GREEN INFRASTRUCTURE AND INNOVATIVE APPROACHES FOR ALTERNATIVE STORMWATER MANAGEMENT

Monday, May 8, 2026

Location:

online

SPEAKER

Richard Tornese, P.E.
Director
Broward County Highway Construction & Engineering Division

EXPERIENCE

- 43 years of experience associated with transportation and land development
- Experience includes management of Major Highway Design and Construction Projects

EDUCATION

- BS in Civil Engineering, University of Central Florida.

MEMBERSHIPS AND CERTIFICATION

- Professional Engineer – Florida
- Member - Florida Green Book Committee

PEAKER

Nirmal Datta, P.E.
Capital Program Administrator
Broward County Highway Construction & Engineering Division

Experience

- 30 years of experience associated with transportation and land development
- Experience includes management of Major Highway Design and Construction Projects

Education

- Master of Engineering, Lamar University, Texas.

Memberships and Certification

- Professional Engineer – Florida and Texas
- ASCE Member
- ASHE Member

PRESENTATION AGENDA

1. The presentation will review traditional “gray” stormwater design vs "green" stormwater infrastructure .
2. Benefit of green stormwater infrastructure
3. Use of TRUEGRID for stormwater infrastructure.
4. Marshalling Yard and other completed projects using TRUEGRID product.

WHAT IS GREEN STORMWATER INFRASTRUCTURE

Traditional "gray" stormwater is designed to move urban stormwater away from the built environment and includes curbs, gutters, drains, piping, and collection systems. Generally, traditional gray infrastructure collects and conveys stormwater from impervious surfaces, such as roadways, parking lots and rooftops, into a series of piping that ultimately discharges untreated stormwater into a local water body.

Whereas "green" stormwater infrastructure is designed to mimic nature and capture rainwater where it falls.

BENEFIT OF GREEN STORMWATER INFRASTRUCTURE

Green infrastructure reduces and treats stormwater at its source while also providing multiple community benefits such as:

- Reducing localized flooding
- Improving community aesthetics
- Encouraging more neighborhood socialization
- Improving economic health by increasing property values and providing jobs opportunities for small businesses
- Decreasing the economic and community impacts of flooding, delivering environmental, social, and economic benefits.

