

## Appendix D

### As-built Requirements for Green Infrastructure Practices and TSS Removal Practices

After the SCMs are installed, an as-built survey shall be performed. The as-built may be performed by a Registered Land Surveyor (RLS) or Professional Engineer (PE) registered with the State of Tennessee; however, the survey shall be reviewed by a PE, who shall provide a stamped certification letter stating that the site has been inspected and that the stormwater management system and stormwater control measures (both structural and non-structural) are complete and functional in accordance with the plans approved by the City and the overall design intent has been met. Coordinate data shall be presented in the State of Tennessee Plane System with the North American Datum 1983 (NAD83) and North American Vertical Datum (NAVD) of 1988. Submittals without a certification letter from a PE will be considered incomplete.

The City of Franklin Planning and Sustainability Department has requirements and a checklist for drainage as-builts which can be found at: <https://www.franklintn.gov/government/departments-k-z/planning-and-sustainability/performance-agreements-sureties>. Please ensure this document is reviewed prior to performing the survey and all items are addressed.

In addition to the abovementioned requirements set by the Planning and Sustainability Department, each SCM has specific information that needs to be provided as part of the as-built and PE certification letter. Below you will find each SCM with details of components that need to be documented.

#### GIP-01 Bioretention

1. Elevations shall be provided for inverts of the underdrain and outlet control structure and top of casting (overflow).
2. Elevations shall be provided for top of soil and top of surrounding berm.
3. Pretreatment measures shall be verified. Forebay surface area and depth shall be provided.
4. Curb cut location and width shall be verified, if applicable.

#### GIP-02 Urban Bioretention

1. Elevations shall be provided for inverts of the underdrain and outlet control structure and top of casting (overflow)
2. Elevations shall be provided for top of soil and top of surrounding area, berm, or wall.
3. Pretreatment measures shall be verified.
4. Surface area of the feature shall be provided.
5. Curb cut location and width shall be verified, if applicable.

#### GIP-03 Permeable Pavement

1. Underdrain inverts, if utilized, shall be verified.
2. Surface area of the permeable pavement shall be verified.
3. Curb cut location and width shall be verified, if applicable.

### **GIP-04 Infiltration Trench**

1. Elevations shall be provided for invert of the underdrain and outlet control structure and top of casting (overflow)
2. Elevations shall be provided for top of trench and top of surrounding berm.
3. Pretreatment measures shall be verified. Forebay surface area and depth shall be provided.
4. Surface area of the feature shall be provided.
5. Curb cut location and width shall be verified, if applicable.

### **GIP-05 WQ Swale**

1. Elevations shall be provided for inverts of the underdrain, check dams/check dam weirs, outlet control structure, and top of casting (overflow)
2. Elevations shall be provided for top of soil and top of surrounding berm.
3. Pretreatment measures shall be verified. Forebay surface area and depth shall be provided.
4. Surface area of the feature shall be provided.
5. Curb cut location and width shall be verified, if applicable.

### **GIP-06 Extended Detention**

1. Elevations shall be provided for inverts of the outlet control structure, low flow orifice, top of casting (overflow), and all applicable features: forebay, micro pool, deep pool, wetland, dewatering device, etc.
2. Elevations shall be provided for top of surrounding berm and emergency spillway.
3. Pretreatment measures shall be verified. Forebay surface area and depth shall be provided.
4. Note the type of outlet structure (i.e. v-notch weir, riser, low flow orifice, etc.)

### **GIP-07 Sheet Flow**

1. Elevations shall be provided for the top of any level spreader. Provide shots at each end and every 7 feet along the level lip.
2. Verify level spreader is properly installed to create sheet flow.
3. Verify vegetated filter strip or open space that receives sheet flow has minimal slope.
4. Verify paved area drains toward level spreader and pervious area.
5. Verify the proper vegetation has been established or protected.
6. If using amended soils, ensure proper installation by digging a test pit to verify the depth of mulch, amended soil and scarification.

### **GIP-08 Reforestation**

This SCM requires certification from a Landscape Architect registered in the State of Tennessee to certify that the plantings have been installed per the approved plan and, if applicable, that the soil has been properly amended.

1. Provide the location, size, and species of the plantings.
2. Verify ground cover; organic mulch or establishment/germination native seed mix.

## GIP-09 Green Roof

1. Profile view of facility including typical cross-sections with dimensions;
2. Growing medium elevations.
3. Stormwater piping associated with the site, including pipe materials, sizes, slopes, invert elevations at bends and connections.
4. Elevations of all overflow devices.
5. Planting and irrigation plan.

