

# Beneficial Use of Solid Waste Determination Evaluation Form



State of Oregon  
Department of  
Environmental  
Quality

Applicant: Trails End Recovery  
BUD#: SWDP 498  
Solid Waste: Gypsum, Street Sweepings, Asphalt Shingles  
Summary of Proposed Beneficial Use: Included in aggregate base.

Reviewer: Heather Kuoppamaki

Date: 03/08/2016

Tier:  One  Two  Three

## Beneficial Use of Solid Waste

Beneficial use of solid waste is a sustainability practice that may involve using an industrial waste in a manufacturing process to make another product or using a waste as a substitute for construction materials.

The environmental benefits of substituting industrial waste materials for virgin materials includes conserving energy, reducing the need to extract natural resources and reducing demand for disposal facilities.

Oregon Administrative Rules (OAR) 340-093-0280 - 0290 establish standing beneficial uses and a process for DEQ review of case-specific beneficial use proposals. Under these rules, DEQ may issue a beneficial use determination as an alternative to a disposal permit for proposals that meet the rule criteria. If approved, once a beneficial use determination is issued, DEQ no longer regulates the waste as a solid waste as long as the waste is used in accordance with the approved beneficial use determination.

## Beneficial Use Determination Evaluation Summary

Yes, the Beneficial Use of this solid waste meets all the case-specific performance criteria listed below and is approved.

Street sweeping fines that are 1-inch minus and have had all organic material (leaves, bark, etc.) removed, are approved for use in aggregate base with conditions on use.

No, the Beneficial Use of this solid waste does not meet all the case-specific performance criteria listed below and is not approved.

Gypsum and asphalt shingles from residential demolition projects are not approved for beneficial use in aggregate material.

*Notes: For Street Sweepings: the applicant met this criteria through information provided from a site investigation of the street sweepings and an existing case specific BUD. TER did not clearly demonstrate ground asphalt shingles or gypsum meet the requirements for case-specific beneficial use determinations and should not be approved for use in aggregate base. DEQ should request TER report the quantities of street sweepings beneficially used each year, update the Operations Plan to provide information on how storage, transportation, and processing of the material will be conducted to prevent releases to the environment or nuisance conditions.*

## Case-Specific Beneficial Use Performance Criteria:

DEQ may approve an application for a case-specific beneficial use of solid waste only if all the following performance criteria are addressed: 1) Characterization of the Solid Waste; 2) Productive Beneficial Use of the Solid Waste; and, 3) The affect of the Proposed Beneficial Use on Public Health, Safety, Welfare and/or the Environment.

### 1) Characterization of the Solid Waste

**Beneficial Use of Solid Waste Determination Evaluation Form**

Applicant: Trails End Recovery, SWDP# 496  
Solid Waste: Gypsum, asphalt shingles, street sweepings  
Date: 03/15/2016

Did the applicant characterize the solid waste and proposed beneficial use sufficiently to demonstrate compliance with the rules for case-specific beneficial use determinations (OAR 340-093-0280) by submitting required information for the appropriate tier? (See tier sections below for detailed characterization information.)

Yes (street sweeping fines)  No (gypsum and asphalt shingles)

Notes: For Street Sweepings: the applicant met this criteria through information provided from a site investigation of the street sweepings and an existing case specific BUD. TER did not clearly demonstrate ground asphalt shingles or gypsum meet the requirements for case-specific beneficial use determinations and should not be approved for use in aggregate base.

Was the following information submitted for DEQ review and how adequate was it?

Tier 1  Applicable  Not applicable

- Did the applicant provide an adequate description of the material proposed for beneficial use, the manner of generation and the estimated quantity to be used beneficially each year?  Yes  No

Notes: Trails End Recovery did not provide estimated annual quantities of any of the materials. TER provided estimates percentages of total aggregate each material would represent. Descriptions and manner of generation of all materials were provided.

- Estimated annual production of aggregate product is 3,000 tons.
- Asphalt shingles – approximately 5% of the total aggregate production.
- Street sweepings – approximately 5% of the total aggregate production.
- Estimated percentage of gypsum was not provided.
- Did the applicant provide an adequate description of the proposed beneficial use and justify how the proposed use is beneficial?  Yes (street sweepings)  No (asphalt shingles and gypsum)

Notes: Trails End Recovery would like to add ground gypsum, ground asphalt shingles, and street sweepings to aggregate base for road base and trench fill. TER did not adequately justify how the use of asphalt shingles or gypsum in aggregate base is productive.

The fine, non-organic portion of street sweepings has been approved for use as non-commercial fill at other facilities. Therefore the use of street sweepings in aggregate base is a productive use.

- Did the applicant provide a sufficient comparison of the chemical and physical characteristics of the material proposed for beneficial use with the material it will replace?  Yes  No

Notes: Information for gypsum use as a fertilizer was provided; this does not provide adequate comparison for aggregate base. Information on roof asphalt shingles used as roofing shingles and in hot asphalt mix was provided; this does not provide adequate data for comparison to aggregate base. Information provided on asphalt shingles was hypothetical, no actual testing information regarding asphalt shingles in aggregate base was provided.

