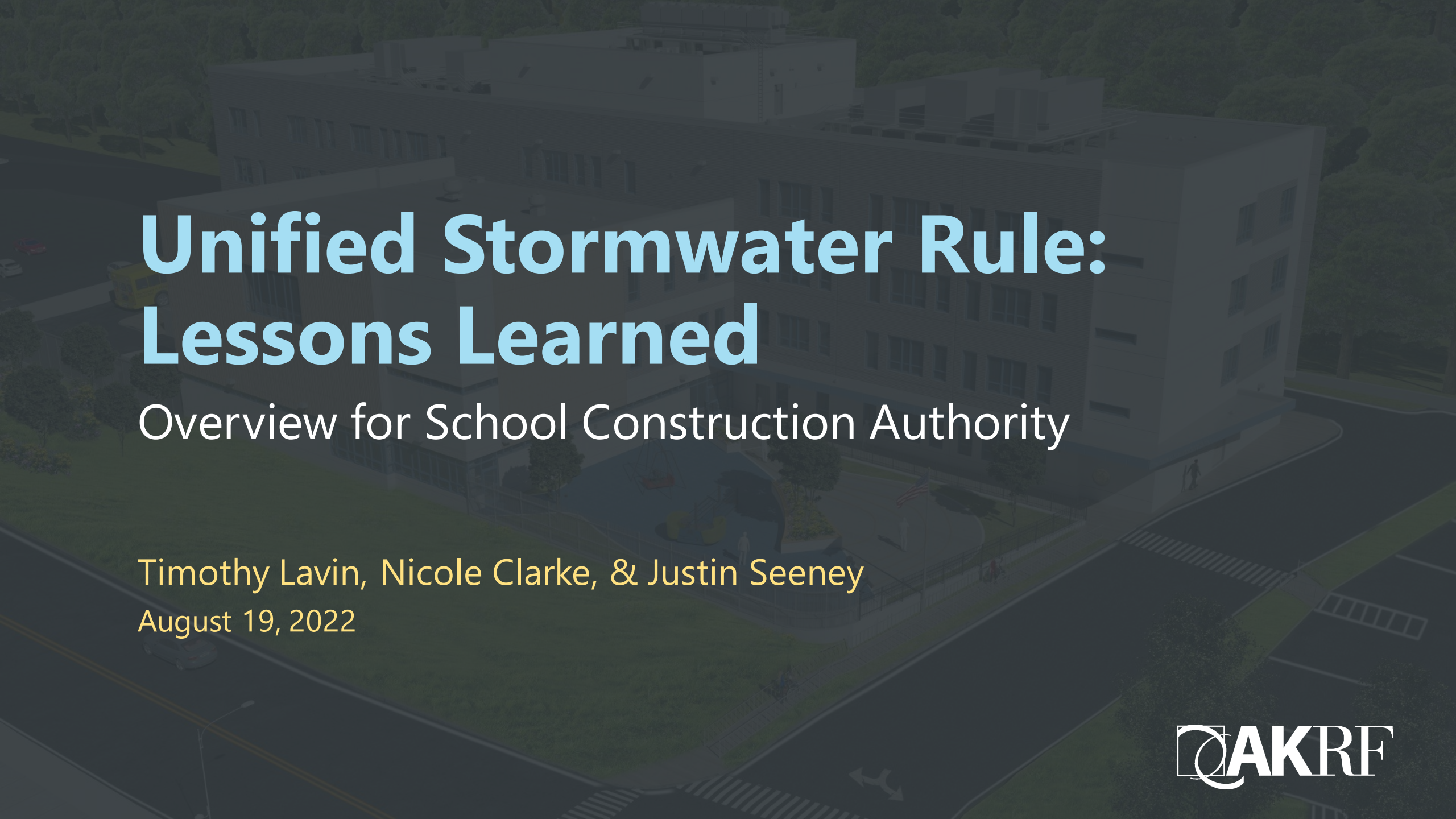

Unified Stormwater Rule: Lessons Learned

Overview for School Construction Authority

Timothy Lavin, Nicole Clarke, & Justin Seeney

August 19, 2022

AKRF

Agenda

- Introduction & Experience
- Unified Stormwater Rule (USWR) Overview
- USWR Considerations for Active SCA Projects & Future Projects
- Summary & Next Steps

Introductions & Experience

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Introductions

Nicole Clarke

- 10+ years as site/civil engineer in NYC and surrounding region
- Project Manager/Designer for 30+ SCA CIP and Capacity Projects

Justin Seeney

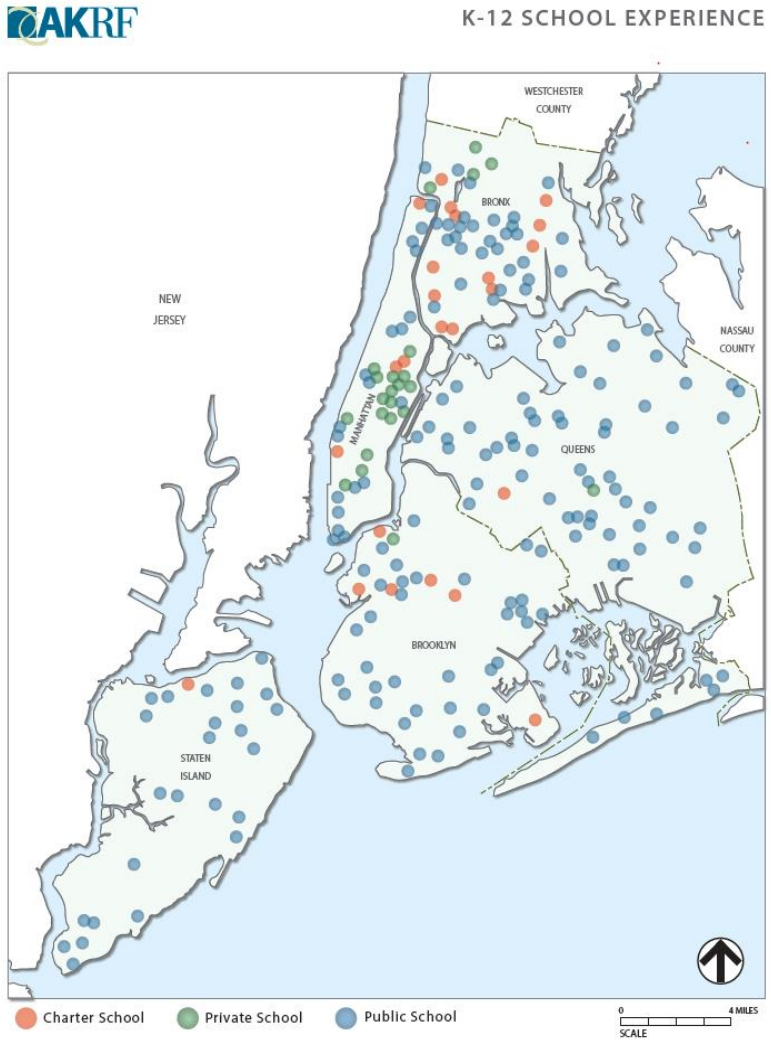
- 12+ Years developing Stormwater management plans and designing GI
- Led development of 40+ SWPPPs

Timothy Lavin

- Technical lead for AKRF on-call contract with the SCA
- Participated in 150+ SCA design projects

