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Pond Siting Process During PD&E

Georgi Celusnek and Victor Muchuruza

Presentation Outline

- PD&E Procedures for Stormwater Management
- District 4 Process and Projects

Goal of a PD&E Study

Identify the Project Preferred Alternative

- Address the purpose and need for the project
- Evaluate and document environmental impacts
- Consider engineering/design factors
- Consider project cost
- Coordinate with agencies and
- Determine Location and Design Concept

PD&E in the Pre-Construction Process

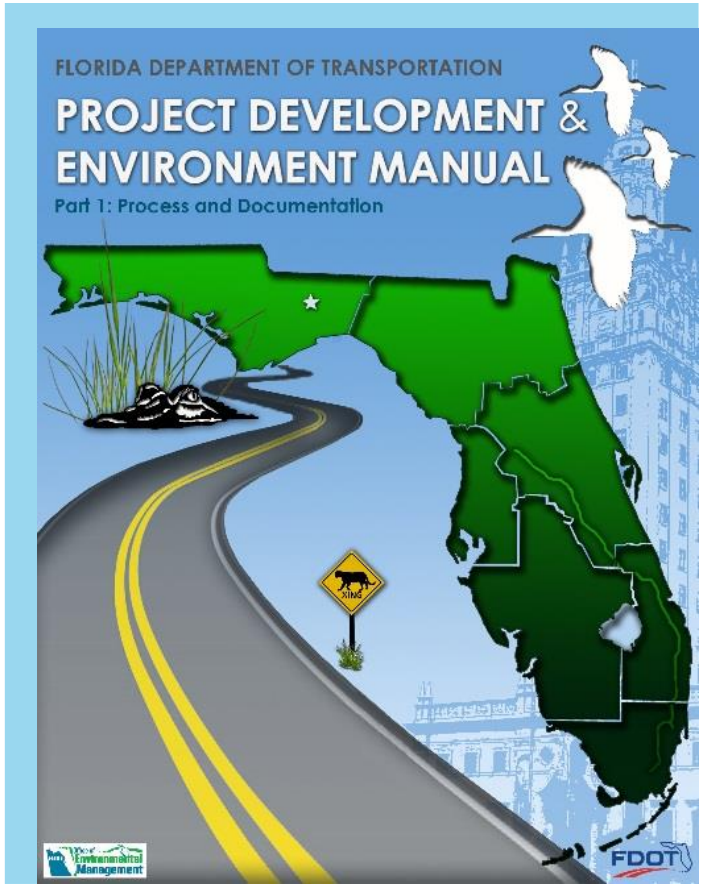
- Occurs between Planning phase and Design phase
- Can overlap Design phase
- Is the Environmental Review and Approval process
- Environmental review occur during Planning and Design

PD&E Study Procedure

Documented in the PD&E Manual which describes FDOT's compliance process during PD&E phase

- Environmental and Engineering Analyses
- Documentation of Environmental Impacts

PD&E Study Procedure



PD&E Manual - Part I

- Process and Documentation

PD&E Manual - Part II

- Topics and Analysis

Water Quality and Stormwater

- Covered in **Part 2, Chapter 10 Water Quality and Water Quantity**
  - Water Quality thru WQIE checklist
  - Water Quantity thru Stormwater Management /Ponds
- Evaluate impact to water and other resources
- Water Quantity issues addressed through permitting
- “How to Guidance” in the FDOT Drainage Guide

Drainage and Pond Siting Analysis

- Drainage concepts and stormwater pond locations are established during PD&E to evaluate potential impacts to environmental resources.
- Knowledge of potential impacts is needed to make a decision in the Environmental Document.
- Documented in Pond Siting Report or Conceptual Drainage Design Report.

Drainage and Pond Siting Analysis

- Identify drainage issues and requirements
- Present overall stormwater management approach
- Size ponds to mitigate stormwater issues
- Evaluate alternative stormwater management options
- Identify stormwater pond locations
- Analyze impacts to other environmental resources
- Recommend preferred pond sites

Scoping Drainage and Pond Analysis

- Drainage is not an after thought
- Considered in Planning and PD&E phases
- PD&E Scoping meetings
- Opportunities for stormwater joint projects
- Scope of Services for PD&E Studies

District 4 Process and Projects

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Why the Process was Developed

- Right of Way Acquisition Challenges
  - Demonstrating Need
  - Defending Site Selection
- Environmental Permitting Challenges
- Project Delivery Acceleration

How the Process was Developed …and Improved

- Initiated by Drainage, Legal, and Right of Way (late 1990s)
- Value Engineered the Process (2003)
- Drafted the Process Guidelines (2004)
- Revised the Process for use during PD&E (2006)
- Refined the Process through Lessons Learned (2007)
- Updated the Process Guidelines (2010)

Benefits of the Process

- Establishes Documentation to Justify the Need
- Ensures that Issues are Considered
- Formalizes the Involvement of Local Governments, Permitting Agencies and Public
- Identifies Right of Way Needs
- Produces a Better Work Program Estimate
- Expedites the Process… SWAT

Best Part of the Process

…The Team

A multi-disciplined group of professionals led by the PD&E Project Manager

- PD&E Project Manager
- Roadway Engineer
- Drainage Engineer
- Environmental Specialist
- Right of Way Appraiser
- Eminent Domain Attorney
- Construction Specialist
- Maintenance Specialist

