

A CONTAINER DEPOT AND A METHOD OF STORING A CONTAINER THEREIN

TECHNICAL FIELD

[0001] This invention relates to a container depot and a method of storing a container therein. More particularly, this invention relates to an empty container depot and a method of storing an empty container in a storage space therein.

BACKGROUND

[0002] The following discussion of the background to the invention is intended to facilitate an understanding of the present invention only. It should be appreciated that the discussion is not an acknowledgement or admission that any of the material referred to was published, known or part of the common general knowledge of the person skilled in the art in any jurisdiction as at the priority date of the invention.

[0003] A container depot is a facility for storing, managing and servicing empty shipping containers. One such container depot is disclosed in International Publication No. WO2013/052009, Kay, entitled "A Freight Container Storage and Retrieval System and Method for carrying out the same." The container depot includes a first building support structure spaced apart from a second building support structure. Located in the space between the first building support structure and the second building support structure is a cell guide structure for storing freight containers. The container depot further includes a single freight container handling crane having a support frame from which a spreader is suspended and a pair of base legs located at distal ends of the support frame. One base leg rests on a top of the first building support structure while the other base leg rests on the second building support structure such that the support frame of the crane straddles the space between the first building support structure and the second building support structure. To store a container in the cell guide structure, the container is transported to the top of the first building support structure on a trailer towed by a prime mover. The crane is operated to position the spreader over the container on the trailer, lower the spreader onto the container to engage the container, lift it and convey it to an allocated position in the cell guide structure for storage between the first building support structure and the second building support structure. The prime mover is driven on a driveway of the first building support structure to the top thereof and has to wait for the one and only crane to pick up the container. This

increases the turnaround time for the prime mover. This in turn increases the costs per container per visit. Also, a queue of such prime movers typically builds up along the public road 10 outside such a container depot resulting in traffic congestions there for other road users.

[0004] Also, in a land scarce country like Singapore, the authorities typically release land for use as container depots only if they can meet a certain container handling throughput capacity, optimise space utilization and maximise storage capacity for a given area footprint.

[0005] There is therefore a need for a container depot which addresses, at least in part, one or more of the forgoing problems.

SUMMARY

[0006] According to an aspect of the present disclosure, there is provided a container depot. The container depot includes multiple container storage facilities. Each container storage facility includes a container storage space and an overhead crane above the container storage space. The overhead crane includes a spreader that is operable to position it at least substantially directly above a container pickup area adjacent the container storage space so that it can be lowered onto a container placed at the container pickup area to engage, lift and convey it to an allocated position in the container storage space. Each container storage facility further includes a guide structure disposed above the container pickup area for guiding the spreader to restrict its lateral movement as it is being lowered onto the container at the container pickup area to engage the container.

[0007] In some embodiments of the container depot, each container storage facility further includes a platform at a height having a platform surface that defines the container pickup area.

[0008] In some embodiments of the container depot, the platform is sized to receive two TEUs and includes cones on a top surface thereof to engage corner castings of the container so that the container is placed at a predetermined position on the platform.

[0009] In some embodiments of the container depot, the storage space is configured for stacking containers at least 10-container high, and the platform is at a height of at least five-container high.

[0010] In some embodiments of the container depot, the container storage facilities are arranged in two blocks separated by a driveway. Each block has storage spaces arranged in rows.

[0011] In some embodiments of the container depot, the platform of each container storage facility in the two blocks faces the driveway.

[0012] In some embodiments of the container depot, the container depot further includes one or more open yards for storage of containers.

[0013] In some embodiments of the container depot, the container depot includes two open yards on opposite sides of the driveway, one open yard for storing containers for at least one of cleaning or repairing before storing in one of the container spaces and the other open yard for storing of containers that are retrieved from one of the container spaces for picking up by a customer.

[0014] According to another aspect of the present disclosure, there is provided a method for storing a container in a storage space. The method includes placing the container at a container pickup area, moving a spreader of an overhead crane to be at least substantially directly above the container at the container pickup area, lowering the spreader while being guided by a guide structure to restrict its lateral movement onto the container to engage the container, and lifting the container and conveying it to an allocated position in the storage space.

[0015] In some embodiments of the method, the guide structure comprises multiple guide rails.

[0016] In some embodiments of the method, the container pickup area is at a height and placing the container at the container pickup area includes lifting the container onto the container pickup area using a container handler. The container handler may be a reach stacker or a top loader.

[0017] In some embodiments of the method, lifting the container to the container pick up area using the container handler includes lifting the container that is located on the ground, a trailer on the ground or the top of a stack of containers on the ground.

