General Conditions

- Map of proposed subwatershed to each subbasin, including total area and CN
- Design Flow or Design Volume to each STF, as appropriate
- Operation and Maintenance instructions for each STF
- Design drawings of all proposed STF locations
- Detailed construction specifications
- Location and dimensions of all proposed STF easements or tracts
- Grading plan
- STF Maintenance Agreement
- Unique identifiers for each STF
- STF phasing plan
- Edging material per landscape plan approved by PC
- Percolation test results

Administrative Items

- STF Maintenance Agreement provided
- Performance Surety provided, if required
- Maintenance Bond provided
- Certification of installer provided, if required

Rain Garden (RG)

- Drainage area and RG Area match Final Stormwater Mgmt Study
- Plan view showing dimensions and features
- Minimum 20' from WQv pool to residential building foundation, except as below
- Minimum 10' from WQv pool to residential building foundation if serves 1 lot and is downgradient or no basement
- Detailed cross-section
- Maximum ponding depth of 6 inches is provided
- Engineered Soil Mix (Biotention Soil Mix) meets spec in STF Manual or 1:1 sand/compost mix
- 6" optional planting soil layer, if provided
- 24" engineered soil mix depth
- Filter strip of grass (for RG receiving flow off pervious areas)
- Filter strip of approved rock (for RG receiving flow off impervious areas)
- 3 inches of aged shredded hardwood mulch provided
- Grading plan with bottom and overflow elevations
- Detailed landscape plan per plan approved by PC
- At least 2 feet above the seasonal high water table
- Overflow path or structure provided

Infiltration Basins (IB)

- Drainage area and IB area match Final Stormwater Mgmt Study
- Plan view showing plan dimensions and features
- Minimum 20' from WQv pool to residential building foundation unless no basement
- Minimum 100' if building is located downhill
- 3:1 length to width ratio (or greater)
- Sediment Pretreatment Provided
- Overflows routed around the basin
- Detailed cross-section
- 3:1 side slope or flatter
- Max ponding depth of 24"
- Overflow path or structure provided
- Grading plan with bottom and overflow elevations
- Detailed landscape plan per plan approved by PC
- Appropriate plant selection based on assumed inundation period

Infiltration Trenches (IT)

- Drainage area and IT dimensions match Final Stormwater Mgmt Study
- Plan view showing plan dimensions and features
- 20 foot sediment forebay or grass channel precedes trench
- Minimum 20 feet from WQv pool to residential building foundation unless no basement
- Infiltration rate of receiving soil is greater than or equal to 0.5 inch/hour
Soil has no greater than 40% clay content
Infiltration Trench designed as offline device
Detailed cross-section
Depth of trench between 3 and 8 feet deep
Trench filled with 1.5” to 2.5” clean stone, no limestone or shale
Filter fabric on all 4 sides of clean stone
Pea gravel filter layer on top of trench
At least 4 feet above the seasonal high water table
Grading plan with bottom and overflow elevations

**Bioretention (BR)**
- Drainage area and BR area match Final Stormwater Mgmt Study
- Plan view showing plan dimensions, features, and underdrain layout
- Pretreatment utilized if appropriate
- Length to width ratio approximately 2:1
- Minimum 20 feet from WQv pool to residential building foundation unless no basement
- Detailed cross-section
- 6” maximum ponding depth
- Engineered Soil Mix (Bioretention Soil Mix) meets spec in STF Manual or 1:1 sand/compost mix
- Engineered Soil Mix 30” minimum depth
- 3 inches of aged shredded hardwood mulch provided
- Side slopes 3:1 or flatter
- Grading plan with bottom and overflow elevations
- Detailed landscape plan per plan approved by PC
- Appropriate plant selection based on assumed inundation period
- At least 2 feet above the Seasonal High Water Table
- Underdrain Provided - 4” minimum perforated pipe
- Longitudinal underdrain max spacing 10’ on center
- Transverse underdrains required if width > 20’ with max spacing 10’ on center
- One cleanout every 50’ and at each end of pipe run
- Underdrain downstream connection elevation shown
- Filter fabric overlaying gravel blanket
- Overflow path or structure provided

