

FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 9 OF 10



DUVAL COUNTY, FLORIDA

(ALL JURISDICTIONS)

| COMMUNITY NAME | COMMUNITY NUMBER |
|-----------------------------|------------------|
| ATLANTIC BEACH, CITY OF | 120075 |
| BALDWIN, TOWN OF* | 120076 |
| JACKSONVILLE, CITY OF | 120077 |
| JACKSONVILLE BEACH, CITY OF | 120078 |
| NEPTUNE BEACH, CITY OF | 120079 |

*No Special Flood Hazard Areas Identified



FEMA

PRELIMINARY
7/29/2016

REVISED:

<DATE>

FLOOD INSURANCE STUDY NUMBER
12031CV009B

Version Number 2.3.3.2

TABLE OF CONTENTS

Volume 1

| | <u>Page</u> |
|---|-------------|
| SECTION 1.0 – INTRODUCTION | 1 |
| 1.1 The National Flood Insurance Program | 1 |
| 1.2 Purpose of this Flood Insurance Study Report | 2 |
| 1.3 Jurisdictions Included in the Flood Insurance Study Project | 2 |
| 1.4 Considerations for using this Flood Insurance Study Report | 6 |
| | |
| SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS | 17 |
| 2.1 Floodplain Boundaries | 17 |
| 2.2 Floodways | 62 |
| 2.3 Base Flood Elevations | 63 |
| 2.4 Non-Encroachment Zones | 63 |
| 2.5 Coastal Flood Hazard Areas | 63 |
| 2.5.1 Water Elevations and the Effects of Waves | 63 |
| 2.5.2 Floodplain Boundaries and BFEs for Coastal Areas | 65 |
| 2.5.3 Coastal High Hazard Areas | 66 |
| 2.5.4 Limit of Moderate Wave Action | 67 |
| | |
| SECTION 3.0 – INSURANCE APPLICATIONS | 68 |
| 3.1 National Flood Insurance Program Insurance Zones | 68 |
| 3.2 Coastal Barrier Resources System | 68 |
| | |
| SECTION 4.0 – AREA STUDIED | 69 |
| 4.1 Basin Description | 69 |
| 4.2 Principal Flood Problems | 70 |
| 4.3 Non-Levee Flood Protection Measures | 70 |
| 4.4 Levees | 71 |

Figures

| | <u>Page</u> |
|---|-------------|
| Figure 1: FIRM Panel Index | 9 |
| Figure 2: FIRM Notes to Users | 10 |
| Figure 3: Map Legend for FIRM | 13 |
| Figure 4: Floodway Schematic | 62 |
| Figure 5: Wave Runup Transect Schematic | 65 |
| Figure 6: Coastal Transect Schematic | 67 |

Tables

| | <u>Page</u> |
|---|-------------|
| Table 1: Listing of NFIP Jurisdictions | 2 |
| Table 2: Flooding Sources Included in this FIS Report | 18 |
| Table 3: Flood Zone Designations by Community | 68 |
| Table 4: Coastal Barrier Resources System Information | 69 |
| Table 5: Basin Characteristics | 69 |
| Table 6: Principal Flood Problems | 70 |
| Table 7: Historic Flooding Elevations | 70 |
| Table 8: Non-Levee Flood Protection Measures | 71 |
| Table 9: Levees | 71 |

Volume 2

| | <u>Page</u> |
|--|-------------|
| SECTION 5.0 – ENGINEERING METHODS | 72 |
| 5.1 Hydrologic Analyses | 72 |

Figures

| | <u>Page</u> |
|--|-------------|
| Figure 7: Frequency Discharge-Drainage Area Curves | 128 |

Tables

| | <u>Page</u> |
|--|-------------|
| Table 10: Summary of Discharges | 73 |
| Table 11: Summary of Non-Coastal Stillwater Elevations | 129 |
| Table 12: Stream Gage Information used to Determine Discharges | 132 |

Volume 3

| | <u>Page</u> |
|--|-------------|
| SECTION 5.0 – ENGINEERING METHODS (continued) | |
| 5.2 Hydraulic Analyses | 133 |
| 5.3 Coastal Analyses | 199 |
| 5.3.1 Total Stillwater Elevations | 200 |
| 5.3.2 Waves | 204 |
| 5.3.3 Coastal Erosion | 204 |
| 5.3.4 Wave Hazard Analyses | 204 |
| 5.4 Alluvial Fan Analyses | 217 |

| | |
|---|------------|
| SECTION 6.0 – MAPPING METHODS | 218 |
| 6.1 Vertical and Horizontal Control | 218 |
| 6.2 Base Map | 219 |
| 6.3 Floodplain and Floodway Delineation | 219 |

Figures

| | <u>Page</u> |
|--|-------------|
| Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas | 201 |
| Figure 9: Transect Location Map | 216 |

Tables

| | <u>Page</u> |
|---|-------------|
| Table 13: Summary of Hydrologic and Hydraulic Analyses | 134 |
| Table 14: Roughness Coefficients | 193 |
| Table 15: Summary of Coastal Analyses | 199 |
| Table 16: Tide Gage Analysis Specifics | 203 |
| Table 17: Coastal Transect Parameters | 206 |
| Table 18: Summary of Alluvial Fan Analyses | 217 |
| Table 19: Results of Alluvial Fan Analyses | 217 |
| Table 20: Countywide Vertical Datum Conversion | 218 |
| Table 21: Stream-Based Vertical Datum Conversion | 218 |
| Table 22: Base Map Sources | 219 |
| Table 23: Summary of Topographic Elevation Data used in Mapping | 220 |

Volume 4

Tables

| | <u>Page</u> |
|-------------------------|-------------|
| Table 24: Floodway Data | 221 |

Volume 5

Page

SECTION 6.0 – MAPPING METHODS (continued)

| | |
|---|-----|
| 6.4 Coastal Flood Hazard Mapping | 324 |
| 6.5 FIRM Revisions | 329 |
| 6.5.1 Letters of Map Amendment | 329 |
| 6.5.2 Letters of Map Revision Based on Fill | 329 |
| 6.5.3 Letters of Map Revision | 330 |
| 6.5.4 Physical Map Revisions | 330 |
| 6.5.5 Contracted Restudies | 331 |
| 6.5.6 Community Map History | 331 |

| | |
|--|------------|
| SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION | 332 |
| 7.1 Contracted Studies | 332 |
| 7.2 Community Meetings | 333 |
| SECTION 8.0 – ADDITIONAL INFORMATION | 335 |
| SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES | 336 |

Tables

| | <u>Page</u> |
|---|-------------|
| Table 24: Floodway Data (continued) | 309 |
| Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams | 324 |
| Table 26: Summary of Coastal Transect Mapping Considerations | 325 |
| Table 27: Incorporated Letters of Map Change | 330 |
| Table 28: Community Map History | 332 |
| Table 29: Summary of Contracted Studies Included in this FIS Report | 333 |
| Table 30: Community Meetings | 334 |
| Table 31: Map Repositories | 335 |
| Table 32: Additional Information | 335 |
| Table 33: Bibliography and References | 337 |

Exhibits

| Flood Profiles | <u>Panel</u> |
|--------------------------------|--------------|
| Big Davis Creek | 01-02 P |
| Big Fishweir Creek | 03 P |
| Big Fishweir Creek Tributary 1 | 04 P |
| Bigelow Branch | 05 P |
| Blockhouse Creek | 06-07 P |
| Bonett Branch | 08 P |
| Box Branch | 09-10 P |
| Box Branch Tributary 1 | 11 P |
| Butcher Pen Creek | 12 P |
| Caldwell Branch | 13-14 P |
| Caldwell Branch Tributary 1 | 15 P |
| Caldwell Branch Tributary 2 | 16 P |
| Caney Branch | 17 P |
| Cedar Creek | 18-21 P |
| Cedar Creek Tributary 2 | 22 P |
| Cedar Creek Tributary 6 | 23 P |
| Cedar Creek Tributary 7 | 24 P |
| Cedar Creek Tributary 8 | 25 P |
| Cedar River | 26-28 P |
| Cedar River Tributary 1 | 29 P |
| Cedar River Tributary 12 | 30 P |
| Cedar River Tributary 13 | 31 P |
| Cedar River Tributary 14 | 32 P |

| | |
|-------------------------------|---------|
| Cedar River Tributary 15 | 33 P |
| Cedar River Tributary 16 | 34 P |
| Cedar River Tributary 17 | 35 P |
| Cedar River Tributary 19 | 36 P |
| Cedar Swamp Creek | 37-39 P |
| Cedar Swamp Creek Tributary 1 | 40 P |
| Cedar Swamp Creek Tributary 2 | 41 P |
| Christopher Creek | 42 P |
| Christopher Creek Tributary 1 | 43 P |
| Cormorant Branch | 44-45 P |
| Craig Creek | 46 P |
| Deep Bottom Creek | 47 P |
| Deep Bottom Creek Tributary 1 | 48 P |
| Deer Creek | 49 P |
| Dunn Creek | 50-53 P |
| Dunn Creek Tributary 1 | 54 P |
| Dunn Creek Tributary 2 | 55 P |
| Dunn Creek Tributary 3 | 56 P |

Volume 6
Exhibits

| Flood Profiles | <u>Panel</u> |
|---------------------------|--------------|
| Durbin Creek | 57-58 P |
| Durbin Creek Tributary 1 | 59 P |
| East Branch | 60 P |
| East Branch Tributary 1 | 61 P |
| Fishing Creek | 62-63 P |
| Fishing Creek Tributary 1 | 64 P |
| Ginhouse Creek | 65-66 P |
| Goodbys Creek | 67-68 P |
| Goodbys Creek Tributary 1 | 69 P |
| Goodbys Creek Tributary 2 | 70 P |
| Goodbys Creek Tributary 3 | 71 P |
| Goodbys Creek Tributary 4 | 72 P |
| Goodbys Creek Tributary 5 | 73 P |
| Greenfield Creek | 74 P |
| Gulley Branch | 75 P |
| Half Creek | 76-77 P |
| Half Creek Tributary 1 | 78 P |
| Half Creek Tributary 2 | 79 P |
| Hogan Creek | 80-81 P |
| Hogpen Creek | 82 P |
| Hogpen Creek Tributary 1 | 83 P |
| Hopkins Creek | 84 P |
| Hopkins Creek Tributary 1 | 85 P |
| Hopkins Creek Tributary 2 | 86 P |
| Hopkins Creek Tributary 3 | 87 P |
| Jones Creek | 88-89 P |

| | |
|------------------------------------|-----------|
| Jones Creek Tributary 1 | 90 P |
| Jones Creek Tributary 2 | 91-92 P |
| Julington Creek | 93-96 P |
| Julington Creek Tributary 1 | 97 P |
| Julington Creek Tributary 4 | 98 P |
| Julington Creek Tributary 5 | 99 P |
| Julington Creek Tributary 8 | 100 P |
| Little Cedar Creek | 101-103 P |
| Little Cedar Creek Tributary 1 | 104 P |
| Little Cedar Creek Tributary 2 | 105 P |
| Little Fishweir Creek | 106-107 P |
| Little Pottsburg Creek | 108-109 P |
| Little Pottsburg Creek Tributary 1 | 110 P |
| Little Pottsburg Creek Tributary 2 | 111 P |
| Little Pottsburg Creek Tributary 3 | 112 P |
| Little Sixmile Creek | 113-114 P |
| Little Sixmile Creek Tributary 1 | 115 P |
| Little Sixmile Creek Tributary 2 | 116 P |
| Little Sixmile Creek Tributary 3 | 117 P |
| Little Trout River | 118-119 P |
| Little Trout River Tributary 4 | 120 P |
| Little Trout River Tributary 6 | 121 P |
| Little Trout River Tributary 10 | 122 P |
| Long Branch | 123 P |
| Long Branch Tributary 1 | 124 P |
| Magnolia Gardens Creek | 125-126 P |
| McCoy Creek | 127-128 P |
| McCoy Creek North Branch | 129 P |
| McCoy Creek Southwest Branch | 130 P |
| McCoy Creek Tributary 5 | 131 P |
| McGirts Creek | 132-133 P |
| McGirts Creek Tributary 11 | 134 P |
| McGirts Creek Tributary 12 | 135 P |
| McGirts Creek Tributary 14 | 136 P |
| Mill Dam Branch | 137-139 P |
| Mill Dam Branch Canal | 140 P |
| Mill Dam Branch Tributary 3 | 141 P |
| Mill Dam Branch Tributary 4 | 142 P |
| Mill Dam Branch Tributary 5 | 143 P |
| Miller Creek | 144 P |

Volume 7
Exhibits

| Flood Profiles | <u>Panel</u> |
|--------------------------------------|--------------|
| Miller Creek Tributary 1 | 145 P |
| Miramar Tributary | 146 P |
| Moncrief Creek | 147-148 P |
| Moncrief Creek Tributary 4 | 149 P |
| Mount Pleasant Creek | 150-153 P |
| Mount Pleasant Creek Tributary 3 | 154 P |
| Mount Pleasant Creek Tributary 4 | 155 P |
| Mount Pleasant Creek Tributary 6 | 156 P |
| Nassau River/Thomas Creek | 157 P |
| Thomas Creek | 158-159 P |
| New Rose Creek | 160 P |
| New Rose Creek Tributary 1 | 161 P |
| Newcastle Creek | 162 P |
| Newcastle Creek Tributary 1 | 163 P |
| Ninemile Creek | 164-165 P |
| Ninemile Creek Tributary 1 | 166 P |
| Ninemile Creek Tributary 2 | 167 P |
| Ninemile Creek Tributary 6 | 168 P |
| North Fork Sixmile Creek | 169-170 P |
| North Fork Sixmile Creek Tributary 1 | 171 P |
| Oldfield Creek | 172-173 P |
| Oldfield Creek Tributary 1 | 174 P |
| Oldfield Creek Tributary 2 | 175 P |
| Oldfield Creek Tributary 3 | 176 P |
| Oldfield Creek Tributary 4 | 177 P |
| Oldfield Creek Tributary 7 | 178 P |
| Open Creek | 179-180 P |
| Open Creek Tributary 1 | 181 P |
| Open Creek Tributary 2 | 182 P |
| Open Creek Tributary 3 | 183 P |
| Open Creek Tributary 4 | 184 P |
| Ortega River | 185-190 P |
| Ortega River Tributary 1 | 191 P |
| Ortega River Tributary 2 | 192 P |
| Ortega River Tributary 3 | 193-195 P |
| Ortega River Tributary 4 | 196-197 P |
| Ortega River Tributary 5 | 198 P |
| Ortega River Tributary 6 | 199 P |
| Ortega River Tributary 7 | 200 P |
| Ortega River Tributary 10 | 201 P |
| Ortega River Tributary 11 | 202 P |
| Pablo Creek | 203-205 P |
| Pablo Creek Tributary 1 | 206 P |
| Pablo Creek Tributary 2 | 207-208 P |
| Pablo Creek Tributary 3 | 209-210 P |
| Pickett Branch | 211-212 P |

| | |
|-----------------------------|-----------|
| Pickett Branch Tributary 3 | 213 P |
| Pickett Branch Tributary 4 | 214 P |
| Pickett Branch Tributary 5 | 215 P |
| Pottsburg Creek | 216-219 P |
| Pottsburg Creek Tributary 5 | 220 P |
| Puckett Creek | 221 P |
| Red Bay Branch | 222 P |
| Red Bay Branch Tributary 1 | 223 P |
| Ribault River | 224-225 P |
| Ribault River Tributary 2 | 226 P |
| Ribault River Tributary 5 | 227 P |
| Ribault River Tributary 8 | 228 P |
| Ribault River Tributary 9 | 229 P |
| Rowell Creek | 230-231 P |
| Rowell Creek Tributary 2 | 232 P |

Volume 8
Exhibits

| Flood Profiles | <u>Panel</u> |
|--|--------------|
| Rushing Branch | 233 P |
| Rushing Branch Tributary 1 | 234 P |
| Sal Taylor Creek | 235-237 P |
| Sal Taylor Creek Tributary 2 | 238 P |
| Sal Taylor Creek Tributary 3 | 239 P |
| Sal Taylor Creek Tributary 4 | 240 P |
| Sandalwood Canal | 241-242 P |
| Sawmill Slough/Buckhead Branch | 243 P |
| Sawmill Slough/Buckhead Branch Tributary 1 | 244 P |
| Sawmill Slough/Buckhead Branch Tributary 2 | 245 P |
| Seaton Creek | 246-247 P |
| Seaton Creek Tributary 1 | 248-250 P |
| Seaton Creek Tributary 2 | 251 P |
| Second Puncheon Branch | 252-254 P |
| Second Puncheon Branch Tributary 1 | 255 P |
| Second Puncheon Branch Tributary 3 | 256-257 P |
| Second Puncheon Branch Tributary 4 | 258 P |
| Second Puncheon Branch Tributary 5 | 259 P |
| Second Puncheon Branch Tributary 6 | 260 P |
| Sherman Creek | 261-262 P |
| Sherman Creek Canal | 263 P |
| Silversmith Creek | 264 P |
| Silversmith Creek Tributary 1 | 265 P |
| Sixmile Creek | 266-269 P |
| Sixmile Creek Tributary 6 | 270 P |
| Sixmile Creek Tributary 9 | 271 P |
| St. Mary's River Tributary | 272 P |

| | |
|---|-----------|
| Strawberry Creek | 273-274 P |
| Sweetwater Creek | 275-276 P |
| Tacito Creek | 277 P |
| Tiger Hole Swamp | 278 P |
| Tiger Pond Creek | 279 P |
| Tiger Pond Creek Tributary 1 | 280 P |
| Tributary to Little Sixmile Creek Tributary 1 | 281 P |
| Tributary 1 to Miramar Tributary | 282 P |
| Tributary to Ortega River Tributary 1 | 283 P |
| Trout River | 284-287 P |
| Trout River Tributary 2 | 288-289 P |
| Trout River Tributary 3 | 290 P |
| Trout River Tributary 7 | 291 P |
| Trout River Tributary 8 | 292 P |
| West Branch | 293 P |
| West Branch Tributary 1 | 294 P |
| West Branch Tributary 2 | 295 P |
| Williamson Creek | 296 P |
| Williamson Creek Tributary 3 | 297 P |
| Williamson Creek Tributary 4 | 298 P |
| Wills Branch | 299-300 P |
| Wills Branch Tributary 1 | 301-303 P |
| Wills Branch Tributary 2 | 304 P |
| Wills Branch Tributary 3 | 305-307 P |
| Wills Branch Tributary 4 | 308 P |
| Wills Branch Tributary 5 | 309 P |
| Wills Branch Tributary 6 | 310-311 P |
| Yellow Water Creek Tributary 1 | 312 P |
| Wetland 2 | 313 P |
| Wetland 3 | 314 P |

| | |
|---------------------------|--------------|
| Coastal Transect Profiles | <u>Panel</u> |
| Transect 1 | 1-6 P |

Volume 9
Exhibits

| | |
|---------------------------|--------------|
| Coastal Transect Profiles | <u>Panel</u> |
| Transect 2 | 7-12 P |
| Transect 3 | 13-18 P |
| Transect 4 | 19-23 P |
| Transect 5 | 24-27 P |
| Transect 6 | 28-29 P |
| Transect 7 | 30-31 P |
| Transect 8 | 32-35 P |
| Transect 9 | 36-39 P |
| Transect 10 | 40-42 P |
| Transect 11 | 43-45 P |

| | |
|-------------|---------|
| Transect 12 | 46-48 P |
| Transect 13 | 49-52 P |
| Transect 14 | 53-56 P |
| Transect 15 | 57-62 P |
| Transect 16 | 63-68 P |
| Transect 17 | 69-76 P |
| Transect 18 | 77-84 P |
| Transect 19 | 85-91 P |

Volume 10

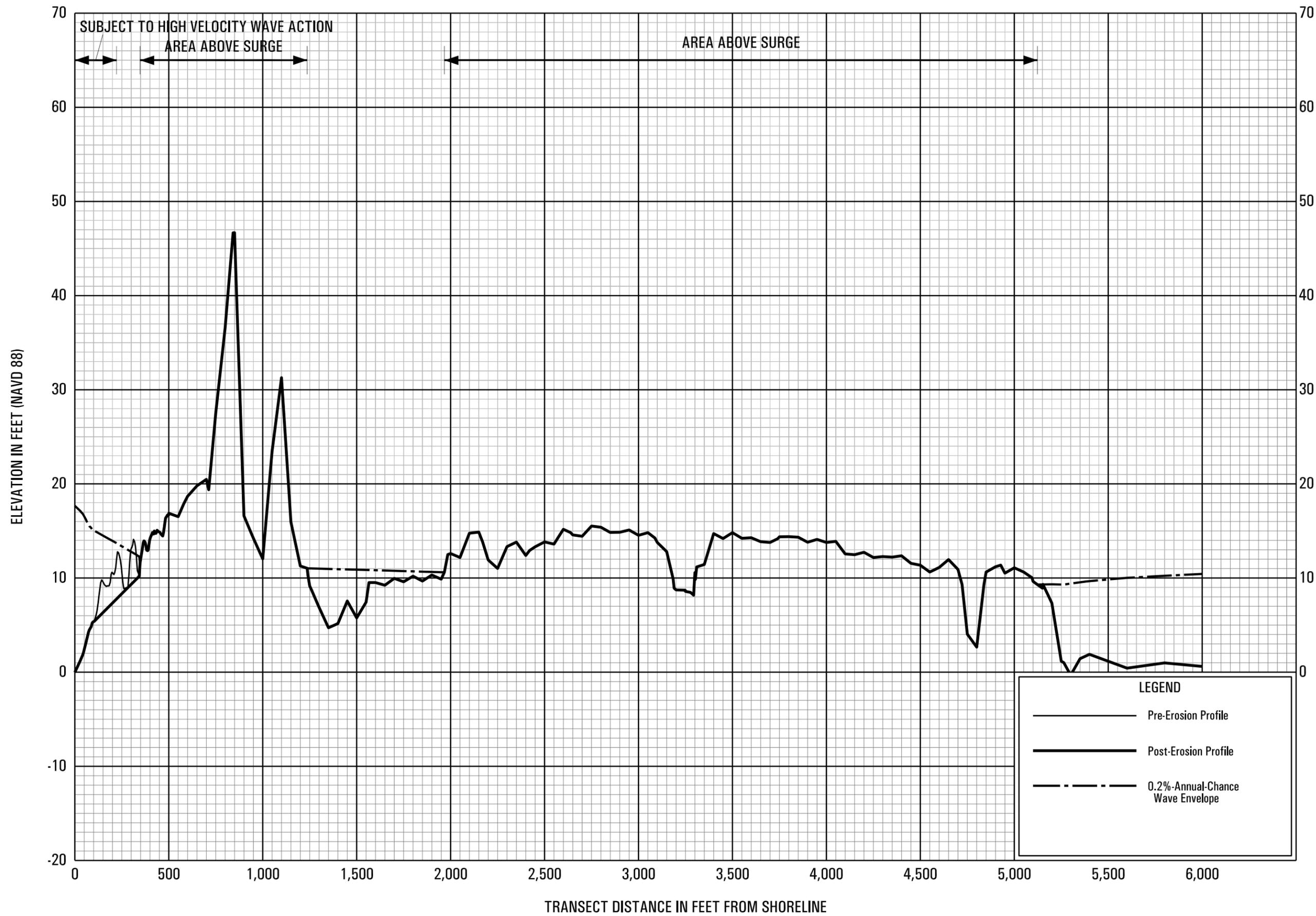
Exhibits

| | |
|---------------------------|--------------|
| Coastal Transect Profiles | <u>Panel</u> |
| Transect 20 | 92-96 P |
| Transect 21 | 97-99 P |
| Transect 22 | 100-102 P |
| Transect 23 | 103-105 P |
| Transect 24 | 106-108 P |
| Transect 25 | 109-111 P |
| Transect 26 | 112-113 P |
| Transect 27 | 114-115 P |
| Transect 28 | 116-117 P |
| Transect 29 | 118-119 P |
| Transect 30 | 120-121 P |
| Transect 31 | 122-123 P |
| Transect 32 | 124-125 P |
| Transect 33 | 126-127 P |
| Transect 34 | 128-129 P |
| Transect 35 | 130-131 P |
| Transect 36 | 132-133 P |
| Transect 37 | 134-135 P |
| Transect 38 | 136 P |
| Transect 39 | 137-140 P |
| Transect 40 | 141 P |
| Transect 41 | 142-143 P |
| Transect 42 | 144 P |
| Transect 43 | 145-146 P |
| Transect 44 | 147 P |
| Transect 45 | 148 P |
| Transect 46 | 149 P |
| Transect 47 | 150 P |
| Transect 48 | 151 P |
| Transect 49 | 152-153 P |
| Transect 50 | 154 P |
| Transect 51 | 155 P |
| Transect 52 | 156 P |
| Transect 53 | 157 P |
| Transect 54 | 158 P |
| Transect 55 | 159 P |

| | |
|-------------|-------|
| Transect 56 | 160 P |
| Transect 57 | 161 P |
| Transect 58 | 162 P |
| Transect 59 | 163 P |
| Transect 60 | 164 P |
| Transect 61 | 165 P |
| Transect 62 | 166 P |
| Transect 63 | 167 P |
| Transect 64 | 168 P |
| Transect 65 | 169 P |
| Transect 66 | 170 P |
| Transect 67 | 171 P |
| Transect 68 | 172 P |

Published Separately

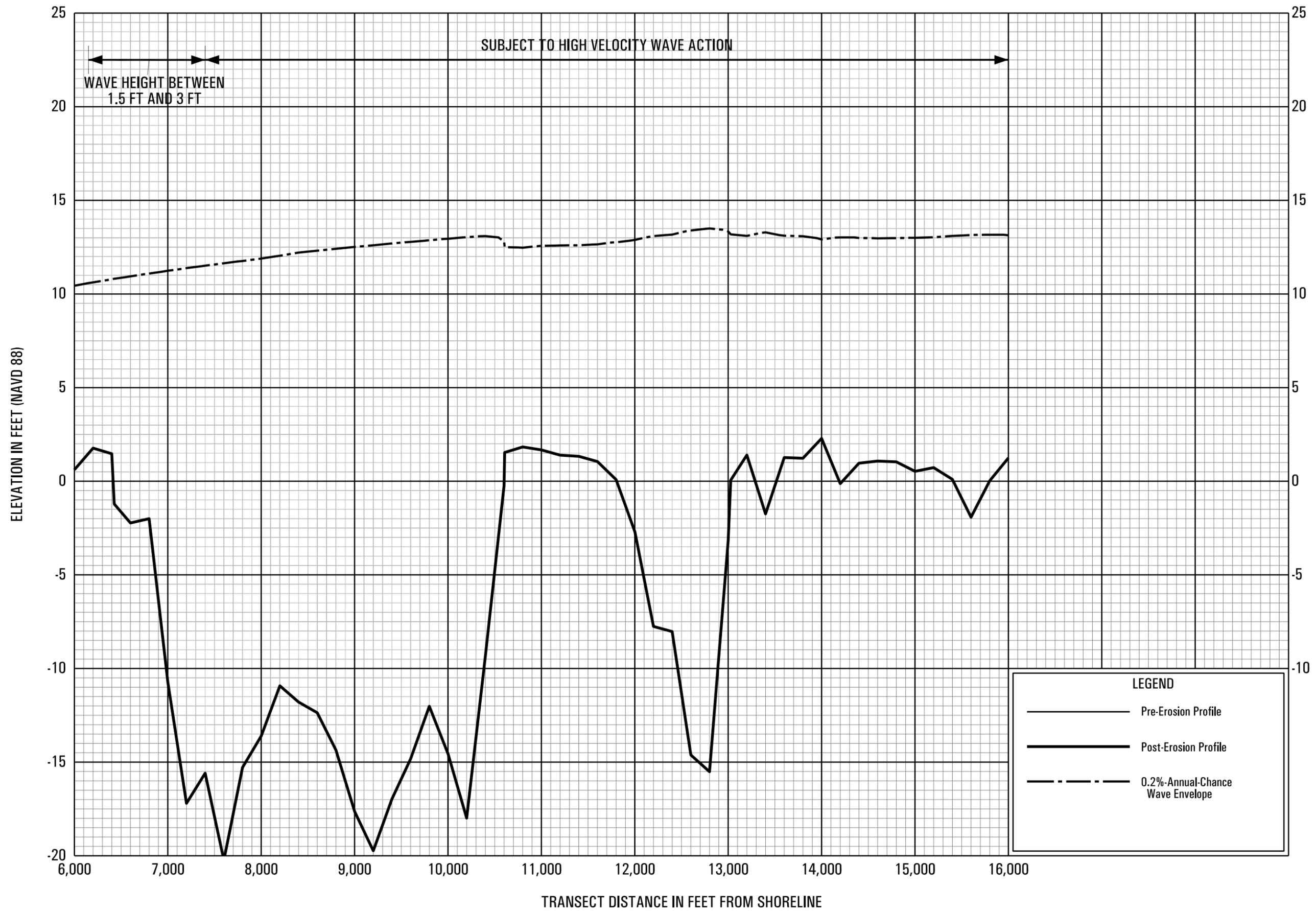
Flood Insurance Rate Map (FIRM)



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 2

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



LEGEND

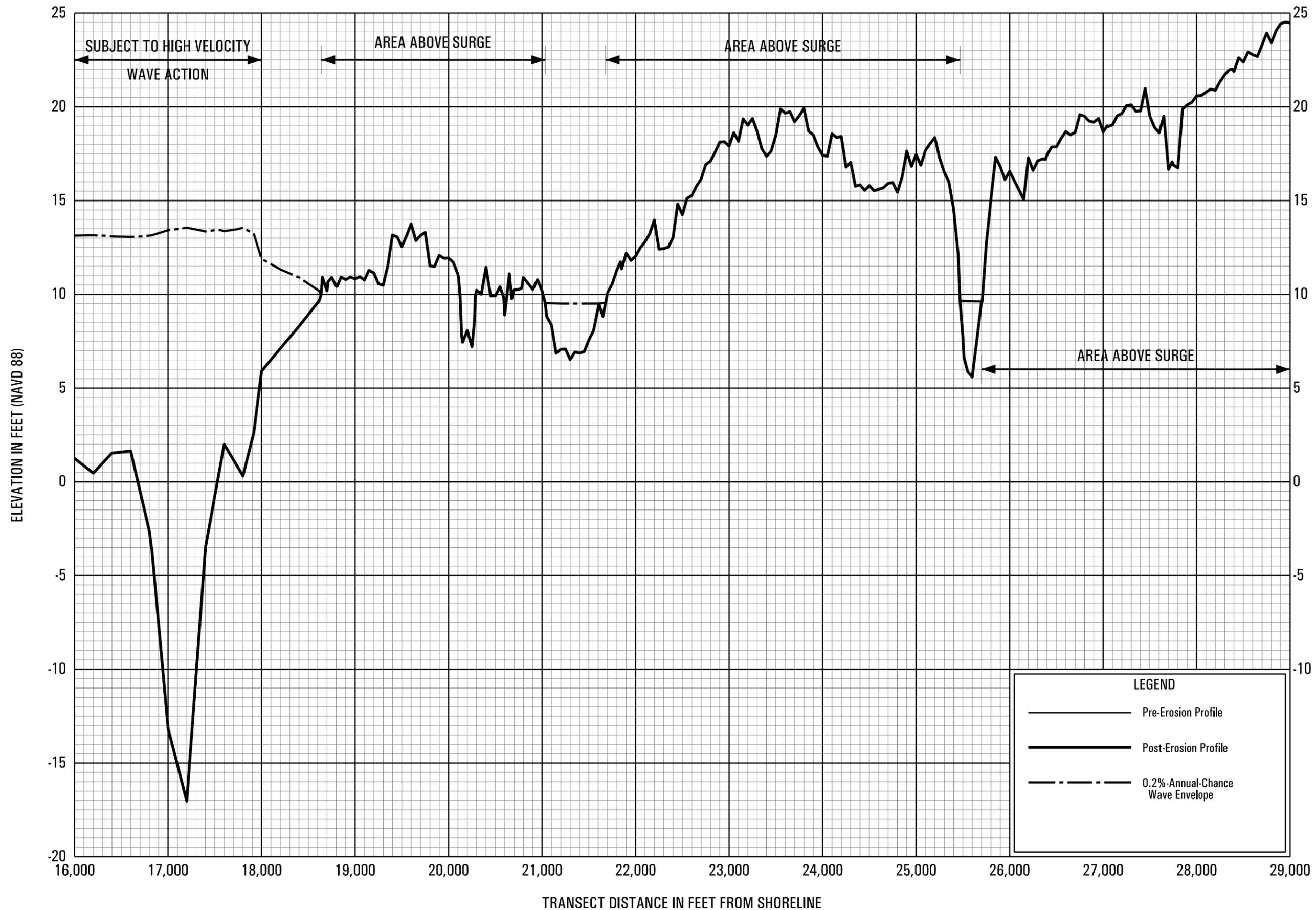
- Pre-Erosion Profile
- Post-Erosion Profile
- · - · - 0.2% Annual-Chance Wave Envelope

0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 2

FEDERAL EMERGENCY MANAGEMENT AGENCY
 DUVAL COUNTY, FL
 AND INCORPORATED AREAS

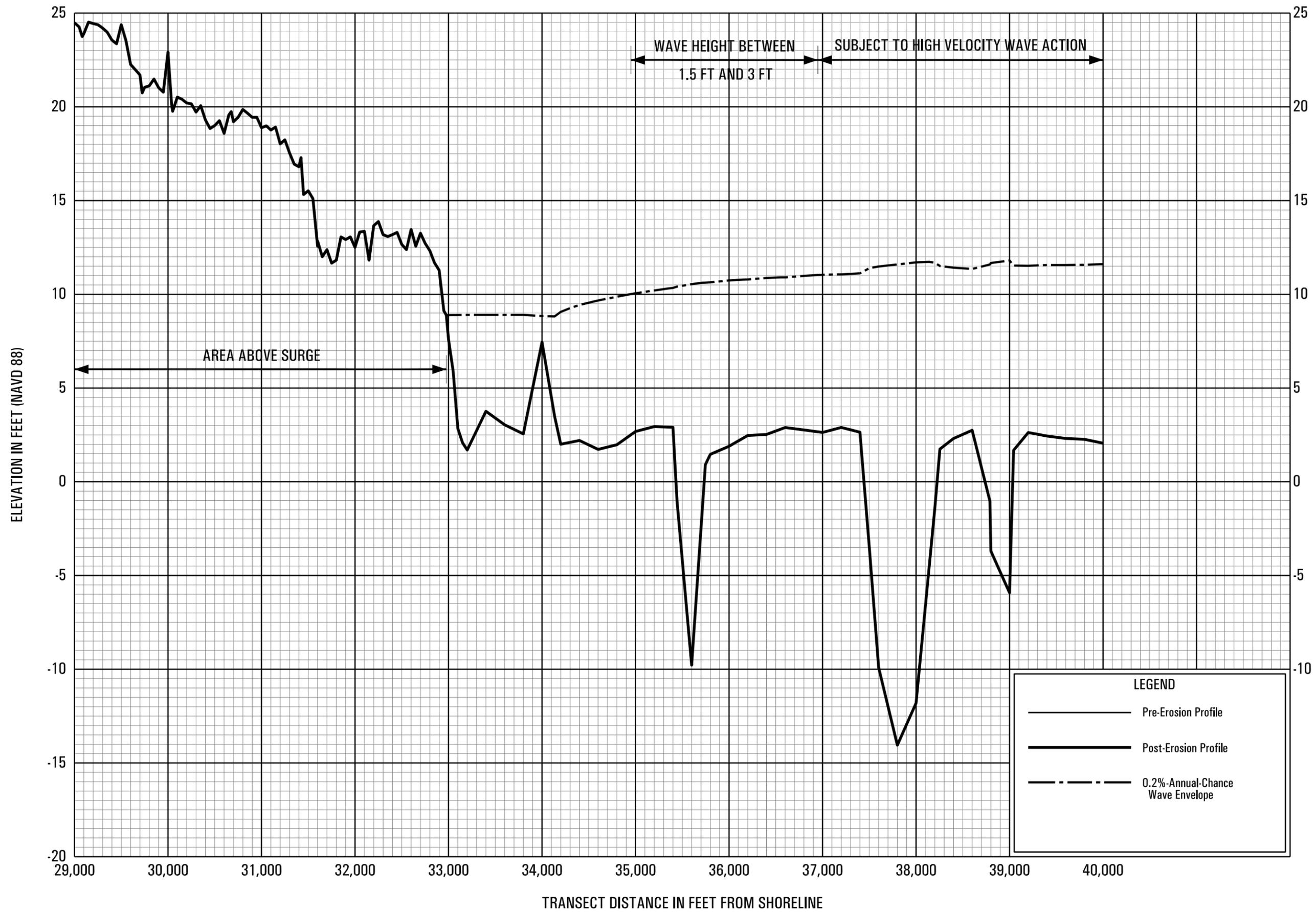
08P



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 2

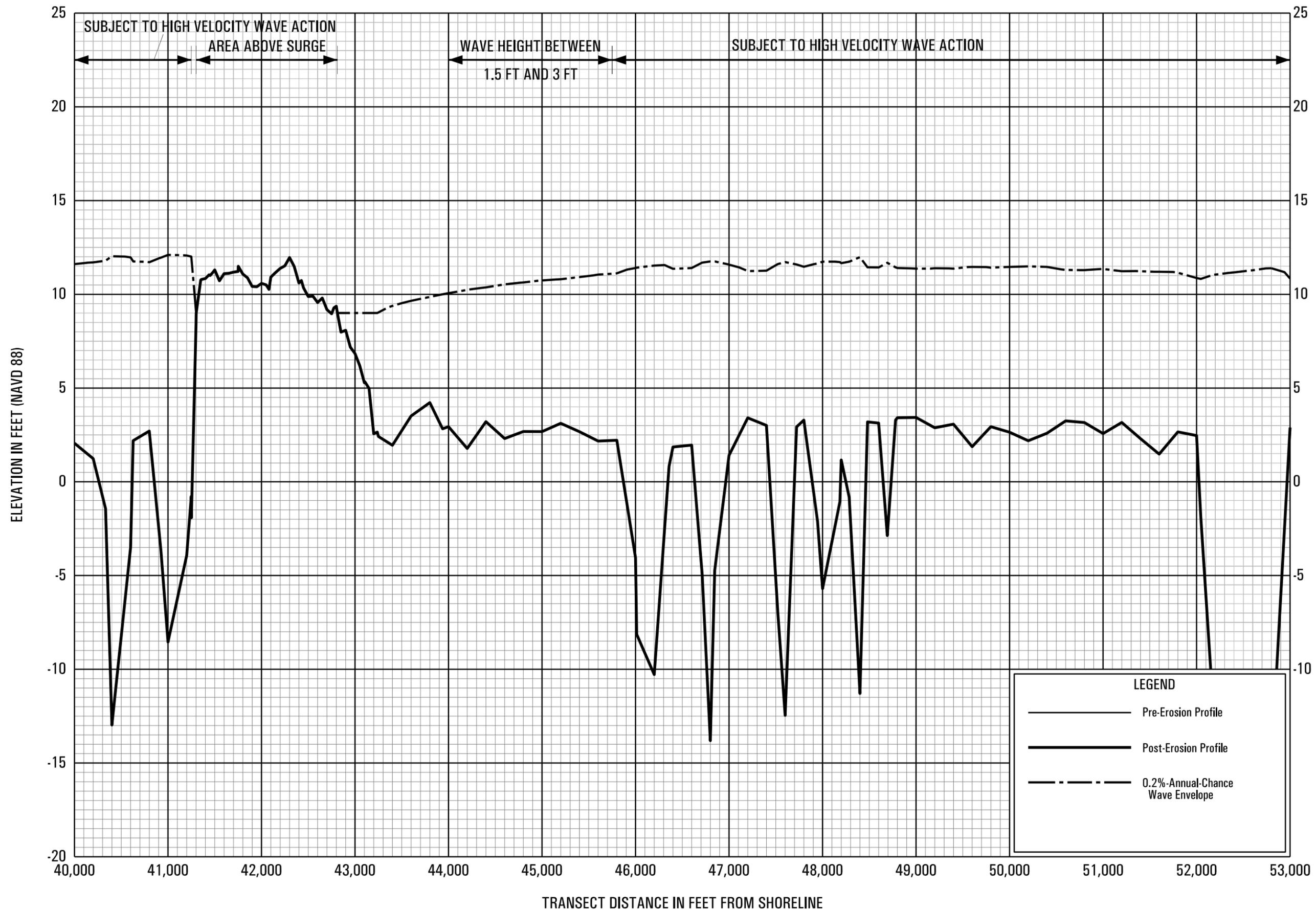
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 2

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



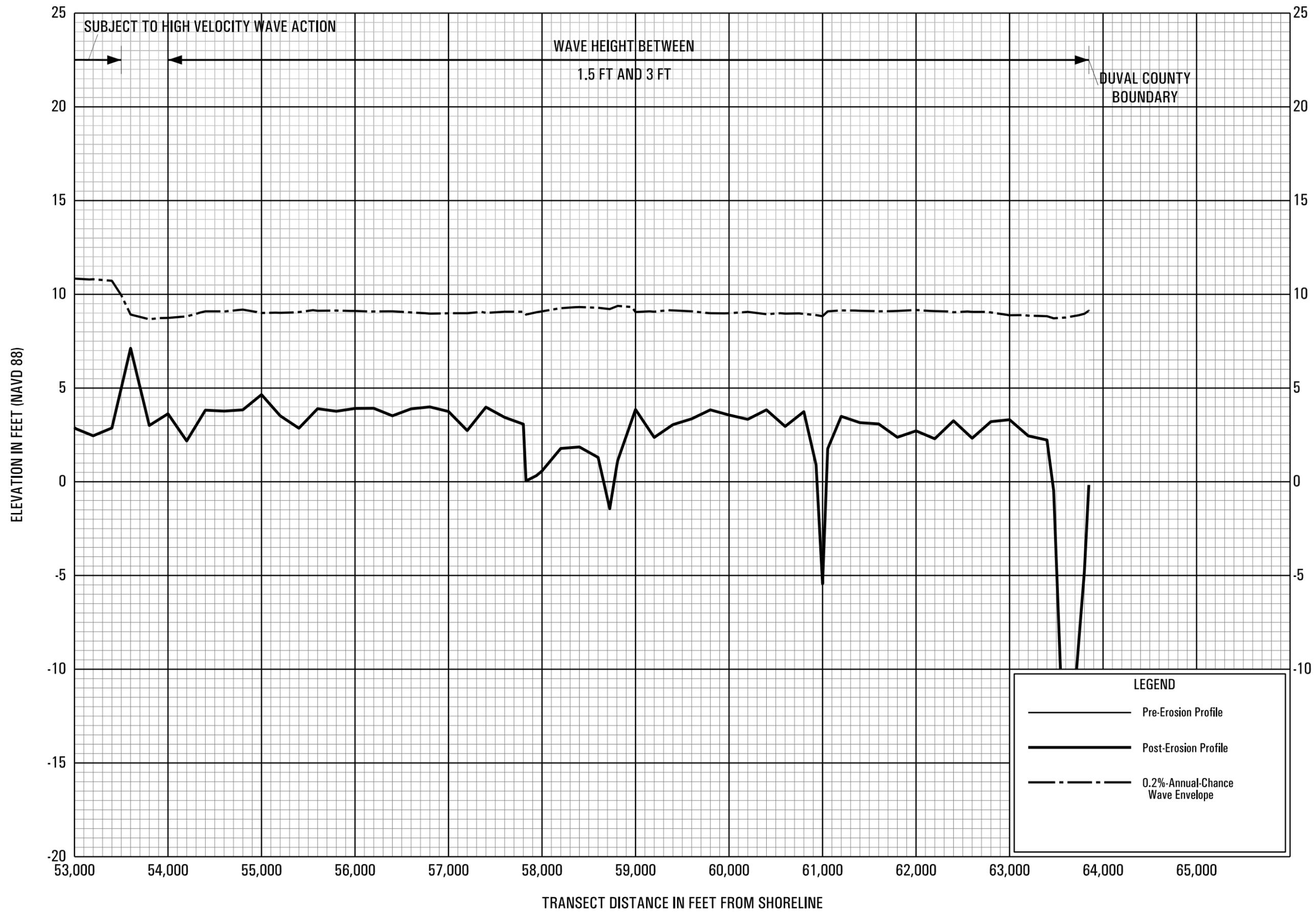
LEGEND

- Pre-Erosion Profile
- Post-Erosion Profile
- · - · 0.2% Annual-Chance Wave Envelope

