Recommendation

The recommendation I have for the Food Science Building incorporates all of the results from my analyses and justifications I have shown throughout this report.

The basement mechanical and electrical room on the west side of building should be relocated to the east side of the building under the PSU Creamery's Production Area. The structure in this area shall be changed to all cast in place concrete utilizing wide module concrete joist construction with girders and columns for the first and second floor levels of this area. This work will be performed simultaneously with the steel erection on the west side of the building. The joist slab construction will create a typical repetitive layout which can utilize the metal pan formwork easing constructability significantly when compared to the old system. In addition, it will provide a more aesthetically pleasing similar finish for the exposed concrete ceiling in the Production Area while increasing the overall ceiling height by 17". The deletion of the old structure and the addition of the new proposed structure provides a total cost savings to the project of $190,000 dollars while in addition completely the structure of the Production Area 3 months ahead of schedule.

While the basement relocation works out positively for the structure you must now consider which utilities where affected. On the interior of the building six horizontal pipe runs can now be deleted because they are moved with the basement to the east side of the building placing them directly next to the mechanical shaft. The deletion of these pipe runs results in a project savings of $48,000 dollars. On the exterior of the building most utilities will also have to be relocated. As well, a few of the lines had to be resized from 8" to 10" due to the increased length. Overall, the exterior utility relocation resulted in a project savings of $3,000 dollars. However, the most notable benefit of the basement relocation with regards to the mechanicals is the ease of constructability because mechanicals can now layout off of plywood deck or penetrate the slab later from above in the basement. In addition, it allows for easier relocation of equipment in the future for the production area.

The utility relocation also provides another future benefit to the owner because it removes the current placement of all underground utilities from directly under a civic hardscape area. Thus if there were ever be a problem in the future were a utility line

would need to be dug-up it would not require the complete removal and rebuilding of the civic hardscape area. The new proposed utilities will only run directly under a 6' wide sidewalk.

The last recommendation is the proposal for the simplified bollard detail. This detail will provide a greater ease of constructability and sequencing. In addition, this detail will provide a higher quality more aesthetically pleasing finish product for the same cost.

The Production Facility already contains all sustainable guidelines that I have discovered for a milk processing facility. It has a compressed ammonia cooling system, steam heating, quick rolling high speed doors, and HCFC-free insulated composite metal panels.

Utilizing all of the above newly proposed solutions will provide a more aesthetically pleasing higher quality production facility for The Pennsylvania State University's PSU Creamery Production Facility. In addition to all of the added benefits discussed above the recommended changes to the project would save approximately $241,000 dollars while also opening up the PSU Creamery's Production Facility 3 months ahead of schedule.