PART IV – CSU FACILITIES PLANNING, DESIGN AND CONSTRUCTION STANDARDS

REGULATORY REQUIREMENTS

DIVISION 01 – GENERAL REQUIREMENTS

01 31 00 – PROJECT COORDINATION

A. Refer to Division 01 – General Requirements.

B. Utility Locates:

   1. Before any and all excavation work begins, Project Teams must follow utility locate requirements per Colorado Senate Bill 18–167.

   2. Utility locations shall be requested using Colorado 811 (Utility Notification Center of Colorado (UNCC) at (800) 922–1987 or 811).

   3. Under Colorado law, requests for utility field locates must be made three business days before excavation commences.

   4. Maintaining utility locate markings is the responsibility of the Project Team.

C. Subsurface Utility Engineering (SUE) Requests:

01 35 00 – SPECIAL PROCEDURES

A. Safety Plan:


   2. The Project Team shall be responsible for the health and safety of their employees, agents, Subcontractors and their employees, and other personnel on the worksite; for the protection and preservation of the work and all materials and equipment to be incorporated therein; and for the worksite and the area surrounding the worksite.

   3. The Project Team shall take all necessary and reasonable precautions and actions to protect all such personnel and property.
      a. Regulatory Citation – Occupational Safety and Health Administration (OSHA), 1970. Occupational Safety and Health Standards: Safety and Health Regulations for Construction (Standard No. 1926.1)

   4. As part of the Project Team’s safety program, the Project Team must submit a safety plan for review and acceptance by the Project Representative prior to construction.

   5. At a minimum, the safety plan shall include descriptions of the following:
      a. How and when equipment will be checked to see that it is safe, that all safety guards are in place and that the equipment is being used for its designed purpose and within its rated capacity
      b. How and when all electric devices will be checked for proper grounding and insulation.
      c. What System will be used to lock out Electric Systems that should not be energized
      d. How trash and human organic waste will be disposed
      e. How flammable materials will be stored and handled, and how any spills will be cleaned up and removed for disposal
      f. What System will be used to prevent fires, and if fires do occur who will be trained to fight them
      g. What firefighting equipment will be available to the Project Team and how will this
PART IV – CSU FACILITIES PLANNING, DESIGN AND CONSTRUCTION STANDARDS

REGULATORY REQUIREMENTS

- equipment’s condition be monitored and maintained
- How personnel working above ground level will be protected from falling
- How personnel working underneath work will be protected
- How the safety of work platforms, man lifts, material lifts, ladders, shoring, scaffolding, etc. will be ensured relating to load capacity and the protection of personnel using or working around them.
  - Regulatory Citation – OSHA, 1970. Occupational Safety and Health Standards: Safety and Health Regulations for Construction (Standard No. 1926.1)

B. Confined Space Entry:

1. Policy:
   a. All personnel entering confined spaces shall adhere to confined space entry policy and procedures, which reflect OSHA 29 CFR 1910.146 and other industry standards.

2. This information can be obtained from Colorado State University (CSU) Environmental Health Services (EHS) through the Project Representative.
   a. Examples of Confined Spaces at the University are: boilers, coolers, manholes to sewers, electrical pits, digesters, certain excavations, pump houses, or any other space or equipment which fit the definition

3. Authorized Personnel:
   a. Only authorized personnel or personnel escorted by authorized personnel may enter permit required confined spaces.
      i. For example, Project Team needing access to a confined space to perform University requested work.
   b. All authorized personnel and their supervisors shall be certified in confined space entry procedures.
   c. Authorized personnel have the responsibility and authority to prevent unauthorized entry or procedures in confined spaces.
   d. Project Team and/or consultant must provide all appropriate personal protective equipment.

01 41 00 – REGULATORY REQUIREMENTS

A. Buy Clean Colorado Act:

1. All projects exceeding $500,000.00 in project cost are subject the requirements of the Buy Clean Colorado Act.

2. Refer to the Office of the State Architect’s website for additional information - https://osa.colorado.gov/energy-environment/buy-clean-colorado-act

B. City of Fort Collins and Larimer County:

1. Unless a Project is exempt from City or County review, the Project Representative shall initiate on behalf of the Project and schedule review meetings with the City of Fort Collins and Larimer County for storm water, traffic and other development issues as needed by the Project Scope.
   a. The Project Team shall participate in these meetings as deemed necessary by the Project Representative.
   b. If applicable, CSU shall be responsible for costs of City or County review fees.

