

Figure S-1 Box-and-whisker plot showing the distribution of LSN and LPI values of 44 Christchurch liquefaction case histories computed using Boulanger & Idriss (2016) CPT procedure with $P_L = 50\%$ and $C_{FC} = 0.13$. The Port Island data is excluded to maintain consistency using CPT data.

Note:

This supplemental document summarizes the CPT-based liquefaction triggering analysis of all 44 Christchurch liquefaction case histories considered in this paper.

The analysis is performed using Boulanger and Idriss (2016) CPT-based Liquefaction Triggering Procedure with parameters and assumption described below:

- $C_{FC} = 0.13$ (Maurer et al. 2019 recommendation for Christchurch soil)
- $P_L = 50\%$ (This value is usually used to back-analyze a liquefaction case histories)
- Peak ground acceleration values for each scenario are estimated using New Zealand specific ground motion prediction equation (Bradley, 2013)
- LPI and LSN are computed for each scenarios and the results is summarized in FFigure S-1

Reference:

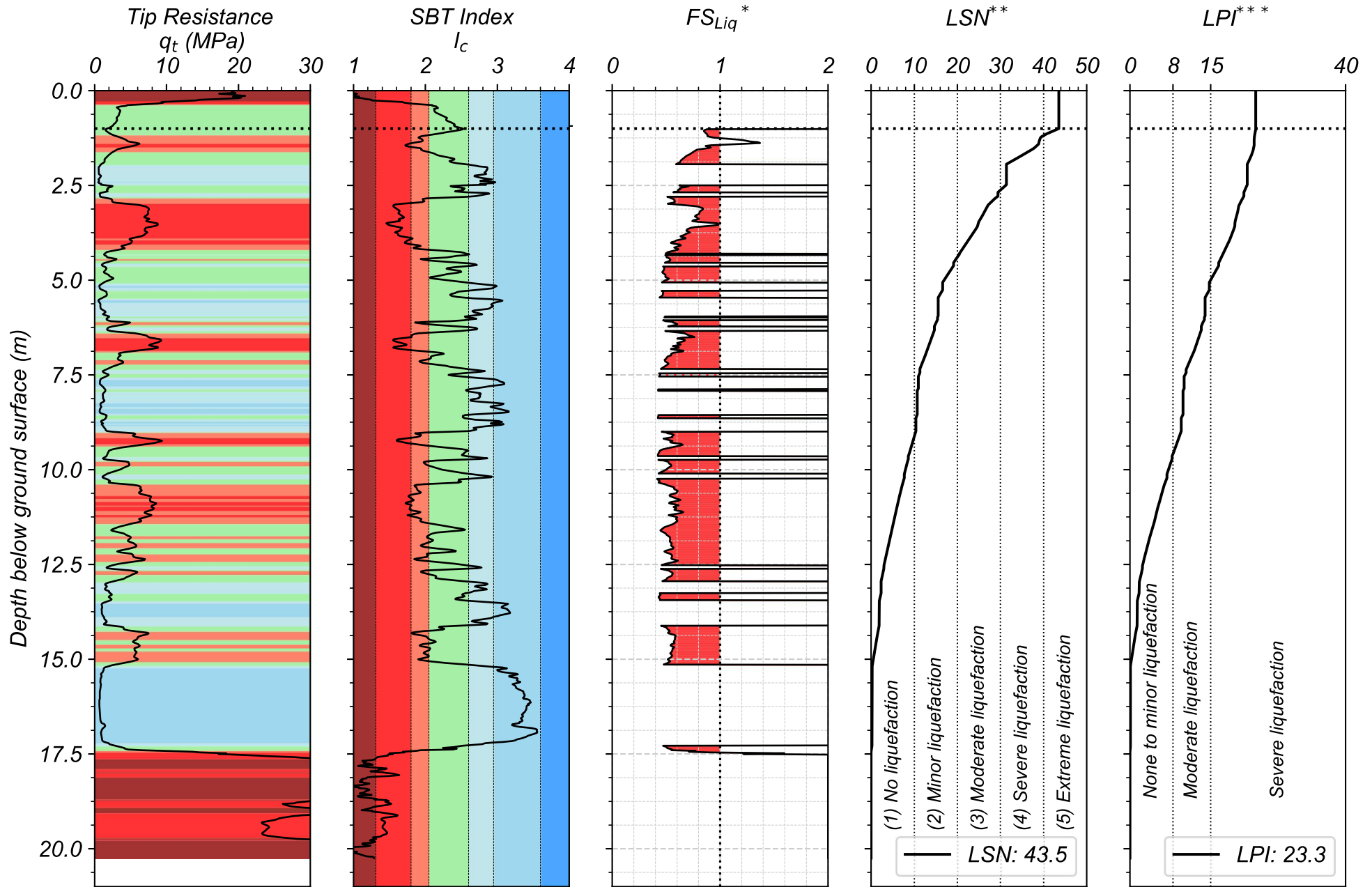
1. Boulanger, R. W. and Idriss, I. (2016). CPT-based liquefaction triggering procedure. *J. Geotech. Geoenviron. Eng.*, ASCE, 142(2), 04015065.
2. Maurer, B., Green, R., van Ballegooy, S., and Wotherspoon, L. (2019). Development of region-specific soil behavior type index correlations for evaluating liquefaction hazard in Christchurch, New Zealand. *SDEE*, Elsevier, 117, 96–105.
3. Bradley, B. A. (2013). A New Zealand-specific pseudospectra acceleration ground-motion prediction equation for active shallow crustal earthquakes based on foreign models. *B. Seismo. Soc. America*, 103(3), 1801–1822.

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 1 ; Event: DAR ; M_w : 7.1 ; a_{max} : 0.29 g

Site: St. Teresa ; CPT#: 57345 ; G.W.L: 1 m

Observed Ejecta Severity: None ; Site Condition: Free-field flat



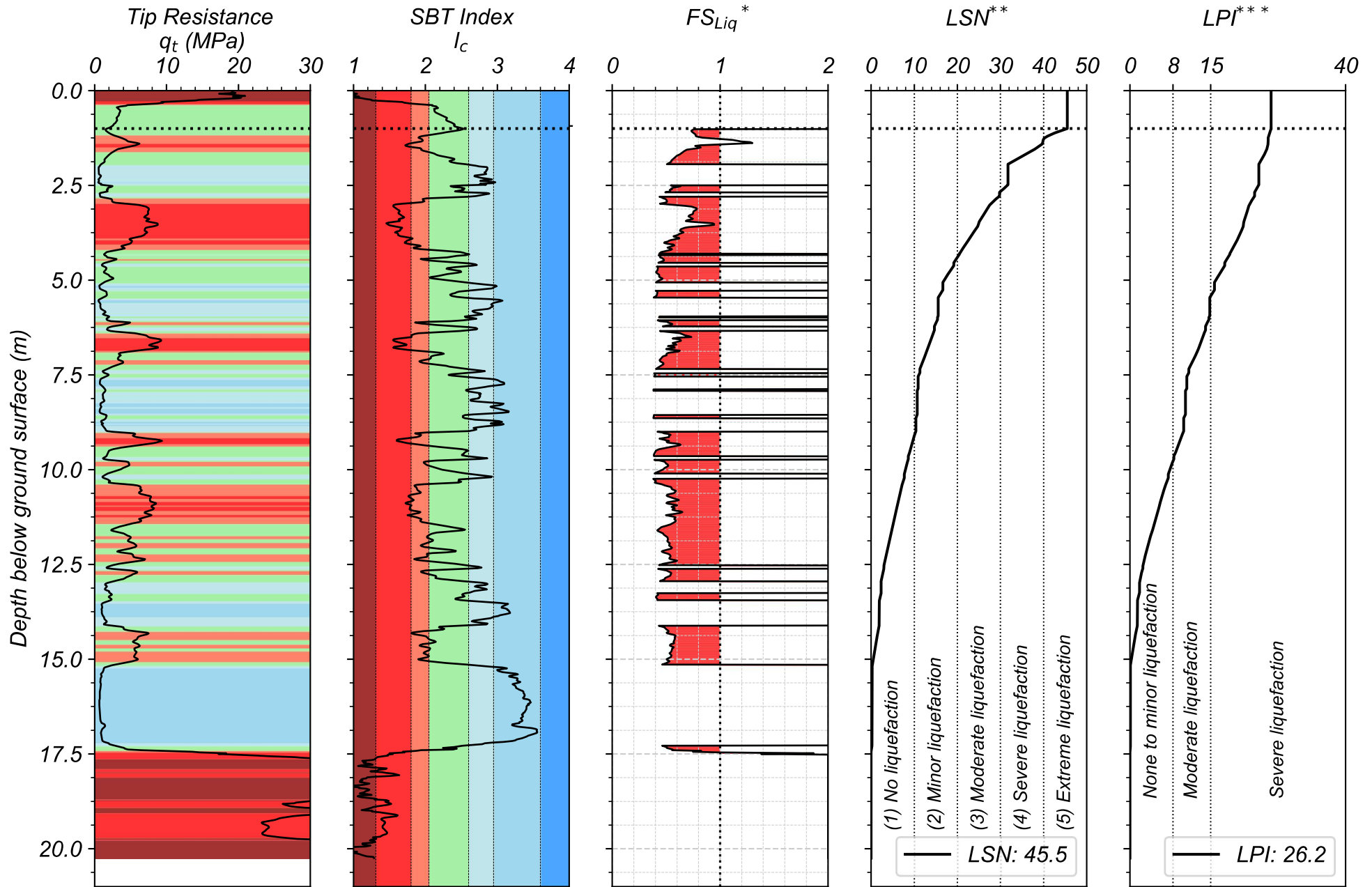
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 2 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.36 g
 Site: St. Teresa ; CPT#: 57345 ; G.W.L.: 1 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



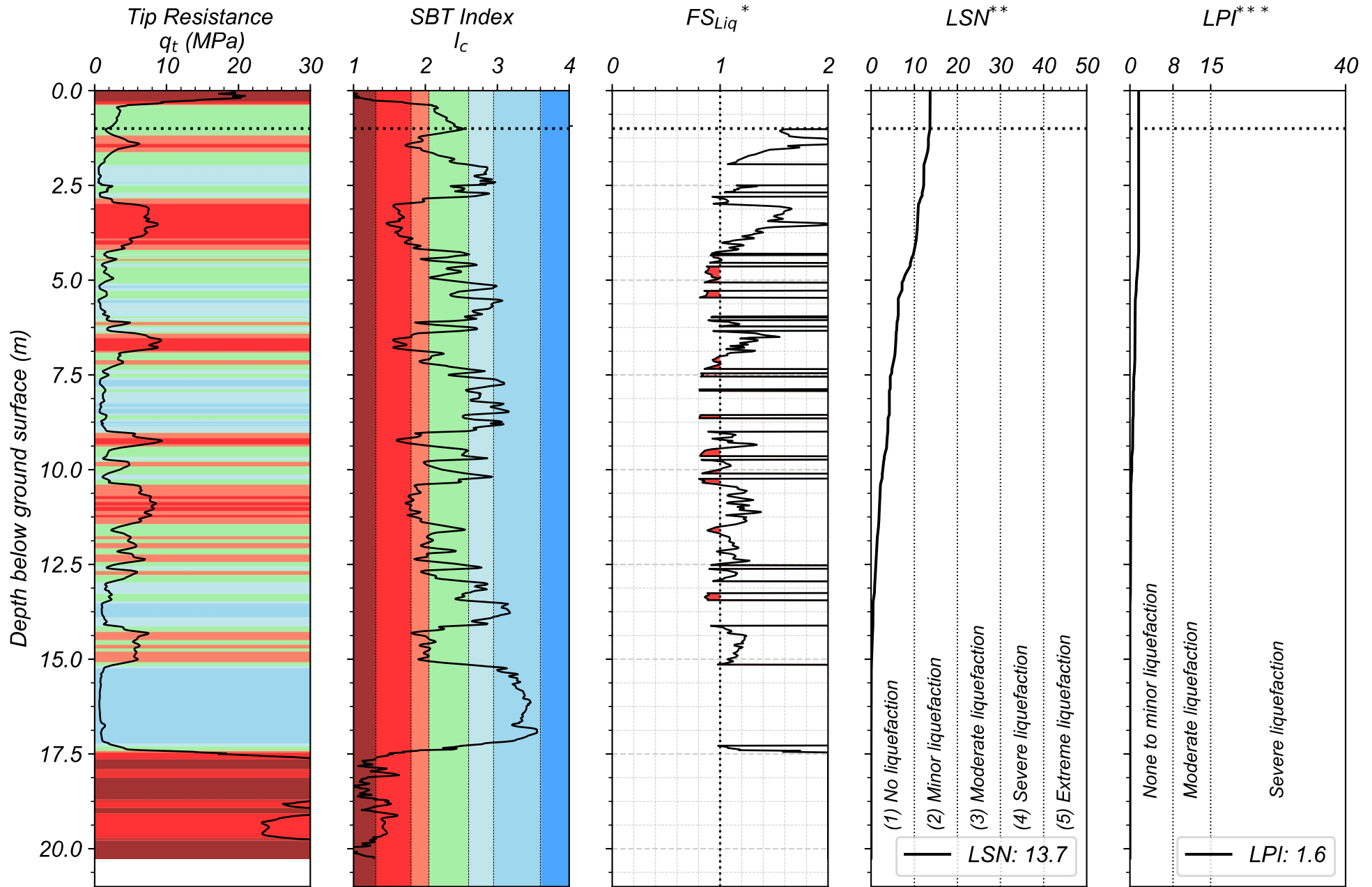
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 3 ; Event: JUN ; M_w : 6.2 ; a_{max} : 0.17 g
 Site: St. Teresa ; CPT#: 57345 ; G.W.L: 1 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



