Sanibel Causeway
Resiliency Design Considerations

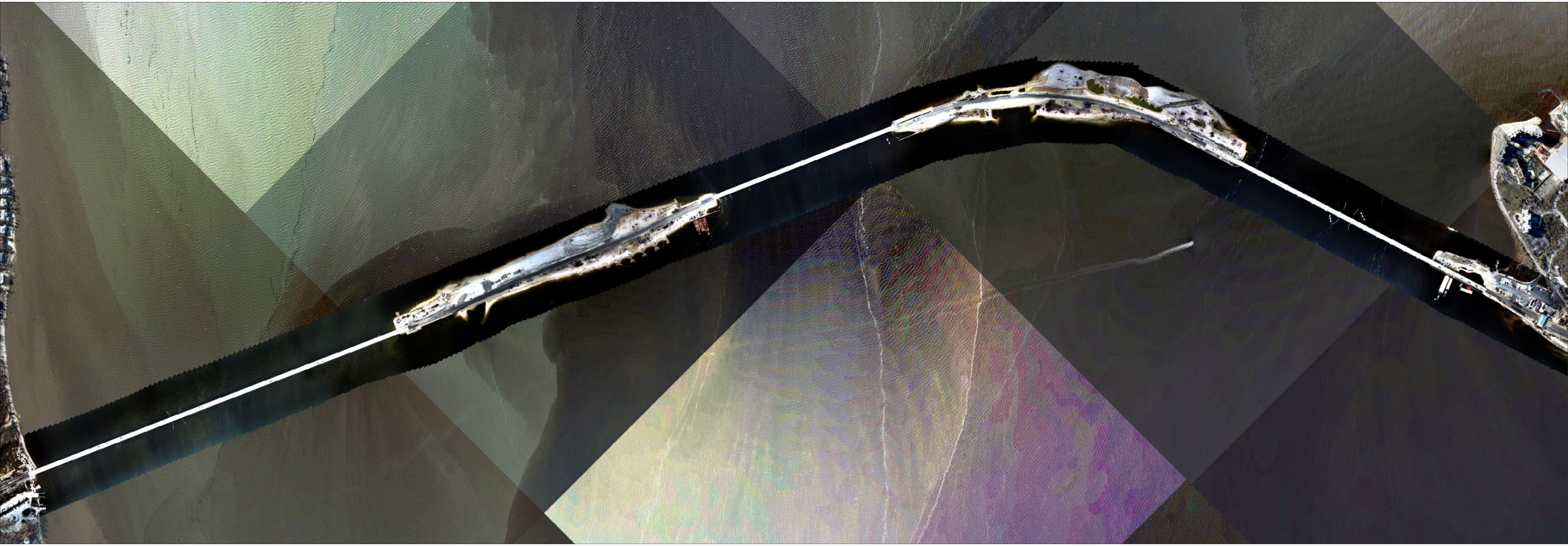
December 6, 2022

Sanibel Causeway

Before Hurricane Ian

Sanibel Causeway

After Temporary Roadway Construction



Resiliency Design Considerations

Known from Hurricane Ian

- Surge at approximately 12’
- Wave Action at approximately 8’
- Hurricane exceeded the design storm event