SCA & AKRF

- 100+ public schools throughout NYC
- AKRF's Services for the SCA:
  - Architecture & Engineering- Robert Caravella, PE
  - Geotechnical Engineering- Gary Marcus, PE, D.GE, F.ASCE
  - Site Assessment and Remediation- Rebecca Kinal
  - Environmental Planning- Keri Cibelli
  - Acoustics- Matthew Manis



AKRF & USWR

Over 35 sites of varying types developed or in-development under USWR purview


Educational: PS 121R


Institutional: Row NY

Infrastructure: Amboy Road


Recreational: Astoria Park

Unified Stormwater Rule (USWR) Overview

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USWR Legislative Overview

- **September 28, 2020 – New York City Council Passes Local Law 91:**
    - *"To amend the administrative code of the city of New York, the New York city plumbing code and the New York city building code in relation to city-wide stormwater management controls"*
- **February 15, 2022 – NYCDEP proposes amendments to the "Rules of the City of New York" to enforce LL91:**
    - *Amended Chapter 19.1 & Chapter 31*

USWR Core Themes

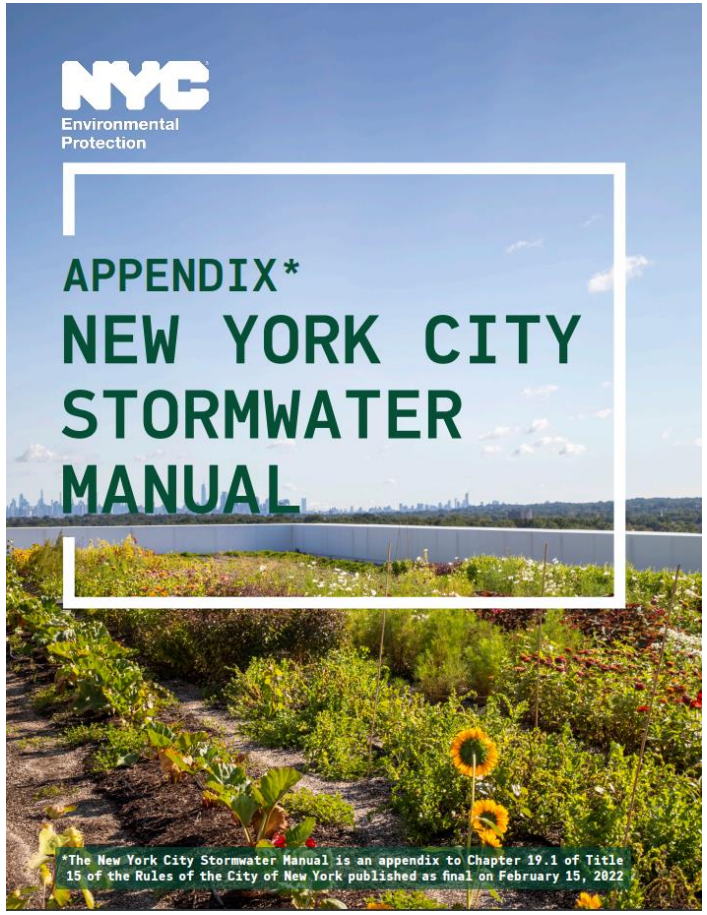
- Inclusion of Stormwater Management Practices (SMPs) for Water Quality Treatment → Green Infrastructure