0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 2

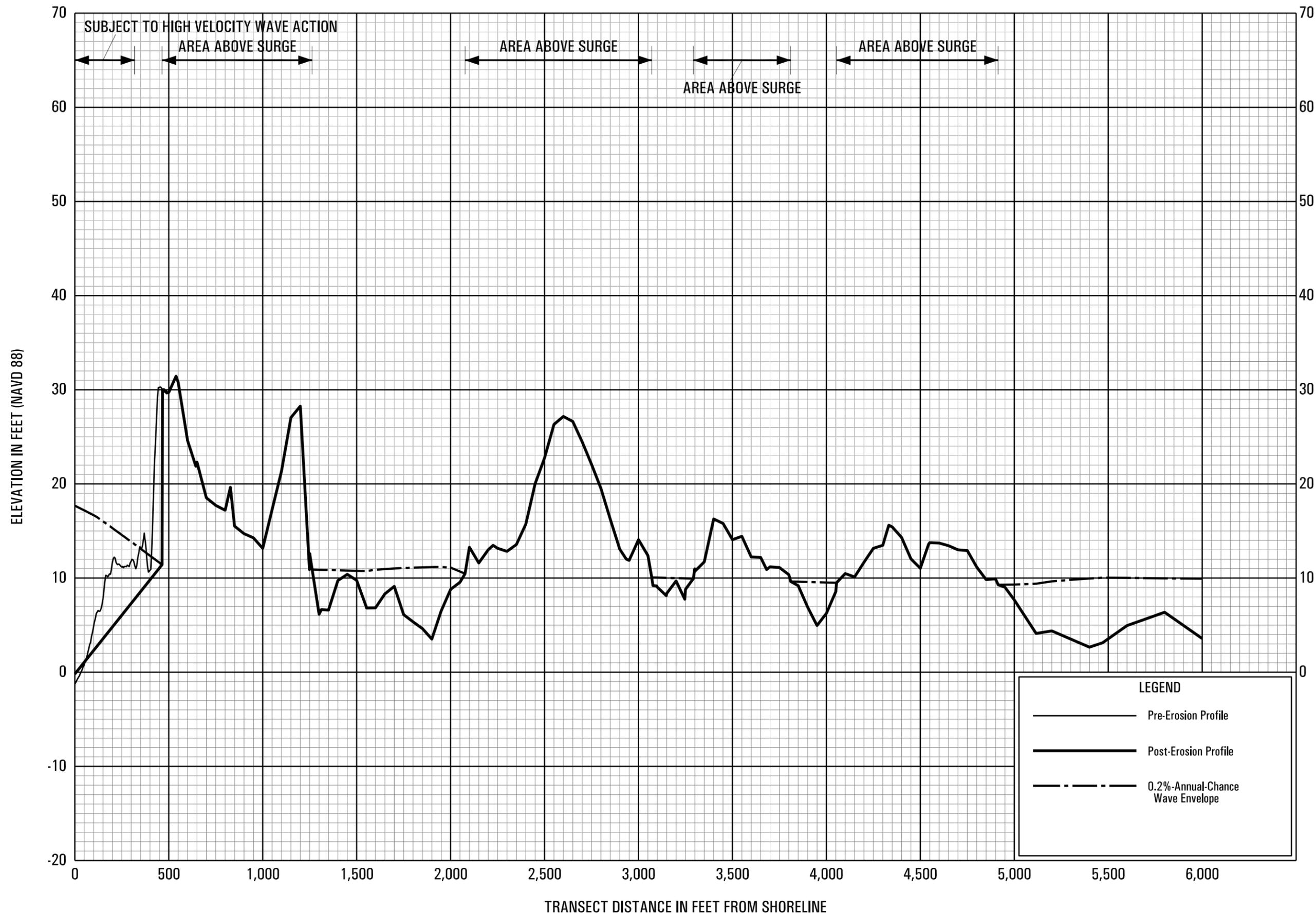
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 2

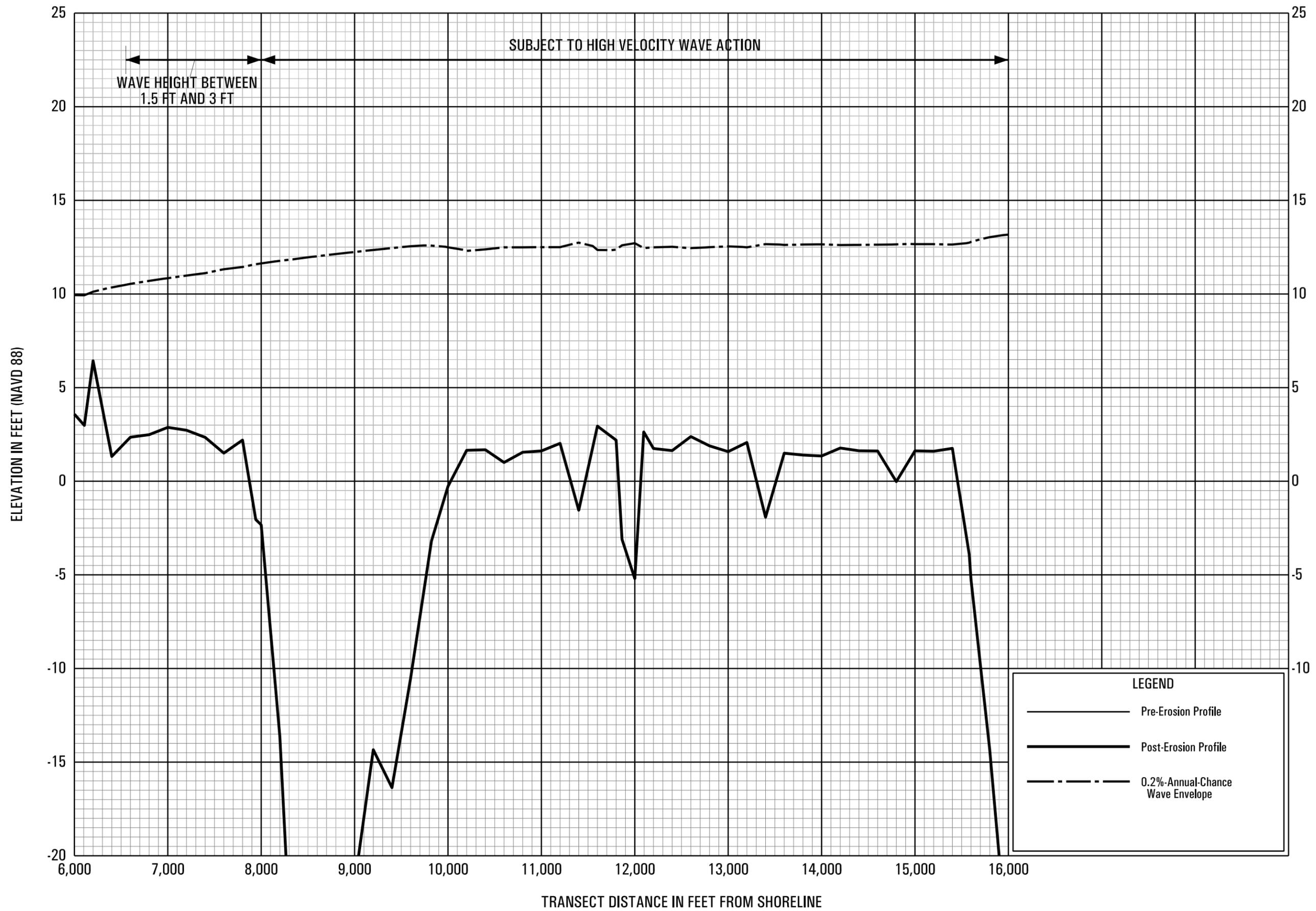
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 3

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



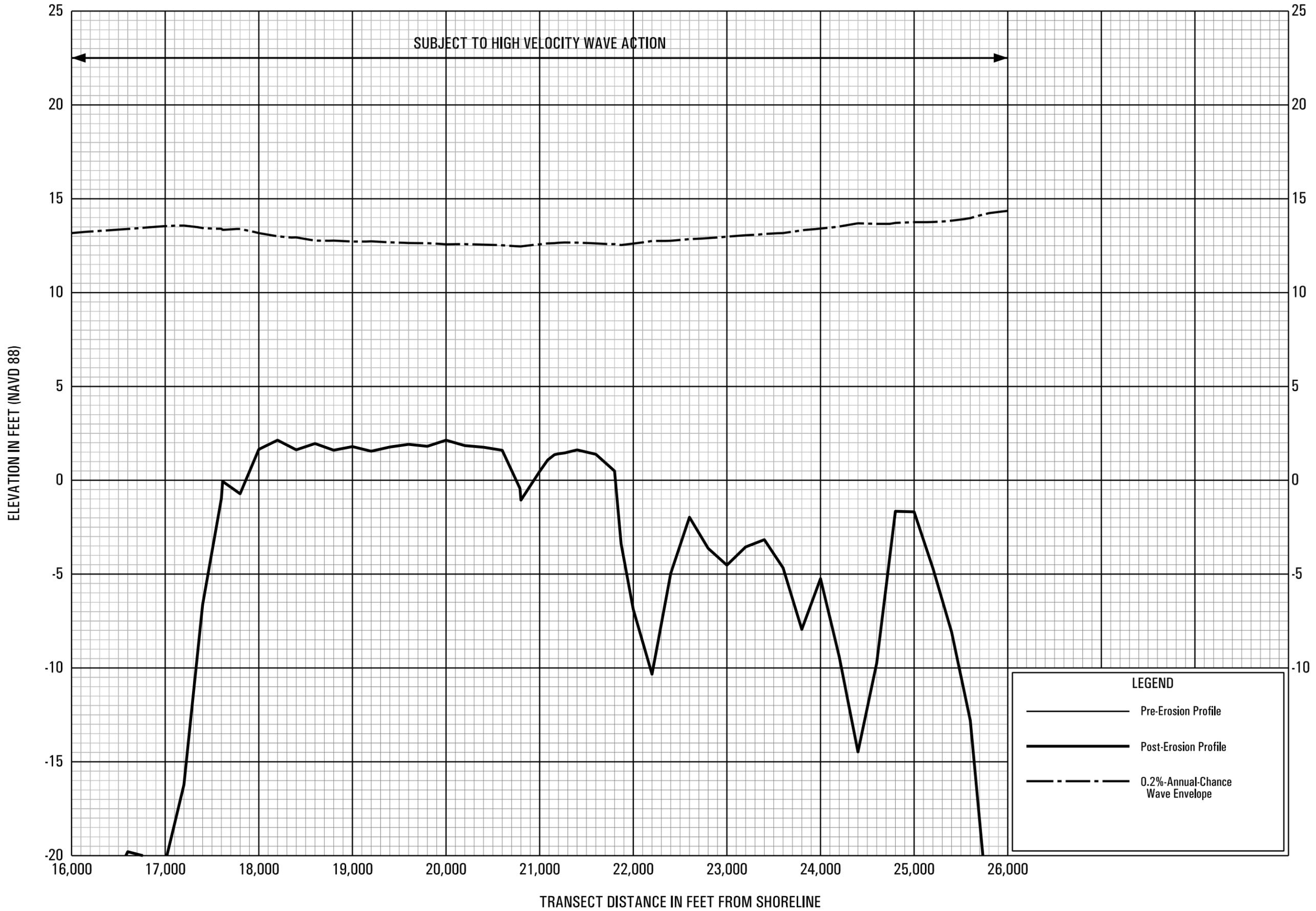
LEGEND

- Pre-Erosion Profile
- Post-Erosion Profile
- · - · 0.2% Annual-Chance Wave Envelope

0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 3

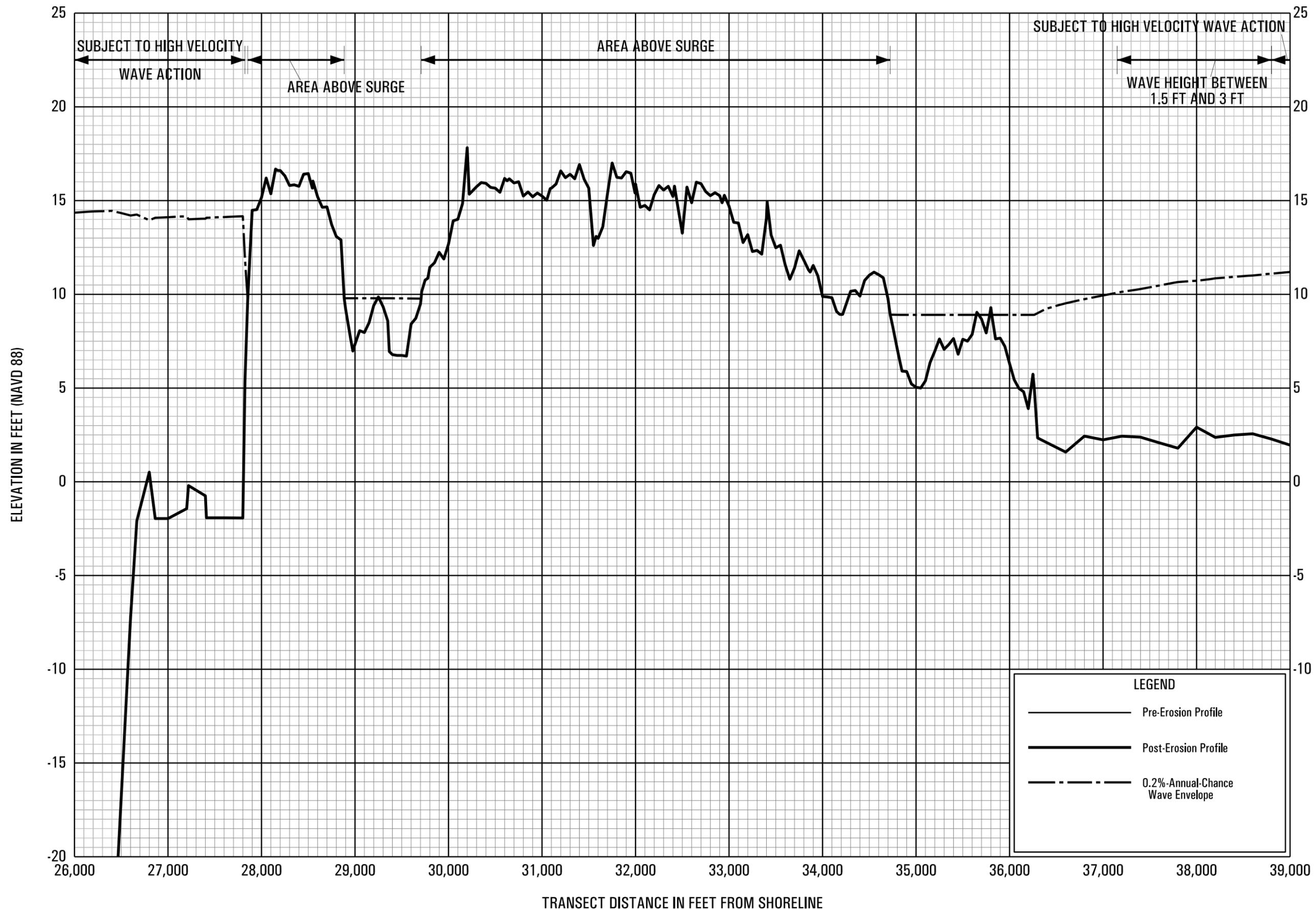
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 3

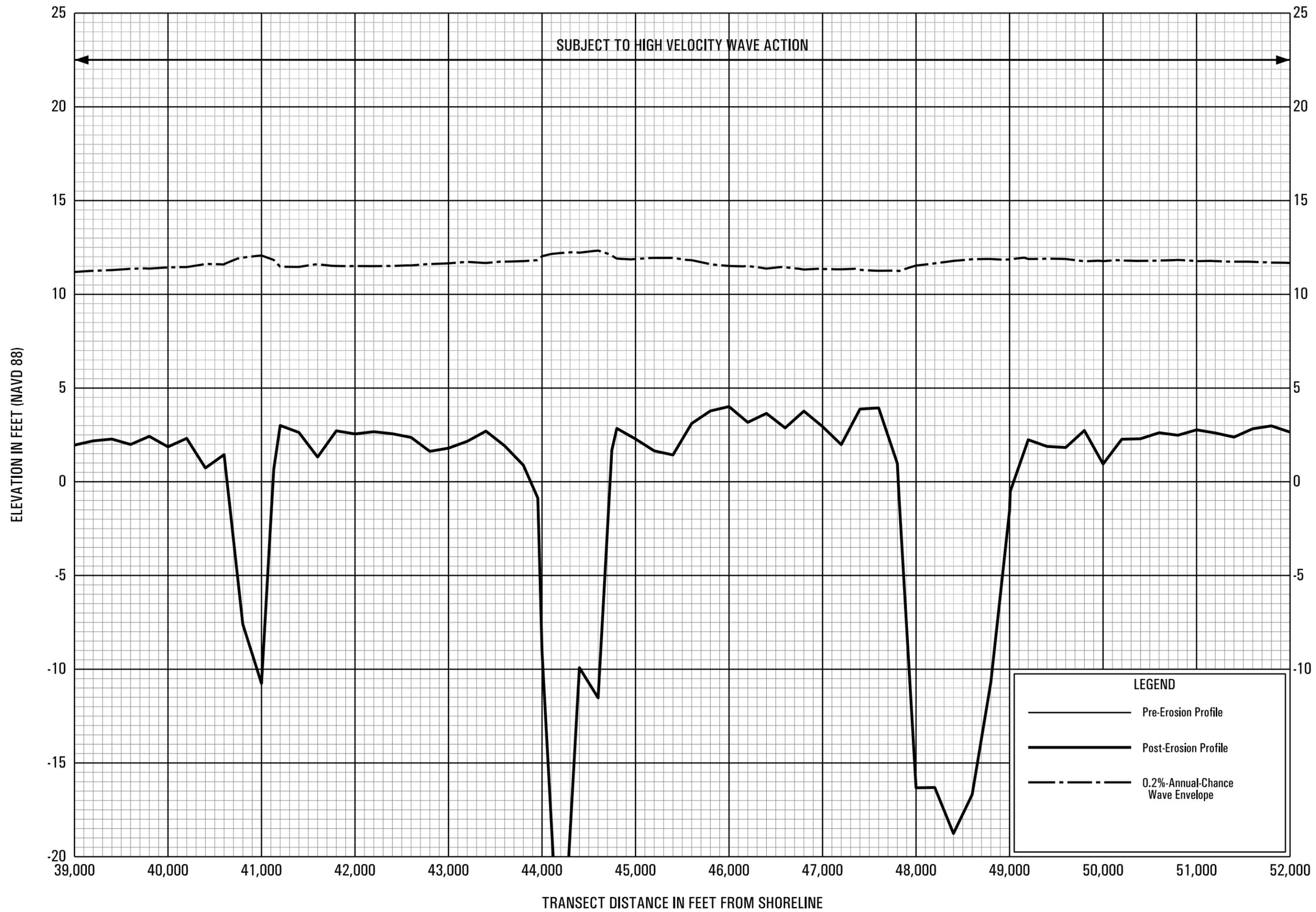
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 3

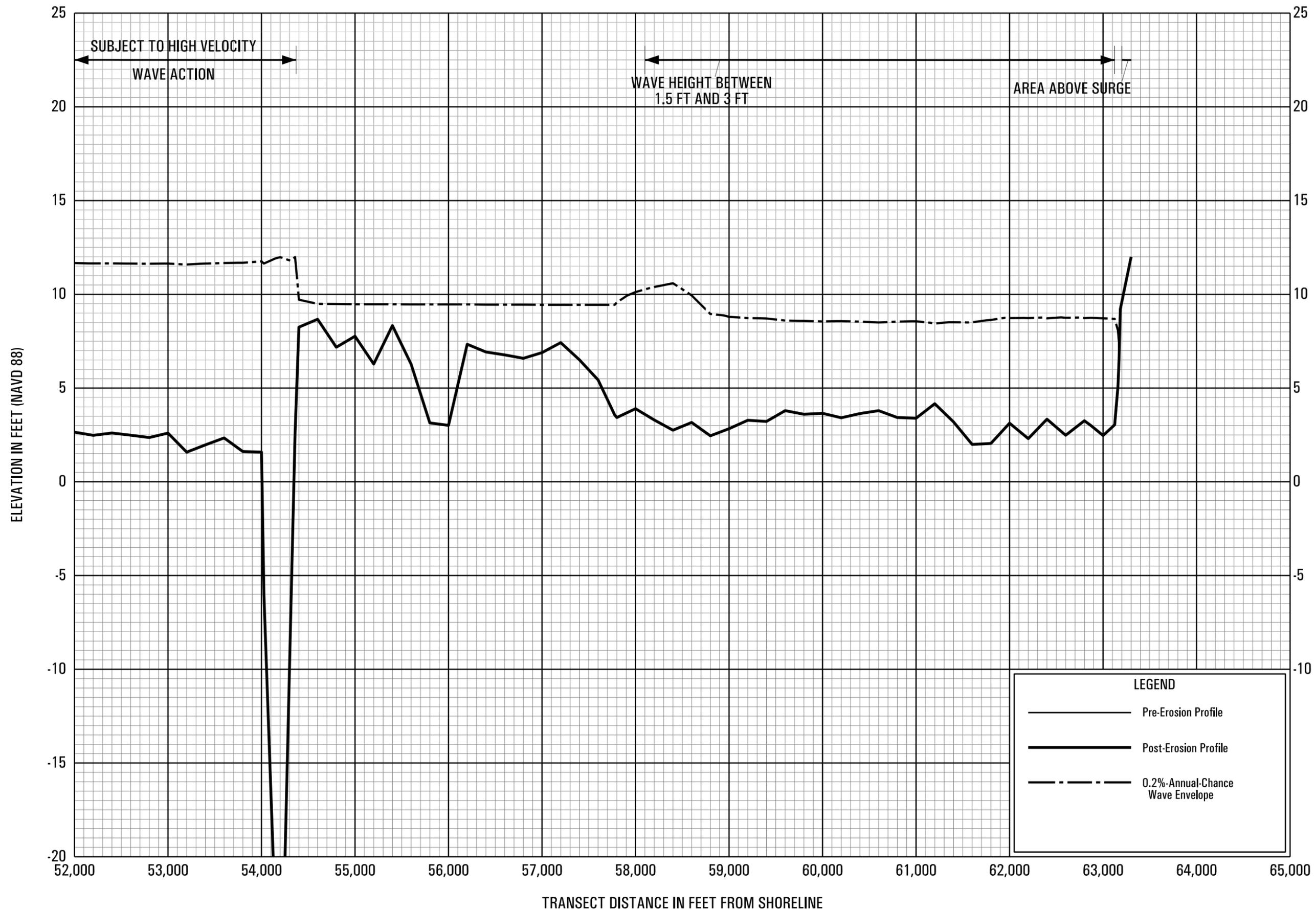
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 3

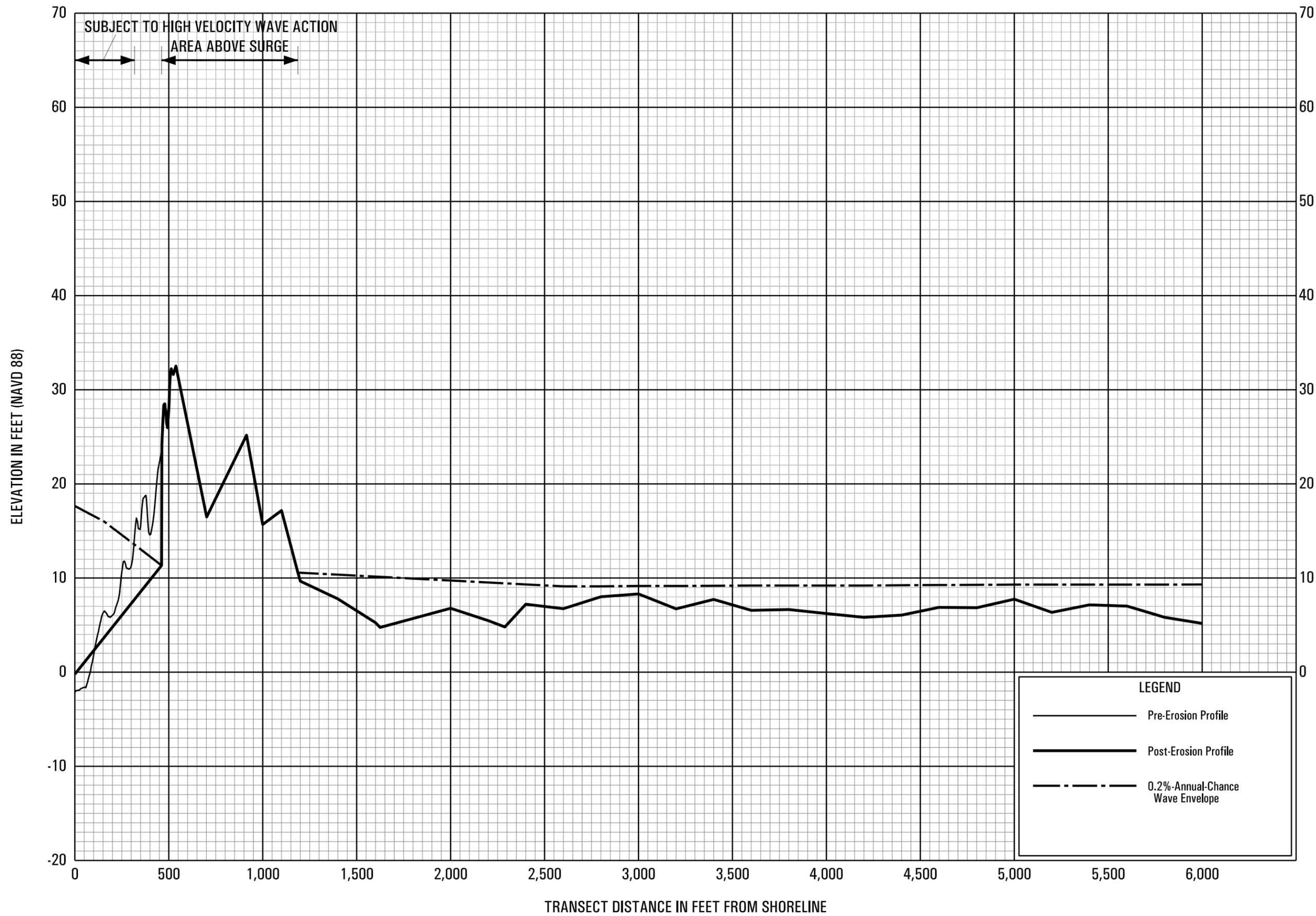
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 3

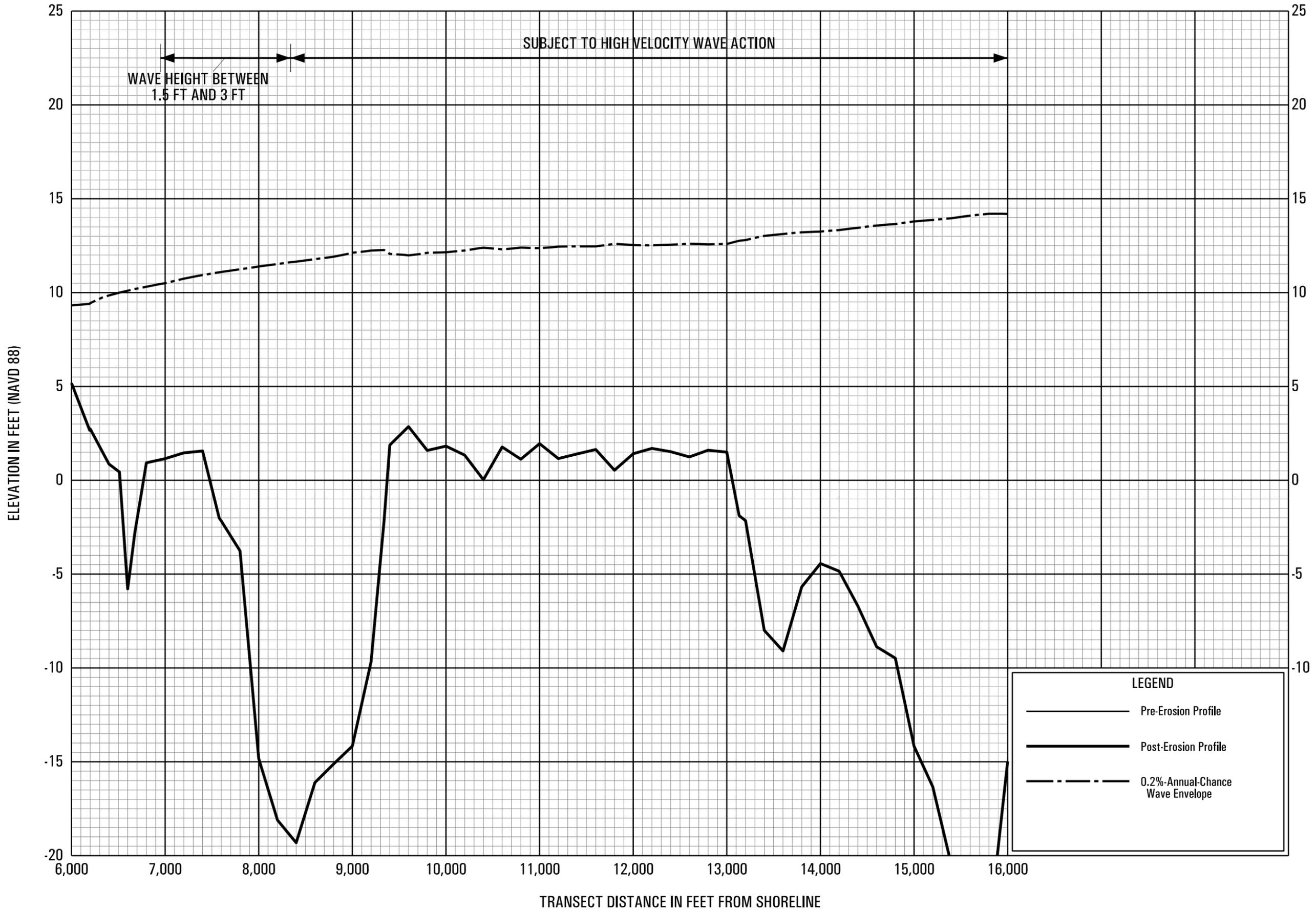
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 4

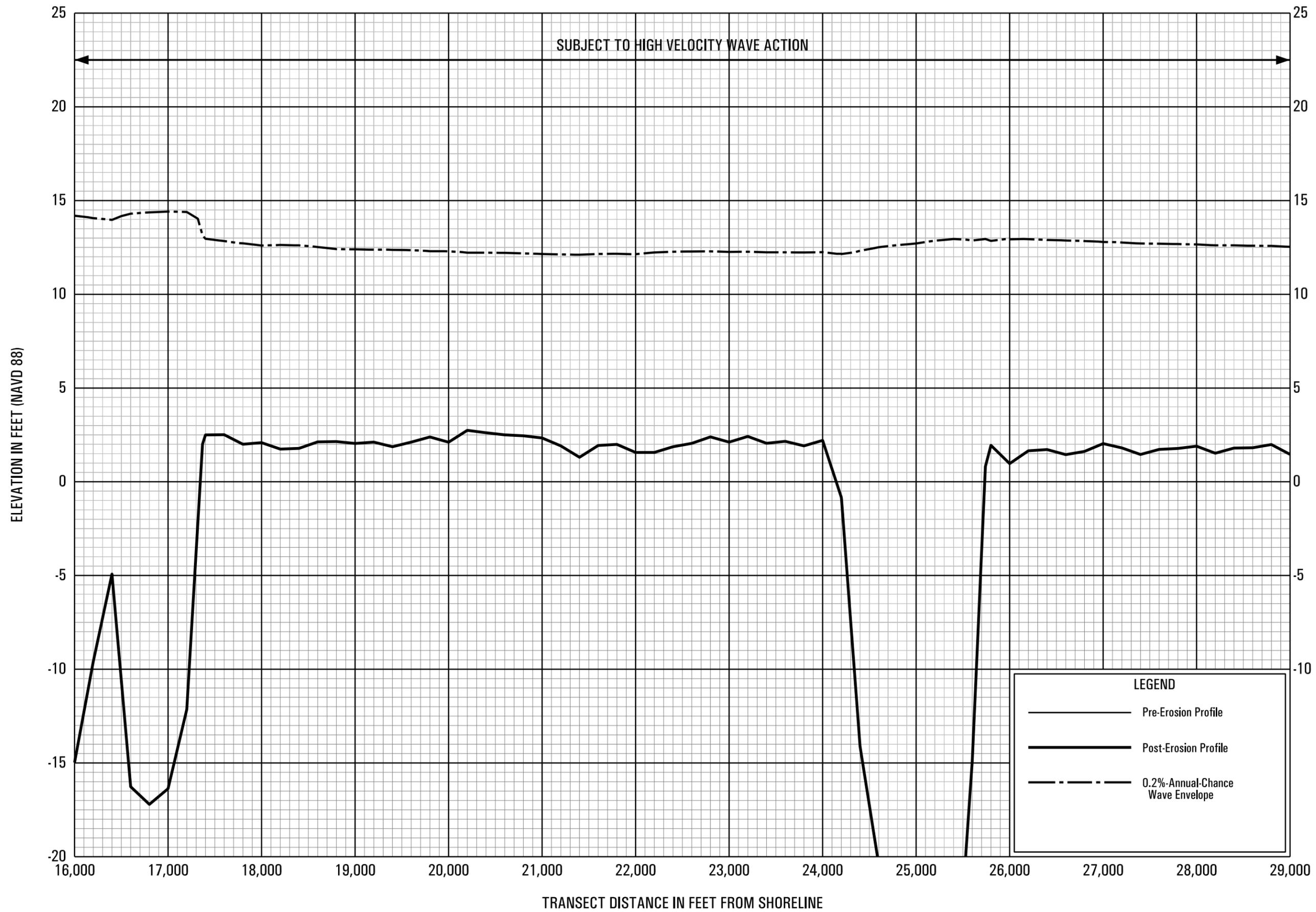
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 4

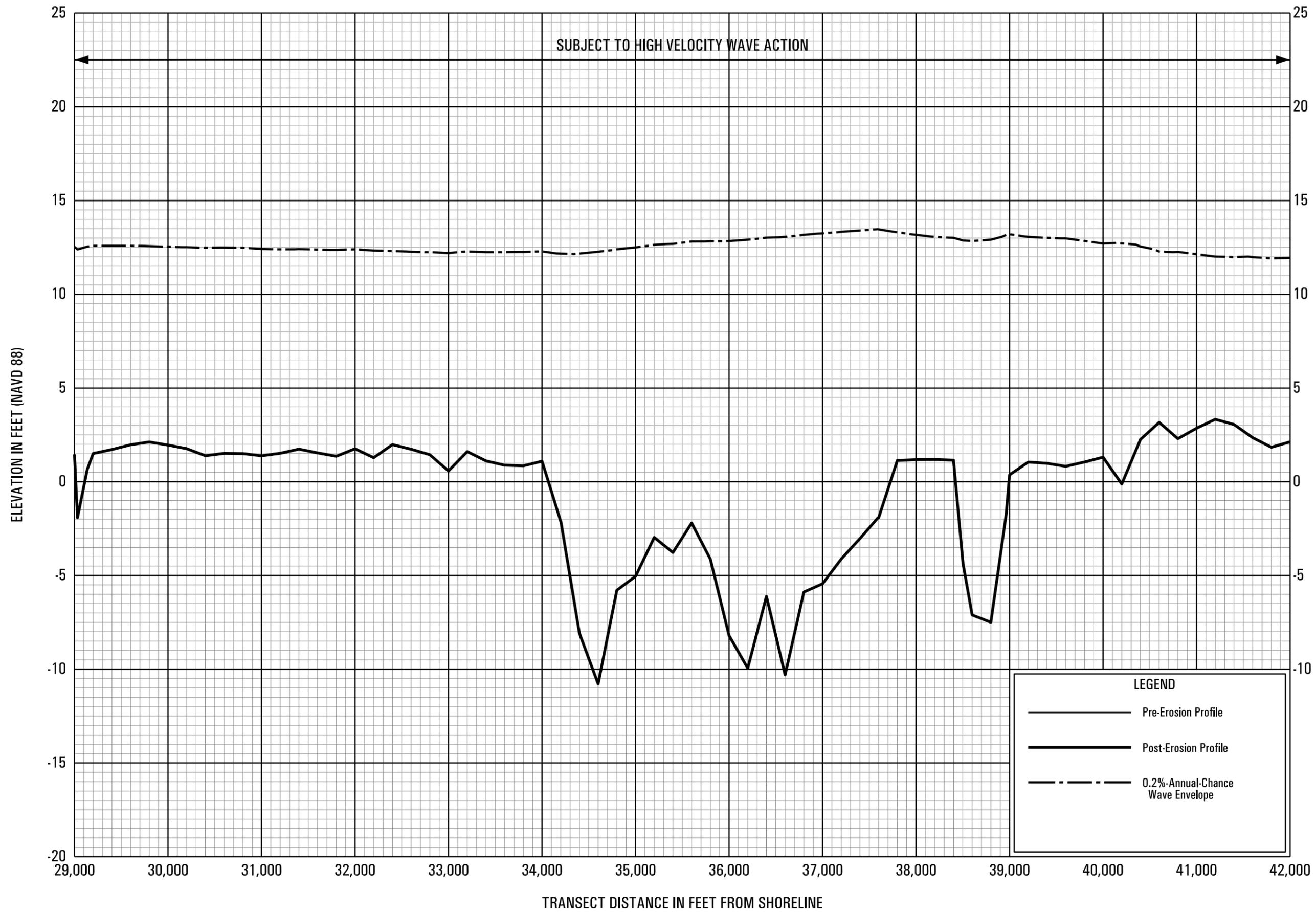
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 4

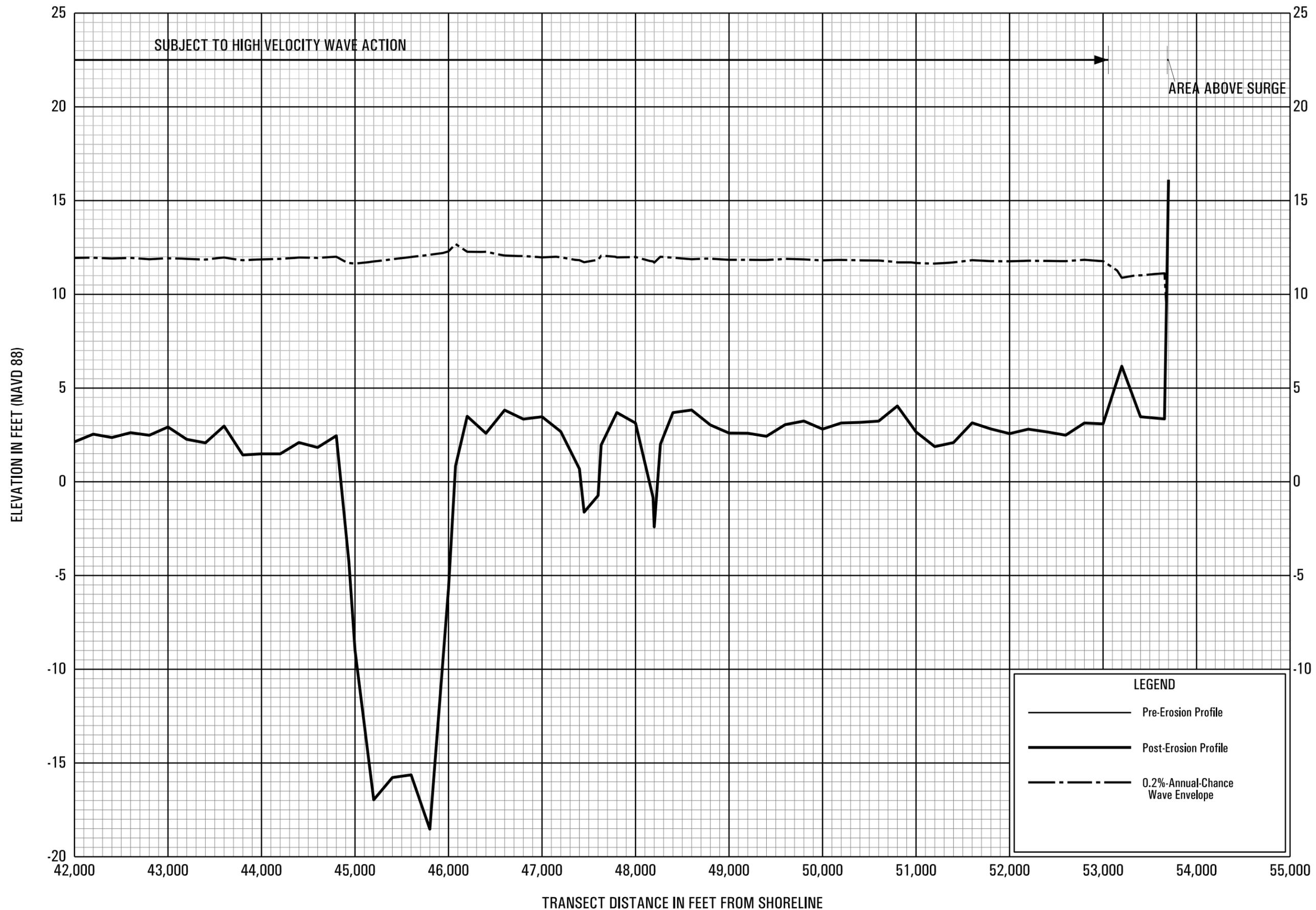
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 4