01 50 00 – TEMPORARY FACILITIES AND CONTROLS

A. Erosion Control:
1. Where appropriate and necessary, the Project Team shall practice erosion control at construction sites.

2. The Project Team shall use Stormwater Control Measures (SCMs). All projects disturbing one acre or more are required to have a Stormwater Management Plan (SWMP) and permit coverage.

3. The Project Team is required to design construction SCMs in general conformance with the “Urban Storm Drainage Criteria Manual, Volume 3 – Stormwater Quality”, Mile High Flood District, Denver, Colorado, most recent edition.

4. As an invasive weed control measure, any SCMs using or containing hay or straw in bales or rolls shall contain only hay or straw grown in the same county as the Project.
   a. Regulatory Citation – Colorado Department of Public Safety (CDPS). General Permit, Stormwater Discharges Associated with Non–Standard Municipal Separate Storm Sewer Systems (MS4s), COR–070002.

5. The Project Team shall be required to prepare a SWMP and obtain a certification for coverage under Colorado Department of Public Health and Environment’s (CDPHE’s) Colorado Discharge Permit System General Permit No. COR–400000, Storm Water Discharges Associated with Construction Activity.

6. Prior to transfer of certification, the Project Team shall be responsible for refurbishment and installation of erosion control measures meeting all requirements of the SWMP.

7. The Project Team retains the responsibility for permit compliance until Project Closeout, when the certification may be transferred to CSU if stabilization of all disturbed areas is not established.

8. The Project Team shall be responsible for SCM maintenance, inspections and documentation in accordance with the General Permit No. COR–400000.

B. Construction Dewatering:

1. If construction groundwater dewatering is required at any time during the Project, the Project Team shall be required to obtain a certification for coverage before commencing to dewater, under Colorado Department of Public Health and Environment’s (CDPHE’s) Colorado Discharge Permit System General Permit No. COG080000, Discharge from Short-Term Construction Dewatering Activities or COG317000 Discharges from Short-Term Remediation Activities.

2. The Project Team retains the responsibility for permit compliance, including monitoring and reporting to CDPHE, until Project Closeout.
   a. Regulatory Citation – Colorado Department of Public Health and Environment (CDPHE), Water Quality Control Commission, Regulation No. 61 – Colorado Discharge Permit System, 5 CCR 1002–61.

DIVISION 13 – SPECIAL CONSTRUCTION

13 20 00 – SPECIAL PURPOSE ROOMS

A. Child Care and Pre–school:


B. Food Preparation and Serving Areas:

C. Swimming Pools, Spas and Hot Tubs:

   a. Regulatory Citation – CDPHE, Water Quality Control Division, Regulation No. 5 – Swimming Pools and Mineral Baths, 5 CCR 1003–5.

DIVISION 14 – CONVEYING EQUIPMENT

14 20 00 – ELEVATORS

A. Refer to Division 14 – Conveying Equipment.

B. General Information:

1. New elevators shall be registered with the State of Colorado before construction begins on the elevator.
   a. Coordinate with Project Representative when completing registration form.

2. State inspection shall be mandatory.
   a. The Project Team is responsible for obtaining elevator inspection services.
   b. Final inspection and approval shall be required prior to Occupancy.
   c. Acceptance inspection must be coordinated with CSU.
   d. Provide at least 48 hours advance notice of scheduled acceptance inspection to CSU Project Representative so that CSU’s Elevator Coordinator can attend.
   e. Provide completed acceptance inspection report to Project Representative and CSU’s Elevator Coordinator within 24 hours of the acceptance inspection.

3. Elevator Drawings must be approved by Colorado Department of Labor and Employment (CDLE), Division of Oil and Public Safety.

4. Permit and approval process shall be the responsibility of the Project Team.
   a. Regulatory Citation – Colorado Department of Labor and Employment (CDLE), Division of Oil and Public Safety, Conveyance Regulations, 7 CCR 1101–8.

