# New Sediment Storage Areas for Jacksonville Port Authority, Duval County, Florida

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Mr. Wagner is an associate dredging engineer with nearly 20 years of experience planning, designing, permitting, and implementing various dredging engineering projects, including developing long-range dredged material management plans; designing upland dredged material containment facilities; creating dredging templates, performing economic evaluations, and assessing various alternate dredging technologies.

# Jacksonville Port Authority Dredged Material Management Plan:

- Jacksonville Port Authority (JAXPORT / JPA) overview
- Dredging and dredged material storage
  - Average annual dredging needs
  - Existing dredged material management area (DMMA) inventory
  - Potential DMMA regulatory concerns
- Dredged material management plan (DMMP)
- DMMP alternatives

# JAXPORT overview

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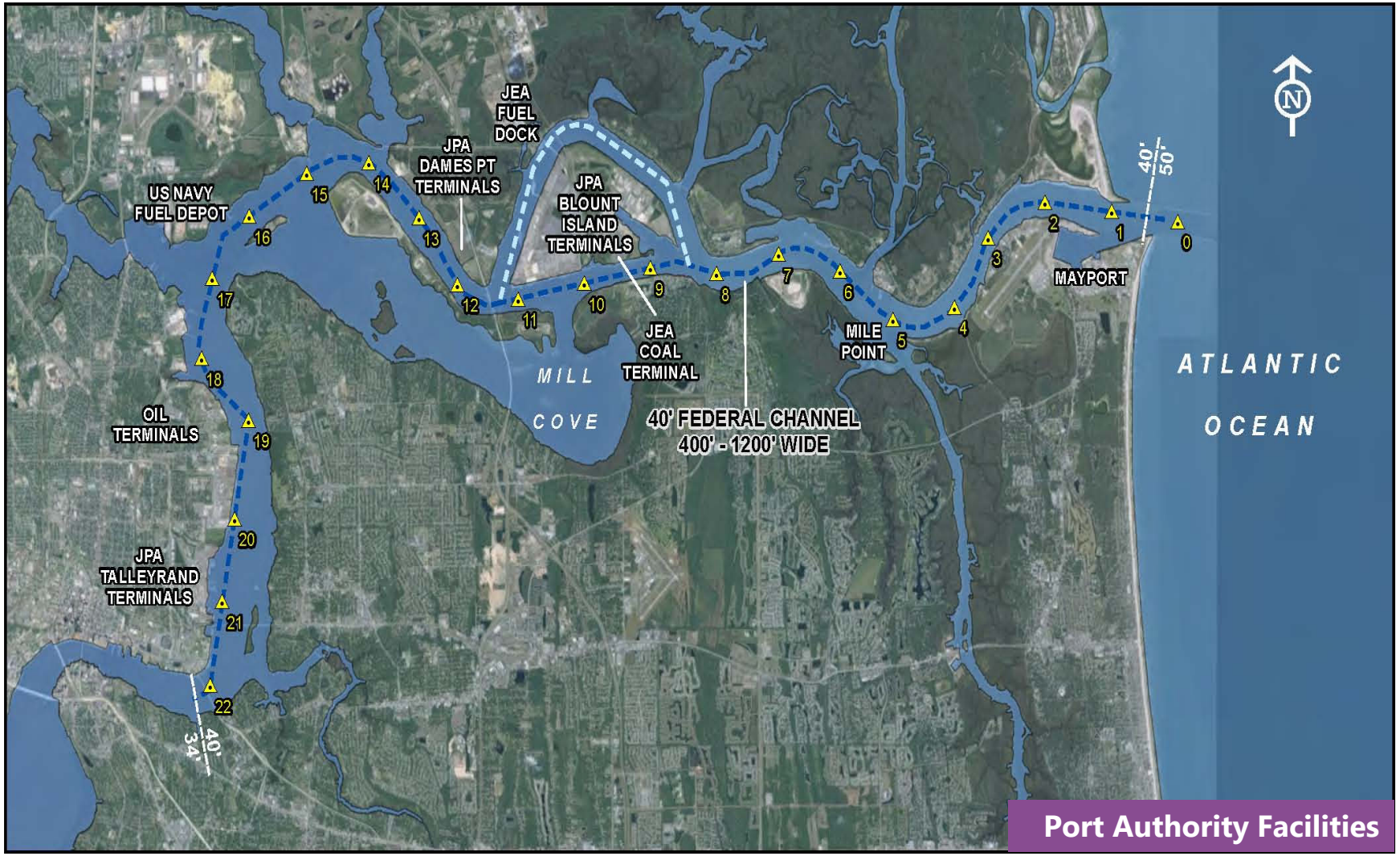
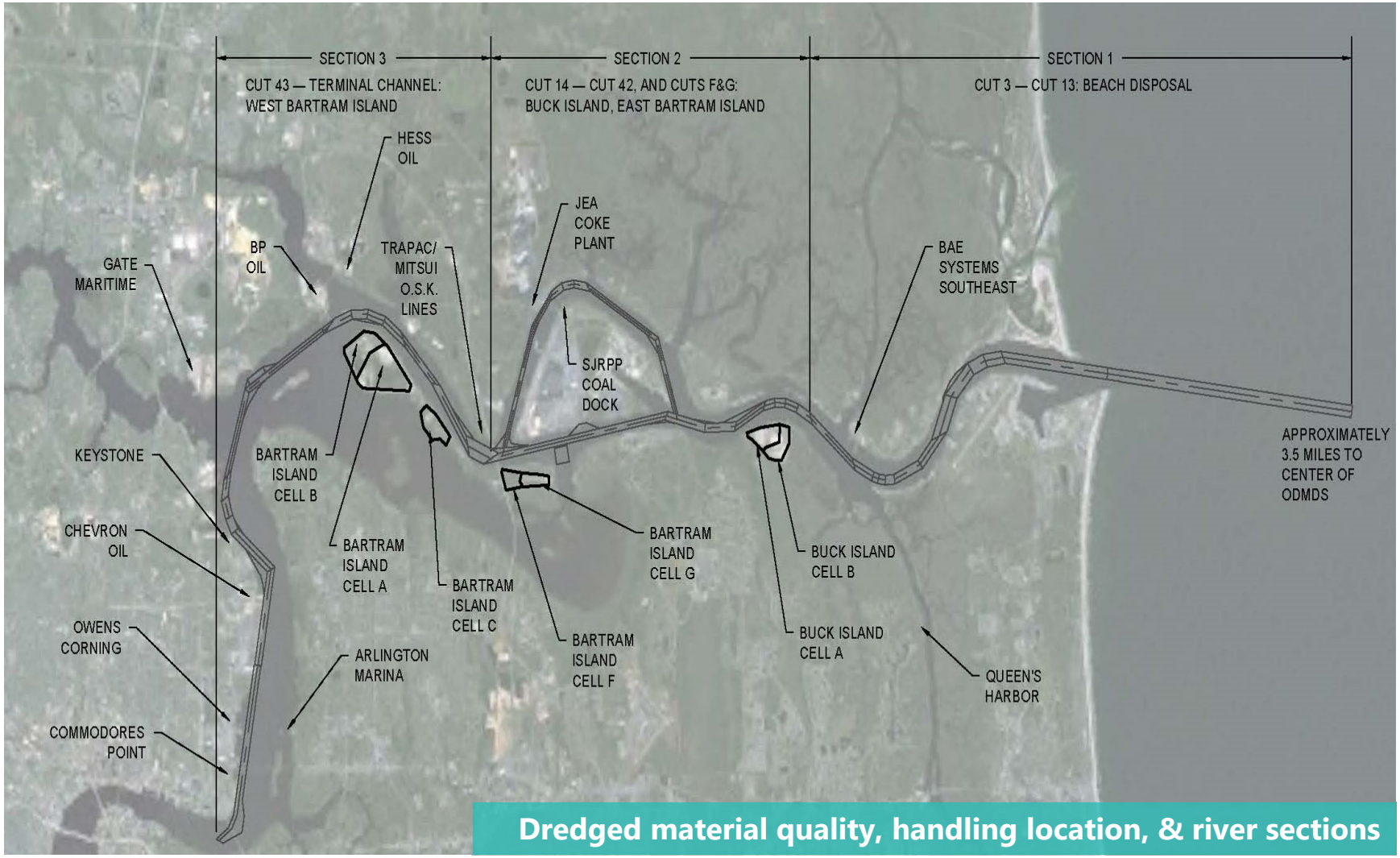
# JAXPORT facilities