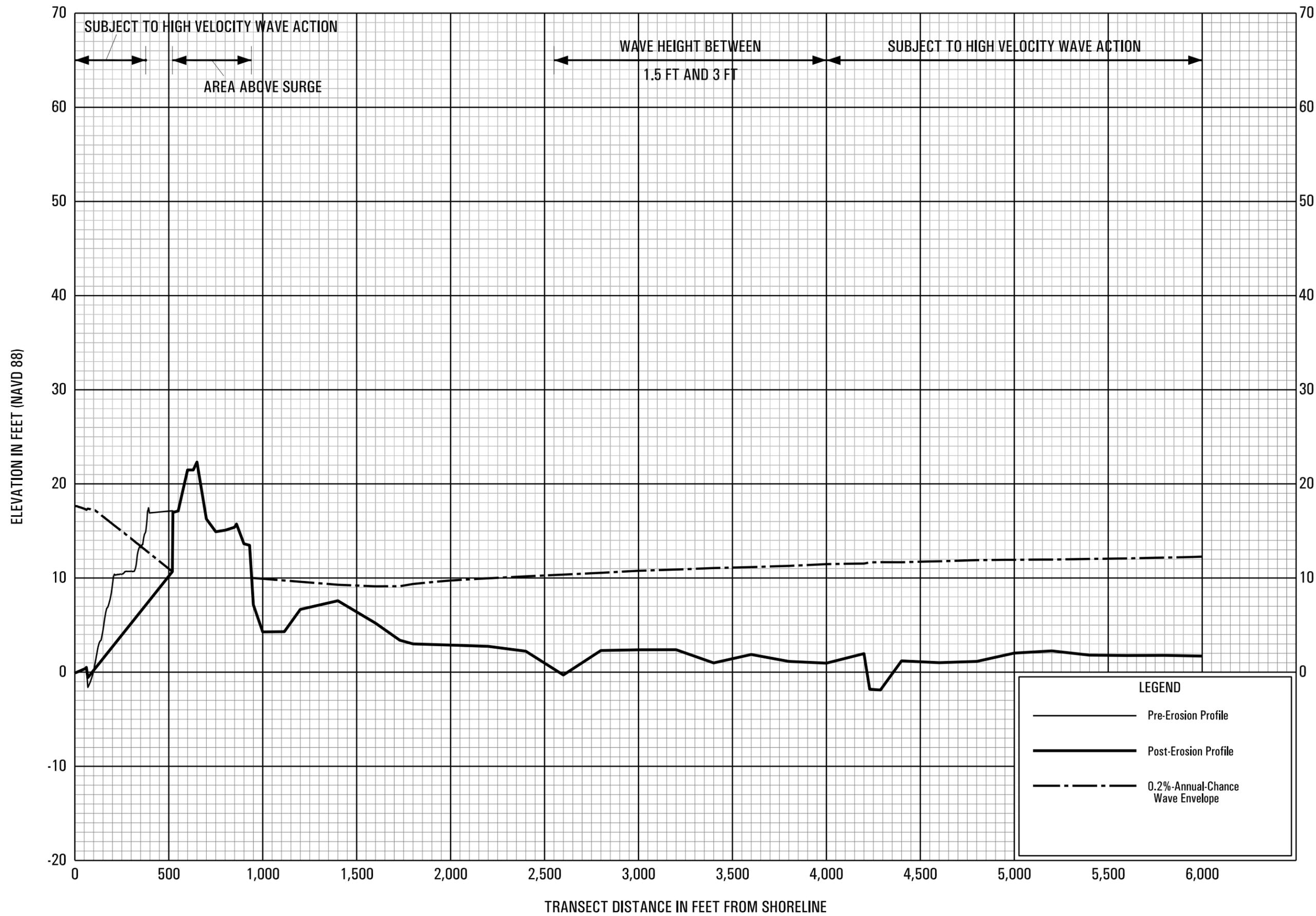
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 4

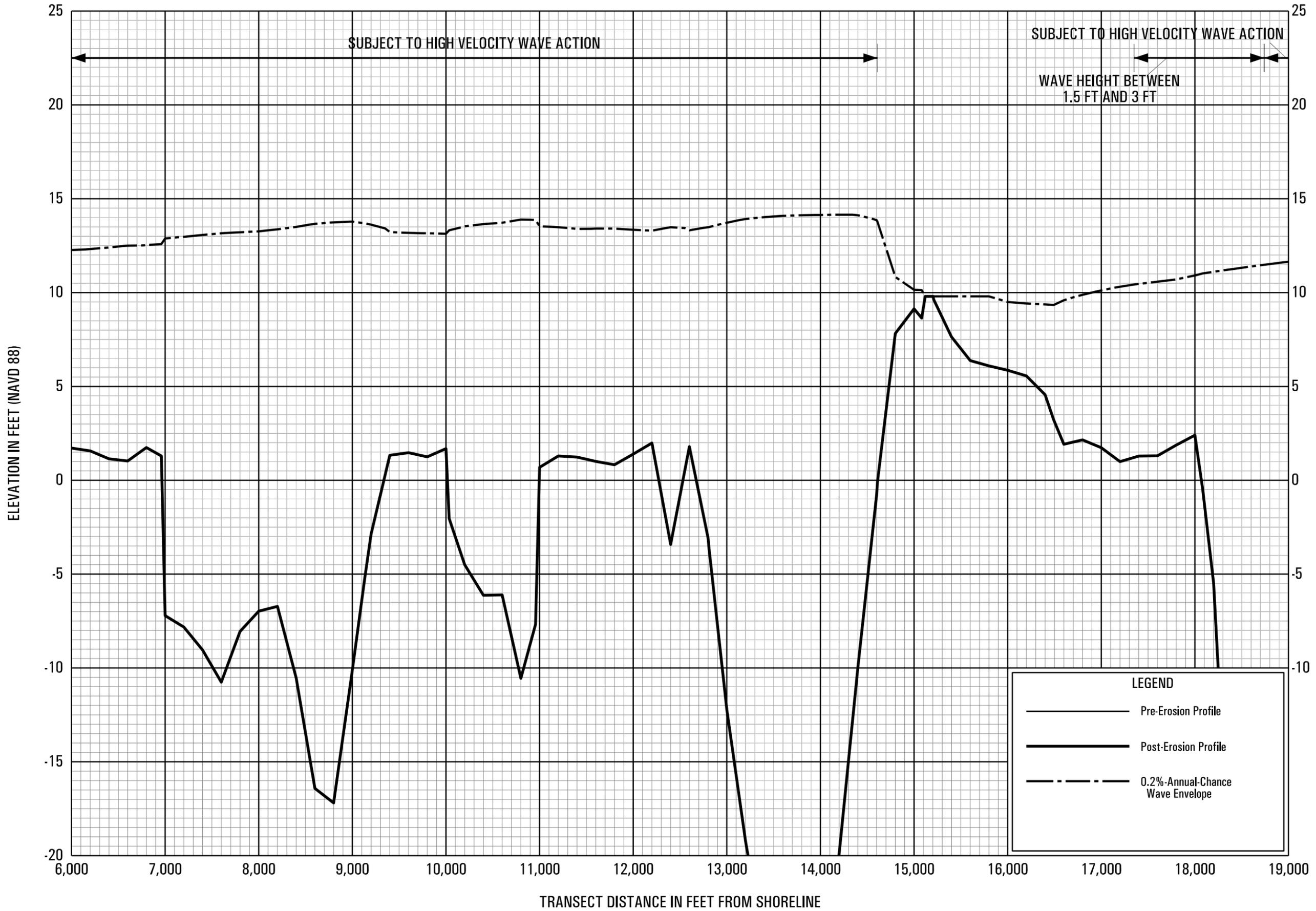
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 5

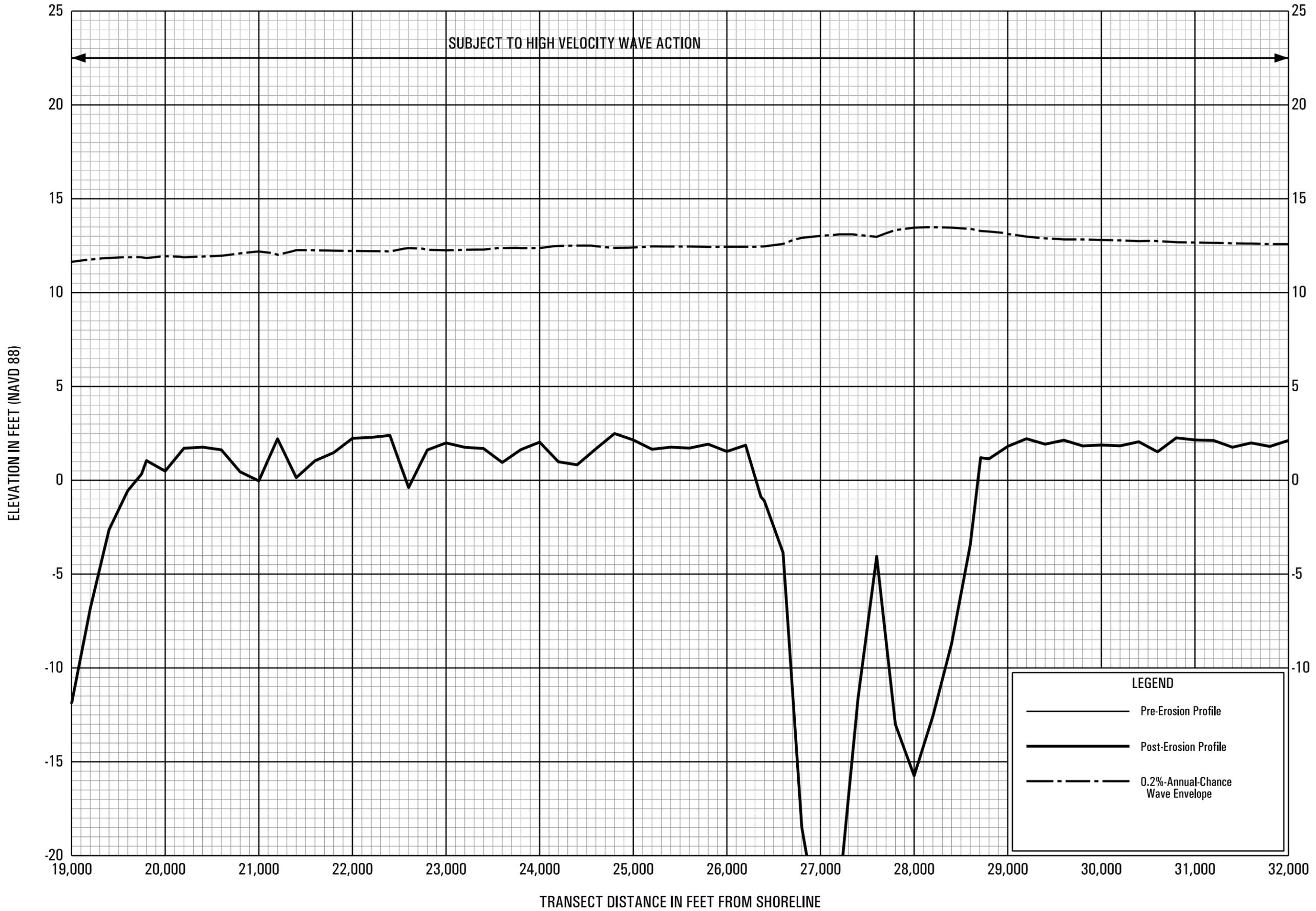
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 5

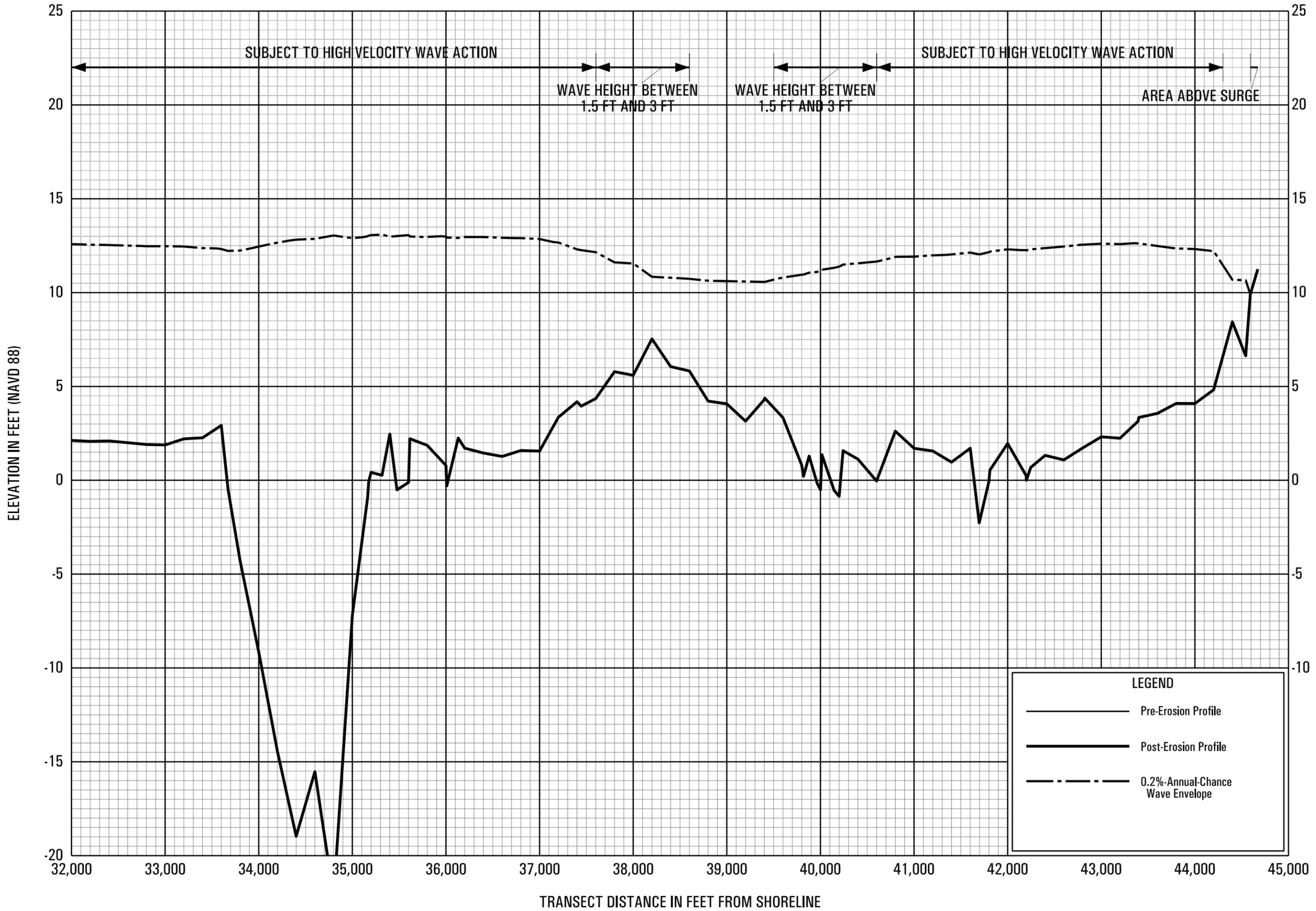
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 5

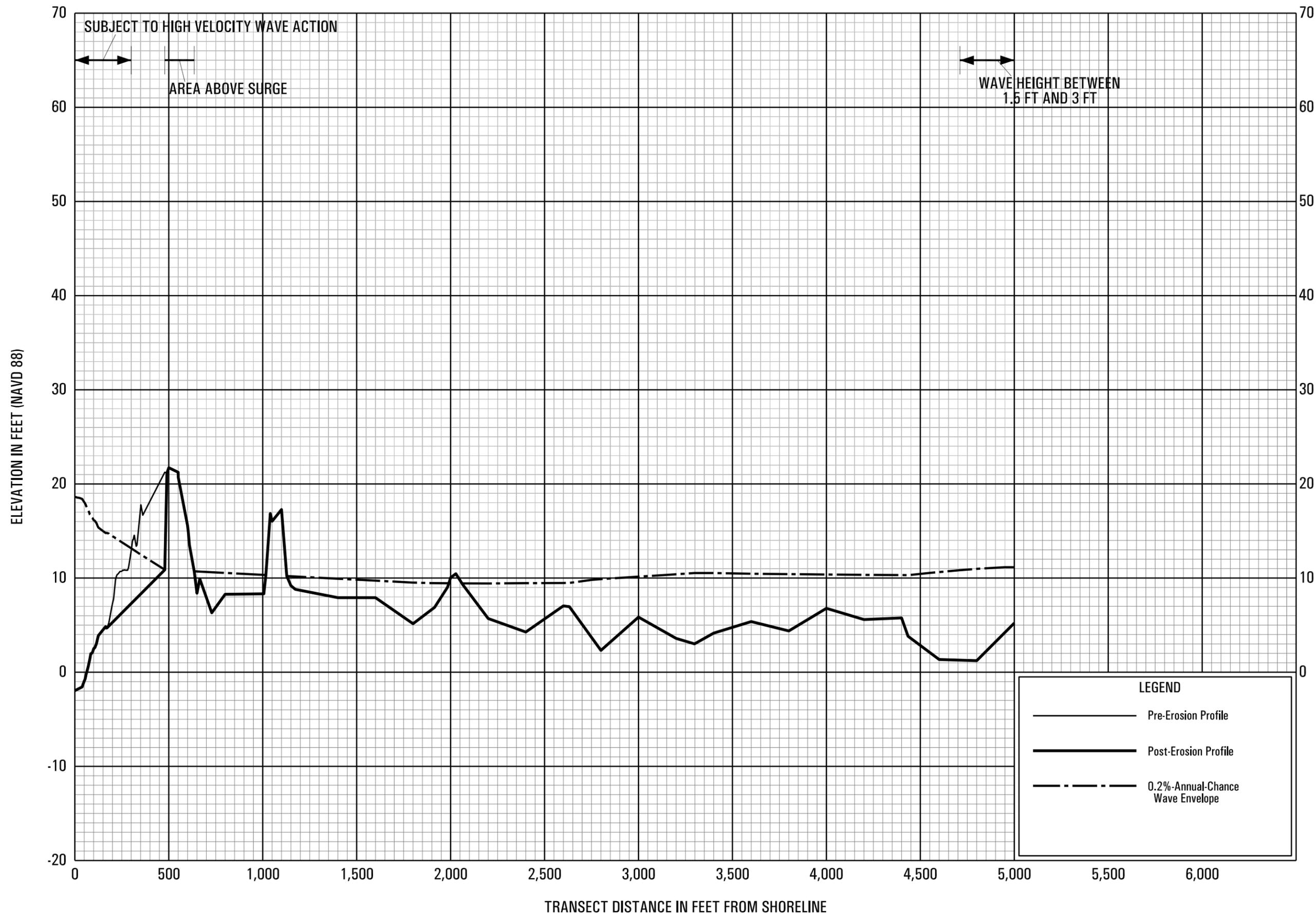
FEDERAL EMERGENCY MANAGEMENT AGENCY
 DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 5

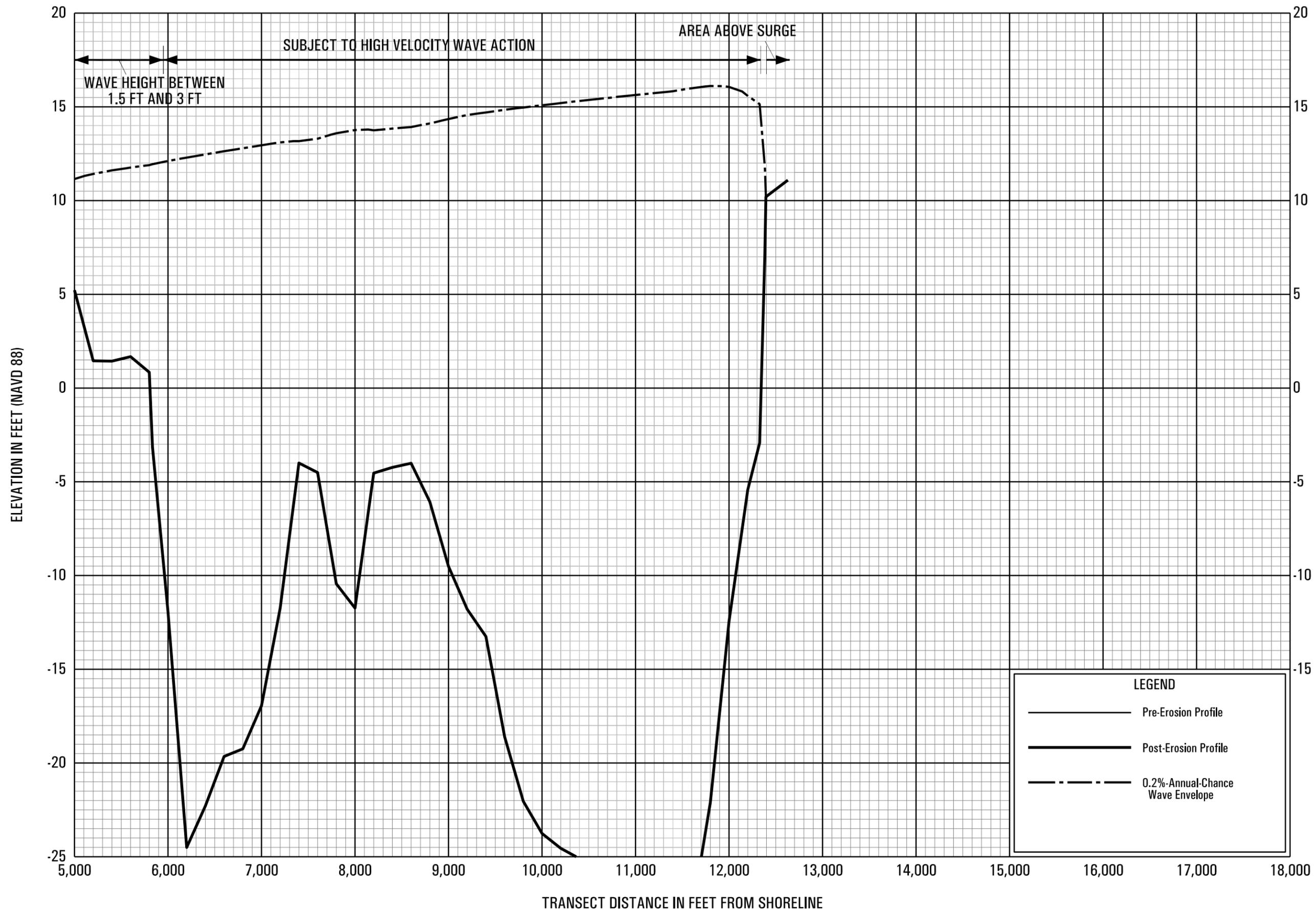
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 6

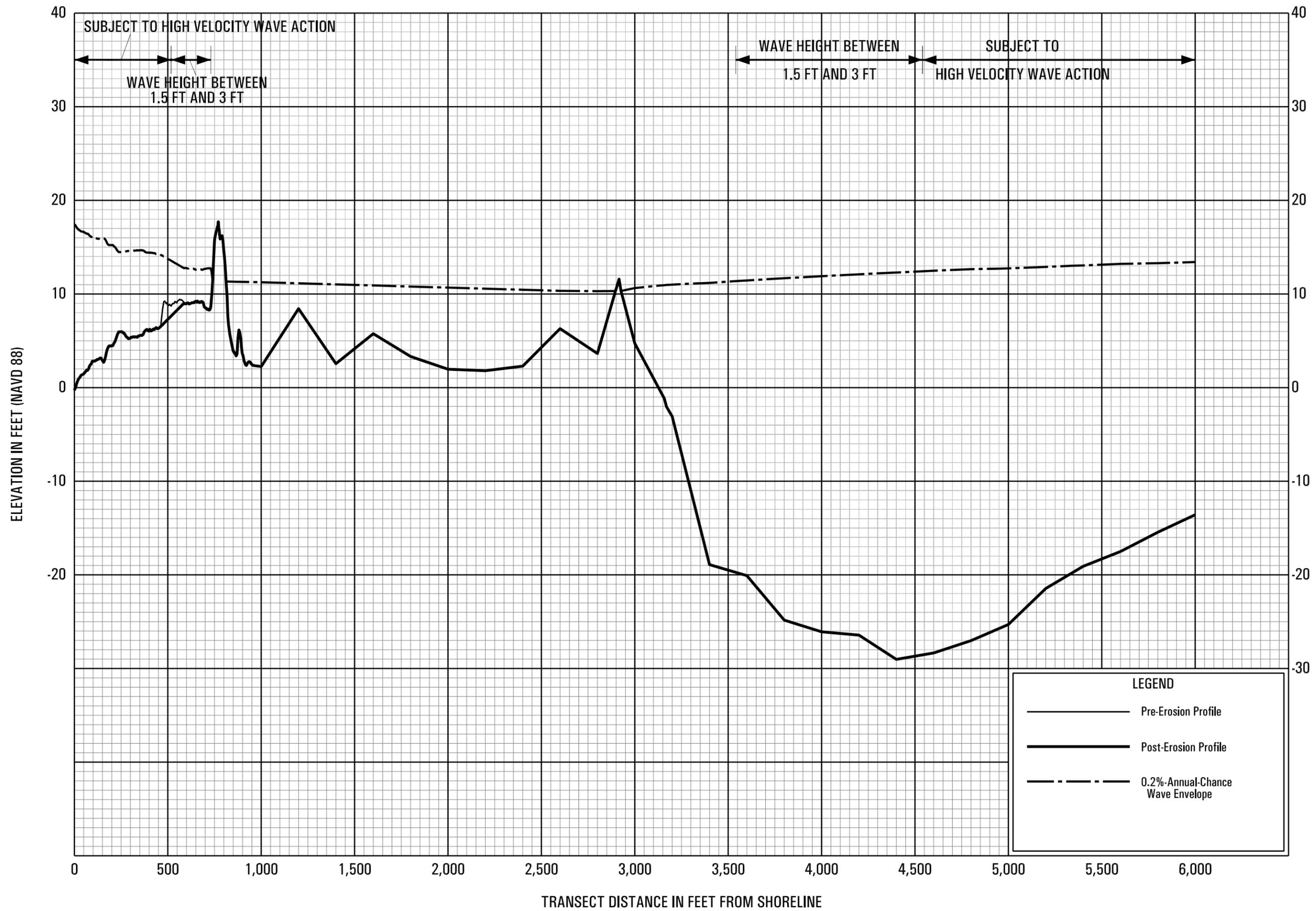
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 6

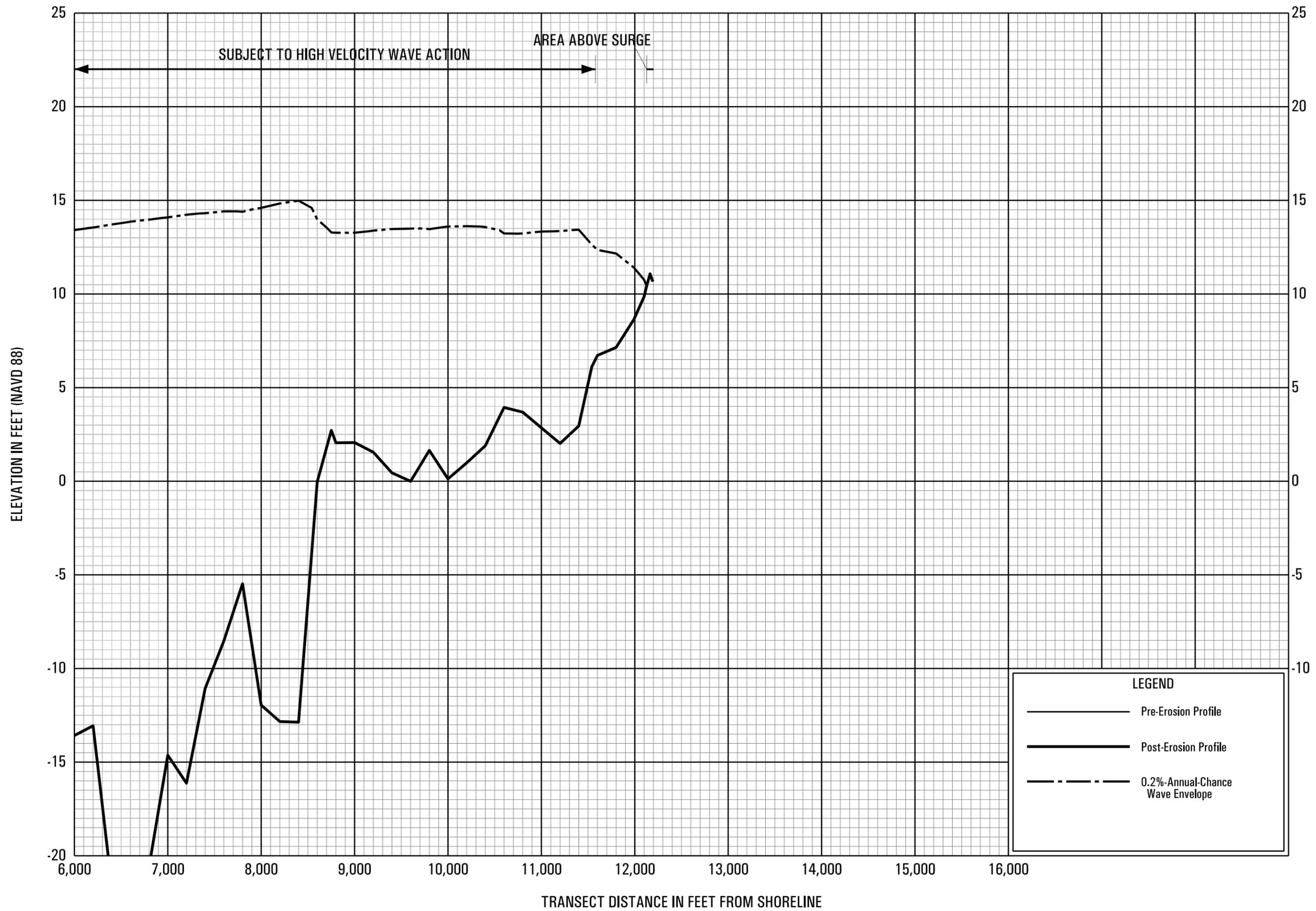
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 7

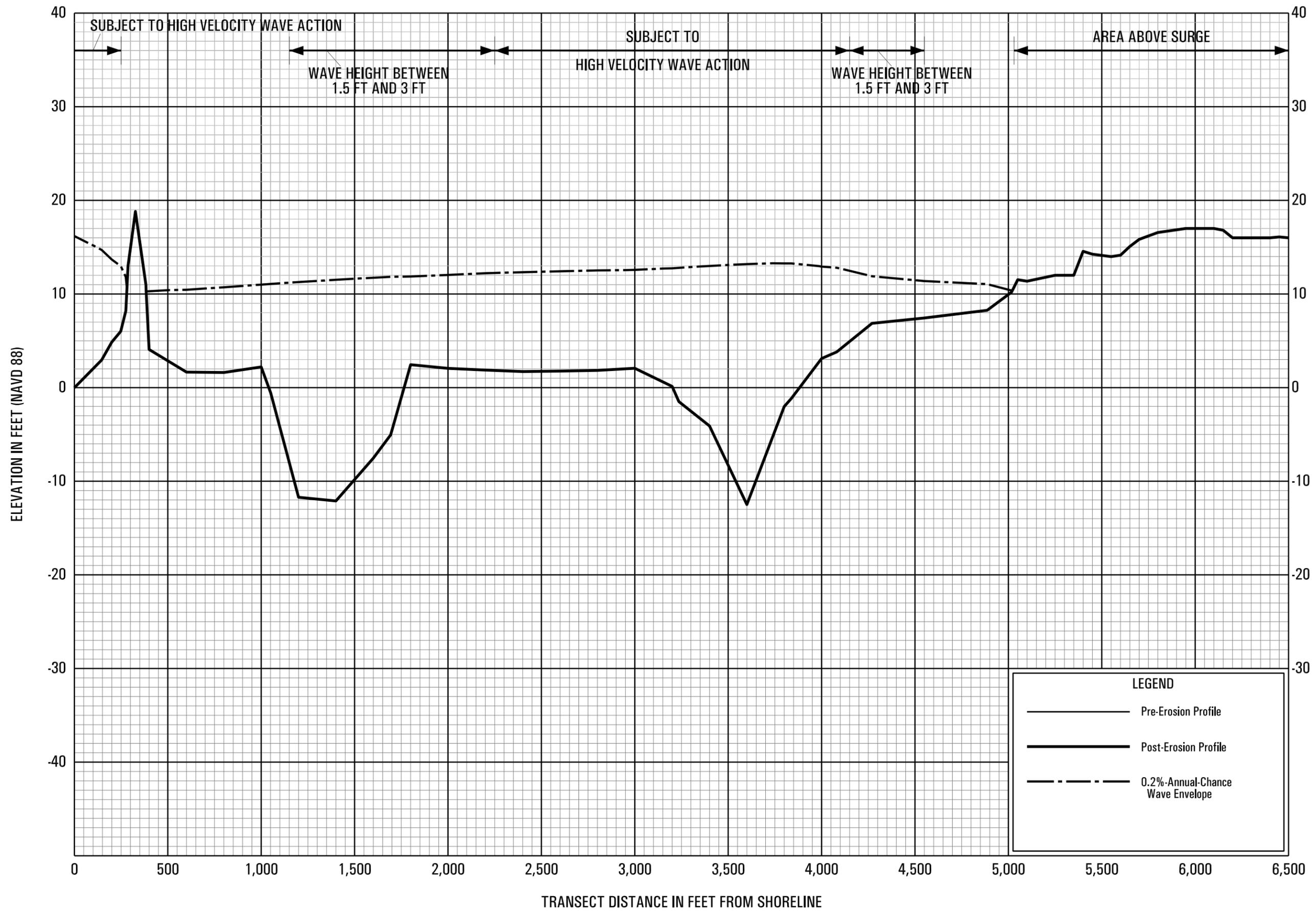
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 7

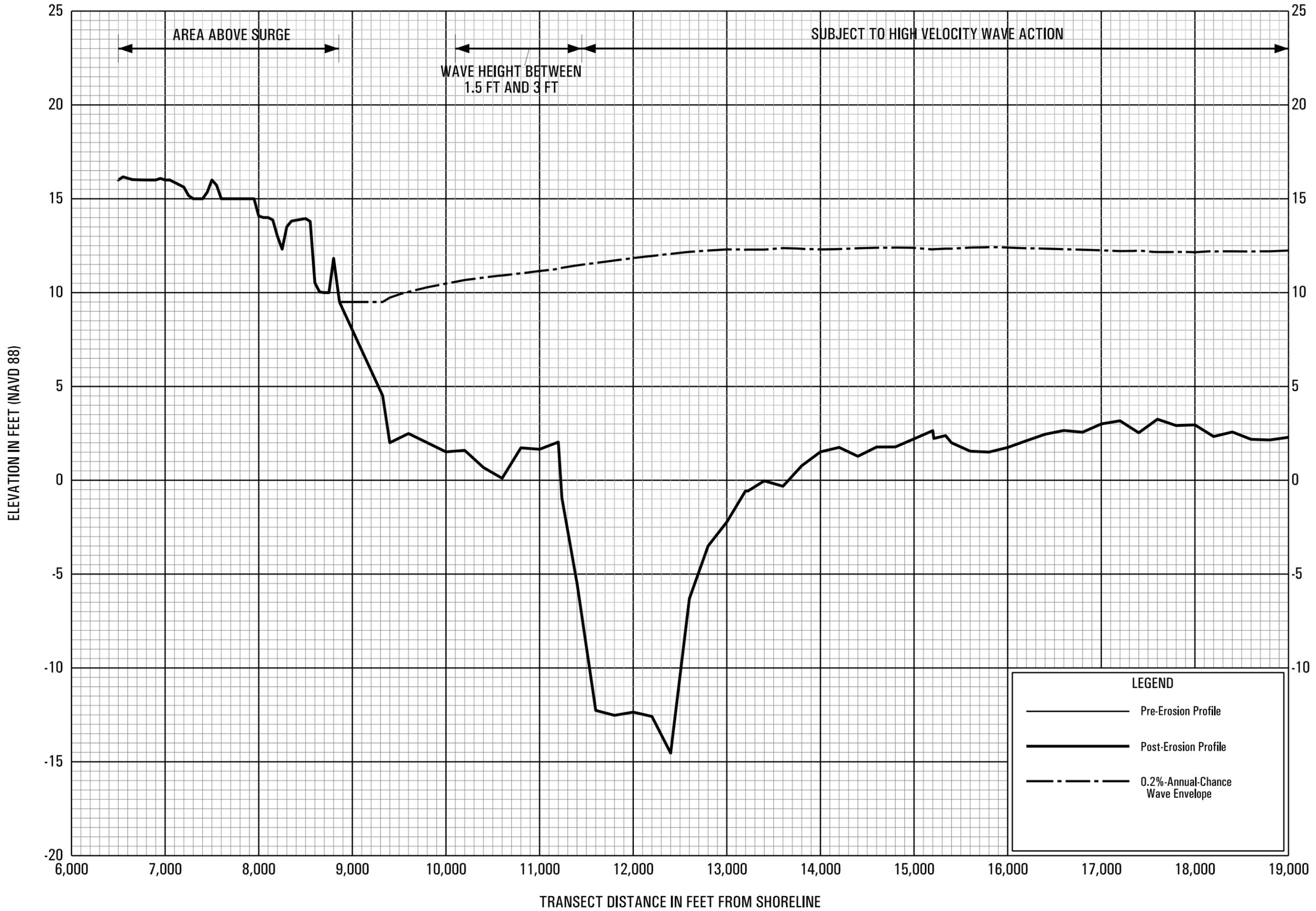
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 8

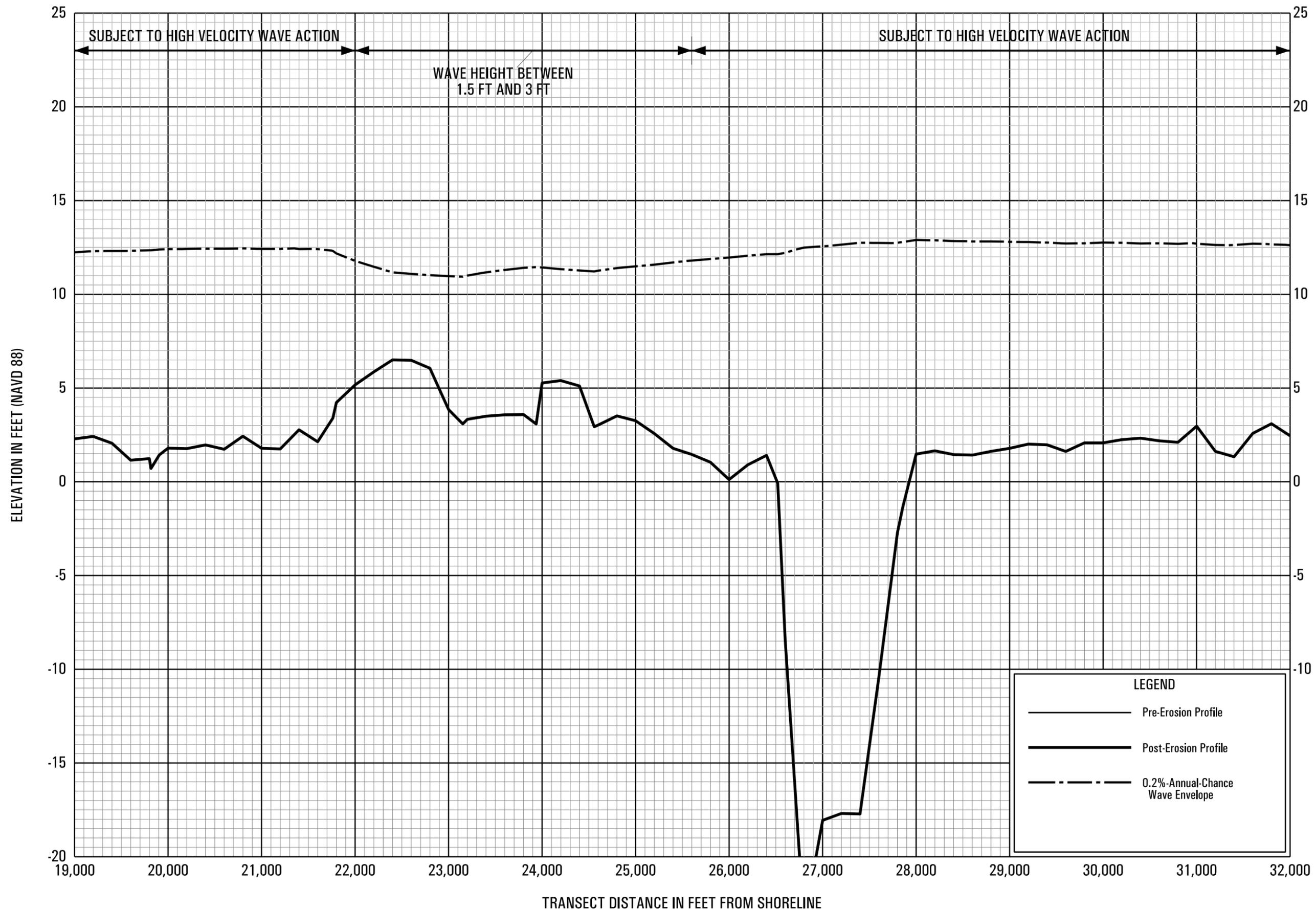
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 8