C. Design and Construction:

1. Sump pumps in a dry elevator pit shall be designed to discharge firefighting water to the sanitary sewer without any shut–off in the presence of oil.

2. Sump pumps designed to pump groundwater on a routine or intermittent basis shall be oil–minder style and discharge to Storm Drain Systems. Oil must not be pumped to Storm Drain Systems.
   a. Regulatory Citation – CDPHE, Water Quality Control Commission, Regulation No. 65 – Regulation Controlling Discharges to Storm Sewers, 5 CCR 1002–65.

DIVISION 22 – PLUMBING

22 11 00 – FACILITY WATER DISTRIBUTION

A. Refer to Division 22 – Plumbing.
B. Reduced pressure backflow prevention assemblies shall be installed for all main water services to University buildings, except residential buildings of less than four stories, which shall have either reduced pressure or double check backflow prevention assemblies.


2. Regulatory Citation – Backflow Prevention and Cross Connection Control Program, for Colorado State University’s Consecutive Water System, Fort Collins, Colorado, as required by Section 11.39 of the CDPHE Colorado Water Quality Control Commission, “Colorado Primary Drinking Water Regulations” (5 CCR 1002–11).

DIVISION 23 – HVAC

23 52 00 – HEATING BOILERS

A. Refer to Division 23 – HVAC.

B. Boilers with nameplate input capacity of 5MM Btu/hr (for process steam), or 10MM Btu/hr (for comfort heating) or greater must be evaluated for air permitting.

C. Coordinate with the Project Representative to verify whether the boiler will be located within CSU’s Title V Air Permit Boundary, and to determine what permitting and testing requirements apply.

D. All air permit applications and/or air pollution emission notices shall be prepared in coordination with the Project Representative at least four months before the boiler is delivered.

E. Boilers with the potential to emit more than 25 tons of nitrogen oxides (NOx) per year might be subject to Non Attainment New Source Review (NANSR) or Prevention of Significant Deterioration (PSD) air permitting, which may take up to a year.

F. Coordinate with the Project Representative if any boiler might trigger this type of permitting.

1. Regulatory Citation – Colorado Department of Public Health and Environment, Air Quality Control Commission, Regulation Number 3, Stationary Source Permitting and Air Pollutant Emission Notice Requirements, 5 CCR 1001–5, and CDPHE, Air Pollution Control Division Colorado Operating Permit Number 95OPLR073.

DIVISION 26 – ELECTRICAL

26 32 13 – ENGINE GENERATORS

A. Refer to Division 26 – Electrical.

B. All generators provided for a Project shall be new with engines that meet current Tier standards as required by US EPA.

C. Generator air emissions must be evaluated for inclusion into CSU’s Title V Operating Permit or other air emission permit requirements. Coordinate evaluation with Project Representative.

1. Regulatory Citation – Colorado Department of Public Health and Environment, Air Quality Control Commission, Regulation Number 3, Stationary Source Permitting and Air Pollutant Emission Notice Requirements, 5 CCR 1001–5, and CDPHE, Air Pollution Control Division Colorado Operating Permit Number 95OPLR073.
PART IV – CSU FACILITIES PLANNING, DESIGN AND CONSTRUCTION STANDARDS

REGULATORY REQUIREMENTS

DIVISION 33 – UTILITIES

33 08 00 – COMMISSIONING OF UTILITIES

A. Refer to Division 33 – Utilities.

B. Commissioning of Water Utilities:

1. New water mains and service lines, including fire lines, shall be disinfected in accordance with the University’s disinfection requirements, including superchlorination and coliform testing with associated documentation, before being placed into service.
   a. Coordinate disinfection and disinfection requirements with the Utility Inspector.

2. Flushing of superchlorinated lines may require dechlorination.
   a. The Project Team shall provide all equipment and personnel to perform the dechlorination.
   b. Coordinate dechlorination and dechlorination requirements with the Utility Inspector.