# JAXPORT dredging reaches and DMMA locations



# JAXPORT challenges

- Critical shortage of available dredged material management handling and disposal facilities
- Dredge material permitting challenges
  - Increased  environmental awareness and regulation
  - Formal review requirements and regulatory agency consultation
- Potential environmental concerns
  - Timucuan National Ecological and Historic Preserve
  - Nassau River-St. Johns River Marshes Aquatic Preserve
    - Wetland impacts and endangered species
    - Open water impacts and water quality

# JAXPORT federal and non-federal responsibilities

- U.S. Army Corps of Engineers (USACE) (federal government)
  - Jacksonville Harbor Federal Project Maintenance
    - Work with local sponsor to carry out maintenance responsibilities
    - Ocean entrance upstream to downtown Jacksonville
- JAXPORT (local sponsor)
  - Work with USACE
  - Dredge JAXPORT's berths
- Other commercial users
  - Dredge their own facilities

# Dredging and dredged material storage

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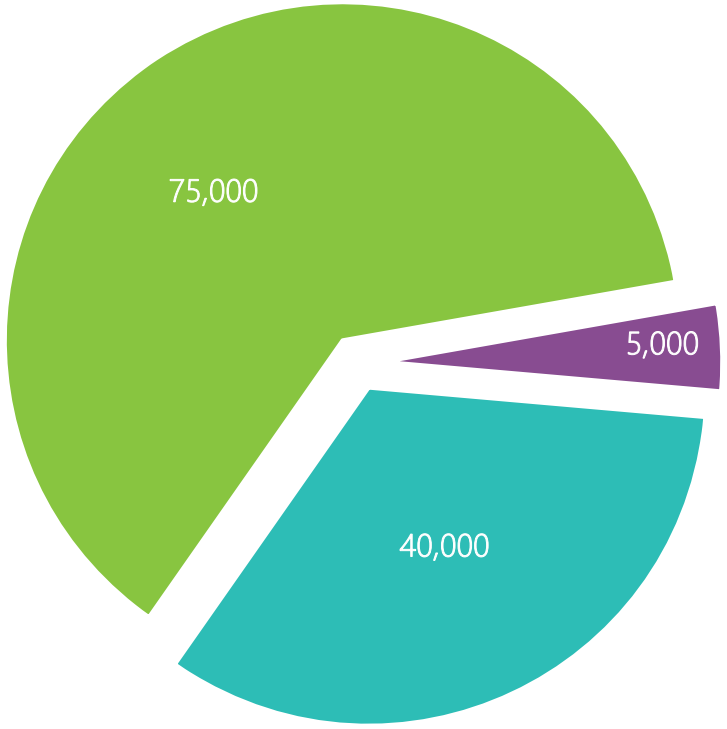
# JAXPORT recent annual dredging needs

## JAXPORT Buck Island DMMA Use ~120,000 cubic yards per year



# JAXPORT existing DMMA inventory

| DMMA | Cell | Capacity (February 2011) | Capacity (Winter 2018) |
|---|---|---|---|
| Buck Island | A* | No capacity | ≈ 1,200,000 cubic yards |
| | B* | No capacity | ≈ 300,000 cubic yards |
| Bartram Island | A** | ≈ 600,000 cubic yards | ≈ 4,500,000 cubic yards |
| | B** | ≈ 200,000 cubic yards | ≈ 2,200,000 cubic yards |
| | C | ≈ 200,000 cubic yards | ≈ 600,000 cubic yards |
| | F | ≈ 300,000 cubic yards | ≈ 400,000 cubic yards |
| | G | ≈ 600,000 cubic yards | No capacity |
| Jacksonville Harbor Ocean Dredged Material Disposal Site (ODMDS) | — | ≈ 6,000,000 cubic yards | ≈ 1,000,000 cubic yards |

