Retrofitted for Resilience:
Innovative Stormwater Management of an Active Industrial Site

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AGENDA

I. Penn Color Expansion Project
   A. Expansion Project Details
   B. Findings and Challenges

II. Innovative Stormwater Management Design

III. PADEP Regulatory Changes

IV. Questions?
I. PENN COLOR EXPANSION PROJECT
I.A. EXPANSION PROJECT DETAILS

• Major developments to 130-acre flagship campus, including addition of:
  o State-of-the-art, LEED-certified Global Innovation Center
  o Product design center
  o 150,000+ square feet of warehouse and production space
  o New office space
I.A. EXPANSION PROJECT DETAILS

• Plus vast improvements to surrounding property—that’s where Penn E&R comes in!
  o Comprehensive property survey and wetland investigation
  o Land development plan preparation and associated permitting
  o Infiltration testing across campus
  o New stormwater management control design and installation
I.B. FINDINGS AND CHALLENGES

- Active facility that needed to stay open and safe during construction
- Infiltration testing results showed majority of site had little to no infiltration
- Existing stormwater conveyance system and existing stormwater basins
- Isolated locations for new stormwater best management practices
II. INNOVATIVE STORMWATER MANAGEMENT DESIGN
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• Managed Release Concept (MRC) Best Management Practices (BMPs)
  o New modified slow-release infiltration basin
  o Retrofitted an existing basin
    » Designed to drain down in 65 hours
    » Designed to store, infiltrate and/or promote the evapotranspiration of stormwater
II. INNOVATIVE STORMWATER MANAGEMENT DESIGN

SLOW RELEASE BMP #2

N.T.S.

SLOW RELEASE BMP #2 PLANTING DETAIL

N.T.S.

SLOW RELEASE BMP #2 OUTLET STRUCTURE DETAIL

N.T.S.

NOTES:
1. EXTEND 18" PERFORATED PIPE 9" INTO OUTLET STRUCTURE.
2. PLACE ADS 18" ENDCAP PART #80149608 ONTO END OF PIPE.
3. DRILL A 2" HOLE AT THE INLET ELEVATION OF THE ENDCAP.
II. INNOVATIVE STORMWATER MANAGEMENT DESIGN

BEFORE – 05/2017
II. INNOVATIVE STORMWATER MANAGEMENT DESIGN

DURING – 11/2017
II. INNOVATIVE STORMWATER MANAGEMENT DESIGN
II. INNOVATIVE STORMWATER MANAGEMENT DESIGN

CURRENT – 10/2019
II. INNOVATIVE STORMWATER MANAGEMENT DESIGN

BEFORE – 05/2017
II. INNOVATIVE STORMWATER MANAGEMENT DESIGN

DURING – 05/2018
II. INNOVATIVE STORMWATER MANAGEMENT DESIGN

DURING – 11/2018
II. INNOVATIVE STORMWATER MANAGEMENT DESIGN

CURRENT – 10/2019
III. PADEP REGULATORY CHANGES
III. PADEP REGULATORY CHANGES

- White paper on Managed Release Concept released in January 2019
  - Provides guidance for:
    - When MRC is applicable
    - Methods for implementing an MRC into a site design
IV. QUESTIONS?

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