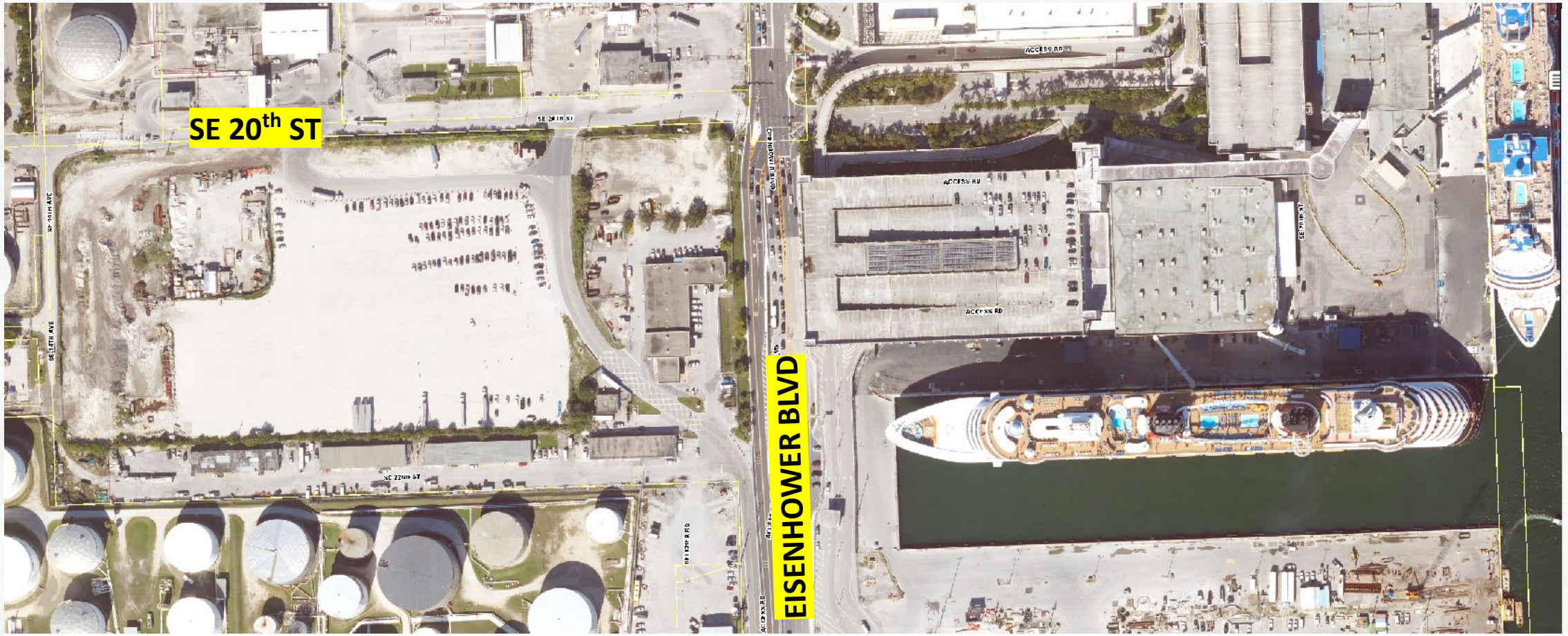
WHEN TO USE OF GREEN INFRASTRUCTURE

According to EPA, consider the using of green infrastructure when:

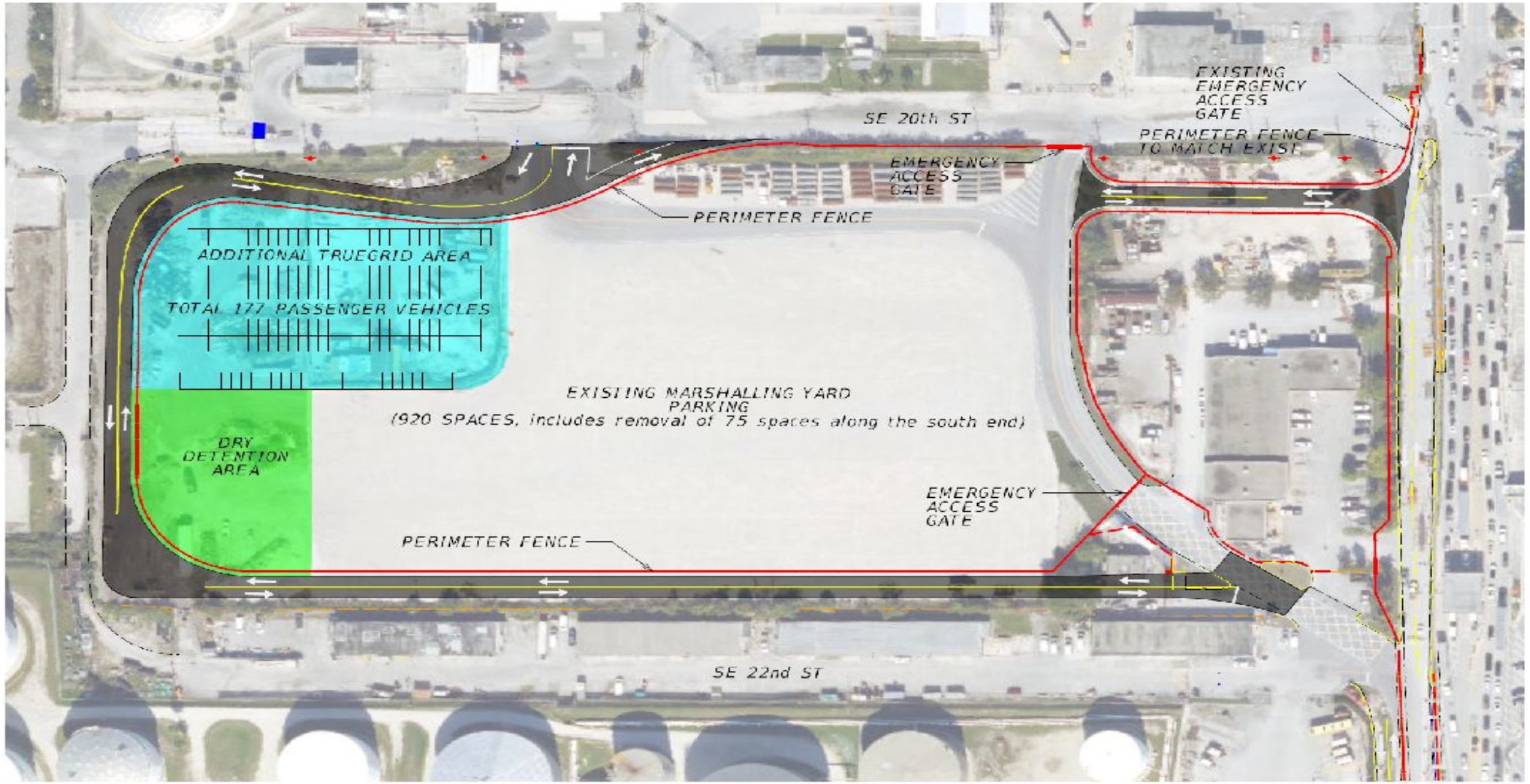
- **Repairing, resurfacing or replacing roadways and parking lots**
- **Repairing or replacing damaged sidewalks and curbs**
- **Upgrading or replacing utilities in the public right-of-way (e.g., sanitary sewer systems, storm sewer systems, drinking water supply lines)**
- **Redeveloping vacant or abandoned properties**

