land Development Agreement associated with the relocation of the Maintenance Building, consistent with discussions with the Township Solicitor, as well as Township Council’s motion of 12/12/15 regarding the same. (Attachment B)**

**This change should be reflected on the plan submission to PA DEP.**

Attachment 6  
Environmental Protection Analysis

The Site Capacity Calculations are to be reviewed by the Township Planning Consultant.

Many other issues related to the protection of the environment are described in the IESI application to the PA DEP for this proposed Major Permit Modification. Some of the comments from the Technical Consultant Committee on these other issues are included in this letter under the heading entitled: “C. - Other General Comments and Questions Regarding the Submitted Application.”

**No Response/no revision required.**

**No comment.**

Attachment 7  
Traffic Impact Analysis (November 2015 Section 3)

The applicant reports that there will be an increase in the number of trucks as compared to prior approved conditions. This report was prepared by Pennoni Associates, dated August 18, 2015, and describes that during about 6 days per month an additional 50 trucks per day would be added to the normal truck traffic of approximately 172 trucks entering and leaving the site, (Approximately 30 %). It is reported that all trucks will access and leave the site by way of Applebutter Road west of the site.

The accident history, road and shoulder condition and safety signage along Applebutter Road from the site to Shimersville Road should be reviewed to determine the roads ability to carry this increased traffic. This is a PennDOT road and a large portion of the road is located in the City of Bethlehem.

Although a Solid Waste Disposal Traffic Control Plan is in place and implemented, it has been effective in making a reduction in overweight vehicles entering the site but has not

eliminated them. IESI should consider additional controls to eliminate overweight vehicles.

**See above response to comment III A. 4.**

The Pennoni Report attached to the January 11, 2016 submission does not address the above two paragraphs. Specifically, Crash Histories should be submitted/reviewed to determine any crash patterns attributable to truck traffic. Also, the adequacy of roadway signage, particularly advance warning signs for roadway curvature, should be evaluated for truck traffic along the proposed Applebutter Road Route.

Attachment 8  
Neighborhood Protection Analysis

Subsection E of this attachment, entitled "Smoke, dust, etc." and Subsection J entitled "Other" refer to Neighborhood Protection issues that are also evaluated during the application being submitted to the PA DEP for this expansion. Some of the Air Quality and PA DEP Form D comments that the TCC has prepared for the Township's review of the application submitted to the PA DEP include the following:

*Air Quality Impact (PA DEP Application Attachment 13)*

*This section of the report indicates that IESI will be amending their EPA air emission, Title V, operation permit. This section also indicates that IESI has submitted a request for "Air Plan approval."*

*This section includes the opinion of the consultant for IESI that "no adverse air impacts to the surrounding community are anticipated."*

*The fugitive dust emission estimates from vehicles do not appear to include all the trucks required to deliver daily, intermediate and final cover soil, sub-base and protective cover materials based on the capacity and number of trucks listed versus quantities of materials needed as presented in the various narratives, plan sheets and closure plan documents. The emissions estimate also accounts for only one bulldozer daily and no other earth moving equipment during this 5.5 year extensive operating/new construction/closure operation. Earth moving equipment has the highest dust emission factor of any of the other activities. As noted elsewhere in these comments, significantly more truck traffic will contribute to fugitive dust emissions, noise, and traffic increases, which have not been identified as harms or proposed to be mitigated.*

*The operations plan should identify more frequent SEM readings than required by PA DEP. Trigger readings and immediate odor elimination requirements should be developed, to mitigate existing harms and future harms. The readings should be documented and open for inspection by both the PA DEP and the Host Municipal Inspector. Requiring the continual on-site monitoring of emissions will also quickly identify the source area, and ensure that the problem is immediately corrected, instead of relying on continuous odor complaints and once-per-quarter surface emission monitoring.*

*Prevention of additional sources of air contaminants and odors released by (1) excavation into that old fill for gas system installation; and (2) re-excavation of over 315,000 cubic yards of waste relocated from Cell 4E should be addressed.*

**Accounting for all truck traffic and earth moving equipment during the life of the Southeastern Realignment Project, the tonnages of dust emissions from the site are below any thresholds that would impact air permitting. Form G(A) has been updated to include all dust related activities. (See Attachment C)**

**No comment.**

Attachment 9

PA DEP Major Permit Modification for the Southeast Realignment Form I (November 2015)

The Attachment describes the stormwater and soil erosion protections and facilities to be provided by IESI. A review of these documents is being provided by the Township Engineer, the LVPC and the PA DEP, as part of the Land Development Plan reviews and the PA DEP permitting process.