[0018] In some embodiments of the method, the storage space is configured for stacking containers at least 10-container high, and the container pickup area is at least five-container high.

[0019] In some embodiments of the method, the method further includes off loading the container at an open yard before it is moved to be placed at the container pickup area.

[0020] Other aspects and advantages of the invention will become apparent from the following detailed description, taken in conjunction with the accompanying drawings, illustrating by way of example the principles of the invention.

BRIEF DESCRIPTION OF DRAWINGS

[0021] The invention will be better understood with reference to the drawings, in which:

Figure 1 is a layout plan of a container depot according to an embodiment of the invention, the container depot having two blocks of container storage facilities;

Figure 2 is a side view of the two blocks of container storage facilities in the direction of an arrow A in Figure 1;

Figure 3 is a perspective drawing showing the two blocks of container storage facilities according to another embodiment of the invention wherein each block includes two container storage facilities;

Figure 4 is a perspective drawing showing the two blocks in Figure 3;

Figure 5 is a side view of the two blocks in Figure 3 as viewed in the direction of an arrow B in Figure 3; and

Figure 6 is a perspective drawing showing the two blocks according to another embodiment.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0022] Throughout this document, unless otherwise indicated to the contrary, the terms “comprising”, “consisting of”, “having” and the like, are to be construed as non-exhaustive, or in other words, as meaning “including, but not limited to.”

[0023] Furthermore, throughout the specification, unless the context requires otherwise, the word “include” or variations such as “includes” or “including” will be understood to imply the inclusion of a stated integer or group of integers but not the exclusion of any other integer or group of integers.

[0024] Certain terminology may also be used in the following description for the purpose of reference only, and thus are not intended to be limiting. For example,

terms such as “upper”, “lower”, “above”, “below”, “right” and “left” refer to directions in the drawings to which reference is made in a consistent but arbitrary frame of reference. Such terminology may include the words specifically mentioned above, derivatives thereof, and words of similar import. Similarly, the terms “first”, “second”, and other such numerical terms referring to structures do not imply a sequence or order unless clearly indicated by the context.

[0025] Unless defined otherwise, all technical and scientific terms used herein have the same meaning as is commonly understood by a skilled person to which the subject matter herein belongs.

[0026] As shown in the drawings for purposes of illustration, the invention may be embodied in a container depot that has a higher storage capacity and container handling throughput capacity for a given land area. Existing container depots tend to have a lower storage capacity and container handling throughput capacity for the same land area. Referring to Figures 1 and 2, the container depot includes multiple container storage facilities. Each of these container storage facilities includes a storage space, and an overhead crane above the container storage space. The overhead crane has a spreader that is operable to position the spreader at least substantially directly above a container pickup area adjacent the container storage space so that it can be lowered onto a container placed at the container pickup area to engage, lift and convey it to an allocated position in the container storage space. Each container storage facility further includes a guide structure disposed above the container pickup area for guiding the spreader to restrict its lateral movement as it is being lowered onto the container at the container pickup area to engage the container. The invention may also be embodied in a method for storing a container in the storage space. The method includes placing the container at a container pickup area and moving the spreader of an overhead crane to be at least substantially directly above the container at the container pickup area. The method further includes lowering the spreader onto the container to engage the container, lifting the container and conveying it to the allocated position in the storage space.

[0027] Specifically, Figures 1 and 2 show a container depot 2 according to one embodiment of the invention. Figure 1 shows a layout plan of the container depot 2. The container depot 2 may be located on a site of any size and shape but in this embodiment, it is located on a site that measures about 2168.10m in length by

2025.00m in width. On the boundary of the site is a perimeter fence and/or wall 4. The site is accessible via a first gated entrance/exit 6 and a second gated entrance/exit 8 located on a left boundary of the site. The left side of the site faces a public road 10 that prime movers 5 (Figure 3) with trailers in tow use to access the container depot 2 for dropping off and picking up containers 12. Located on the inside of the site next to the two gated entrances/exits 6, 8 are respective security posts 14. And located between the two security posts 14 inside the site, adjacent the left boundary, are an administrative office/control room 16 and two mechanical and electrical (M&E) stores 18.

