



**NOAA Habitat Conservation**  
*Conserving Habitat for Future Generations*

# Living Shoreline Construction Monitoring: Setting the Stage for Success

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# Your questions answered...

## Construction Monitoring...

- ❖ WHAT is it?
- ❖ WHY do we need it?
- ❖ WHEN does it occur?
- ❖ WHO does it?
- ❖ HOW do we implement it?
- ❖ WHERE do we do it?

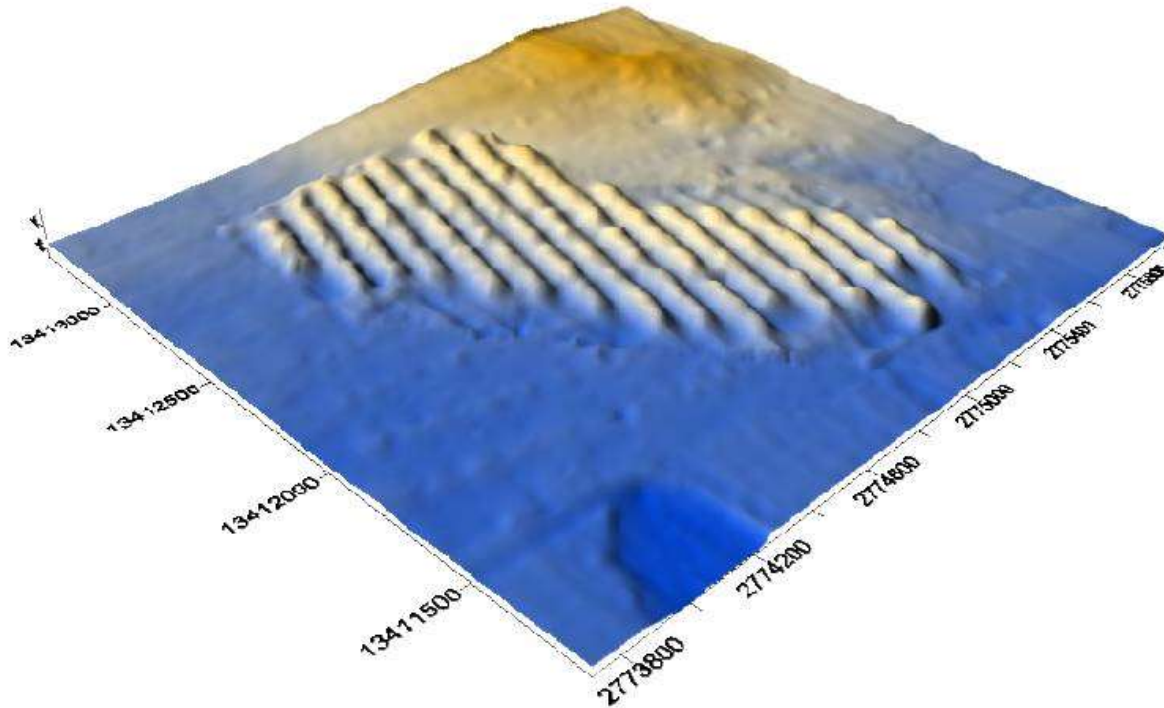
# WHAT is construction monitoring?

❖ **Construction Monitoring** is an effort by project team members to ensure the construction of a project is performed according to the plans, specifications, permits and other performance criteria.



# WHAT is construction monitoring?

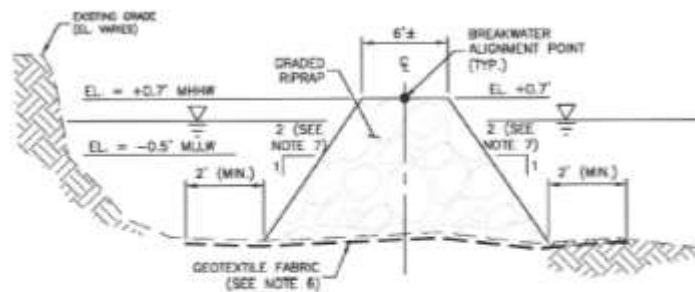
- ❖ **Construction Monitoring** provides valuable information of the actual conditions during construction and provides a baseline for future post-construction monitoring.



