CLAIMS

What is claimed is:

1. An apparatus, comprising

a grow tower having a plurality of grow sites along at least one lateral face thereof, the grow tower having a track-contacting face, wherein the track-contacting face has a first cross-section profile;

a track having an alignment feature extending along the track and having a second cross-section profile that is configured to engage the first cross-section profile of the track-contacting face; and

one or more engagement actuators disposed to releasably press the grow tower against the track to register the grow tower against the alignment feature.

2. The apparatus of claim 1 wherein the first cross-section profile comprises a groove section to define a groove in the track-contacting face of the grow tower.

3. The apparatus of claim 2 wherein the second cross-section profile comprises a projection section defining the alignment feature that is configured to engage the groove section of the first cross-section profile.

4. The apparatus of claim 1 wherein the second cross section profile further comprises first and second ridge sections to define first and second ridges extending along an upper surface of the track and configured to contact outer edges of the track-contacting face of the grow tower.

5. The apparatus of claim 1 wherein the one or more engagement actuators each comprise an actuator, an engagement member, and a movable joint attached between the actuator and the engagement member.

6. The apparatus of claim 5 wherein the engagement member is a flat disc for engaging a top surface of the grow tower opposite the track-contacting face.

7. The apparatus of claim 5 wherein the movable joint comprises a ball and swivel joint.

8. The apparatus of claim 1 wherein the track is oriented horizontally.

9. The apparatus of claim 1 wherein the track is oriented vertically.

10. The apparatus of claim 1 further comprising an infeed conveyor operative to load the grow tower on the track.

11. The apparatus of claim 1 further comprising an outfeed conveyor operative to transfer the grow tower from the track.

12. The apparatus of claim 1 further comprising one or more processing systems operative to apply one or more processing operations on the grow tower.

13. The apparatus of claim 1 wherein the track comprises a central bearing track and first and second lateral alignment bars extending along opposing sides of the central bearing track.

14. The apparatus of claim 13 wherein the alignment feature comprises a plurality of cylindrical datum features attached to the central bearing track.

15. The apparatus of claim 13 further comprises a second bearing track substantially parallel to the track and located on a face of the grow tower opposite the track contacting face, wherein the second bearing track is adapted to guide the grow tower as it translates along the track and second bearing track.

16. The apparatus of claim 15 wherein the second bearing track comprises a second plurality of cylindrical datum features.

17. The apparatus of claim 15 wherein the track is located above the second bearing track; and wherein the alignment feature comprises a plurality of cylindrical datum features attached to the central bearing track.

18. The apparatus of claim 1 wherein the grow tower comprises one or more unitary grow site container sets that each comprises a set of the plurality of grow sites.

19. The apparatus of claim 18 wherein each grow site container set further comprises one or more visual alignment features.

20. An apparatus for processing a grow tower, the grow tower having a plurality of grow sites along at least one lateral face thereof, the grow tower having a track-contacting face, wherein the track-contacting face has a first cross-section profile, wherein the apparatus comprises

a track having an alignment feature extending along the track and having a second cross-section profile that is configured to engage the first cross-section profile of the track-contacting face;

first and second engagement actuators disposed at first and second positions along the track, the first and second engagement actuators operative to releasably press the grow tower against the track to register and align the grow tower against the alignment feature; and

a grow tower processing system disposed between the first and second positions, the grow tower processing system operative to apply one or more operations on the grow tower.

21. The apparatus of claim 20 wherein the first cross-section profile comprises a groove section to define a groove in the track-contacting face of the grow tower.

22. The apparatus of claim 21 wherein the second cross-section profile comprises a projection section defining the alignment feature that is configured to engage the groove section of the first cross-section profile.

23. The apparatus of claim 20 wherein the second cross section profile further comprises first and second ridge sections to define first and second ridges extending along the upper surface of the track and configured to contact outer edges of the track-contacting face of the grow tower.

24. The apparatus of claim 20 wherein the first and second engagement actuators each comprise an actuator, an engagement member, and a movable joint attached between the actuator and the engagement member.

25. The apparatus of claim 24 wherein the engagement member is a flat disc for engaging a top surface of the grow tower opposite the track-contacting face.

26. The apparatus of claim 24 wherein the movable joint comprises a ball and swivel joint.

27. The apparatus of claim 20 wherein the track is oriented horizontally.

28. The apparatus of claim 20 wherein the track is oriented vertically.

29. The apparatus of claim 20 further comprising an infeed conveyor operative to load the grow tower on the track.

30. The apparatus of claim 20 further comprising an outfeed conveyor operative to transfer the grow tower from the track.