22 0510 – Existing Building Plumbing Systems Description

1. Armenise Building
   a. 4” Domestic Water service
      i. Booster pump
   b. Hot Water Generation
      i. Steam-fired heater
   c. 4” Non-Domestic System
      i. Steam-fired non-domestic heater
   d. 8” Sanitary Sewer
   e. 6” Storm Sewer
   f. 4” Natural Gas Service
      i. Gas Booster Pump
   g. RO System
   h. Lab Air System
      i. Lab Waste System which is piped to Goldenson
   j. Vacuum System
   k. CO2 Tank Farm

2. Building C
   a. 3” Domestic Service
   b. Three (3) heaters in basement
   c. Non-Potable Water System
   d. 4” Sanitary (ejected) 3” PD – 5” Sanitary
   e. 5” Storm
   f. 4” Natural Gas System (meter located in Basement)
g. 4" Laboratory Waste System
   i. Pumping Station to TEMC

h. Compressed Air System
   i. Vacuum System

j. 1-1/2" ROS and ROR System (located in Basement)

k. RO Systems for frog area on 7th Floor

l. 2" Tempered Water System

3. Countway Library
   a. 6" Domestic Water Service
   b. Hot water heater located in Basement
   c. 8" Storm Sewer
   d. 6" Sanitary Sewer
      i. Sewer Ejector

4. Goldenson Building
   a. Two (2) 6" Domestic Water Services in Basement
      i. Duplex 3" CW Backflow Preventors – 2 sets
      ii. Potable Heater located in Basement
   b. Non-Domestic Water (two 6" Backflow Preventors) – 2 sets
   c. 5" Sanitary Sewer (6" Sanitary Sewer)
   d. RO Water System (located in Penthouse)
   e. CA System
   f. CO₂ System
   g. Laboratory Waste System, Pump Station (located in Basement)
   h. High Pressure Air Main / Riser
5. Gordon Hall
   a. 2” CW, 1” HW, 1-1/2” HWR risers, ground floor, fed from tunnel below.
   b. Lab Waste Neutralization Tank in Basement (30 gallon) above ceiling, 3” AW-UP
   c. Lab Waste Neutralization Tank in second floor above ceiling in kitchen (30 gallon)

6. Harvard Institutes of Medicine (HIM)
   a. Incoming Water Service or Source
      i. Triplex booster pumps
   b. Hot Water Generation
      i. Duplex domestic water heaters located in basement
   c. Duplex non-domestic water heaters located in basement
   d. 15” storm drain
   e. 10” storm drain
   f. 12” sanitary sewer
   g. RO System located in basement
   h. Duplex vacuum pumps – Mezzanine Level
   i. Triplex air compressors – Mezzanine Level
   j. 4” gas service
   k. Lab Waste System located in basement
      i. Two (2) 800 gallon pH adjustment tanks
   l. CO₂
   m. Helium
   n. Nitrogen
   o. Nitrous Oxide
   p. Oxygen
7. Laboratory for Human Reproduction and Reproductive Biology (LHRRB)
   a. 4" CW service
      i. Booster pump in basement
      ii. Hot water heater in basement
   b. 6" storm sewer
   c. 6" sanitary sewer
      i. pH System in basement
   d. Lab Waste System
      i. pH System in basement
   e. Natural Gas System
   f. RODI System
   g. CO₂ System

8. New Research Building (NRB)
   a. 6" CW services (low, high zone)
      i. Domestic water heater in chiller vault
      ii. Non-domestic water heater in chiller vault
   b. Three (3) 12" storm sewer
   c. Two (2) 8" sanitary sewer
   d. One (1) 6" sanitary sewer
   e. RODI System
   f. LA System
   g. LV System
9. Seeley G. Mudd
   a. 4" CW service
      i. Booster pump in basement
   b. 4" G services
   c. 10" sanitary sewer
   d. 8" storm
   e. 10" storm to manhole
   f. LV System
   g. LA System
   h. Lab waste system
   i. Nitrogen system

10. Tosteson Medical Education Center (TMEC)
   a. 4" domestic service (HW, HWR) in basement
   b. Lab waste system (tank in basement)
   c. Natural Gas
   d. 8" sanitary sewer
   e. 12" storm sewer
   f. LA System (compressed air in basement)

