

TECHNICAL MEMORANDUM



To: City of Clearwater Personnel

From: Justin V. Keller, PE, CFM, ENV SP, Advanced Engineering & Design, Inc. (AED)

CC: File

Date: October 20, 2025

Re: City of Clearwater
Disaster #4834DR
Damage #1514660, Joe DiMaggio Embankment
Sites 1, 2 & 3 (Repair)

The City of Clearwater experienced damages as outlined within the Damage Description and Dimensions (DDD) document associated with the above-referenced site. The City is intending to pursue repair of the damaged facilities in lieu of mitigation. By definition, facility repair is intended to restore basic function and safety of the facility in a manner that replicates the pre-damage condition.

The damaged embankment was a vegetated creek bank for a critical open conveyance facility. While the slope was stable in the pre-damage condition, it was relatively steep. This slope was stabilized solely through the presence of established vegetation whose root system penetrated deep into the ground. High velocities experienced during Disaster #4834DR resulted in a loss of this vegetation which in turn de-stabilized the slope and damaged the embankment.

Considering that this is an active open conveyance facility, reconstructing a stabilized vegetated slope is not practical. Repairing the bank through the placement of native soil and vegetation would not restore basic function and safety. Without a deep root system (which takes years to grow), this soil would be un-stabilized and thereby subject to future failures during non-severe storm events. As such, the City will be pursuing the installation of a sheet piling system as the means of slope stabilization repair.

Slope stabilization using sheet piling will require that the sheet piles be offset from the existing embankment toe of slope. Native soils would be placed landward of the slope stabilization to re-establish pre-damage runoff patterns.

The extents of slope stabilization cannot match the limits of the washout; they must extend beyond in either direction. Terminating at the point of connection can result in undermining and further washout. Therefore, slope stabilization is proposed to extend upstream and downstream of the limits identified in the DDD.

A transition will be needed between the method of slope stabilization (sheet pile wall system) and the connection to the existing embankment. This is because the typical sections differ. Since vegetated slopes cannot be repaired due to the time required for vegetation establishment, rip rap material will be needed to stabilize the new embankment.

City of Clearwater**Disaster #4834DR****Damage #1514660, Joe DiMaggio Embankment****Opinion of Probable Cost****Site 1**

<i>Pay Item Description</i>	<i>Unit</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Total</i>
Site Mobilization & General Conditions	LS	1	\$ 54,750.00	\$ 54,750.00
Maintenance of Traffic (Vehicular & Pedestrian)	LS	1	\$ 12,500.00	\$ 12,500.00
Erosion & Sediment Control	LS	1	\$ 5,000.00	\$ 5,000.00
Clearing & Grubbing / Site Preparation	LS	1	\$ 50,000.00	\$ 50,000.00
Slope Stabilization (Sheet Pile Wall System)	LF	152	\$ 3,000.00	\$ 456,000.00
Native Soil Backfill	CY	146.66	\$ 125.00	\$ 18,332.50
Transition Grading (Top of Bank)	SY	157.77	\$ 15.00	\$ 2,366.55
Rip Rap Armoring (Ditch Bank Lining)	CY	2.22	\$ 625.00	\$ 1,387.50
Sod Restoration	SY	157.77	\$ 12.25	\$ 1,932.68
TOTAL (SITE 1)				\$ 602,269.23