[0028] Further inside of the site to the right of the security posts 14, administrative office/control room 16 and M&E stores as viewed in Figure 1, across a first driveway 20 running at least substantially parallel to the left boundary, are a first block 22 and a second block 24 of container storage facilities 26. As mentioned above, each container storage facility includes a storage space 28. The storage space 28 may be defined by any suitable container storage cage 30, such as but not limited to, the cell guide support structures that are used on board ships available from any company, such as but not limited to, Wartsila of Helsinki, Finland. The container storage cage 30 may also be that disclosed in the International Patent No. WO2013/052009, Kay, entitled "A Freight Container Storage and Retrieval System and Method for carrying out the same", which includes vertical guide rails connected to a rectangular frame at the top of the container storage cage 30 as described therein. In this embodiment, the container storage cage 30 includes two support structures 32 that are spaced apart about the width of two twenty-foot equivalent units (TEUs). One twenty-foot ISO container is one TEU, and one forty-foot ISO container is two TEUs. Each support structure 32 includes multiple columns 34 and primary beams 36 between the columns 34. Fixed to the columns 34 of each of the two support structures 32 are horizontal beams. Vertical guide rails are fixedly attached to the horizontal beams to define cells in the storage space 28. The container storage cage 30 further includes secondary beams (not shown) extending between the two support structures 32. Supported on the secondary beams are crane beams 40 for the overhead crane (not shown) located in a crane zone 41 of the container storage facility 26. The crane beams 40 may extend from one storage facility 26 to another storage facility directly opposite it as shown in Figure 5 so that when the crane of one storage facility fails, the crane of the

other storage facility may be used as a backup. The container storage cage 30 supports a roof 31. Solar panels (not shown) may be mounted on the roof 31. The container storage cage 30 may hold any numbers of rows, bays and tiers of containers. For example, the container storage cage 30 may hold at least 10 tiers of containers. In this embodiment, each storage space 28 can hold up to a maximum of 2 rows, 30 bays and at least 10 tiers of TEUs. In other words, each storage space 28 has a capacity of 1200 TEUs, and each block having six such container storage spaces 28 has a capacity of 7200 TEUs.

[0029] Each container storage facility 26 further includes a platform 42 having a surface that defines a container pickup area 43 and an overhead crane (not shown) above the container storage space 28. The platform 42 is positioned at a height, adjacent to the container storage space 28 and is configured to receive a container 12 thereon. The platform 42 is sized to receive one ISO forty-foot container 12 or two ISO twenty-foot containers 12. That is, the area of the platform 42 is about the footprint of 2 TEUs. Located on the platform 42 are spaced apart cones 44 for engaging corner castings of the container to locate the container 12 at a predetermined position on the platform 42. The platform 42 may be located at any height, for example at a height of at least five containers. In this embodiment, the platform 42 is located adjacent to the container storage cage 30 at a height of seven containers, or any height that is reachable by any available container handlers. The platform 42 is fixedly mounted to a guide structure 46 adjacent the container storage cage 30. The guide structure 46 includes four vertical guide rails 48 similar to those of the container storage cage 30 for guiding the up and down movement of the spreader (not shown) therein. The lateral movement of spreader within the guide structure 46 is restricted so that it may be more quickly and accurately lowered onto a container 12 on the platform 42. The guide rails 48 may be L-sections. And portions of the front L-sections directly above the platform 42 may be removed to define an opening large enough for a container to be placed on the platform 42. In other embodiments, the platform 42 may be fixedly mounted to the container storage cage 30 and extending therefrom, i.e. cantilevered, or the platform 42 may be supported by support columns extending from the ground. In these embodiments, the ends of the front vertical guide rails 48 proximal to the platform 42 are spaced apart from the platform 42 so that they do not impede the placing of a container 12 on the platform 42 by a container handler.

[0030] The overhead crane, or more specifically, a crane trolley, is mounted on the crane beams 40 and has a spreader that is operable for positioning it at least substantially directly above the platform 42 so that it can be guided by the guide structure 46 to be lowered relatively quickly onto a container 12 placed on the platform 42 to engage the container 12 in any wind conditions without requiring any human intervention. The crane then lifts and conveys the container 12 along the crane beams 40 to an allocated position, more specifically, bay, in the container storage space 28.

[0031] In this embodiment, the container storage facilities 26 are arranged in two blocks. In other embodiments, the container storage facilities 26 may be arranged in one single block, or three or more blocks. And in this embodiment, each block includes, but is not limited to, six container storage facilities 26. The storage spaces 28 of each block of container storage facilities 26 are arranged in adjoining rows that are adjacent to and at least substantially parallel to one another as shown in Figure 1. Two adjacent container storage facilities 26 share a common support structure 32.