**Porous Pavement (PP)**
- Drainage area and PP area match Final Stormwater Mgmt Study
- Plan view with dimensions
- Minimum 20 feet from WQv pool to residential building foundation unless no basement
- Detailed cross-section
- Base coarse aggregate is appropriate with fractured surfaces
- Aggregate has 30% open space
- At least 4 feet above the seasonal high water table
- Non-woven geotextile membrane installed under aggregate
- Overflow path or structure provided
- Certification of installer note on plans

**Extended Detention Wetland (EDW)**
- Drainage area and EDW area match Final Stormwater Mgmt Study
- Plan view with dimensions
- Forebay, Micropool, Low Marsh, and High Marsh areas provided and areas meet guidance in Table 15 in BMP Manual
- Minimum 20 feet from 1% pool elevation to residential structure
- Sediment Forebay Provided
- Flow Path through the facility at least 3 times the width
- 12” safety bench provided around micropool with at least 6:1 slope
- Energy dissipation provided at inlet
- 15’ perimeter maintenance path provided
- Detailed cross-section
- Design WQv depth less than 24”
- Vegetated slopes no steeper than 4:1
- Vegetation covers 50-75% of total surface area
- Dam design, if applicable, meets state criteria - refer to detention checklist
Overflow path or structure provided

Grading plan with bottom and overflow elevations

Detailed landscape plan per plan approved by PC

Appropriate plant selection based on assumed inundation period

4" minimum drawdown pipe provided (40 hr. drawdown)

Sand Filters (SF)

- Drainage area and SF dimensions match Final Stormwater Mgmt Study
- Plan view with dimensions
- Pretreatment sedimentation chamber provided
- Sand Filter is offline/ higher than design flows not routed through filter
- Minimum 20 feet from WQv pool to residential building foundation unless no basement
- Detailed cross-section
- Minimum 18"-24" filter bed
- Sand conforms to ASTM C-33 or AASHTO M-6 ranges in size from 0.02" to 0.04"
- 6" perforated pipe underdrain in 1.5" to 2.5" clean free-draining aggregate
- Filter Fabric provided on top of 1.5" to 2.5" clean free-draining aggregate

Wetland Swale (WS) 5 acres or less

- Drainage area and WS dimensions match Final Stormwater Mgmt Study
- Plan view with dimensions
- Longitudinal profile
- Minimum 20 feet from WQv pool to residential building foundation unless no basement
- Detailed cross-section (include WQv, 10% and 1% depths/elevations)
- Check dams provided if slope > 2%
- Overflow path or structure provided
- Grading plan with bottom and overflow elevations
- Detailed landscape plan per plan approved by PC
- Appropriate plant selection based on assumed inundation period
- Bottom width 2'-8'
- Side slopes 3:1 or flatter
- 18" maximum ponding depth, 12" average
- 4 ft/sec maximum velocity during 50% storm; max depth ≤ 2'

Bio-Swale (BS)

- Drainage area and BS Dimensions match Final Stormwater Mgmt Study
- Plan view with dimensions
- Minimum 20 feet from WQv pool to residential building foundation unless no basement
- Detailed cross-section include WQv, 10% and 1% depths/elevations
- Check dams provided if slope > 4%
- 4" perforated underdrain pipe with 6" of 1.5" to 2.5" clean free-draining aggregate cover
- Overflow path or structure provided
- Grading plan with bottom and overflow elevations
- Detailed landscape plan per plan approved by PC
- Appropriate plant selection based on assumed inundation period
- Bottom width 2'-8'
- Side slopes 3:1 or flatter
- 30" permeable soil layer
- 12" maximum ponding depth
- 5 ft/sec maximum velocity during 50% storm

Extended Wet Detention Basin (EWDB) (between 2 and 1000 acres)