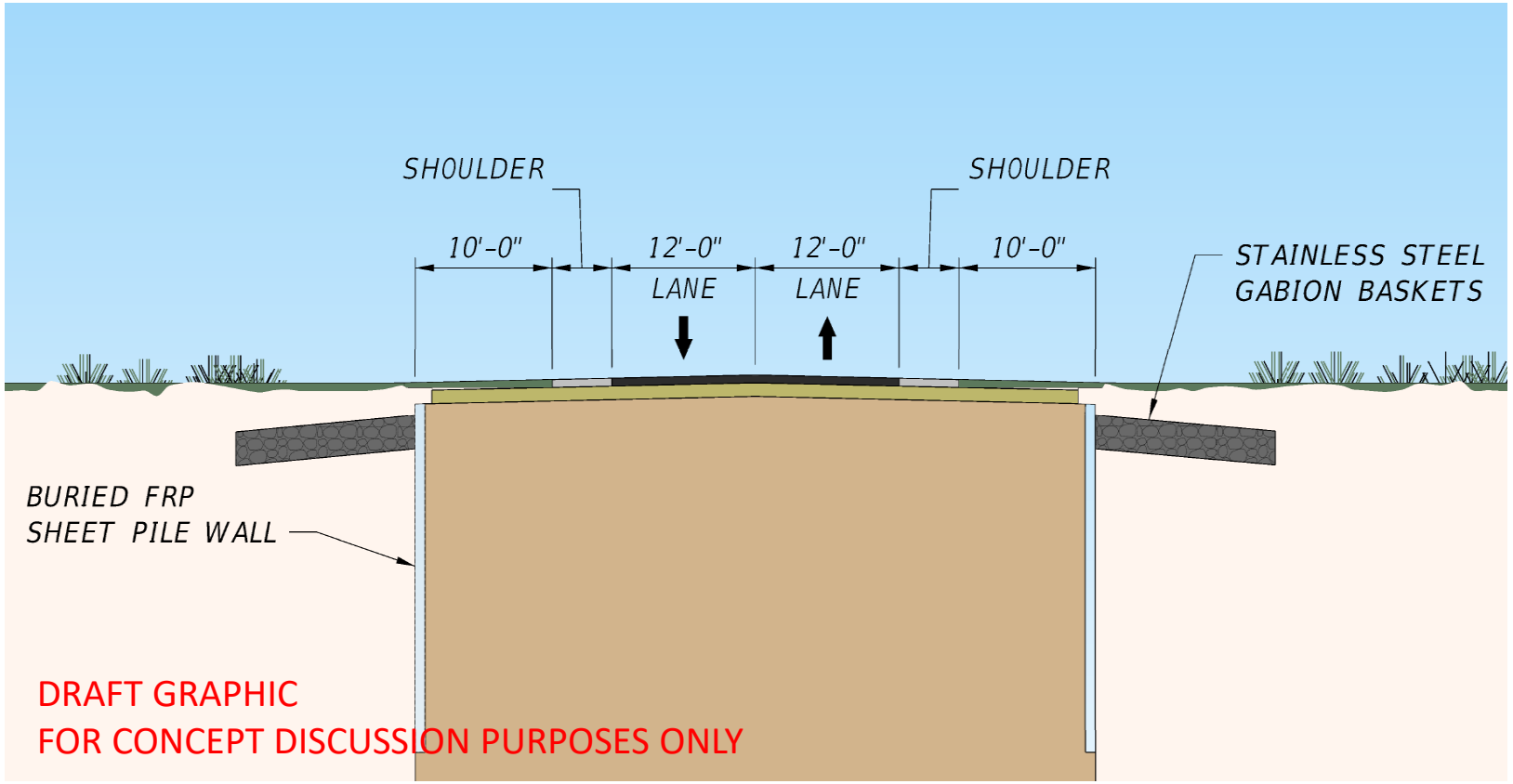
Pre-Hurricane Ian Causeway Design

- Existing Bulkhead (Seawall) Elevations: 3’-5’
- Causeway Elevation approximately 7’

