

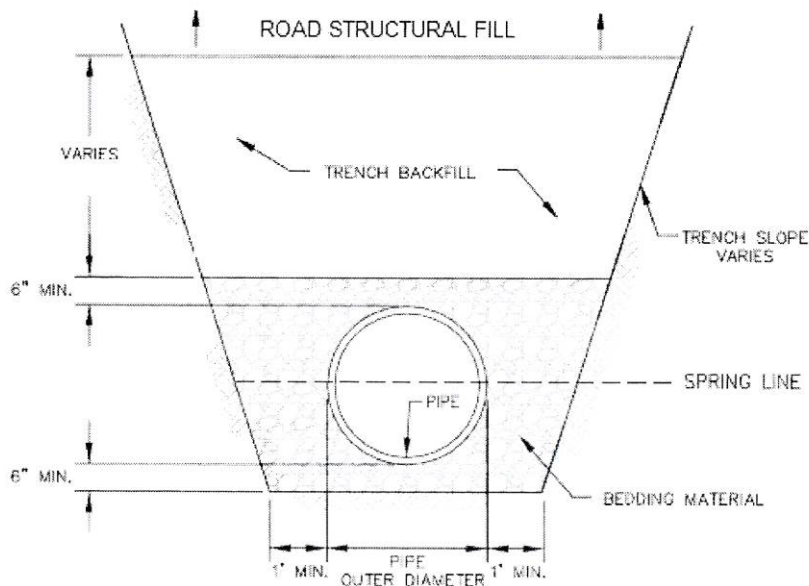
Municipality of Anchorage
ANCHORAGE WATER & WASTEWATER UTILITY
MEMORANDUM

DATE: September 28, 2012
TO: *KV* Kurt Vause, P.E., AWWU Engineering Division Director
THRU: *SN* Stephen Nuss, P.E., AWWU CIP Program Manager
FROM: *JA* James Armstrong, P.E., AWWU Project Manager
9-28-12
SUBJECT: Use of Reclaimed Glass for Trench Backfill and Pipe Bedding

Purpose

This memorandum shall constitute Anchorage Water and Wastewater Utility's acceptance of reclaimed glass for use as pipe bedding and trench backfill for water and sewer piping installations. Use of the reclaimed glass is acceptable within the non-structural portion of the road section to promote an overall reduction of waste entering the Anchorage Regional Landfill. The use of reclaimed glass is permitted so long as it meets the provisions listed below.

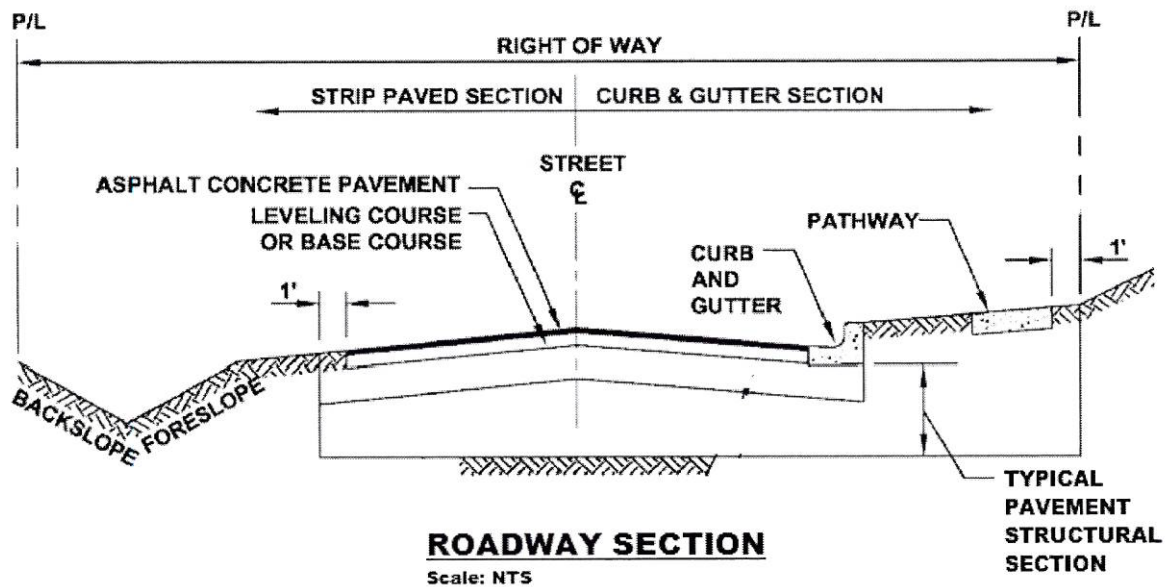
Bedding is defined as fill material placed below the pipe to at least six inches above the pipe for the entire width of the utility trench. Trench backfill is defined as any fill required to bring the grade up from the top of the pipe bedding to the bottom of the roadway structural fill section.