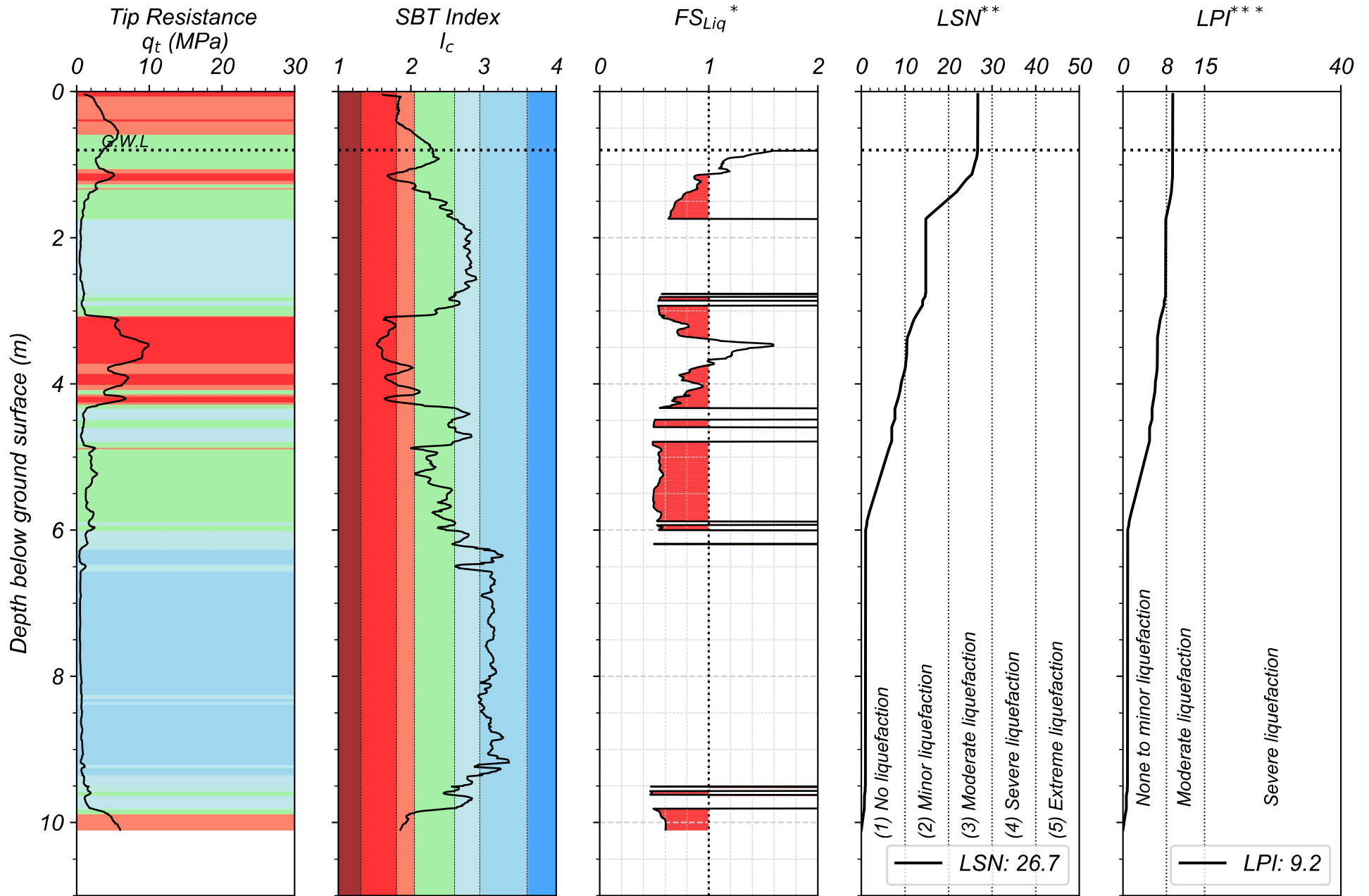
* Using Boulanger & Idriss (2016): I_{c-cut} =2.6, P_L =50%, and C_{FC} =0.13 (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 4 ; Event: DAR ; M_w : 7.1 ; a_{max} : 0.2511 g
 Site: 200 Cashmere ; CPT#: 36421 ; G.W.L: 0.8 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



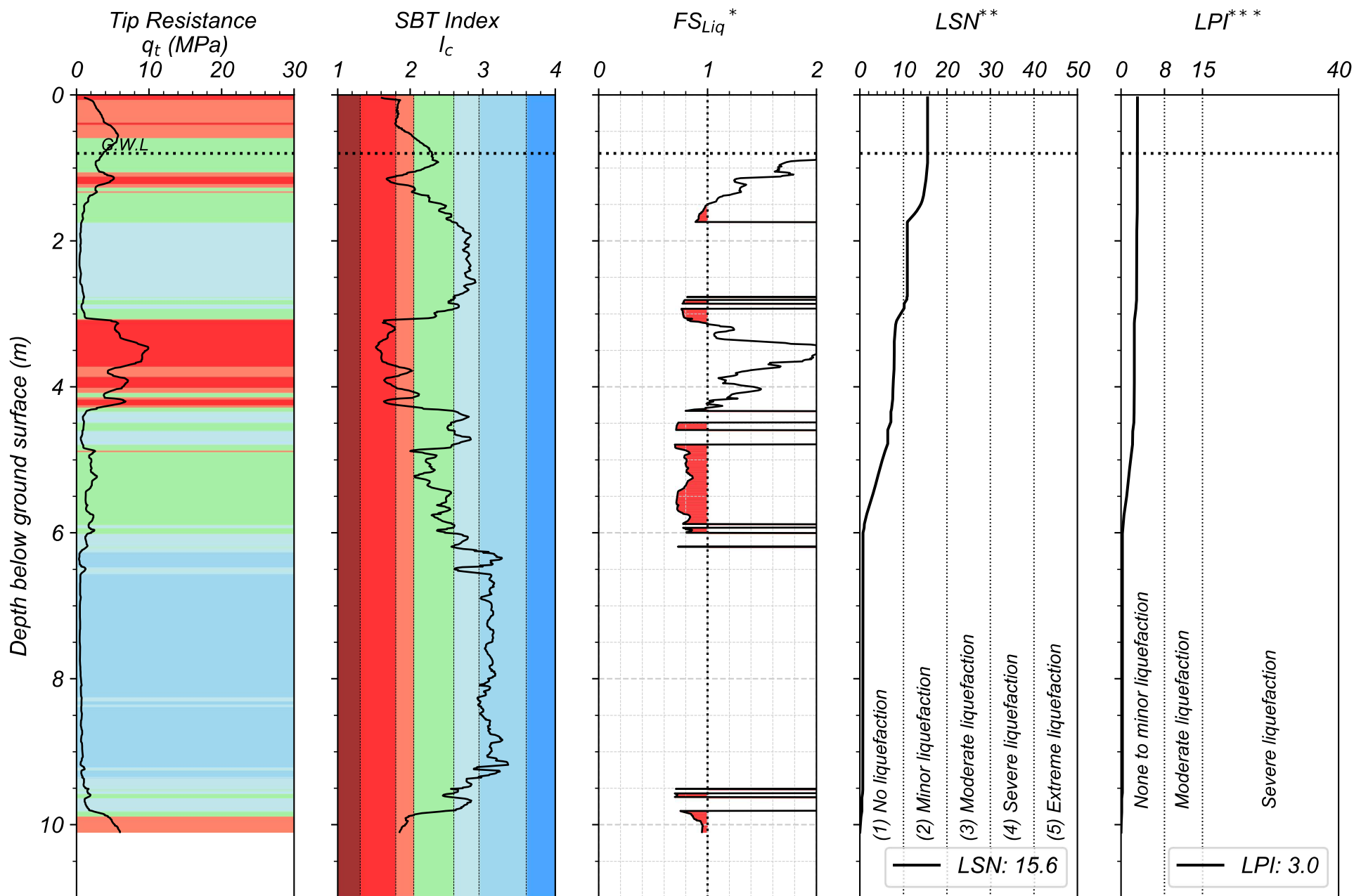
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 5 ; Event: JUN ; M_w : 6.2 ; a_{max} : 0.1883 g
 Site: 200 Cashmere ; CPT#: 36421 ; G.W.L: 0.8 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



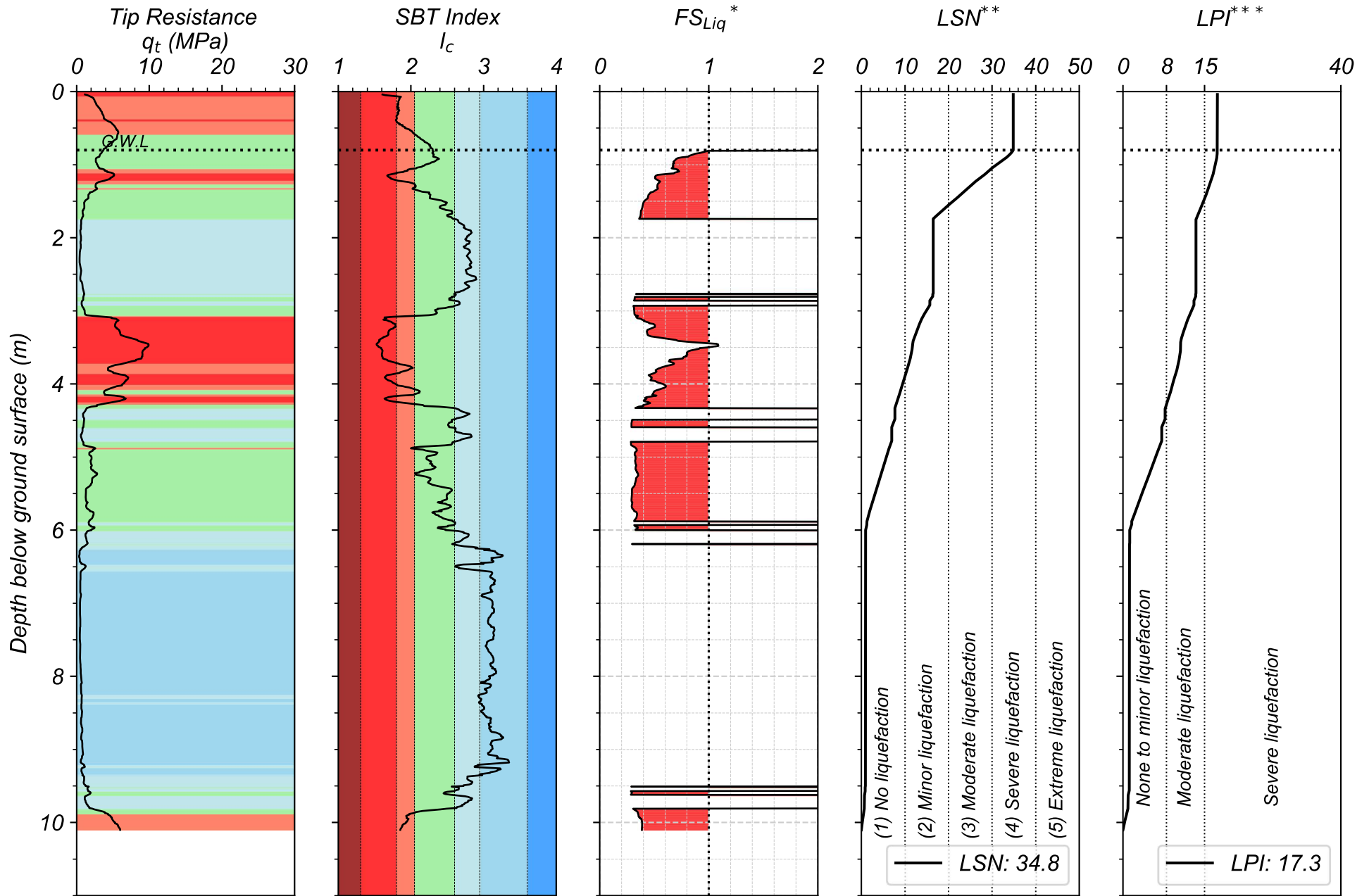
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 6 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.4622 g
 Site: 200 Cashmere ; CPT#: 36421 ; G.W.L: 0.8 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



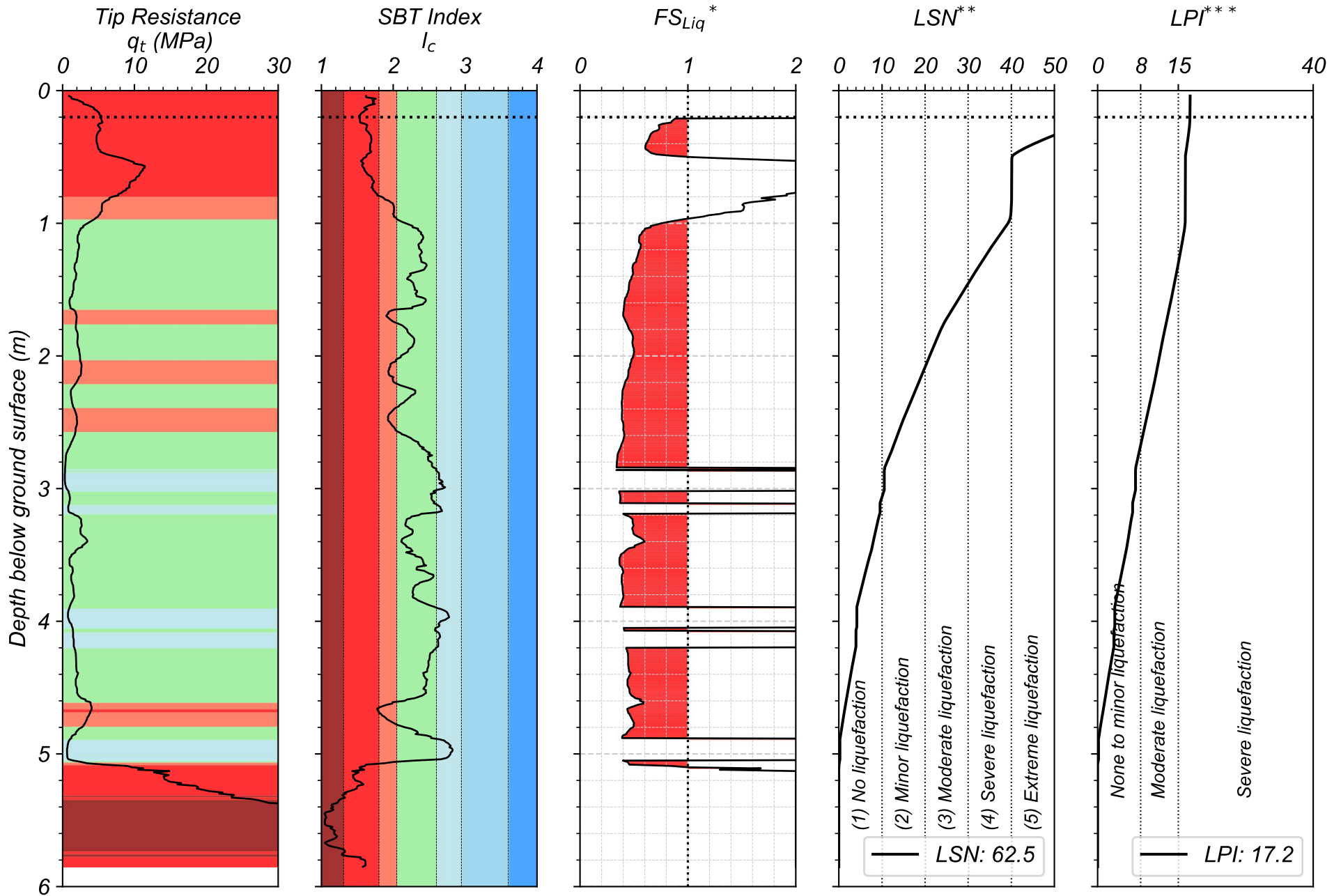
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 7 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.3163 g
 Site: Caulfield ; CPT#: 36419 ; G.W.L: 0.2 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