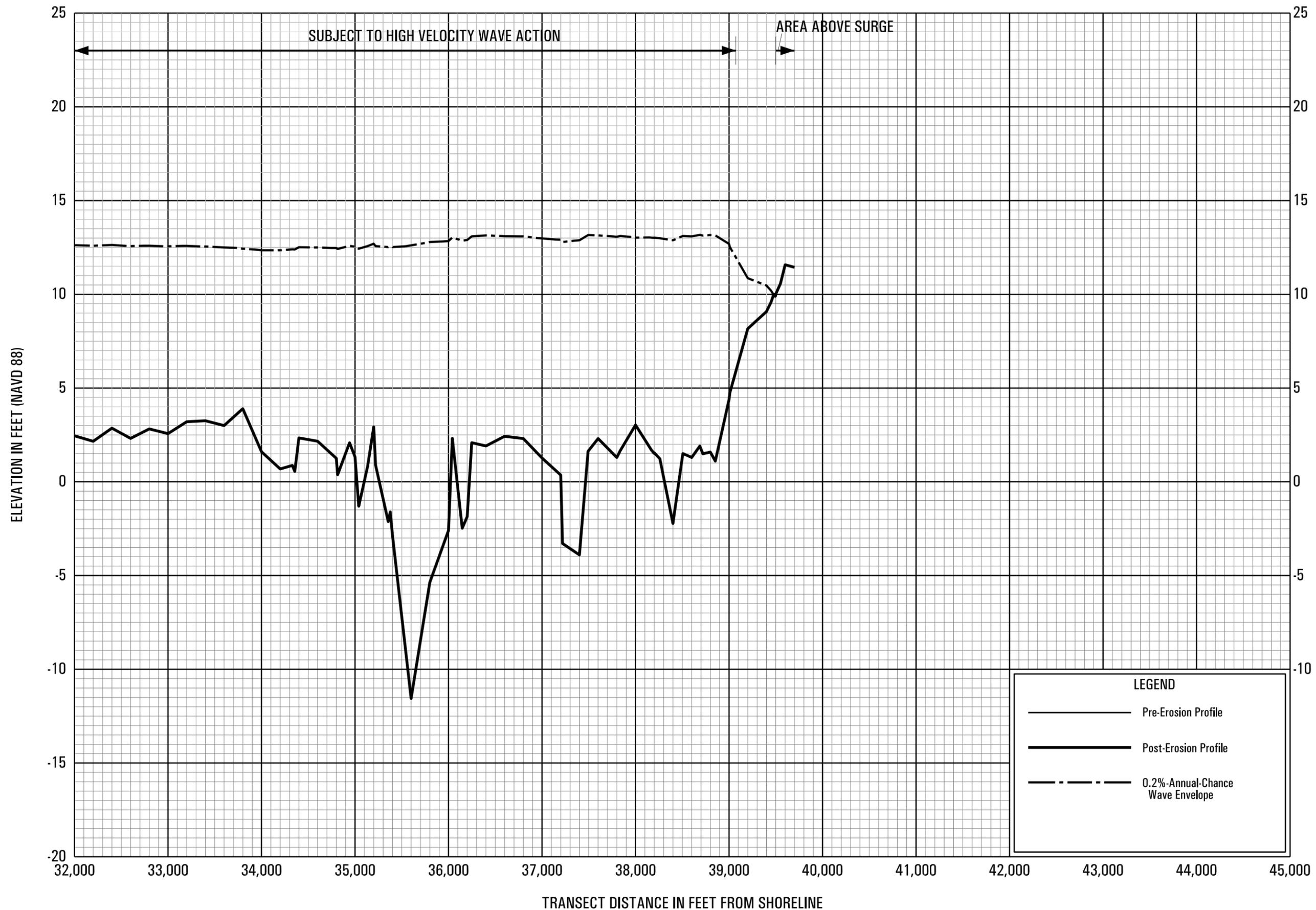
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 8

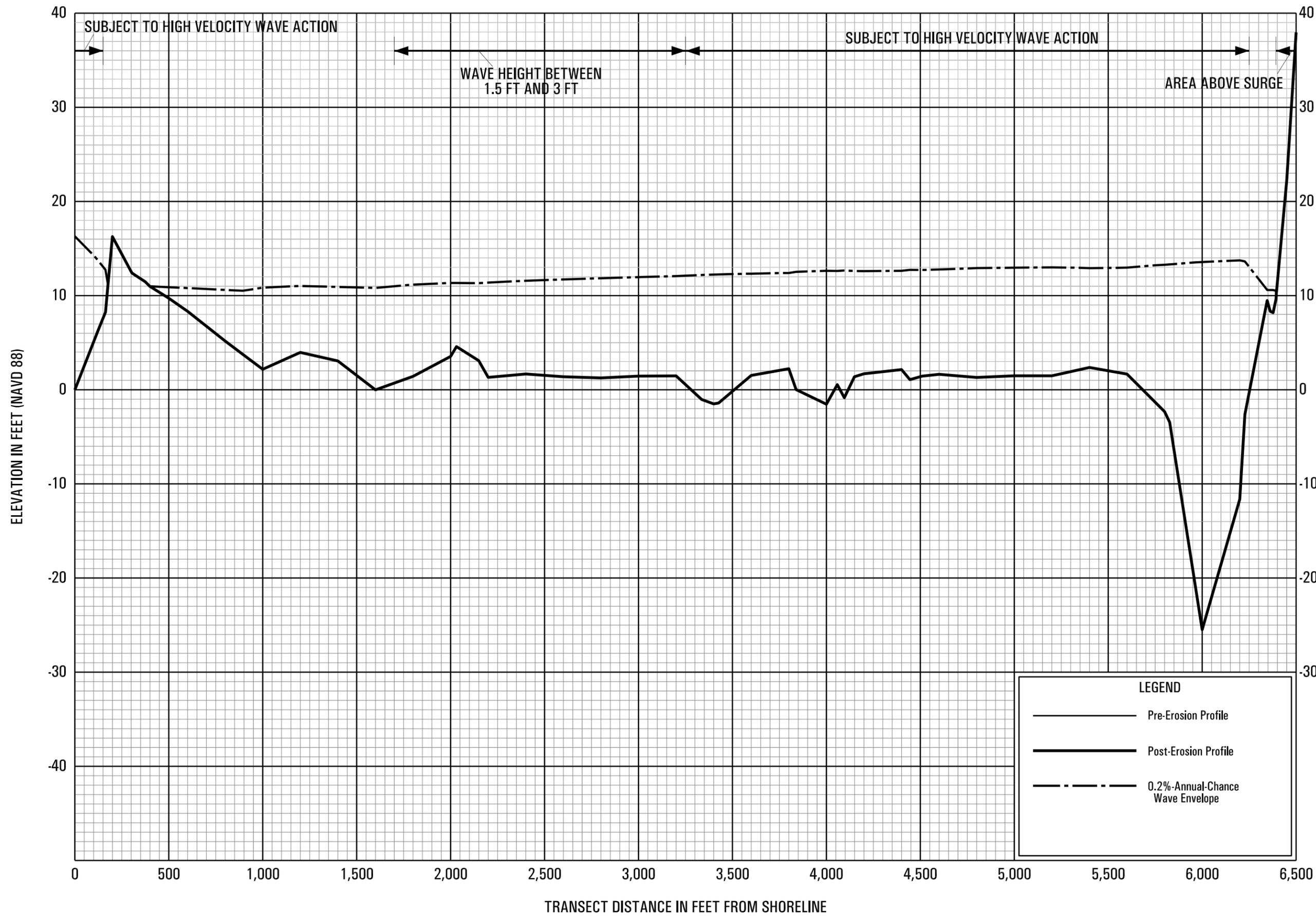
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 8

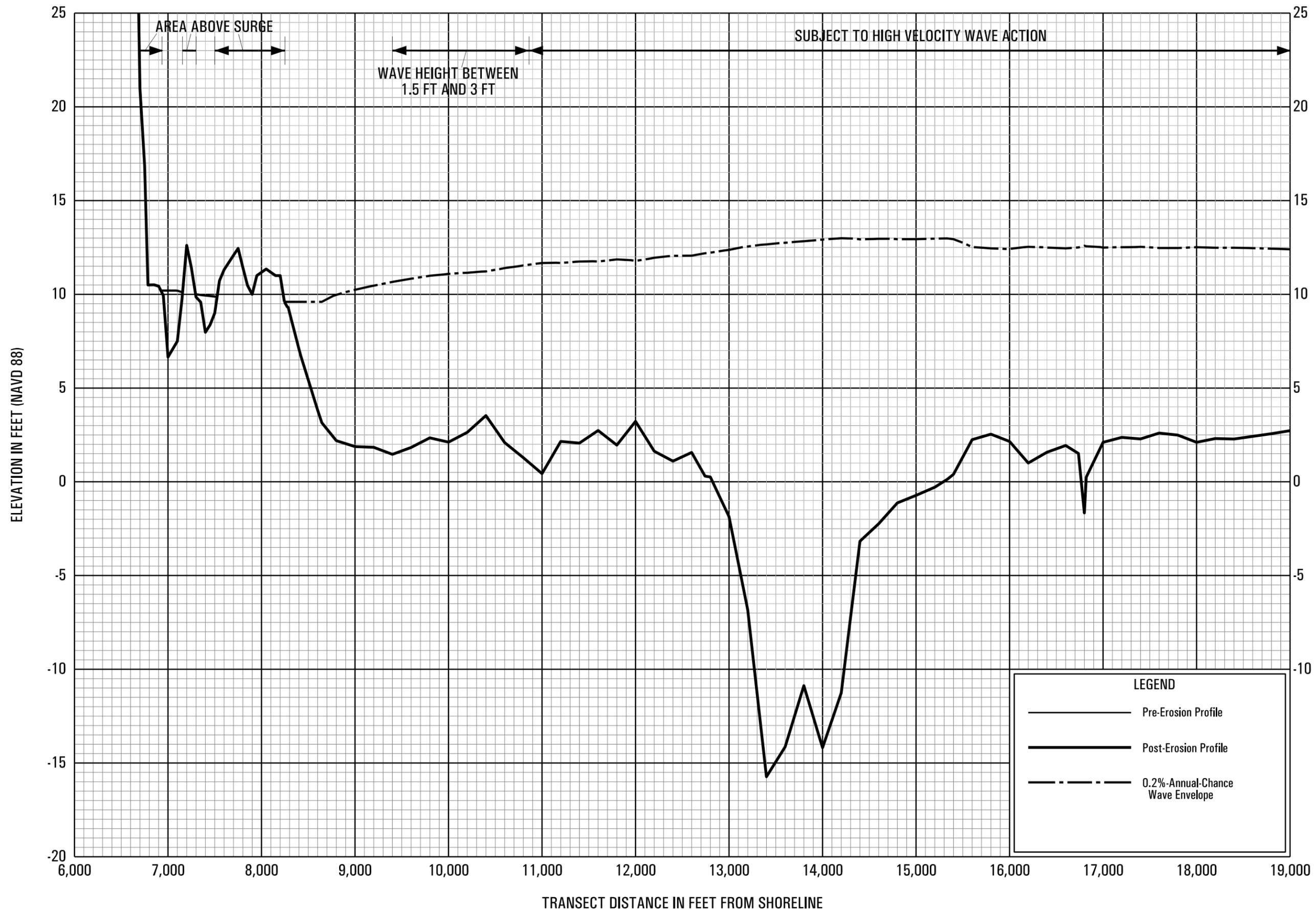
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 9

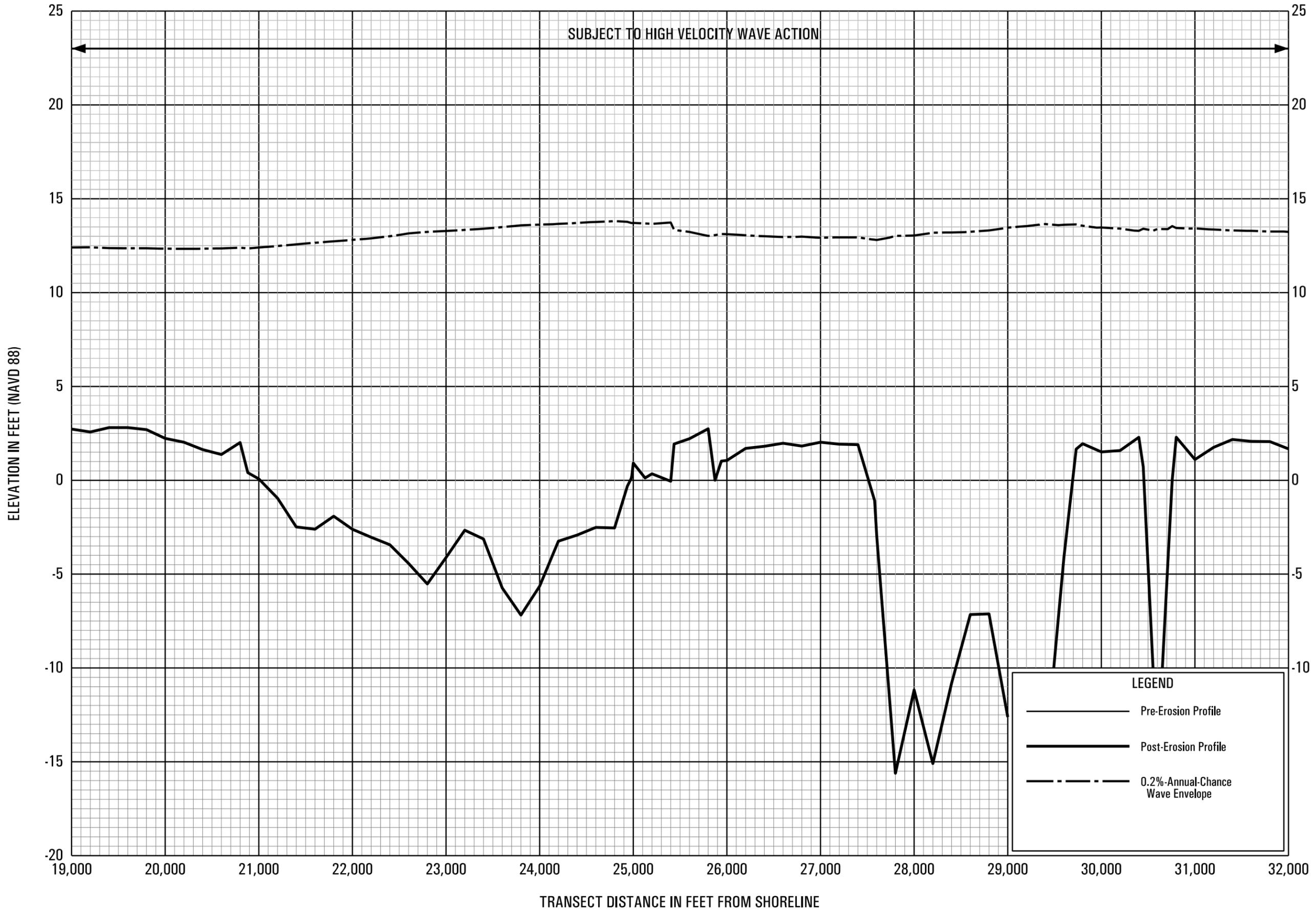
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 9

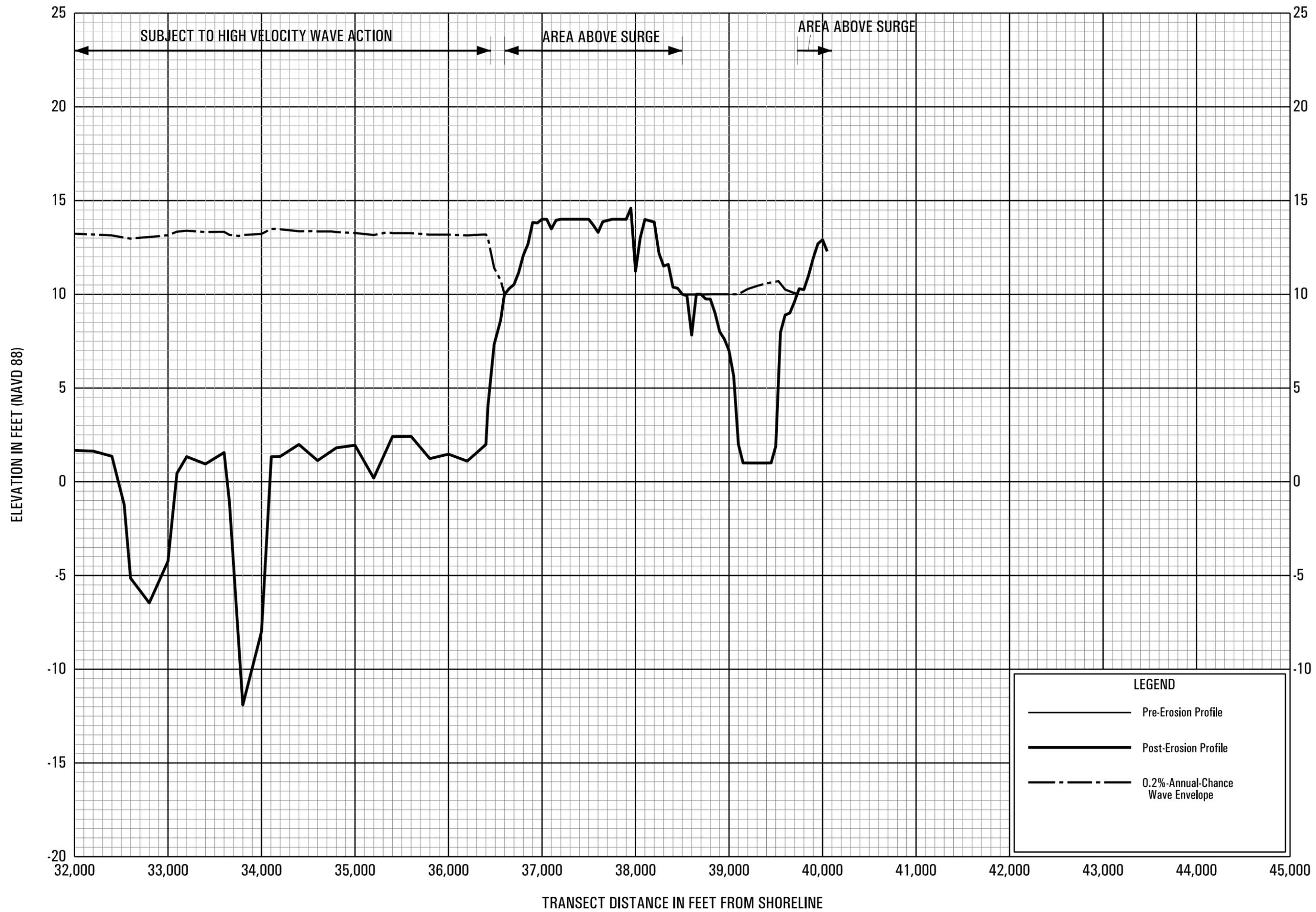
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 9

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



LEGEND

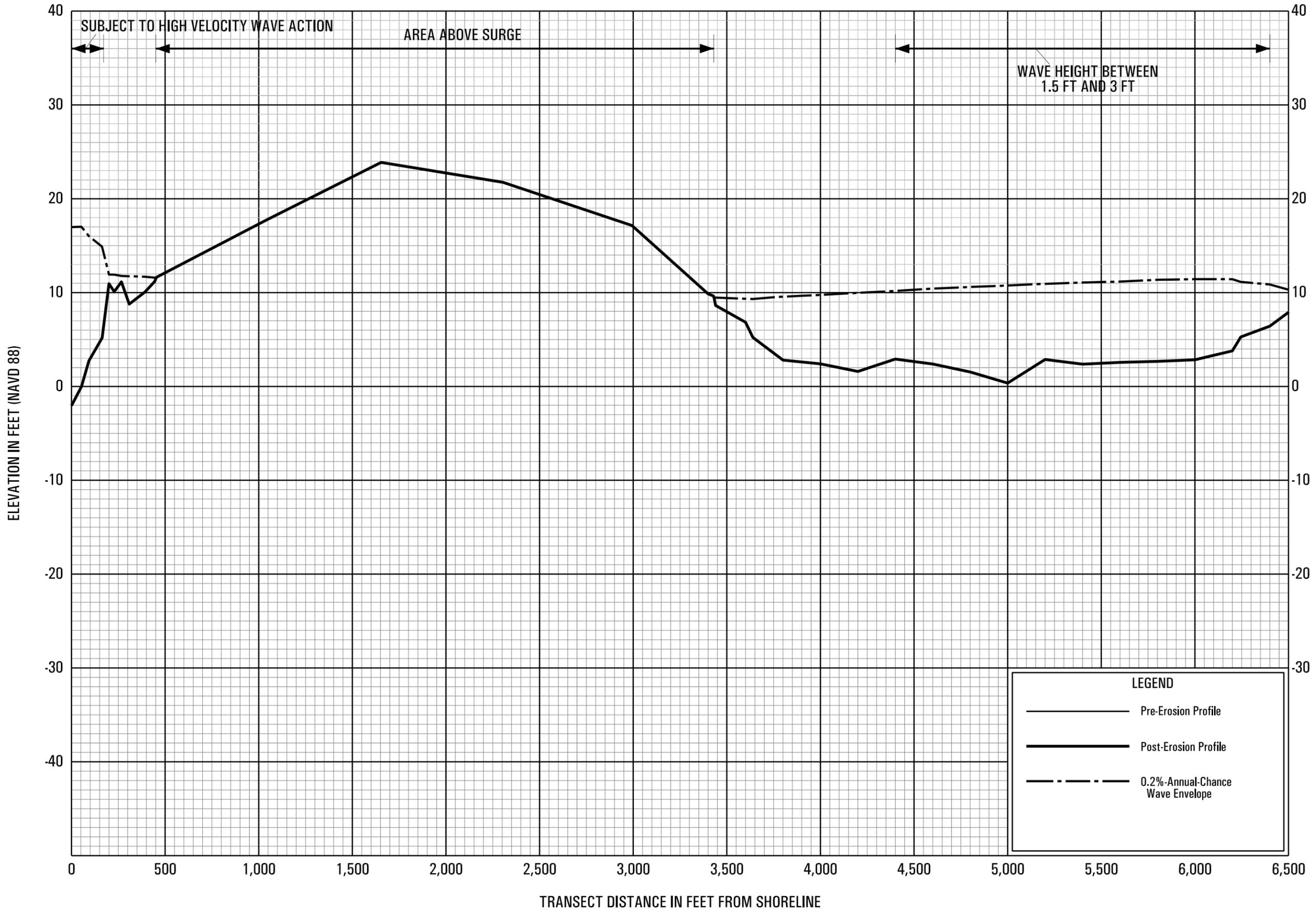
- Pre-Erosion Profile
- Post-Erosion Profile
- · - · 0.2%-Annual-Chance Wave Envelope

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS

0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 9

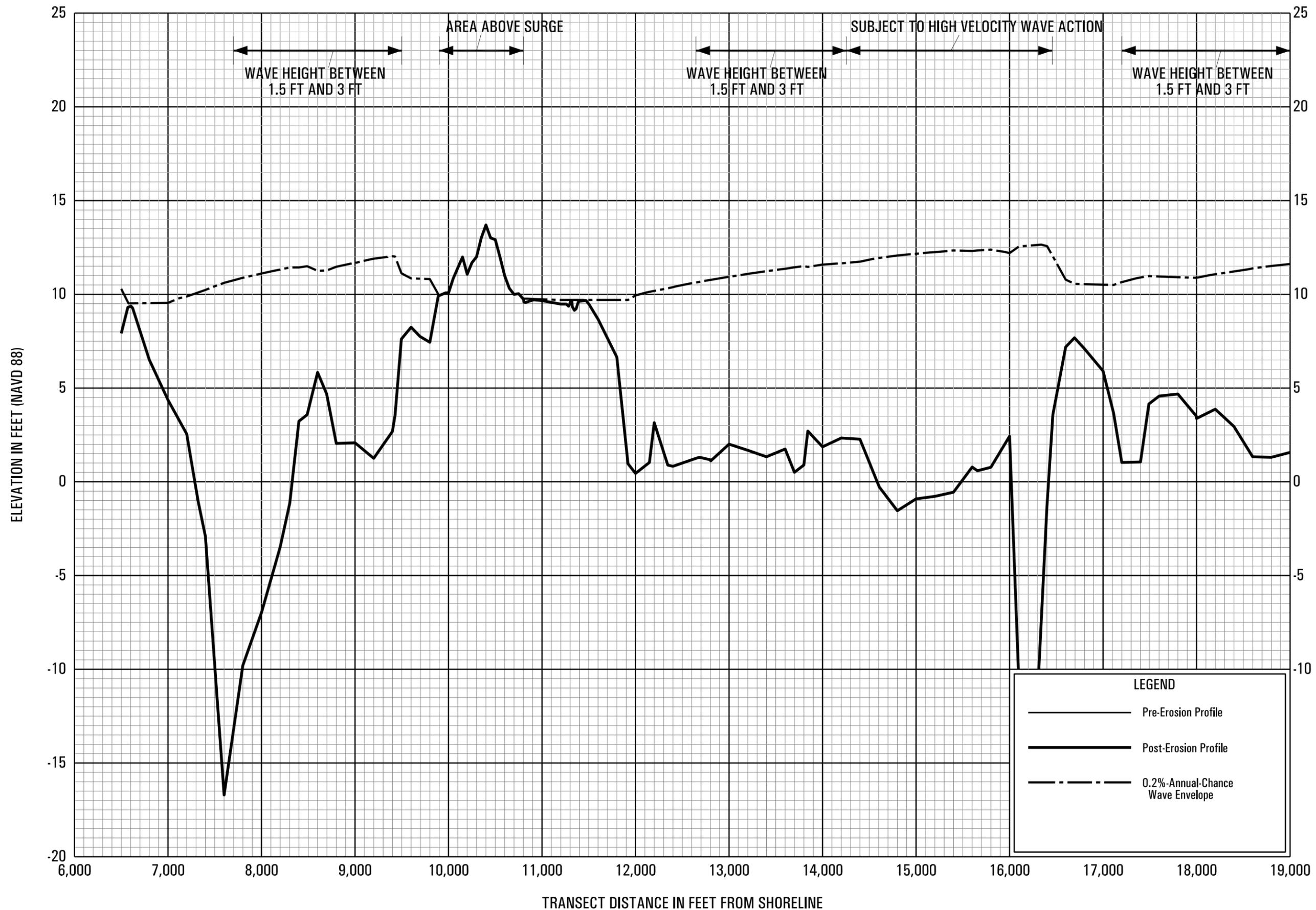
39P



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 10

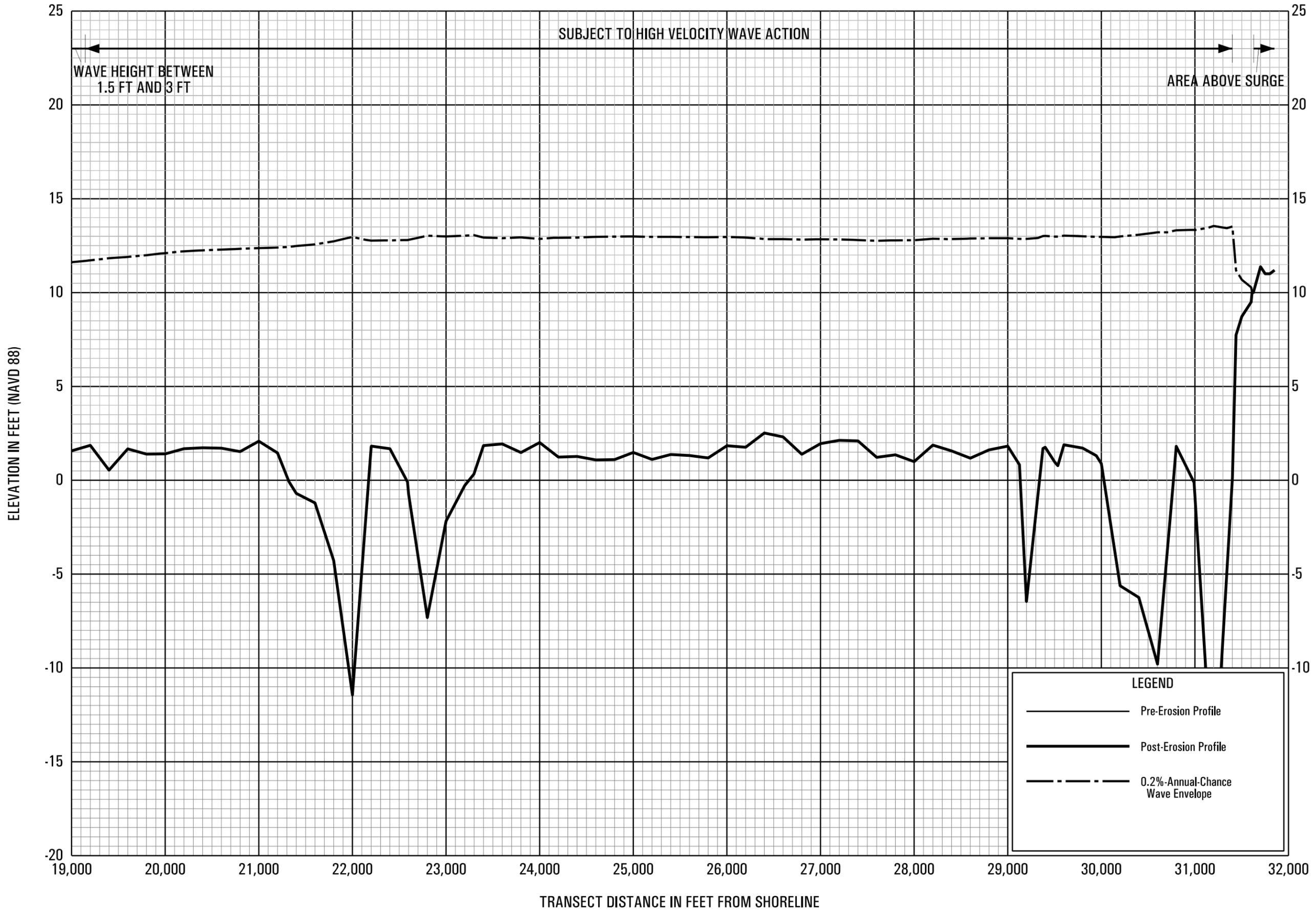
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 10

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



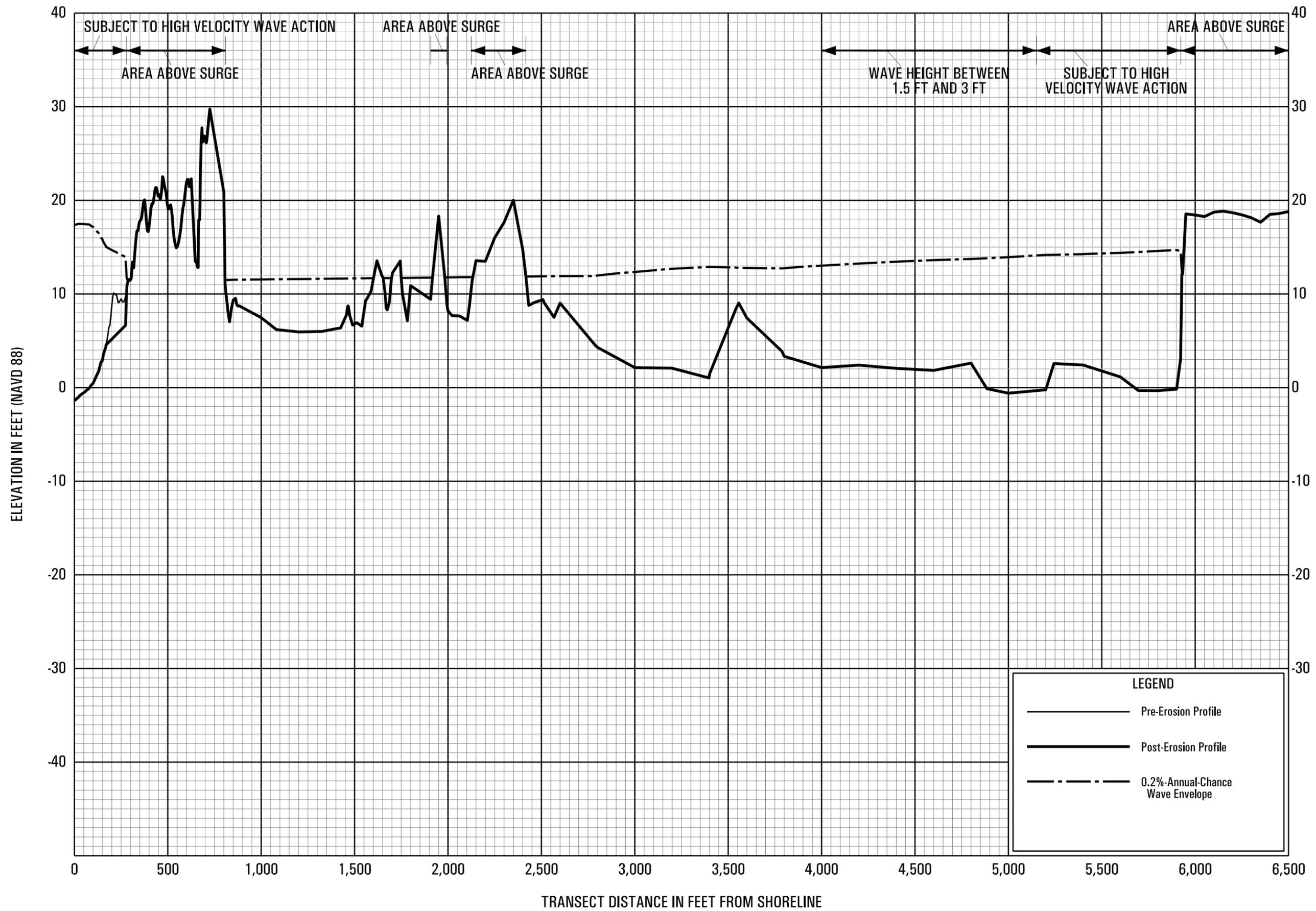
LEGEND

- Pre-Erosion Profile
- Post-Erosion Profile
- · - · - 0.2%-Annual-Chance Wave Envelope

0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 10

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



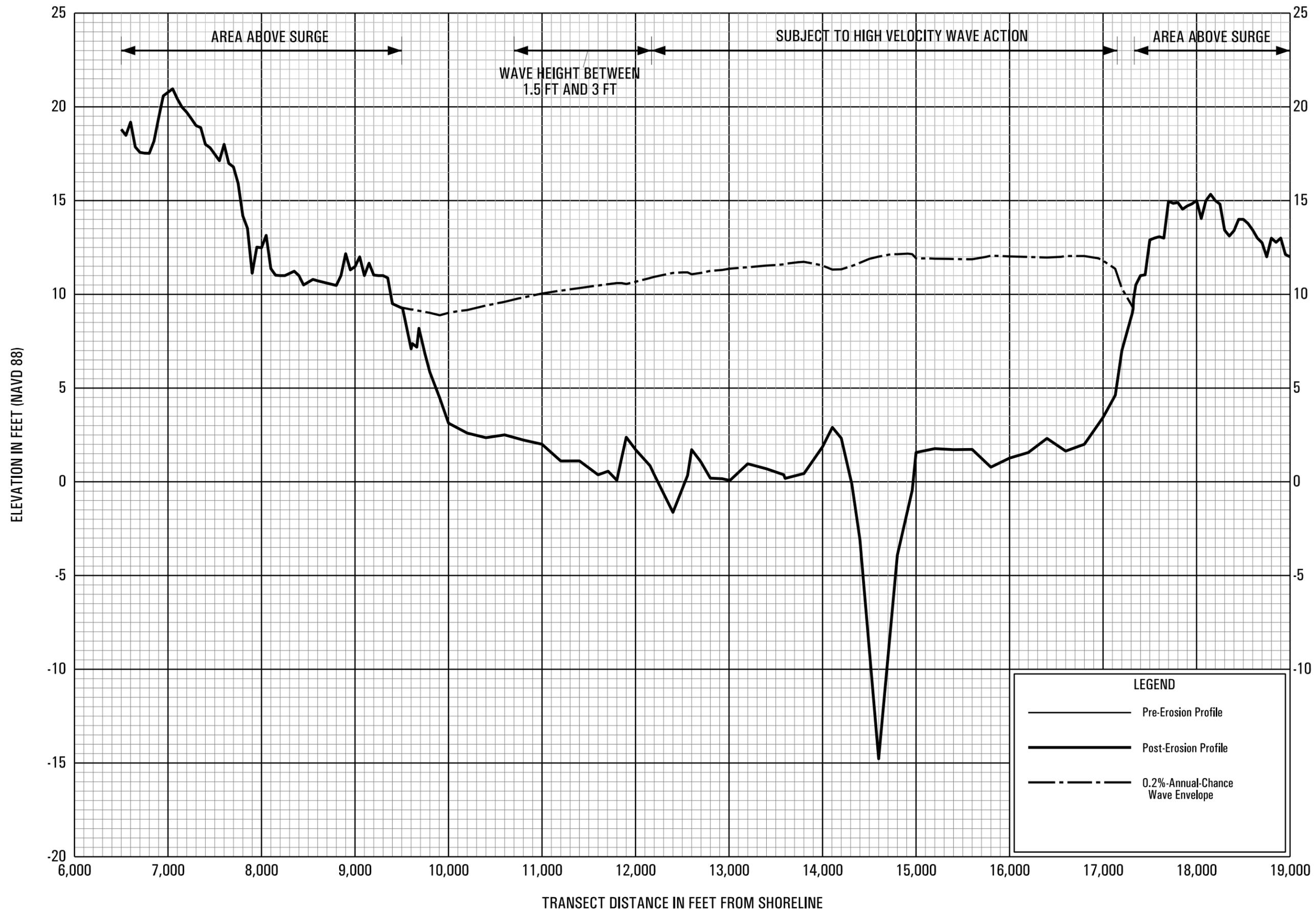
LEGEND

- Pre-Erosion Profile
- Post-Erosion Profile
- · - · 0.2% Annual-Chance Wave Envelope

0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 11

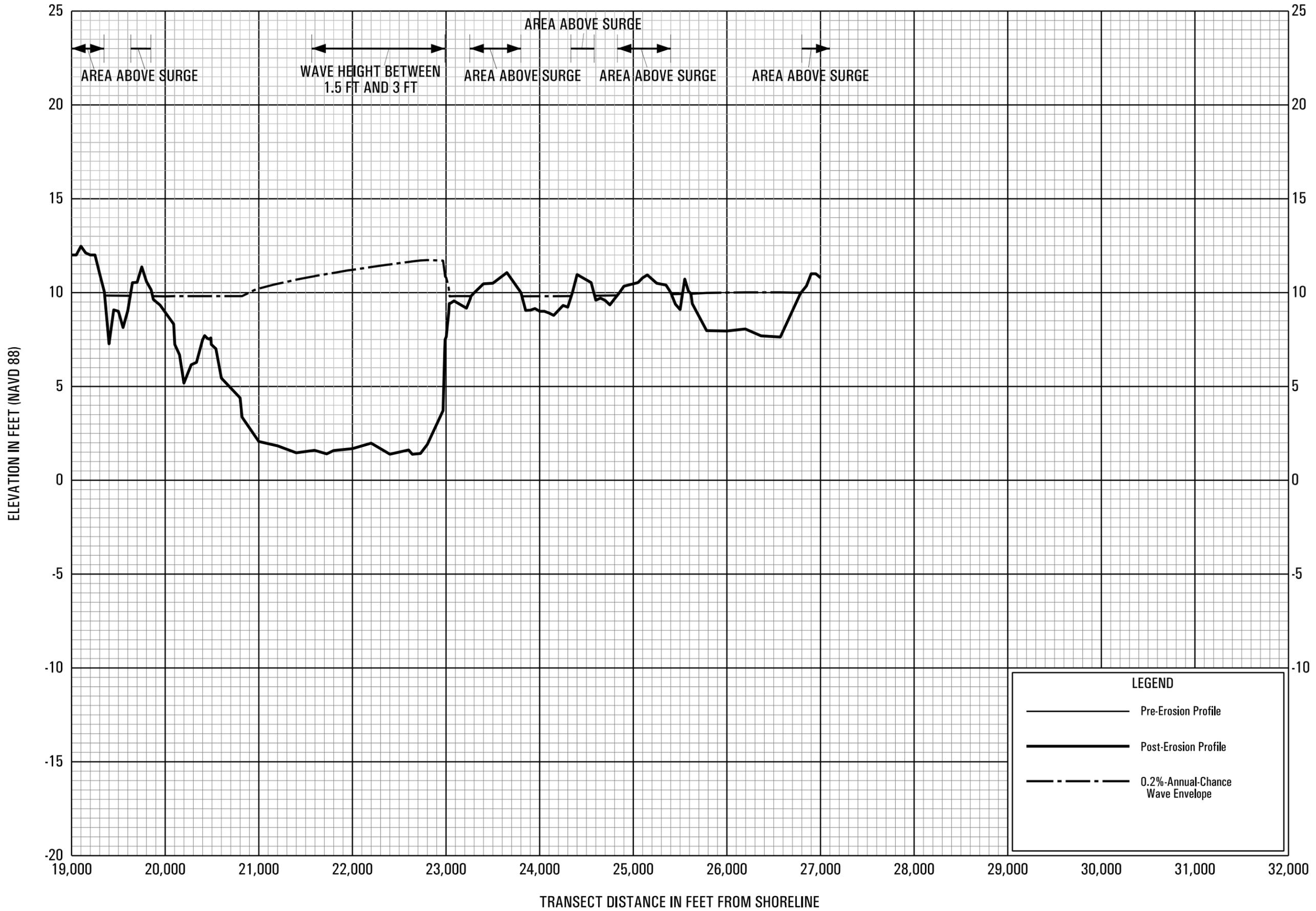
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 11

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



LEGEND

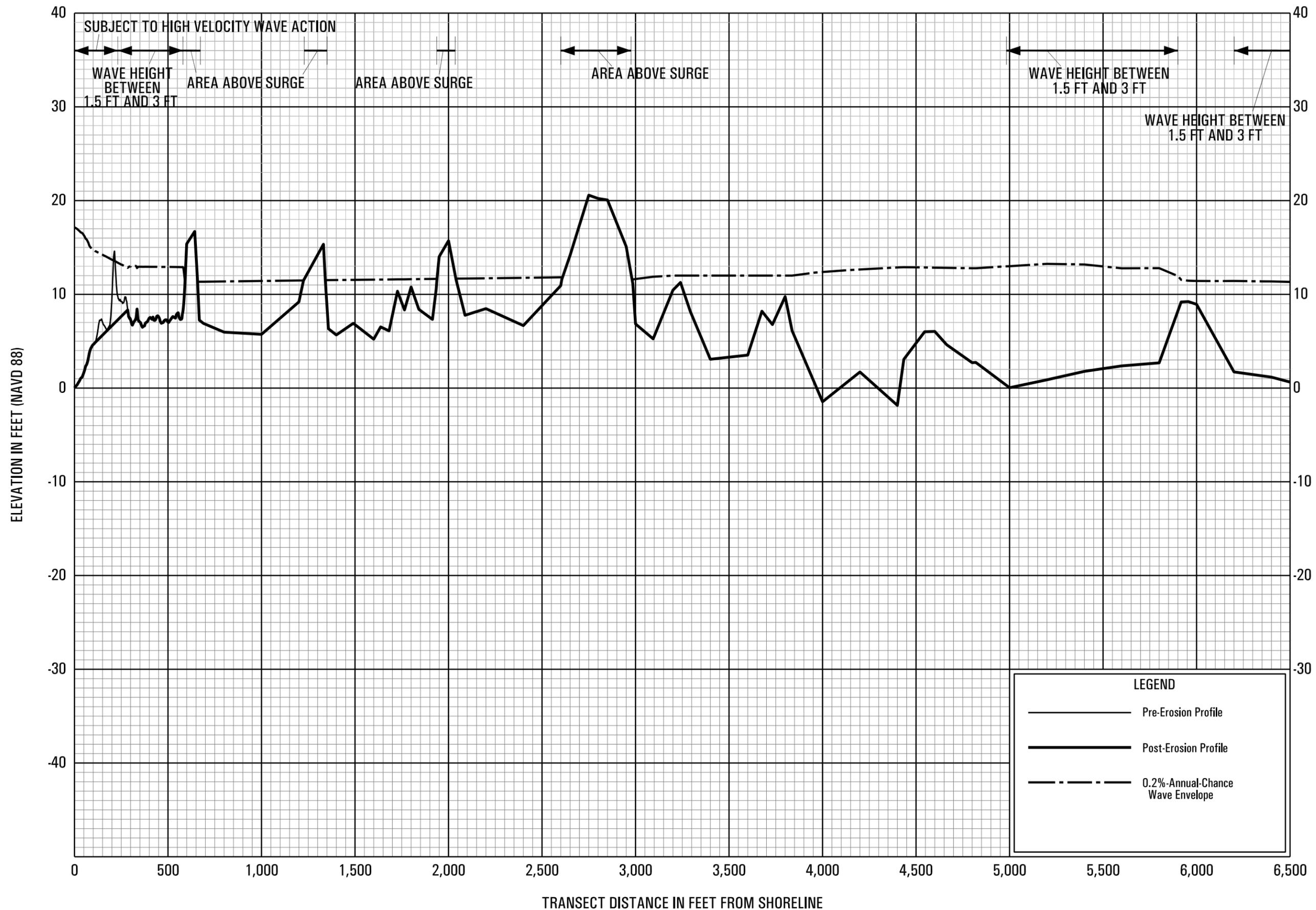
- Pre-Erosion Profile
- Post-Erosion Profile
- - - 0.2% Annual-Chance Wave Envelope