Sanibel Causeway - Causeway

Resiliency Design Considerations

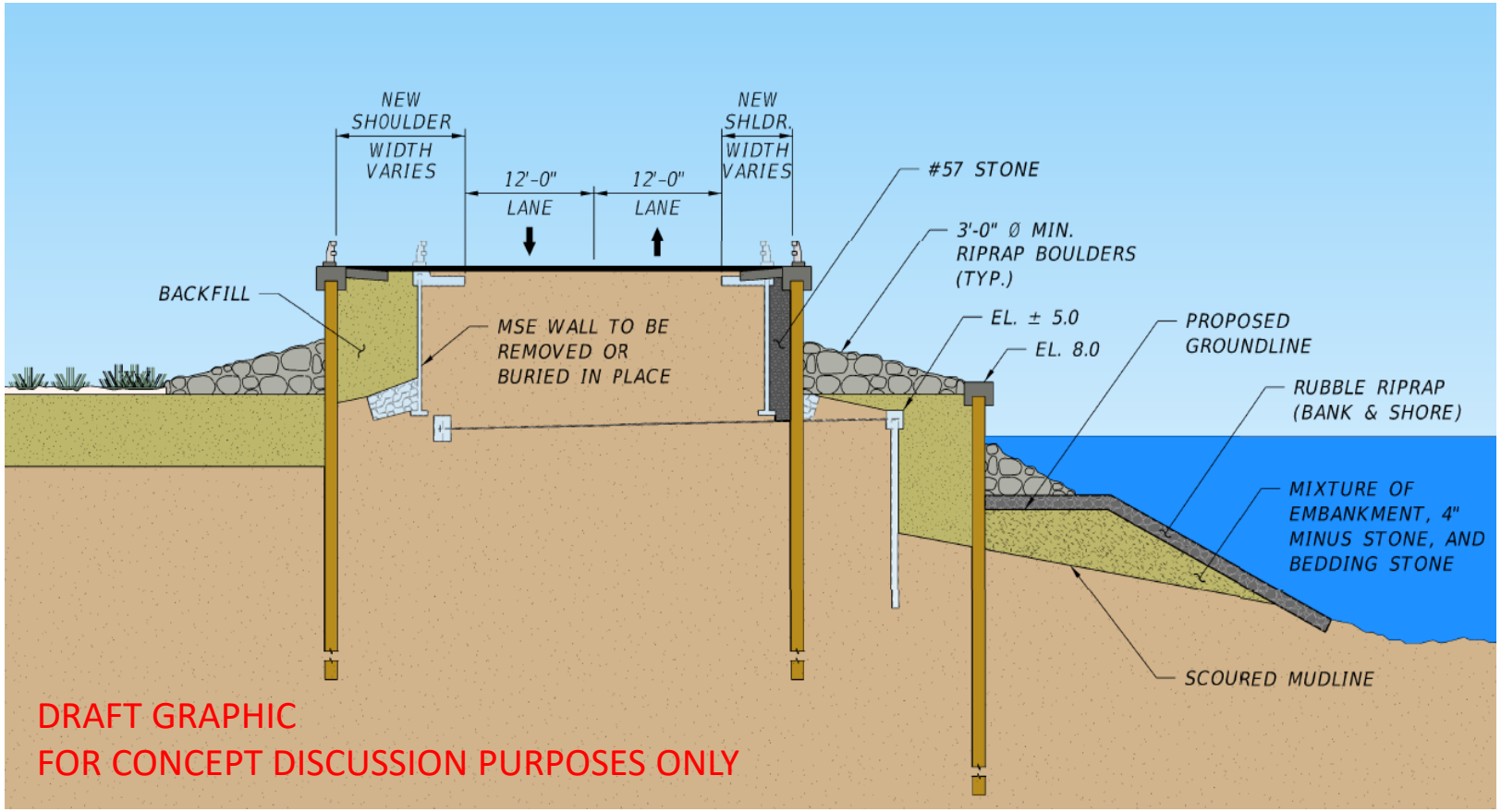
- Buried sheet pile walls at shoulders
- Protect sides with “mattresses” (buried baskets filled with rock)
- Protect ocean side with rip rap
- Raise roadway approximately 2’