MARSHALLING YARD PROJECT

Project Location: This project is located Southwest corner of SE 20th Street and Eisenhower Blvd within the Port Everglades/City of Fort Lauderdale.



MARSHALLING YARD PROJECT PLAN



MARSHALLING YARD PROJECT

Project Objective: Create parking facilities that can be used by the By-Pass Road Contractors, convention center events and new Omni Hotel.

Project Size: About 11 acres -920 new passenger cars parking facility

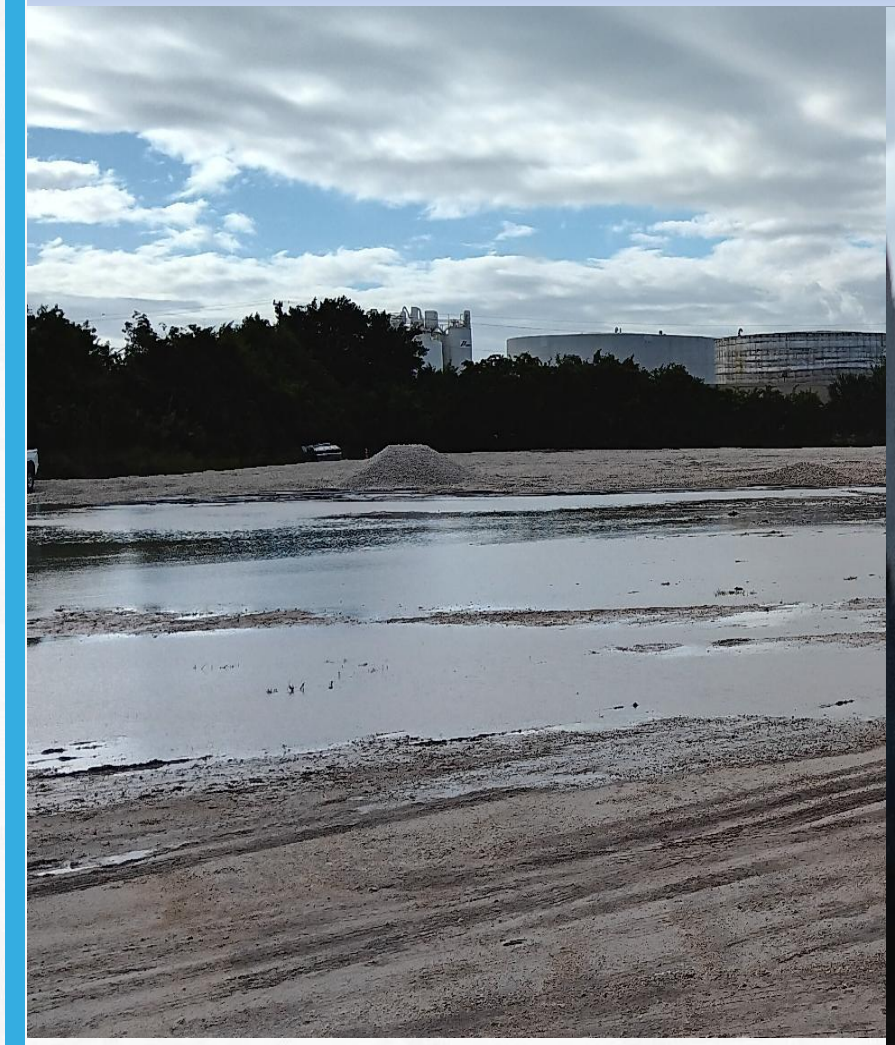
How this Project evolved: Broward County Convention Center has expanded over 1.2 million square feet of event space and 29 storied-801 room of OMNI hotel building. To meet the parking need, Marshalling Yard Project has been created.