Worst Part of the Process

…The Name

Pond Siting is spelled a lot like Pond Sitting

Worst Part of the Process

...The Name

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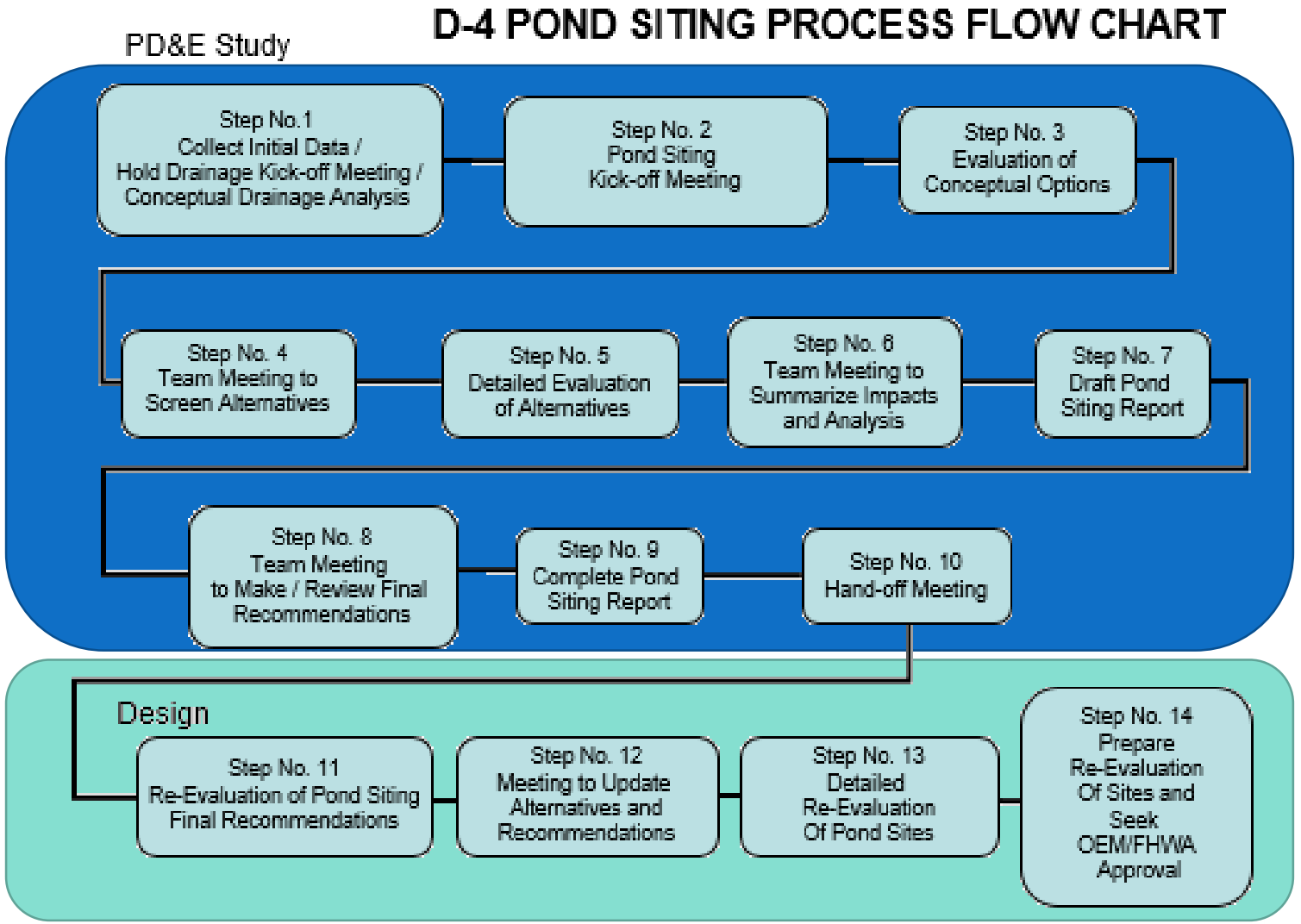
The Process Flowchart



Statewide Acceleration and Transformation
SWAT Project Management Approach

Step 1
Collect Initial Data
Drainage Kick Off Meeting
Conceptual Drainage Analysis

Step 2
Pond Siting Kick-off Meeting

Step 3
Evaluation of Concepts

Step 4
Team Meeting to Screen Alternatives

Step 5
Detailed Evaluation of Alternatives

Step 6
Team Meeting to Summarize Impacts and Analysis

Step 7
Draft Pond Siting Report

Step 8
Team Meeting to Finalize Recommendations

Step 9
Complete Pond Siting Report

Step 10
Hand-off Meeting

Step 11
Re-Evaluation of Pond Siting Final Recommendations

Step 12
Meeting to Update Pond Alternatives and Recommendations

Step 13
Detailed Re-Evaluation of Pond Sites

Step 14
Prepare Re-Evaluation of Sites and Seek Approval

PLANNING

PRE-WORK

PD&E

DESIGN

Alt Work Shop

Public Hearing

LDCA

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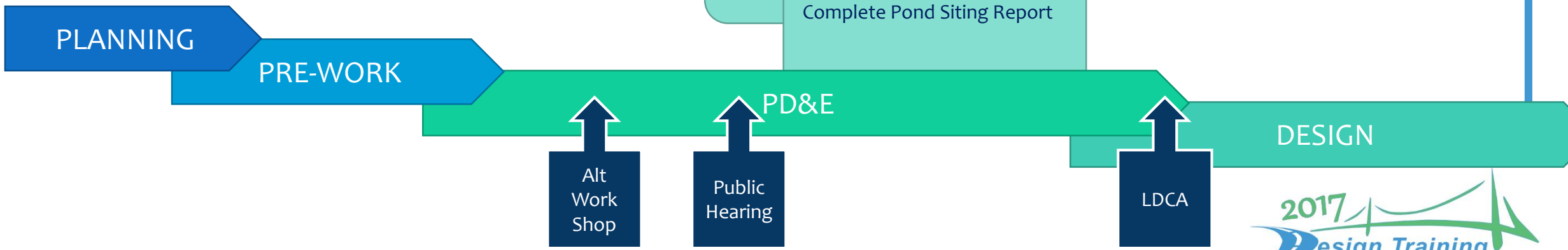
Step 1
Collect Initial Data
Drainage Kick Off Meeting
Conceptual Drainage Analysis