[0032] A second driveway 50 at least substantially perpendicular to, i.e. crossing, the first driveway 20 runs between the first block 22 of container storage facilities 26 and the second block 24 of container storage facilities 26. In this embodiment, the platforms 42 of the container storage facilities 26 face the first driveway 20. In other words, the platforms 42 of the first block 22 and the platforms 42 of the second block 24 are oppositely facing. However, in other embodiments, each of the platforms 42 of the container storage facilities 26 of the first block 22 and the second block 24 may be at a first end of the storage cage 30 proximal to the second driveway 50 or at a second end of the storage cage 30 distal from the second driveway 50. In the embodiment shown in Figure 3, the platforms 42 of one block 24, 26 are located at an end thereof that faces the second driveway 50 while the platforms 42 of the other block 24, 26 are located at an end thereof that face away from the second driveway 50. It is possible, in other embodiments, that each container storage facility 26 has two platforms 42, one on each end thereof.

[0033] A third driveway 52 to the right of the two blocks 22, 24 of container storage facilities 26, runs at least substantially parallel to the first driveway 20, and is at least substantially perpendicular, to, i.e. crossing, the second driveway 50. Located to the left of this third driveway 52 adjacent to the first block 22 of container storage facilities is a first repair and washing bay 54 where damaged containers 12 are repaired.

Located to the left of this third driveway 52 adjacent to the second block 24 of container storage facilities is a second repair and washing bay 56.

[0034] On the right of the first repair and washing bay across the third driveway 52 is a first open yard 58 for storing containers 12. And on the right of the second repair bay and the washing bay across the third driveway 52 is a second open yard 60 for storing containers 12. Each of the first open yard 58 and second open yard 60 has a container holding capacity of, such as but not limited to, 20 rows, 13 bays and 9 tiers of 20-foot containers 12, i.e. a capacity of 2340 TEUs. The total container storage capacity of the site is therefore 19,080 TEUs. The containers 12 are stored in the storage cage 30 with the longitudinal axis of each container 12 at least substantially parallel to the second driveway 50, while the containers 12 stored in the first and second open yards 58, 60 are stored with the longitudinal axis of each container 12 at least substantially perpendicular to the second driveway 50. Bounding the first block 22 and second block 24 of container storage facilities 26 and the first open yard 58 and second open yard 60 is a peripheral driveway 62 that runs along a lower boundary, up a right boundary and along the top boundary of the site.

[0035] The operation of the container depot 2 is next described in detail. Firstly, the sequence of dropping off a container 12 at the container depot 2 starts with a driver of a prime mover 5 booking, via a booking system prior to coming to the container depot, a time slot to enter the container depot 2 to drop off a container 12 for storage in the container depot 2. When the prime mover 5 with the trailer in tow arrives at the site of the container depot 2, it enters the site via the first gated entrance/exit 6. After clearing the first gated entrance/exit 6, the driver parks the prime mover 5 along a side of the peripheral driveway 62. The driver next proceeds to the administrative office/control room 16 with documents associated with the container 12 for them to be verified by an administrative staff in the administrative office/control room 16. Once the documents are verified, a depot surveyor will inspect the container 12 on the trailer that is parked along the peripheral driveway 62 to determine if it needs to be washed and/or repaired. After the container 12 has been inspected by the depot surveyor, the driver returns to the administrative office once again to make the necessary payment. If the container 12 is damaged and needs repair, the administrative staff will inform the driver to proceed to the second open yard 60 via the peripheral driveway 62 to offload the damaged container 12 there. At the second open yard 60, a container handler such as

a forklift or a top loader will pick the damaged container on the trailer and store it in the second open yard 60. In other words, the damaged container is off loaded at the second open yard 60. If, however, it is determined that the container 12 does not require any repair or washing, the administrative staff will inform the driver to proceed to the junction of the second driveway 50 and the third driveway 52 via the peripheral driveway 62. Any suitable container handlers, such as a top loader (also known in the industry as a lift truck or simply an empty container handler), will pick the container 12 up from the back of the trailer and proceed to a container facility that has been designated for storing the container 12 via the second driveway 50 and place it on its platform 42 that is at a height of seven containers high. The container 12 is placed such that its corner castings sit on the cones 44 on the platform 42 so that the container 12 is located at a predetermined location on the platform 42. Once the container 12 is offloaded at the junction of the second driveway 50 and the third driveway 52, the prime mover 5 is driven via the third driveway 52 and peripheral driveway 62 to exit the container depot 2 via the second gated entrance/exit 8. Meanwhile, the overhead crane will be operated to move it such that the spreader is at least substantially above the platform 42. Next the spreader is lowered guided by the guide structure 46 to engage the container 12 on the platform 42, lift it to the crane zone 41. The crane is then moved along the crane beams 40 to be over an allocated position, more specifically, bay, in the storage cage 30 before the spreader is lowered to store the container 12 thereat.