Sanibel Causeway – Bridge Approaches

Resiliency Design Considerations

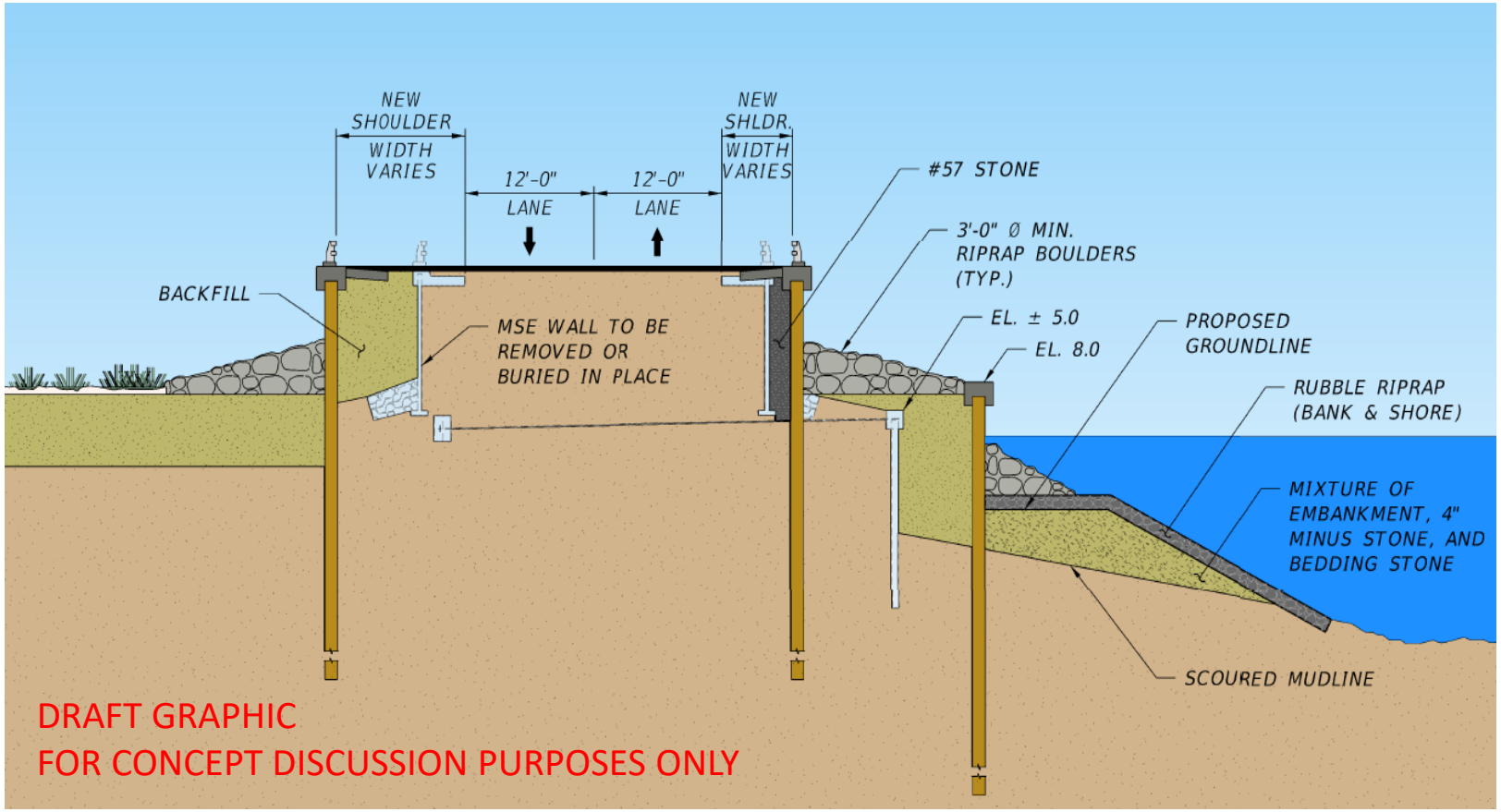
- Install larger and heavier protection at exposed areas between seawall and bridge abutments
- Buried toe protection for upland walls
- Replace MSE Wall with deep foundation wall