* Off-loading operations by FDOT contractor currently in progress
**Final capacity based on the completion of dike raising

# JAXPORT potential DMMA regulatory concerns

- Eliminate state and federal permitting requirements
- None of the DMMA footprints will extend into open water


Buck Island DMMA

- None of the DMMA footprints will extend into surrounding wetlands
- New DMMA development
  - Consultation with regulatory agencies to establish permitting requirements
  - Formal review

# Dredged material management plan

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# JAXPORT DMMP overview

- JAXPORT's long-term DMMP (20 years)
  - Considers USACE's and JAXPORT's dredging and facility management responsibilities
  - Describes JAXPORT's remaining available DMMA capacities
  - Discusses DMMA construction constraints
  - Addresses identified alternatives to provide required handling capacities

Mitsui O.S.K. Lines Berth

# JAXPORT DMMP considerations

- Anticipated sources, rough quantities, and sediment characterization of dredged material
- Existing DMMA capacity
- Capacity expansion alternatives and anticipated time required to construct alternatives
- ODMDS use
- Potential acquisition of new DMMA property
  - Phasing potential acquisition
  - Permitting, design, and construction

# JAXPORT plan alternatives

- Plan outlines seven strategic alternatives to provide the required dredged material handling capacities
  - October 2010 through the Winter of 2018
  - Beyond (20 years)
- Alternative considerations
  - Economic factors
  - Permitting
  - Preliminary design phase issues related to achieving regulatory standards

# JAXPORT plan alternatives (continued)

| Alternative | Description |
|---|---|
| #1 | Maintain current plan – constrained |
| #2 | Design and construct offsite DMMA and eliminate raising dikes at Bartram Island Cell B |
| #3 | Utilize ODMDS disposal and eliminate raising dikes at Bartram Island Cell B |
| #4 | Design and construct Bartram Island open water DMMA and eliminate raising dikes at Bartram Island Cell B |
| #5 | Design and construct an expanded offsite DMMA and eliminate raising dikes at Bartram Island Cell B |
| #6 | Raise Bartram Island Cell A, design and construct offsite DMMA , utilize ODMDS disposal and eliminate raising dikes at Bartram Island Cell B |
| #7 | Plan, permit and build road access (bridge) to Bartram Island, raise Bartram Island Cell A, utilize ODMDS disposal, transfer material from Bartram Island Cell A to Cell B and eliminate raising dikes at Bartram Island Cell B |

# JAXPORT DMMP conclusions

- Ongoing process that requires decisions that are consistent with the overall DMMP
- JAXPORT adopted and will maintain the least-cost environmentally acceptable alternatives


- The DMMP will continue to serve as JAXPORT's primary decision making document to support future actions to provide adequate dredge material handling capacity

# New sediment storage areas

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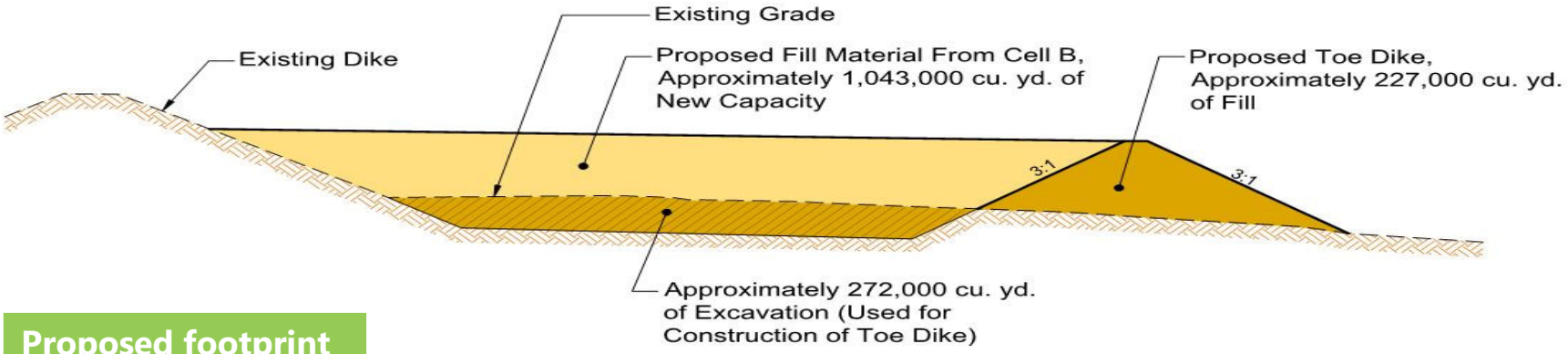
# JAXPORT plan alternatives update

