

# 2021 Phipps Nourishment and Dune Construction A Case Study in Sand Stockpiling and Beach Dune Joint Construction

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2022 National Conference on Beach Preservation Technology  
St. Augustine Beach, FL  
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# Limitations of Hydraulic Placement

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- Minimum Fill Density ( $\sim 20$  cy/lf)
- Distance Limitations



# Stockpile and Truck Haul

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- Place sand with hydraulic placement
- Build a stockpile (source) for dune construction
- Excavate, transport and place with truck haul

# Regulatory Considerations

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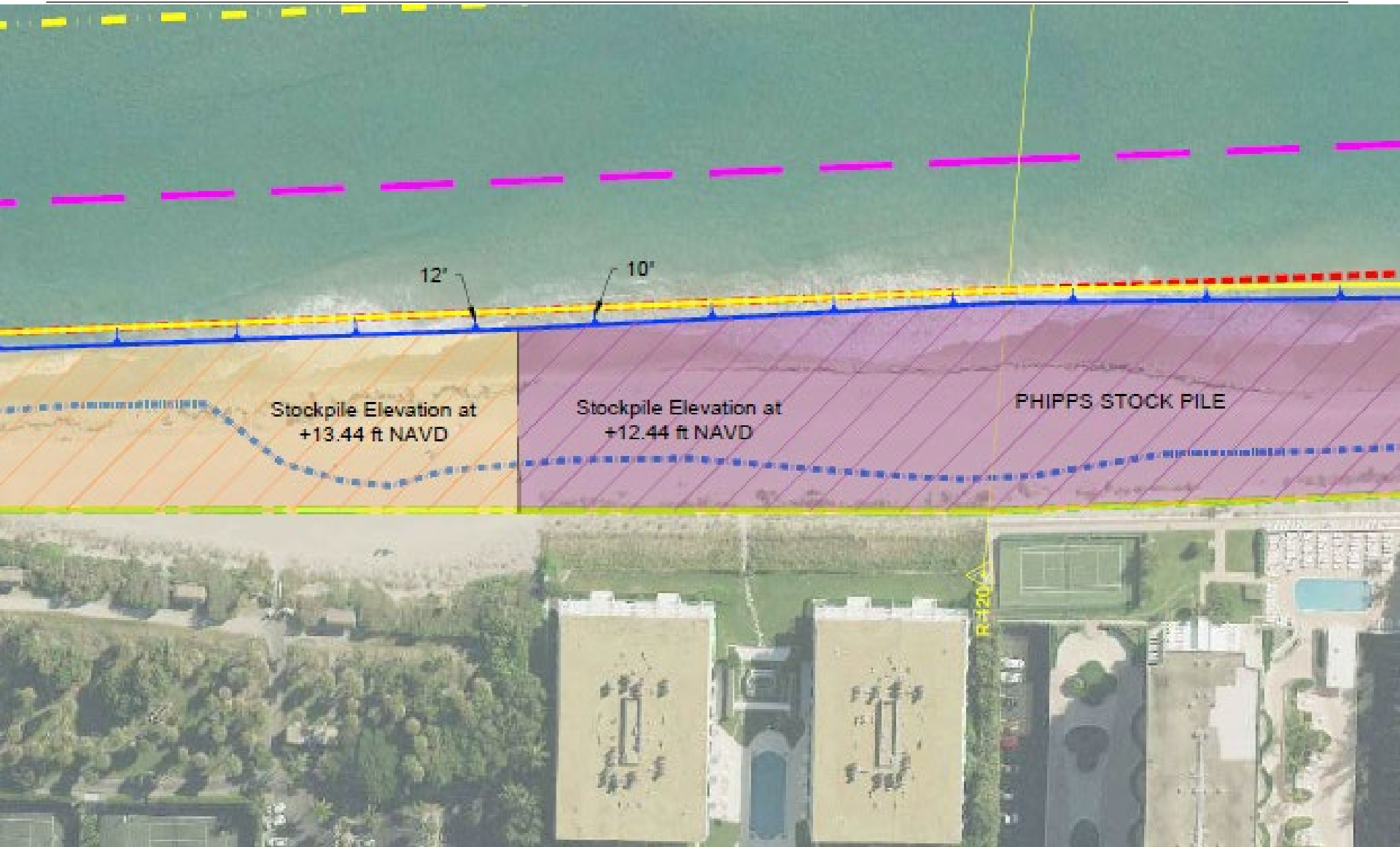
- Both hydraulic placement and truck haul require permits
- JCP requirements (State & Federal) for hydraulic placement
- Dune requirements (typically State only ~CCCL)
- Town of Palm Beach projects authorized under the BMA
- Use of offshore sand (Federal nexus) requires inclusion of action in JCP hydraulic permit