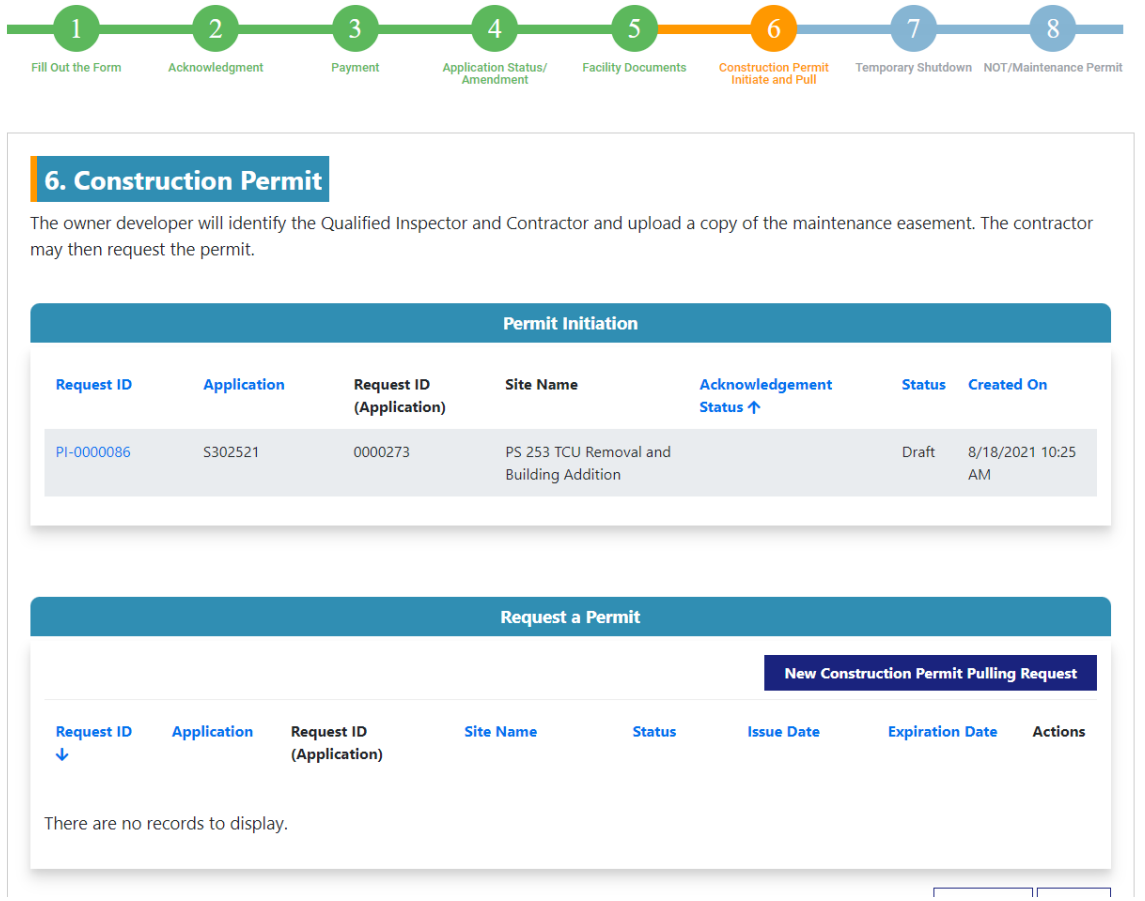
USWR Core Themes

- Erosion and Sediment Control Measures and Inspections

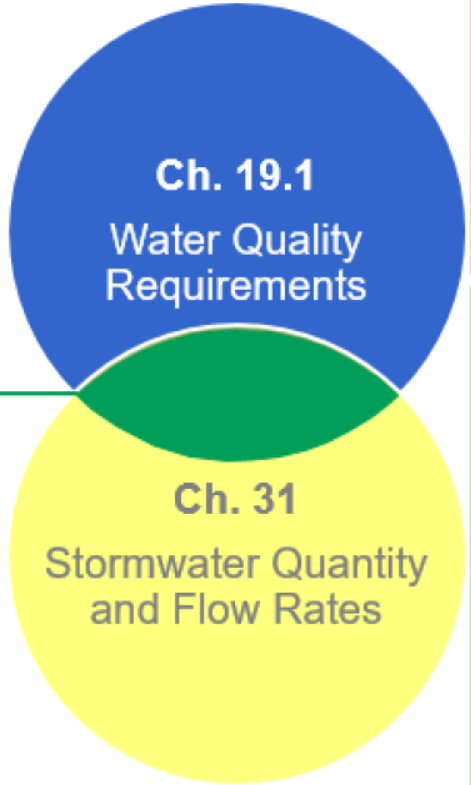
USWR Core Themes

- SWPPPs & DEP Stormwater Construction Permit





USWR Key Changes



Stormwater Construction Permit

- Expanded to CSS area projects
- Reduces soil disturbance threshold from 1 acre to 20,000 sf
- New threshold for 5,000 sf or more of new impervious surface
- Creates clear SMP hierarchy for CSS/MS4 areas

→ **Additional SMPs**

New NYC Stormwater Manual Replaces:

- 2018 NYC MS4 Manual
- 2012 Stormwater Rule Manual
- 2012 Guidelines for Design of Detention Facilities

Site/House Connection Proposal

- Aligns release rate requirements with Stormwater Construction Permit requirements
- Simplifies requirements to determine volume and release rate
- Provides maximum discharge rate scales by project area
- Reduces the maximum release rate from sites in all cases
- Lowers minimum orifice size to 1-inch diameter
- Defines house connections as 1-3 family (fee simple) homes <20,000 sf

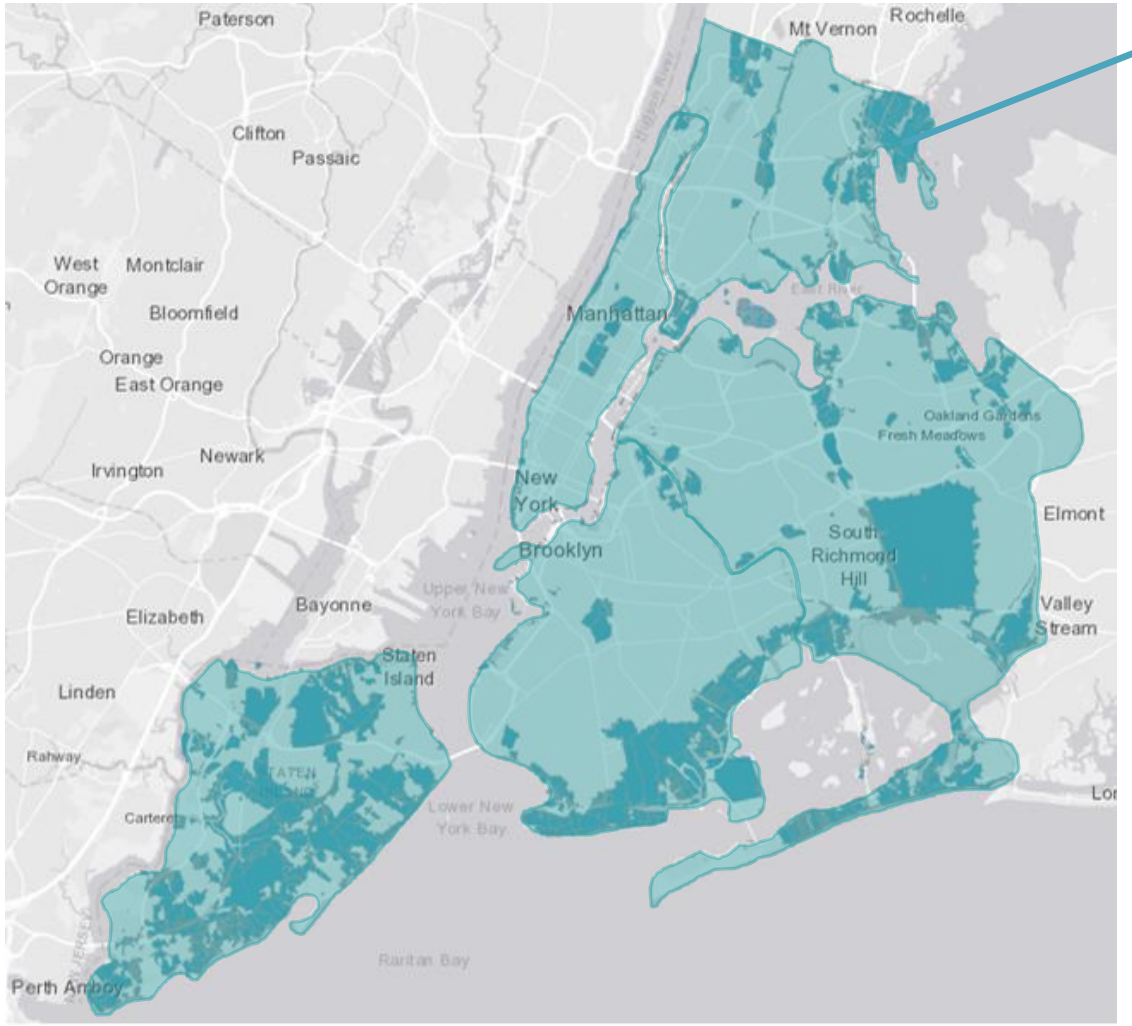
→ **Larger Detention Systems**

Clear guidance on how green infrastructure volume can be applied towards multiple goals

Source: DEP USWR & NYC Stormwater Manual Informational Briefing Presentation, December 20, 2021

USWR Key Changes

Regulates both Separate (MS4) and Combined Sewersheds



MS4 Areas
+ Combined Sewer Areas

Source: DEP MS4 Area Map (Online)

USWR Key Changes

- Reduces disturbances threshold from 1 Acre to 20,000 square feet
- Establishes 5,000 square foot impervious area increase threshold

USWR Key Changes

- Establishes hierarchy for selection of SMPs

Figure 4.2. SMP hierarchy for CSS areas.

