

APPENDIX 5 CONTAINER STORAGE ISSUES

General issues to be addressed as part of any Container Storage proposal are identified below as an informative to identifying potential employment uses on **the site**.

Topography

Two drivers for inclination - efficient movement and storage potential due to overhang and drainage impact. 1:1000 is generally required for areas for offloading however 1:500 is maximum inclination

To ensure effective drainage nothing steeper than 1:100 should be allowed with the optimum inclination being 1:150. Hence, 1:125 can provide the best case scenario for this.

Overhead pylons limit operational capacity.

Rail Access

Sufficient areas to load/offload containers are required. Temporary or short term options for using reach stackers will require areas on both sides of the track(s). Long term and more expensive heavy duty movers require a large hardstand support area which will need to be factored into the design of the railway spur.

Equipment to move/load/unload containers

Loading and unloading of containers can be undertaken by Reach Stackers or fixed cranes. Reach stackers are the cheaper option, and usually are hired given the £250,000 outlay per item. However, reach stackers have less of a reach and hence greater area is required to access opposing tracks. Short term options for moving containers could utilise Reach stackers. Pro Rata rates of Reach stackers per ha are 1:1, however given the site size it is likely that for 30ha approximately 8 stackers should suffice (2 stackers as spares in case of breakdown, 2 loading rail, 2 unloading rail, 2 loading/unloading vehicles).

Specific empty container movers similar to fork lift trucks are also used to stack and transport containers.

For both types of equipment a washdown area and water containment of approximately 15mx20m would be required to ensure containment of oils and other chemicals.

Environmental Impacts

Noise generation from operations is largely the result of moving unladen containers given their propensity for acoustic radiation.

Light Illumination of the site for operational and security purposes can be mitigated to ensure light glare is contained within the site.

Surface water runoff as indicated previously, drainage of a site larger than 10ha is likely to require intra-site drainage as well as perimeter drainage.

Materials

Two key load bearing elements are required for the storage of laden and unladen containers. Storage areas supporting up to 5/6 container high require heavy duty paving which on rough estimates equates to £500,000 per ha, including drainage costs. Laden areas will require approximately the following base: 80mm thick blocks, 30mm bedding sand, 470mm CBM 4, 200mm unbound CBR30%.

Unladen areas can be used to settle areas of circumspect subsidence potential, i.e. unladen containers can be stored and expedite the settling process. General base for these areas would require: 200mm bitumen, 300 mm sub-base.

Massing

Storage heights of containers reflects whether they are laden or refrigerated. Laden containers are usually stored in 5-6 levels, with unladen containers being stacked up to 8 levels high.

Personnel requirements

It is likely that the following personnel will be required for a 30 acre site:

2 workers per stacker for 24 hour activity: @ 8 stackers	= 16 FTE
2-3 general maintenance workers:	= 3 FTE
Yard manager and deputy:	= 2 FTE
10 Day booking staff:	= 10 FTE
5 night booking staff:	= 5 FTE

Site Size

Due to the large area i.e. over 10ha for storage use, it is likely that drainage perimeter drainage wont solely be sufficient to address on site surface waters. Two options exist for intra-site drainage, with gully drains being more efficient due to maintenance costs and replacement value.

Phasing issues

Use of Reach stackers in the preliminary to medium term will reduce initial overheads as will storage of unladen containers on areas which may require capping to cease percolation through to subsurface areas which are likely to be providing point source pollution.