0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 11

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS

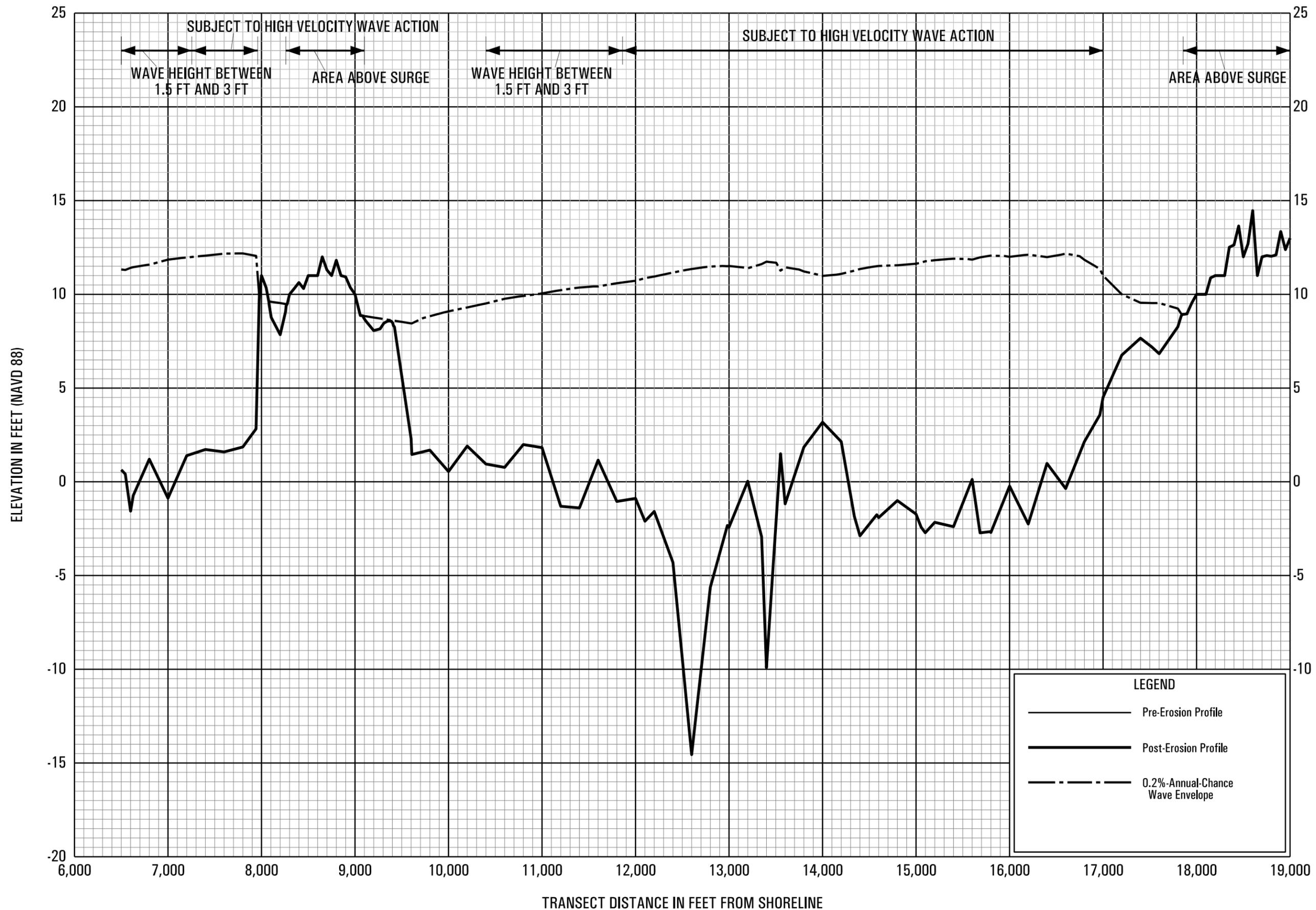
45P



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 12

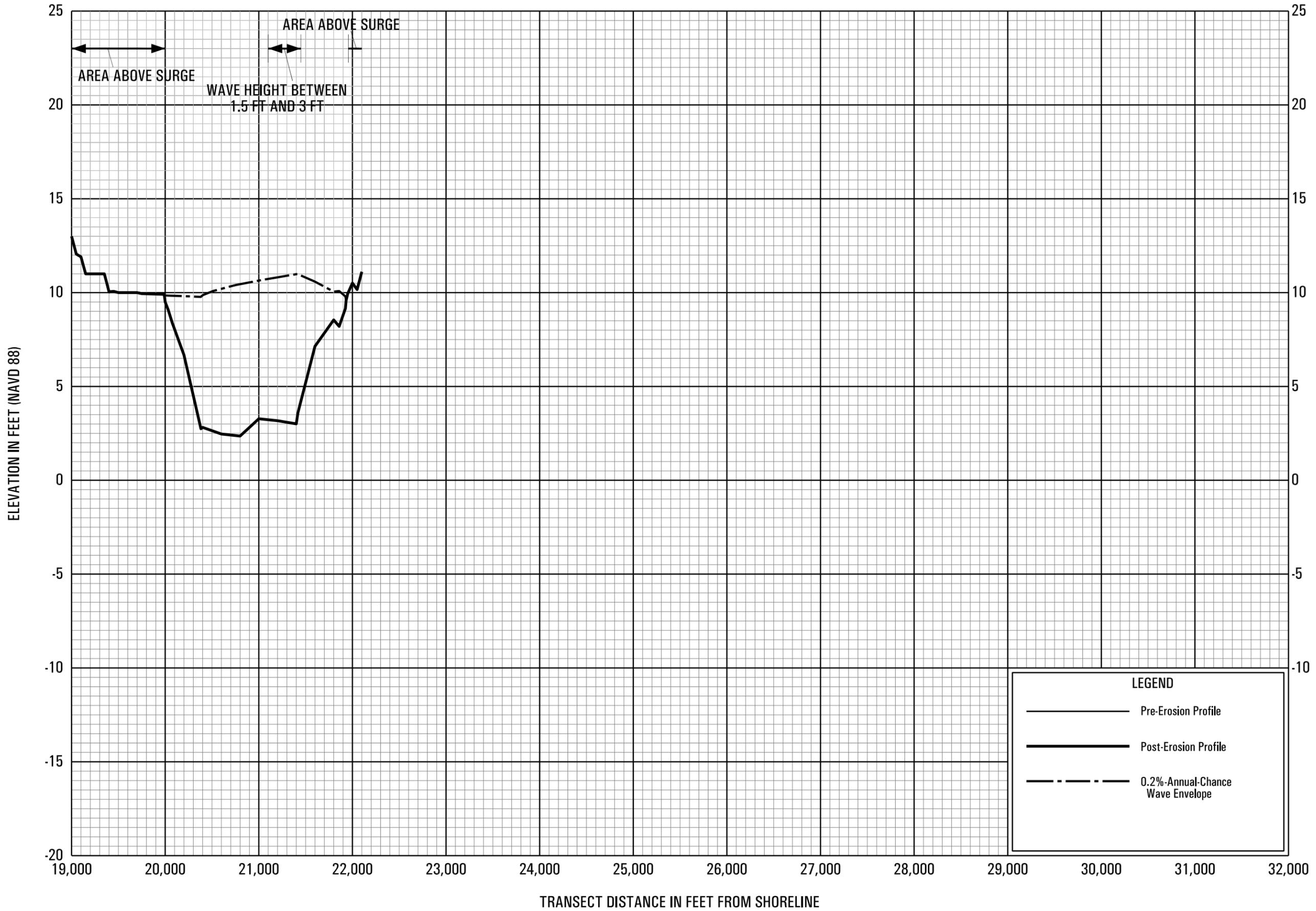
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 12

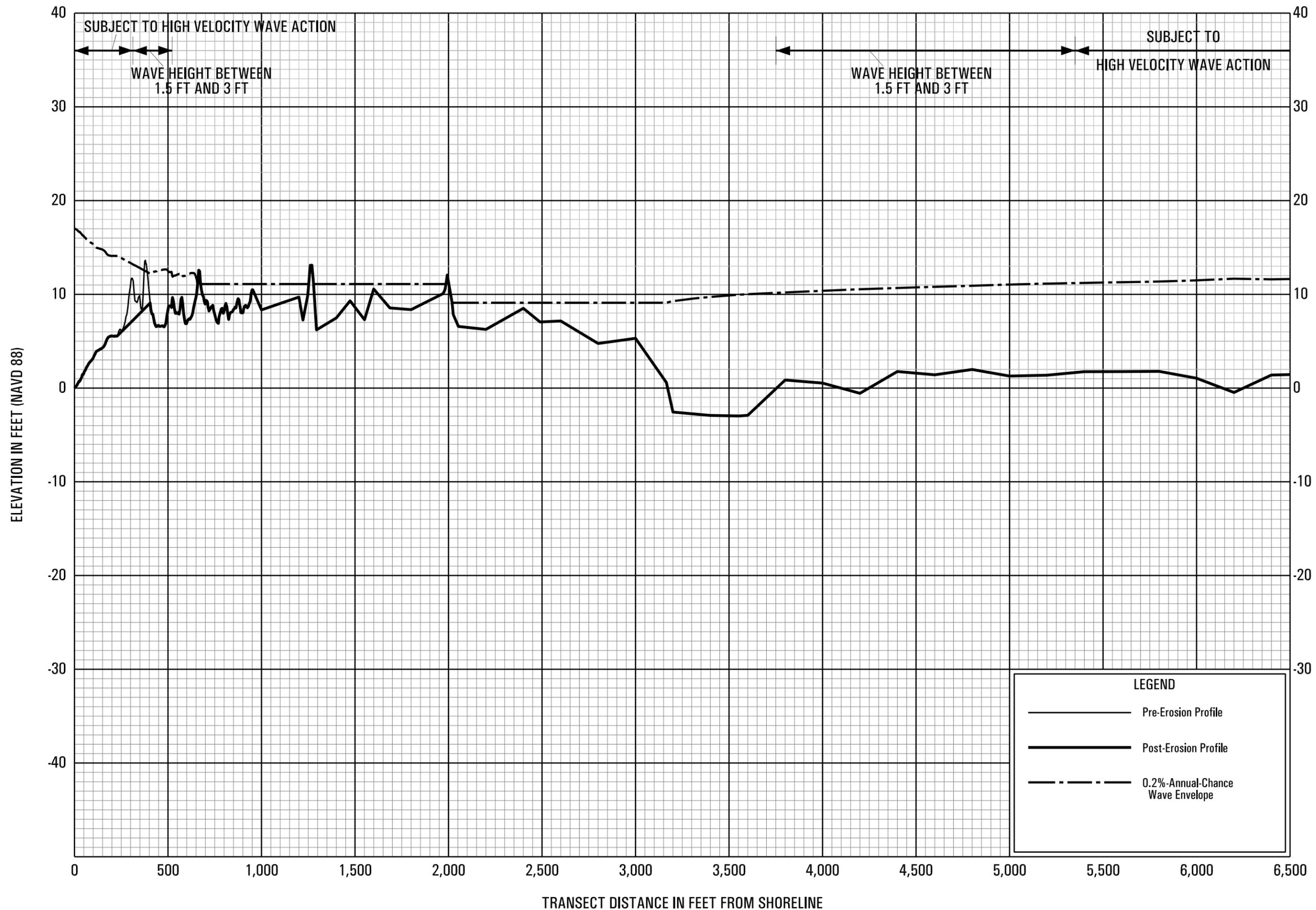
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 12

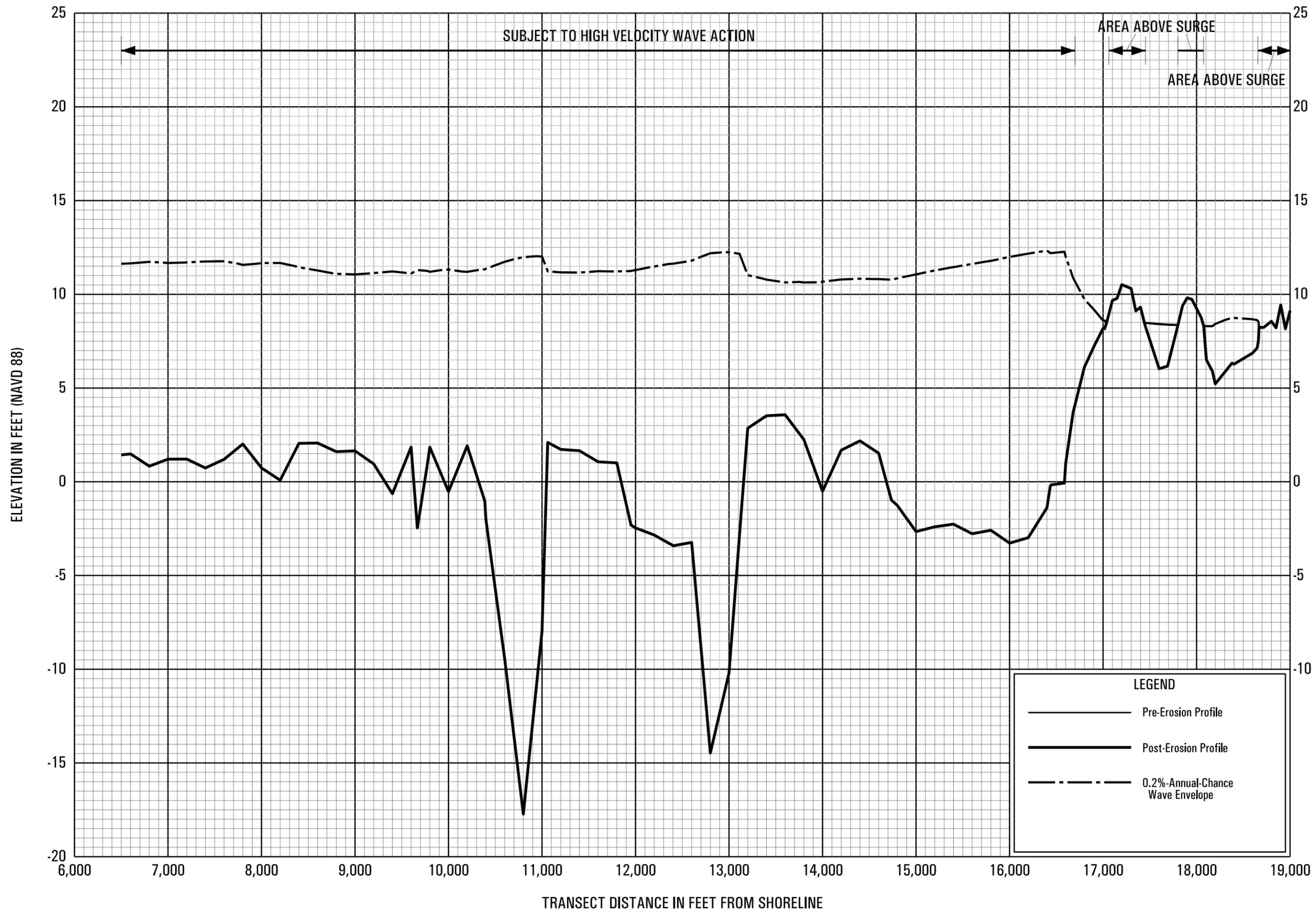
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 13

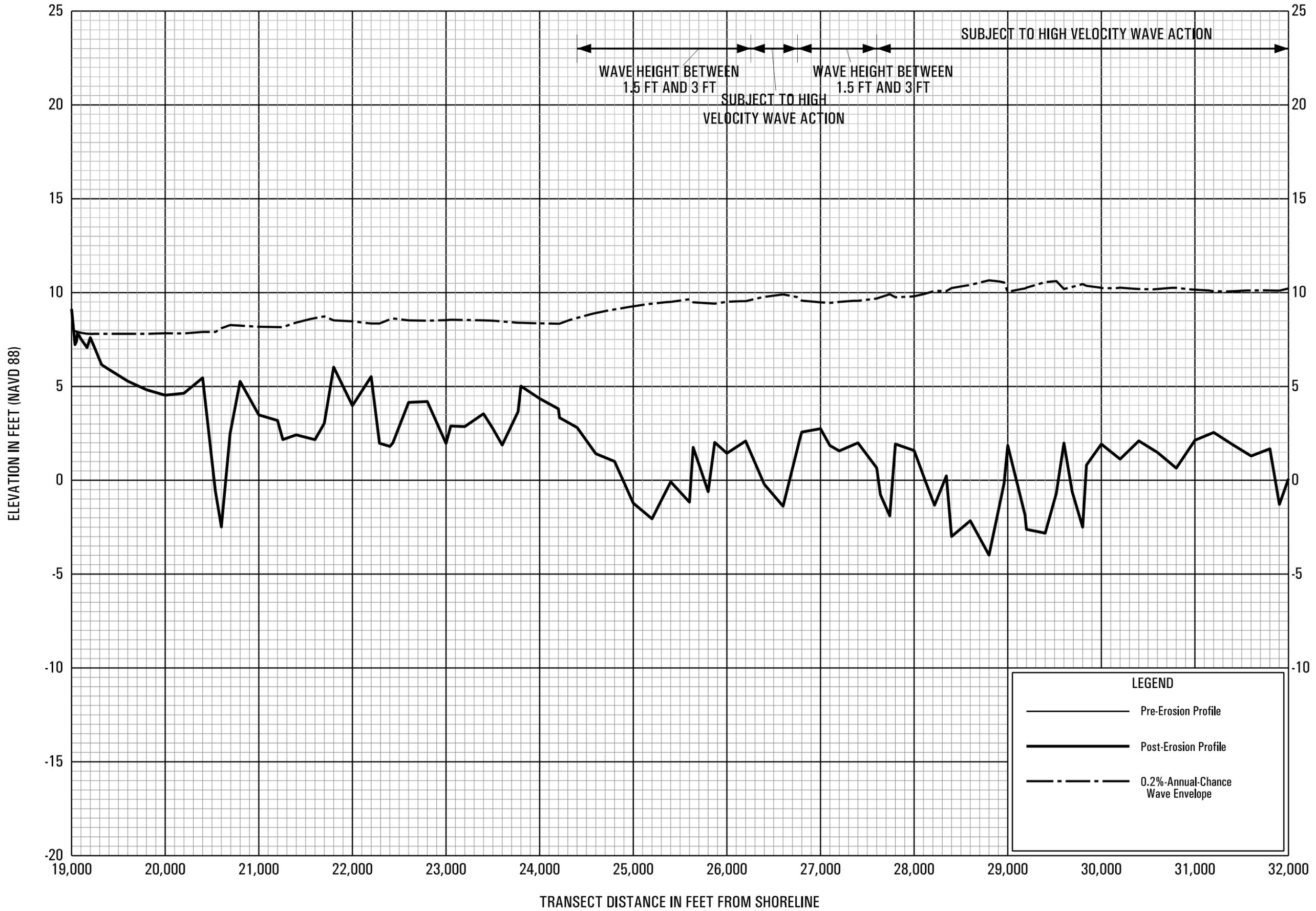
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 13

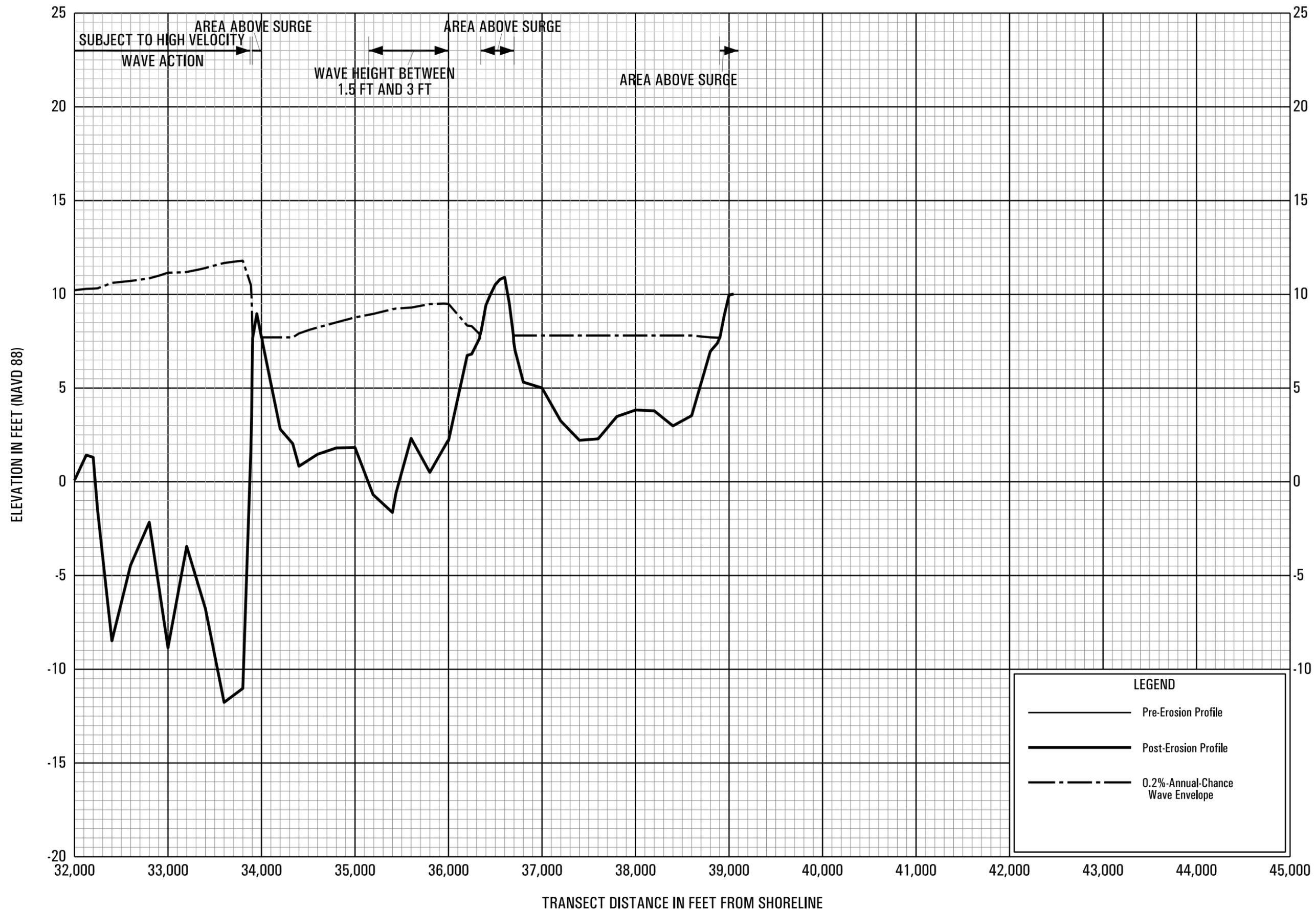
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 13

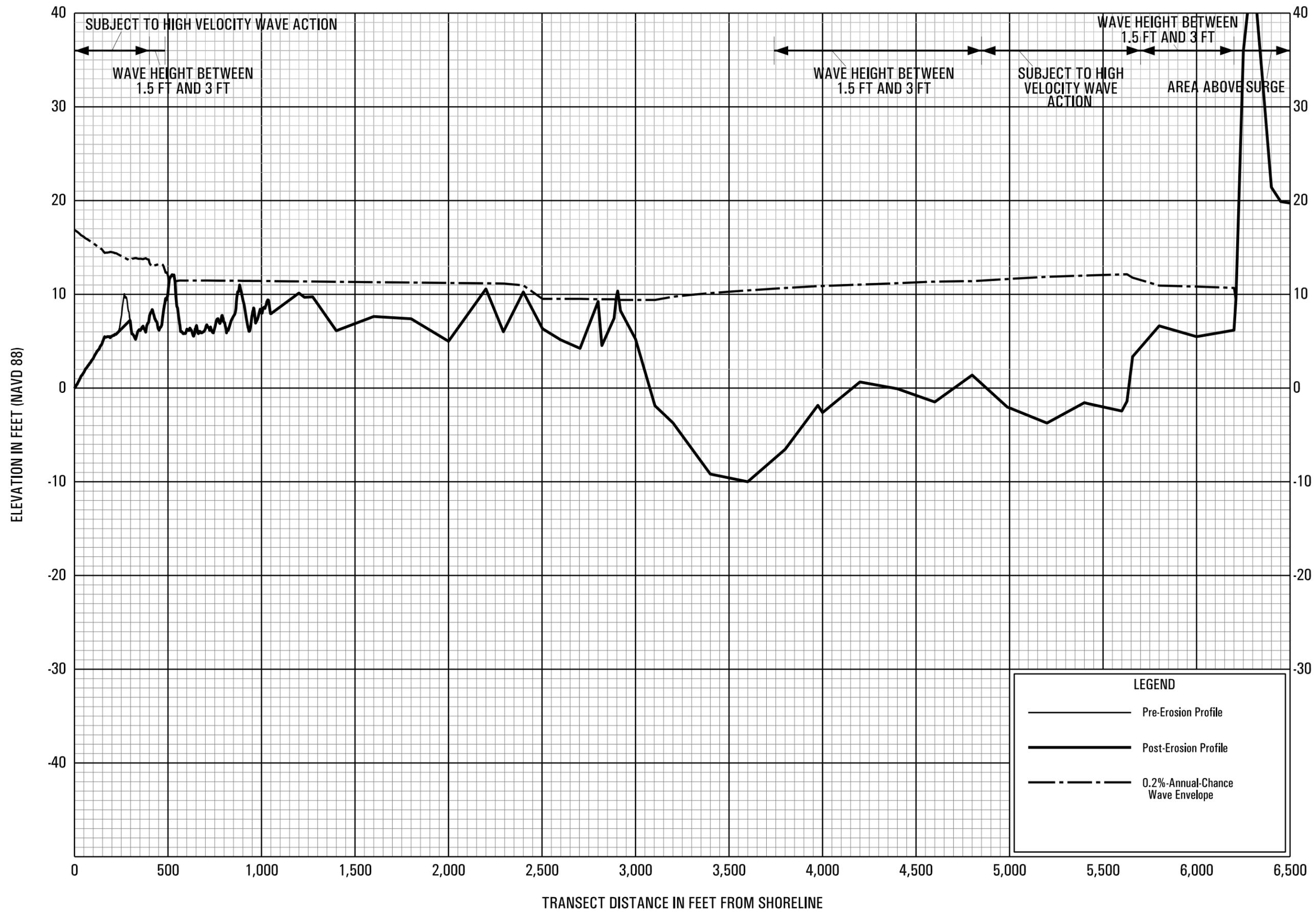
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 13

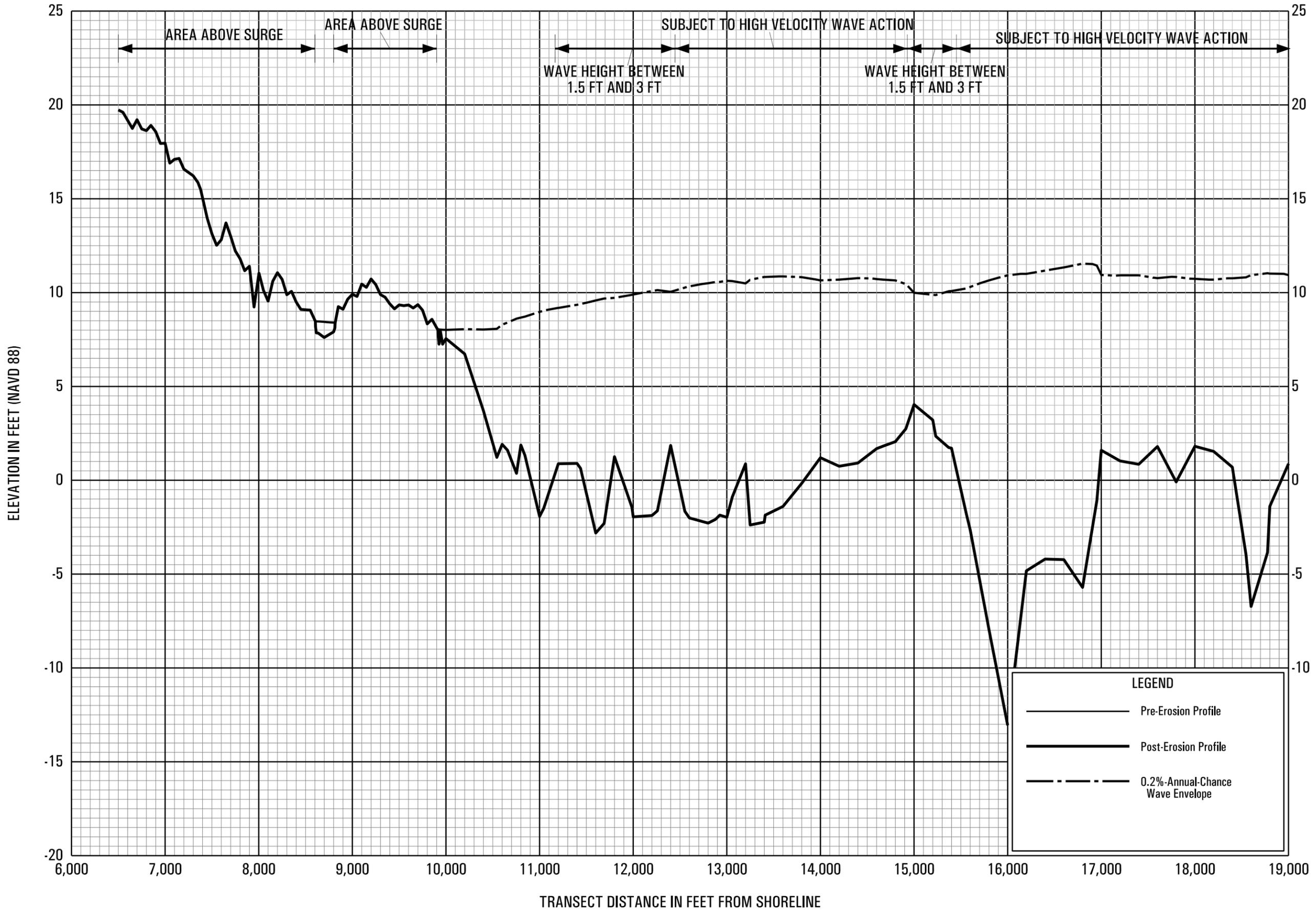
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 14

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



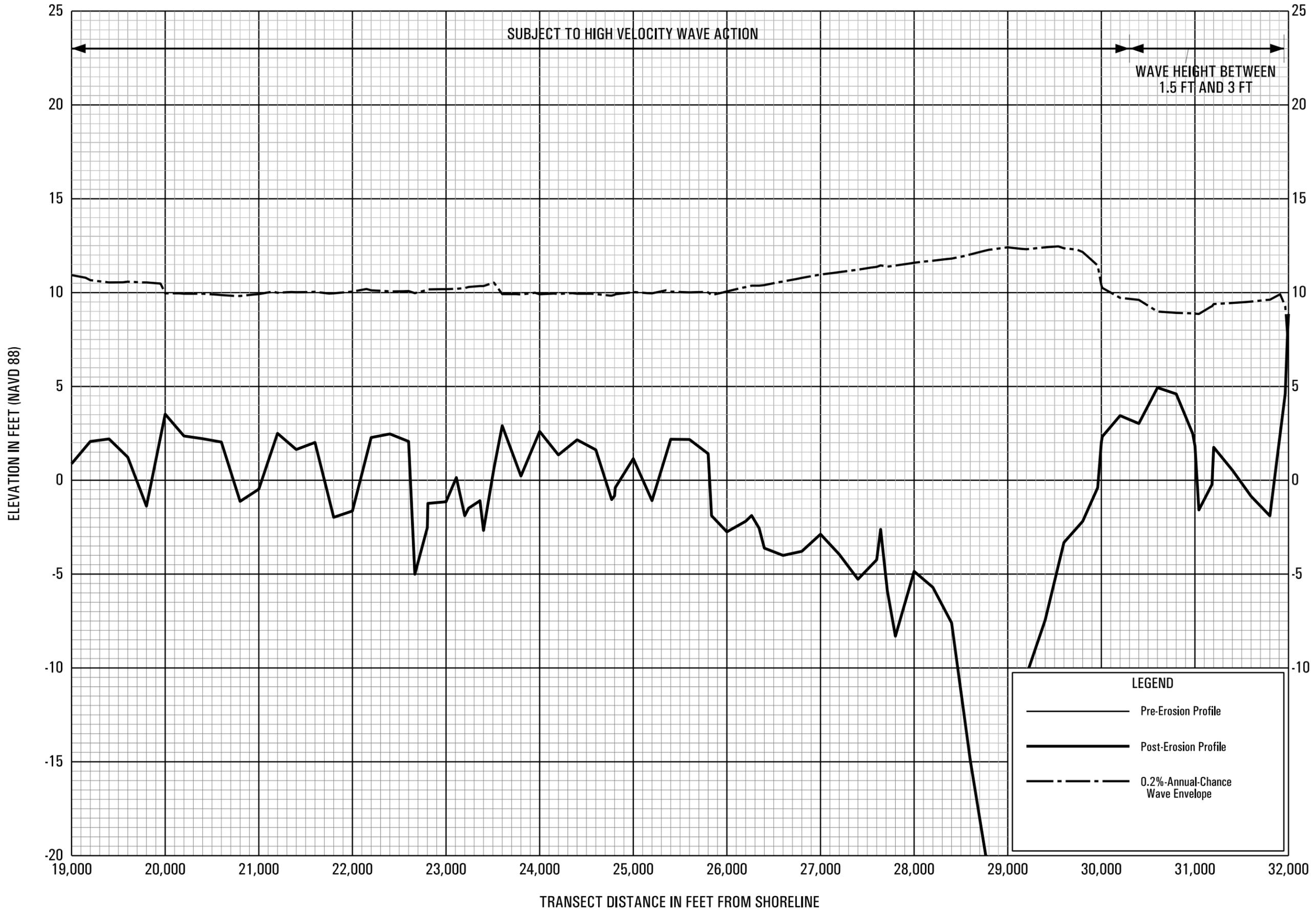
LEGEND

- Pre-Erosion Profile
- Post-Erosion Profile
- · - · 0.2%-Annual-Chance Wave Envelope

0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 14

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



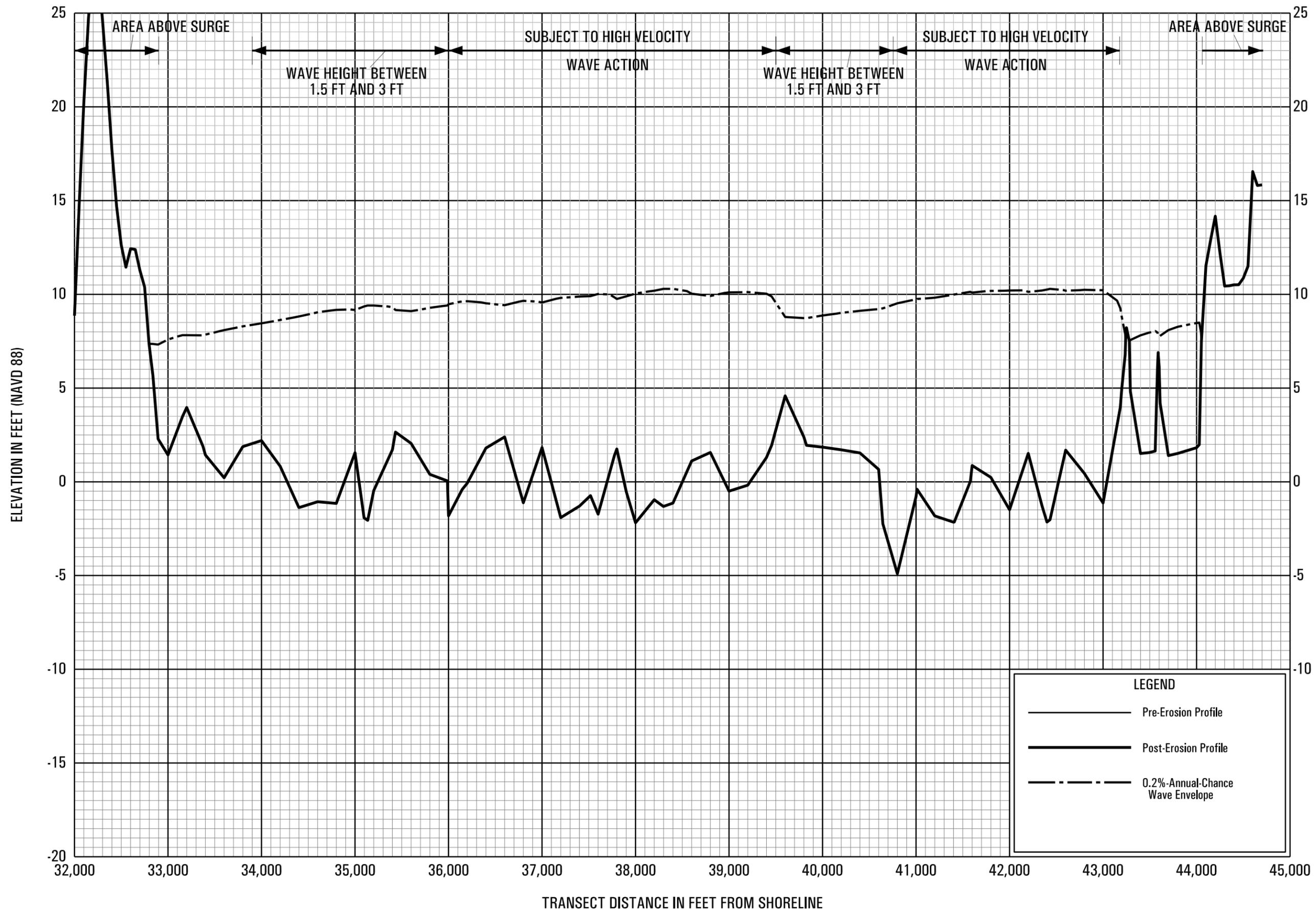
LEGEND

- Pre-Erosion Profile
- Post-Erosion Profile
- · - 0.2%-Annual-Chance Wave Envelope

0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 14

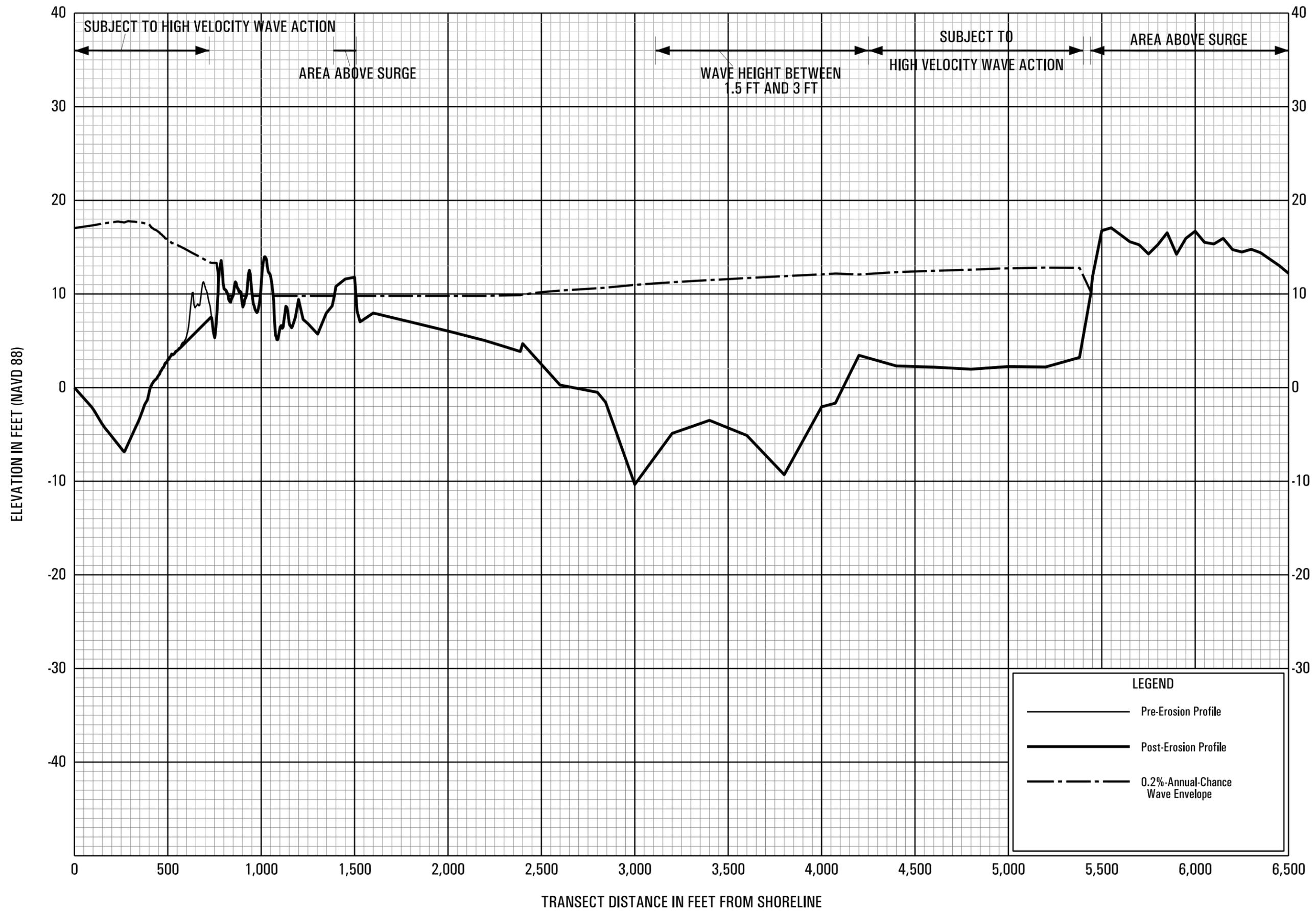
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 14