3. Once the pipeline has been filled and disinfected, and backfilling has been completed and approved, a hydrostatic pressure test shall be conducted.
   a. The Project Team shall provide all equipment and personnel to perform the hydrostatic test.
   b. Coordinate the pressure test and testing requirements with the Utility Inspector.

4. If the tests disclose leakage greater than the maximum allowed, the defective materials and joints shall be located and repaired. The tests shall be repeated until the leakage is less than the maximum allowed.

C. Commissioning of Sanitary Sewer Utilities:

1. A low–pressure air test shall be conducted on sanitary pipelines and manholes.

2. The Project Team shall provide all equipment and personnel to perform the test.
   a. Coordinate the pressure test and testing requirements with the Utility Inspector.

3. If the tests disclose leakage greater than the maximum allowed, the defective materials and joints shall be located and repaired. The tests shall be repeated until the leakage is less than the maximum allowed, per the State of Colorado’s Design Criteria.

33 10 00 – WATER UTILITIES

A. General Information:

1. All water main and service line materials shall conform to applicable AWWA standards and Manufacturer recommendations for installation.

B. Water Utility Distribution Piping:

1. All water line crossings shall conform to CDPHE “Design Criteria for Potable Water Systems” (e.g. encasement, separation).
PART IV – CSU FACILITIES PLANNING, DESIGN AND CONSTRUCTION STANDARDS

REGULATORY REQUIREMENTS

33 20 00 – WELLS

A. Monitoring Wells:

1. All groundwater monitoring wells shall be permitted and installed in accordance with the Colorado Division of Water Resources “Rules and Regulations for Water Well Construction, Pump Installation, Cistern Installation and Monitoring and Observation Hole/Well Construction”, 2 CCR 402–2.

33 30 00 – SANITARY SEWERAGE

A. Septic Tanks:

1. Septic Systems located within Larimer County, with an average design capacity of 2,000 gallons per day or less, consisting of a tank/vault, auto–siphon chamber (if needed) and absorption bed shall be constructed in accordance with Larimer County Department of Health and Environment Individual Sewage Disposal System (ISDS) Regulations.

2. Where a municipal sanitary sewer exists within 400'-0" of the Project, the building’s Sanitary Drain System must connect to the sanitary sewer unless written permission is granted by the Larimer County Department of Health and Environment to connect to a septic or other Soil Treatment and Disposal System.

3. Design shall be performed and certified by a Colorado registered Professional Engineer in accordance with ISDS Regulations and good engineering practice.
   a. Regulatory Citation – Larimer County Department of Health and Environment (LCDHE). On–Site Wastewater Treatment System Regulations (2018).

4. Septic Systems in other counties shall follow the relevant county permitting, design, and construction requirements.

5. Systems with a design capacity of greater than 2,000 gallons per day must obtain Site Approval from Colorado Department of Public Health and Environment and shall be designed and constructed accordingly.

6. All Site Approval and reviews must be completed before construction can commence. Adequate time must be allotted as the Site Approval process can take 12 months.
   a. Regulatory Citation – CDPHE Water Quality Control Division, “Regulation No. 22 – Site Location and Design Approval Regulations for Domestic Wastewater Treatment Works”, 5 CCR 1002–22, as amended.

7. Construction of Septic Systems receiving wastes other than domestic sewage is prohibited without first obtaining a Class V Underground Injection Permit from the US Environmental Protection Agency (EPA).

33 40 00 – STORMWATER UTILITIES

A. General Information:

1. Stormwater drainage is regulated by the University’s MS4 permit administered by the Colorado Department of Public Health and Environment.
PART IV – CSU FACILITIES PLANNING, DESIGN AND CONSTRUCTION STANDARDS

REGULATORY REQUIREMENTS

a. Regulatory Citation – CDPS, General Permit, Stormwater Discharges Associated with Non–Standard Municipal Separate Storm Sewer Systems (MS4s)”, COR–070002.

2. Refer to the “Stormwater Utility Service Agreement between Colorado State University and City of Fort Collins Utilities Fort Collins, Colorado for Colorado State University’s Main, South and West Campuses” (Stormwater IGA) to determine whether the Project is within the IGA boundary.