Project Concept and final design: Broward County Highway Construction and Engineering Division - In-house design Team.

Construction: True Grid Pavers and Weekley Asphalt Inc.

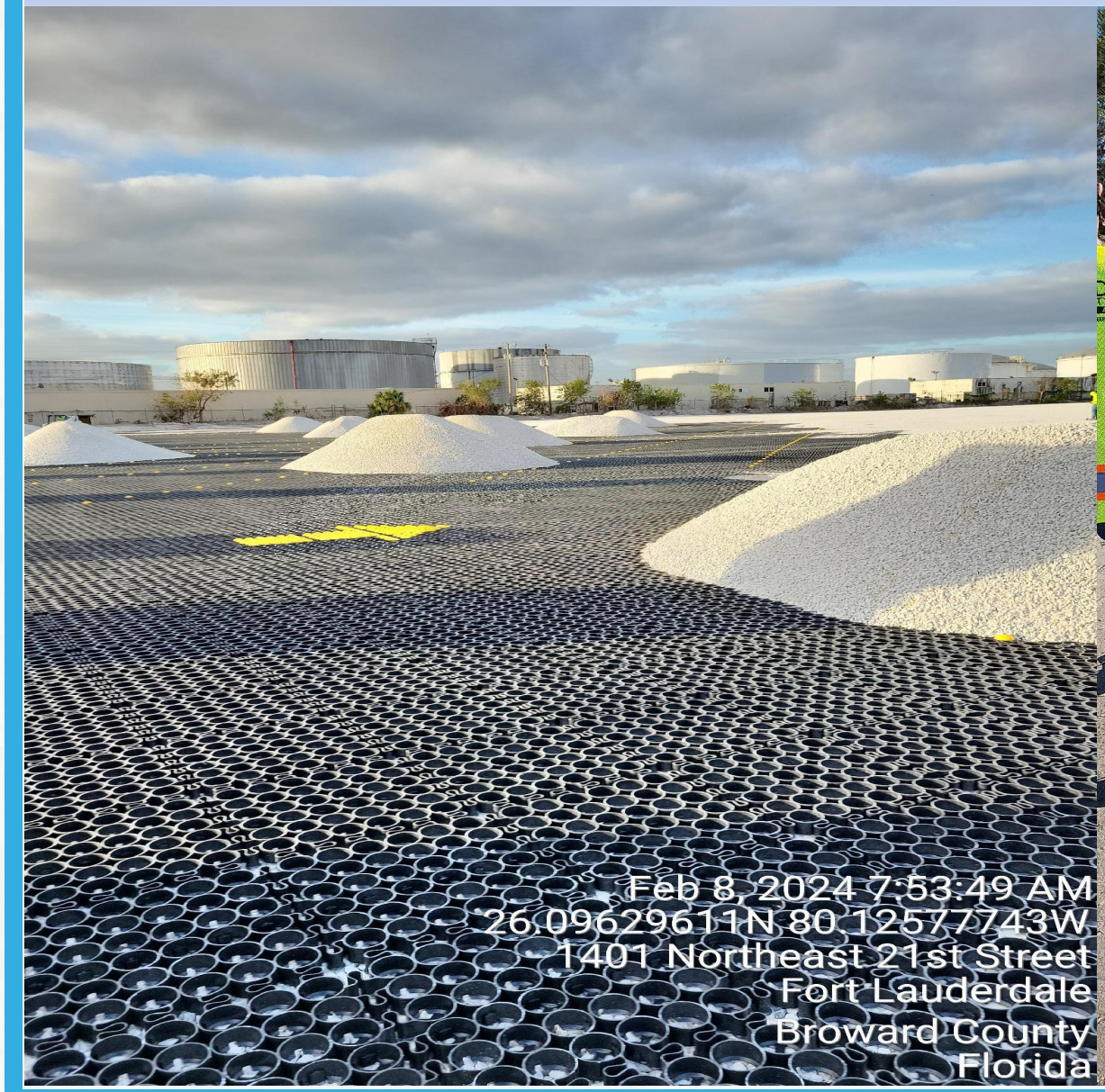
CEI Team: F & J Engineering Group

MARSHALLING YARD PROJECT –BEFORE CONSTRUCTION