| Alternative | Cell | Activity |
|---|---|---|
| Bartram Island | A | Exterior Dike Extension from 37 feet to 57 feet |
| | F | Removed 600,000 cubic yards of dredged material |
| | C | Removed 300,000 cubic yards of dredged material from Mitsui O.S.K. Lines (MOL) berth |
| Buck Island | A & B | • Contracted offloading for major roadway projects<br>• Creating new sediment storage areas |
| Future DMMAs | -- | Promote DMMA creation as part of a public-private partnership |

# Buck island overview

# Buck Island rehabilitation goals

- Recapture site sediment storage capacity
  - Mainly from within Buck Island DMMA Cell B
  - Also create storage for any non-structural grade sediment found within Buck Island DMMA Cell A
- Prequalification and design-build bid package
  - Provide engineer's design criteria and site limits
  - Will not specify means and methods




**Proposed footprint**

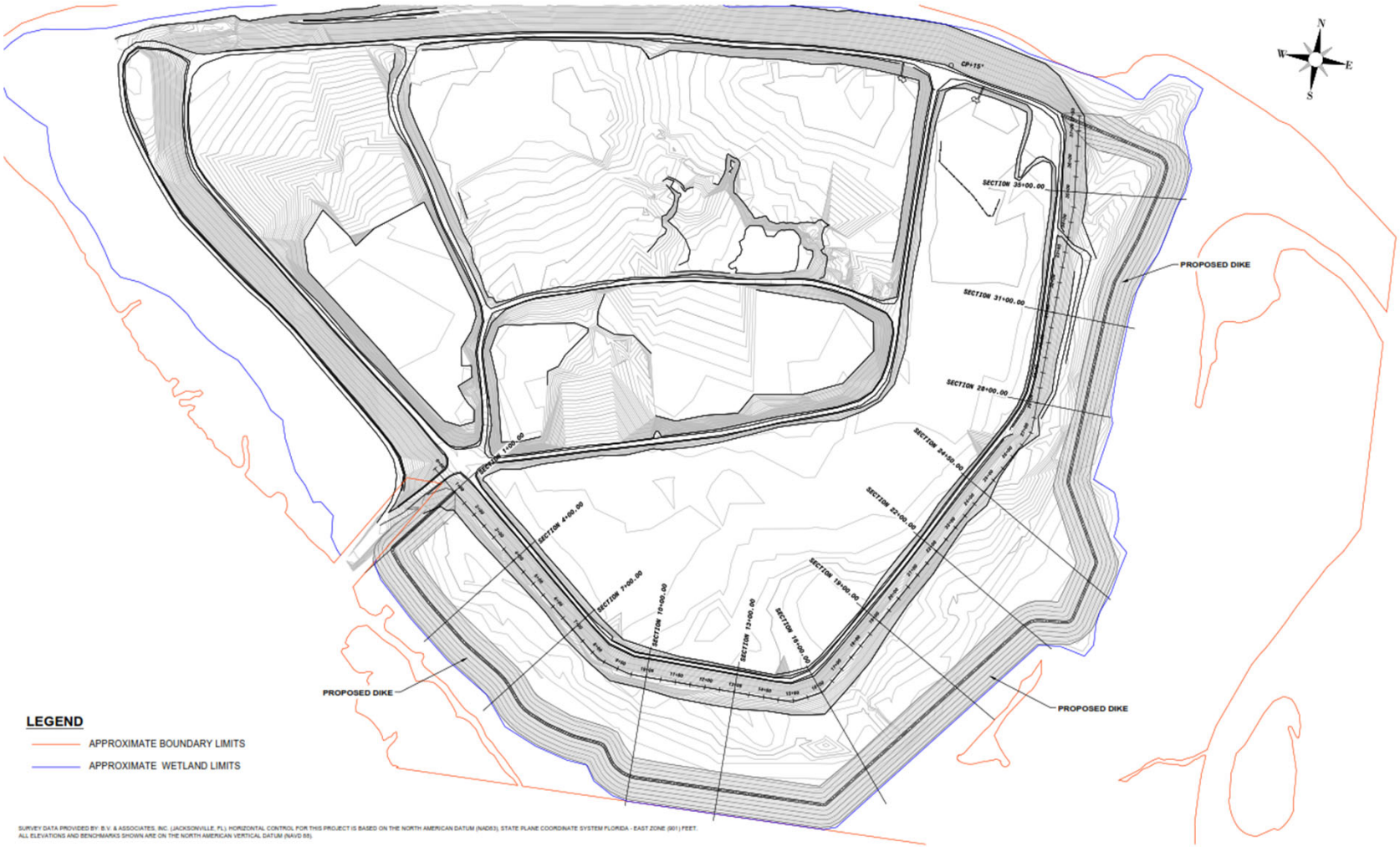
# Buck Island Cell B offloading

- Ditching and creative dewatering critical for success
- Stockpiling of furrowed borrow material will allow work to occur even in rainy periods
- Scheduling based on weather forecast and season
- On-call JAXPORT- geotechnical engineer during contract's based geotechnical investigations to avoid differing conditions and delay claims

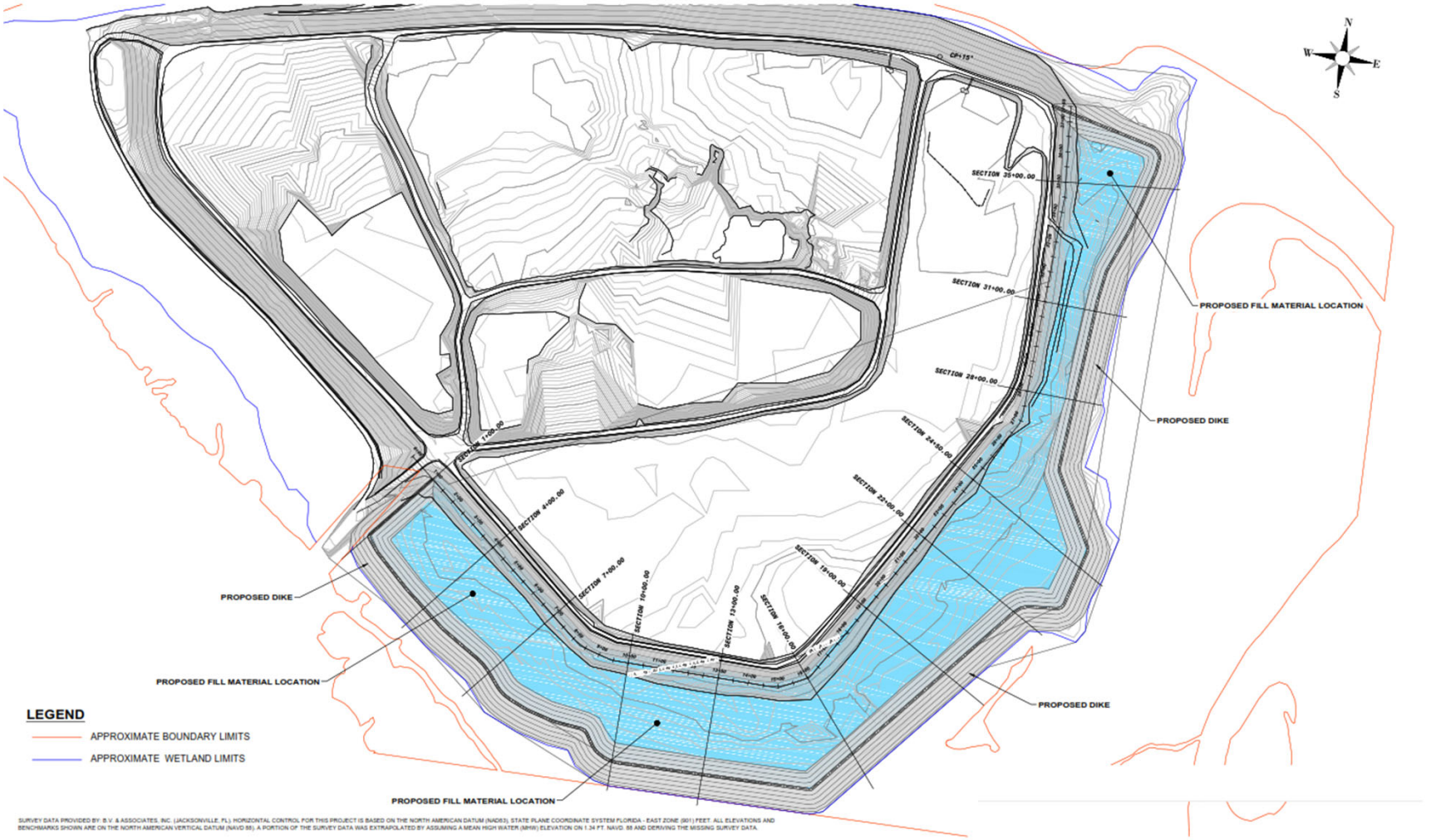
# New storage areas prequalification plans