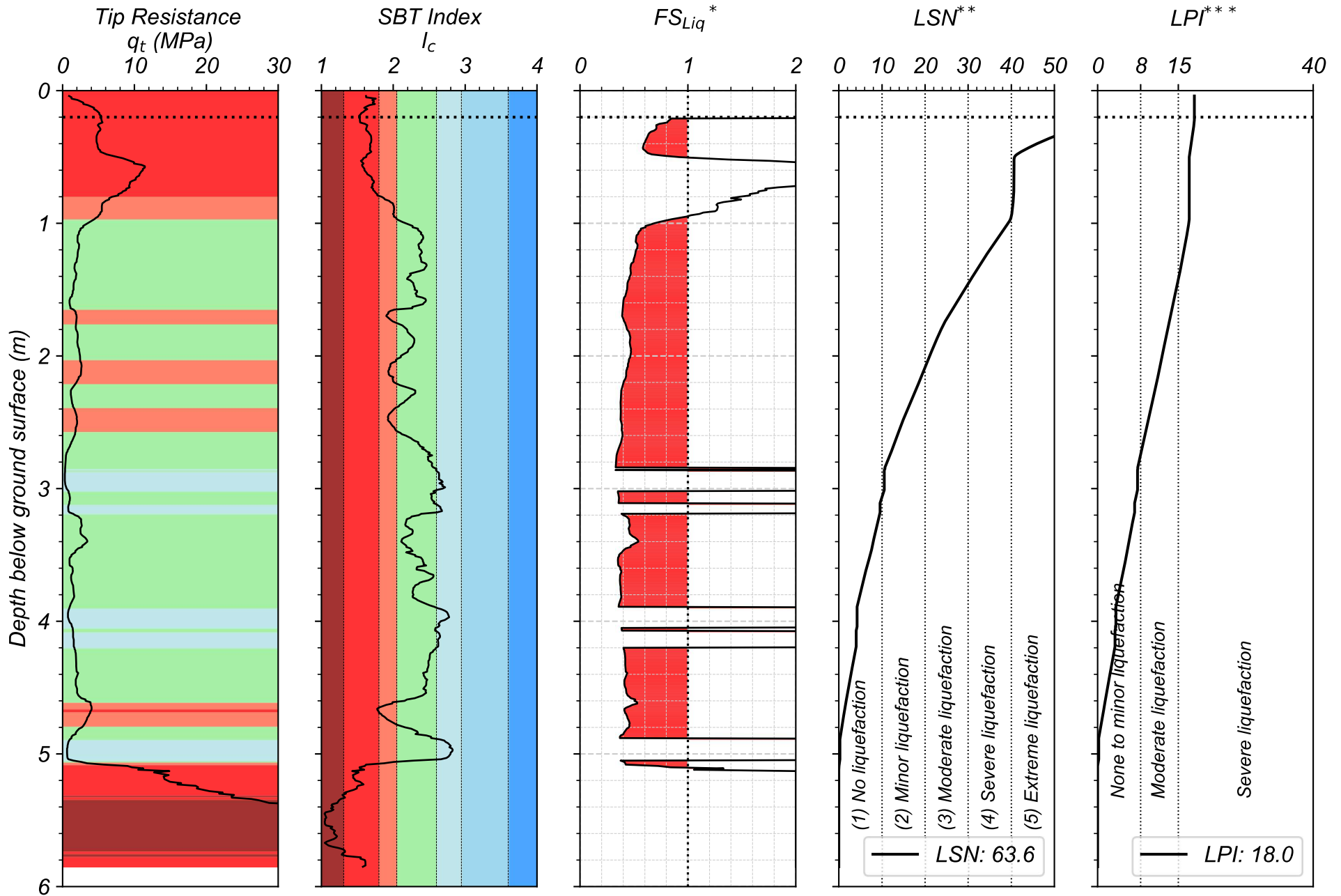
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 8 ; Event: DAR ; M_w : 7.1 ; a_{max} : 0.306 g
 Site: Caulfield ; CPT#: 36419 ; G.W.L: 0.2 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



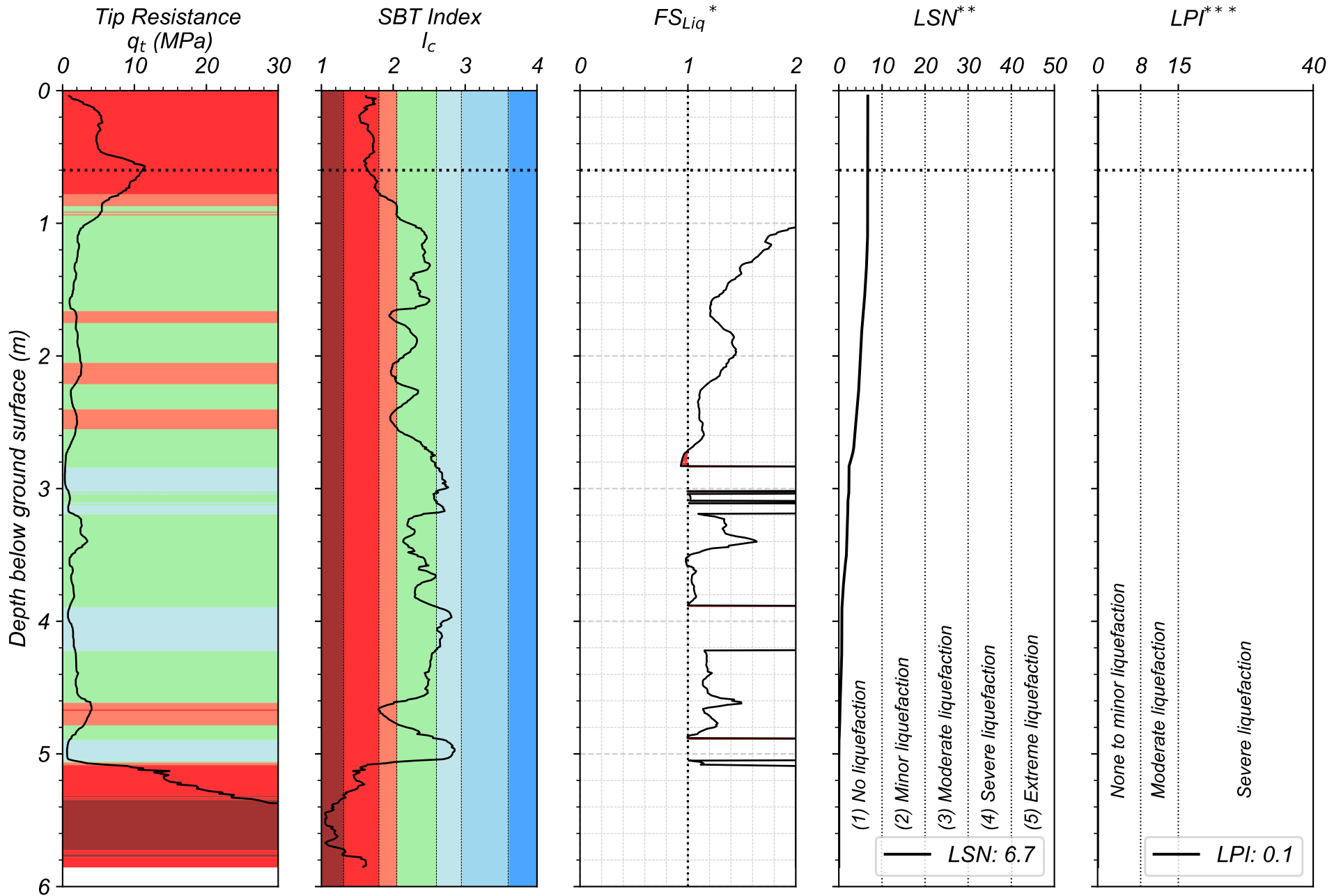
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 9 ; Event: JUN ; M_w : 6.2 ; a_{max} : 0.1347 g
 Site: Caulfield ; CPT#: 36419 ; G.W.L: 0.6 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



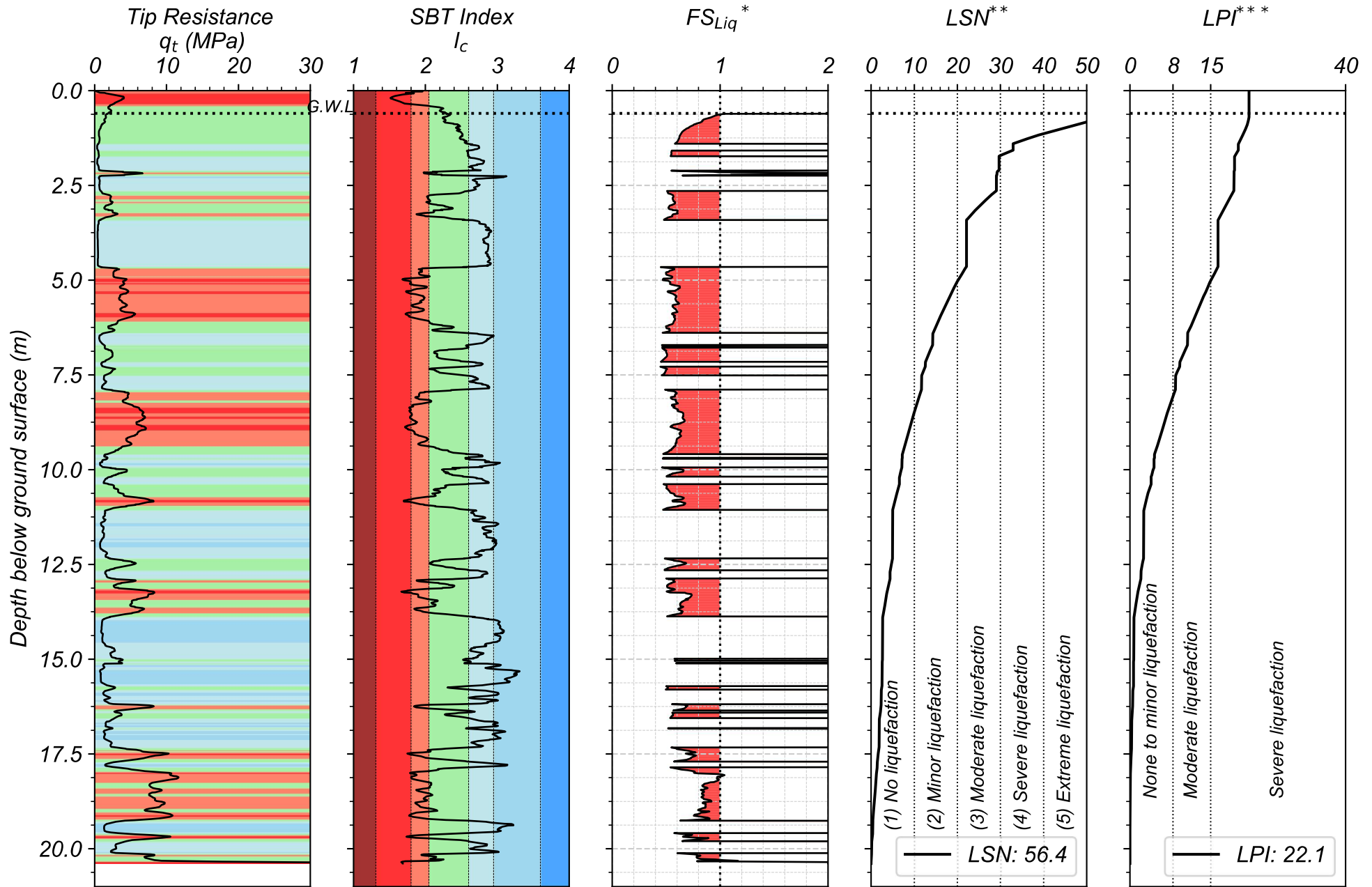
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 10 ; Event: DAR ; M_w : 7.1 ; a_{max} : 0.2462 g
 Site: Gainsborough ; CPT#: 36417 ; G.W.L: 0.6 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