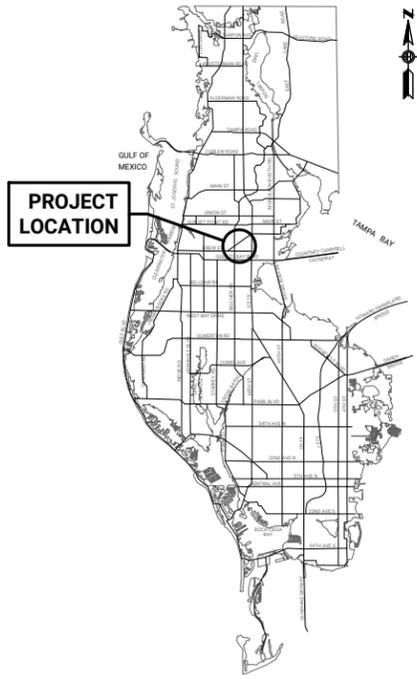
Site 2

<i>Pay Item Description</i>	<i>Unit</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Total</i>
Site Mobilization & General Conditions	LS	1	\$ 17,900.00	\$ 17,900.00
Maintenance of Traffic (Vehicular & Pedestrian)	LS	1	\$ 2,500.00	\$ 2,500.00
Erosion & Sediment Control	LS	1	\$ 2,500.00	\$ 2,500.00
Clearing & Grubbing / Site Preparation	LS	1	\$ 15,000.00	\$ 15,000.00
Slope Stabilization (Sheet Pile Wall System)	LF	51	\$ 3,000.00	\$ 153,000.00
Native Soil Backfill	CY	34.44	\$ 125.00	\$ 4,305.00
Transition Grading (Top of Bank)	SY	45.55	\$ 15.00	\$ 683.25
Rip Rap Armoring (Ditch Bank Lining)	CY	2.22	\$ 625.00	\$ 1,387.50
Sod Restoration	SY	45.44	\$ 12.25	\$ 556.64
TOTAL (SITE 2)				\$ 197,832.39

Site 3

<i>Pay Item Description</i>	<i>Unit</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Total</i>
Site Mobilization & General Conditions	LS	1	\$ 21,400.00	\$ 21,400.00
Maintenance of Traffic (Vehicular & Pedestrian)	LS	1	\$ 2,500.00	\$ 2,500.00
Erosion & Sediment Control	LS	1	\$ 2,500.00	\$ 2,500.00
Clearing & Grubbing / Site Preparation	LS	1	\$ 15,000.00	\$ 15,000.00
Slope Stabilization (Sheet Pile Wall System)	LF	62	\$ 3,000.00	\$ 186,000.00
Native Soil Backfill	CY	46.66	\$ 125.00	\$ 5,832.50
Transition Grading (Top of Bank)	SY	57.77	\$ 15.00	\$ 866.55
Rip Rap Armoring (Ditch Bank Lining)	CY	2.22	\$ 625.00	\$ 1,387.50
Sod Restoration	SY	57.77	\$ 12.25	\$ 707.68
TOTAL (SITE 3)				\$ 236,194.23