The TCC intends, however, to provide applicable review comments on these plans after the PA DEP notifies the Township that the IESI Application is proceeding to the "Technical Review Phase". The PA DEP is not yet reviewing these plans as the contents of the plans may change based upon the recent PA DEP Environmental Assessment review. Any action on the Special Exception Application should be conditioned on the future review and adequacy of the controls proposed as reviewed and approved by the PA DEP.

**Acknowledged. The Form I which contains the Erosion and Sediment Control Plan as well as the Post Construction Stormwater Management Plan have been reviewed by Township Consultants as part of the Land Development Plan submission.**

**No comment.**

Attachment 12

Preparedness, Prevention and Contingency Plan (November, 2015 Section 6)

The PPC Plan included is for current activities, not proposed activities, and is outdated for current activities. The listed District Manager and Primary Emergency Coordinator responsible for plan implementation is no longer employed (Sam Donato). There are also references to "Landfill Manager" responsibilities, with no name identified.

**The PPC Plan has been updated to list the current District Manager, Primary Emergency Coordinator and Landfill Manager. (See Attachment D) Attachment D shall be provided to the Township to replace previously submitted Section 6 of the Land Development Supporting Documents Binder.**

No comment.

The Special Exception Application should include a PPC Plan developed for the current and proposed operations. This would involve updating the PPC Plan Attachment #4 to include all listed controls related to cap removal activities, and include the new evacuation routes for the new proposed interior road locations.

**Attachment #4 has been updated to address cap removal activities as well as excavation routes for new road locations. (See Attachment D) Attachment D shall be provided to the Township to replace previously submitted Section 6 of the Land Development Supporting Documents Binder.**

No comment.

The Procedures in Attachment #4 of the PPC Plan describe the controls IESI proposes to use during waste relocation, including controls for litter, dust, odor, noise, leachate and storm water impacts. Additional controls to prevent rainfall from infiltrating onto unlined refuse areas during the trenching operations should be included.

**Waste relocation controls within Attachment #4 of the PPC Plan have been updated to prevent to the extent feasible the amount of rainfall infiltration in unlined areas. (See Attachment D) Attachment D shall be provided to the Township to replace previously submitted Section 6 of the Land Development Supporting Documents Binder.**

The Attachment #4 entitled the "Waste Relocation Procedures" does include many specific actions that IESI intends to take to protect the environment, but some issues are still a concern. These are listed herein:

- a. Page WRP-2 in "Cap Removal" it states that the "Intermediate Cover beneath the membrane will remain in place". How would this be possible in areas where the old waste is being excavated and relocated?
- b. Page WRP-6 in "Odor Control" it states that the Contractor shall "Minimize the exposed area of refuse during the relocation operations". It is recommended that a maximum area of exposure be identified.
- c. It is requested the specific "Odor Control Plan" mentioned in the IESI response letter to DEP dated December 28<sup>th</sup> be prepared and incorporated into the PPC for the entire site.
- d. Page WRP-8 in "Suspect Material Encountered during Refuse Excavation" describes the identification and remediation of uncovered waste that may need special care. It is recommended that IESI consider retaining an independent consultant to be on site on a continuous basis during all waste excavation and relocation operations to observe, record and make recommendations on specific safety, testing, odor control, handling care and relocation procedures.

There are important environmental and neighborhood protection measures in Attachment #4 of the PPC Plan that are not identified in the Form D PA DEP major permit modification application as referenced in the Special Exception Application, (Attachment 8), Neighborhood Protection Analysis, narrative and Item J. The Neighborhood Protection Analysis should include an additional Item K on page 4,

referencing the environmental and neighborhood protection procedures of an expanded Attachment #4 in PPC Plan. The updated procedures should also be incorporated into the PA DEP permit application, as the effectiveness of environmental and neighborhood protection measures are dependent on these procedures being followed.

Also the following comments are noted:

Page 2 states that there is “an adequate quantity of onsite cover material”. This is not accurate.

Page 7 and 10 the new management team should be listed.

Page 23 IESI should also list St. Luke’s Hospital at Rt. 33 and Freemansburg Avenue if they accept emergency patients.