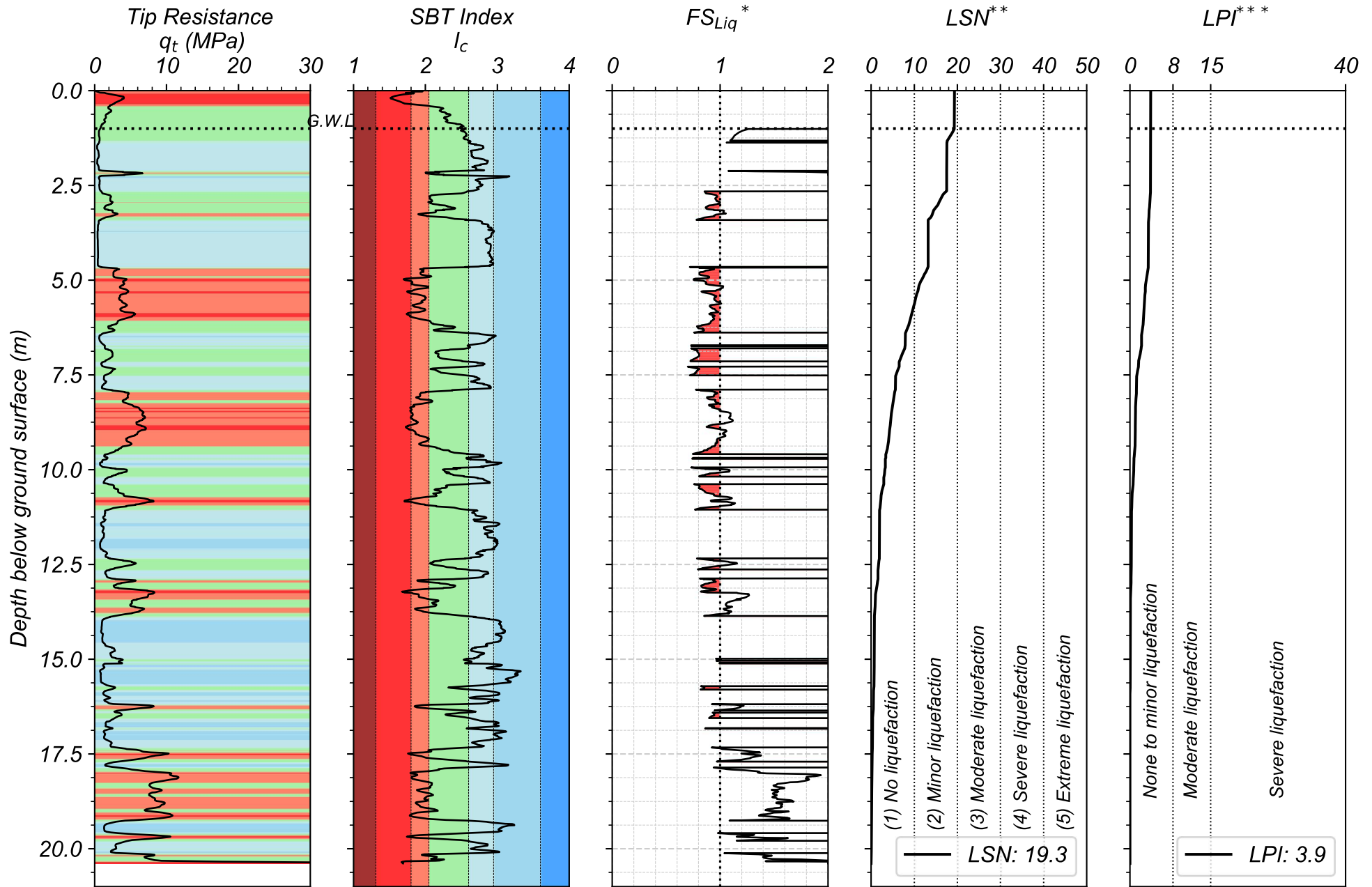
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

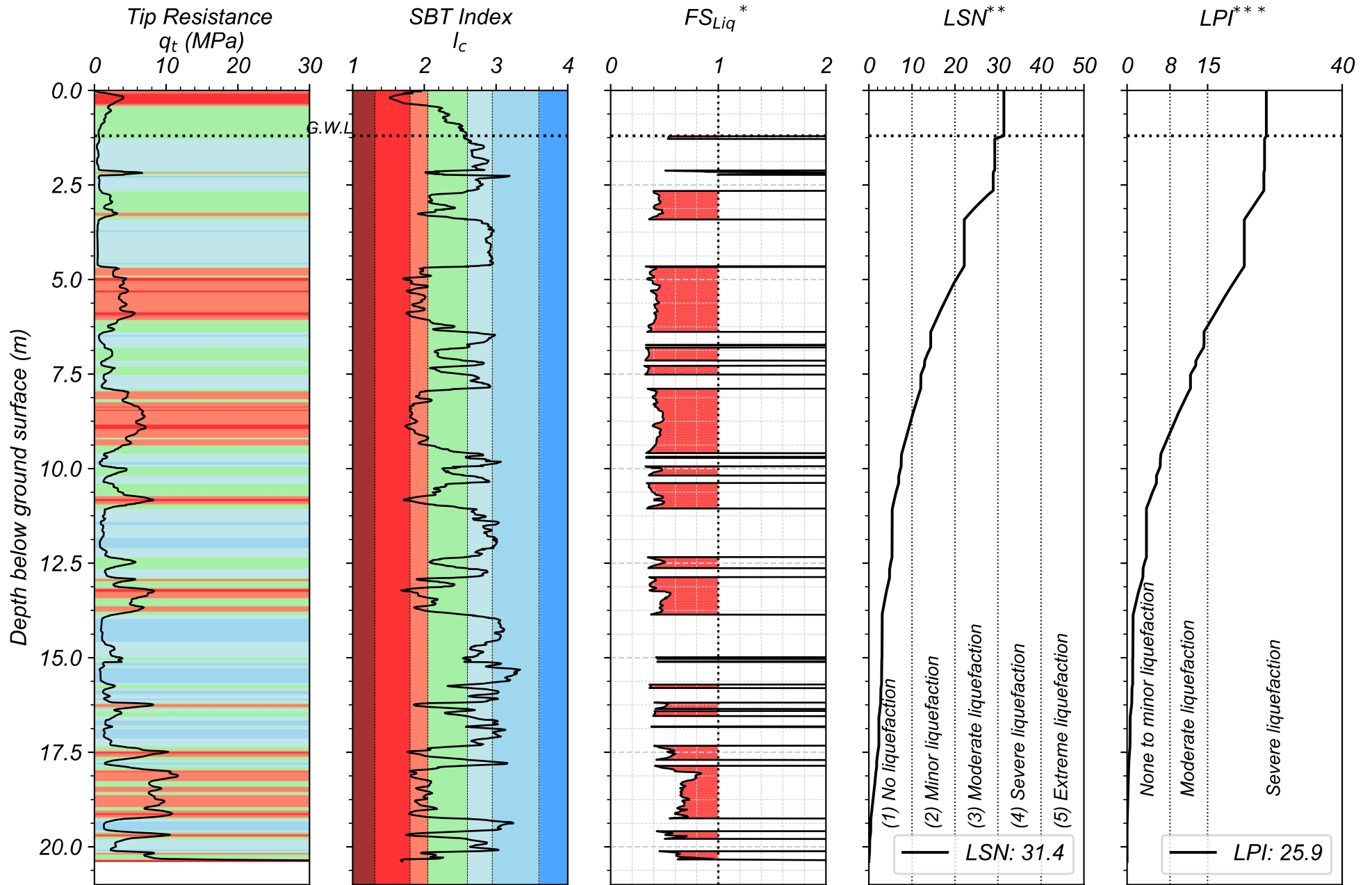
Scenario #: 11 ; Event: JUN ; M_w : 6.2 ; a_{max} : 0.1842 g
 Site: Gainsborough ; CPT#: 36417 ; G.W.L: 1 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)
 **: Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)
 ***: Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 12 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.4264 g
 Site: Gainsborough ; CPT#: 36417 ; G.W.L: 1.2 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



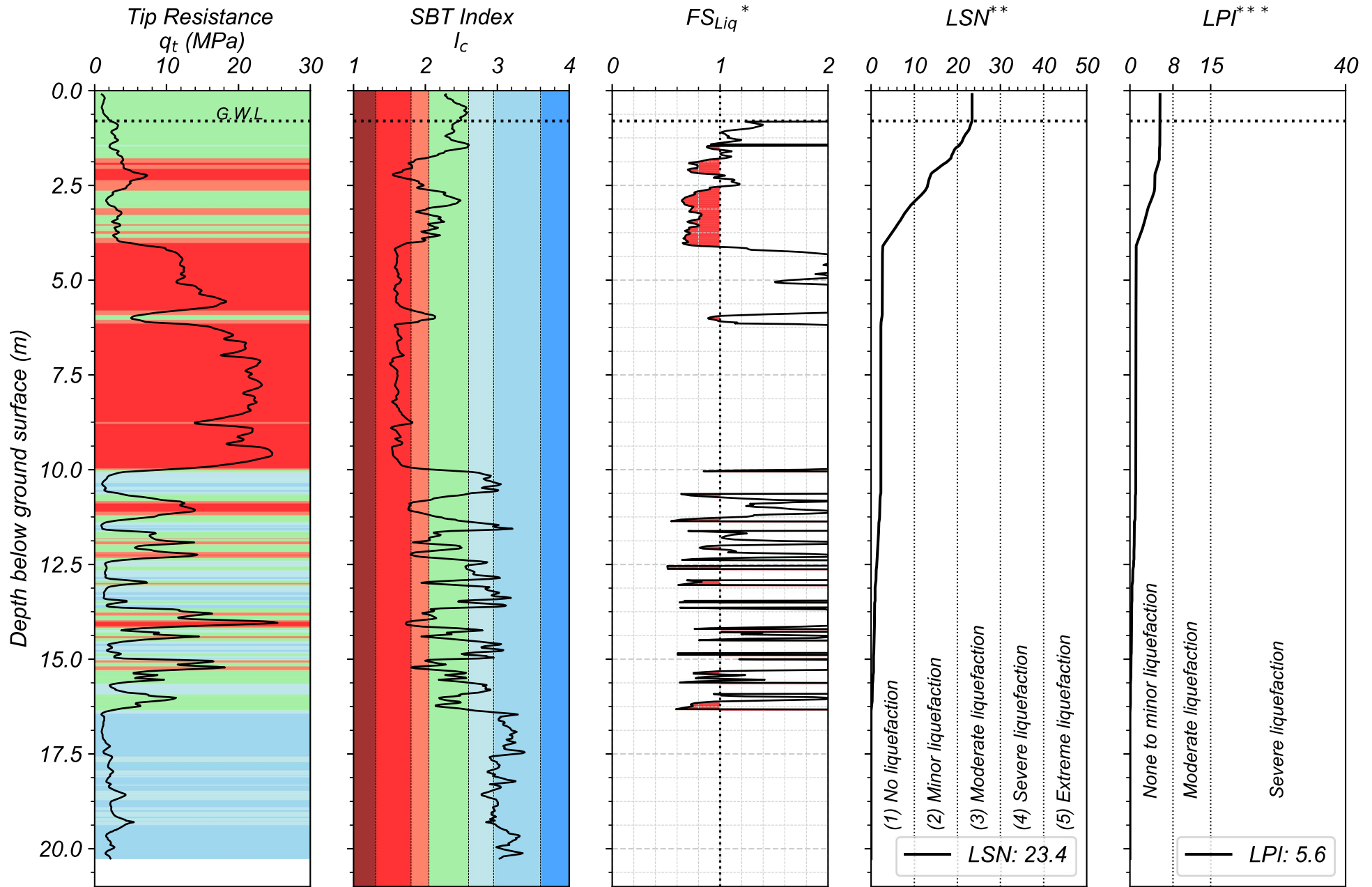
* Using Boulanger & Idriss (2016): I_{c-cut} =2.6, P_L =50%, and C_{FC} =0.13 (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 13 ; Event: DAR ; M_w : 7.1 ; a_{max} : 0.2473 g
 Site: Hillsborough ; CPT#: 57365 ; G.W.L: 0.8 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



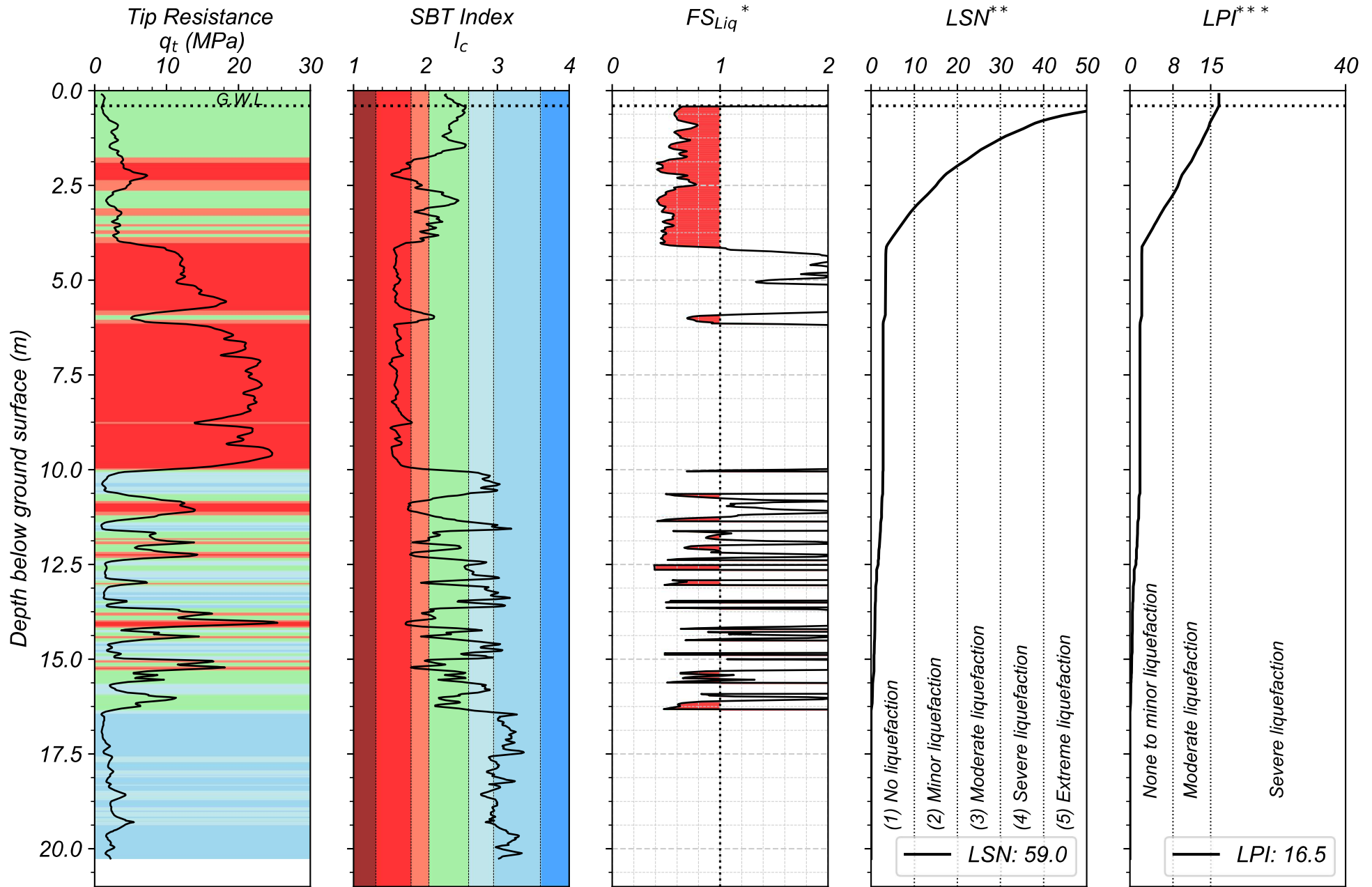
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 14 ; Event: JUN ; M_w : 6.2 ; a_{max} : 0.3643 g
 Site: Hillsborough ; CPT#: 57365 ; G.W.L: 0.4 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