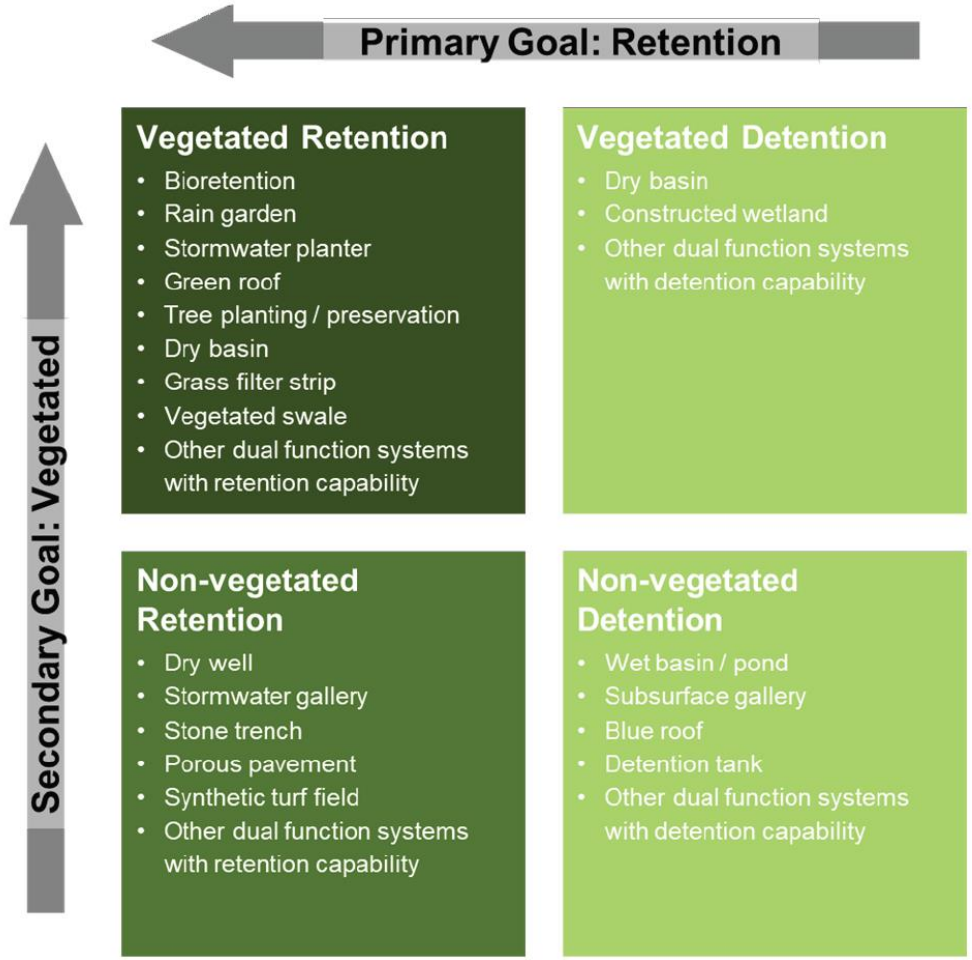
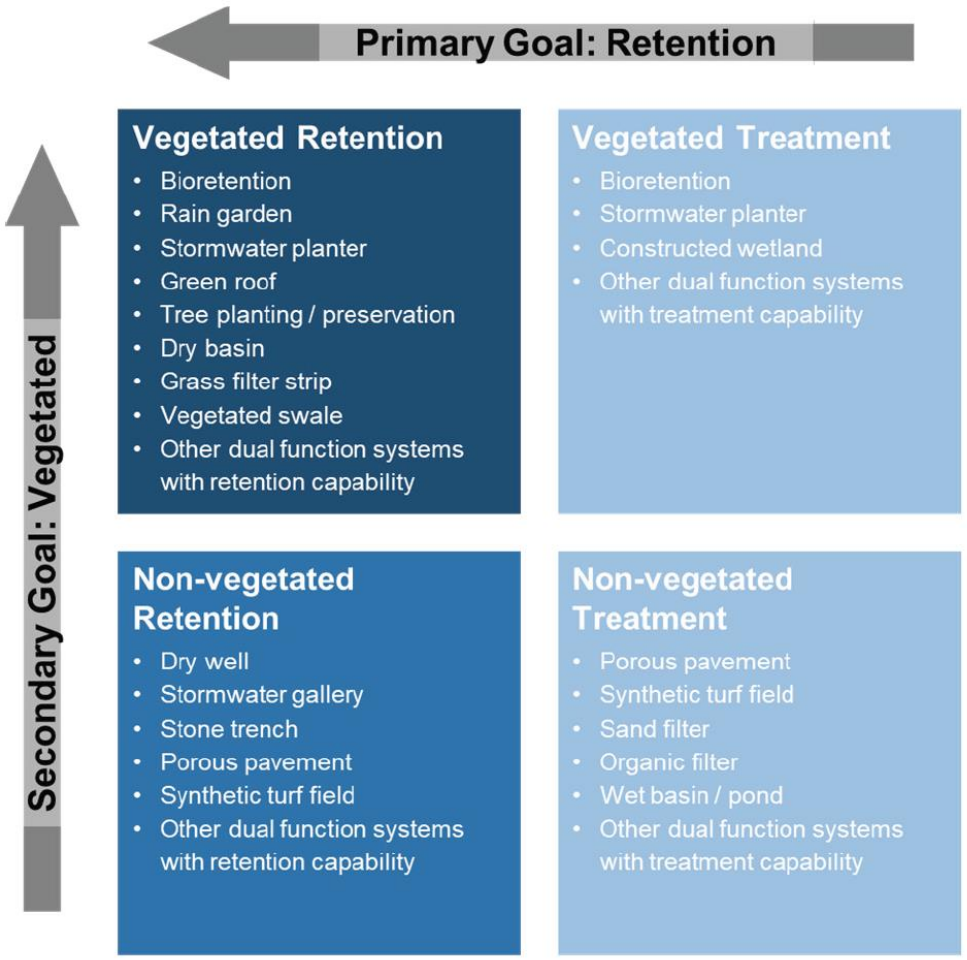
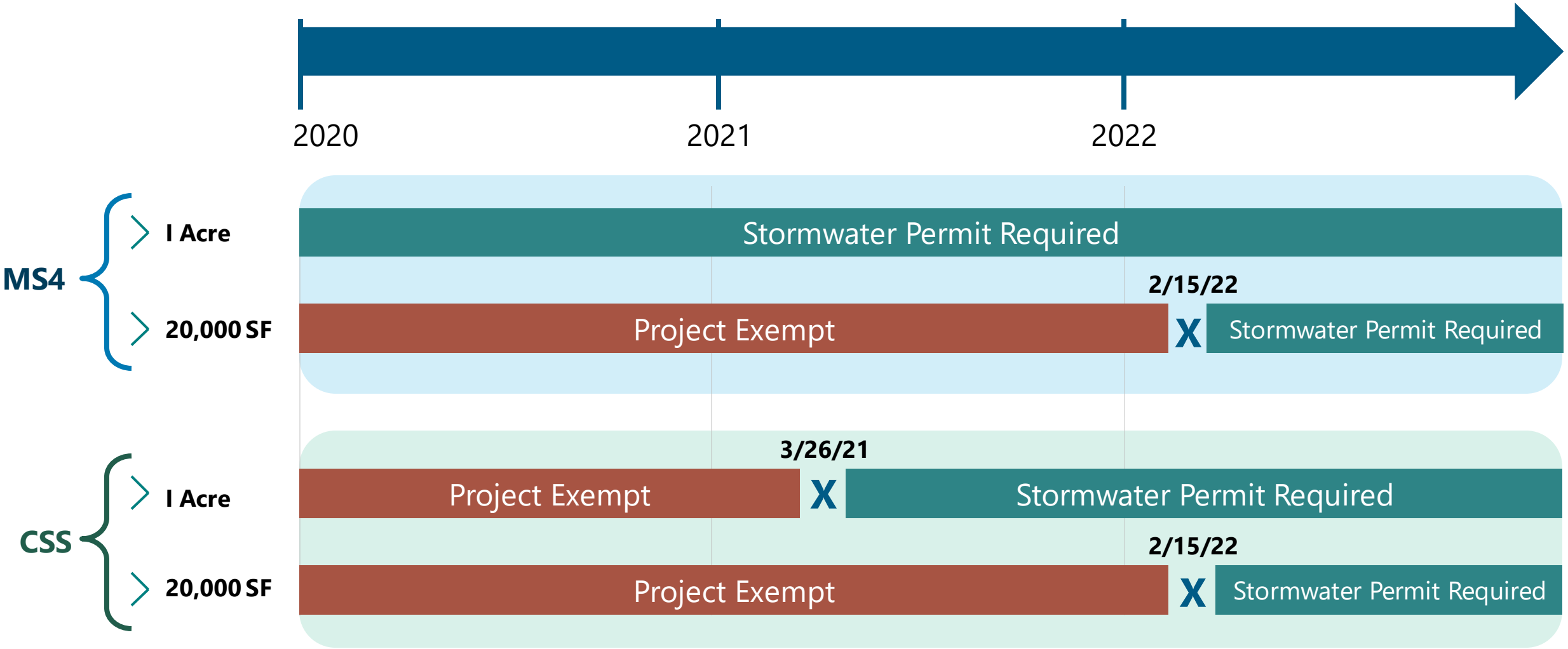