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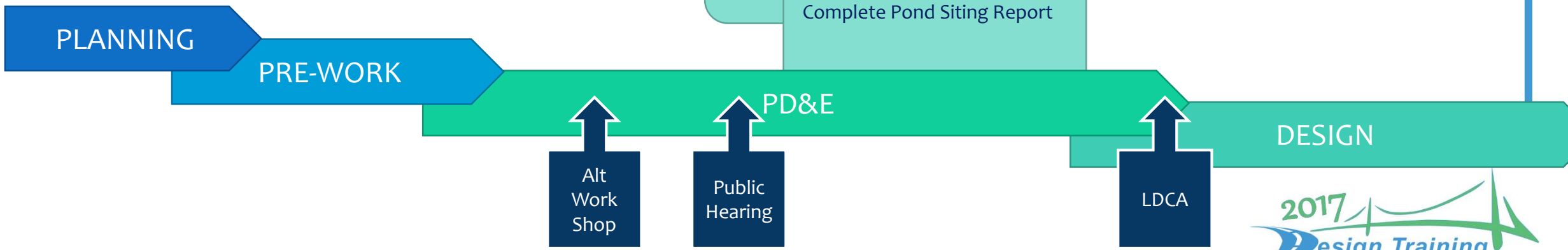
Step 2
Pond Siting Kick-off Meeting



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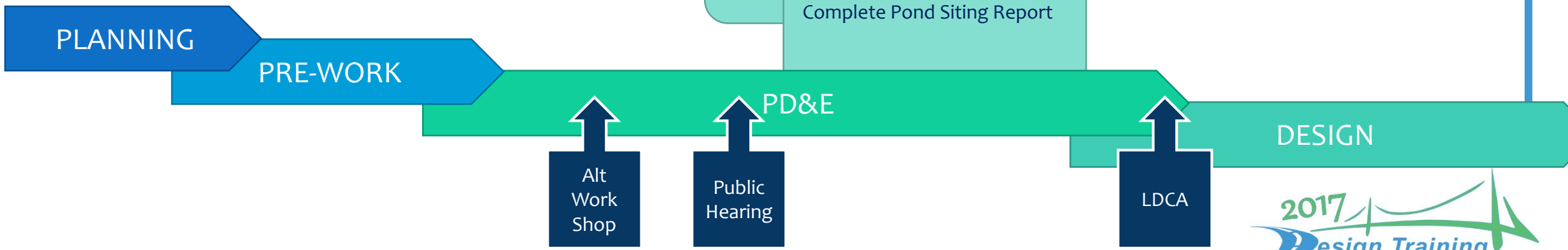
Step 3
Evaluation of Concepts



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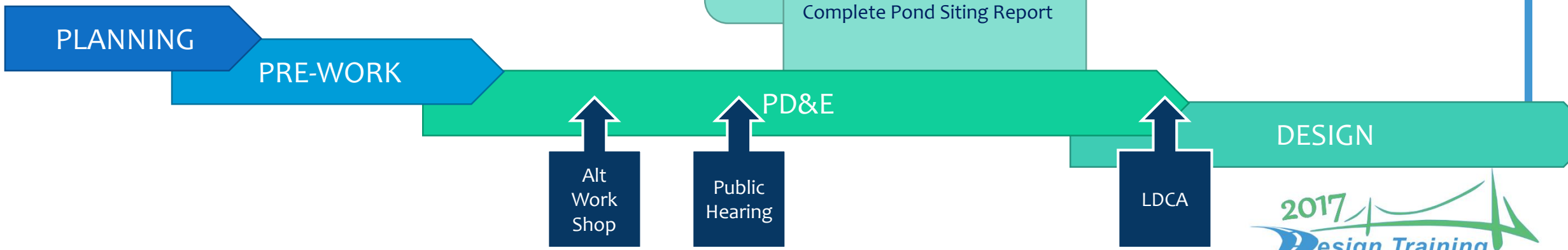
Step 4
Team Meeting to Screen Alternatives



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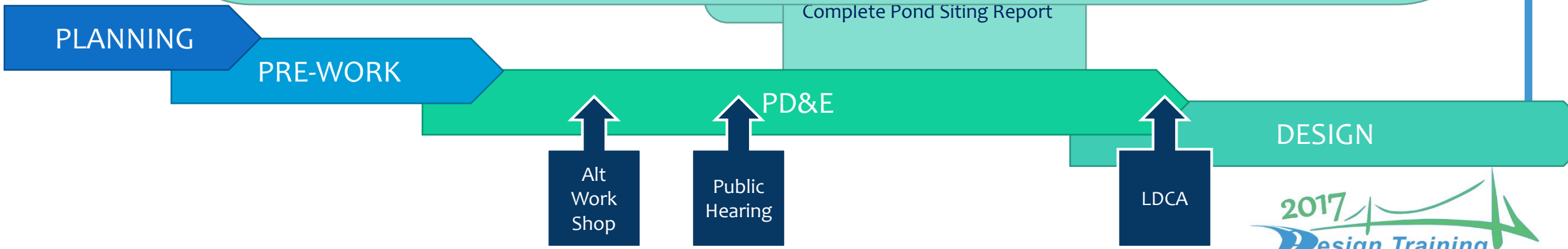
Step 5
Detailed Evaluation of Alternatives



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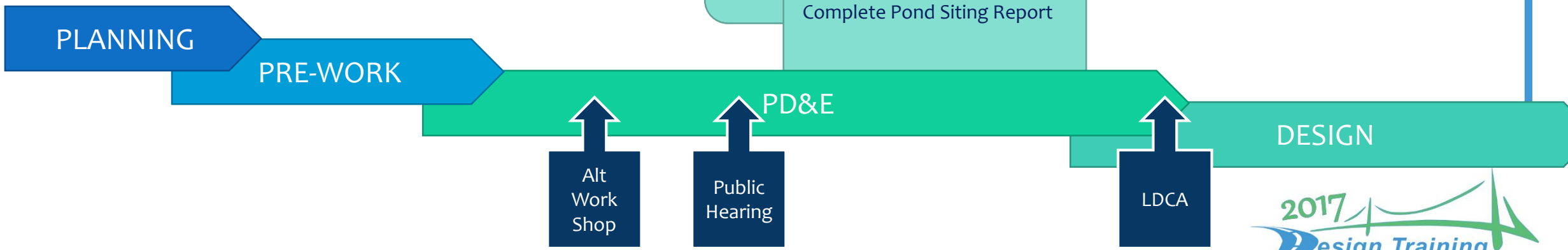
Step 6
Team Meeting to Summarize Impacts and Analysis