TYPICAL TRENCH
SCALE: NTS

Reclaimed glass within the road structural section shall only be allowed if authorized by, and meets requirements of, the State of Alaska Department of Transportation and Public Facilities (ADOT&PF) or the MOA Public Works Department (PWD).

The road structural section shall be as shown on the plans and as defined in the Municipality of Anchorage 2011 Design Construction Manual (DCM) or the Alaska Department of Transportation and Public Facilities 2004 Alaska Flexible Pavement Design Manual,



Reclaimed crushed glass material is to be an inorganic man made material that is being used as an aggregate substitute for pipe bedding or trench backfill. This memorandum is being created to set a standard in which crushed glass may be used as pipe bedding and/or trench backfill.

Practice

AWWU will allow the use of crushed glass material as pipe bedding if it is indicated by the Engineer in the Plans and/or Special Provisions.

Reclaimed glass must meet the following requirements:

1. Sources
 - a. Reclaimed glass shall consist of eligible secondary glass available from any source willing and able to certify their supply sources and composition of glass as required below.
2. Composition

Reclaimed glass shall consist only of the following eligible types of glass products:

 - a. Container glass used for consumer food and beverages;
 - b. Beverage drinking glasses;

- c. Plain ceramic or china dinnerware;
- d. Building window glass free of any framing material; and
- e. Other types of glass that can be certified and approved by the AWWU Engineer Director on an individual source basis.

3. Prohibited Materials

- a. any hazardous waste
- b. hazardous substance in regulated quantities listed in 40 CFR, Table 302.4;
- c. automobile windshields or other glass from automobiles;
- d. light bulbs of any type;
- e. porcelain products;
- f. laboratory glass; and
- g. television, computer or other cathode ray monitor tubes.

4. Gradation

- a. All crushed glass must be able to pass through ½" screen/sieve
- b. No more than 6% crushed glass material may pass through the #200 screen/sieve

5. Compaction

Reclaimed glass used for pipe bedding or trench backfill must be able to be compacted to 95% of Maximum density. Where the composition of the reclaimed glass does not allow for compaction to be achieved, blending with aggregate material may be required.

6. Debris Content

- a. The reclaimed glass shall not contain more than 5 percent debris, by visual inspection. Debris includes any non-glass material such as: paper, foil, plastics, metal, corks, wood debris, food residue, or other deleterious materials. The percentage of debris shall be estimated by use of a national standard.

7. Storage

- a. Interim storage of reclaimed glass stockpiles shall be on locations that segregate the glass material from other materials

8. Blending of Reclaimed glass for pipe bedding

- a. Reclaimed glass may be mixed with virgin aggregate materials to meet required gradation and compaction requirements.

- b. Mixing of glass with aggregate can take place at the construction site, glass crushing operation center, or locations approved by the engineer.
- c. In no case shall the gradation of the overall mixture be outside the allowable ranges set in the Municipality of Anchorage Standard Specifications for Class 'E' bedding.

9. Blending of Reclaimed glass for trench backfill (non-structural)

- a. Reclaimed glass may be mixed with virgin aggregate materials to meet required gradation and compaction requirements.
- b. Mixing of glass with aggregate can take place at the construction site, glass crushing operation center, or locations approved by the engineer.
- c. In no case shall the gradation of the overall mixture be outside the allowable ranges set in the Municipality of Anchorage Standard Specifications for Type III Classified Fill and Backfill

10. Applications

- a. Reclaimed glass and reclaimed glass blended with other aggregates may be used for pipe bedding and trench backfill mixtures.
- b. Reclaimed glass shall not be used in aggregate surfacing applications including shoulder surfacing.

11. Certification; The contractor shall provide documentation certifying that the reclaimed glass:

- a. Is comprised of only eligible types of reclaimed glass;
- b. Does not contain any prohibited materials;
- c. Meets debris content requirements;
- d. Meets the blending ratio requirements; and
- e. Is or will be stored according to storage requirements described in above.