Page 25 IESI should provide more information on how storm water runoff damage onto to Riverside Drive and Applebutter Road can be minimized and if mud or rocks are carried onto these roads, what emergency responses will be provided.

Page 27 any new revision should be listed.

Attachment 2-Evacuation Routes will need to be revised as work proceeds.

Page WRP-1 and page WRP-5 of this section describes what IESI intends to do if they find that Waste Relocation releases an odor. It would be helpful to know what experience other landfill operators have had with odor generation during Waste Relocation work.

**Above outlined requested revisions have been made to the PPC Plan. (See Attachment D) Attachment D shall be provided to the Township to replace previously submitted Section 6 of the Land Development Supporting Documents Binder.**

**No comment, except the comment regarding Page 2, was not addressed.**

Attachment 13

PA Solid Waste Permit No. 100020

A height restriction is imposed by Section 20 of the PA DEP Permit for Phase IV dated April 17, 2003 stating “IESI PA Bethlehem Landfill shall limit the height of Phase IV so that it is not visible by persons walking along any section of the Delaware and Lehigh Canal Towpath. This limitation shall only apply to Phase IV and if Phase IV becomes visible, the height of the Phase IV closure shall be limited to that elevation observed.”

**IESI acknowledges said height restriction imposed by Section 20 of the PA DEP Permit for Phase IV. Said restriction regarding “visibility” is only to the extent that the height of the Phase IV Expansion waste mound projects above the existing 50’-60’ tall tree line of the forested ridge, and does not include any view through the trees during winter months or periods of diminished foliage. Supplemental information as provided to the Township, including line of sight plans as well as photographs, document no visibility of the proposed height from the towpath per said Permit condition.**

**No comment.**

Attachment 14  
Erosion and Sedimentation Control Plans

These plans are to be reviewed by the PA DEP.

**Acknowledged.**

**No comment.**

Attachment 15  
Landfill Closure Plan (November 2015 various documents)

The Life Expectancy and Sequence of Operations table in the Section 2 “Project Narrative” and the capping sequence shown on the plan sheet 15 of 17 do not include a timeline of capping for each step. The number of acres capped over existing capped areas, as well as those acres of cap removed should be identified on a timeline, so that each season the number of acres capped increases as filling progresses.

Reference is also made to The Land Development and Grading Plans (Sheets 8, 9, 10 and 13). There is no identification as to when the various cells will be capped, or when each Step of capping will be completed. The only significant increase in capped area over existing conditions appears to occur at the end of Step 6 of 7 capping steps. Existing capped areas are shown as 92.3 acres with an additional capped area after step 6 of 118.8 acres. The capped areas are interpreted to be final capped, not temporary caps. The Applicant should confirm that all capped areas shown are final caps. The Applicant should provide a defined cap completion schedule for each Step 1 through 7, and add the final capping schedule to the Cell Development Schedule on Sheet 13 of 17. Waiting until the final year or two to complete capping Steps 1 through 7 would allow a continued risk of a release of landfill gas thru the Intermediate Cover. It is recommended that capping be installed on a semi-annual or annual schedule on whichever cell or step is completed in that year on the schedule. According to the sequence shown this would result in capping an additional 6 to 17 acres per year over the five year life of the facility.

Impacts on the neighborhood could be reduced by filling and closing cells on a continuous basis and filling and closing cells from west to east or from east to west---so that larger areas could be finished and closed permanently.

The Section 7- Reclamation Plan appears to be the Phase IV Closure Plan Attachment 28-1 from a previous PA DEP permit Application. It does not reflect closure of the proposed Southeastern Realignment Expansion. The Closure Plan should be updated to include all activities and areas of the new proposed expansion.

**Plan Sheets 16 and 17 of 18 within the revised Land Development Plan set submitted to the Township on January 4, 2016 have been revised to depict**

**“Temporary Cap”, “Existing Cap” and “New Cap”. All capping not listed as temporary is permanent cap. As shown within Steps 1 to 7 capping either temporary or permanent extends from west to east. Additionally, Plan Sheet 14 of 18 has been revised to include an updated Landfill Timeline Chart to include capping within the construction line of the Figure as noted.**

This Attachment 15 appears to be referencing Phase IV and not addressing the proposed expansion. For example, the closure date of 2017 does not reflect the SE expansion. An adjusted and extended closure date would change the post closure bond estimates, as the inflation factors and future costs would be estimated higher. The Closure Plan and support forms dated 10/14 also do not reflect the quantity changes in such items as surface area of the site which contains trash (forms say 133 acres, where sheet 17 of 18, final stage indicates 136 acres).