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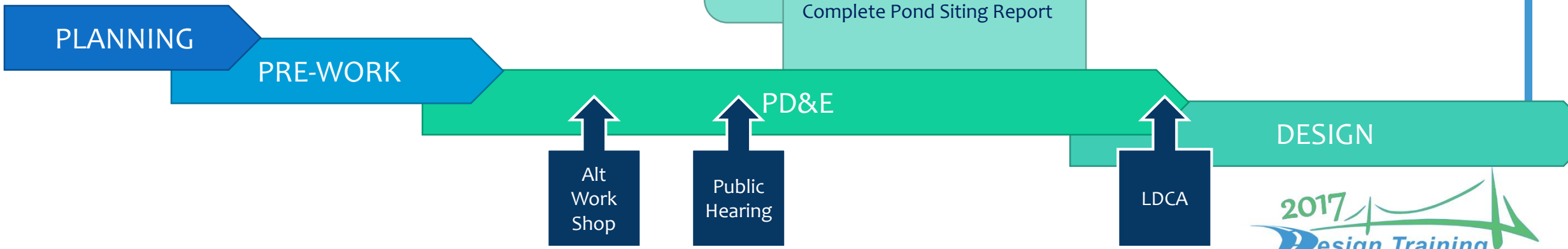
Step 7
Draft Pond Siting Report

Complete Pond Siting Report



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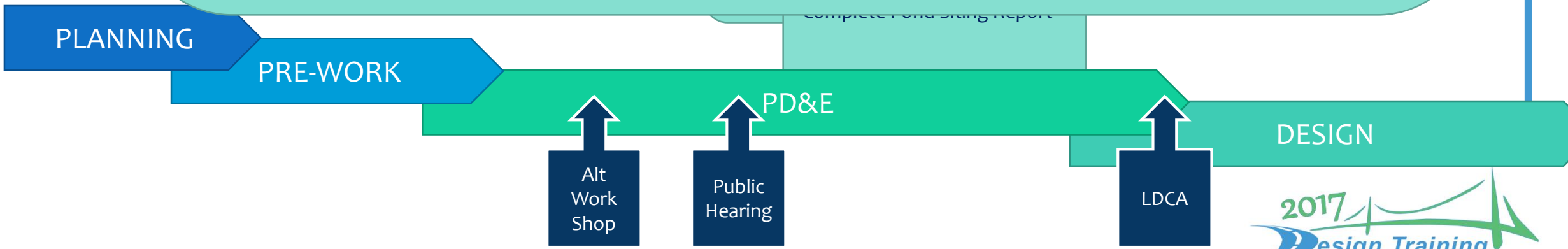
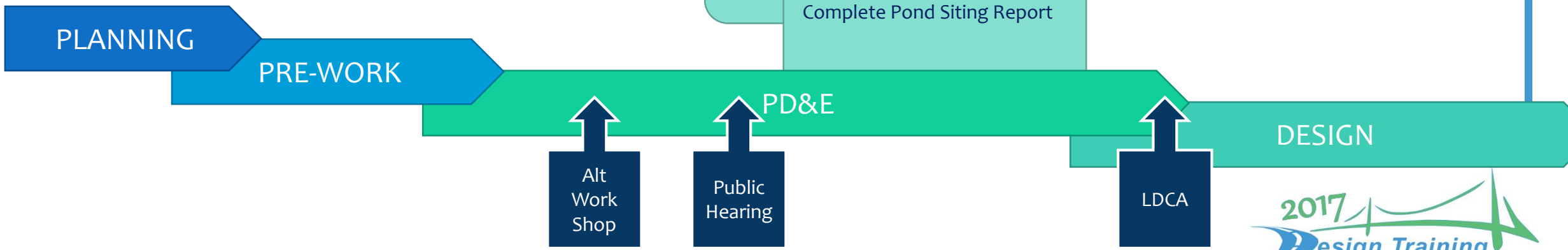
Step 8
Team Meeting to Finalize Recommendations



Step 9
Complete Pond Siting Report



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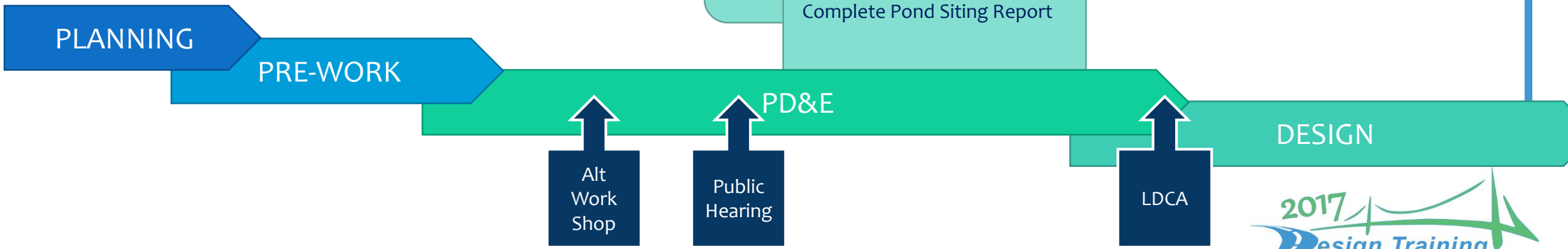
Step 10
Hand-off Meeting