Figure 4.3. SMP hierarchy for MS4 areas.



Time Frame



X: Submission date to DOB/BCC for Construction Document Approval

USWR Considerations for Active & Future SCA Projects

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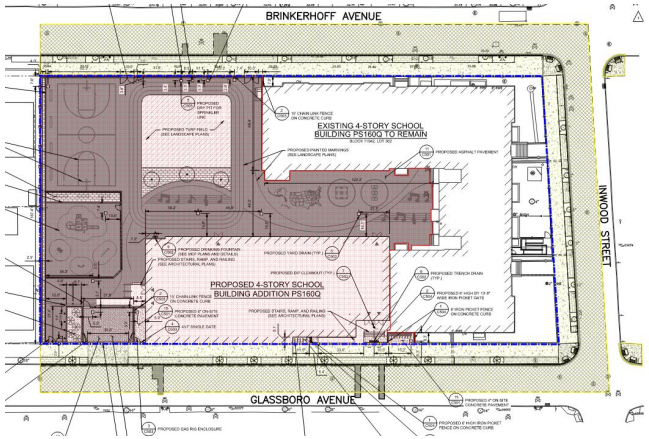
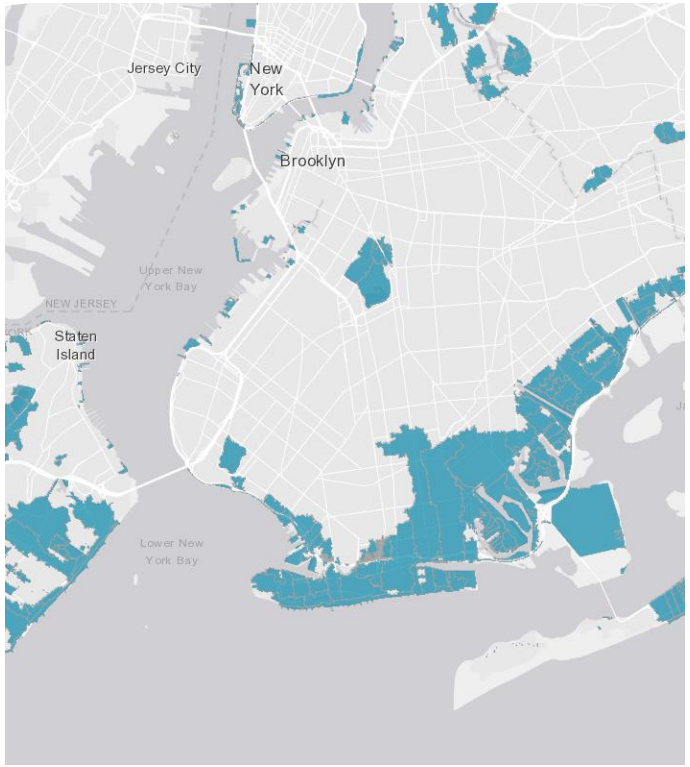
Inventorying Active Projects

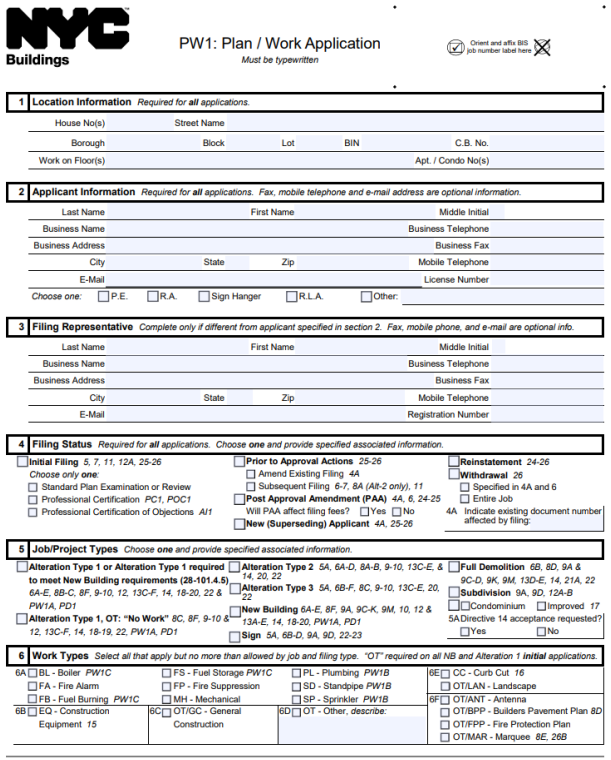
Total Area of Disturbance?



CSS or MS4?



Date Applied for Construction Document approval to DOB/BCC?



NYC Buildings

PW1: Plan / Work Application

Must be typewritten

Orient and affix BIS job number label here

1 Location Information *Required for **all** applications.*

House No(s) | Street Name

Borough | Block | Lot | BIN | C.B. No.

Work on Floor(s) | Apt. / Condo No(s)

2 Applicant Information *Required for **all** applications. Fax, mobile telephone and e-mail address are optional information.*

Last Name | First Name | Middle Initial

Business Name | Business Telephone

Business Address | Business Fax

City | State | Zip | Mobile Telephone

E-Mail | License Number

Choose one: ☐ P.E. ☐ R.A. ☐ Sign Hanger ☐ R.L.A. ☐ Other:

3 Filing Representative *Complete only if different from applicant specified in section 2. Fax, mobile phone, and e-mail are optional info.*

Last Name | First Name | Middle Initial

Business Name | Business Telephone

Business Address | Business Fax

City | State | Zip | Mobile Telephone

E-Mail | Registration Number

4 Filing Status *Required for **all** applications. Choose **one** and provide specified associated information.*

☐ **Initial Filing** *5, 7, 11, 12A, 25-26*
*Choose only **one**:*
☐ Standard Plan Examination or Review
☐ Professional Certification *PC1, POC1*
☐ Professional Certification of Objections *A1*

☐ **Prior to Approval Actions** *25-26*
☐ Amend Existing Filing *4A*
☐ Subsequent Filing *6-7, 8A (Alt-2 only), 11*
☐ **Post Approval Amendment (PAA)** *4A, 6, 24-25*
Will PAA affect filing fees? ☐ Yes ☐ No
☐ **New (Superseding) Applicant** *4A, 25-26*