Further, the Closure Plan narrative in Attachment 15, schedules shown on the plans and the E&S narratives do not address how the final stage closure of cell 4 E will occur. According to the final closure sequencing shown on plan sheet 17 of 18 for stages 6 and 7 of final closure (date last revised 12/30/15), final work and closure of this far western cell will occur after all other “stages” are filled and capped. However, closure of the final stage calls for excavation of over 315,000 cubic yards of refuse from cell 4E, while bringing in additional substantial fill to meet required slopes and grades in order to close it. The plan does not identify when and where the excavated refuse will be disposed, since all other stages will be capped up to that point.

It appears that the bonding estimates on the closure forms associated with the cell 4E refuse excavation and disposal, and the extra fill required to meet closure of this final cell are not identified in the Closure Plan. A review of the bonding cost estimates will be part of the Host Municipal review of the Technical Portion of the DEP application and therefore will not be part of this review.

### **C. OTHER GENERAL COMMENTS REGARDING THE SUBMITTED APPLICATION**

During the review of the Form D and this first Environmental Assessment Process (EAP), as submitted to the PA DEP by IESI on January 19, 2015, the following comments were developed. These comments do not constitute a full review of any of the technical aspects of this submission but are provided in a way of preliminary comments. These comments have been incorporated into this letter because a portion of the concerns raised in these comments may fall under the jurisdiction of the Special Exception review of the Zoning Hearing Board. As mentioned earlier, these are not verbatim copies of earlier comments. They have been modified to take into account the information that IESI has provided in this Special Exception application since some of that new information has addressed earlier comments the TCC provided for the PA DEP Phase 1 application.

#### *1. GIF (General Information Form):*

- a. *Samuel Donato - under client and site information. Mr. Donato is no longer employed by IESI to the Township's knowledge. The application and any future application supplements should be certified by the appropriate official, and new certification forms provided if Mr. Donato is no longer the IESI authorized contact, spokesperson or responsible official for this application, future application supplements, or for the proposed construction and performance of the design as submitted.*

**The application was properly certified by Sam Donato, who was the responsible official at the time of application. Future submissions will be certified by the current responsible official, on behalf of the company, IESI PA Bethlehem Landfill Corporation, a subsidiary of Progressive Waste Solutions LTD. PA DEP has been informed of all relevant changes to facility personnel, and an application update is not required.**

**No comment.**

*Item 1. Existing known environmental harms associated with landfill gas emissions have not been fully mitigated. Offsite odors continue to be a reported problem and concern. Documentation exists as to the numerous odor complaints received by IESI, the Township and PA DEP. The citing of excess methane emission readings by both IESI and PA DEP, and tracked by the Township since 2010 identify methane readings above regulatory limits in every Surface Emission Monitoring (SEM) event. PA DEP attributes these exceedances to lack of adequate cover (either in spot locations or area-wide) during current operations, and IESI then addresses the problem as required by the PA DEP. Lack of adequate cover in many areas of the site was also documented by PA DEP in a site inspection August 27, 2014. Although the documentation confirms known harms of odor and air emissions attributed to inadequate cover practices, IESI has not been issued any substantive penalty, and the issue is temporarily mitigated.. The monitoring of emissions on only a quarterly basis by IESI and about twice per year by PA DEP, does not determine if exceedances across the site are continuing between those testing periods. The odor and gas exceedance problems are considered known harms with a long duration of recorded occurrence, a high frequency documented by numerous parties and a high intensity as also reported and documented. Recently IESI has started to more aggressively control the escape of landfill gases and odor. They have received PA DEP approval for the installation of an impervious temporary cap to supplement the intermediate soil cover.*

**IESI currently implements air quality measures pursuant to applicable approvals, and as noted, implements corrective measures pursuant thereto and consistent with PA DEP requirements. In addition, IESI implements the approved nuisance minimization and control plan and operational measures to reduce the potential for all nuisances, including odors. IESI has recently received approval to utilize two temporary cap options to better control gas and potential odors in portions of current and future temporarily inactive disposal areas. Further, as discussed above, specific measures are proposed to address the control of gas and the potential for odors related to the proposed cap removal and lining of the overlay area associated with the Southeastern Realignment project. Any remaining potential harms associated with odors and landfill gas, after taking into**

account the various control and mitigation measures are therefore adequately and appropriately described in the application for evaluation during the harms and benefits analysis.