Information provided regarding street sweepings did not provide a comparison between street sweepings and aggregate base. However, DEQ was able to conduct a comparison based on information provided in an existing approved beneficial use determination for street sweepings. Similar conditions on use will be required for the street sweepings beneficially used at TER.

## Beneficial Use of Solid Waste Determination Evaluation Form

Applicant: Trails End Recovery, SWDP# 496  
Solid Waste: Gypsum, asphalt shingles, street sweepings  
Date: 03/15/2016

- Did the applicant successfully demonstrate compliance of the proposed beneficial use with the performance criteria in OAR 340-093-0280 based on knowledge of the process that generated the material, properties of the finished product, or testing?  Yes  No

Notes: Street sweepings – additional testing should be conducted of material that has not been exposed to the environment for a significant amount of time. The site investigation report for the street sweepings from the City of Astoria states samples of street sweeping material was obtained from the near surface (0-3 inches). Material at the surface of the stockpile may not have representative levels of contaminants. TER should re-sample this material from deeper in the stockpile to obtain a representative sample.

Asphalt shingles and gypsum are not productive as materials in aggregate base. Ground asphalt shingles are likely to present an adverse impact to public health, safety, welfare, or the environment. This is based on testing performed by DEQ in 2004 regarding mulch containing approximately 50% ground asphalt shingles. This testing indicated elevated concentrations of metals, petroleum hydrocarbons, and petroleum derived polynuclear aromatic hydrocarbons (PAHs).

TER did not present enough information to show gypsum is used productively as part of an aggregate base.

- If required, did the applicant provide any other DEQ required information to evaluate the proposal?  Yes  No

Notes: DEQ should require a sampling plan for the street sweepings.

Tier 2  Applicable  Not applicable

- Did the applicant submit all the information required for a Tier 1 application?  Yes  No

Notes: TER did not provide data to compare the proposed materials with the material it will replace. Estimated quantities of the materials were not provided. DEQ should require a sampling plan for the street sweepings.

- Did the applicant submit adequate sampling and analysis to make a determination of suitability for beneficial use? (Note: The analysis must provide chemical, physical, and biological characterization of the material proposed for beneficial use and identify potential contaminants in the material or the end product, as applicable.)  Yes  No

Notes: No physical characterization of any material was provided. A characterization of the combined aggregate base material was provided. Chemical characterization of the street sweepings was provided; however the characterization may not be representative of the street sweeping material.

- When applicable, did the applicant provide a risk screening comparing the concentration of hazardous substances in the material to existing DEQ approved, risk-based screening level values, and demonstrate compliance with acceptable risk levels?  Yes  No

Notes: TER provided this information for the street sweeping materials. For the gypsum and asphalt shingles, TER provided data from other sources that may not be applicable to this facility. Additionally, in 2004, DEQ performed testing of ground asphalt shingles that indicated elevated concentrations of PAHs, metals, and petroleum hydrocarbons.

- When applicable, did the applicant supply the location or type of land use where the material will be applied, consistent with the risk scenarios used to evaluate risk?  Yes  No

**Beneficial Use of Solid Waste Determination Evaluation Form**

Applicant: Trails End Recovery, SWDP# 496  
Solid Waste: Gypsum, asphalt shingles, street sweepings  
Date: 03/15/2016

Notes: The materials are proposed to be used in aggregate base. Analytical data for street sweepings was compared to risk factors consistent with this use. TER compared concentrations in asphalt shingles to hot asphalt mix although this is not the proposed use. TER compared concentrations in gypsum to soil amendment requirements although this is not the proposed use.

- When applicable, did the applicant supply contact information of property owner(s) if this is a site-specific land application proposal, including name, address, phone number, e-mail, site address and site coordinates (latitude and longitude)?  Yes  No

Notes: The proposed use is aggregate base for road subbase material and trench backfill.

- Did the applicant supply an adequate description of how the material will be managed to minimize potential adverse impacts to public health, safety, welfare, or the environment?  Yes  No

Notes: DEQ accepted the information regarding management of street sweepings prior to being beneficially used. DEQ is not approving use of gypsum or ground asphalt shingles. TER must submit an updated Operations Plan regarding how street sweepings are to be stored, mixed into aggregate and managed as well as note that an annual report must be submitted to DEQ.

Tier 3  Applicable  Not applicable

**2) Productive Beneficial Use of the Solid Waste**

Has the applicant demonstrated that the proposed beneficial use is a productive use of the material by providing information substantiating the criteria listed below?

Yes  No

Notes: For Street Sweepings: DEQ concluded that the applicant met this criteria through information provided from an existing case specific BUD. TER did not provide documentation that the use of ground asphalt shingles or gypsum in aggregate base is a productive beneficial use of these solid wastes. DEQ is not approving ground asphalt shingles or gypsum for use in aggregate base.

Did the applicant successfully identify or demonstrate a reasonably likely proposed beneficial use for the material that is not speculative?  Yes  No

- The applicant is a port district and has demonstrated the proposed use is upland placement of dredged material in accordance with Senate Bill 412.  Yes  No

This criterion consists of three parts.