☐ **Reinstatement** *24-26*
☐ **Withdrawal** *26*
☐ Specified in 4A and 6
☐ Entire Job
4A Indicate existing document number affected by filing:

5 Job/Project Types *Choose **one** and provide specified associated information.*

☐ **Alteration Type 1 or Alteration Type 1 required to meet New Building requirements (28-101.4.5)** *6A-E, 8B-C, 8F, 9-10, 12, 13C-F, 14, 18-20, 22 & PW1A, PD1*
☐ **Alteration Type 1, OT: "No Work"** *8C, 8F, 9-10 & 12, 13C-F, 14, 18-19, 22, PW1A, PD1*
☐ **Alteration Type 2** *5A, 6A-D, 8A-B, 9-10, 13C-E, & 14, 20, 22*
☐ **Alteration Type 3** *5A, 6B-F, 8C, 9-10, 13C-E, 20, 22*
☐ **New Building** *6A-E, 8F, 9A, 9C-K, 9M, 10, 12 & 13A-E, 14, 18-20, PW1A, PD1*
☐ **Sign** *5A, 6B-D, 9A, 9D, 22-23*

☐ **Full Demolition** *6B, 8D, 9A & 9C-D, 9K, 9M, 13D-E, 14, 21A, 22*
☐ **Subdivision** *9A, 9D, 12A-B*
☐ Condominium ☐ Improved *17*
5A Directive 14 acceptance requested? ☐ Yes ☐ No

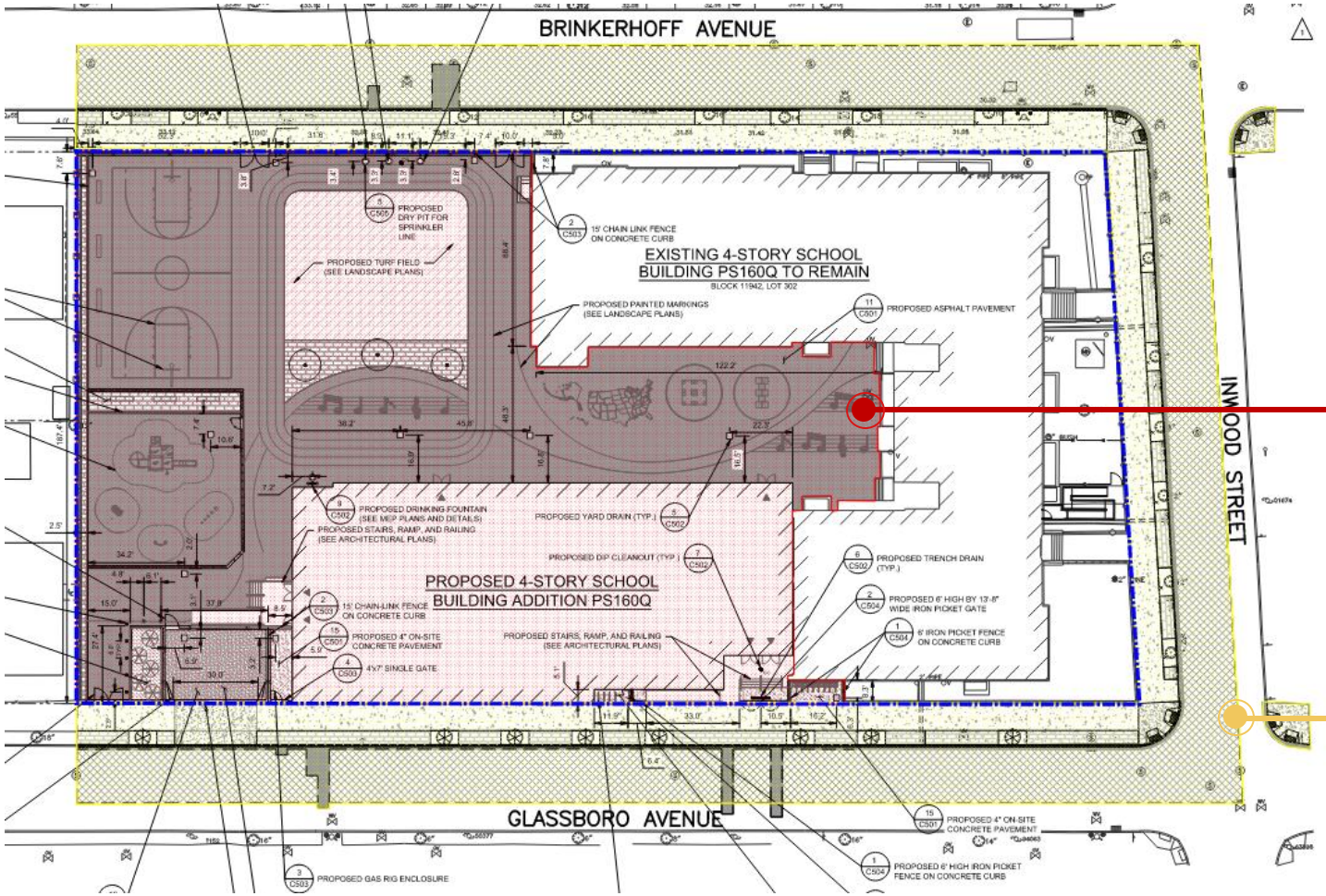
6 Work Types *Select all that apply but no more than allowed by job and filing type. "OT" required on all NB and Alteration 1 **initial** applications.*

6A ☐ BL - Boiler *PW1C*
☐ FA - Fire Alarm
☐ FB - Fuel Burning *PW1C*
☐ FS - Fuel Storage *PW1C*
☐ FP - Fire Suppression
☐ MH - Mechanical
☐ PL - Plumbing *PW1B*
☐ SD - Standpipe *PW1B*
☐ SP - Sprinkler *PW1B*

6B ☐ EQ - Construction Equipment *15*
6C ☐ OT/GC - General Construction
6D ☐ OT - Other, *describe:*

6E ☐ CC - Curb Cut *16*
☐ OT/LAN - Landscape
6F ☐ OT/ANT - Antenna
☐ OT/BPP - Builders Pavement Plan *8D*
☐ OT/FPP - Fire Protection Plan
☐ OT/MAR - Marquee *8E, 26B*