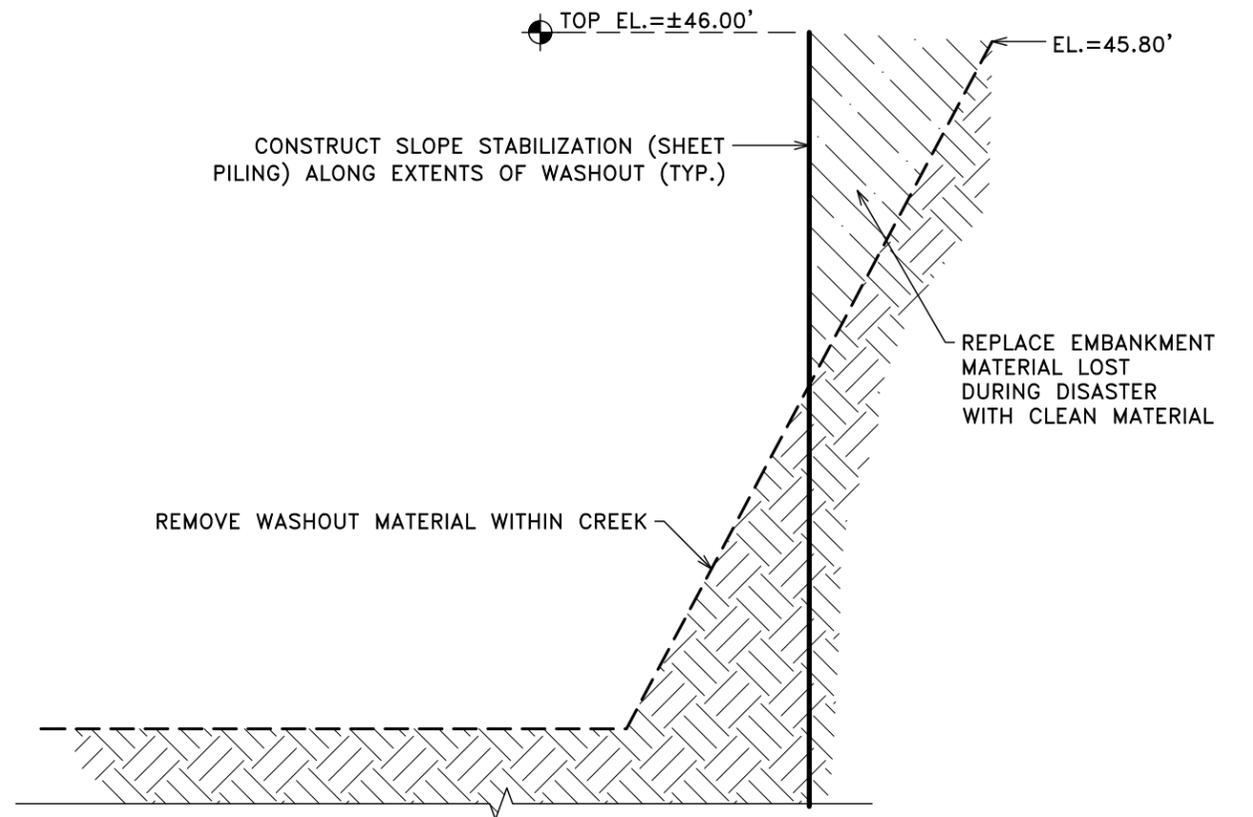
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