1. Identified Use:

Has the applicant clearly stated what the waste is going to be used for, that the waste is compatible with that use and the proposed quantity is necessary?

Yes  No

2. Reasonably Likely Use:

Has the applicant identified, with supporting documentation, the timeframe within which this use is likely to occur (e.g., zoning info, master plan for development, letters from local jurisdictions, etc)?

Yes  No

3. Not Speculative:

**Beneficial Use of Solid Waste Determination Evaluation Form**

Applicant: Trails End Recovery, SWDP# 496  
Solid Waste: Gypsum, asphalt shingles, street sweepings  
Date: 03/15/2016

For Land application - has this material been used at other sites for the same purpose, is the material feasible for use at this site for this purpose, or has the applicant identified a known potential for this use at this site?

Yes  No  N/A

For uses other than land application - has the material been used in a product before, is the material feasible for use in a product, or has the applicant identified a known potential for use in this product?

Yes  No  N/A

Notes: Fines for aggregate base is an identified use. With the exception of the street sweepings, TER did not show that the materials proposed are compatible with the use as the fines portion of aggregate base.

- Is the use a valuable part of a manufacturing process, an effective substitute for a valuable raw material or commercial product, or otherwise authorized by the Department and does not constitute disposal?  
 Yes  No

Notes: Street sweepings, with conditions on use, are an effective substitute for mined aggregate material.

Gypsum and ground asphalt shingles are not considered an effective substitute for mined aggregate material and will not be authorized by DEQ.

- Is the use in accordance with applicable engineering standards, commercial standards, and agricultural or horticultural practices?  
 Yes  No

Notes: TER should provide sieve data of the street sweepings material to ensure use of this material in an aggregate base would meet ODOT engineering standards for road base material.

**3) Effect of Proposed Beneficial Use on Public Health, Safety, Welfare and/or the Environment**

Has the applicant demonstrated the proposed beneficial use will **not** create an adverse impact to public health, safety, welfare, or the environment, by providing information substantiating compliance with the criteria listed in the bullet list below?

Yes  No

Notes: For Street Sweepings: DEQ concluded that the applicant met this criteria based on previous determinations that DEQ has made and through information provided from a site investigation of the street sweeping. Ongoing analytical testing and sieve analysis will be required to continue using street sweepings in the aggregate base. TER did not demonstrate ground asphalt would not create an adverse impact to public health, safety, welfare, or the environment and DEQ is not approving these waste materials for use in aggregate base.

- Has the applicant demonstrated that the material is not a hazardous waste under ORS 466.00?  
 Yes  No

Notes: Analytical data of the street sweepings material supports the material is not a hazardous waste. Potential hazardous wastes in asphalt roofing shingles were not adequately addressed; DEQ is not approving this material for use in aggregate base materials.

- Has the applicant demonstrated that until the time this material is used according to a beneficial use determination, the material will be managed, including any storage, transportation, or processing, to prevent releases to the environment or nuisance conditions?

Yes  No

Notes: This information should be included in a revised Operations Plan.

## Beneficial Use of Solid Waste Determination Evaluation Form

Applicant: Trails End Recovery, SWDP# 496  
Solid Waste: Gypsum, asphalt shingles, street sweepings  
Date: 03/15/2016

- Has the applicant demonstrated that hazardous substances in the material, if any, meet one of the criteria in the bulleted list below?  Yes  No
  - Hazardous substances do not significantly exceed the concentration in a comparable raw material or commercial product;
  - Hazardous substances do not exceed naturally occurring background concentrations; or
  - Hazardous substances will not exceed acceptable risk levels, including persistence and potential bioaccumulation, when the material is managed according to a beneficial use determination.

Notes: N/A

- Has the applicant demonstrated that the proposed beneficial use will not result in the increase of a hazardous substance in a sensitive environment, such as a park, wildlife refuge or wetland?  Yes  No

Notes: The proposed use is to add street sweepings, gypsum, and ground asphalt shingles to aggregate base. The aggregate base would be used as a road sub-base beneath hot mix asphalt or as trench backfill where groundwater is deeper than the trench depth. Street sweepings would not result in the increase of a hazardous substance in a sensitive environment.

- Has the applicant demonstrated that the proposed beneficial use will not create objectionable odors, dust, unsightliness, fire, or other nuisance conditions?  Yes  No

Notes: This information will be included in a revised Operations Plan.

- Has the applicant indicated that the proposed beneficial use will comply with any other applicable federal, state, and local regulations?  Yes  No

Notes: Approval of street sweepings for use in aggregate base will require compliance with all applicable federal, state, and local regulations.

#### 4) Public Involvement Evaluation (Note: this is not a Beneficial Use evaluation criterion)

Determine a public involvement recommendation using the current, **Guidance to DEQ Solid Waste Program Staff and Managers on Public Notice & Participation**.

- Is public notice and participation being recommended for this application?  Yes  No

Notes: Addition of street sweeping fines to the aggregate base material would be considered a substantial change in the scope of the permit and should undergo public notice.