



University of Colorado
Boulder

FACILITIES MANAGEMENT

OFFICE OF DESIGN AND CONSTRUCTION

Project: LEED MS

Date: 12/18/19

Drawing:

By:

Revision:

Description: Rainfall calcs

RAINFALL, 95th PERCENTILE

STATION: GHCND:USC00050848, BOULDER CO
LEED V4 SPREADSHEET METHOD 1893-PRESENT = 1.11 in

AREA BREAKDOWN

TOTAL AREA = 10,877,926 SF

TOTAL BUILDING FOOTPRINTS = 2,512,186 SF

TOTAL CAMPUS HARDSCAPE = 3,606,743 SF

TOTAL IMPERVIOUS AREA = 6,118,929 SF

TOTAL PERVIOUS AREA = 4,758,997 SF

% IMPERVIOUS = 56.3%

FROM TECHNICAL GUIDANCE SECTION 438:
DETERMINE VOLUME FOR INFILTRATION

GIVEN: 95% STORM EVENT = 1.11 INCHES

SOIL TYPE C, INFILTRATION VOLUME = 3.43 IN in 24 HR

AREA = 10,877,926 SF

$$\text{RUNOFF VOLUME} = \left(\text{95\% - DEPRESSION STORAGE} \right) \left(\text{IMPERVIOUS AREA} \right) + \left(\text{95\% - DEPRESSION - INF STORAGE} \right) \left(\text{PERVIOUS AREA} \right)$$

$$= (1.11 - 0.1) (6,118,929) + (1.11 - 0.1 - 3.43) (4,758,997)$$

$$= \boxed{515,009 \text{ CF REQUIRED}}$$



University of Colorado
Boulder

FACILITIES MANAGEMENT

OFFICE OF DESIGN AND CONSTRUCTION

Project: LEED MS

Date: 12/18/19

Drawing: 2/4

By:

Revision:

Description:

RUNOFF MANAGED BY 28TH STREET PONDS (RETENTION)

BUILDING AREA: 654,443 (26.1% of total building area)

HARDSCAPE AREA: 1,192,100 (33.1% of total hardscape)

1,846,543 SF

RUNOFF MANAGED = 1,846,543 SF * (95% - DEPRESSION STORAGE)

$$= 1,846,543 * (1.11 - 0.1) * \frac{1 \text{ FT}}{12 \text{ IN}}$$

$$= \boxed{155,417 \text{ CF}}$$

RUNOFF MANAGED BY ATHLETIC DETENTION POND

BUILDING AREA: 147,204 SF (5.7% of total building area)

HARDSCAPE AREA: 3,436 SF (0.1% of total hardscape)

150,641 SF

RUNOFF MANAGED = 150,641 SF * (95% - DEPRESSION STORAGE)

$$= 150,641 \text{ SF} * (1.11 \text{ IN} - 0.1 \text{ IN}) * \frac{1 \text{ FT}}{12 \text{ IN}}$$

$$= \boxed{12,678 \text{ CF}}$$



University of Colorado
Boulder

FACILITIES MANAGEMENT

OFFICE OF DESIGN AND CONSTRUCTION

Project: LEED MS

Date: 12/18/19

Drawing: 3/4

By:

Revision:

Description:

RUNOFF MANAGED BY VARSITY POND

BUILDING AREA: 39,083 SF (1.6%)

HARDSCAPE AREA: 57,385 SF (1.6%)

97,188 SF

RUNOFF VOLUME MANAGED = 8,180 CF

RUNOFF MANAGED BY INFILTRATION GALLERY

BUILDING AREA: 157,740 SF (6.3%)

HARDSCAPE AREA: 0

157,740

RUNOFF VOLUME MANAGED = 13,276 CF

RUNOFF MANAGED BY LANDSCAPE TREATMENT

BUILDING AREA: 138,184 SF (5.5%)

HARDSCAPE AREA: 636,909 SF (17.7%)

775,093 SF

RUNOFF VOLUME MANAGED = 65,237 CF

RUNOFF MANAGED BY VORTERX UNIT

BUILDING AREA = 787,071 SF (31.3%)

HARDSCAPE AREA = 1,142,684 SF (31.7%)

1,929,754 SF

RUNOFF VOLUME MANAGED = 162,421 CF



University of Colorado
Boulder

FACILITIES MANAGEMENT

OFFICE OF DESIGN AND CONSTRUCTION

Project: LEED MS

Date: 12/18/19

Drawing: 4/4

By:

Revision:

Description:

RUNOFF MANAGED BY KITT PONDS

BUILDING AREA = 138,591 SF (5.5%)

HARDSCAPE AREA = ~~8~~

138,591 SF

RUNOFF MANAGED = 11,664 CF

TOTALS

RUNOFF VOLUME MANAGED

28th PONDS

155,417 CF

ATHLETIC POND

12,678 CF

VARSITY POND

8,180 CF

INFILTRATION GALLERY

13,276 CF

LANDSCAPE TREATMENT

65,237 CF

VORTECHS

162,421 CF

KITT PONDS

11,664 CF

428,875

TOTAL RUNOFF MANAGED = 428,875 CF

PERCENTAGE OF ALL IMPERVIOUS = 83.3%