Defining Project Disturbance



TOTAL PROJECT DISTURBANCE: 78,800 SF

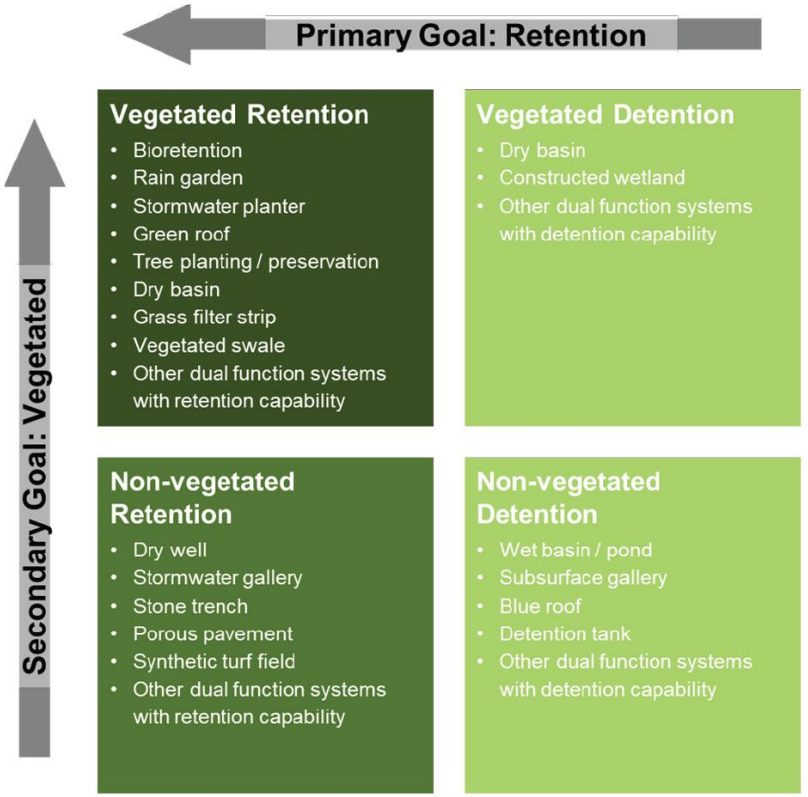
AREA OF ON-SITE DISTURBANCE: 42,300 SF

AREA OF RIGHT-OF-WAY DISTURBANCE: 36,500 SF

Pre-Development

- Consider including infiltration tests in initial due diligence investigations (Geotech & Environmental Borings)

Figure 4.2. SMP hierarchy for CSS areas.

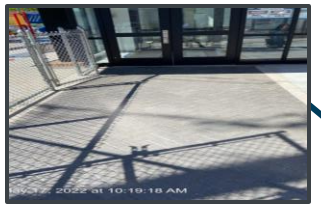


Design: SMP Siting

- Consider SMP siting & feasibility assessment early in design process

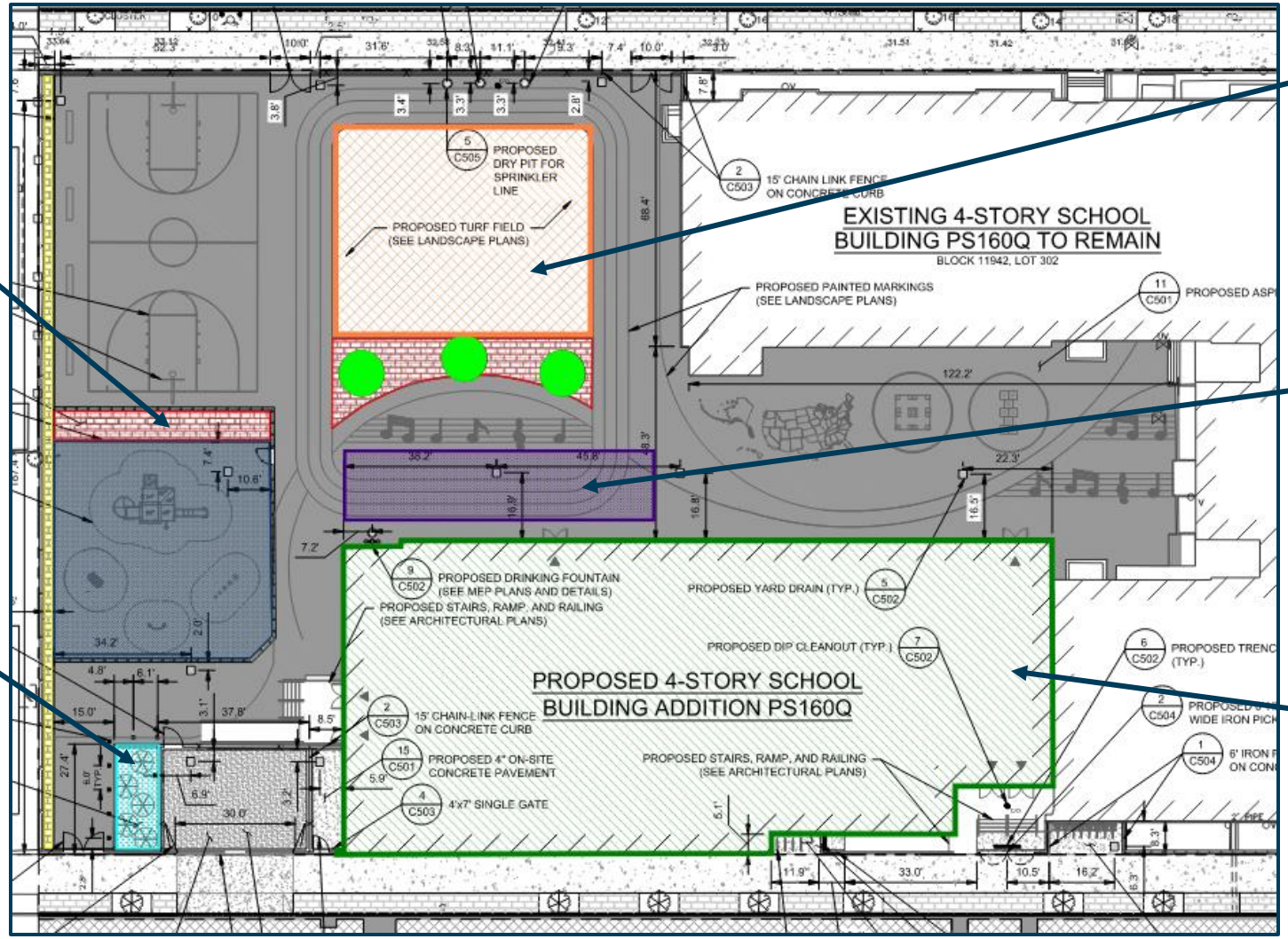
SMP HIERARCHY CHECKLIST - CSS AREAS			Percent of SMP volume applied[a]			Site constraints that limit SMP feasibility[b]				
Tier[c]	Function Type[d]	Practice Type[e]	WQv	RRv	Vv	Soil	Subsurface	Hotspot	Surfaces	Space
Tier 1	Infiltration (Vegetated)	Bioretention	100	100	50	X	X	X	X	X
		Rain garden	100	100	50	X	X	X	X	X
		Stormwater planter	100	100	50	X	X	X	X	X
		Tree planting / preservation	SC	SC	0					
		Dry basin	100	100	50	X	X	X	X	X
		Grass filter strip	SC	SC	0	X	X	X	X	X
		Vegetated swale	SC	SC	0	X	X	X	X	X
	Evapotranspiration[f]	Rain garden	100	100	0		X		X	X
		Stormwater planter	100	100	0				X	
		Tree planting / preservation	SC	SC	0					
		Green roof	100	100	0					
Tier 2	Infiltration (Non-vegetated)	Dry well	100	100	50	X	X	X		X
		Stormwater gallery	100	100	50	X	X	X		X
		Stone trench	100	100	50	X	X	X	X	X
		Porous pavement	100	100	50	X	X	X		X
		Synthetic turf field	100	100	50	X	X	X	X	X
Anytime / Optional	Reuse	Rain tank	100	100	SC					
		Cistern	100	100	SC					
Tier 3	Detention[g,h,i]	Dry basin	100	0	100		X		X	X
		Constructed wetland	100	0	100		X		X	X
		Wet basin / pond	100	0	100		X		X	X
		Stormwater gallery	100	0	100		X			X
		Blue roof	100	0	100					
		Detention tank	100	0	100					