The comment is incorrect in several aspects as it relates to surface emission monitoring. During the initial quarterly scan, any readings above the 500 ppm methane level result in corrective action by facility personnel—verified as permanently effective by additional monitoring performed in 10-day and 30-day intervals from the initial quarterly scan. Any points exceeding the 500 ppm limit are not “temporarily mitigated” nor is PA DEP “directing actions” to perform temporary mitigation. They are permanently repaired and verified at least two separate times after repair prior to the next quarter’s monitoring event—at which time the repairs are yet again re-verified. Second, as documented in PA DEP’s efacts’ website, the facility has not been issued even a single violation by the department’s bureau of air quality, which is the PA DEP’s bureau responsible for enforcing surface emission requirements, for any emission or odor related issue, during the five calendar years 2011-2015. In addition, both federal and state requirements allow three attempts at permanent repair over a 30-day period, and a 180-day period. All 3 of which must fail, before corrective action is required. At IESI Bethlehem landfill, every single monitored point during the last four quarterly events was either in compliance initially, or permanently repaired on the first attempt within 10-days of detection, and verified as corrected during the mandatory 10-day and 30-day follow-up monitoring events.

Comments will be provided for PA DEP.

*Another known potential environmental harm that has not been addressed prior to submission of this application, nor mitigated or proposed to be mitigated, is the presence of leachate in the detection zone of one or more Leachate Management Chambers originating from the Phase III lined area. This condition has been a documented concern of the Township since the Township first brought this to light in the year 2000. This potential harm could be associated with some type of breach in the primary liner system. Leachate flow from this one section of the landfill into one of the Leachate Management Chambers has increased in frequency (the flow is continuous), has been occurring since 2000, and has been exceeding the flow rate of 100 gallons per acre per day established by PA DEP for triggering additional actions. PA DEP is aware of this condition but has not yet required additional remedial action. The application calls for more waste placed in this currently closed and capped area of the landfill. The potential harm of additional leachate generated by these new Phase III activities and may result in even more leachate not being captured by the primary collection system has not been addressed.*

The following represents a summary of the key conclusions regarding the dz-6, dz-7, and dz-8 (Phase III area) detection zone flows (dz) that have been investigated and evaluated in previous reports and re-reviewed recently.<sup>(1)</sup>

1. The flows in dz-6 and dz-7 have been well below 100 g/ac/d for approximately 6 years as a result of the capping and other measures performed in 2008 and 2009. PA DEP requires an investigation when flows exceed 100 g/ac/d.
2. The increased pumping from the abatement wells beginning in 2006 has created a more effective groundwater trough downgradient of the Phase III area.
3. Water samples from the monitoring wells downgradient of the abatement well groundwater trough confirms compliance with municipal waste landfill groundwater abatement standards.
4. After the improvements to the toe drain in the area of dz-8 were completed on April 4, 2010 and May 8, 2011, the flow rates in dz-8 were reduced, which resulted in a proportional increase in the concentration of total dissolved solids in dz-8.
5. The elevated flow rates in dz-8 are from stormwater, not from leachate in the overlying lc-8 system.
6. There is no indication that the water quality in the wells downgradient of dz-8 has been adversely impacted by the flow in dz-8.
7. Bethlehem Landfill is continuing to manage dz flows in accordance with PA DEP regulations.
8. We also reference the 10/3/12 LST/DEP meeting at which DEP stated that the flow in the landfill's leachate detection zone is not a public health and safety issue, that it is common for municipal waste landfills to have flow in these zones, and that there is "zero risk" associated with this condition.

**Comments will be provided for PA DEP.**

- b. Page 7 of 7 – Final certification should be signed by an authorized representative of the applicant. Mr. Donato is no longer employed by IESI Bethlehem Landfill.*

The application was properly certified by Sam Donato, who was the responsible official at the time of application. Future submissions will be certified by the current responsible official, on behalf of the company, IESI PA Bethlehem Landfill Corporation, a subsidiary of Progressive Waste Solutions LTD. PA DEP has been informed of all relevant changes to facility personnel, and an application update is not required.