Sanibel Causeway – Seawalls

Resiliency Design Considerations

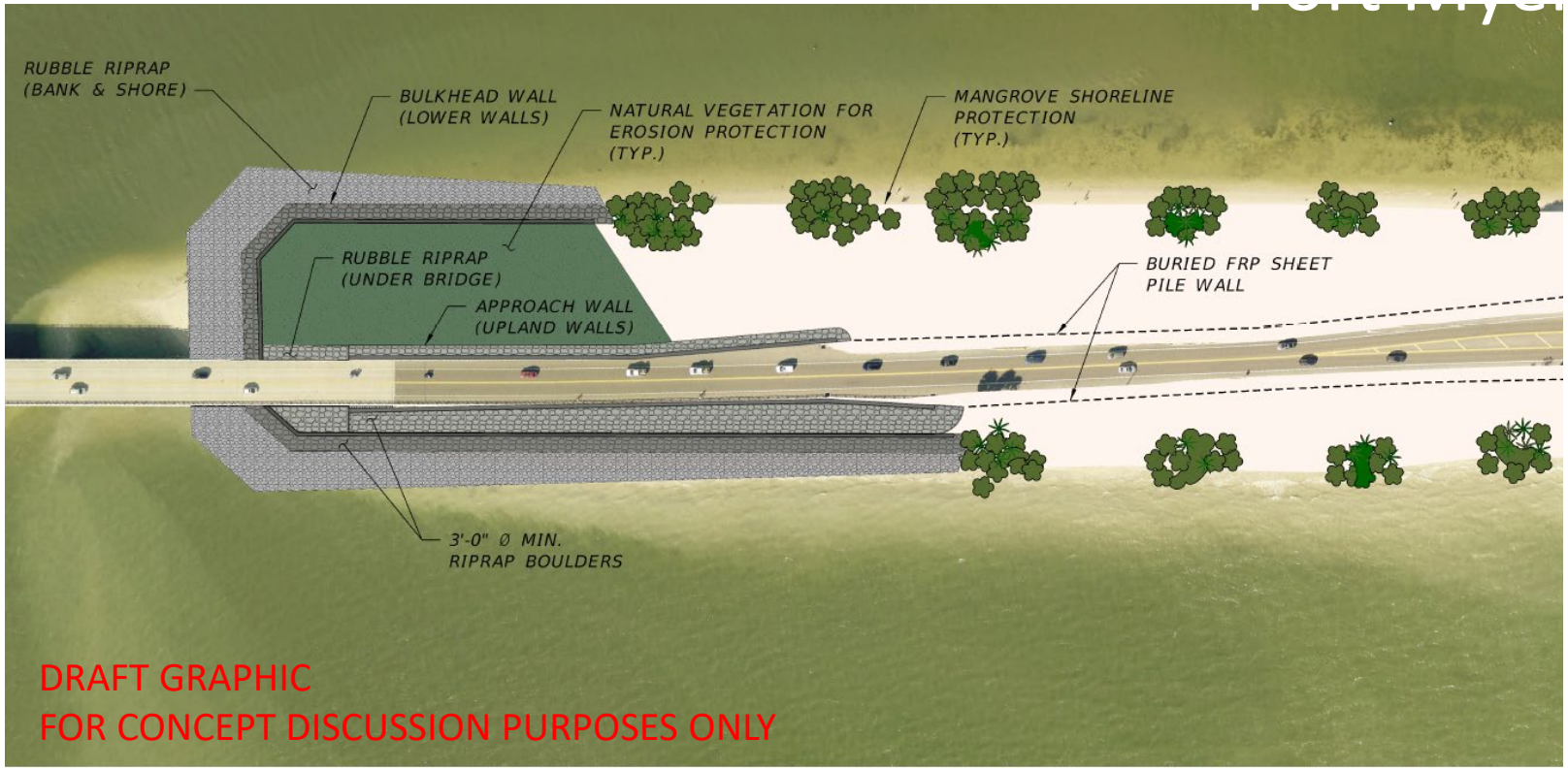
- Raise seawall elevation to 8’
- Provide deep steel sheet pile walls
- Reinforce toe of seawall
- Heavy rip rap protection along seawalls
- Oversized rip rap protection along channel walls



Sanibel Causeway – Infrastructure

Resiliency Design Considerations

- Grey vs. Green Infrastructure
- Install native/resilient planting for natural hardening (mangroves, etc.)



Alternatives Analysis

- No build
- Reconstruct per original design
  - Previous design no longer meets 100-year storm event
- Construct bridges over remains of vulnerable causeway sections
  - Not cost effective
  - Would greatly exceed schedule expectations
  - Excessive design
- Improve armoring along causeway and bridge approaches
  - May be insufficient as long-term solution
- Reconstruction with steel sheet pile walls placed outside of existing walls
  - Provides greater coastal protection from future storms and sea level rise
  - Eliminates conflicts with failed structures and existing tie backs
  - Requires building outside of existing footprint

Next Steps

- Complete Alternatives Analysis
- Meet with Local Agencies
- Finalize Design
- Goal for Completion of Permanent Repairs – October 2023

Thank You

December 6, 2022