Complete Pond Siting Report



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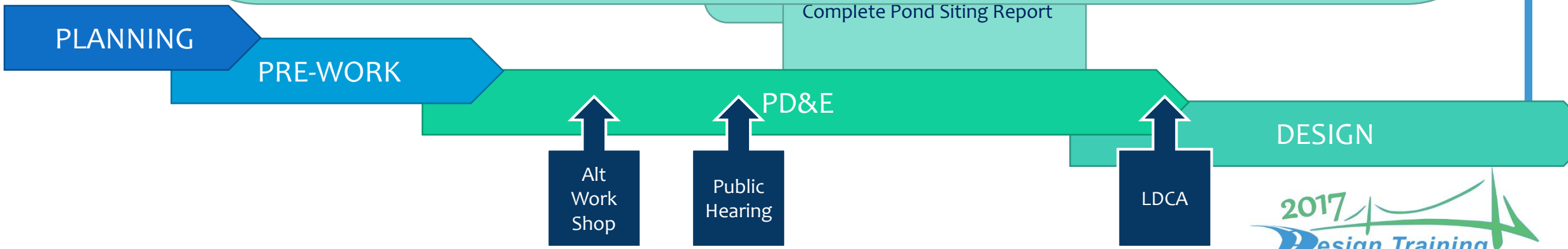
Step 11
Re-Evaluation of Pond Siting
Final Recommendations



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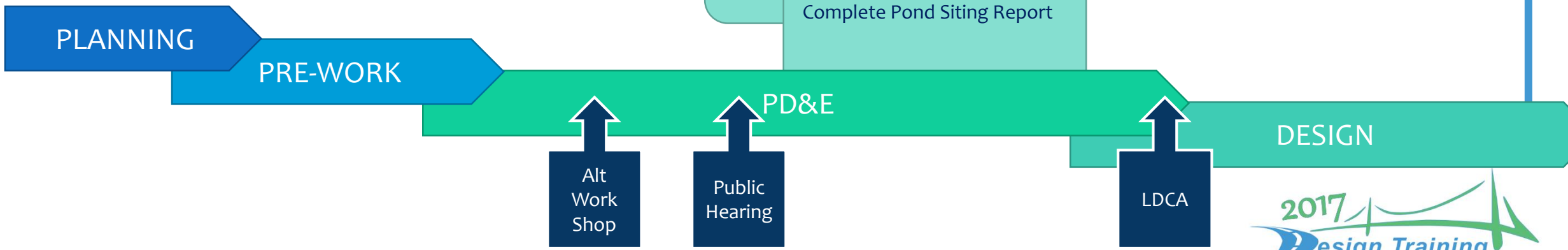
Step 12
Meeting to Update Pond Alternatives and Recommendations



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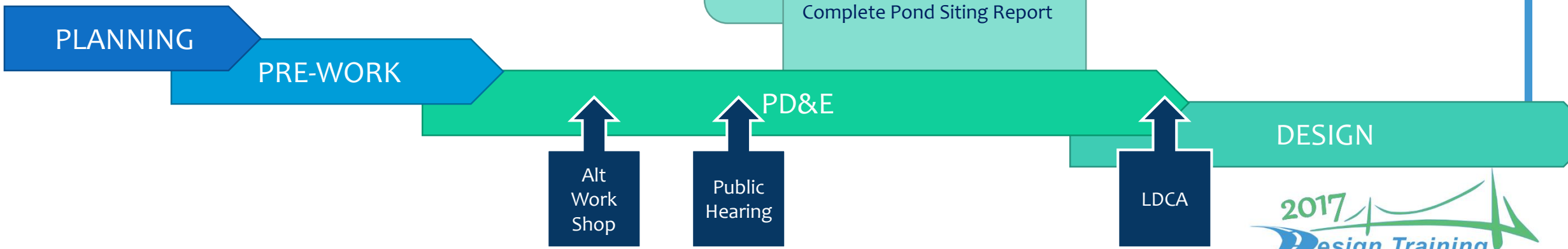
Step 13
Detailed Re-Evaluation of Pond Sites



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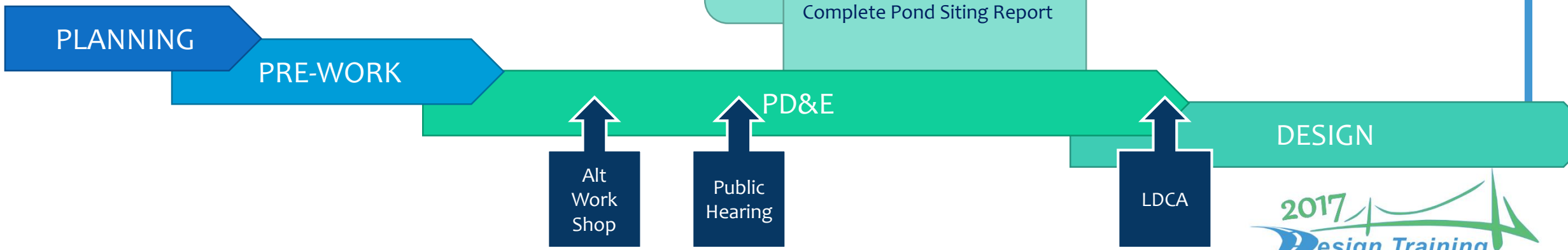
Step 14
Prepare Re-Evaluation of Sites and Seek Approval