## TSS-01 Stormwater Wet Pond

1. Elevations shall be provided for permanent pool, inverts of the outlet control structure, and top of casting (overflow).
2. Elevations shall be provided for top of surrounding berm and emergency spillway.
3. Pretreatment measures shall be verified. Forebay surface area and depth shall be provided.
4. Note the type of outlet structure (i.e. – v notch weir, riser, low flow orifice., etc)

## TSS-02 Constructed Wetland

If components of the stormwater wetland constructed in the field differ from the design approved by the City, the as-built certification must: (1) Note the differences between the measure in the field and the design approved by the City; (2) Demonstrate that the design meets the requirements of the City's stormwater program and, if applicable, the City's floodplain management program; and/or (3) Propose additional measures to be included on the site to mitigate the differences.

1. Elevations shall be provided for the different areas of the wetland (i.e. deep water, low marsh, high marsh, etc.) permanent pool, inverts of the outlet control structure, low flow orifice, top of casting (overflow), and all applicable features: forebay, micro pool, deep pool, wetland, dewatering device, etc.
2. Elevations shall be provided for top of surrounding berm and emergency spillway.
3. Pretreatment measures shall be verified. Forebay surface area and depth shall be provided.

## TSS-03 Surface Sand Filter

1. Elevations shall be provided for inverts of the underdrain, bottom of forebay, top of sand bed, standpipe in forebay or berm separating forebay/sand bed, and overflow
2. Pretreatment measures shall be verified.
3. Forebay surface area and depth shall be provided.
4. Surface area of sand bed shall be provided.

## TSS-04 Water Quality Swale

1. Elevations shall be provided for inverts of the underdrain, check dams/check dam weirs, outlet control structure, and top of casting (overflow)
2. Elevations shall be provided for top of soil and top of surrounding berm.
3. Pretreatment measures shall be verified. Forebay surface area and depth shall be provided.
4. Surface area of the feature shall be provided.
5. Curb cut location and width shall be verified, if applicable.

**TSS-05 Dry Pond**

1. Elevations shall be provided for bottom of pond, inverts of the outlet control structure, low flow orifice, top of casting (overflow), and all applicable features: forebay, micro pool, deep pool, wetland, dewatering device, etc.
2. Elevations shall be provided for top of surrounding berm and emergency spillway.
3. Elevations shall be provided for the top of any level spreader. Provide shots at each end and every 7 feet along the level lip.
4. Pretreatment measures shall be verified. Forebay surface area and depth shall be provided.
5. Note the type of the outlet structure (i.e. – v notch weir, riser, low flow orifice, etc.)

**TSS-06 Filter Strip**

1. Ensure design flows spread evenly across filter strip.
2. Verify slope is between 2% and 6%.
3. Verify dimensions of filter strip.
4. Elevations shall be provided for the top of any level spreader. Provide shots at each end and every 7 feet along the level lip.

**TSS-07 Grass Channel**

1. Verify shape of the channel
2. Provide the length, average depth, average slope of each side of the channel, average width of the bottom of the channel, and average slope throughout the channel.

**TSS-08 Underground Sand Filter**

1. Verify the manufacturer and model information of the vault, if manufactured.
2. Provide location of cleanouts/manholes.
3. Provide elevations for inlet/outlet/underdrain inverts, top of filter bed (sand), and overflow weir.
4. Verify the vault is free of sediment and construction trash/debris.

**TSS-09 Perimeter Sand Filter**

1. Provide elevations for the center of each grate (inlet), bottom of forebay, weir, top of filter bed (sand), underdrain invert, and any overflow/spillway.
2. Forebay surface area and depth shall be provided.
3. Surface area of sand bed shall be provided.

**TSS-10 Organic Filter**

1. Elevations shall be provided for inverts of the underdrain, bottom of forebay, top of filter bed, standpipe in forebay or berm separating forebay/filter bed, and overflow
2. Pretreatment measures shall be verified.
3. Forebay surface area and depth shall be provided.
4. Surface area of filter bed shall be provided.

**TSS-11 Gravity Oil Grit Separator**

1. Verify the manufacturer and model information of the separator which has been installed.
2. Provide location of cleanouts/manholes.
3. Provide all applicable invert elevations.
4. Verify the separator is free of sediment and construction trash/debris