3. Projects located outside the IGA boundary and within the City of Fort Collins are subject to City of Fort Collins stormwater requirements for detention and water quality as set forth in the City Municipal Code.

4. Projects located outside the IGA and outside the City of Fort Collins Boundary are subject to the stormwater requirements of the City or County having jurisdiction.
   a. Regulatory Citation – Stormwater Utility Service Agreement between Colorado State University and City of Fort Collins Utilities, Fort Collins, Colorado for CSU’s Main, South and West Campuses (2015).

5. CSU’s Main Campus contains a 100–year floodplain administered by Facilities Management (FM) according to Colorado Department of Natural Resources, Colorado Water Conservation Board (CWCB) Rules and Regulations for Regulatory Floodplains in Colorado.

6. The following requirements apply to new construction or redevelopment of existing structures:
   a. All CSU building openings (e.g. doors) within the Main Campus boundary that touch the CSU floodplain are required to be protected with 2’-0” of freeboard.
   b. All proposed buildings or grade changes that are within or touch the CSU floodplain must not cause flooding of existing buildings.
      i. Regulatory Citation – Department of Natural Resources, Colorado Water Conservation Board (DNR, CWCB). Rules and Regulations for Regulatory Floodplains in Colorado (2010).

7. Projects not within or impinging on the Main Campus CSU floodplain boundary may be subject to floodplain requirements under other authorities having jurisdiction.
   a. For example, City of Fort Collins or FEMA.

8. All floodplain use permits and requirements must be met during design and construction.

B. Stormwater Detention:

1. Projects within the Stormwater IGA boundary are subject to the following requirements:
   a. Stormwater Detention: define the Project boundary, with approval from the Project Representative, and design stormwater detention that is designed to detain the 100–year developed condition, with a release rate that matches the 2–year pre–developed condition.
   b. Prepare and submit to the Project Representative for review and approval a drainage report showing pre–development conditions, developed conditions and stormwater detention and release rate calculations.
   c. If the stormwater detention requirements cannot be met within the Project boundary, regionalized stormwater detention is acceptable, upon approval by the Stormwater Management Team.
   d. Project funds shall be contributed to the CSU Utilities Regional Stormwater Detention fund in an amount calculated by FM Utility Services.
   e. If a project adds or modifies less than 1,000 square feet of 100% impervious surface (or an equivalent area of less than 100% impervious surface calculated based on the proposed imperviousness), regardless of the existing surface, then stormwater detention is not required.
PART IV – CSU FACILITIES PLANNING, DESIGN AND CONSTRUCTION STANDARDS

REGULATORY REQUIREMENTS

2. All Stormwater Detention Systems that are subject to reporting in the State’s Notification Compliance Portal established pursuant to Colorado Revised Statues (CRS) 37–92–602(8) must meet the following criteria:
   a. Continuously release or infiltrate at least 97 percent of all runoff from a rainfall event that is less than or equal to a 5–year storm within 72 hours after the event
   b. Continuously release or infiltrate at least 99 percent of all runoff from a rainfall event that is greater than a 5–year storm (up to and including a 100–year storm event within 120 hours after the end of the event.
   c. Be submitted to the portal for review and approval by CSU’s Stormwater Representative.
      i. Regulatory Citation – CRS 37–92–602(8)

C. Stormwater Quality:

1. Water Quality:
   a. Treat 100 percent of the Project’s impervious area using Low Impact Development (LID) mechanisms (e.g. raingardens, bioswales, etc.).

   a. Incorporate permeable pavers, pervious pavers and/or pervious asphalt wherever feasible in areas to be paved.
   b. Use permeable pavers for at least 50 percent of the Project’s bicycle parking areas.

3. Prohibited Elements:
   a. Due to premature failure likelihood, the inclusion of permeable concrete shall be prohibited.

4. Permanent Stormwater Control Measures (SCMs) for stormwater quality improvement shall be incorporated into each Project as appropriate.
   a. Runoff that may be contaminated must be treated through a permanent SCM before entering any storm drain or gutter.
   c. However, site–specific SCMs such as constructed wetlands, bioswales, etc. may be designed using design guidance from other sources, as approved by CSU.