**No comment.**

2. *Form A (Application for Municipal Waste Permit) – We recommend that the public notice be issued to every adjacent property owner. The Affidavit should be signed by a current authorized representative.*

**In compliance with regulatory requirements, the appropriate notification was sent, certified mail, to all adjacent property owners - see Attachment A-2 of Form A of the Southeastern Realignment application.**

**No comment.**

3. *Form B (Professional Certification) – The soil scientist certification has not been completed.*

**Because of the limited 'virgin' footprint associated with this project, there were no backhoe pits, etc. associated with this modification, and all soil is being purchased from offsite sources. As such, IESI contends that the response "n/a" is appropriate for the Form B Soil Scientist entry.**

**No comment.**

4. *Form C-1 (Compliance History Certification) – The Compliance History Form HW-C of June 10, 2014 (referred to and not included) may name Mr. Samuel Donato within its contents. If that is the case, the HW-C should be updated to identify his replacement.*

**Mr. Donato was the landfill operations manager, and thus was appropriately included within the application documents submitted. Note that Form HW-C (or C-1) is submitted with the annual report for the landfill, and the next such form will name current personnel as required.**

**No comment.**

5. *Form F (Soil Information) – This section states that soil information is not applicable. If soils are to be imported, it is recommended that detailed soils information be provided.*

**Soils specifications are set forth in the department's Chapter 273 Municipal Solid Waste Regulations at 25 Pa Code §§ 273.232-234, and purchased soils will be required to meet these specifications.**

**No comment.**

6. *It is recommended that the Lower Saucon Municipal Authority provide review comments on proposed changes to the western edge of the landfill near the tower and waterline.*

**The western edge of the landfill is being returned to the conditions as were approved by the Township and PA DEP with the Phase IV Permit. No changes beyond those previously approved are being proposed.**

**No comment.**

7. *Emergency Response – It is recommended that IESI verify that the City of Bethlehem Fire Department will remain available to fight fires at the landfill. It is recommended that IESI allow access and cooperation with local Emergency and Fire response groups if they request opportunities for training.*

**Bethlehem landfill will verify that the city fire department will remain available, and that emergency training is provided.**

**Documentation is still requested.**

8. *Industrial Waste Permitting – It is recommended that IESI verify that they will be able to continue utilizing the City of Bethlehem Waste Water Treatment Plant, and as a backup, the Allentown Waste Water Treatment Plant for Leachate Treatment.*

**IESI Bethlehem landfill will continue to utilize the city of Bethlehem POTW pursuant to the existing arrangements with the city, with Allentown as the back-up treatment facility. This documentation has been previously submitted.**

**No comment.**

9. *Air Quality Reviews – It is recommended that all Air Quality Permitting (for modifications and extensions of existing permits) be coordinated with the application process for this expansion.*

**The Air Plan Approval documents associated with the Southeastern Realignment project have been submitted to PA DEP and Lower Saucon Township.**

**No comment.**

12. *Mechanically Stabilized Earth (MSE) – It is recommended that IESI retain a Consulting Engineer to inspect the construction of the wall and provide a certification, upon its completion, that it has been constructed in accordance with certified design plans.*

**Third party inspection and certification by a registered engineer is required for all significant construction activities under the permit, which includes the MSE embankment. In addition to the design plans for the MSE embankment, the Construction Quality Assurance Plan included in Form 24 specifically sets forth the material and placement requirements for the construction and certification thereof.**

**No comment.**

13. *Site Capacity:*

*It is stated in the application that there is no change to the existing Phase IV Operations Plan. However, changes in operations will include several items which are different than Phase IV. A detailed operations, construction and staging plan to identify the following items and sequence of activities was not provided, including:*

- *Stockpiling of soils and construction materials – Soil stockpiling for daily and intermediate cover is indicated on the Erosion and Sedimentation Control Plans in the southeast corner where the new MSE wall is proposed. There are extremely limited remaining areas within the permit boundary that are unfilled. Sufficient non-capped or non-active areas of the site for stockpile of construction materials, including additional sub-base soils, protective layer stone, piping and liner materials area staging should be clearly demonstrated, especially with an aggressive construction, fill, cap and close plan of approximately 6 years total.*

**As indicated in the application, construction and cover soils will be purchased and delivered from approved off-site sources, in the same manner as has been done over the past few years of landfill operation. As has been the practice at the landfill, to the maximum extent practical, materials deliveries are sequenced to minimize on-site storage in favor of direct delivery to the point of use, reducing double handling and attendant fugitive emissions potential. Also, consistent with current and prior site construction practice, when materials need to be staged; this will take place on the existing landfill, again reducing vehicle and fugitive emissions potential.**