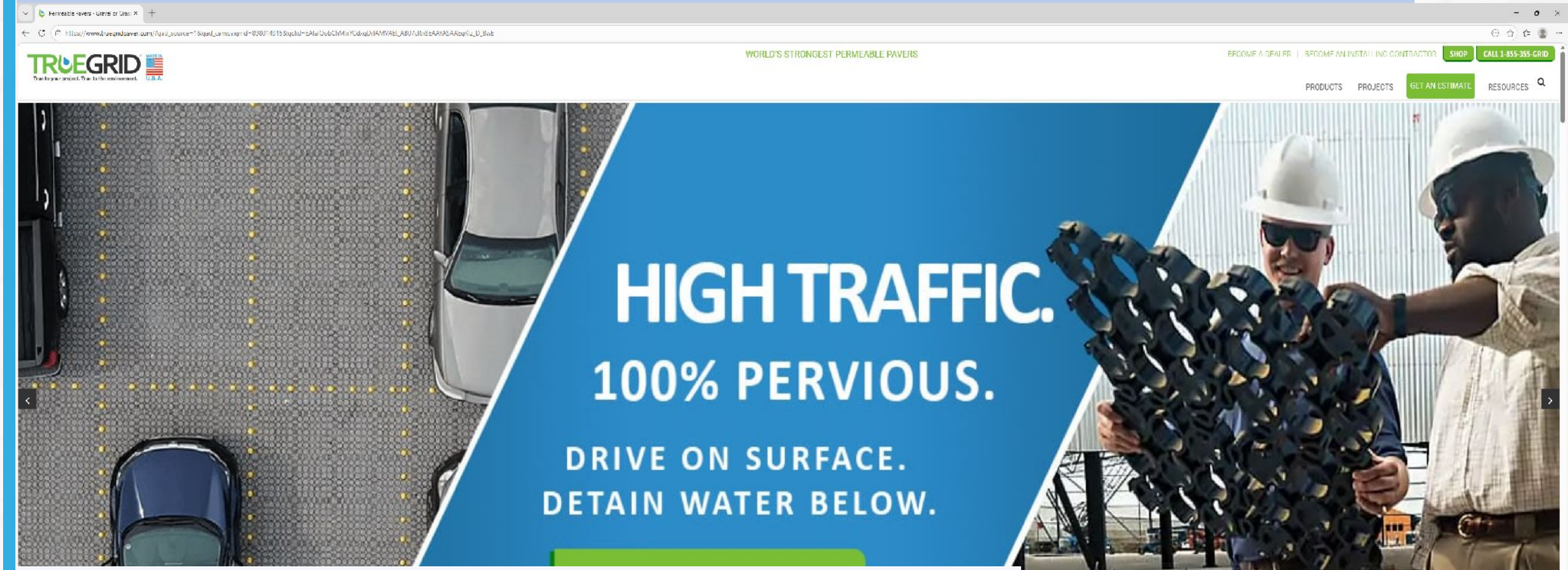


Water Ponding within the Marshalling Yard facility

MARSHALLING YARD PROJECT –CONSTRUCTION



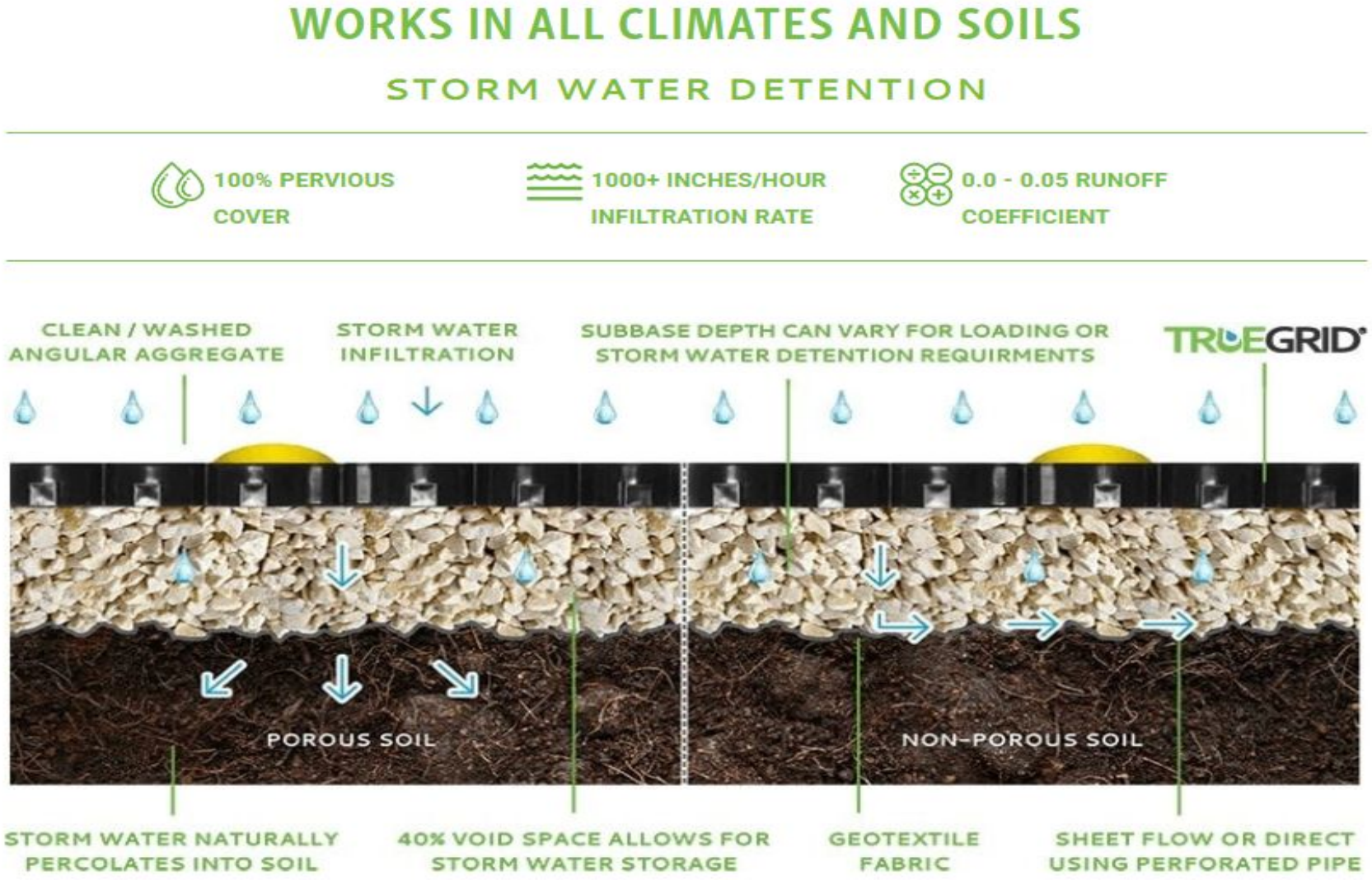
WHAT IS TRUEGRID PERMEABLE PAVERS



Disclaimer:

County is not soliciting any product, rather sharing our project experience.