[0036] The process for collecting a container 12 is next described. When the customer needs a container 12, they will send a release order to the container depot 2 informing the container depot which shipper or consignee will pick up the container. The shipper or consignee will then engage a trucking company to pick up the container. The trucking company will book a collection time slot to pick up the container 12 from the container depot 2. Before the collection time, the administrative staff will inform the crane operator to retrieve the container 12 from the storage cage 30. The crane operator will control the crane to move along the crane beams 40 to locate the spreader directly above the container 12 in the storage cage 30. The crane operator will then lower the spreader onto the container 12 to engage it, lift it and convey it to the end of the rail to be directly above the platform 42. The crane operator then lowers the spreader, guided by the guide structure 46, to place the container 12

on the platform 42. Next, a suitable container handler, such as a top loader/lift truck or a reach stacker, will lift the container 12 off the platform 42 and convey it to the junction of the second driveway 50 and the third driveway 52 where a forklift or another top loader will lift it and convey it to the first open yard 58 for temporary storage.

[0037] When the prime mover 5 arrives at the site of the container depot 2, it enters the site via the first gated entrance/exit 6. After clearing the first gated entrance/exit 6, the driver parks the prime mover 5 along the side of the peripheral driveway 62. The driver next proceeds to the administrative office/control room 16 with documents associated with the container 12 for them to be verified by the administrative staff in the administrative office/control room 16. Once the documents are verified, the driver will be instructed by the administrative staff to proceed via the peripheral driveway 62 and the third driveway 52 to the first open yard 58 to pick up the container 12. At the first open yard 58, a container handler, such as a forklift or top loader will pick up the container 12 and place it on the trailer attached to the prime mover 5. The prime mover 5 will then be driven along the third driveway 52, along the peripheral driveway 62 and down the first driveway 20 to where the administrative office is. The driver will park the prime mover 5 along the first driveway 20 and proceed to the administrative office to make the necessary payment and collect a custom seal for the container 12. After that, the driver returns to the prime mover 5 and drives it out of the container depot 2 via the first gated entrance/exit 6.

[0038] The daily movement of containers 12 within the depot is next described. For a damaged container 12 that is stored in the second open yard 60, it will be moved to one of the washing/repair bays by a container handler for repair and/or washing once approval from its owner is received. After the container 12 is repaired and/or washed, it is moved to the junction of the second driveway 50 and the third driveway 52 where it will be picked up by another container handler for storage in an allocated storage facility 26 by placing it on the platform 42 of that storage facility 26. As previously described, a crane of the storage facility 26 will then pick the container 12 up from the platform 42 and convey it to an allocated position within the storage facility 26 for storage.

[0039] Advantageously, the container depot 2 has a capacity to accommodate about 20,000 TEUs for a small land size of about 4390200 square metres, which is a three- or four-fold increase in capacity compared to exiting container depots. Land use

is therefore optimized. With the container 12 being able to be quickly placed on the platform 42 at a height and the spreader of the crane being able to be quickly lowered to pick up the containers 12 on the platform 42, the average number of containers 12 that can be moved in or out of each storage facility 26 is about 21.6 containers per hour. And since the prime mover 5 needs only to drop off the container 12 without having to wait for an overhead crane to pick the container 12 therefrom, the amount of time the prime mover 5 remains in the container depot 2 is significantly reduced. The turnaround time of the prime mover 5 is therefore reduced, and this results in less traffic congestion on the road outside the container depot 2.

[0040] Although the present invention is described as implemented in the above-described embodiment, it is not to be construed to be limited as such. It is to be appreciated that modifications and improvements may be made without departing from the scope of the present invention.

[0041] For example, although the container depot 2 is described as having a layout as shown in Figure 1, it is not to be construed to be limited as such. Other layouts for the container depot are also possible. For example, in some layouts, there may not be any open yard. In other layouts there may be only one open yard or three or more open yards. Also, the container storage facilities may be arranged in a single block, or three or more blocks instead of the two blocks described above.

[0042] As another example, the container pickup area 43 is described as being defined by a platform at a height. The container pickup area 43 may be at a ground level instead as shown in Figure 6. In such a case, there is no need for the platforms 42 and they can be done away with.