**No comment.**

- *The Phase IV permit does not allow any stockpiling of soils/materials on capped areas due to the potential for cap damage, as demonstrated during that previous permit expansion review. The existing capped areas with the existing gas collection systems that are to remain functional and intact until modified or replaced should be delineated on the site plans and protected from all potentially damaging haul road traffic and staging activities.*

**Consistent with the 2003 permit and as noted on LF-19, no soil is to be stockpiled on the top of capped areas prior to placing sacrificial geotextile or geomembrane atop final cap cover. Final capping is not deemed “final” until any stockpiled materials are removed, and the cap is evaluated for integrity.**

**The applicant should show the top elevation of the proposed topsoil storage on Cell 4B and 4D.**

- *The process of Final Cover soil removal of existing areas (proposed “piggyback” areas) should identify where and how the removed soil materials will be stored, staged, disposed or reused, without affecting existing capped areas.*

**Cap materials that are removed from existing areas will be discarded as waste into the active landfill area, rather than being staged and reused.**

**No comment.**

*The plans and narratives do not clearly demonstrate the ability for the existing permitted area to support all existing and new activities associated with the expansion without harm to existing on-site systems, nor do they demonstrate how the new harms will be mitigated.*

**As noted above, the site has been implementing both materials storage/management and avoidance of harms to existing on-site systems for many years in the same manner as will be used during the construction of this phase of the project. These procedures are detailed on drawing LF-19.**

**No comment.**

#### ***OTHER COMMENTS ON ENVIRONMENTAL PROTECTION***

##### ***4. Parks (Attachment 4)***

*This section describes that the project is located within one (1) mile of the Delaware and Lehigh National Heritage Corridor, a unit of the National Parks System. The report offers the opinion that the Corridor is "not impacted" by the proposed expansion and, further, that the mountain ridge obstructs the view of the Landfill and the proposed expansion from the parks and trails along the Lehigh River Corridor. It is recommended that this statement be verified by way of onsite observations using either a crane and flag or balloon raised to the elevation of the proposed cap at several locations along the cap and that observations be made from various locations along the Delaware and Lehigh National Heritage Corridor. During the review of the 2003 Permit Application, right angle cross-sections were provided to confirm "non-observation" but these cross-sections did not take into account views of the Landfill from angles either east or west of the location of the cross-section.*

**The proposed final contours of the Southeastern Realignment do not exceed the top elevation (725 feet above sea level) that was approved with the Phase IV permit in 2003. Nonetheless, IESI has performed an updated and expanded visual impact analysis in connection with the proposed Southeastern Realignment application. Specifically, lines of sight projections and photographs have been assembled to evaluate the potential visual impacts of the proposal from locations along the river corridor, from locations with Steel City, from a location in Freemansburg and from Applebutter Road at the east end of the landfill property.**

**As depicted in materials previously submitted, with excavator booms raised to the 725 and 717 elevations at the proposed high points of the project, the lines of sight and photographs confirm that the landfill will not be visible from the north, above the existing tree line along the ridge, from these locations.**

**No comment.**

In summary the TCC provides the following comments:

The Community Impact Study prepared by the applicant and included in the November 2015, Land Development Plan Supporting Documentation notebook as Section 15 has a conclusion, on page 4 that the various studies and analyses provided by the applicant demonstrate that the proposed landfill expansion will “.....result in no negative impacts to the community”. The TCC provides the responsive comment that the proposed landfill expansion will result in some negative impacts to the community as outlined in this letter and summarized below.

**Refer to responses above associated with specific concerns/comments outlined.**

**No comment.**

Odors –

Past experience has indicated that landfill operations, especially those involving the exposure and relocation of existing waste have a risk of odor impact on the community. While IESI has recently proposed additional odor minimization and mitigation measures for their current operations (i.e. impervious membrane intermediate cover), the measures utilized since approximately 2012 (thru November 2015) have not been adequate to address the odor complaints from residential neighborhoods. The recently proposed impervious intermediate cover should help reduce landfill gas escape. It is recognized that IESI is proposing some additional specific measures to reduce the risk of odor at the locations of “Waste Relocation” (reference Section 6, the PPC Plan, attachment #4). However, it is recommended that specific information with regard to: (a) odor control during the removal of the intermediate cover in the western section of the landfill and the trenching thru the final membrane cap and work needed to prepare the existing capped area for the “waste on waste” operations, (b) odor control during the waste relocation process, (c) phasing and size of phases and (d) daily intermediate and final cover and capping- be provided. All such additional information should be provided to the satisfaction of PA DEP.