Design: SMP Siting Case Study – PS 160Q



Pavers or Porous Pavement

Bioretention/ Rain Garden/ Stormwater Planter



Synthetic Turf

Detention/ Retention Systems

Green Roof

Design: Detention Systems

- New regulations result in larger detention volumes and larger detention systems
- Increased cost and space demands

Permitting

- **Cost:** Increased permitting fees → $5,000+
- **Time:** DEP SWPPP Review → 3 – 4 months per application
- **Complexity:** Site Connection Proposal → DEP BWSO

  Stormwater Construction Permit → DEP BEPA

  (Operate on Parallel Tracks)

Construction Inspections

- Trained Contractor → Contractor → Daily
- Qualified Inspector → Engineer → Weekly
- Enforcement → DEP → Periodic

SCA
NYC School Construction Authority

AE Bulletin No. AE22-08
Design and Construction Innovation Management

To:	A&E Staff and Design Consultants
Through:	Stan Dahir Chief Design and Construction Innovation Officer Design and Construction Innovation Management
From:	George Roussey Senior Director, Technical Standards & Support Design and Construction Innovation Management
Date:	August 8, 2022
Subject:	**Qualified Inspector for Projects with a SWPPP**

Inspection duties for the verification of the implementation of all control measures outlined in an approved SWPPP application by NYS DEC and/or NYCDEP must be carried out by a Qualified Inspector. As per an agreement between CM and A&E, the Qualified Inspector is to be a member of the site-civil firm that prepared the SWPPP application to insure that all requirements arising from an approved SWPPP are met. The frequency of these on-site inspections will vary over the duration and the types of construction activities; but they will, at first, be required on a weekly or bi-weekly basis at the on-set of work related to the SWPPP. The reports of such inspections must be kept at the site and retained for auditing by those approving agencies and the dates of such inspections available for entering into DEP's portal.

Contractor Responsibilities

- Erosion & Sediment Control Maintenance
- Procedure for obtaining permits with NYC DEP
- S01010 Specification

1.22 **MS4 REQUIREMENTS**

A. This project is in the MS4 (Municipal Separate Storm Sewer System) area. The Contractor must comply with the relevant requirements of Chapter 7 of the NYCDEP Stormwater Management Program Plan (addresses Pollution Prevention and Good Housekeeping [PPGH] operations) and, if applicable, Storm Water Control Measures and Sedimentation and Erosion Control for projects with land disturbance. Reference material can be found on both the NYCSCA and NYCDEP websites. The Contractor is to provide certification prior to beginning the work that it has read and will follow the applicable MS4 Permit requirements for the project (to prevent discharges to the storm system or to waterways of deleterious materials) and after construction provide a Certification of Deliverables that it has followed the requirements.

B. Contractor Certification Prior to Permit

General Certification

PROJECT _____

CONTRACT NO. _____

The Contractor certifies that throughout the term of the Contract referenced above, the Contractor shall perform all Services/Work in compliance with all applicable requirements of the NYC MS4 Permit. A copy of the permit is available at spdes-ms4-permit.pdf. (https://www1.nyc.gov/assets/dep/downloads/pdf/water/stormwater/ms4/spdes-ms4-permit.pdf).

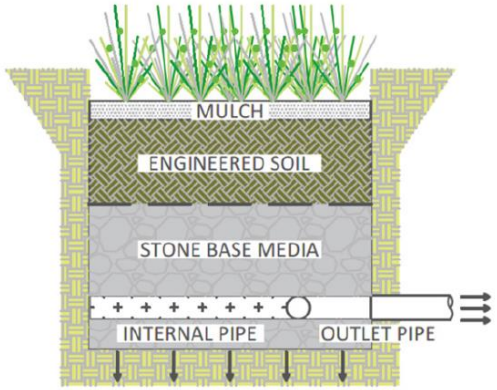
The Contractor further shall ensure that a separate certification ("Certification of Deliverable") is provided at completion of the work that lists the Contract Deliverable identified by the New York City Department of Environmental Protection ("DEP") as requiring such certification, including, but not limited to, the following:

Post Construction

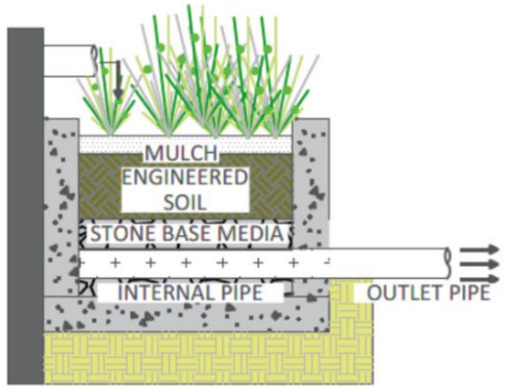
- DEP Stormwater Maintenance Permit is needed to close Stormwater Construction Permit
- On-going maintenances responsibilities, costs and permit compliance reporting to be assumed by DOE
- Legal agreements and Easements necessary

Future Planning: Developing Standards

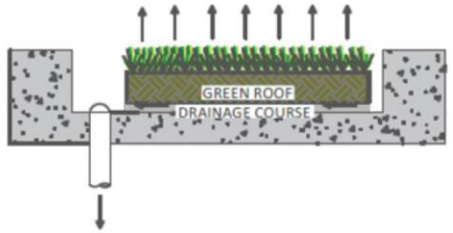
- Consider blending DEP requirements with SCA standards to provide designers a menu of SMPs to choose from
- Can help to mitigate consultant cost increase associated with USWR compliance



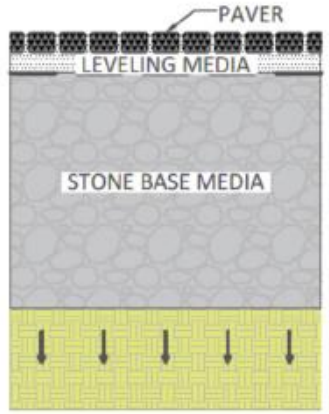
Bioretention



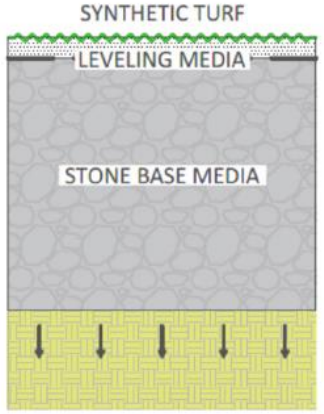
Stormwater Planter



Green Roof



Porous Pavement



Synthetic Turf Field

Summary & Next Steps

AKRF

Summary: Project Questions to Ask

- What is total earth disturbance associated with a project? *(Include both on and off-site areas)*
- What is the net increase in the impervious area?
- For active projects, has the DOB/BCC construction document approval application been submitted? If so, when? Before or After 2/15/22?
- Combined or Separate sewer?
- Do soils support infiltration?

Next Steps: Contact

AKRF can provide support on questions as they arise:

Nicole Clarke, Technical Director

nclarke@akrf.com

Justin Seeney, Vice President

jseeney@akrf.com

Timothy Lavin, Senior Technical Director

tlavin@akrf.com


AKRF
Questions?