[0043] As yet another example, the crane is described as mounted on the crane beams 40 in a crane zone 41 on the cage structure above the storage space 28. Gantry cranes supported by freestanding legs that move on wheels or along a track or rail system over one or more container storage facilities 26 may also be used. When such an overhead crane is used, the container storage facilities 26 may be spaced apart instead of adjoining as described above.

[0044] As yet another example, the crane beams 40 of oppositely facing container storage facilities of the first block 22 and the second block 24 are described to be connected so that overhead crane from one container storage facility 26 in the first block 22 may move across to another container storage facility 26 in the second block

24. However, the crane beams of each container storage facility may not be connected to that of another container storage facility.

[0045] As yet a further example, top loader and reach stackers are described to be used as container handlers for reaching the platform 42 at height. It should be appreciated by those skilled in the art that any new container handler that has that reach may also be used.

[0046] It should be further appreciated by the person skilled in the art that one or more of the above modifications or improvements, not being mutually exclusive, may be further combined to form yet further embodiments of the present invention.

CLAIMS

1. A container depot comprising:
 - a plurality of container storage facilities, each container storage facility comprising:
 - a container storage space;
 - an overhead crane above the container storage space, the overhead crane having a spreader that is operable to position it at least substantially directly above a container pickup area adjacent the container storage space so that it can be lowered onto a container placed at the container pickup area to engage, lift and convey it to an allocated position in the container storage space; and
 - a guide structure disposed above the container pickup area for guiding the spreader to restrict its lateral movement as it is being lowered onto the container at the container pickup area to engage the container.
2. The container depot according to Claim 1, wherein each container storage facility further comprises a platform at a height having a platform surface that defines the container pickup area.
3. The container depot according to Claim 2, wherein the platform is sized to receive two TEUs and includes cones on a top surface thereof to engage corner castings of the container so that the container is placed at a predetermined position on the platform.
4. A container depot according to Claim 2 or Claim 3, wherein the storage space is configured for stacking containers at least 10-container high, and wherein the platform is at a height of at least five-container high.
5. The container depot according to Claim 4, wherein the plurality of container storage facilities are arranged in two blocks separated by a driveway.

6. The container depot according to Claim 5, wherein the platform of each container storage facility in the two blocks faces the driveway.
7. The container depot according to any one of Claims 2-6, further comprising at least one open yard for storage of containers.
8. The container depot according Claim 1, further comprising at least one open yard for storage of containers.
9. The container depot according to Claim 8, wherein the plurality of container storage facilities are arranged in two blocks separated by a driveway.
10. The container depot according to Claim 9, wherein the at least one open yard comprises two open yards on opposite sides of the driveway, one open yard for storing containers for at least one of cleaning or repairing before storing in one of the container spaces and the other open yard for storing of containers that are retrieved from one of the container spaces for picking up by a customer.
11. The container depot according to any one of Claims 8-10, wherein each container storage facility further comprises a platform at a height having a platform surface that defines the container pickup area.
12. The container depot according to Claim 1, wherein the plurality of container storage facilities are arranged in two blocks separated by a driveway.
13. The container depot according to Claim 12, wherein pairs of oppositely facing container storage facilities across the driveway share crane beams such that the overhead crane of a container storage facility may travel across the driveway to the other container storage facility.
14. The container depot according to any one of the preceding claims, wherein the guide structure comprises a plurality of guide rails.

15. A method for storing a container in a storage space, the method comprising:
- placing the container at a container pickup area;
 - moving a spreader of an overhead crane to be at least substantially directly above the container at the container pickup area;
 - lowering the spreader while being guided by a guide structure to restrict its lateral movement onto the container to engage the container; and
 - lifting the container and conveying it to an allocated position in the storage space.
16. The method according to Claim 15, wherein the guide structure comprises a plurality of guide rails.
17. The method according to Claim 15 or Claim 16, wherein the container pickup area is at a height and placing the container at the container pickup area comprises lifting the container onto the container pickup area using a container handler comprising one of a reach stacker and a top loader.
18. The method according to Claim 17, wherein lifting the container to the container pickup area using the container handler comprises lifting the container that is located on one of:
- the ground;
 - a trailer on the ground; and
 - the top of a stack of containers on the ground.
19. The method according to any Claim 18, wherein the storage space is configured for stacking containers at least 10-container high, and the container pickup area is at least five-container high.
20. The method according to any one of Claims 15-19, further comprising off loading the container at an open yard before it is moved to be placed at the container pickup area.