Introduction

- The following document is meant to inform design professionals on the design and plan set requirements for SMIP/GARP funded projects proposing to manage public runoff. The design engineer is responsible for designing the entire stormwater management system; however, due to restrictions in the grant funding, PWD is responsible for the construction necessary to connect the public runoff to the private stormwater management system.
- The workflow outlined in this document does not include private development projects that are required to manage public runoff to meet the Stormwater Regulations (via trade or other reason). Those projects will continue to be paid for by the developer and will be reviewed via PWD Private Cost.
- This is only applicable to projects located in the combined sewershed.

Plan Set Submission and Review Process

The engineer designing the stormwater management system on private property is responsible for designing the conveyance system within the Right-of-Way (ROW). A separate plan sheet (s) showing the proposed work within the ROW should be submitted to the assigned reviewer for the project. For stormwater retrofit projects, the assigned reviewer will be from the Stormwater Incentives group. For private development projects, the assigned reviewer will be part of the Stormwater Plan Review group.

Sizing Requirements

- The private SMP should be sized to account for 1.5 inches of runoff over the proposed ROW drainage area.
- ROW conveyance systems should be sized to convey a 2.5 in/hour rainfall intensity (average peak 15-minute intensity from the 24-rain gage network in Philadelphia). This intensity translates to a 2.04” 24-hour storm event.

General Design

- Standard details can be found here:

  http://philadelphiawater.org/gsi/planning-design/resource_directory.html

- For connections to subsurface systems, one of 4 types of inlets should be used depending on drainage conditions and utility conflicts.
  - When existing inlets are placed along the flow path and not at a low point, a Green Highway Grate Inlet should be installed. If there is a utility conflict in the street and the inlet box must be

placed under the sidewalk, a Green City Inlet should be used. Please note that installation of the Green city inlet also requires a concrete apron. In this situation, the new inlet should be placed upstream and adjacent to the existing inlet. The existing inlet stays in place to serve as overflow.

- When the existing inlet is located at a low point, a 6 Foot Dual Catch Basin Highway Grate Inlet should be installed. Same as above, if there is a utility conflict in the street and the inlet box must be set back in the sidewalk, then a 6 Foot Dual Catch Basin City Inlet should be installed. In this situation, the existing inlet gets replaced with the dual catch basin. The dual catch basin acts as a diversion structure, with a connection back to the existing sewer lateral to act as overflow. Please note that this inlet requires a trap over the lateral connecting back to the sewer.
    - Dual inlets should not be proposed to replace existing inlets at the intersection and along the radius of the curb. In this case, new inlets upstream of the curb radius should be proposed to avoid having to construct new ADA ramps.
    - Ensure that the system's overflow elevation is not above that of the weir elevation at the dual catch basin(s)
    - Existing lateral should be replaced if not in good condition. To be determined by PWD on case by case basis.

- A junction box should be placed at the property line. Note that the pipe inverts should not be lower than 4' below grade to allow maintenance access.
- For connections to surface/bioretention systems, design should consist of a shallow inlet and pipe where possible. Where not feasible, a trench drain with concrete apron may be installed.
- For street crossings, pipe material should consist of ductile iron with a minimum of 2' of cover. In general, minimum clearance for water mains less than 16" diameter is 6".

Plan Set Requirements

- The plan sheet (s) should include the proposed work within the ROW up to the connection to the private SMP. Furthermore, the plan sheet(s) should have the following information:
    - 1" = 10' scale, can show multiple inlets on single plan
    - Label streets and indicate distance from point of intersection to green inlet location
    - Indicate project coordinate system and vertical datum used (City Datum not required)
    - Surveyed utility information within the area of the proposed construction; including location, size, material, elevation, and cover depth. Include PA One Call Report #
    - Label distance from curb to existing utilities
    - Provide profile for all proposed utility crossings
    - Surveyed topo contours and spot elevations
    - Location and elevations of structures to be installed.
    - Location, invert elevations, slope, size, and material of proposed conveyance piping
        - In general, pipe material should consist of ductile iron in cartway and HDPE in footway
        - All pipe should have a minimum of 2' of cover
        - Use 8" diameter pipe unless the drainage area requires a larger diameter pipe to convey the necessary flow
    - Location, size, material, and invert elevation of pipe stub at property line.

- The pipe should be capped, and have metal tape placed over the cap. A stake or other secure monument should be placed at the surface and called out on plans.
- Add callout on property side of junction box:" Connect capped pipe to junction box- BY OTHERS"
- If obstructions exist at or near property line (fence, wall, utility…), pipe should be constructed and stubbed past obstruction
    - Junction box should be located outside fences or other obstructions to ensure easy access for PWD maintenance

- All proposed work should have same line weight to distinguish from existing conditions. However, proposed work in ROW should be black, and proposed work on private property should be greyed out.

- Standard Details:
    - Green Inlet
    - Permanent Inlet Protection- Filter bag with frame
    - Trashguard
    - Junction box
    - Steel Frame and cover for junction box
    - Green Inlet Marker
    - HDPE Pipe Bedding
- Standard Notes:
    - The approved work ties into a private stormwater management system located at (*project address)*. Please refer to Project Tracking # (*XXX)* for details of private system.
    - The contractor must provide as-built record drawings per PWD standards
    - Contact the Streets Department at least two weeks prior to construction for the roadway opening permit, paving & trench restoration procedures, and lane closure permit. Check the Department's website for details and contact information: http://www.philadelphiastreets.com/customer-service/downloads-and-links/
    - Contractor must obtain permission from the Streets Department to store any materials on the street.
    - The approved work shall be done in the presence of a PWD inspector.
    - The contractor performing this work is to notify the PWD Construction Division, 1101 Market Street, 2nd Floor, Phone (215)-685-6345, at least 7 days in advance for assignment of an inspector to the job.
    - The contractor is responsible for obtaining all additional permits and approvals from all affected City agencies and utilities.
    - Any change to, or deviation from, the final approved design plans during construction must be approved by the assigned PWD Construction Engineer and by the PWD Project Engineer.
    - Place and compact backfill in accordance with the standard specifications for excavation, refilling, grading, and repaving.
    - All sidewalk and curbing to be replaced in kind along full limits of construction to next existing joint or as directed by PWD.
    - Maintain and protect existing inlets. Should the existing inlets be in any way damaged during construction, these should be repaired to the satisfaction of the PWD inspector or replaced per PWD standards.

- Contractor must comply with Erosion and Sediment (E&S) Control requirements during construction. See PWD Regulation 501.3 and 600.4, Phila. Code S. 13-603, and 25 PA Code Chapter 102. The City may require the contractor to clean city-owned inlets and systems affected by non-compliant or failed E&S measures.

Construction and Project Close-Out

- The work on private property will always occur first and will be inspected by an inspector from Stormwater Inspections. The contractor responsible for construction of the work on private property is responsible for building up to the property line and making sure the pipe stub is secure and clearly marked.
- Upon completion of construction of the private retrofit, the design engineer is responsible for providing as-built data in the record drawings, and for revising the ROW plan set as necessary.