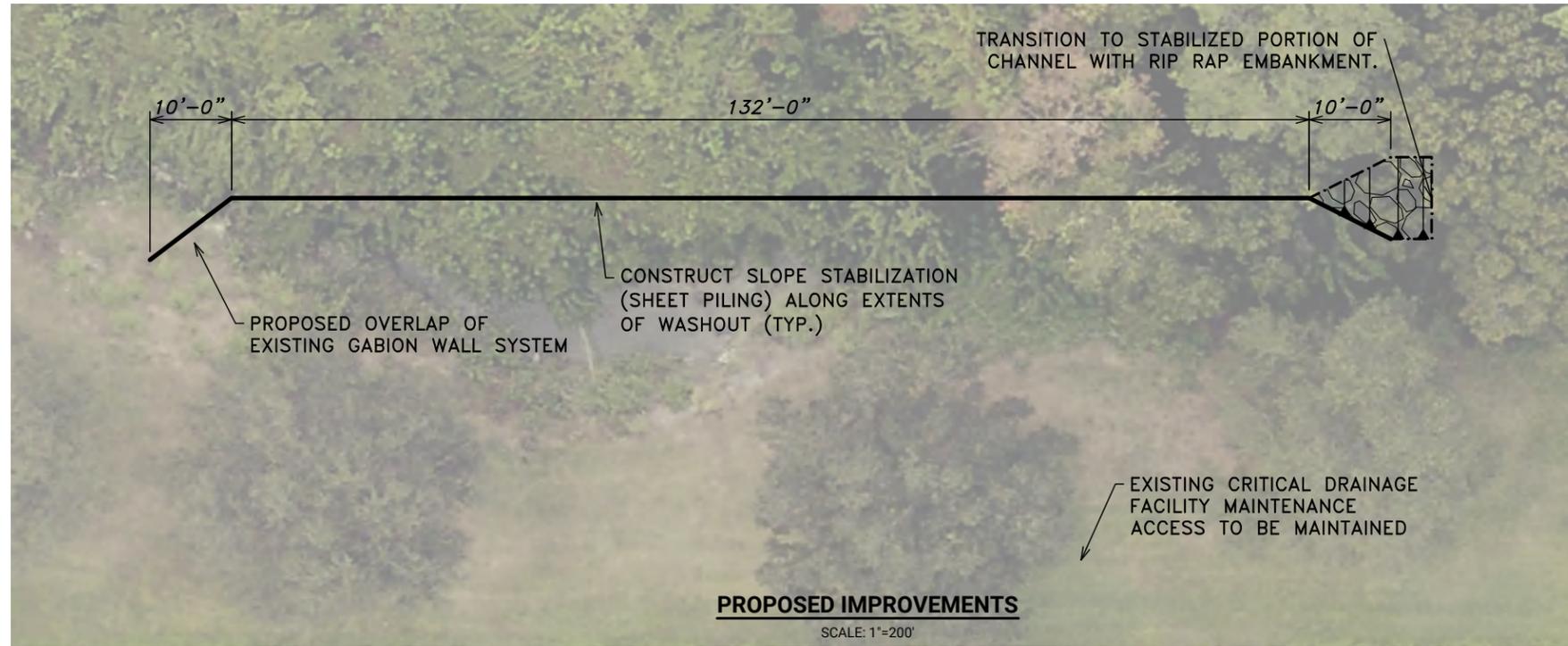
LOCATION MAP
NOT TO SCALE



