

# Development Services

## From Concept to Construction

Phone: 503-823-7300 Email: [bds@portlandoregon.gov](mailto:bds@portlandoregon.gov) 1900 SW 4th Ave, Portland, OR 97201

More Contact Info (<http://www.portlandoregon.gov/bds/article/519984>)



### APPEAL SUMMARY

**Status:** Decision Rendered

**Appeal ID:** 26353

**Project Address:** 11910 NW St Helens Rd

**Hearing Date:** 12/8/21

**Appellant Name:** Aaron Muth

**Case No.:** B-016

**Appellant Phone:** 503.254.0110

**Appeal Type:** Building

**Plans Examiner/Inspector:** Amit Kumar, Jason Butler-Brown

**Project Type:** commercial

**Stories:** 0 **Occupancy:** U **Construction Type:** II-B

**Building/Business Name:** Owens Corning Trumbull Asphalt

**Fire Sprinklers:** No

**Appeal Involves:** other: Piping support integral to new tank project

**LUR or Permit Application No.:**

**Plan Submitted Option:** pdf [File 1] [File 2]

**Proposed use:** Pipe supports

### APPEAL INFORMATION SHEET

#### Appeal item 1

**Code Section** OSSC 1613

**Requires** ASCE 7-16 12.13.9 Requirements for Foundations on Liquefiable Sites

**Code Modification or Alternate Requested** Appeal the enforcement of 2019 OSSC SECTION 1613 EARTHQUAKE LOADS for existing and new ancillary structures.

**Proposed Design** See attached letter for a detailed description of a safe piping rupture.

**Reason for alternative** The alternate is required due to required boundaries between integral existing elements and the new tank. See attached letter.

### APPEAL DECISION

**Omission of design requirements for earthquake loads for pipe support structures:** Granted provided the connection of the pipes to the tank are made such that in an event of lateral spread or liquefaction the pipes and the attachments fail in such a manner that they do not impact the integrity of the tank structure itself, and provided signage is provided alerting the public/employees about the falling hazards of the overhead pipes and pipe bridge structures in an event of an earthquake for those pipes and bridges that are 6 feet or more above the ground.

**Note:** Approval is specific to the asphalt product described in the appeal.

Appellant may contact John Butler (503 865-6427) or e-mail at [John.Butler@portlandoregon.gov](mailto:John.Butler@portlandoregon.gov) with questions.

The Administrative Appeal Board finds with the conditions noted, that the information submitted by the appellant demonstrates that the approved modifications or alternate methods are consistent with the intent of the code; do not lessen health, safety, accessibility, life, fire safety or structural requirements; and that special conditions unique to this project make strict application of those code sections impractical.

Pursuant to City Code Chapter 24.10, you may appeal this decision to the Building Code Board of Appeal within 90 calendar days of the date this decision is published. For information on the appeals process, go to [www.portlandoregon.gov/bds/appealsinfo](http://www.portlandoregon.gov/bds/appealsinfo), call (503) 823-7300 or come in to the Development Services Center.

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December 1, 2021

**City of Portland, Oregon – Bureau of Development Services**

1900 SW Fourth Avenue  
Portland, Oregon 97201

**Re: Code Exemption Request**  
Linnton Asphalt Storage Tank Project  
Portland, Oregon

The Owens Corning Linnton Asphalt Terminal is located at 11910 NW St. Helens Road in Portland, Oregon. The site is used to store and transfer asphalt products. Owens Corning is proposing to install a new 70-foot diameter above-ground tank, measuring approximately 40 feet in height with a volume of approximately 25,000 bbls. Site improvements will also include piping and pipe racks.

The primary purpose of this correspondence is to appeal the enforcement of 2019 OSSC SECTION 1613 EARTHQUAKE LOADS for existing and new ancillary structures. Mitigation for liquefaction and related lateral soil displacement is a matter of course for the storage tank based on the primary risk factors. Ground improvement (GI) by deep soil mixing is being planned, its design is currently in the selection process. However, there is piping in the project that must be functionally attached to the tank where ground improvement beneath these supporting structures is not practical. Design-build contractors have confirmed that extension of GI beyond the tank is complicated by equipment access and practical limitation on boundaries, i.e., how far should GI extend into other areas of the site. The result is predicted large (12') differential displacement between the tank bearing on improved soils and the ancillary structures.