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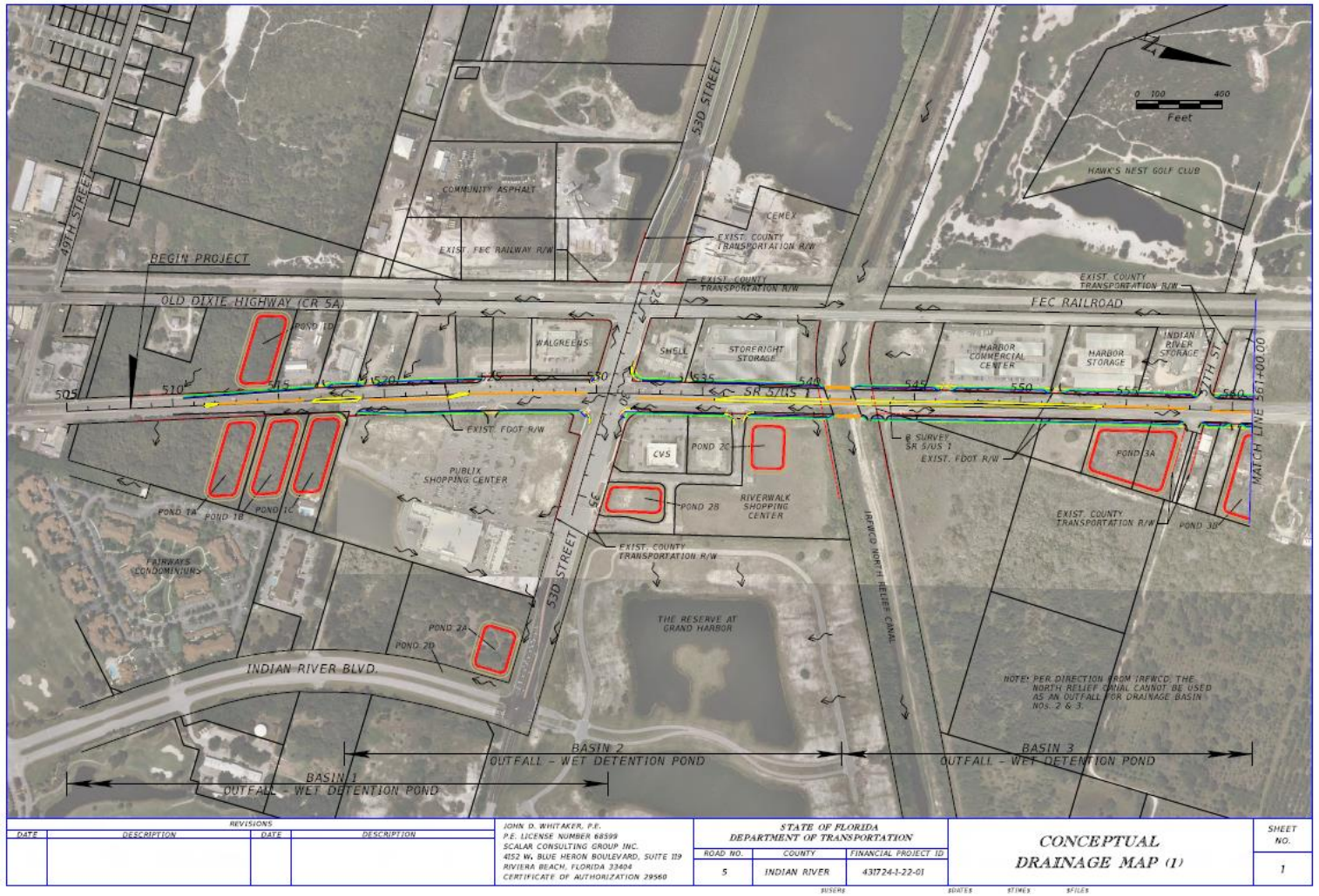
Samples of Sites Considered in the Process



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Sample of Matrix Developed in Process

Project: SR-5 (US-1) from 53rd Street to CR 510
Financial Project ID No.: 431724-1-22-01
County: Indian River
Basin No.: 1

Scalar Project No.: SP13D4003
Date: 3/19/2015

POND SITING MATRIX (FINAL)

Item #	Weight of Factor	Factor	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score
	1-10		1-10		1-10		1-10		1-10		1-10		1-10	
		Alternative Number (Pond ID)	1A		1B		1C		1D					
		Brief Description of Alternative	Pond will satisfy Drainage System 1 requirements.		Pond will satisfy Drainage System 1 requirements.		Pond will satisfy Drainage System 1 requirements.		Pond will satisfy Drainage System 1 requirements.					
		Parcel Number	32392300000300000008.0		32392300003000000007.0		32392300000300000006.0		32392300000300000008.0					
		Parcel Size (Acres)	6.17		2.26		2.29		6.90					
1	5	Right-of-Way Costs (Includes: Zoning & Land Use)	2	10	4	20	10	50	2	10				
2	10	Drainage Considerations	1	10	5	50	6	60	2	20				
3	2	Flood Zone FEMA	1	2	1	2	1	2	1	2				
4	4	Contamination and Hazardous Materials	5	20	1	4	4	16	5	20				
5	9	Utilities	5	45	5	45	5	45	3	27				
6	4	Threatened and Endangered Species (Includes: Associated Costs)	5	20	5	20	3	12	4	16				
7	3	Noise	3	9	2	6	4	12	1	3				
8	4	Wetlands and Protected Uplands (Includes: Mitigation Costs)	3	12	2	8	2	8	2	8				
9	10	Cultural Resources Involvement (Includes: Associated Costs	1	10	1	10	1	10	1	10				
10	10	Section 4(f)	1	10	1	10	1	10	1	10				
11	8	Public Wellfield	1	8	1	8	1	8	1	8				
12	3	Construction	1	3	1	3	1	3	1	3				
13	9	Maintenance (Includes: Joint-Use-Ponds)	3	27	1	9	4	36	2	18				
14	4	Aesthetics and Public Opinion (and Adjacent Residency Concerns)	1	4	1	4	1	4	1	4				
		Comments												
		Score	190		199		276		159					
		Ranking												

Comments: Scores are given from 1 to 10. Less points means better or more desired alternative. Weight of Factor determined by consensus of Pond Siting Team.

Sample of Ma ess

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Item #	Weight of Factor	Factor	Score
	1-10		1-10
		Alternative Number (Pond ID)	1A
		Brief Description of A	Pond will satisf System 1 requ
		P	239230000030
			6.17
1			
2	1		
3	2		1
4	4		5
5	9		5
6	4	(	5
7	3	No	3
8	4	Wetl ected Uplands (Includ igation Costs)	3
9	10	Cultural Resources Involvement (Includes: Associated Costs	1
10	10	Section 4(f)	1
11	8	Public Wellfield	1
12	3	Construction	1
13	9	Maintenance (Includes: Joint-Use-Ponds)	3
14	4	Aesthetics and Public Opinion (and Adjacent Residency Concerns)	1
		Comments	
		Score	190
		Ranking	