FACILITY MAP
SCALE: 1"=400'



TYPICAL SECTION "A-A"
SCALE: 1"=10'



PROPOSED IMPROVEMENTS
SCALE: 1"=200'

- LEGEND:**
- SLOPE STABILIZATION
 - SLOPED EMBANKMENT
 - RIP RAP

NO.	REVISIONS	BY	DATE

SCALE: AS SHOWN
DRAWN: S.A.T.
DESIGNED: A.E.D.
APPROVED: J.V.K.

ADVANCED
ENGINEERING & DESIGN, INC.
3931 68th Avenue North, Pinellas Park, FL 33781 • (727) 526-9158 • www.acd-fl.com

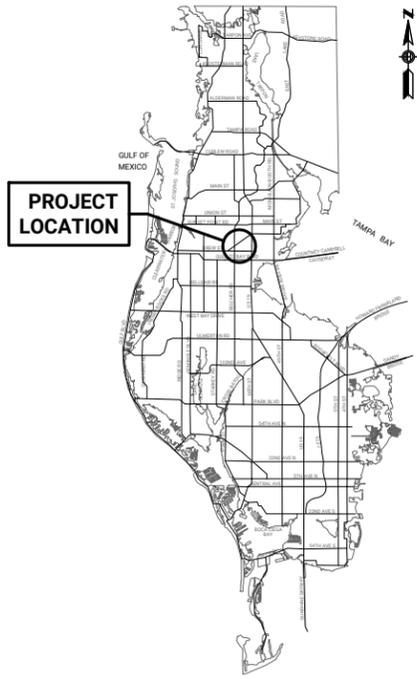


CITY OF CLEARWATER
DISASTER #4834DR
SUMMARY OF REPAIR & MITIGATION

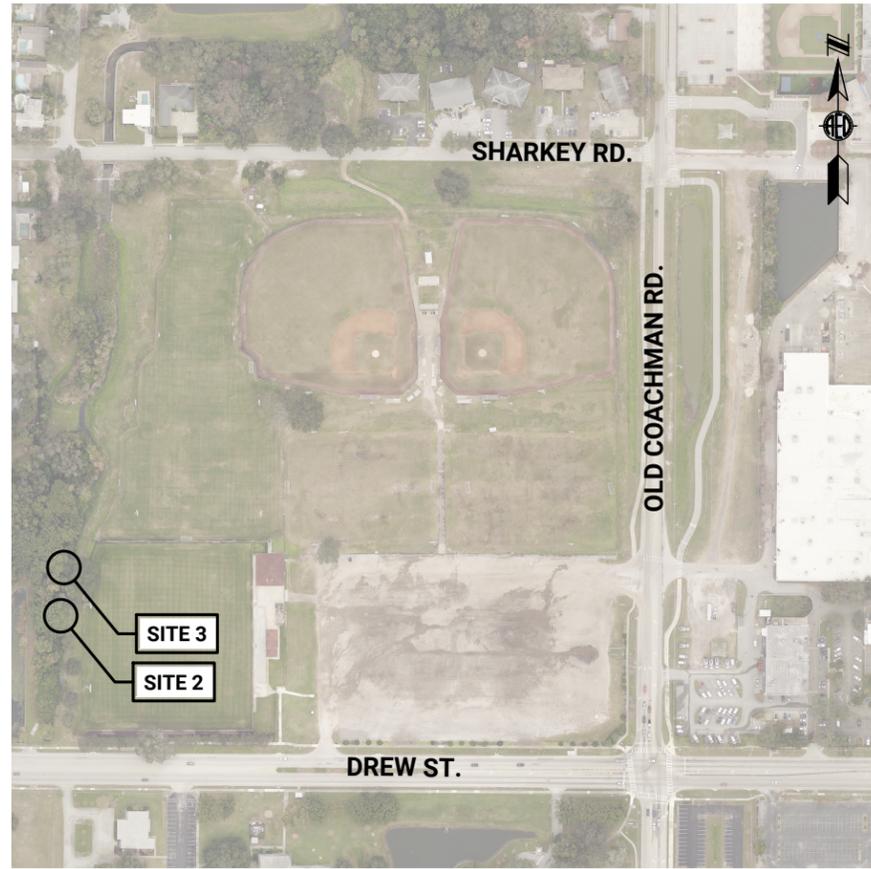
**DAMAGE #1514660,
JOE DIMAGGIO EMBANKMENT
SITE 1 (REPAIR)**