5. This stormwater quality standard shall be used on all CSU properties (i.e. property owned by the Board of Governors (BOG)) in program planning, master planning, design and outreach.
   a. BOG parcels outside Larimer County shall be evaluated for stormwater quality with consultation between the local authority and the Project Representative.

6. This stormwater quality standard is in alignment with CSU’s sustainability goals.

7. Typical pollutants that are being addressed are suspended solids, nutrients, metals, oils, and organic contaminants.

8. The intent of CSU’s stormwater quality standard is to achieve stormwater treatment wherever practicable.

9. The stormwater quality features of a Project shall take into account risk – (i.e. pollutant loading), hydraulic location, and opportunity (i.e. Project or land).

10. This standard shall be consulted for each Project.
11. Absence of stormwater treatment shall not be acceptable; water quality shall be mandated to be incorporated into every Project.

12. Where practicable, treatment shall occur close to the potential contaminant source. Assess and prioritize areas based on location and risk.
   a. Higher risk areas of stormwater pollution may include hood intensive building rooftop drainage, outdoor storage, roads and parking lots.
   b. Stormwater quality improvements must occur on the downhill side of a basin (downstream of pollutant sources).

13. Water quality treatment at point sources shall be preferred, however, regional or sub-basin approaches are acceptable with approval from the Project Representative.
   a. CSU planners’ conceptual regional water quality planning shall be taken into account.
   b. Refer to the CSU Facilities Planning, Design and Construction Standards - Additional Documents for a map of Main Campus showing stormwater treatment opportunities as of 2018, developed by the Stormwater Management Team.

14. Review and approval process: Review applicable documents with the FM Environmental Engineer in consultation with the Stormwater Management Team at the following levels: Master Plan, Program Plan, Design Criteria Documents, Design Development and Construction Documents.

15. The cost for stormwater treatment must be accounted for and documented in each Project.

16. FM Environmental Engineer and Stormwater Management Team have the ability to request a study.

17. The intent of study is to look at the efficacy of a proposal, broaden Project boundaries, and consider location options. Identify environmental impacts on stormwater quality.

18. If a project adds or modifies less than 1,000 square feet of 100% impervious surface (or an equivalent area of less than 100% impervious surface calculated based on the proposed imperviousness), regardless of existing surface, then stormwater quality elements are not required.

33 56 00 – FUEL STORAGE TANKS

A. Above Ground Fuel Storage Tanks:


2. The Project Team shall prepare, execute and submit to OPS all installation application and registration documentation for tanks having a capacity greater than or equal to 660 gallons. Copies of documentation shall be provided to the CSU Project Representative immediately upon submittal to OPS.
PART IV – CSU FACILITIES PLANNING, DESIGN AND CONSTRUCTION STANDARDS

REGULATORY REQUIREMENTS

a. Regulatory Citation – CDLE, Division of Oil and Public Safety, Storage Tank Regulations, 7 CCR 1101–14.

B. Underground Fuel Storage Tanks:

1. Tanks which hold petroleum products shall meet the following requirements.

2. Underground storage tanks shall not be permitted without approval of FM Engineering through the Project Representative.


4. Tanks of a capacity greater than 660 gallons shall be registered with CDLE OPS by the Project Team on behalf of the Project Representative.

5. Tanks shall be installed by Project Teams licensed by the State Oil Inspector.

6. Storage Systems (including piping) must have corrosion protection, leak detection and overfill prevention.

7. Advance permits from OPS are required prior to installation, repair, upgrade, removal or abandonment.

8. The Project Team shall prepare notification and tank registration forms for FM Engineering review and signature. The forms shall be sent to OPS by the Project Representative upon completion of installation of new tanks.

C. Compressed Storage Tanks:

1. Compressed Gas Tanks, Unfired Pressure Vessels and Air Receivers shall conform to applicable codes and regulations.

33 61 00 – HYDRONIC ENERGY DISTRIBUTION

A. Chilled Water Utility Piping:

1. All water line crossings shall conform to CDPHE “Design Guide for Potable Water Systems” (e.g. encasement, separation).

2. Chilled water shall be considered raw water with respect to regulation.

END OF PART IV – REGULATORY REQUIREMENTS