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Factors

- Right-of-Way Costs (Includes: Zoning & Land Use)
- Drainage Considerations
- Flood Zone FEMA
- Contamination and Hazardous Materials
- Utilities
- Threatened and Endangered Species (Includes: Associated Costs)
- Noise
- Wetlands and Protected Uplands (Includes: Mitigation Costs)
- Cultural Resources Involvement (Includes: Associated Costs
- Section 4(f)
- Public Wellfield
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- Aesthetics and Public Opinion (and Adjacent Residency Concerns)

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Sample of Ma…ess

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POND SITING MATRIX (FINAL)

Item #	Weight of Factor	Factor	Score
	1-10		1-10
		Alternative Number (Pond ID)	1A
		Brief Description of Alternative	Pond will satisf…
1			
2			
3			
4			
5			
6	4	Threatened and Endangered Species (Includes: Associated Costs)	5
7	3	Noise	3
8	4	Wetlands and Protected Uplands (Includes: Mitigation Costs)	3
9	10	Cultural Resources Involvement (Includes: Associated Costs	1
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Right-of-Way Costs (Includes: Zoni… & Land Use)
Drainage Considerations
Flood Zone FEMA
Contaminati…
Utilities
Threaten…
(Includes: A…
Noise

Weighted Factors

10	Drainage Considerations	1	10
2	Flood Zone FEMA	1	2
4	Contamination and Hazardous Materials	5	20

(Includes: Associated Costs
Section 4(f)
Public Wellfield
Construction
Maintenance (Includes: Joint-Use-Ponds)
Aesthetics and Public Opinion
(and Adjacent Residency Concerns)

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Process Challenges

Pond Siting is spelled a lot like

Pond Sitting

Process ~~Challenges~~ Opportunities

- Developed corridors
- Rapidly developing corridors

Process Successes

- I-595 Golf Courses for Storm Water Management

I-595 Shared-Use Drainage

The I-595 corridor in Broward County, Florida, is being reconstructed to accommodate three reversible tolled express lanes in the median and additional auxiliary lanes. RS&H serves as the Owner's Representative for the Florida Department of Transportation (FDOT) in a public-private partnership agreement to design and construct the $1.2 billion project and was tasked with identifying a cost-effective solution for managing the stormwater.