HOW TRUEGRID PERMEABLE PAVERS WORKS



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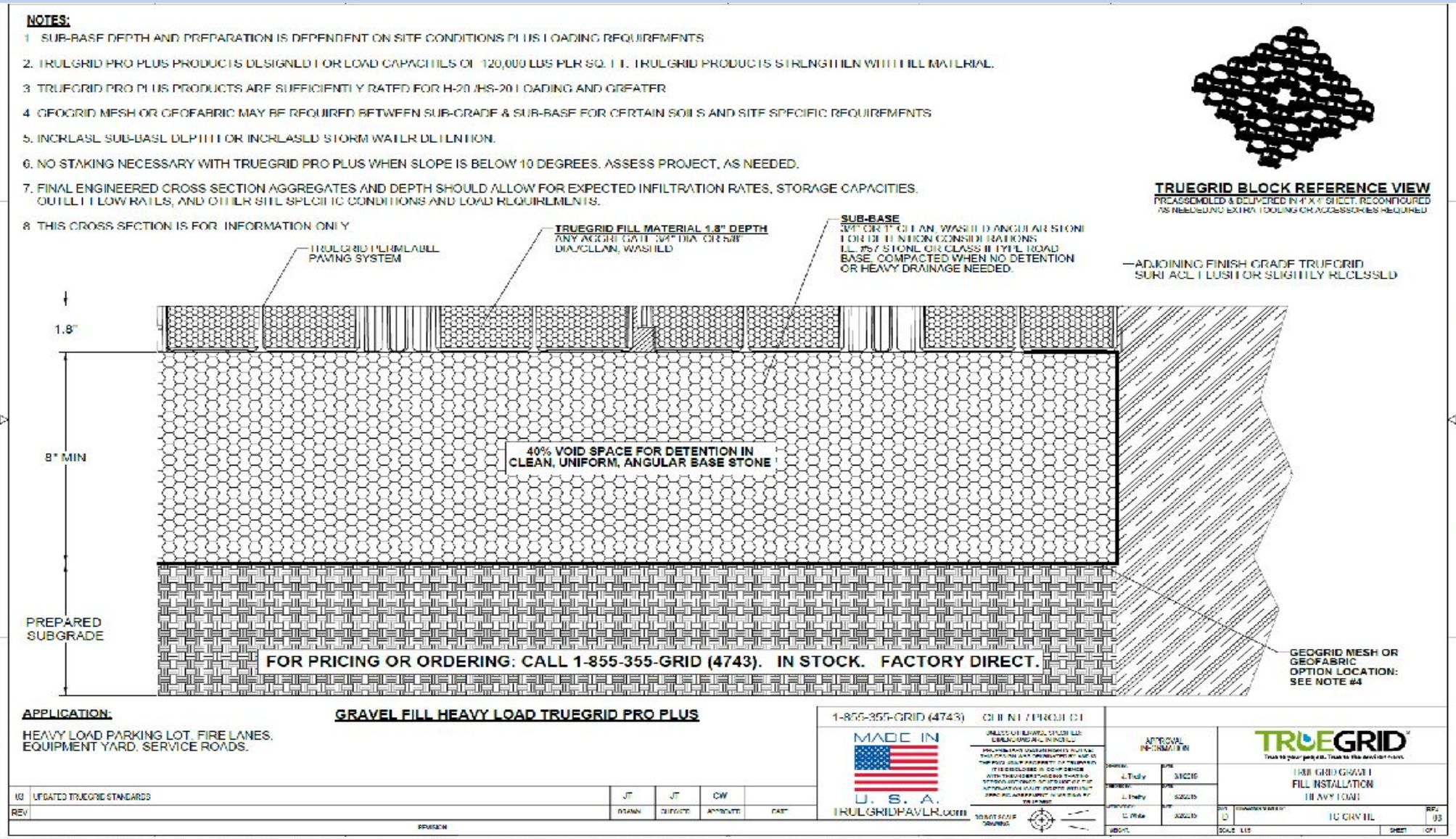
TRUEGRID PERMEABLE PAVERS CROSS-SECTION



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TRUEGRID PERMEABLE PAVERS VIDEO