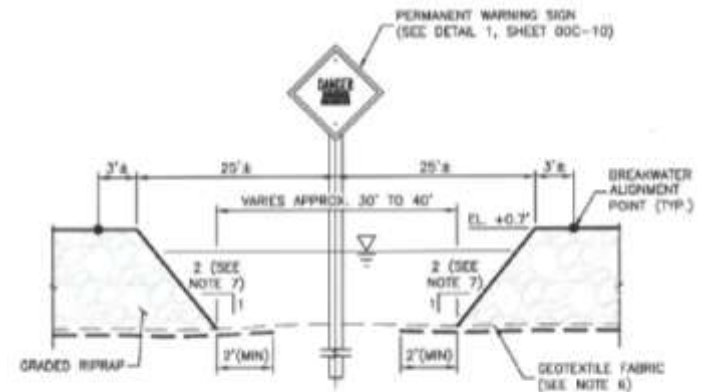
# WHY do we need Construction Monitoring?

❖ Meet certain biological and environmental goals, benefits, and other criteria

- Minimum Levels of Shoreline Protection
- Acres of reef habitat
- Dimensions of living shoreline
- Baseline for future monitoring



TYPICAL SECTION -  
GRADED RIPRAP (GRR) BREAKWATER  
SCALE: NOT TO SCALE  
DEC 04  
11/10  
00C-01  
00C-08



TYPICAL SECTION -  
BREAKWATER GAP  
SCALE: NOT TO SCALE  
DEC 04  
11/10  
00C-01  
00C-08



# WHY do we need Construction Monitoring?

## ❖ Verification for payment to the contractor

- Tons of Rock
- Square yards of geotextile fabric

A photograph of a handwritten construction sheet, likely a calculation sheet for riprap. The sheet is titled 'COMPUTATION SHEET' and contains various fields for project information, calculations, and totals. The calculations are handwritten in black ink. At the bottom, there are handwritten notes: '(50,000 + 20) (50,000 + 20) (50,000 + 20)'. The sheet is part of a binder, as indicated by the metal rings on the left side.

# WHEN does construction monitoring occur?

- ❖ Preparation of Design Documents
  - Coordinating design efforts to accommodate successful construction monitoring
- ❖ Construction Proposal Review
  - Choosing a qualified contractor
- ❖ Contract Award
  - Working with a contractor through the submittals process
- ❖ Mobilization
  - Being on site as the contractor bring in equipment and personnel



# WHEN does construction monitoring occur?

## ❖ Active Construction

- Monitoring construction methods and measuring design elements and tolerances

## ❖ Final Inspection/Demobilization

- Signing off on the finished product

## ❖ Deliverables

- As-built surveys





# WHO does construction monitoring?

- ❖ Monitoring is a team effort
- ❖ It takes a village...
  - Surveyors, biologists, engineers, welders, project managers, contracting officers, inspectors, and experts in many other fields.
  - Starts with planning during design

# WHO does construction monitoring?

## ❖ Quality Control

- Performed by contractor or Installer
- Ensuring the project is constructed to designed plans and specifications
- QC manager, surveyors, testing labs



# WHO does construction monitoring?



## ❖ Quality Assurance

- Performed by the project owner/sponsor.
- Usually the entity administering the contract.
- Ensuring the contractor performs adequately to fulfill the requirements of the contract.

# HOW do we monitor construction?

## How does the *contractor* monitor construction?

- Superintendents
- Quality control manager
- Interim construction surveys
- Field measurements
- Independent lab testing
- As-built surveys





# HOW do we monitor construction?

## How does the ***contract administrator*** monitor construction?

- Onsite inspectors
- Field measurements
- Surveys
- Construction progress meetings
- Progress payment
- Hold point inspections
- Construction completion reports