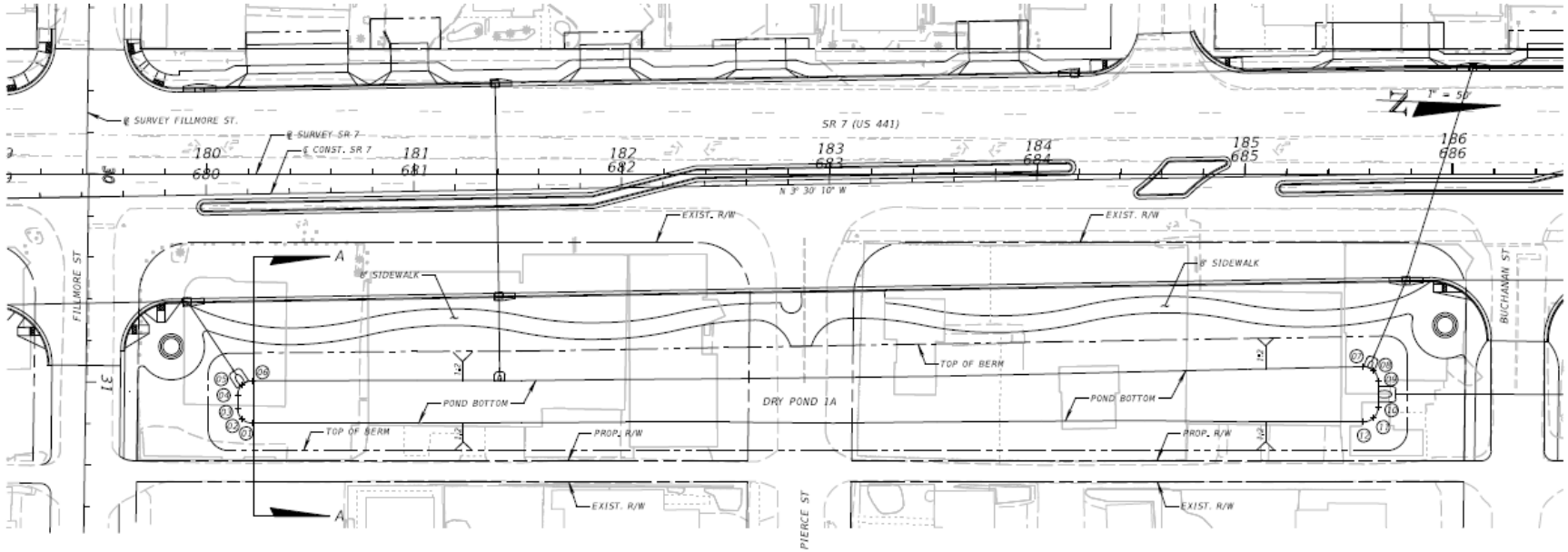
Project Information

Location:
Broward County, Florida

Client:
Florida Department of Transportation, District Four

Process Successes

- SR-7 Agreement with City of Hollywood

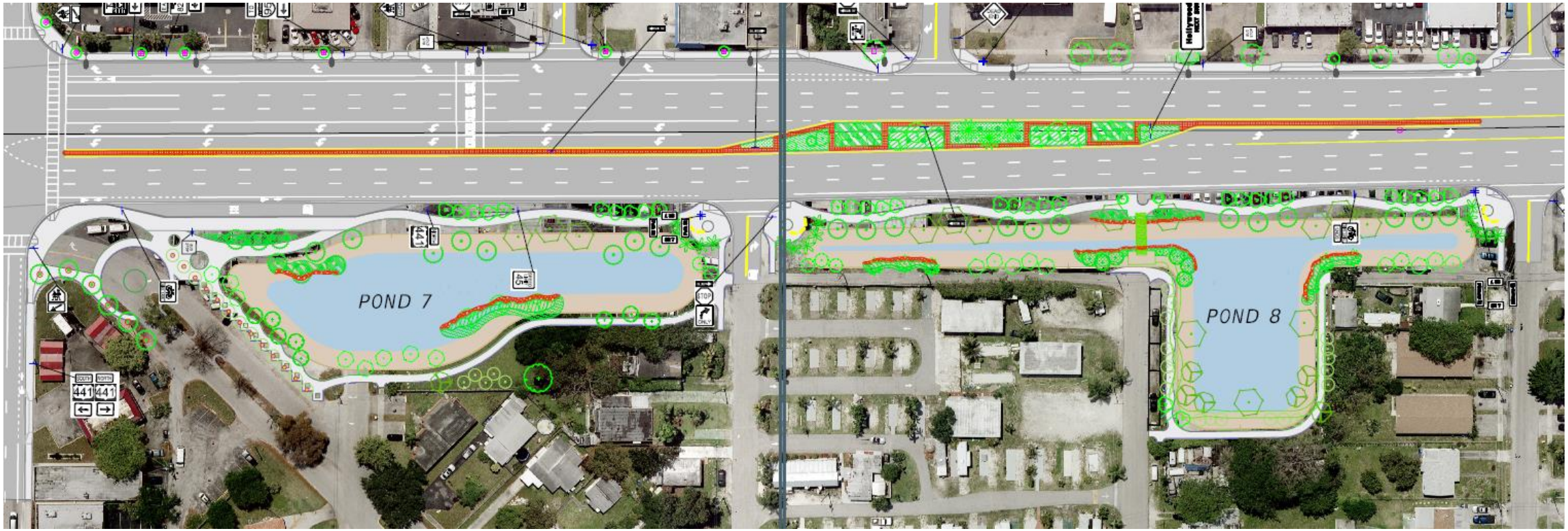


K. Compatibility with City's Future Development Plan

This item was scored largely based on input from the City of Hollywood's Planning and Zoning Department. According to City staff, preference was given to parcel configurations which did not include land adjacent to major intersections (e.g. Sheridan Street and State Road 7) as these areas act as gateways to the City and are planned for redevelopment. Additional consideration was given to future road alignment, impacts already planned for the east side of the road, and minimizing impacts

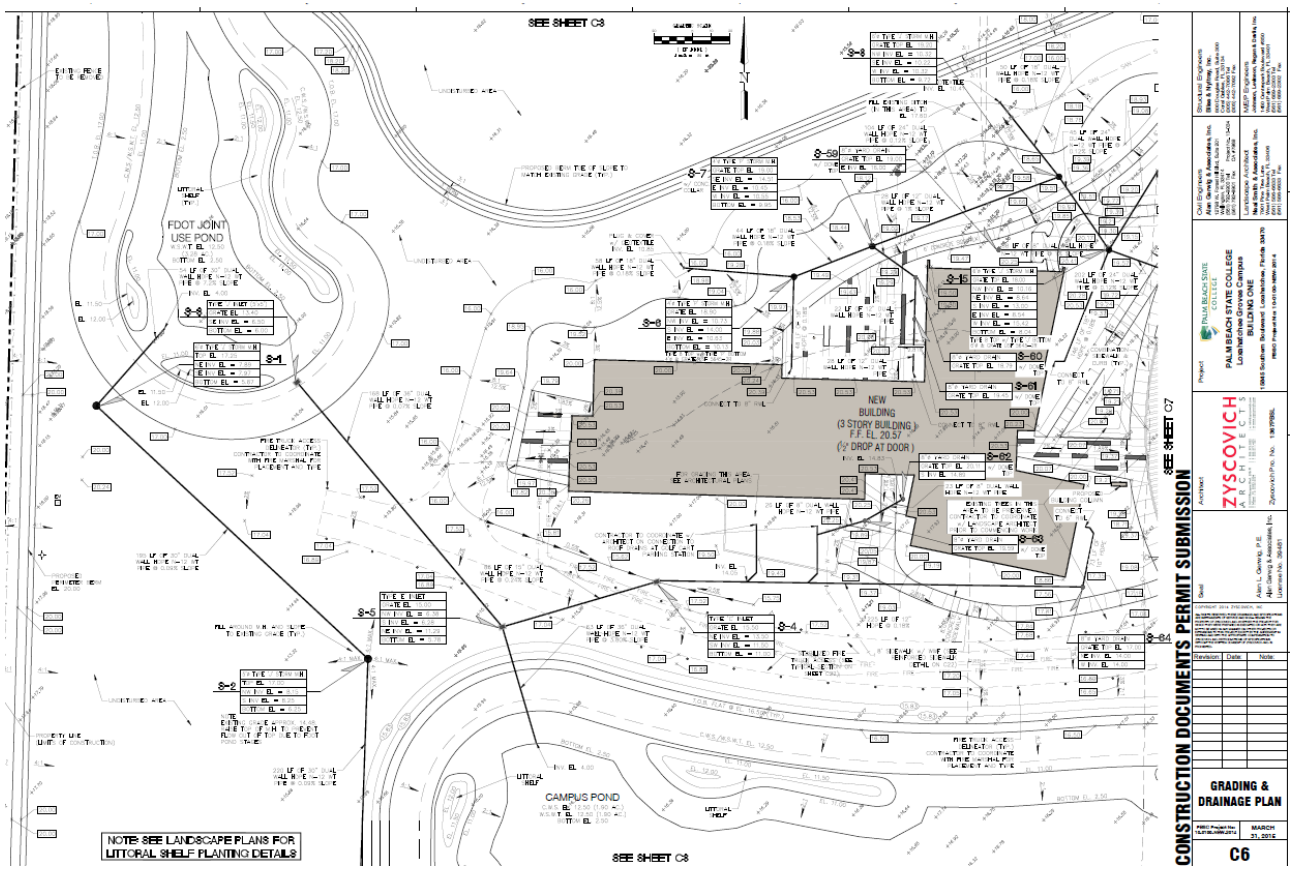
Process Successes

- SR-7 Agreement with City of Hollywood



Process Successes

- SR-80 Shared Use Ponds



The Process Guidelines

FDOT DISTRICT 4

POND SITING PROCEDURES

FDOT D-4 POND SITING PROCEDURES 07-20-10

TABLE OF CONTENTS

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