**See responses above regarding the PPC Plan, the NMCP, the Cap Removal Procedure, etc.**

**See Previous Comments regarding the PPC Plan and Odor Control.**

It is also recommended that IESI provide information to confirm that their proposed expansion complies with applicable PA DEP setback requirements from occupied dwellings and/or properties with occupied dwellings.

It is also recommended that IESI define limits on the number of months that they will be scheduling between the placement of the last level of intermediate cover and

the placement of the final membrane cap for each cell or phase and that this schedule be acceptable to PA DEP.

**The project complies with all applicable DEP setback requirements. As noted above, the scheduling of construction, operations, and capping has been clarified.**

**No comment.**

Noise – The noise associated with offsite truck traffic and onsite trucks and equipment will create a negative impact on the community. The potential for noise impacts on residents immediately to the southeast of the landfill has been identified in Neighborhood Protection Analysis (Attachment 8 and November 2015 Plan sheet 14 of 17). Although the analysis provided concludes that the noise impact will not exceed Township Regulations (Zoning Ord. 180-96), IESI should provide information to confirm that their proposed expansion complies with applicable PA DEP setback requirements from occupied dwellings and/or properties with occupied dwellings. The applicant should identify whether the Permit and HMA limitations on “Hours of Operation” apply to all site activities, including construction and waste relocation operations. (The limit is 6AM to 6PM Monday thru Saturday)

**The proposed Southeastern Realignment meets or exceeds the applicable PA DEP setback requirements from occupied dwellings and properties with occupied dwellings.**

**IESI acknowledges the “Hours of Operations” (6 a.m. to 6 p.m.) shall include waste relocation and construction as outlined in the Host Municipality Agreement and Permit.**

**Non-construction related noise levels should be checked by an independent consultant during operations. It is recommended that these readings be taken along the boundary abutting the closest residential dwelling and done quarterly during the filling of Cell SE-2A to confirm compliance with the zoning ordinance. .**

Traffic – The increase in truck traffic and the increase in the number of years of truck traffic associated with this landfill will create a negative impact on the community. The hours of operation for construction material and cover soil trucks approaching and leaving the site, and the nuisance of this additional traffic should be identified and IESI should describe any measures they propose to mitigate the nuisance. The road capacity and safety conditions along Applebutter Road up to its intersection with Shimersville Road should be updated to address existing conditions and the proposed additional volume and additional years of heavy traffic. If road capacity and/or safety deficiencies are found IESI should describe any measures they would recommend to mitigate these deficiencies.

**See previous responses regarding traffic.**

Accident histories should be submitted/reviewed to determine any crash patterns attributable to truck traffic. The adequacy of roadway signage, particularly advance warning signs for roadway curvature, should be evaluated for truck traffic along the proposed Applebutter Road Route.

On behalf of the Township Technical Consultant Committee, we recommend that the Township forward these comments to the Zoning Hearing Board and to the applicant for their use and consideration.

All the comments, recommendations and opinions in this letter are provided to a reasonable degree of engineering certainty.

Disclosure of Affiliation: After PADEP showed interest in the protection of pedestrian views from the Delaware and Lehigh Canal Towpath in 2003, the undersigned, started to walk and bike ride along the towpath for personal recreation. As time went on he started to volunteer for the Delaware and Lehigh National Historical Corridor, Inc, a non-profit corporation established to help maintain the history and recreation function of the Canal and Trail Corridor from Bristol to Wilkes-Barre. In 2012 the undersigned was appointed the organization's Board of Directors. The comments in this letter related to that recreation feature are limited to the limitations imposed by PADEP in 2003.

Ms. Leslie Huhn, Acting Township Manager  
Lower Saucon Township

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January 27, 2016

Please let me know if you have any questions on this review letter.

Respectfully,

HANOVER ENGINEERING ASSOCIATES, INC.



James B. Birdsall, PE  
Township Engineering Representative  
to the Township Technical Consultant Committee

jbb:lbb

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