DATE:	10/17/25
PROJECT NO.:	24.CL-41
SHEET NO.:	4

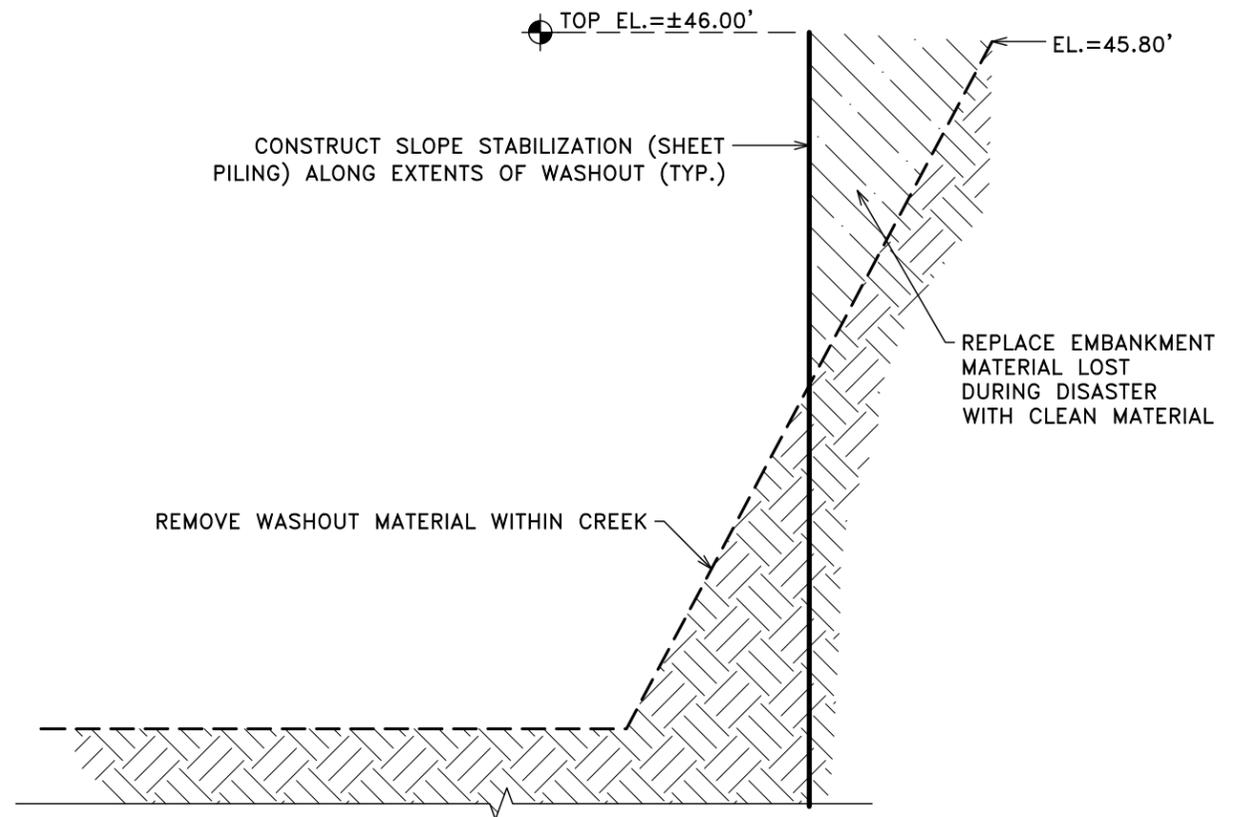
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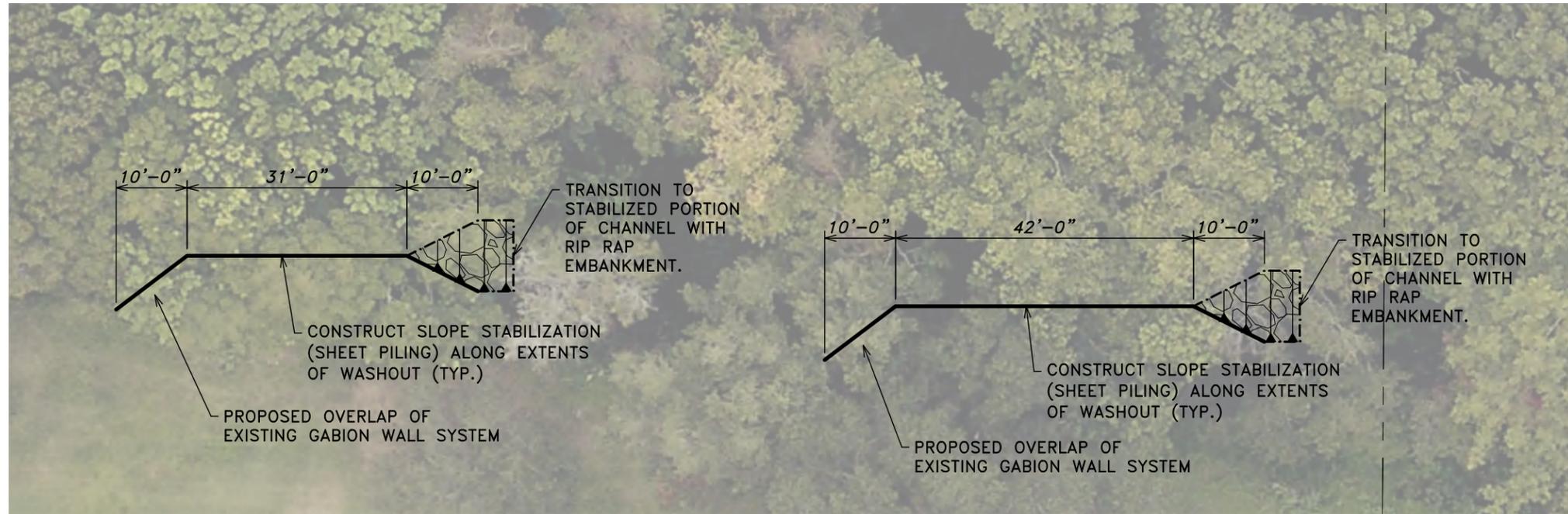
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CITY OF CLEARWATER
DISASTER #4834DR
SUMMARY OF REPAIR & MITIGATION

DAMAGE #1514660,
JOE DIMAGGIO EMBANKMENT
SITE 2 & 3 (REPAIR)

DATE:	10/17/25
PROJECT NO.:	24.CL-41
SHEET NO.:	5