Conditions providing for safe failure in these structures during  $MCE_G$  ground motions are shown in the Appeal Narrative below. It is our position that these failures pose minor risk to Life Safety and product release to the river.

This memo considers that the scope and nature of this project as documented in the attachments from the Nov. 5 Life Safety Preliminary Meeting 21-096052-PJ is clear and that no further background information is required. Those attachments are not included with this correspondence but SKC-03 with additional annotations is included.

**APPEAL NARRATIVE**

Please refer to sketch SKC-03 attached. This appeal for exemption of enforcement of 2019 OSSC 1613 applies only to ancillary structures in the project including existing piping supports. Specifically:

- Existing single column pipe supports on shallow foundations running to the rail unloading area from the new tank. A single new 8" line is being added. Refer to AREA '1' on SKC-03.



- New two-column pipe supports on shallow foundations supporting multiple pipes between the new tank and the existing pipe racks. Refer to AREA '2'. GI can be extended to capture these foundations if necessary.
- New two-column pipe supports within the intersection of new and existing pipes. Refer to AREA '3'.
- Existing and new pipe supports West of existing Tank T-2. Refer to AREA '4'. The new pipe on these supports will be located less than six feet above the ground surface.

The hazards related to the lateral displacement of the ancillary structures relative to the tank include product spill from piping rupture and structure collapse. Note that the ancillary structures are typical modern industrial-quality elements built in conformance to building codes at the time of construction and are safe for normal loadings but are not designed for the extraordinary event of liquefaction and lateral spread.

Non-Hazardous Material: The product is asphalt, a Class IIIB combustible liquid. The building site is Classified as Group H-3 per 2019 OSSC 307.4 on the grounds that the material does not pose a deflagration hazard.

Life Safety: Per the Nov. 5 discussion by Owens Corning, worker presence in the tank farm area is incidental (using the language in listed exceptions to 1613.1 Scope for agricultural storage structures). Additionally, lateral soil displacement and subsequent collapse and would not be instantaneous during the maximum seismic event, this allows safe egress from the open tank farm area in the unlikely event of worker presence. This is based on standard safety training specifying immediate egress to safe muster points at the onset of ground shaking.

River and Groundwater Protection: Steps will be taken to limit spill volume to that of the product in the piping beyond the natural solidifying at ambient temperatures, such as flexible/breakaway connections and shutoff valves. As demonstrated in the accompanying video of a controlled process for emptying an asphalt tank, the product quickly solidifies and there is negligible outward running of the product and soil penetration. When solidified it is easily rolled up on the ground. The approved exemption request from City of Portland Bureau of Environmental Services on containment surfacing supports this assessment of risk to the river and groundwater.

## **SUMMARY**

We respectfully request an exemption to Section 1613.1 of the OSSC where it applies to the ancillary structures. This project does not include occupied structures or enclosed areas. Other code enforcement, primarily the IFC and NFPA 30, will preempt the provisions of Chapter 4 in 2019 OSSC and a waiver per OSSC 414.1.4 is appropriate.

Owens Corning  
City of Portland—Bureau of Development Services  
Code Exemption Request; 1269\_MEM104  
December 1, 2021



Thank you for considering our request. We look forward to discussing with you.

Sincerely,

**Norwest Engineering**

Aaron R. Muth, PE, SE  
Lead Structural Engineer

Cc: TJ Williams | Owens Corning, Project Manager  
James Cockrell | Owens Corning, Terminal Manager  
James Stone | Norwest Engineering, Project Manager

Atts: Site Layout Sketch, SKC-03 Rev. C, 10/07/21 (1 sheet)







DRAINING THE HEEL (REMAINING PRODUCT BELOW THE PUMP SUCTION NOZZLE ELEV.) FROM A TANK. NOTE THE OPEN-ENDED CONTAINMENT, AS THE PRODUCT IMMEDIATELY COOLS, VISCOSITY INCREASES, UNTIL IT SOLIDIFIES. PRODUCT PROGRESSION OVER OPEN GROUND IS VERY LIMITED.