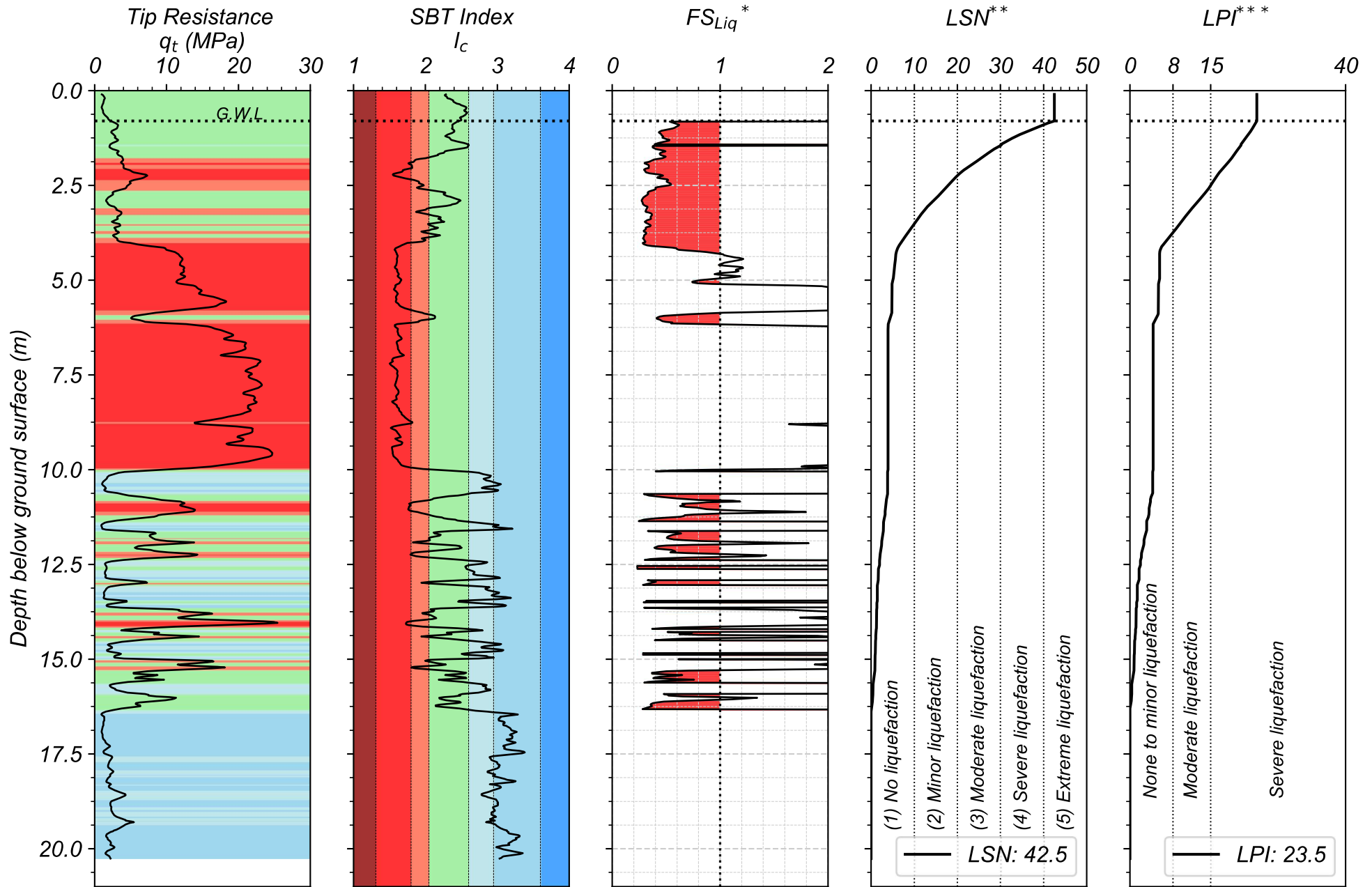
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 15 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.6338 g
 Site: Hillsborough ; CPT#: 57365 ; G.W.L: 0.8 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



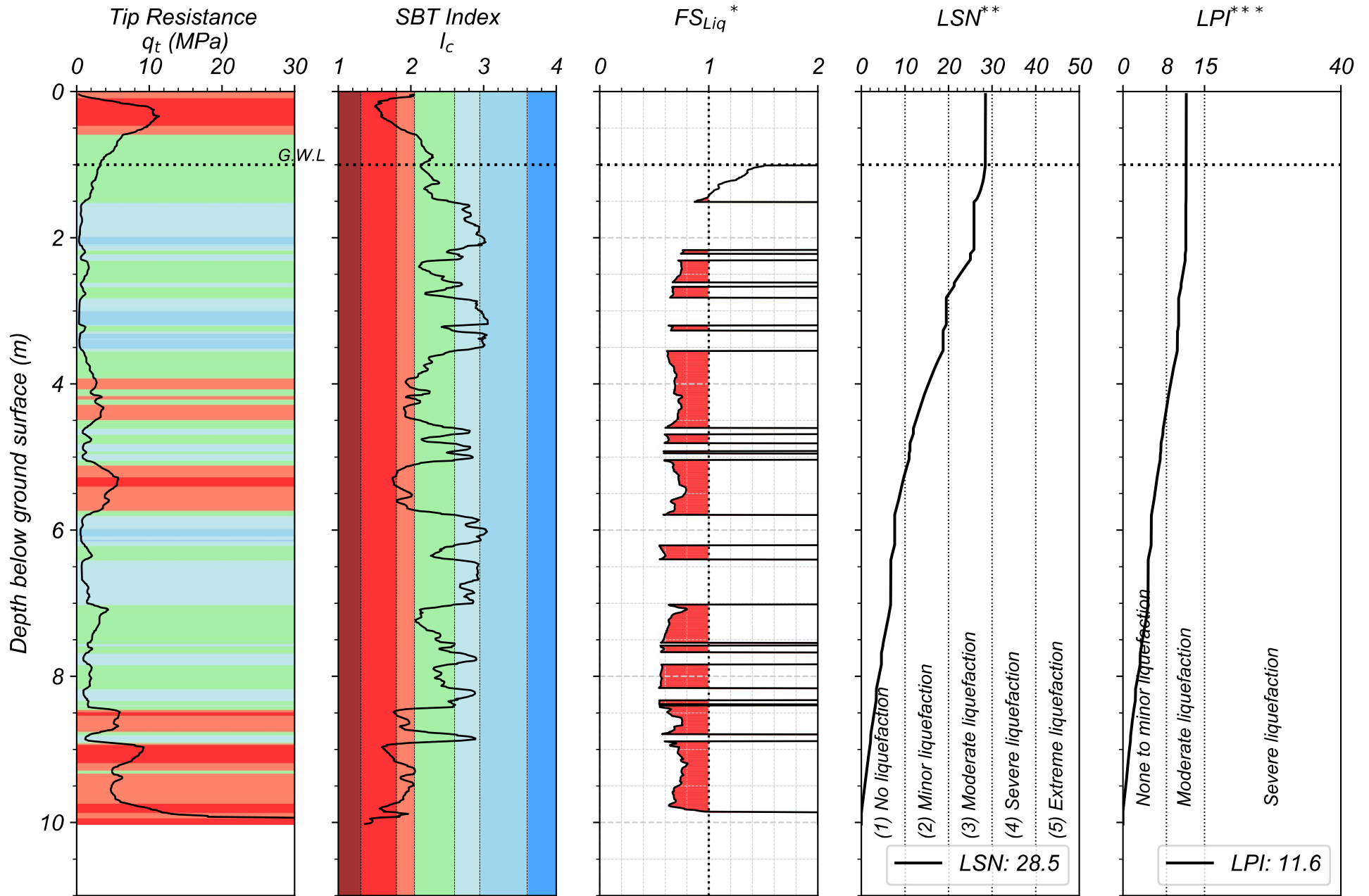
* Using Boulanger & Idriss (2016): I_{c-cut} =2.6, P_L =50%, and C_{FC} =0.13 (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 16 ; Event: DAR ; M_w : 7.1 ; a_{max} : 0.222 g
 Site: Paeroa ; CPT#: 36418 ; G.W.L: 1 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



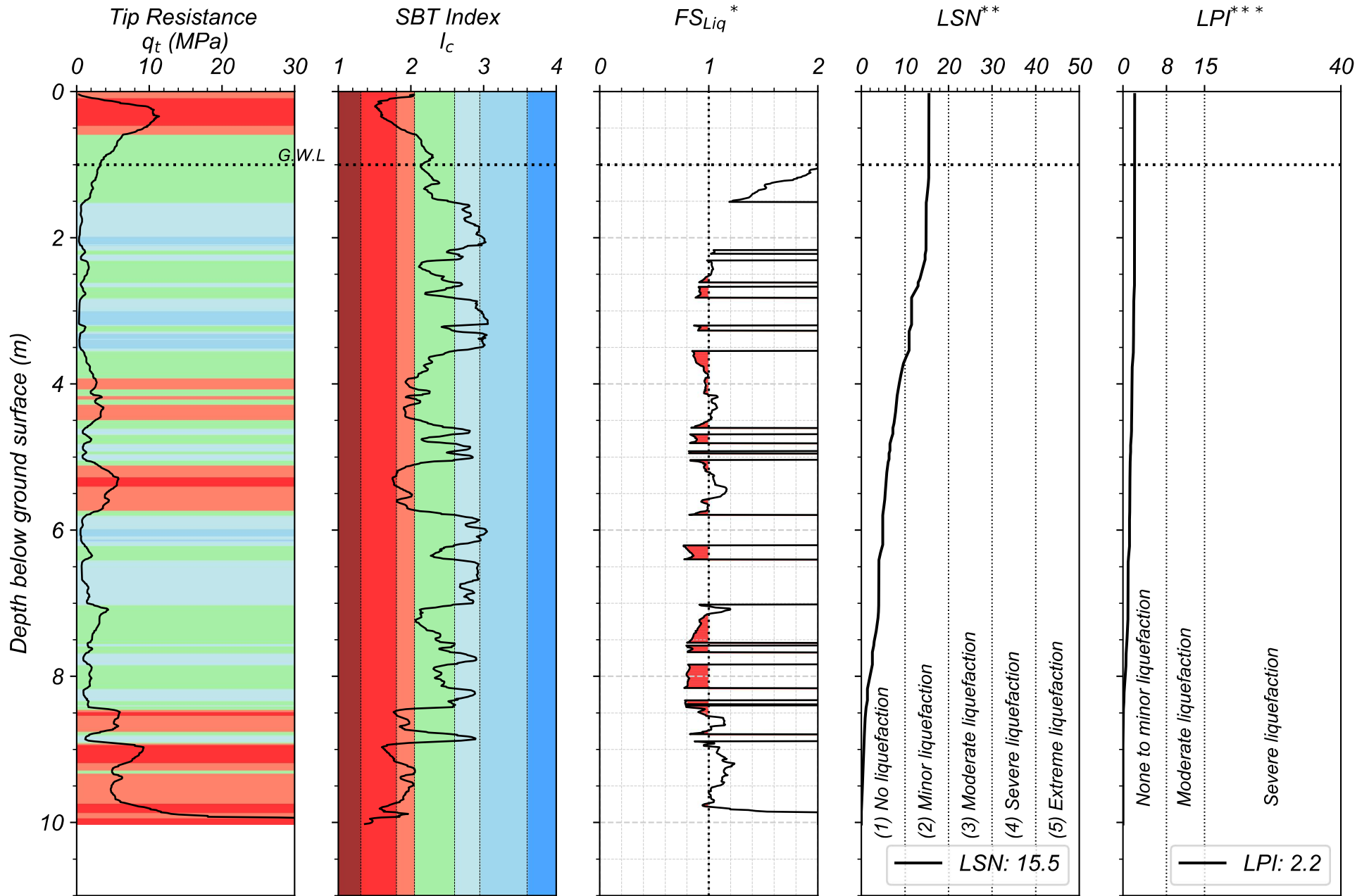
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 17 ; Event: JUN ; M_w : 6.2 ; a_{max} : 0.173 g
 Site: Paeroa ; CPT#: 36418 ; G.W.L: 1 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