- Drainage area and EWDB area match Final Stormwater Mgmt Study
- Plan view showing plan dimensions and features
- Pretreatment or sediment forebay provided (at least 10% of WQv)
- 2:1 approximate length:width ratio
- Minimum 20 feet from 1% pool elevation to residential structure
- Permanent pool 4'-6', no greater than 12'
- Detains WQv above permanent pool
- 15' perimeter maintenance path provided with slope less than 5:1
Flow path through the facility equals 3 times the width
Detailed cross-section
10 foot wide littoral bench provided around the pond perimeter between 6" and 12" below permanent pool
Littoral bench slope no steeper than 6:1
Slopes 4:1 above normal pool, 3:1 below normal pool
Energy dissipators provided at pipe outlets
Multiple stage outlet structure in accordance with Final Stormwater Mgmt Study
Overflow path or structure provided
Grading Plan with bottom and overflow elevations (WQv, 10%, 1% depths/elevations)
Detailed landscape plan per plan approved by PC
Appropriate plant selection based on assumed inundation period
Dam Design, if applicable, meets state criteria
Complies with City’s pond requirements

Native Vegetation Swale (NVS) (maximum 5 acres)
Drainage area and NVS dimensions match Final Stormwater Mgmt Study
Plan view with dimensions
Longitudinal profile
1.5% maximum longitudinal slope
Minimum 20 feet from WQv flow elevation to residential building foundation unless no basement
Detailed cross-section
Check dams provided if slope > 2.5% (1% min. slope)
Overflow path or structure provided
Grading Plan with bottom and overflow elevations (WQv, 10%, and 1% depths/elevations)
Detailed landscape plan per plan approved by PC
Appropriate plant selection based on assumed inundation period
Bottom width 2’-8’
Side slopes 3:1 or flatter
4” maximum depth
1 ft/sec maximum velocity
4 ft/sec maximum velocity during 50% storm

Extended Dry Detention Basin (EDDB)
Drainage area and EDB area match Final Stormwater Mgmt Study
Plan view showing plan dimensions and features
 Pretreatment or sediment forebay provided (at least 10% of WQv)
Minimum 20 feet from 1% pool elevation to residential structure
15’ perimeter maintenance path provided
Detailed cross-section
Slopes 4:1 for facilities capturing only WQv, 3:1 for basins also capturing flood volumes
Fence required if side slopes are steeper than 5:1
Energy dissipators provided at pipe outlets
Low flow channel provided
WQv depth 2-5’
Multiple stage outlet structure in accordance with Final Stormwater Mgmt Study
15’ maintenance ramp around perimeter
Overflow path or structure provided
Grading Plan with bottom and overflow elevations (WQv, 10% and 1% depths/elevations)
Detailed landscape plan per plan approved by PC
Appropriate plant selection based on assumed inundation period
Dam Design, if applicable, meets state criteria

Turf Swale (TS) (maximum 5 acres)
Drainage area and TS dimensions match Final Stormwater Mgmt Study
Plan view with dimensions
Longitudinal profile
Minimum 20 feet from WQv pool elevation to residential building foundation unless no basement
Detailed cross-section
2’-4’ bottom width
Side slopes 3:1 or flatter
1 ft/sec minimum longitudinal slope
18" maximum depth (12" average depth)
4 ft/sec maximum velocity during 50% storm
4" maximum depth
Check dams provided, if required
Overflow path or structure provided
Grading plan with bottom and overflow elevations (WQv, 10% and 1% depths/elevations)
Detailed landscape plan per plan approved by PC
Appropriate plant selection based on assumed inundation period

**Proprietary Media Filtration, Hydrodynamic Separation, Baffle boxes, and Oil Grit Separators**
- Drainage area matches Final Stormwater Mgmt Study
- Size and/or dimensions match Final Stormwater Mgmt Study
- Bypass provided
- Maintenance access provided
- Design information provided by manufacturer

**Vegetated Filter Strips (VFS)**
- Drainage area and VFS dimensions match Final Stormwater Mgmt Study
- Flow enters and exits VFS as sheet flow
- Grades between 1% and 6%
- 130' maximum approach length
- VFS length=1/3 approach length
- Grading Plan with bottom and overflow elevations
- Detailed landscape plan per plan approved by PC
- Appropriate plant selection with dense, 100% coverage (based on assumed inundation period)