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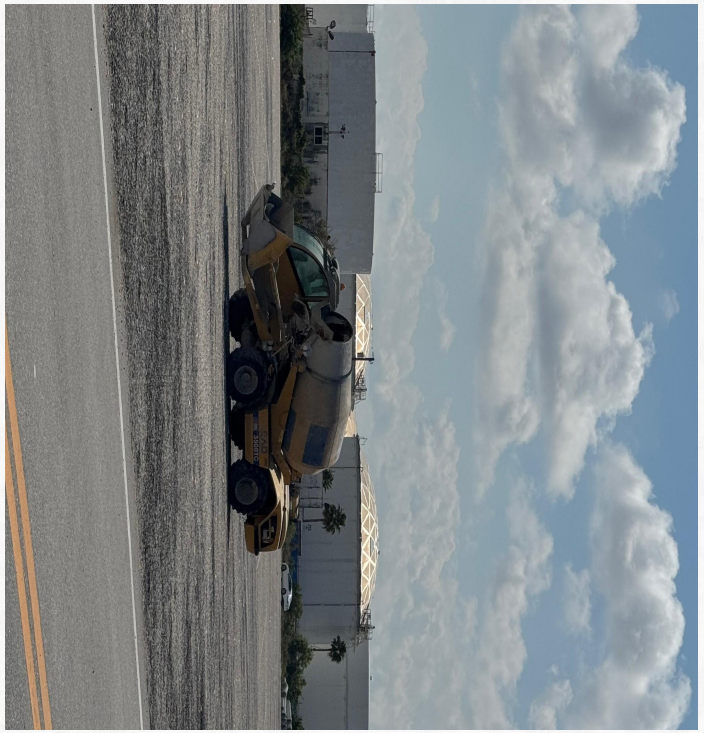
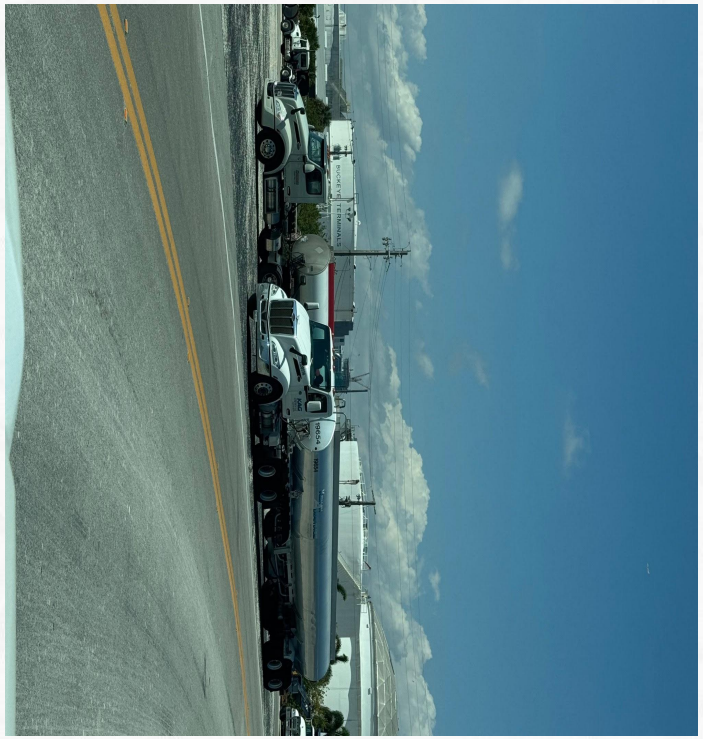
CHALLENGES, LESSONS LEARNED, KEY TAKEAWAY

1) Vegetation growth over time –Maintenance required
2) ADA Compatibility –finer aggregate required for ADA Compatibility
3) Heavier equipment may damage the TrueGrid cells





MARSHALLING YARD PROJECT COST & SCHEDULE

1) Design Cost –N/A –Design completed by County in-house design group
2) Total Construction Cost $ 4 M
3) Ongoing O & M cost - $ 50,000 per year
4) Metrics for Success – Historical flooding/Water ponding eliminated
5) Project completed (Design and Construction) within a year

Replicability-Other Completed projects –with TrueGrid

<u>Marten Transport</u>
90,000 sf PRO PLUS for truck and passenger vehicle parking
151 Wetherbee rd., Orlando FL 32824

Replicability-Other Completed projects –with TrueGrid

<u>Hallandale Beach Project</u>
16,000 sf PRO PLUS for public parking lot
203 NE 3rd St, Hallandale Beach FL 33009
Approved through city of Hallandale Beach

Thank you for Attending!

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