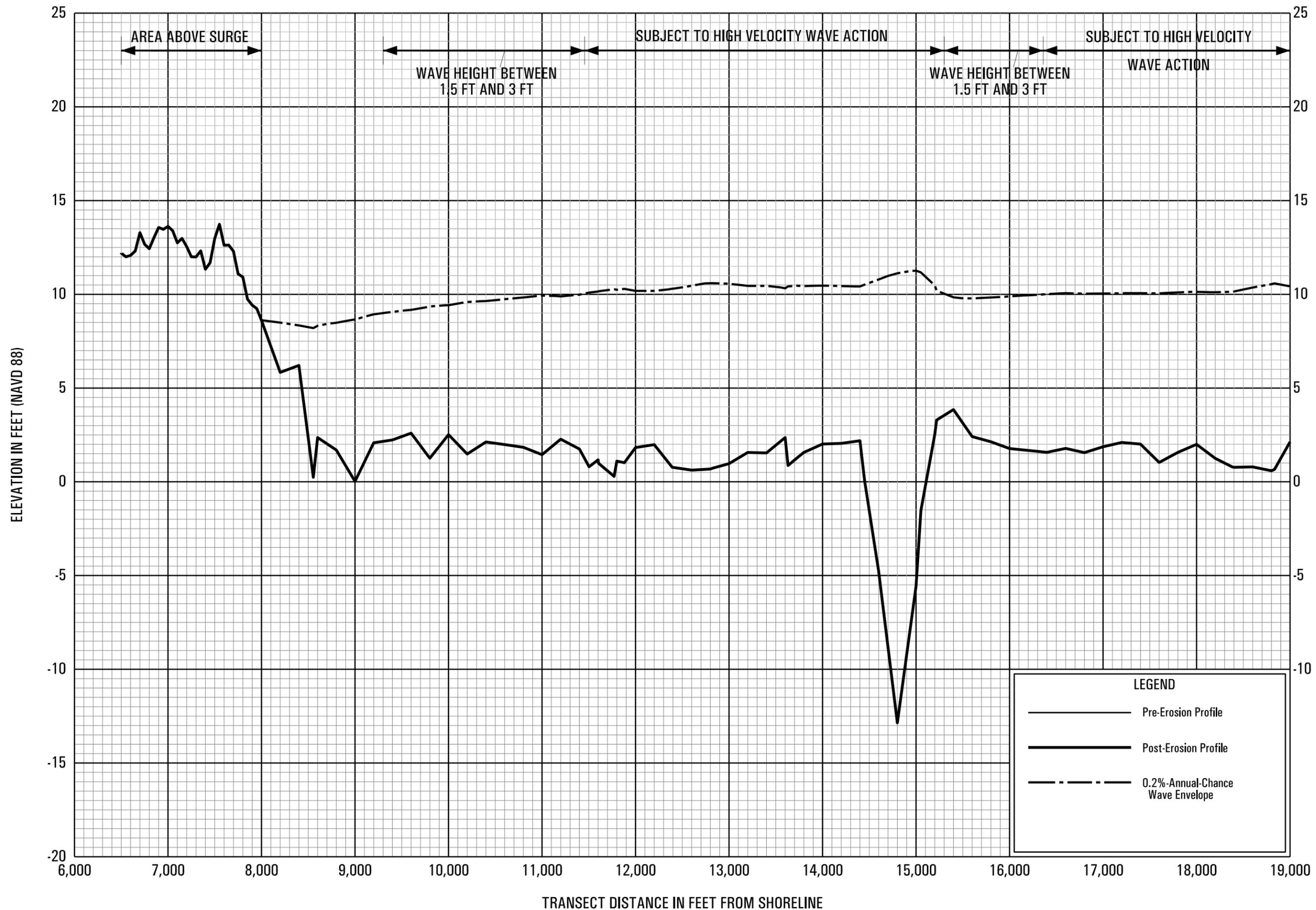
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 15

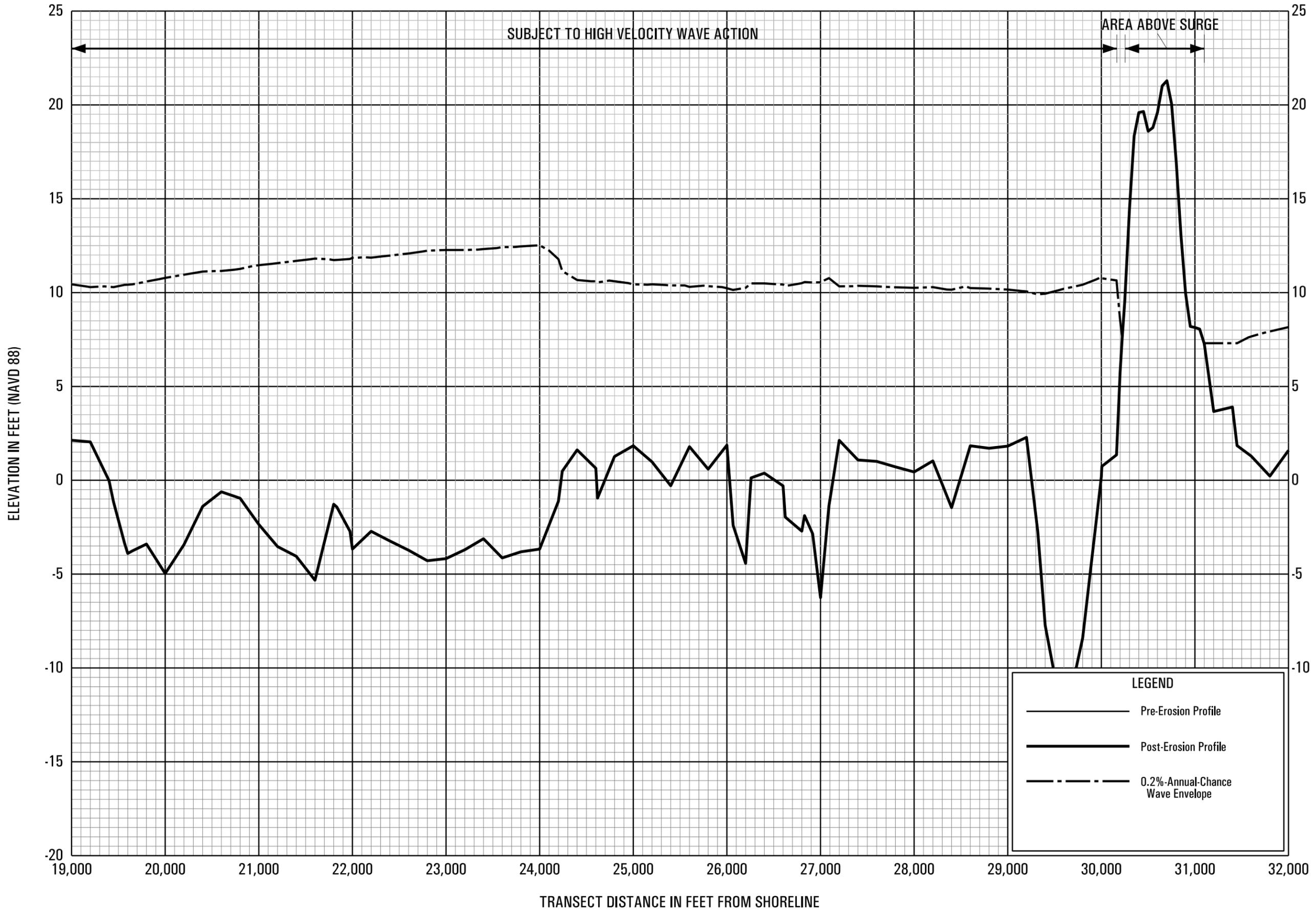
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 15

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS

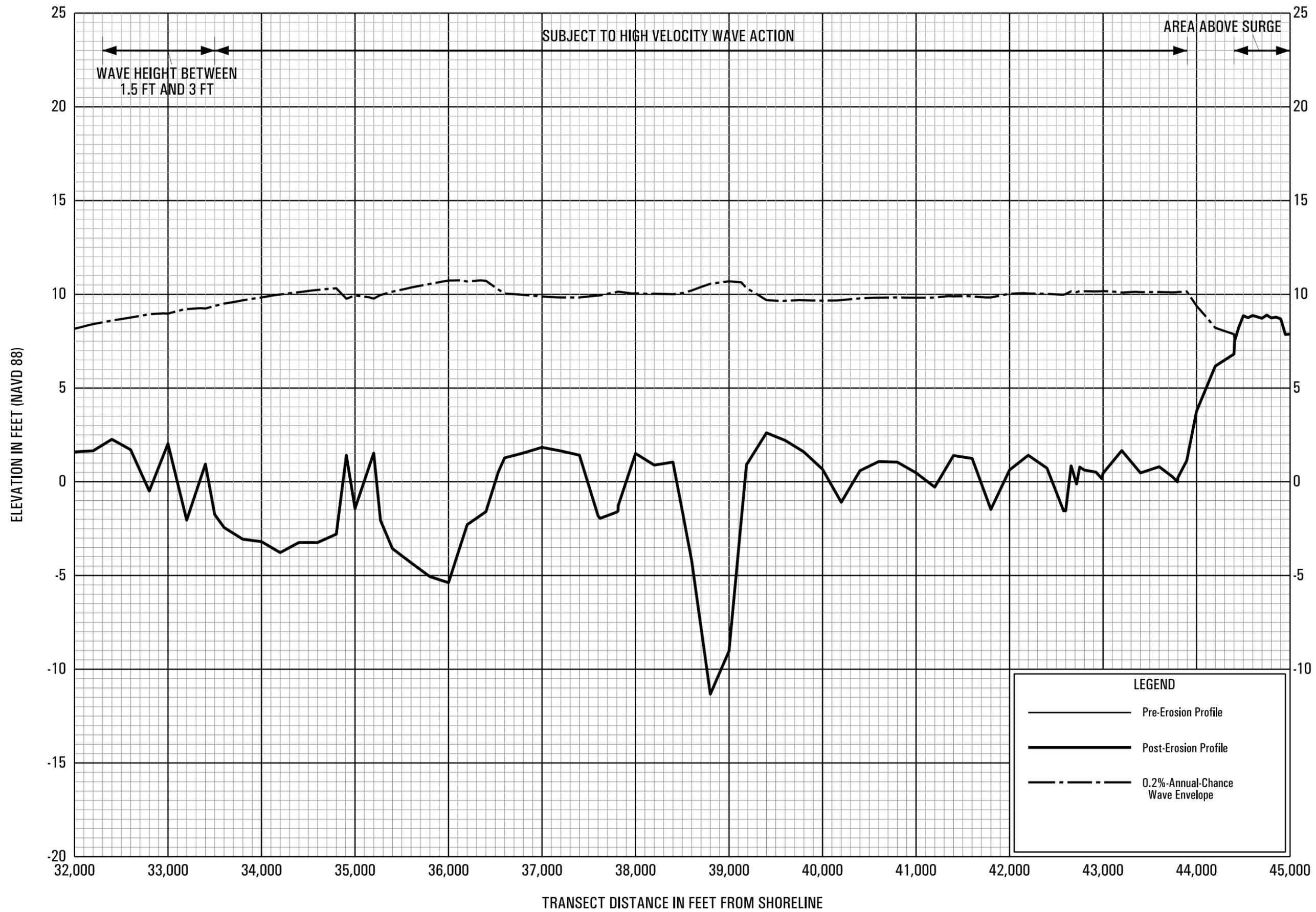


0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 15

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS

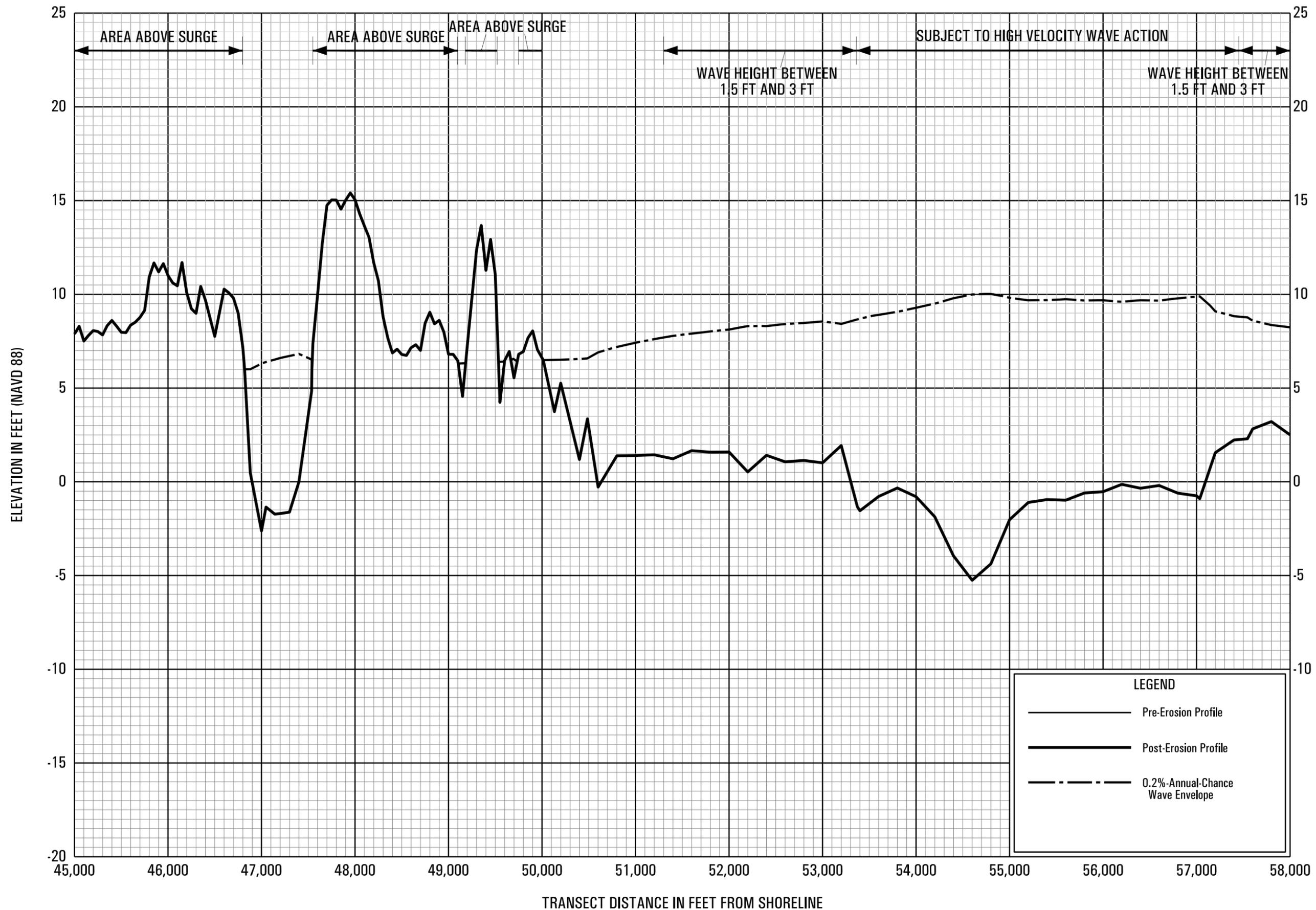
59P



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 15

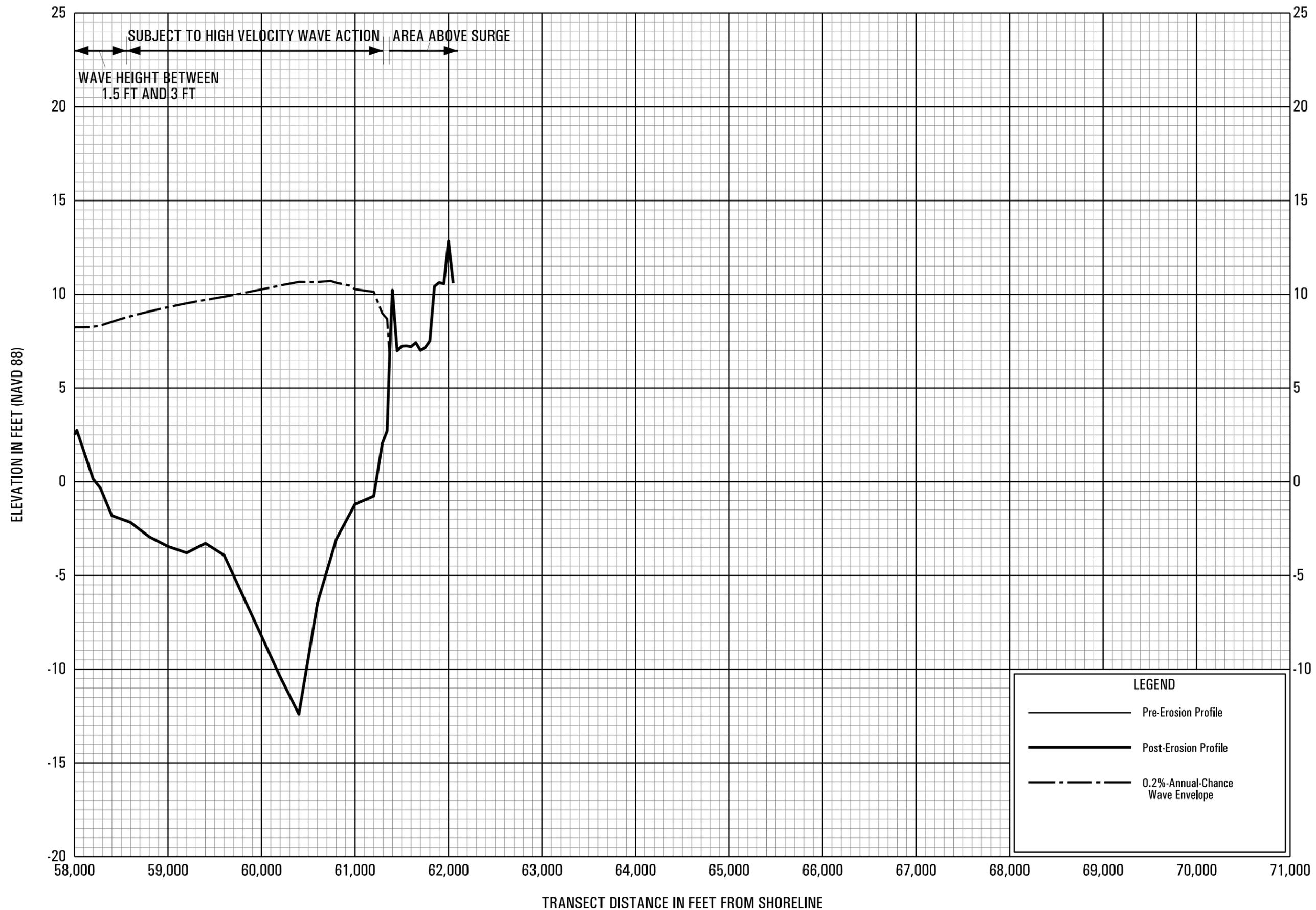
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 15

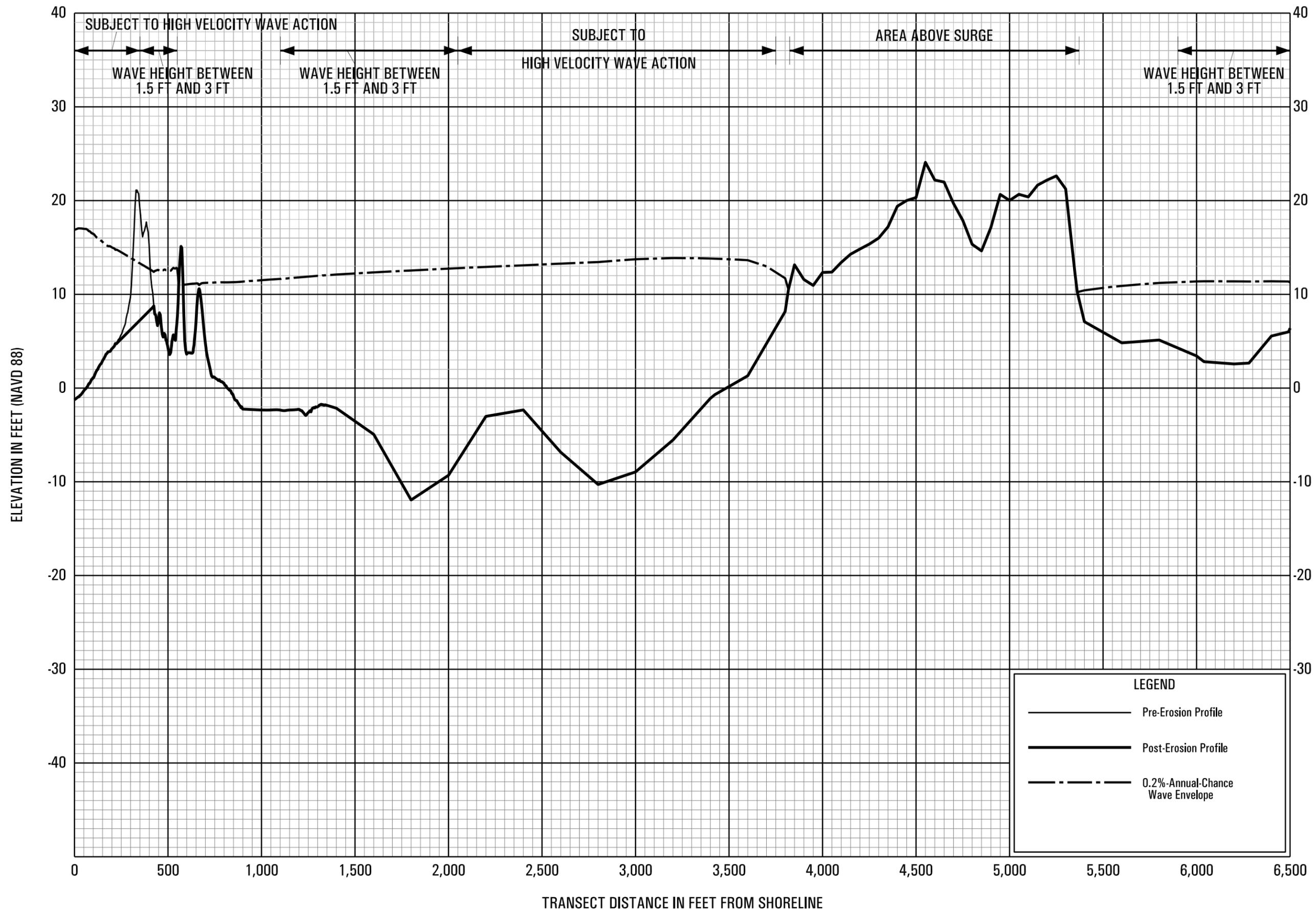
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 15

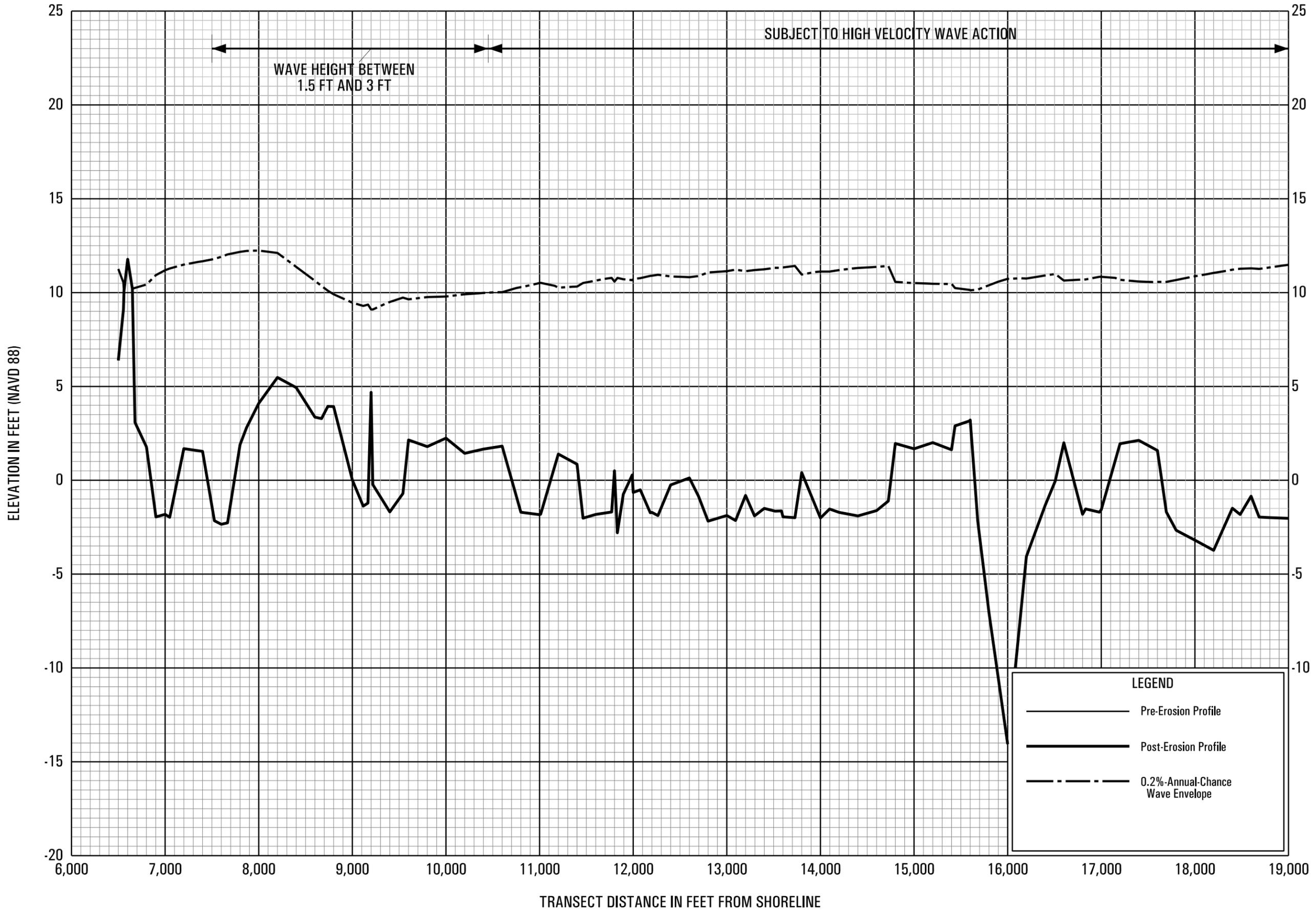
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 16

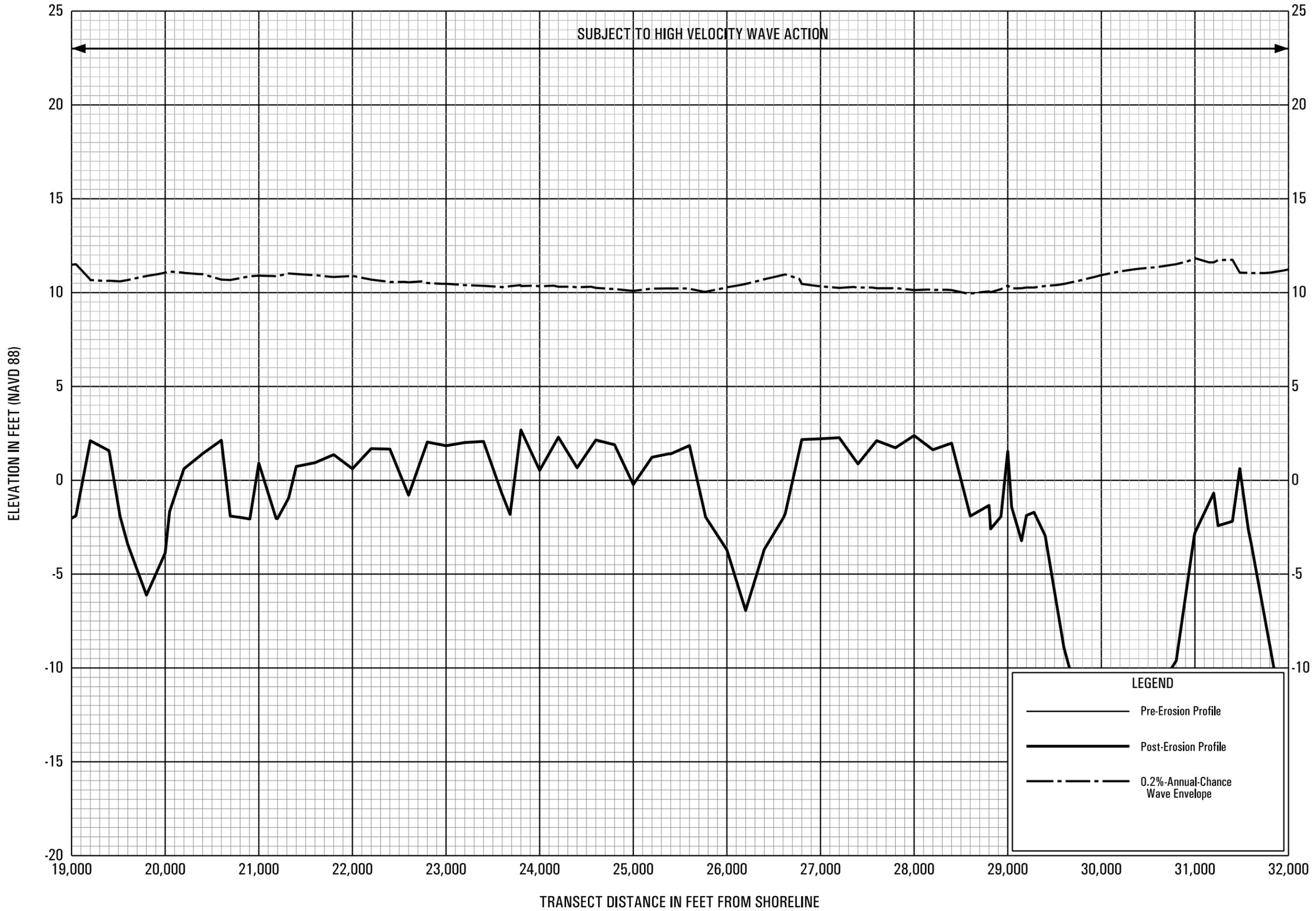
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 16

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



LEGEND

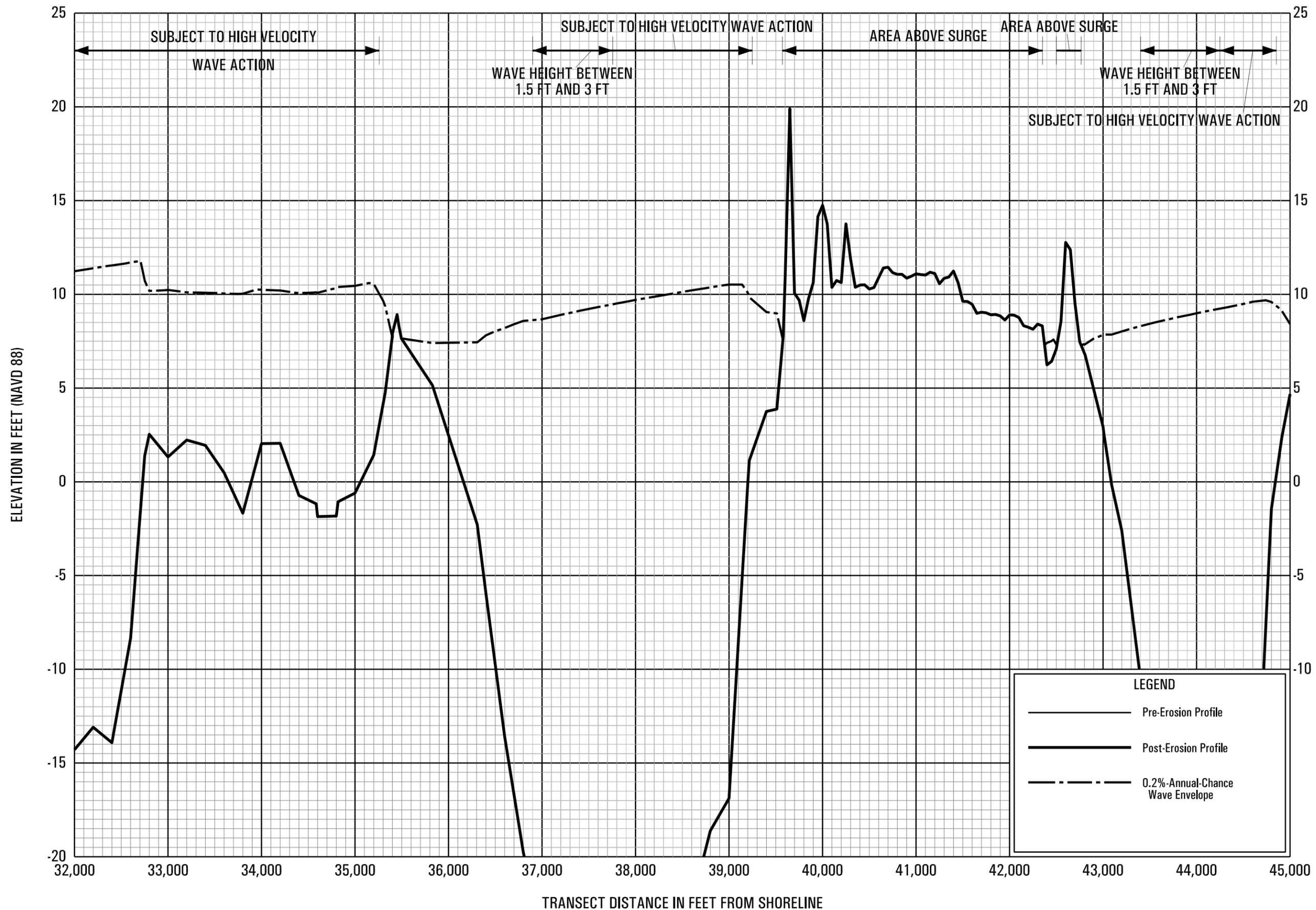
- Pre-Erosion Profile
- Post-Erosion Profile
- 0.2% Annual-Chance Wave Envelope

0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 16

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS

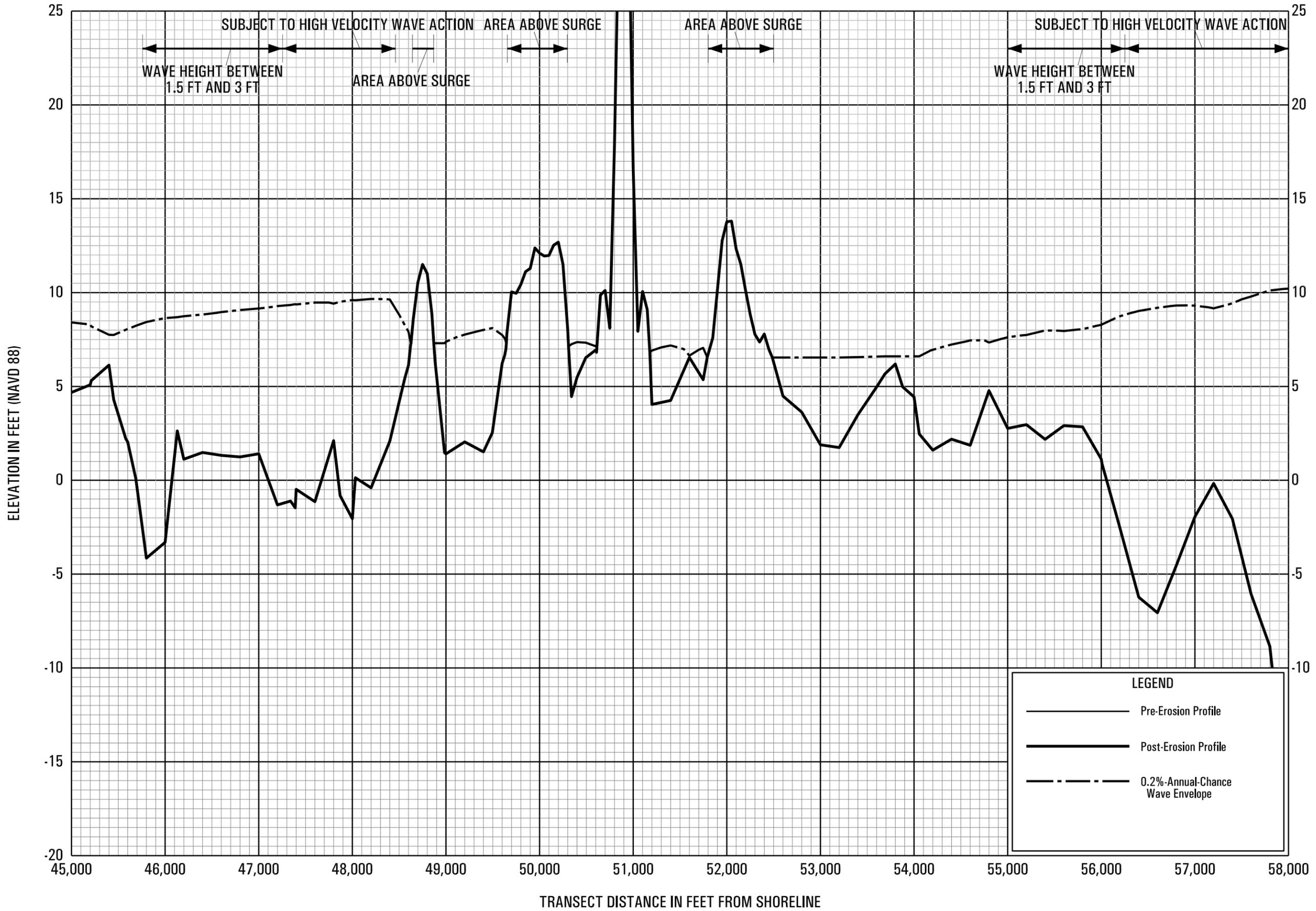
65P



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 16

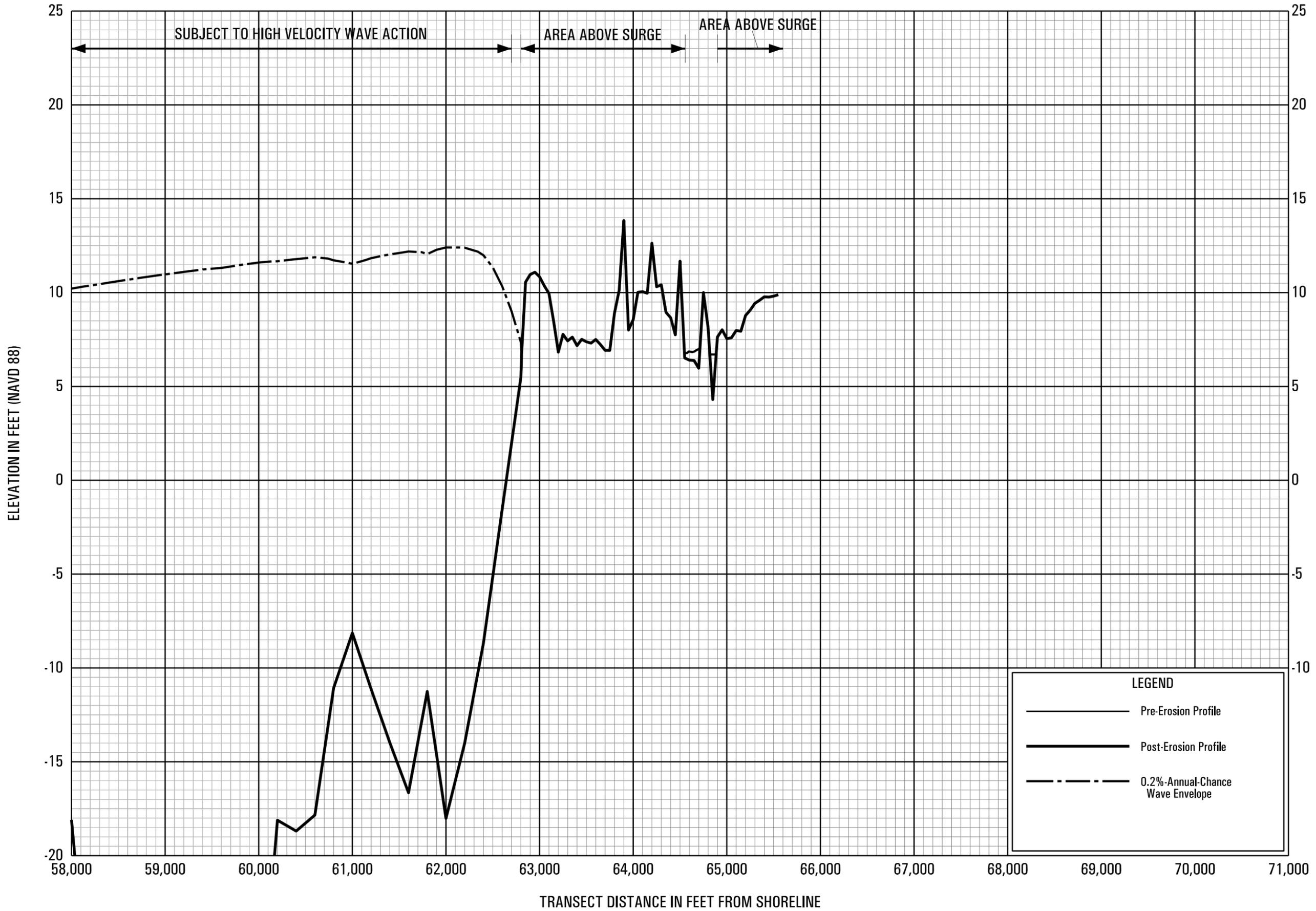
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 16