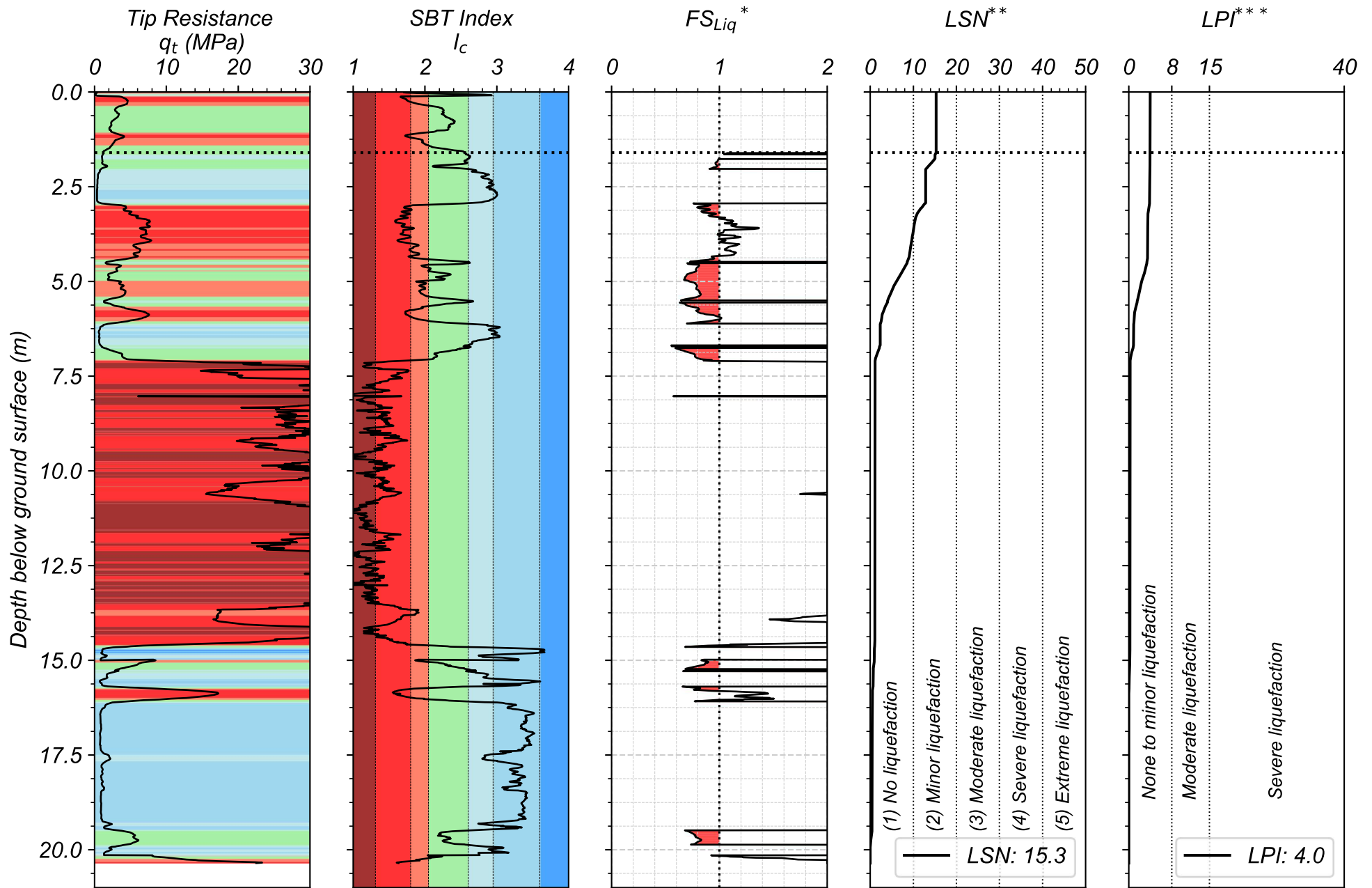
* Using Boulanger & Idriss (2016): $I_{c-cut} = 2.6$, $P_L = 50\%$, and $C_{FC} = 0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 18 ; Event: DAR ; M_w : 7.1 ; a_{max} : 0.2271 g
 Site: Barrington ; CPT#: 37818 ; G.W.L: 1.6 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



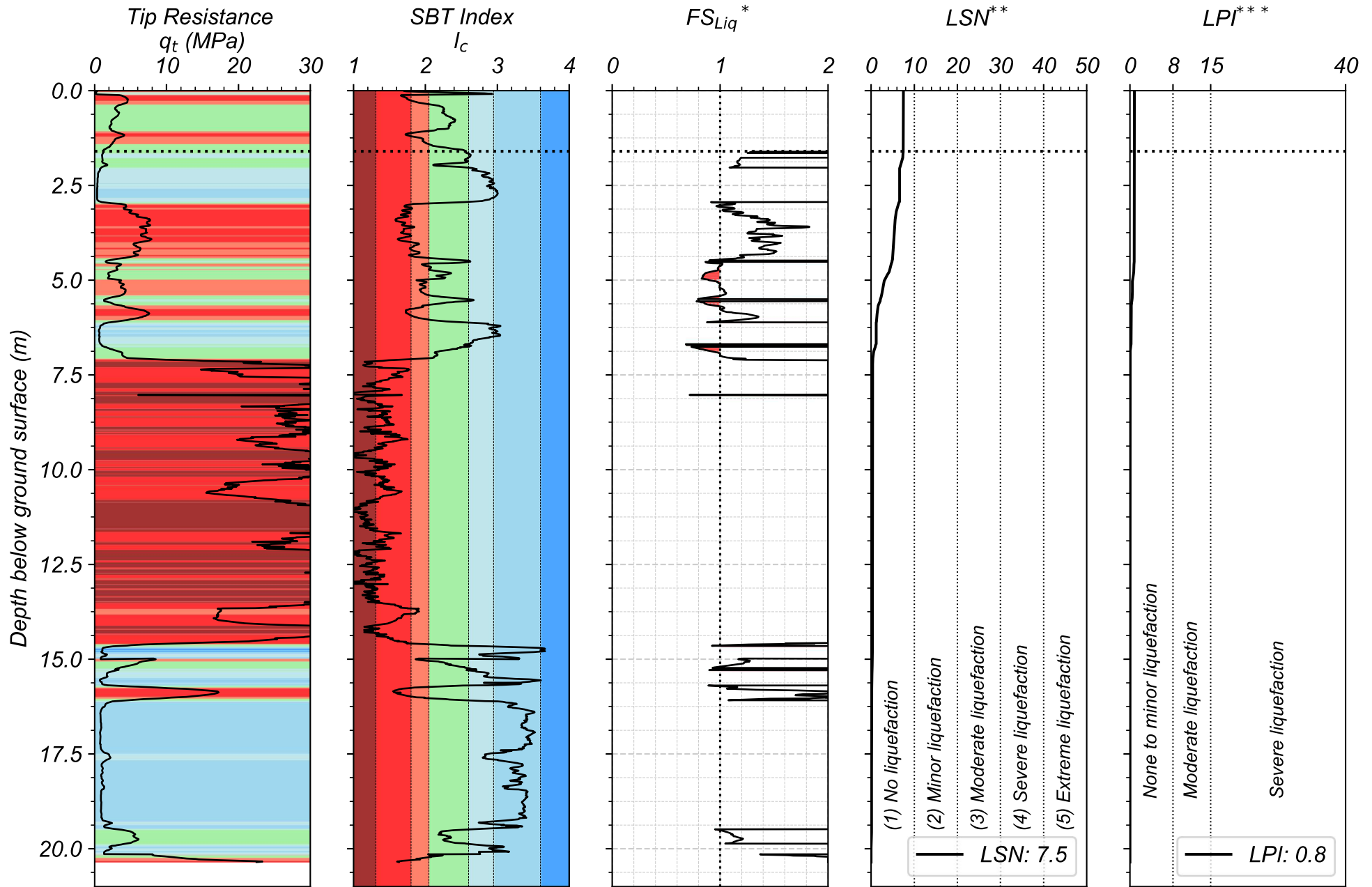
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 19 ; Event: JUN ; M_w : 6.2 ; a_{max} : 0.2016 g
 Site: Barrington ; CPT#: 37818 ; G.W.L: 1.6 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



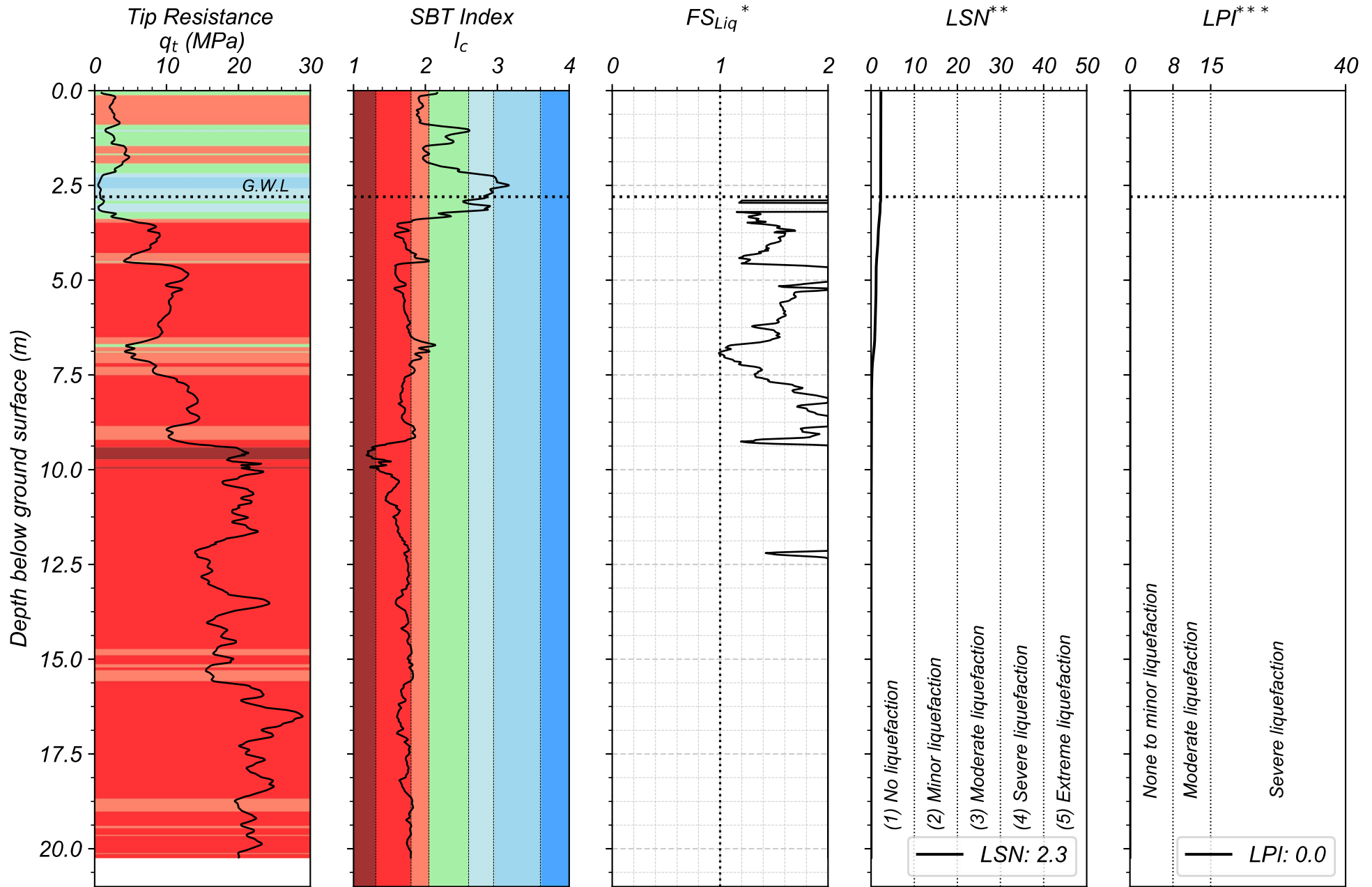
* Using Boulanger & Idriss (2016): $I_{c-cut} = 2.6$, $P_L = 50\%$, and $C_{FC} = 0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 20 ; Event: DAR ; M_w : 7.1 ; a_{max} : 0.1918 g
 Site: Shirley ; CPT#: 57366 ; G.W.L: 2.8 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



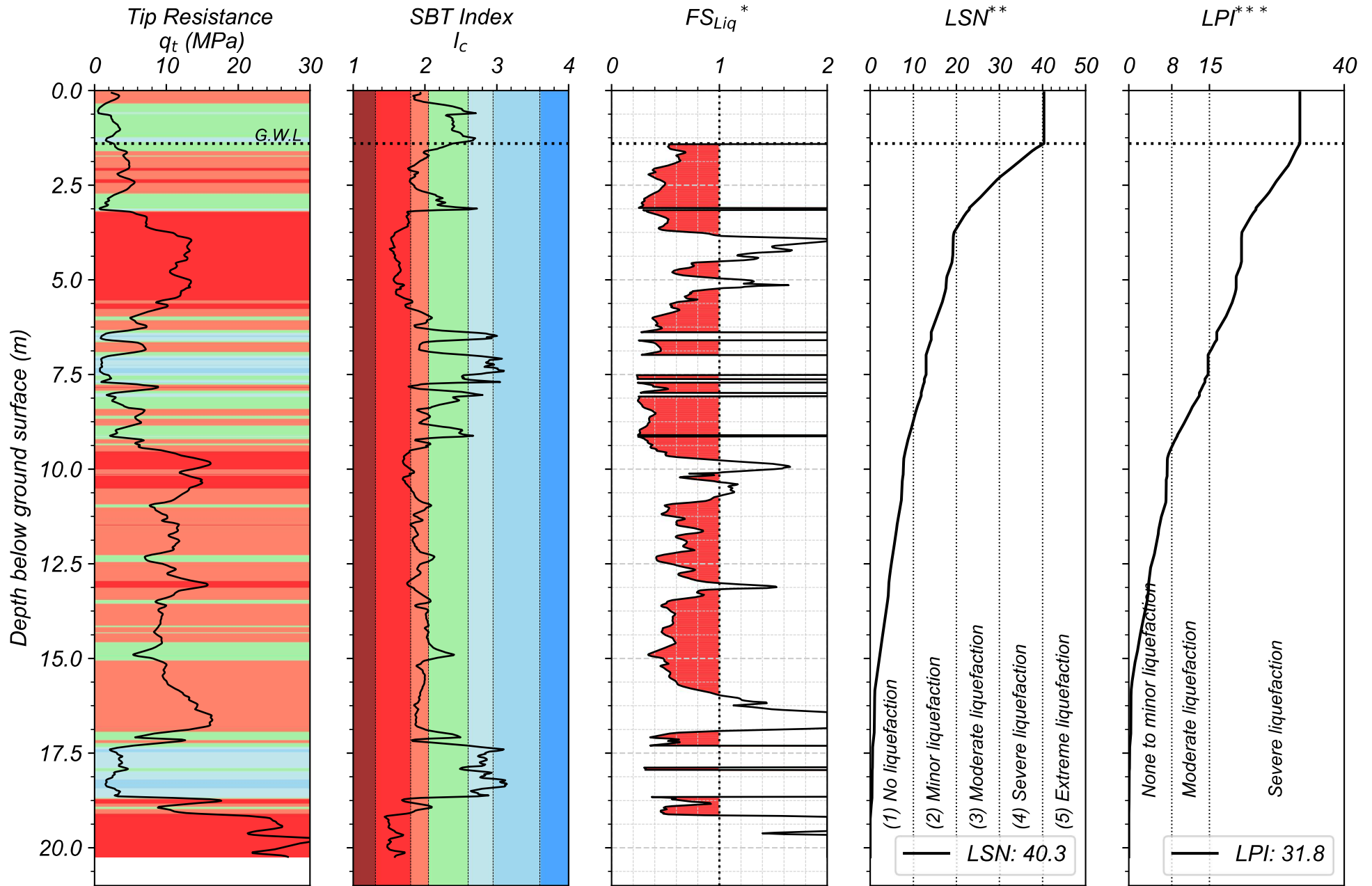
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 21 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.6768 g
 Site: Palinurus_1 ; CPT#: 57360 ; G.W.L: 1.4 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