# Turtle Considerations

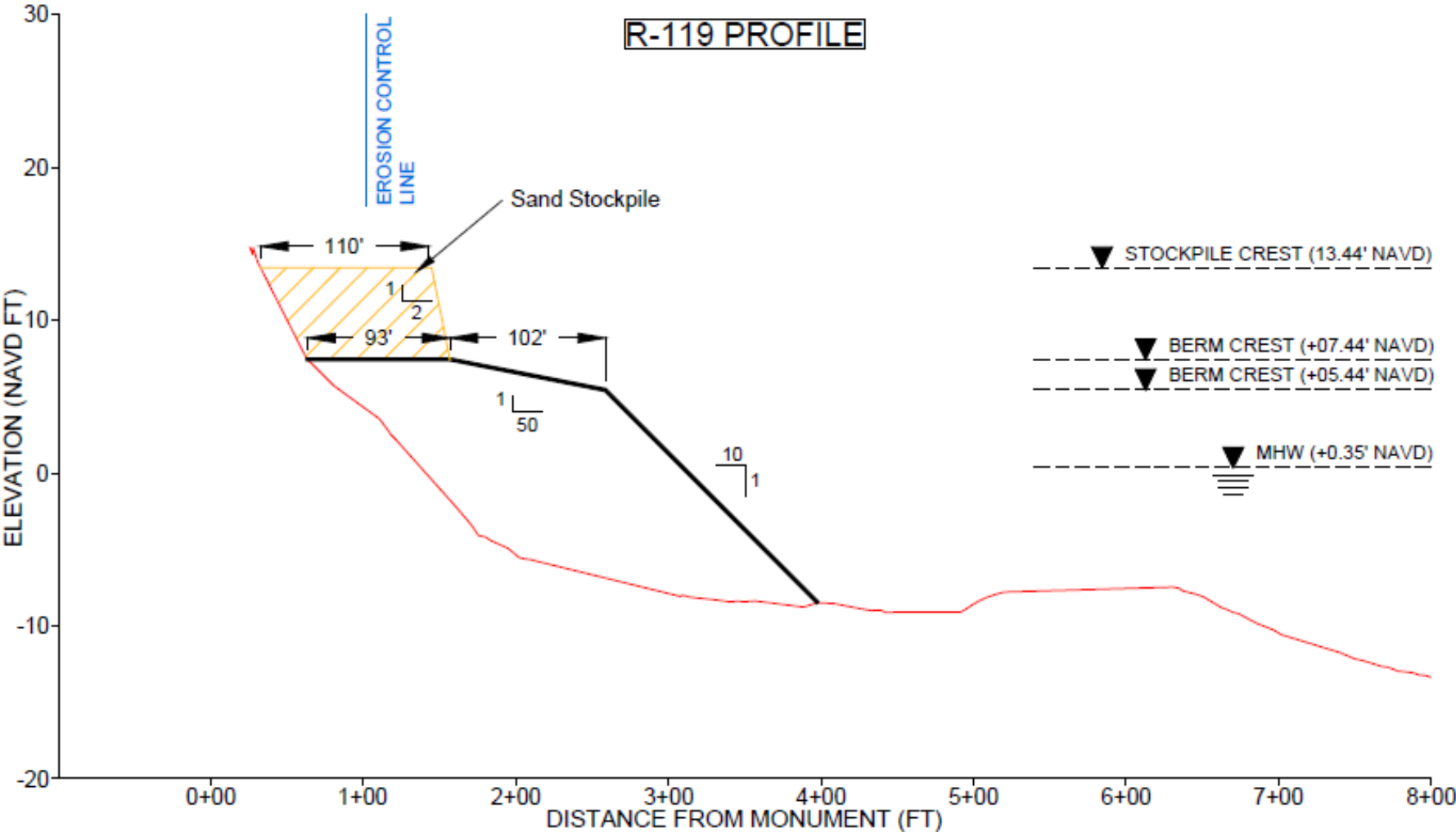
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- Increase in beach equipment
- Increase in beach excavation and disturbance
- Extension of project construction into turtle nesting season
- Need to work around nests
- **This increases project risk and requires close coordination with FWC and USFWS**

# Sand Stockpile



# Sand Stockpile





# Hydraulic Placement





# Sand Stockpile





# Sand Excavation





# Sand Transport





# Sand Transport





# Reach 9 - Completed





# 2021 Nourishment and Dunes Project Timeline

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## Nourishment Placement

- Initiation: March 6
- Completion: April 27

## Truck Haul Dune Construction

- Initiation: April 5
- Completion: May 5

# 2021 Phipps Nourishment Project

## Cost Considerations

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- Unit Rates for sand excavation and placement ranged from \$8.50/cy (Reach 7) to \$20.50/cy (Reach 9)
- Average cost per cubic yard (including fixed costs): \$20.77
- Placement unit cost: \$10/cy
- **In comparison to upland sources this equates to a savings ~\$10/cy**

# 2021 Construction Summary

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- Renourishment Dredge Volume
- (including stockpile) 495,000 CY
  
- Reach 7 Truck Haul Dune Volume 19,049 CY
- Reach 8 Truck Haul Dune Volume 23,310 CY
- Reach 9 Truck Haul Dune Volume 20,124 CY
  
- ~22,000 CY Remaining in Dune Stockpile at Phipps

# 2022 Dune Construction Projects

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- Reach 4: 12,000 cy
- Reach 9: 10,000 cy
- **Placement to occur in February 2022**

# 2021 Phipps Nourishment Project Summary and Conclusions

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- Joint hydraulic nourishment and dune truck haul construction can be conducted as an efficient, cost-effective method
- These project require an increased level of coordination
- Project risks are higher and require increased diligence and regulatory consultation



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