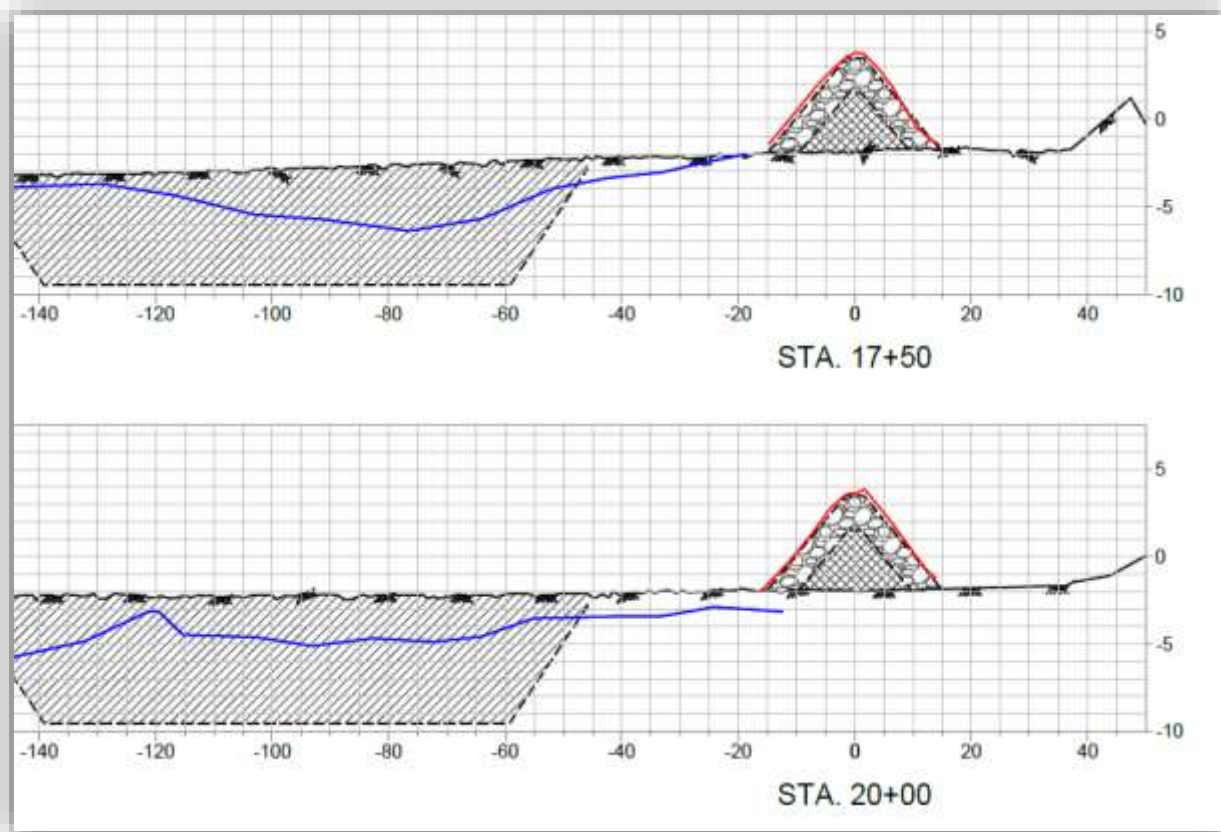
# WHERE do we monitor construction?

## ❖ In the Field

- Boats
- Barges
- Mobile Offices
- Job Trailers
- Suppliers



# WHERE do we monitor construction?



## ❖ In the Office

- Plans of work
- Submittals
- Surveys
- Invoices

Contract Summary	
Original Contract Amount:	
Changes Amount:	
Total Contract Amount:	
Completed To Date:	
Retainage To Date:	
Completed Less Retainage:	
Less Previous Application:	
<b>Current Payment Due:</b>	
<b>Current Payment Due Plus Tax:</b>	
<b>Balance To Finish:</b>	
Contractor's Certification	
Amounts requested are only for performance in accord payments received under the contract have been made,	



# Conclusion



- Design and performance criteria are key pieces to the success of a living shoreline.
- Quality Control and Quality Assurance are both important to ensure a living shoreline that will perform as designed.
- Team Effort – Helping everyone understand the goals and strive for quality installation will help lead to success of the living shoreline.
- Field inspection as well as plenty of “behind the scenes” office work.
- Surveys as well as materials testing and measurements.



# Living Shoreline Construction Monitoring



Thank you for attending this session!

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