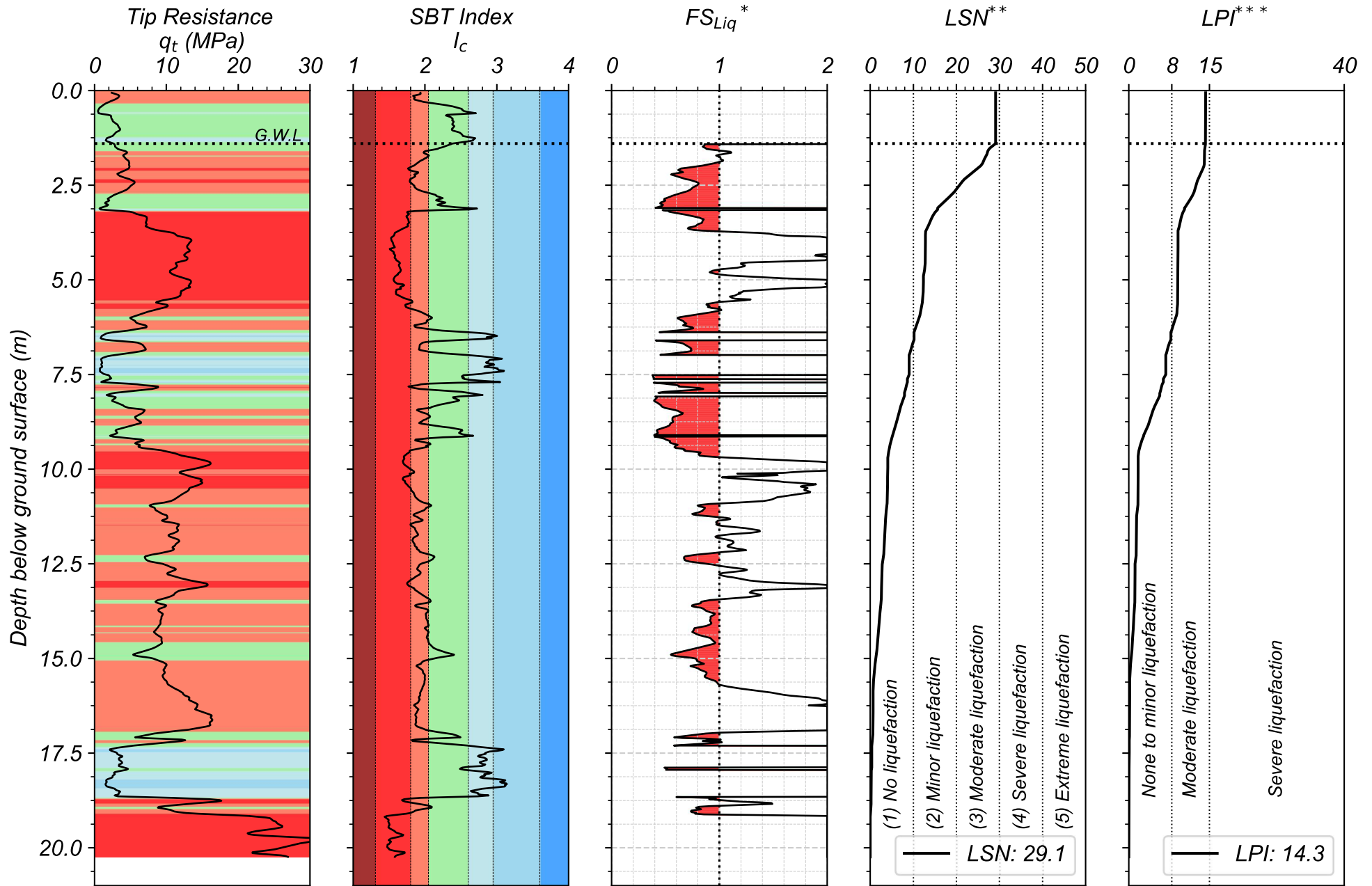
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 22 ; Event: JUN ; M_w : 6.2 ; a_{max} : 0.4178 g
 Site: Palinurus_1 ; CPT#: 57360 ; G.W.L.: 1.4 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

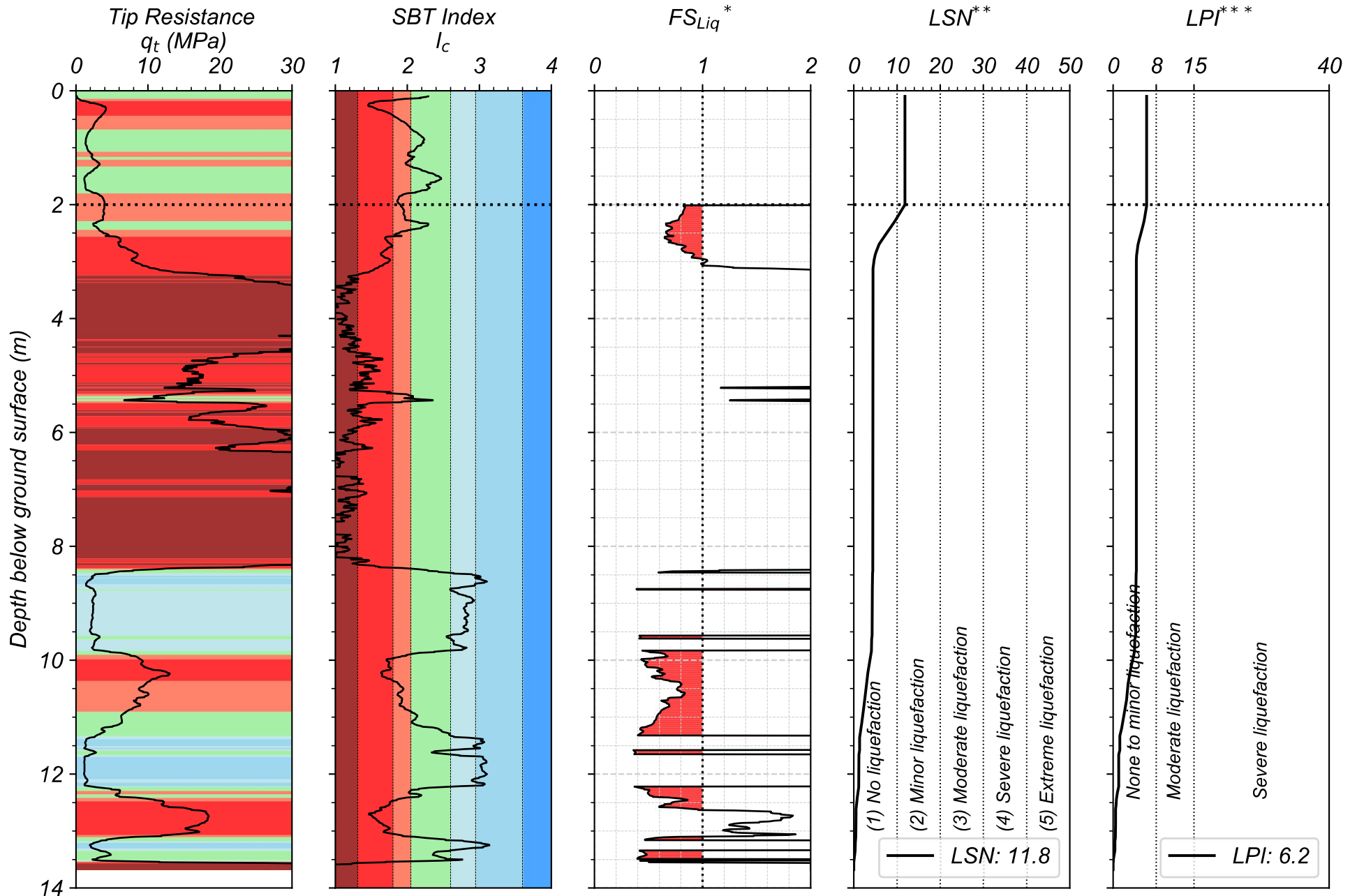
*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 23 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.45 g

Site: CMHS ; CPT#: 72541 ; G.W.L: 2 m

Observed Ejecta Severity: None ; Site Condition: Near Building



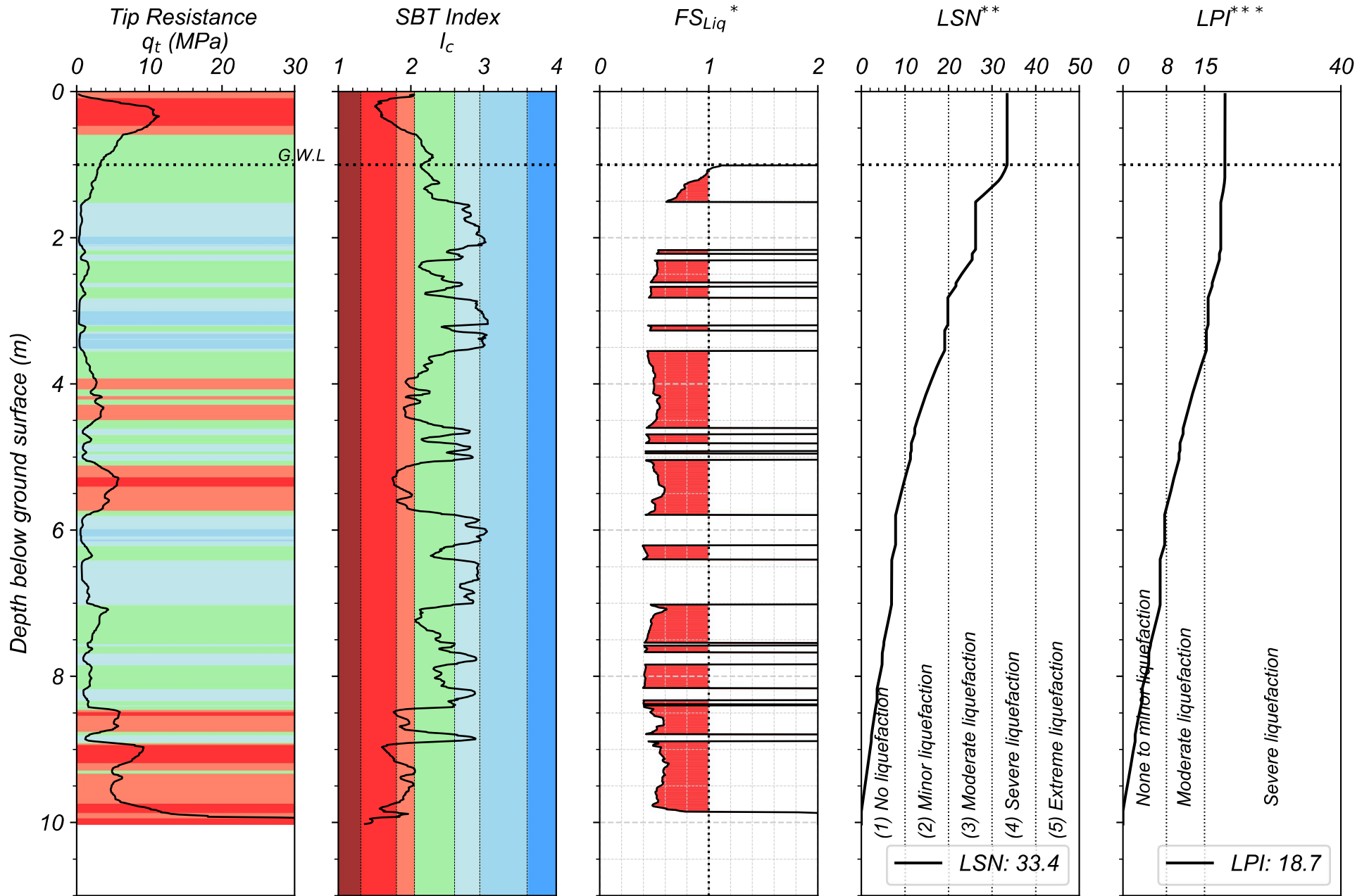
* Using Boulanger & Idriss (2016): $I_{c-cut} = 2.6$, $P_L = 50\%$, and $C_{FC} = 0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 24 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.3379 g
 Site: Paeroa ; CPT#: 36418 ; G.W.L: 1 m
 Observed Ejecta Severity: None ; Site Condition: Free-field flat



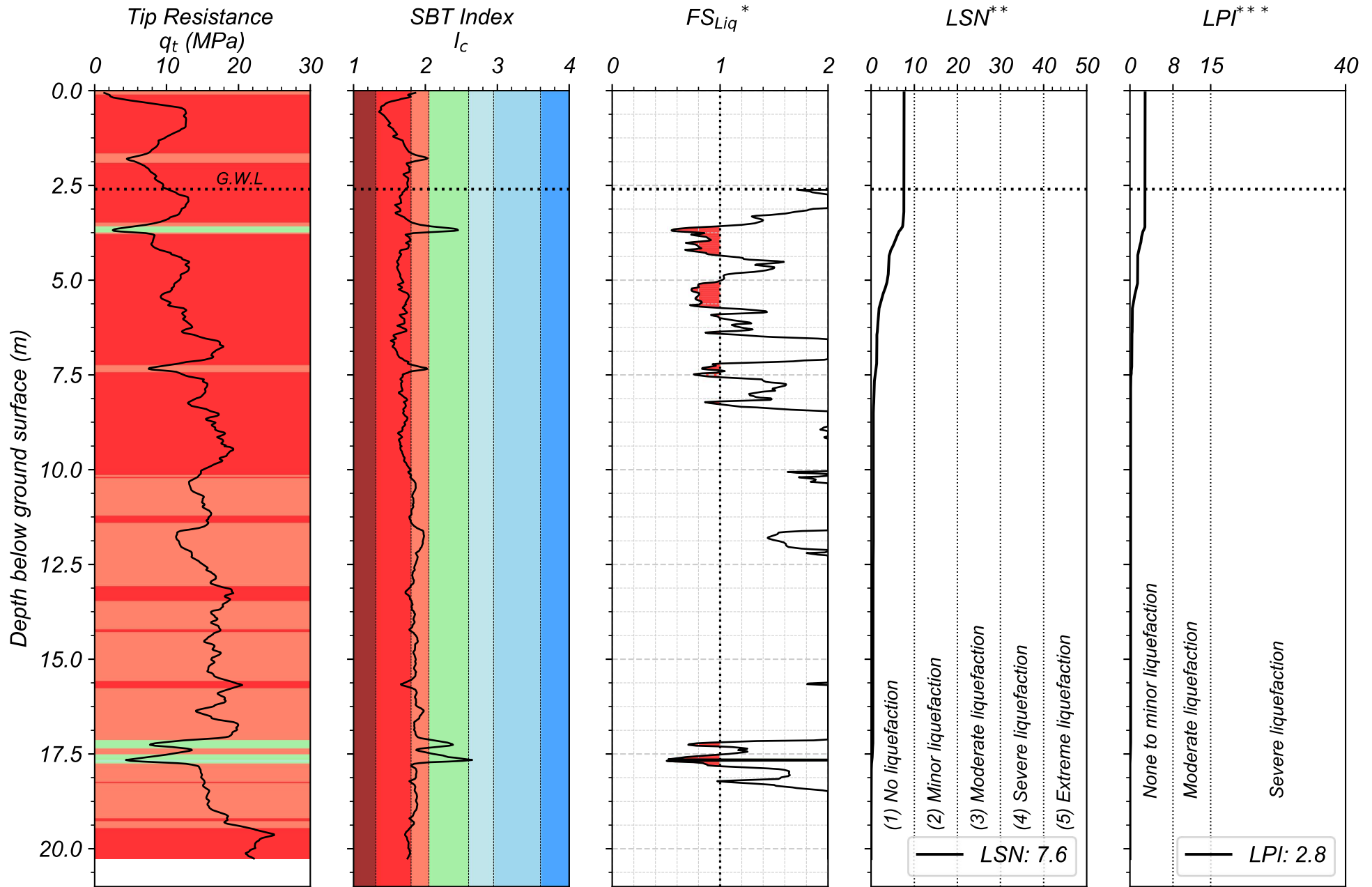
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 25 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.4641 g
 Site: Carisbrooke ; CPT#: 57347 ; G.W.L: 2.6 m
 Observed Ejecta Severity: Minor ; Site Condition: Free-field flat