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



LEGEND

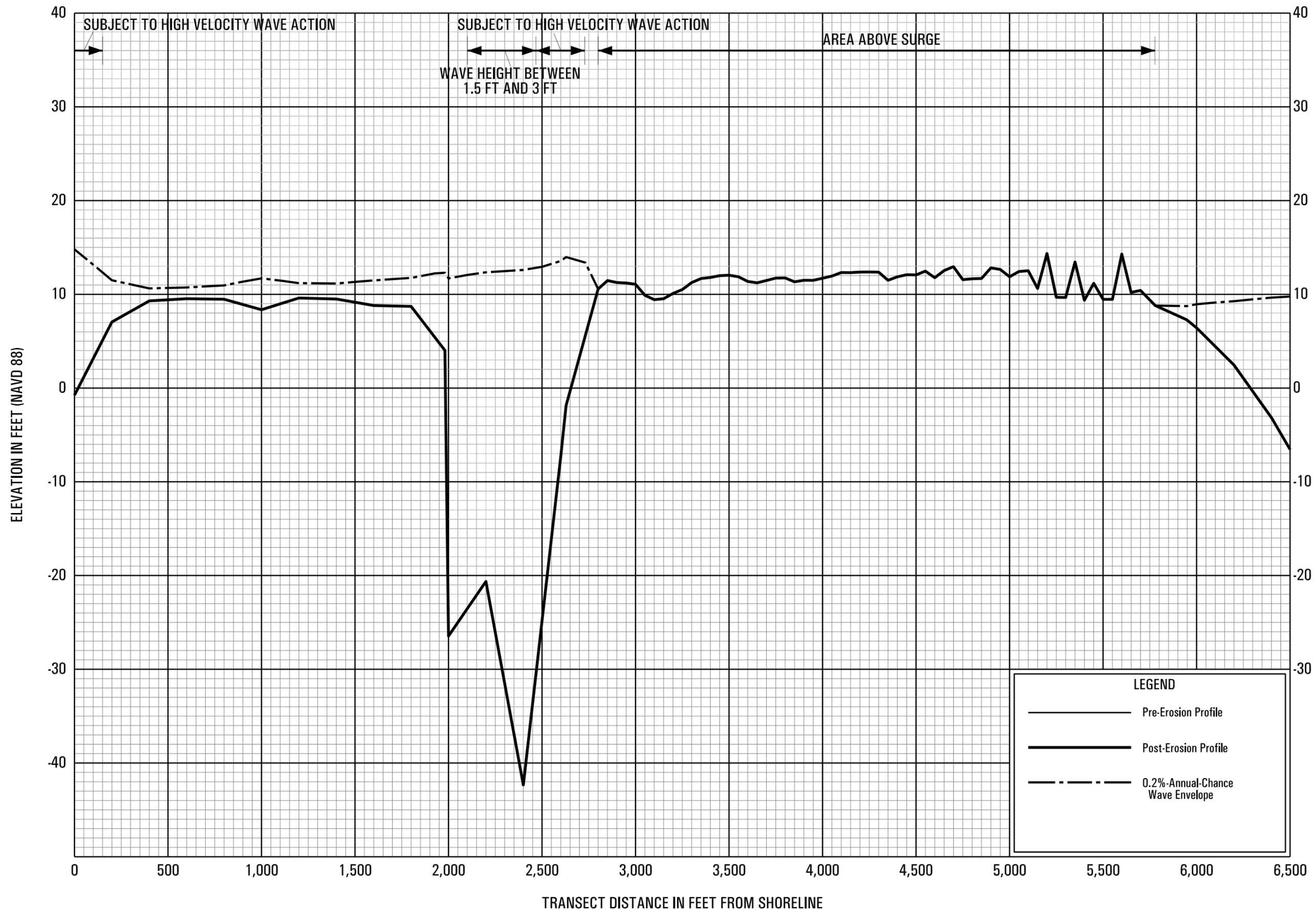
- Pre-Erosion Profile
- Post-Erosion Profile
- · - · 0.2%-Annual-Chance Wave Envelope

0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 16

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS

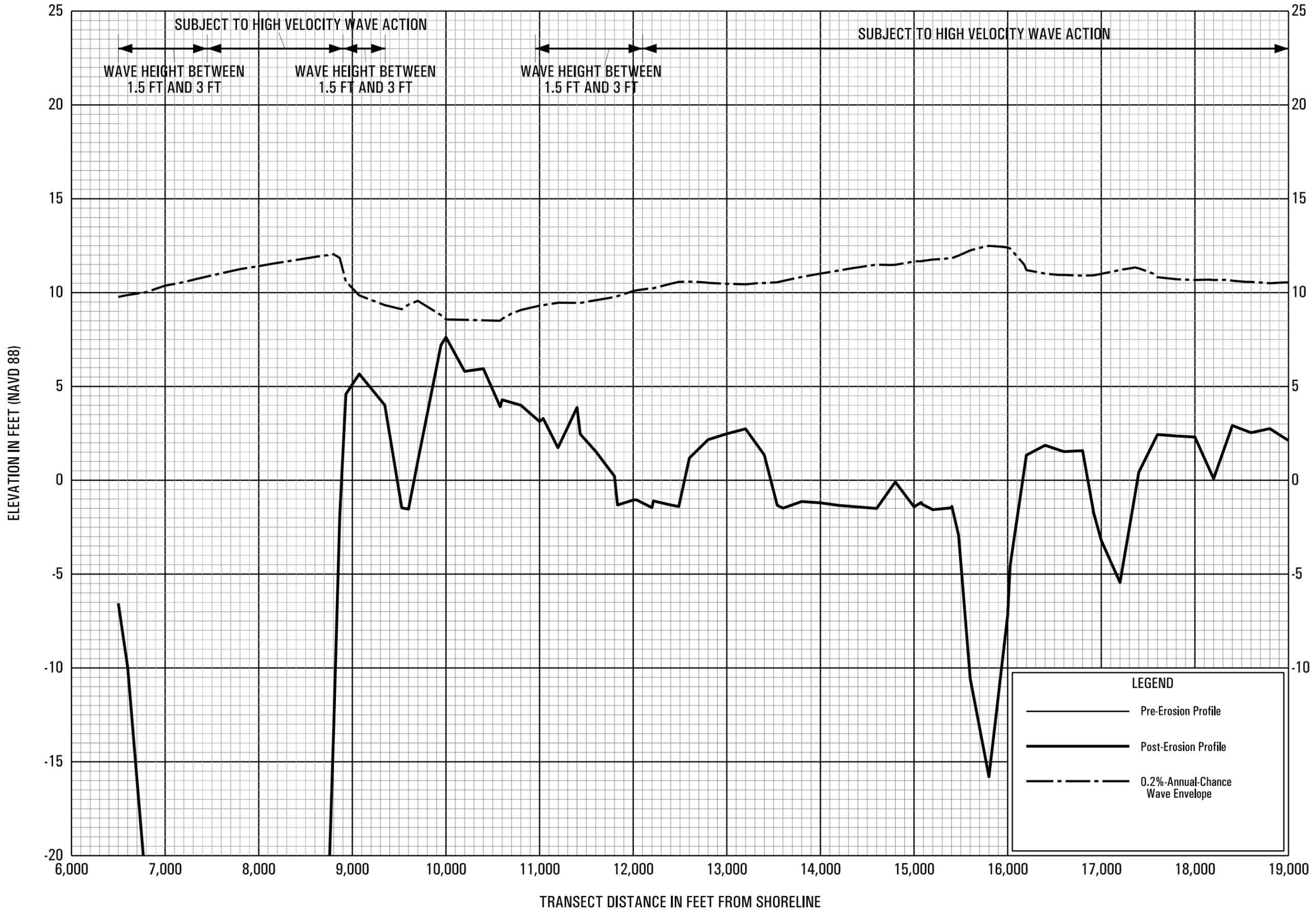
68P



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 17

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



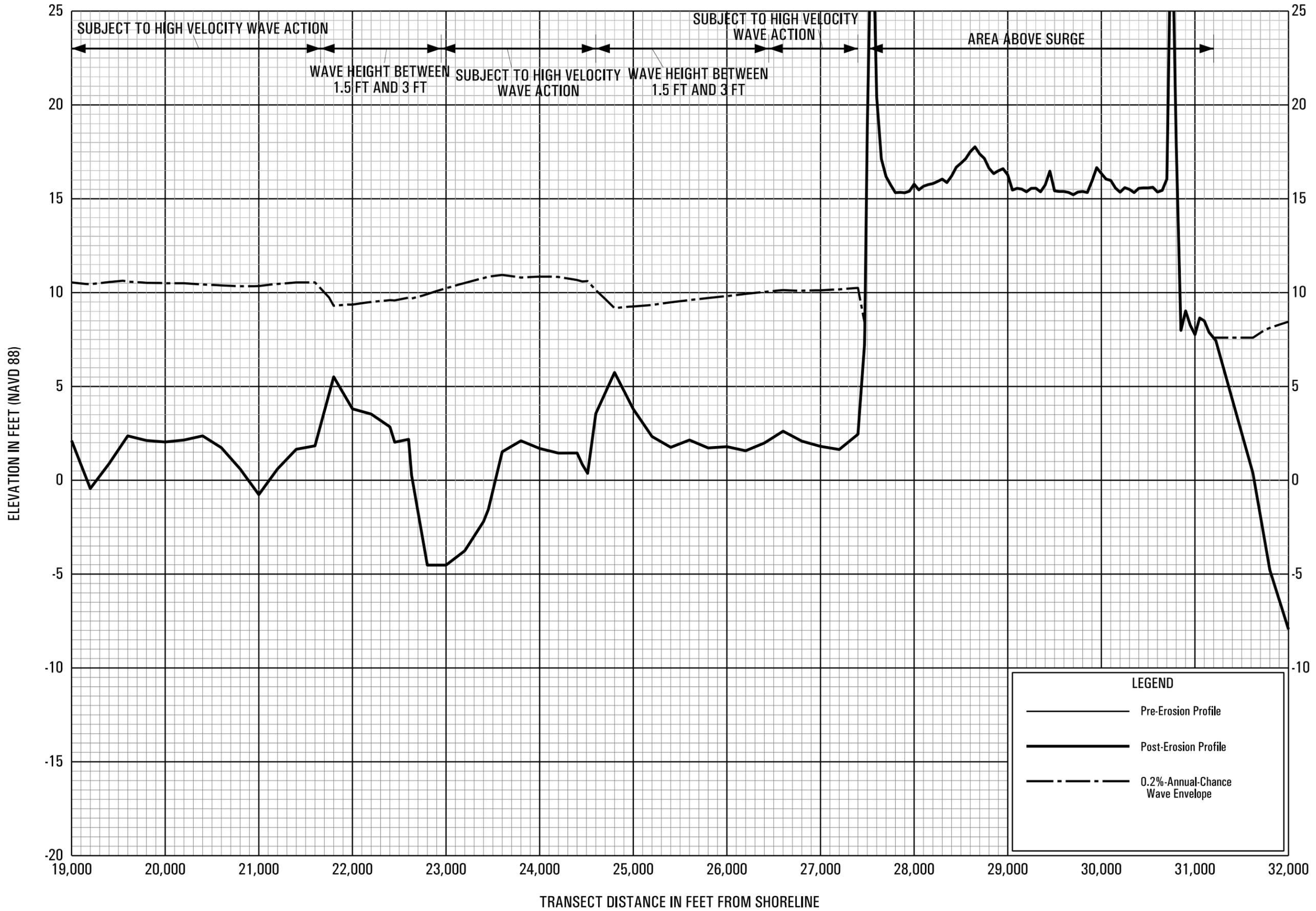
LEGEND

- Pre-Erosion Profile
- Post-Erosion Profile
- · - 0.2%-Annual-Chance Wave Envelope

0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 17

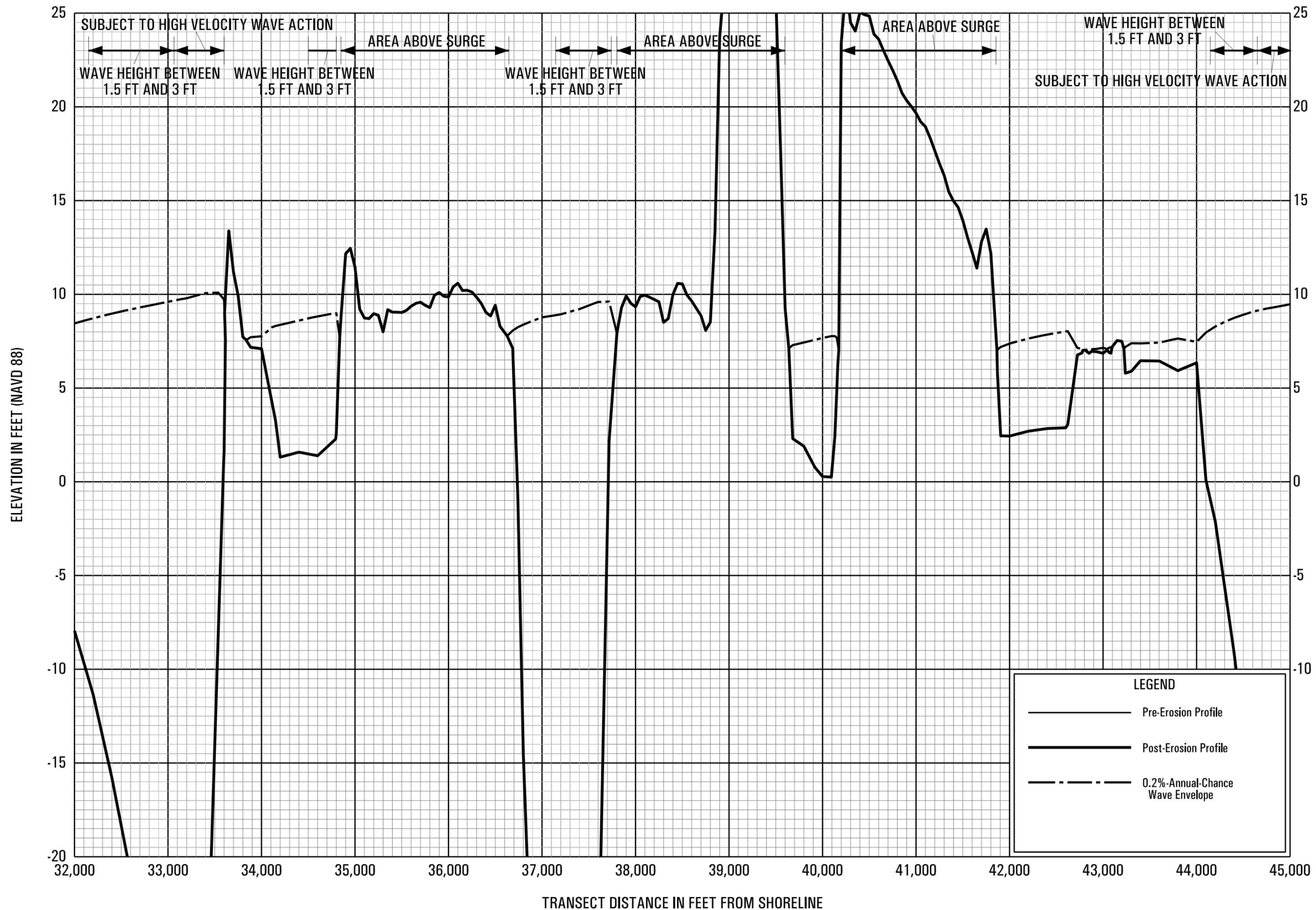
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 17

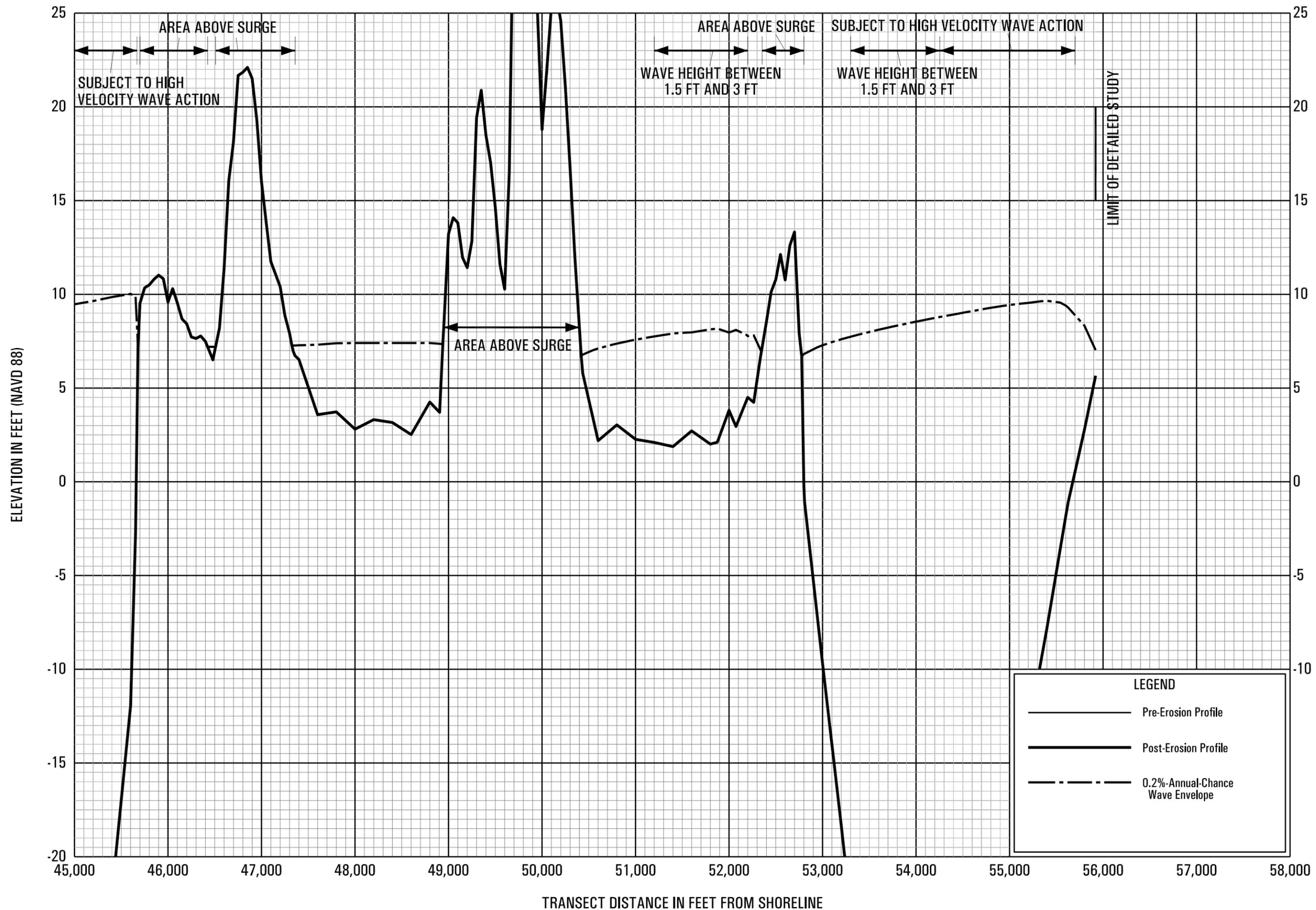
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 17

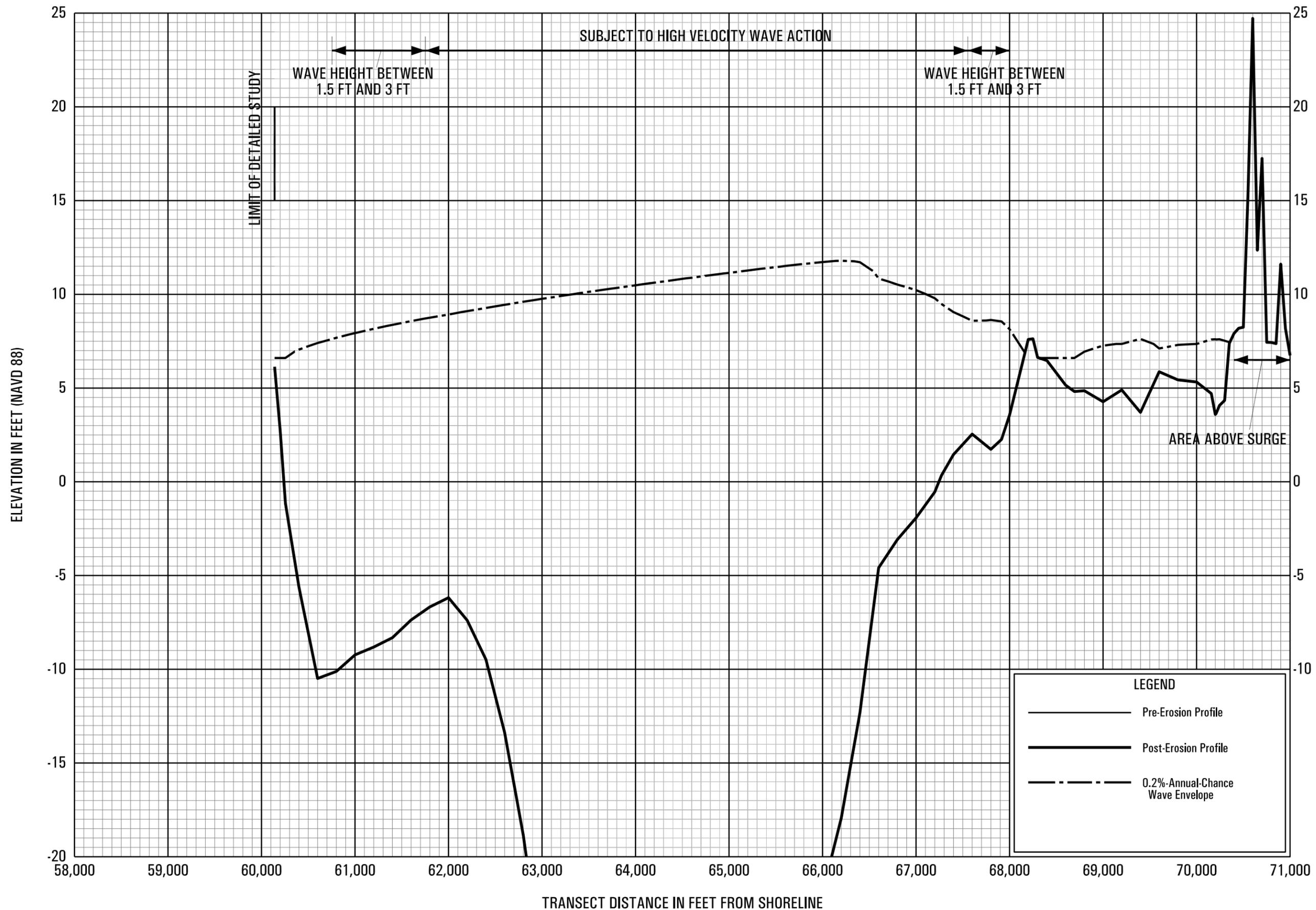
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 17

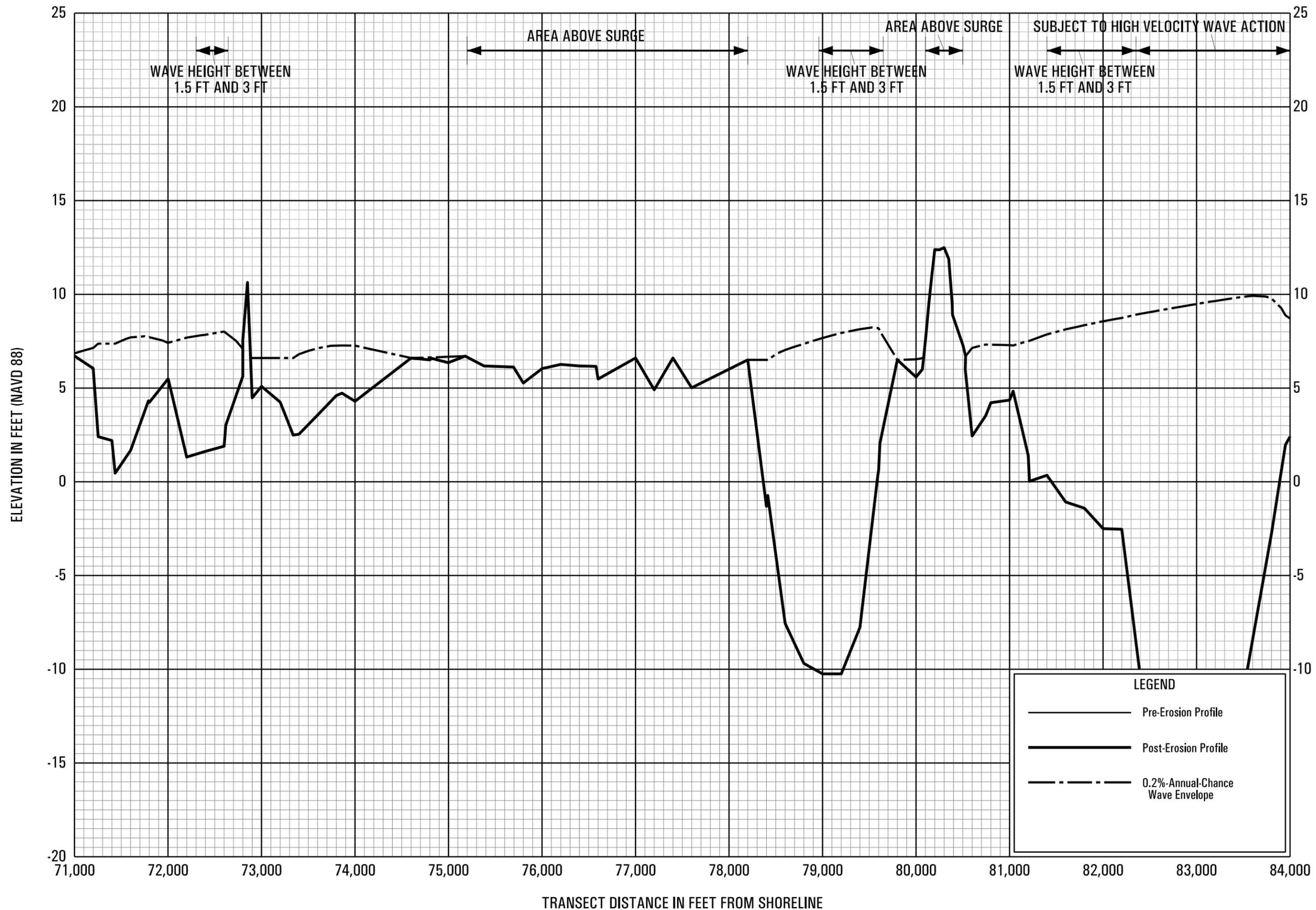
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 17

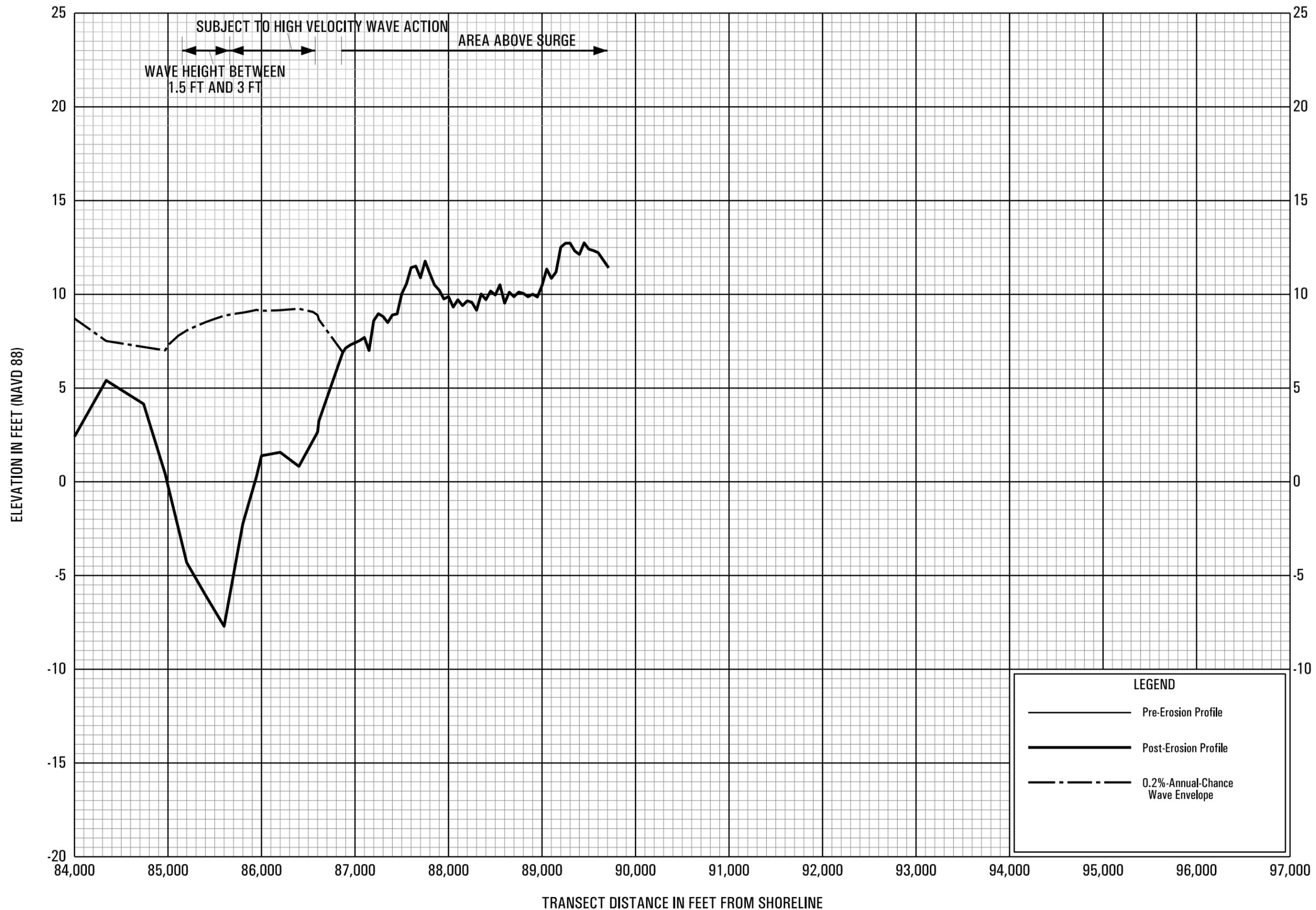
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 17

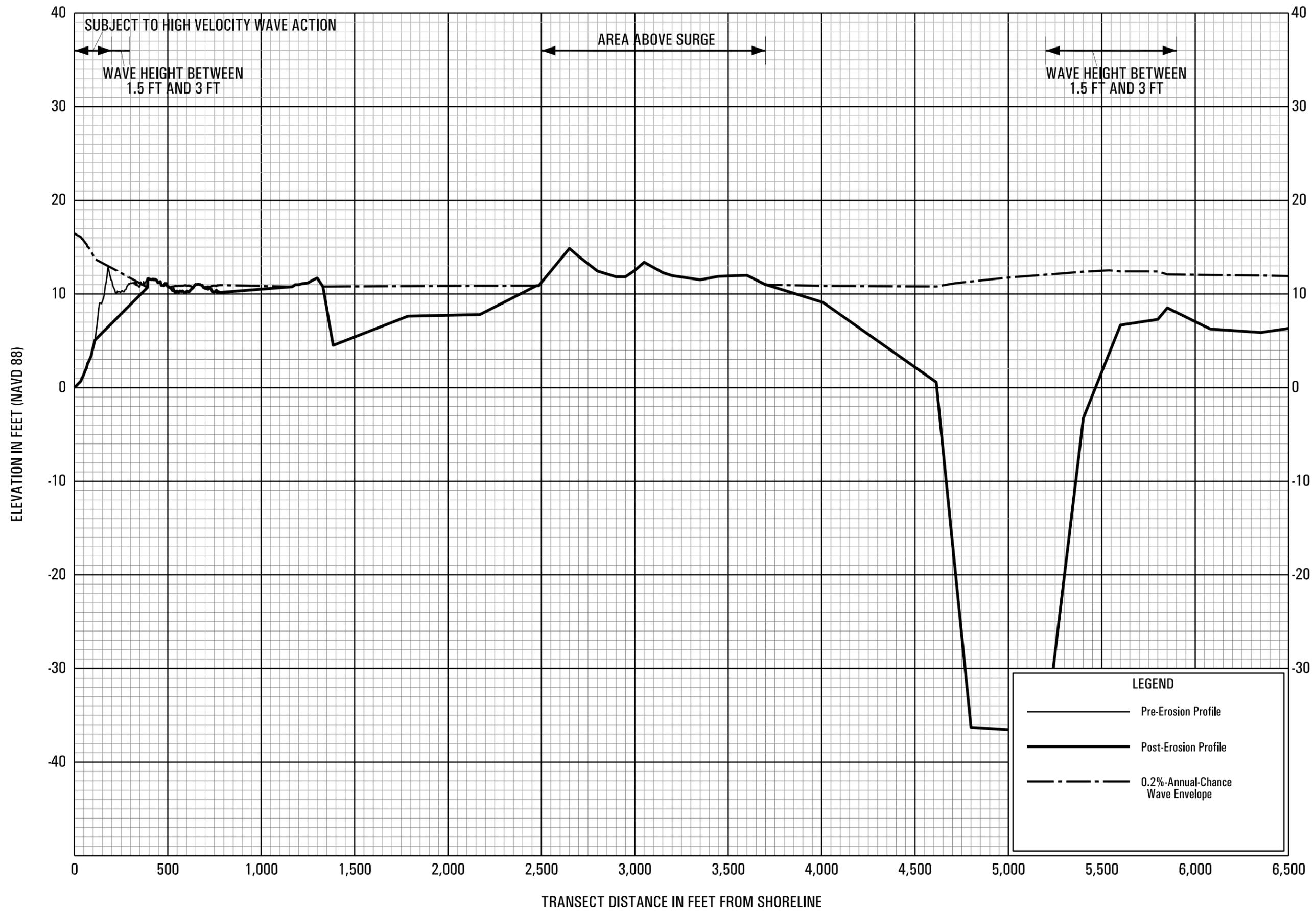
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 17

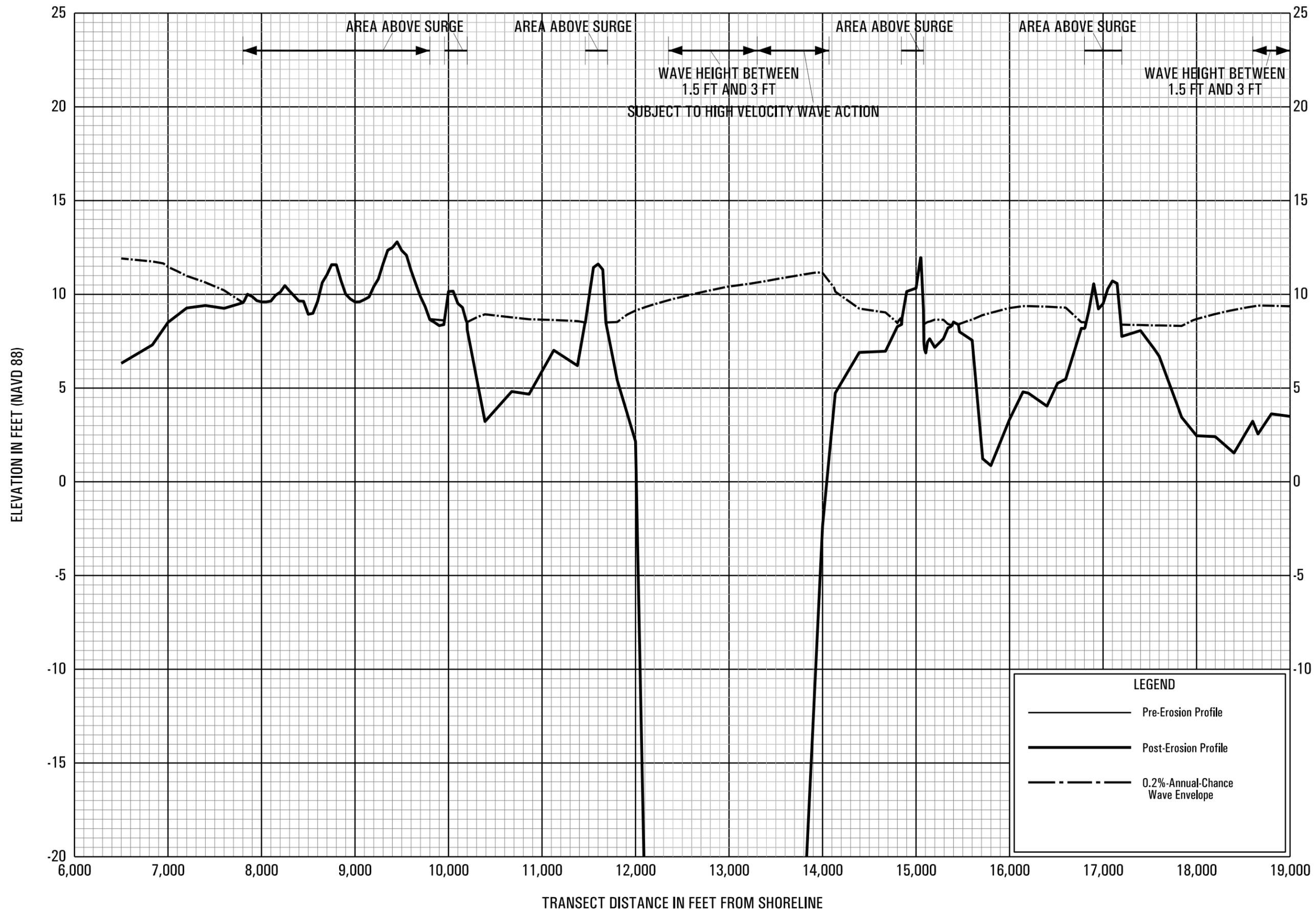
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 18

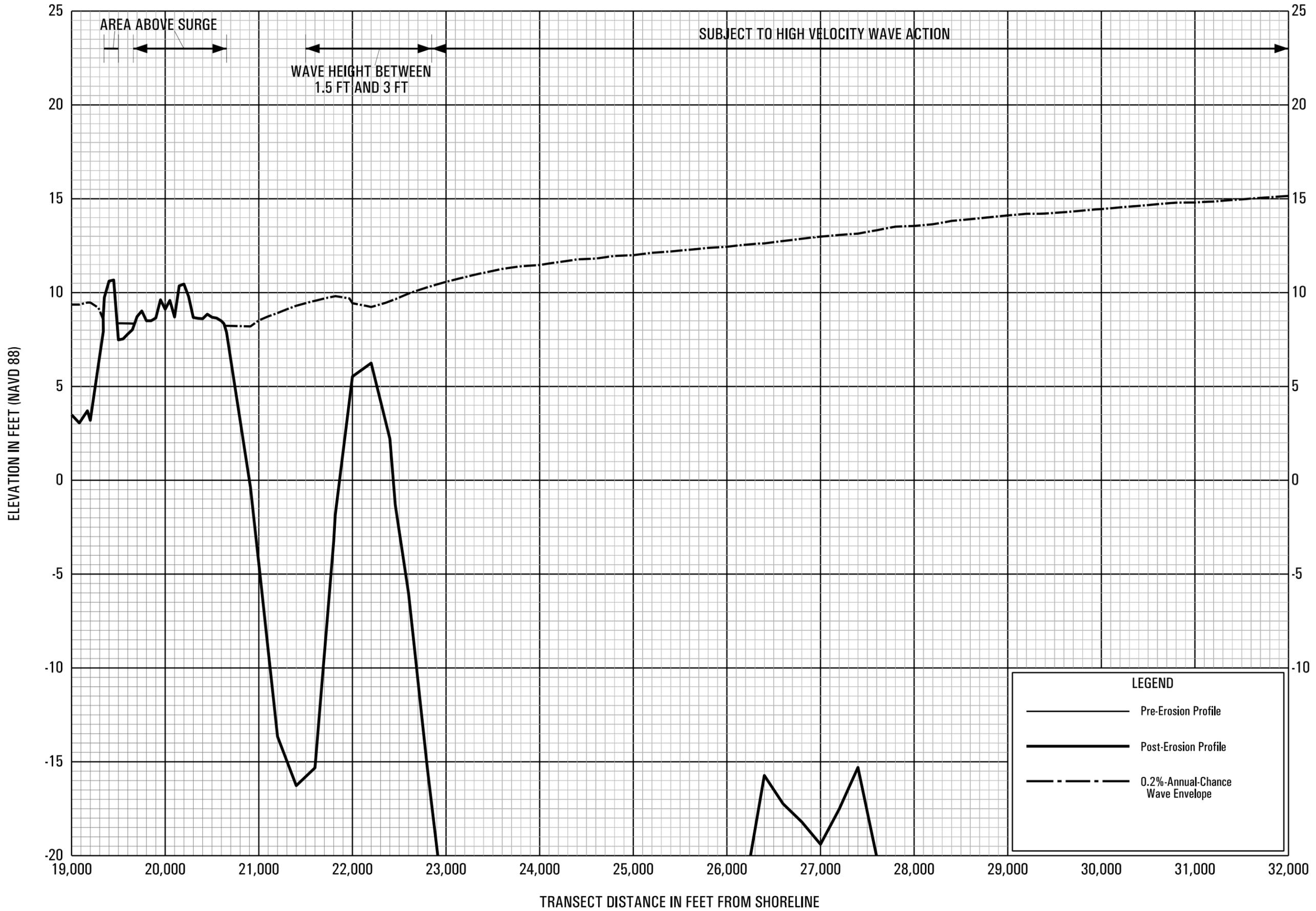
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 18

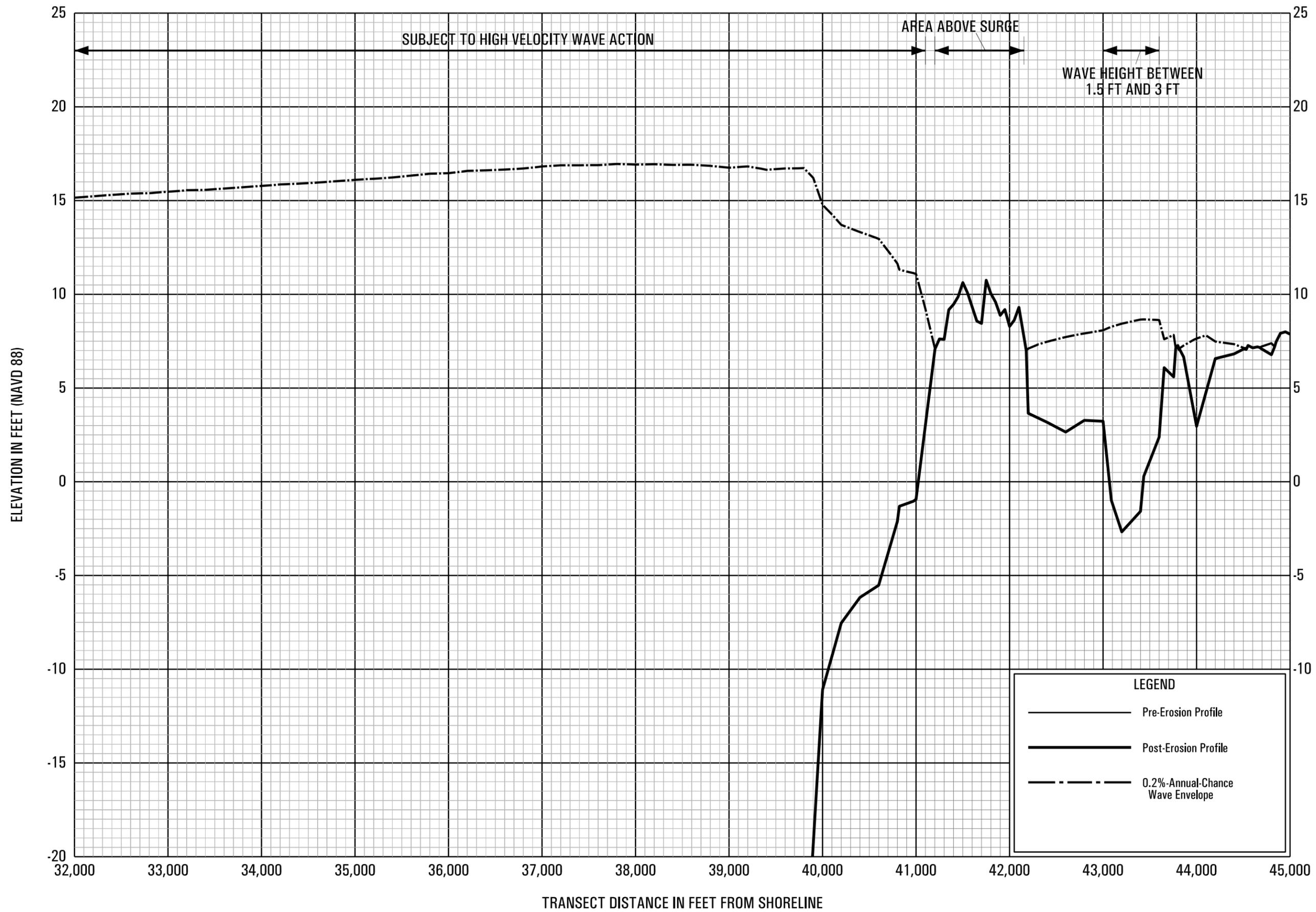
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 18