# Aerial, natural resource survey and topography

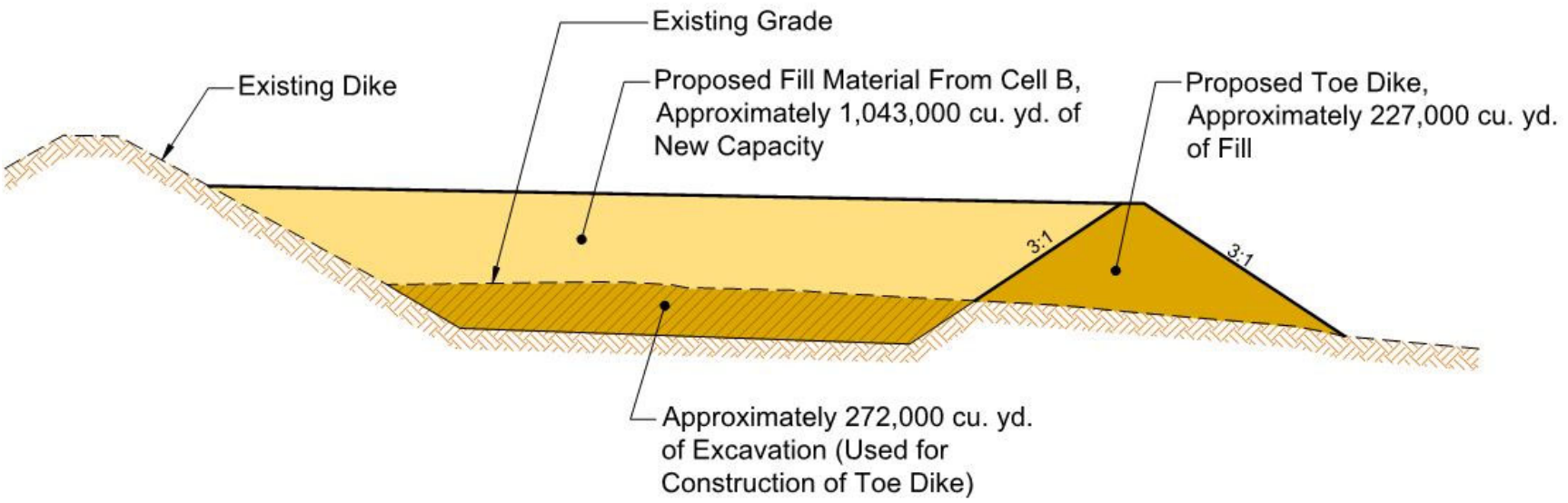
# Proposed site layout



# Proposed toe dike and fill



# Proposed typical cross-section




- Preliminary engineering & construction estimate of between approximately $6,940,000 and $8,530,000
- Proposed construction goal of approximately 1,043,000 cubic yards of new capacity
- Final new storage capacity cost of $8.20 per cubic yard

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