11. Vanderbilt Hall
   a. 4" domestic water service and 3" cold water from tunnel
      i. Triplex domestic booster pump
      ii. Backflow preventer
   b. Duplex steam-fired water heaters 120°F
i. 3” hot water

ii. 1-1/2” hot water circulation

iii. 2” 140°F HW

iv. 140°F HW circulation

v. Duplex 120°F circulation pumps

vi. Duplex 140°F circulation pumps

vii. Master mixing valve

c. 3” Gas from tunnel

d. 6” sanitary sewer to exterior grease trap

e. 6” sanitary sewer

f. Multiple 4” building sanitary sewers

g. 5” sanitary sewer

h. 10” storm sewer

i. 6” storm sewer

i. Two (2) sets of sump pumps

12. Warren Alpert Building

a. 6” Domestic Water Service

i. Duplex 4” reduced pressure backflow preventers – containment

ii. Duplex steam-fired domestic water heaters

b. Duplex 4” Non-Domestic Reduced Pressure Backflow Preventers

i. Duplex steam-fired non-domestic water heaters

ii. Non-domestic circulation pumps

c. 4” Natural Gas Service

d. Tempered Water System
i. Tempered water storage tank

e. 12” Sanitary Sewer

f. pH Neutralization System
   i. Duplex lab waste pumping stations

g. 15” storm sewer, 6” storm sewer, 12” storm sewer
   i. Duplex sump pumps
      ii. Foundation drainage system with setting basin and pumps.

h. Triplex Compressed / Lab Air System

i. Duplex Lab Vacuum System

j. WAGD (Waste Anesthesia Gas Disposal) System

k. CO₂ System – Manifold

l. RO/DI Water System

m. Bottle Filling Station for Animal Watering

13. 158 Longwood Avenue – Lack of Drawings
   a. Cold water
   b. Hot water
   c. Sanitary
   d. Storm

14. 160-164 Longwood Avenue
   a. 1-1/2” domestic water service, 1” domestic water service
   b. Two(2) duplex sets of gas-fired water heaters
   c. Two (2) 1” Natural Gas services
   d. 6” sanitary sewer below lab

15. 180 Longwood Avenue
a. 4” Domestic Water Service
   i. duplex domestic water booster pump
   ii. 3” containment reduced backflow preventor
b. Instantaneous steam-fired domestic water heater
c. 3” Non-Domestic Water System
   i. 3” in-plant reduced backflow preventor
d. Natural Gas system
e. Tempered water system
f. Sanitary Sewer
g. Storm Sewer
h. Lab Waste Sewer
   i. CO₂ manifold system
   j. Nitrogen manifold system
   k. Lab vacuum system
16. 641 Huntington Avenue
   a. 2” Domestic water service
      i. Hot, cold and hot water circulation
b. Electric water heater
c. 2” Natural Gas service
d. 6” sanitary sewer
e. Storm sewer – below slab
f. Clear water waste system
17. School of Dental Medicine
   a. 4” cold water service
i. Simplex steam-fired water heater

b. Non-domestic water system
   i. Simplex steam-fired non-domestic heater

c. 6" sanitary sewer – below slab

d. Storm sewer

e. 2" Natural Gas

f. pH adjustment system

g. Dental air system

h. Dental vacuum system

i. Surgical vacuum and WAGD system

j. WAGD (Waste Anesthesia Gas Disposal) system

18. Research and Education Building (REB)

a. 6" cold water service
   i. Triplex domestic water booster pump
      ii. Duplex 6" backflow preventors

b. Steam-fired domestic heaters, simplex, two (2) locations – basement and penthouse
   i. High and low zone

c. 4" non-domestic system
   4" duplex reduced pressure backflow preventors
   Duplex steam-fired water heaters – penthouse

d. Tempered water system

e. 12" sanitary sewer and 6" sanitary sewer
   i. Triplex sewage ejectors

f. 15" storm sewer and 10" storm sewer
   i. Duplex sump pumps
g. 2" Natural Gas service

h. RO/DI system

i. RO Reject System
   i. High pressure air main

j. Duplex lab air system

k. Duplex lab vacuum system

l. pH adjustment system
   i. 4" lab waste sewer