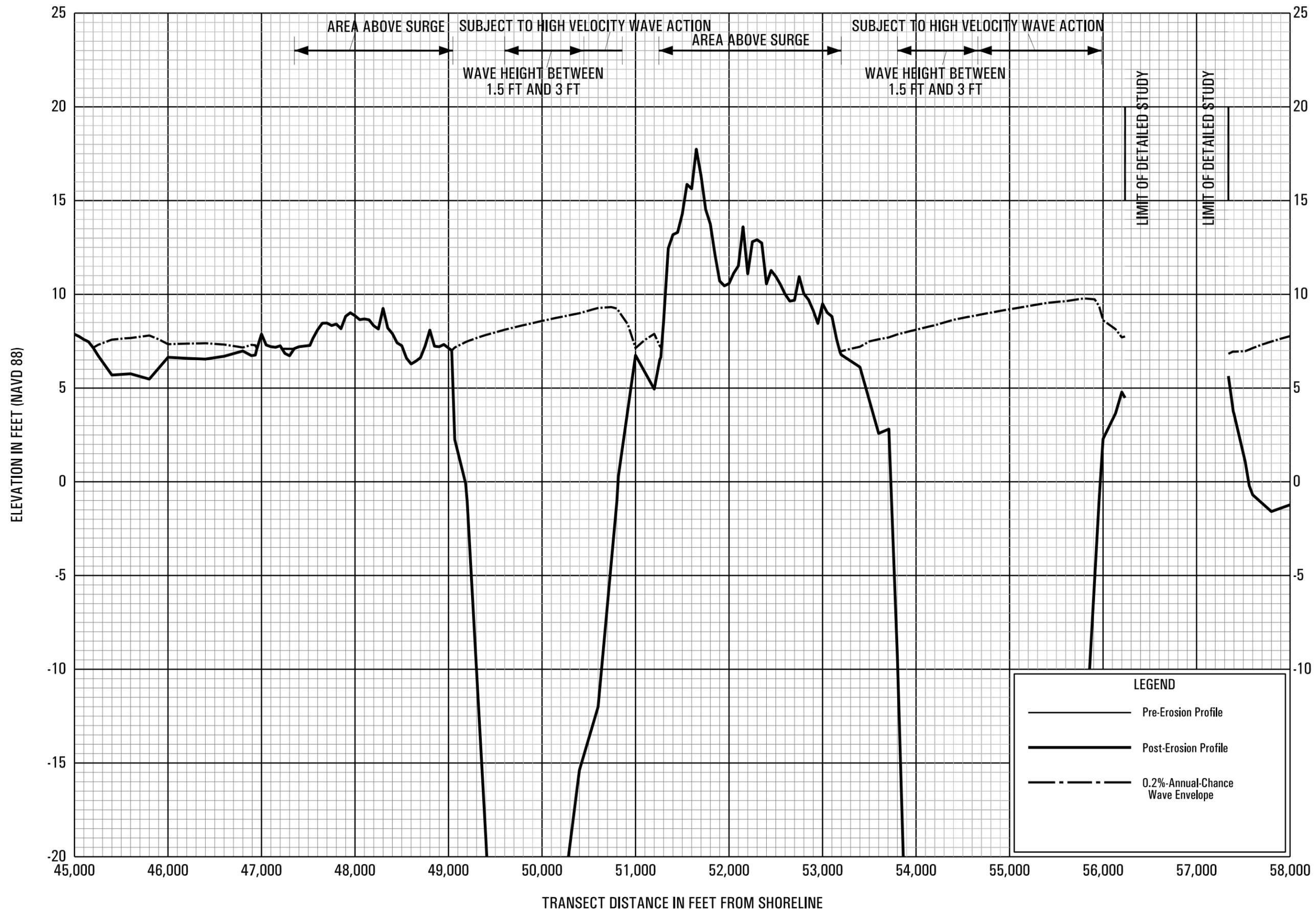
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 18

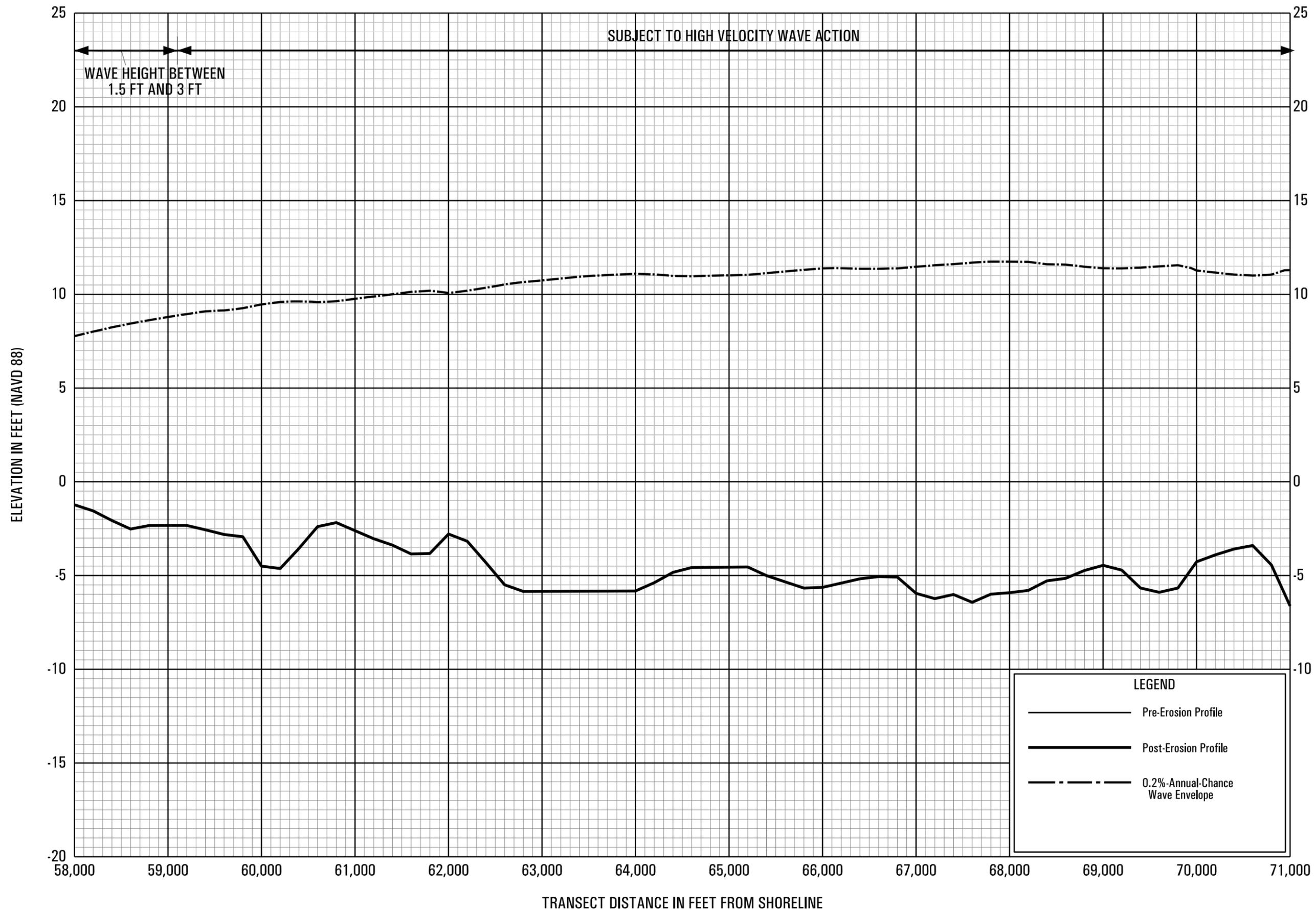
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 18

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



LEGEND

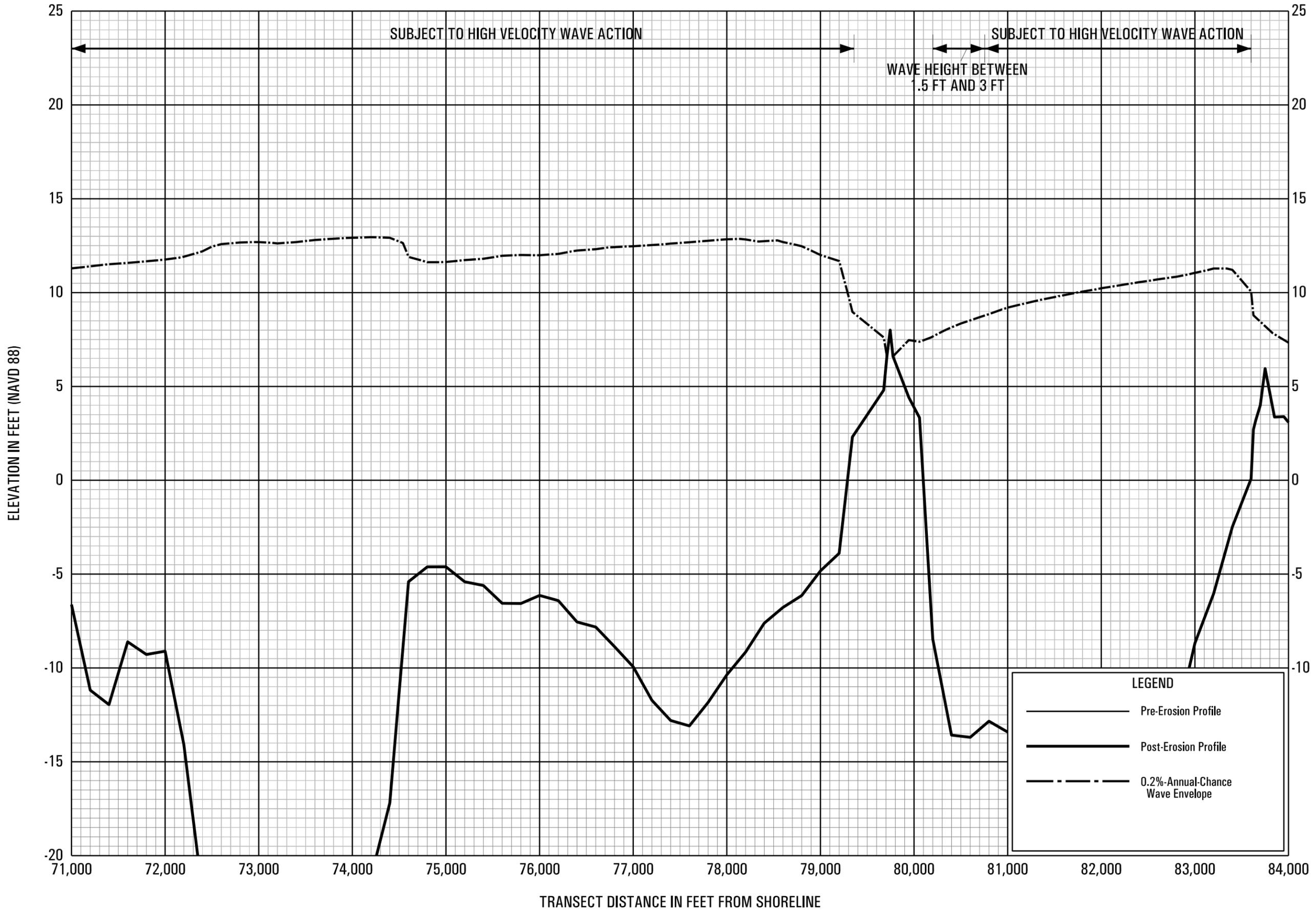
- Pre-Erosion Profile
- Post-Erosion Profile
- · - · 0.2%-Annual-Chance Wave Envelope

0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 18

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS

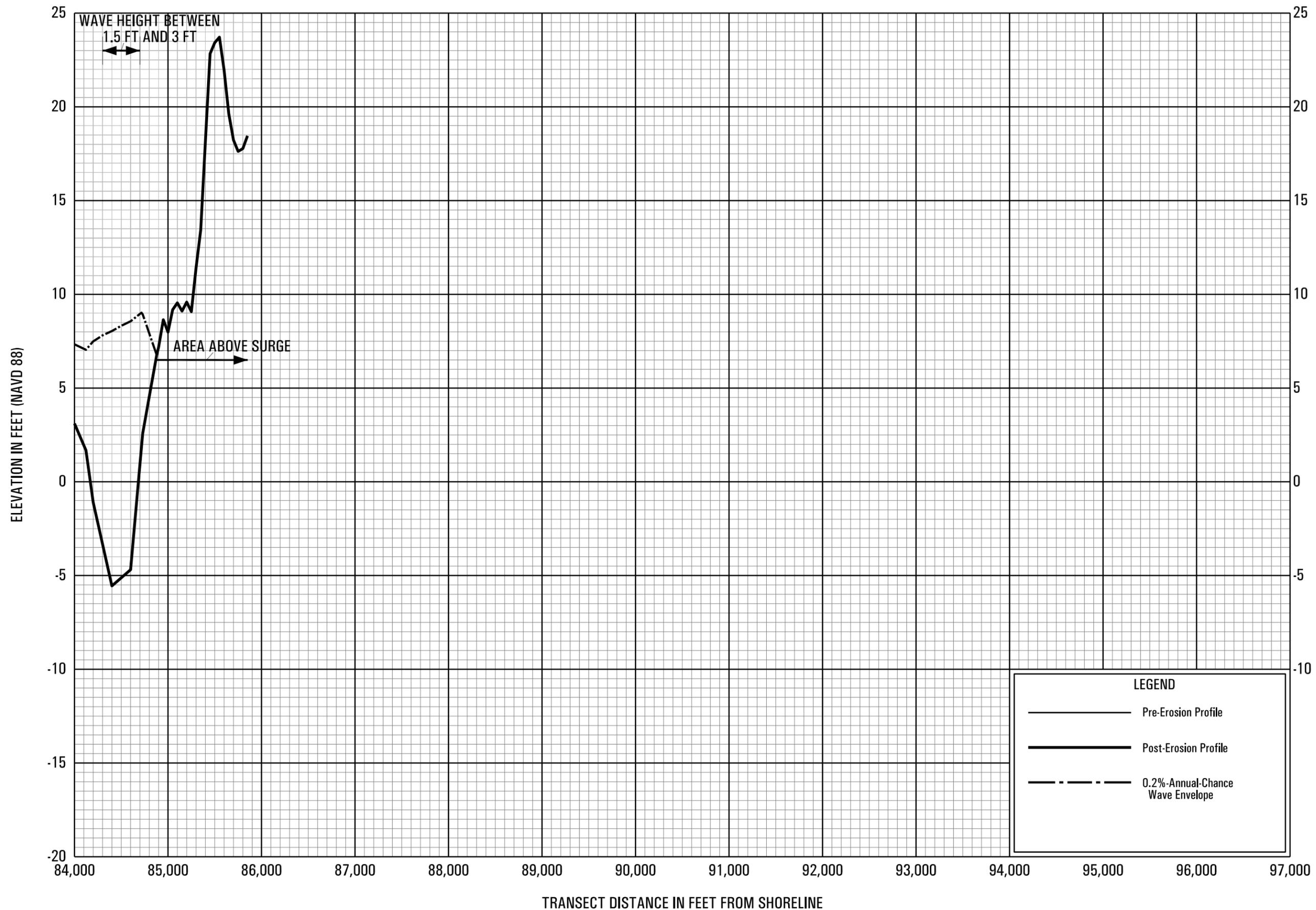
82P



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 18

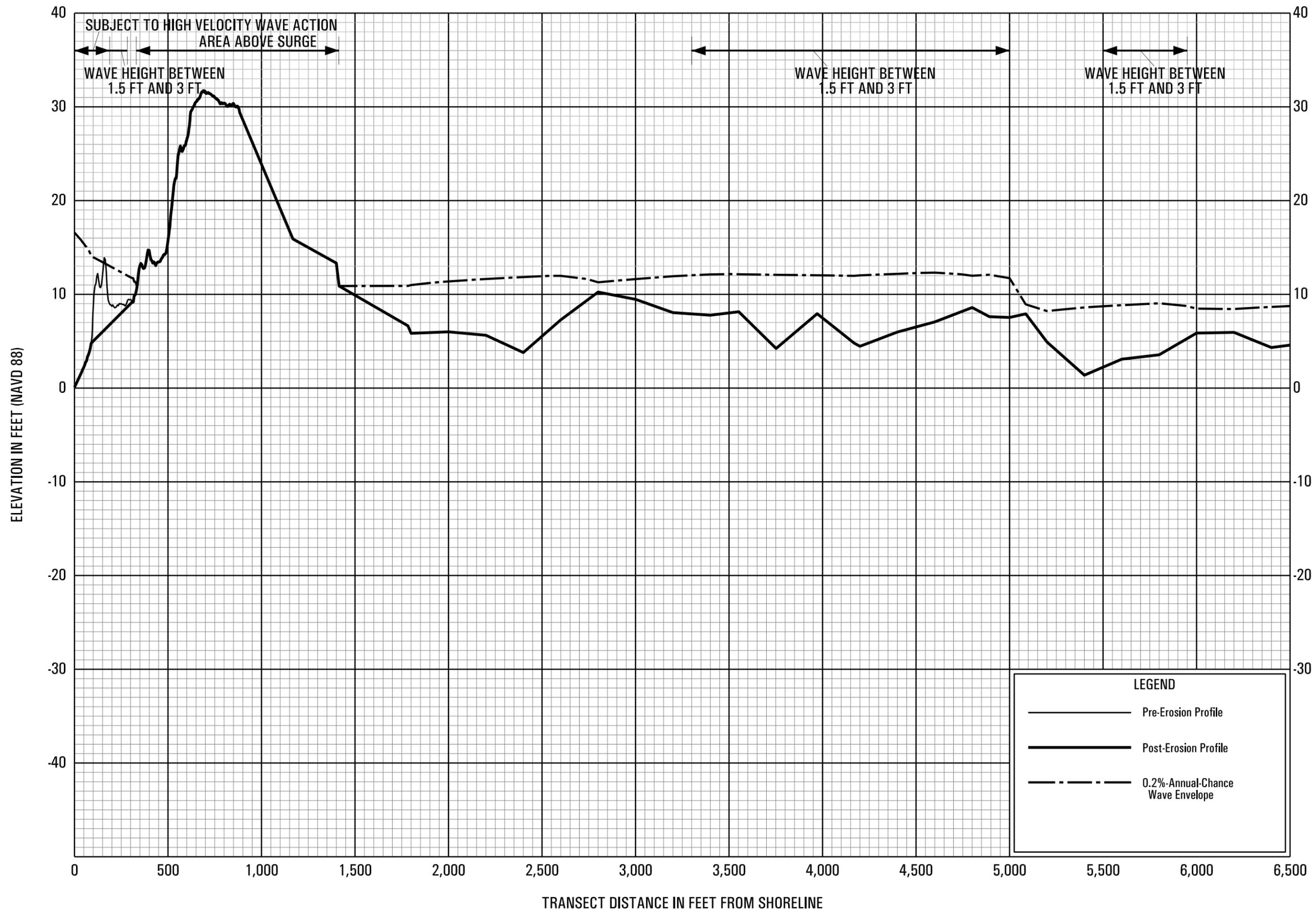
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 18

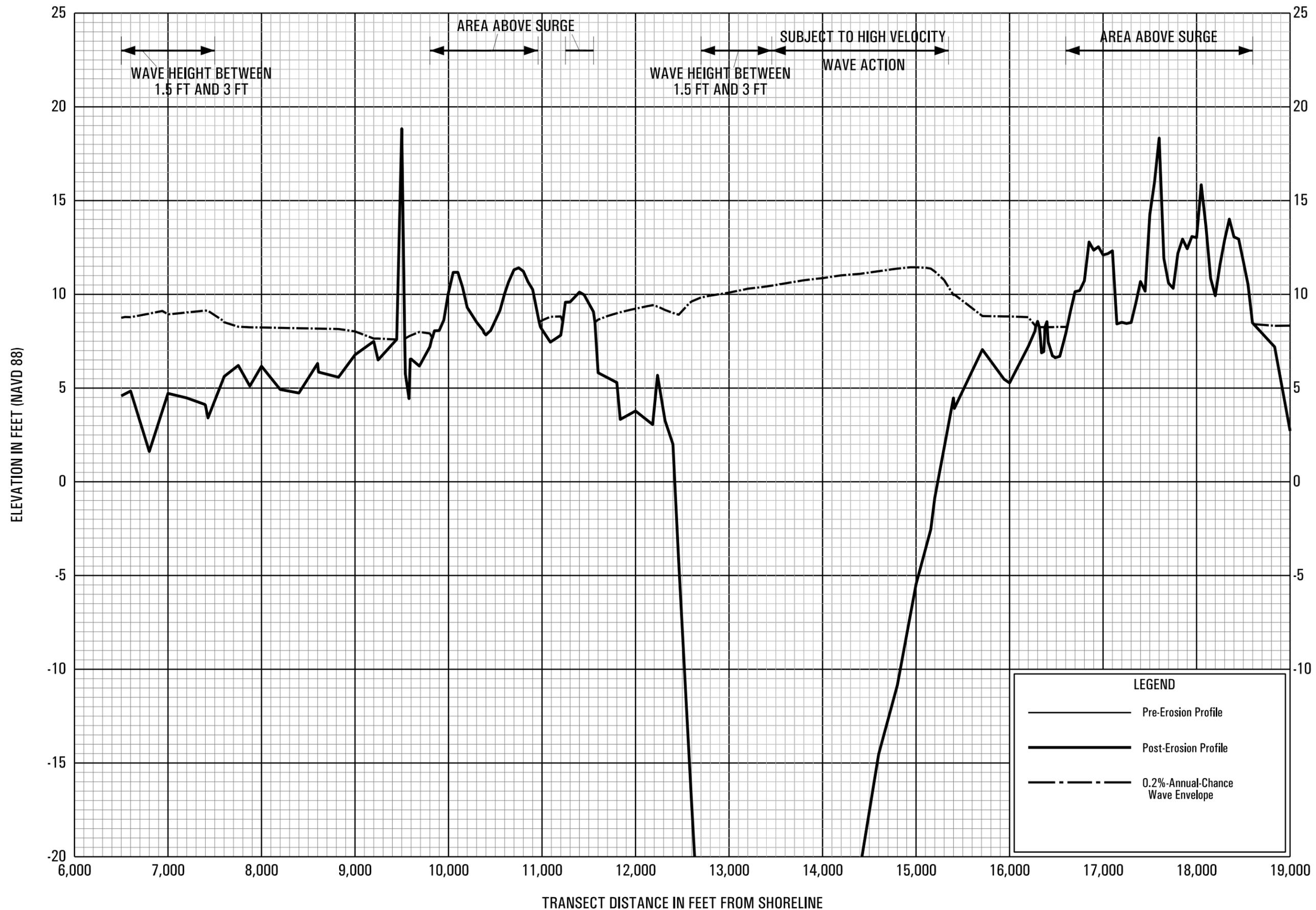
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 19

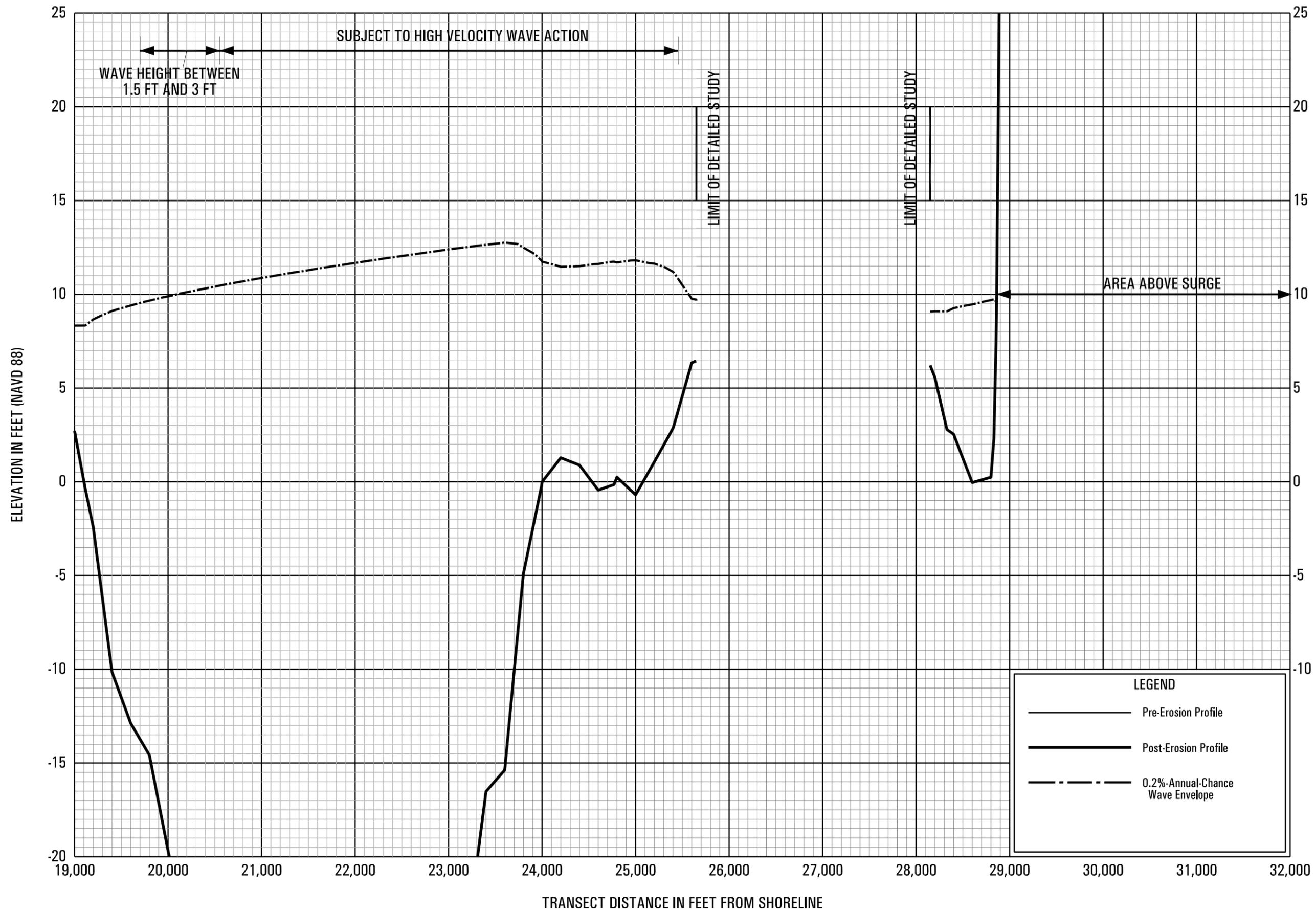
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 19

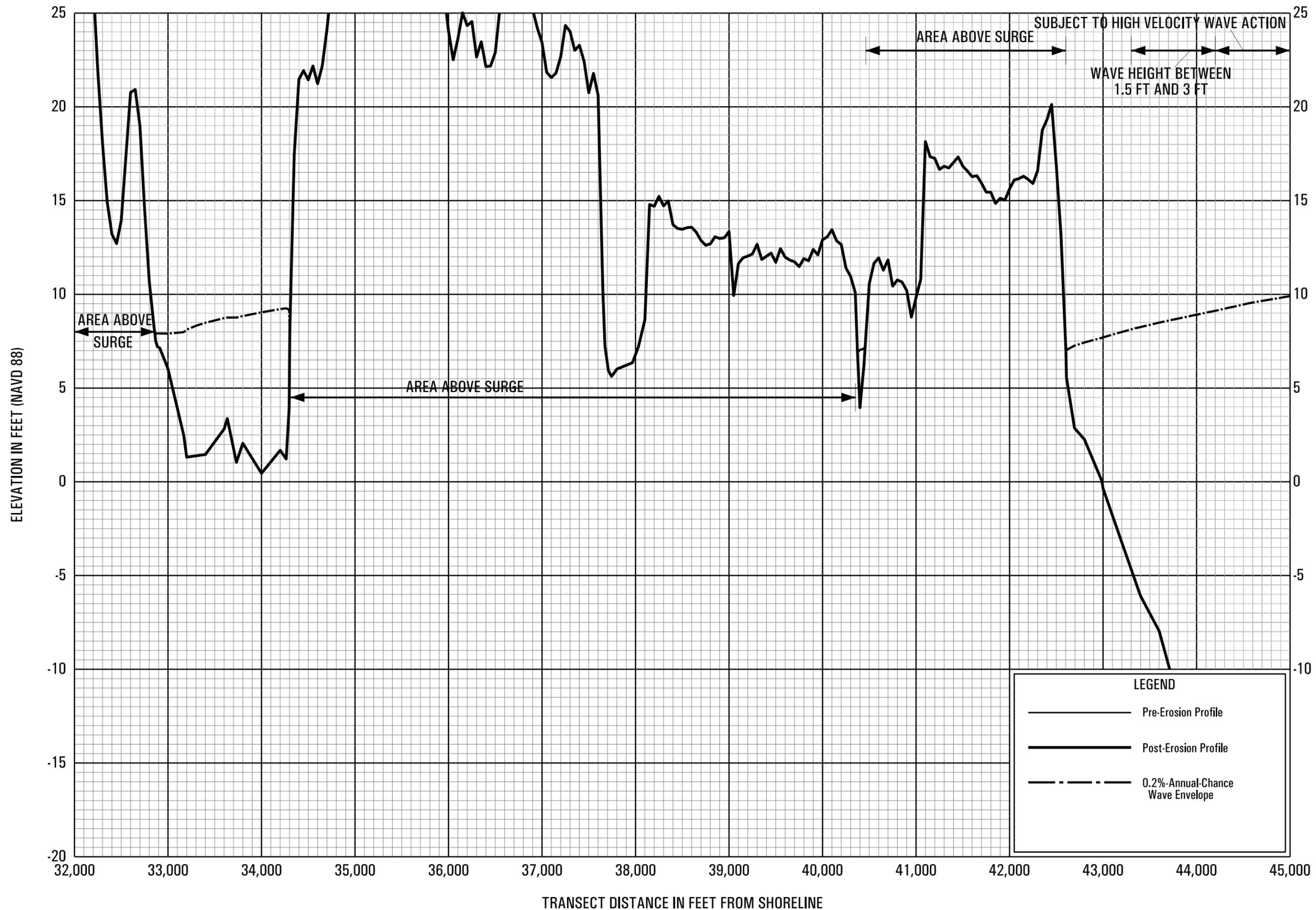
FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 19

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



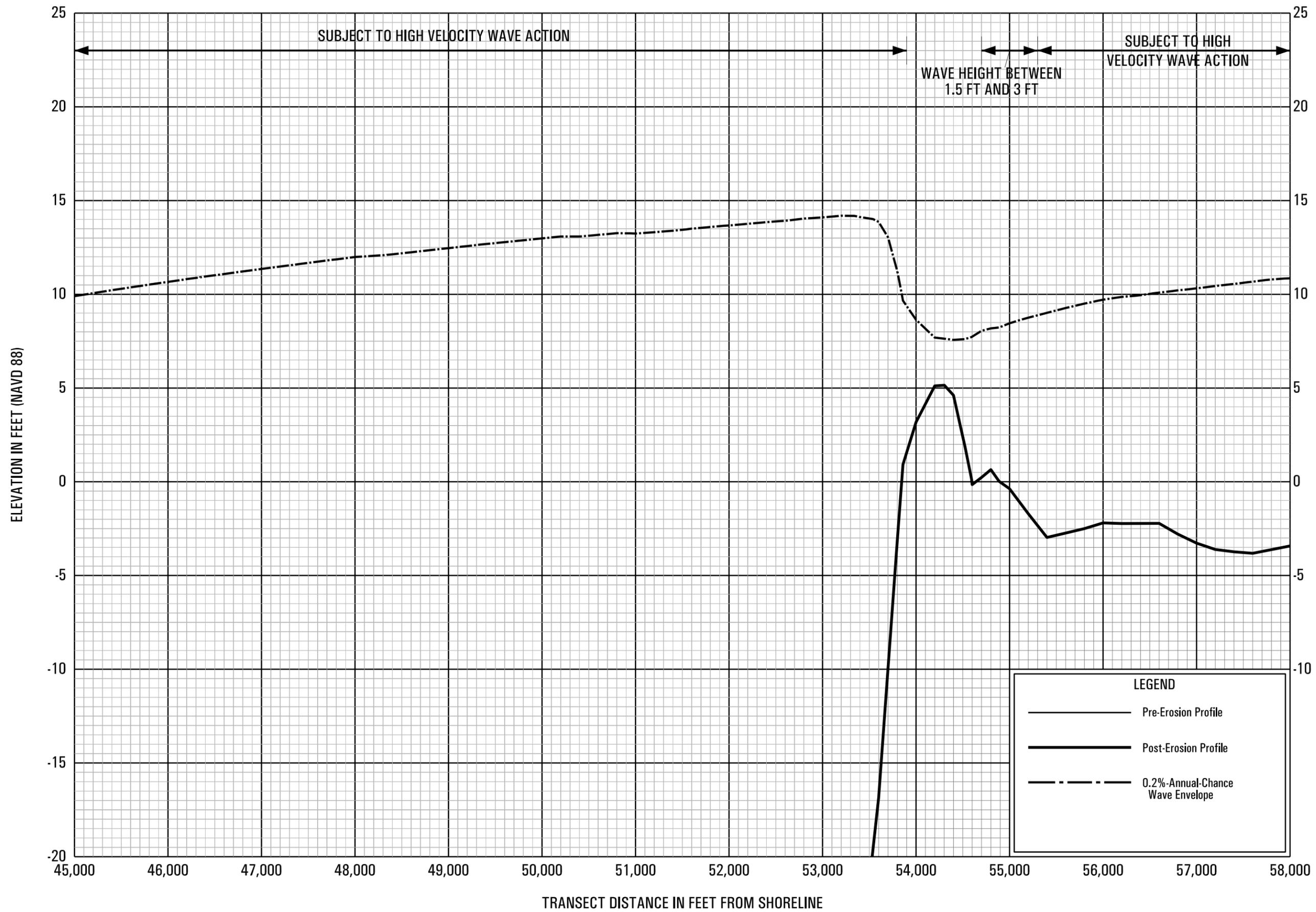
LEGEND

- Pre-Erosion Profile
- Post-Erosion Profile
- · - · 0.2% Annual-Chance Wave Envelope

0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 19

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



LEGEND

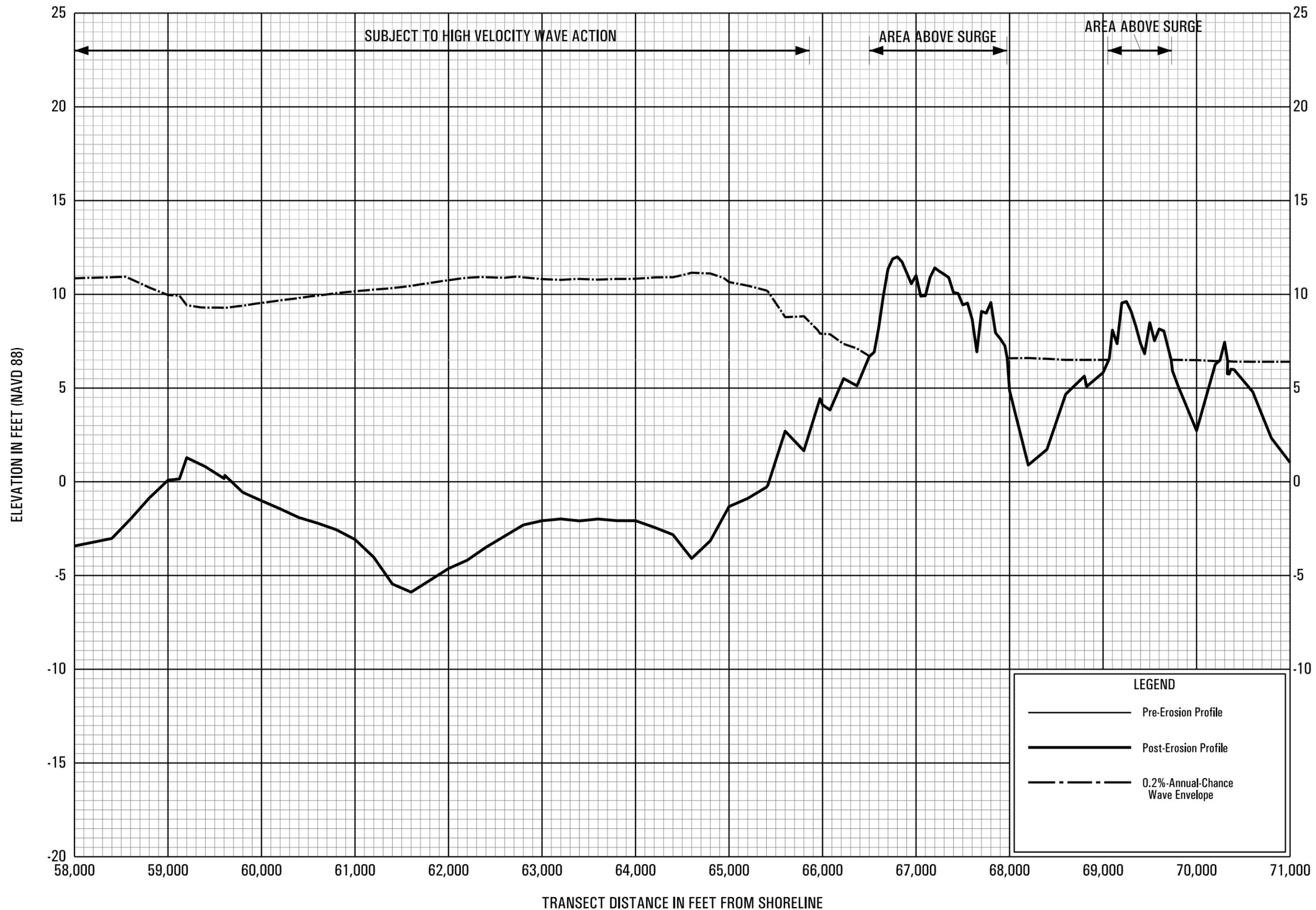
- Pre-Erosion Profile
- Post-Erosion Profile
- · - · 0.2%-Annual-Chance Wave Envelope

0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 19

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS

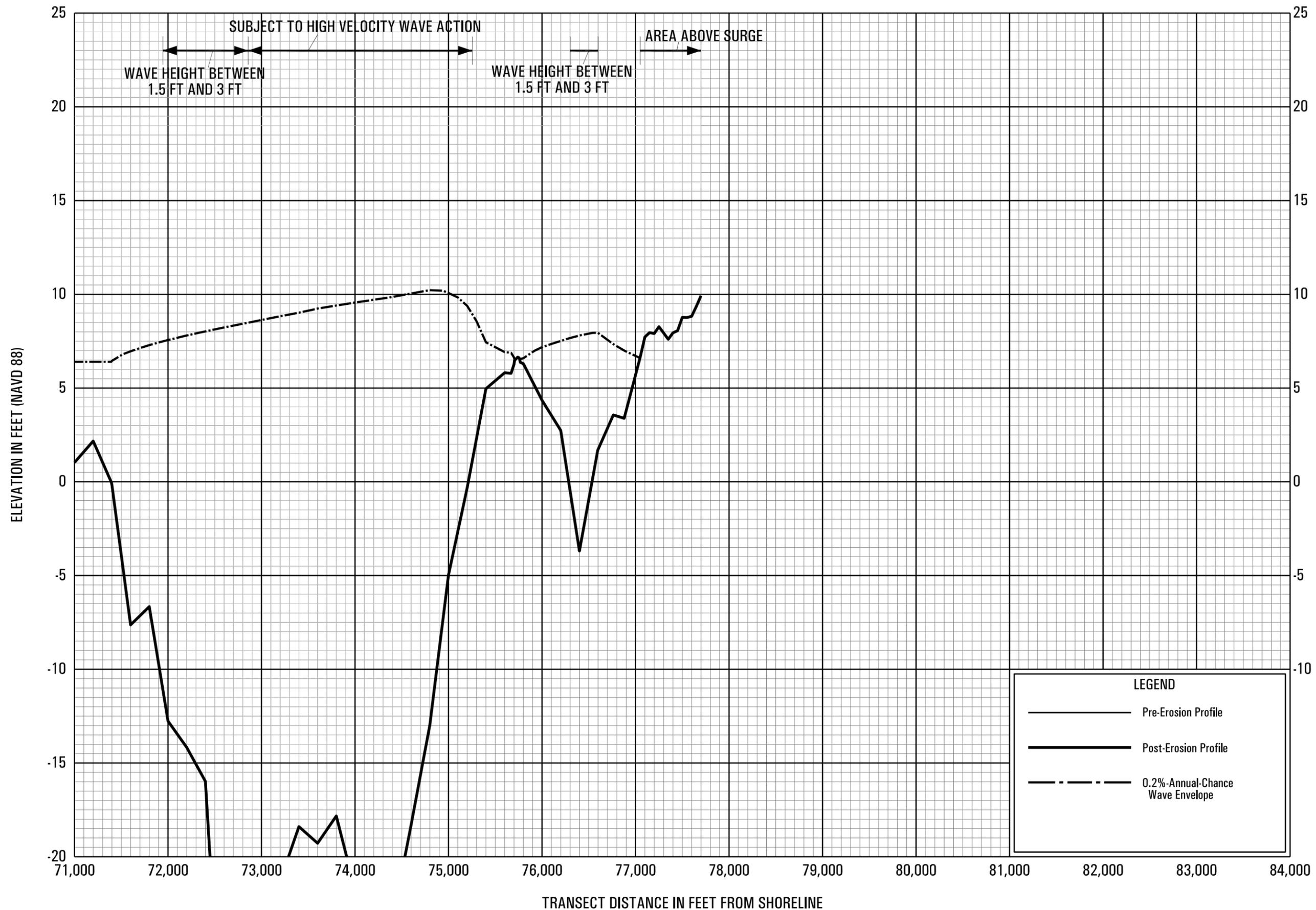
89P



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 19

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS



0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 19

FEDERAL EMERGENCY MANAGEMENT AGENCY
DUVAL COUNTY, FL
 AND INCORPORATED AREAS