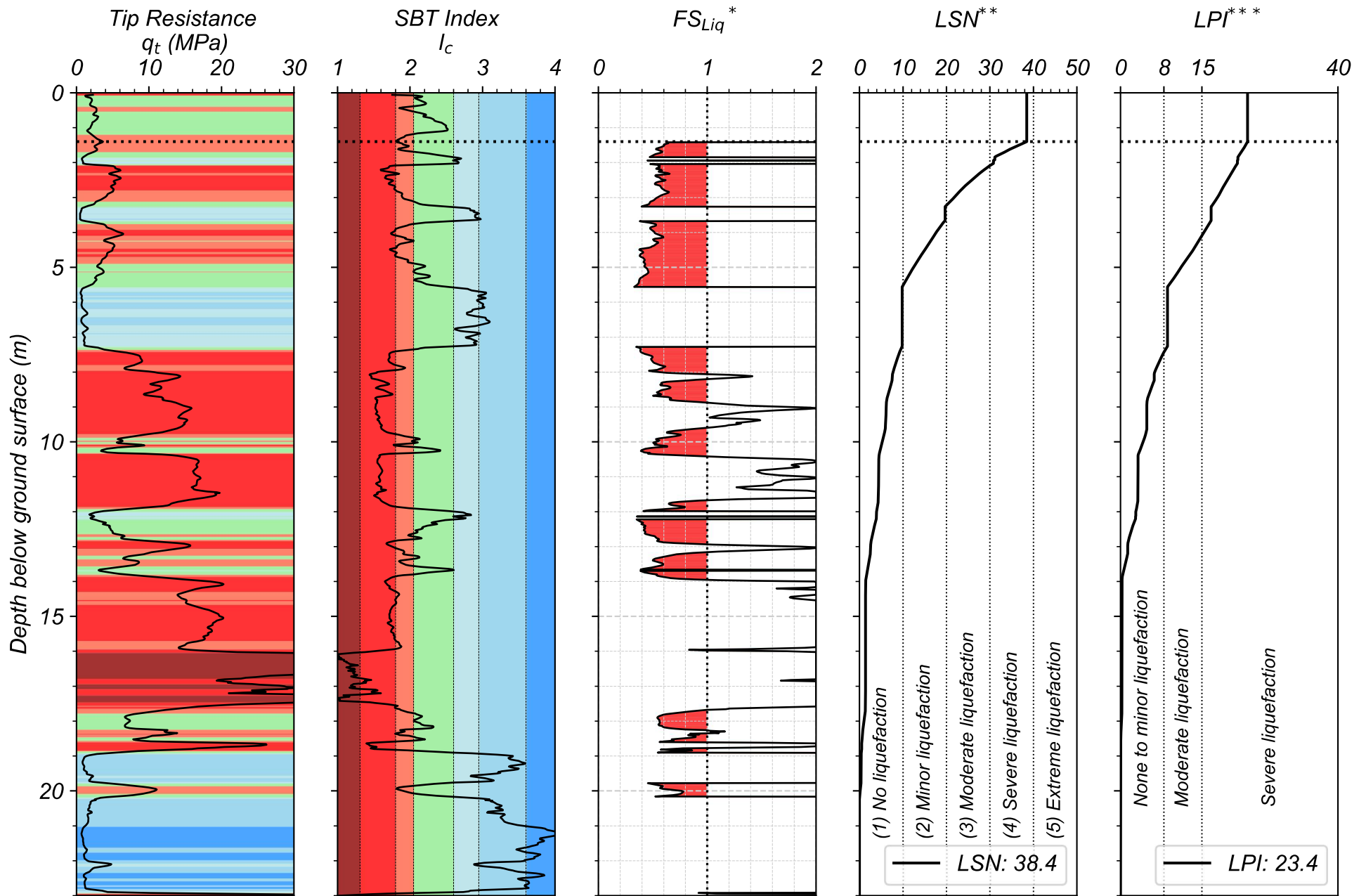
* Using Boulanger & Idriss (2016): $I_{c-cut} = 2.6$, $P_L = 50\%$, and $C_{FC} = 0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 26 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.4568 g
 Site: Brougham St. ; CPT#: 57355 ; G.W.L: 1.4 m
 Observed Ejecta Severity: Minor ; Site Condition: Free-field flat



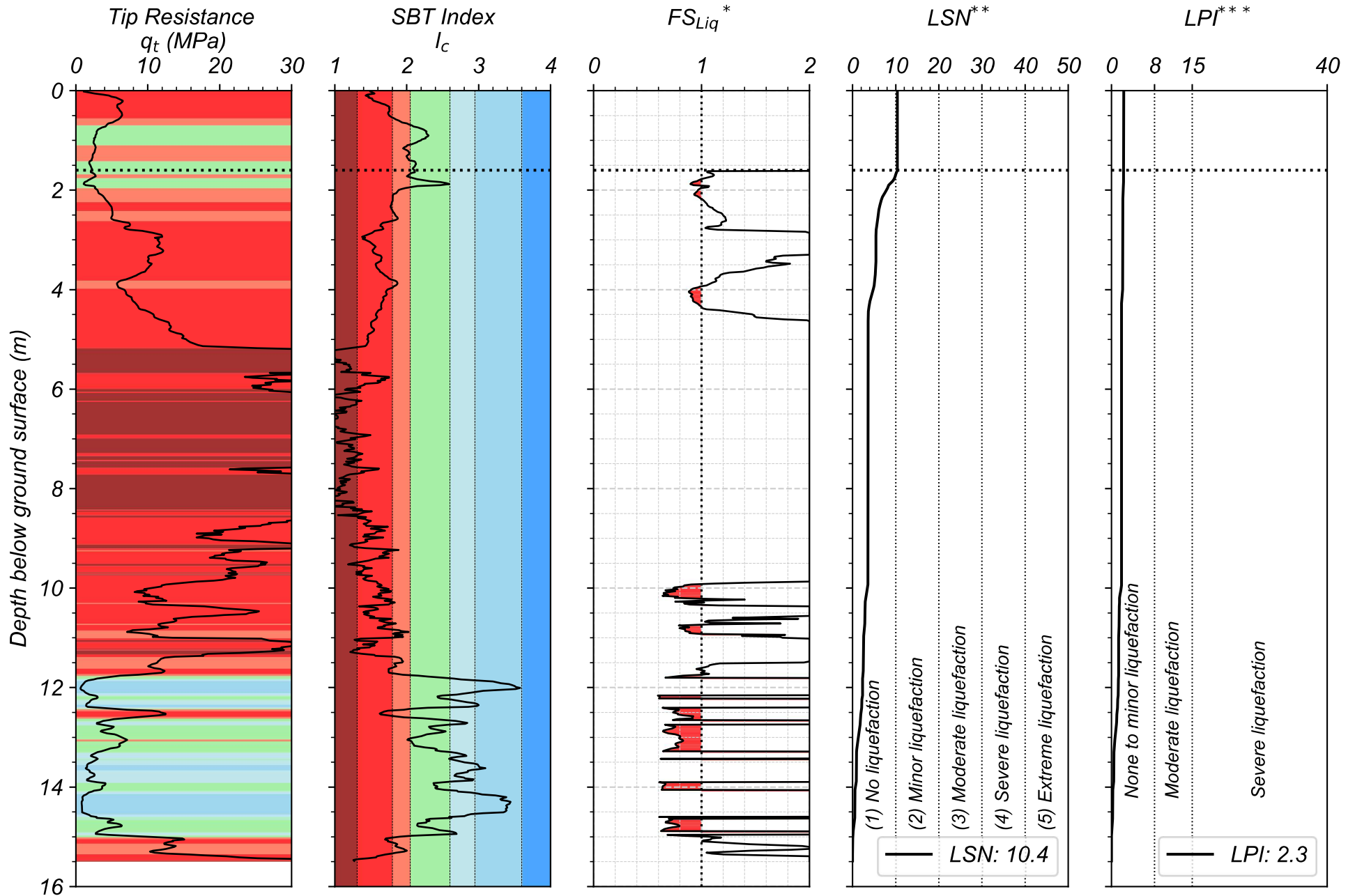
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 27 ; Event: DAR ; M_w : 7.1 ; a_{max} : 0.245 g
 Site: Rydal ; CPT#: 57344 ; G.W.L: 1.6 m
 Observed Ejecta Severity: Minor ; Site Condition: Free-field flat



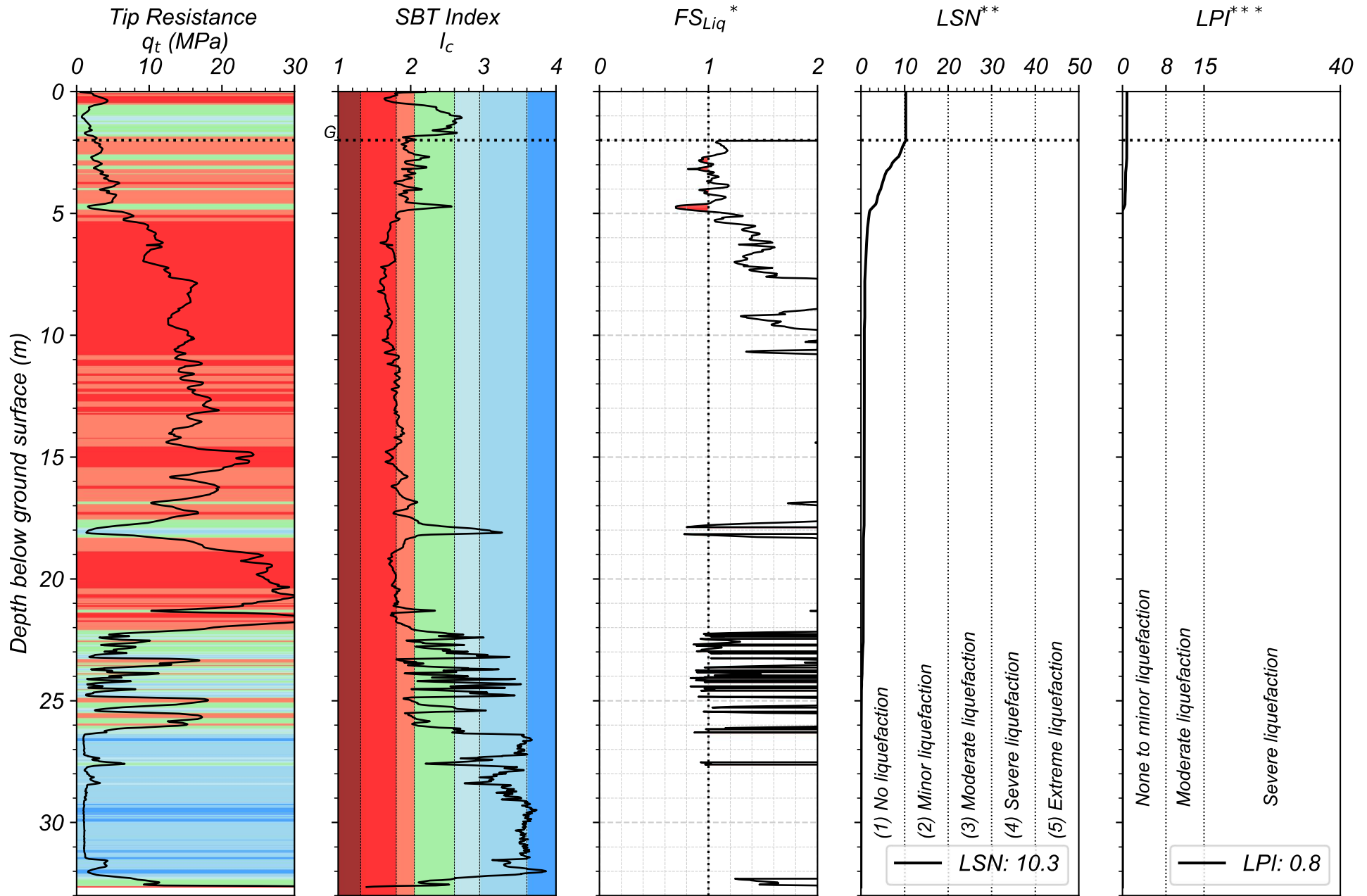
* Using Boulanger & Idriss (2016): I_{c-cut} =2.6, P_L =50%, and C_{FC} =0.13 (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 28 ; Event: JUN ; M_w : 6.2 ; a_{max} : 0.258 g
 Site: Avondale PG ; CPT#: 57354 ; G.W.L: 2 m
 Observed Ejecta Severity: Moderate ; Site Condition: Free-field flat



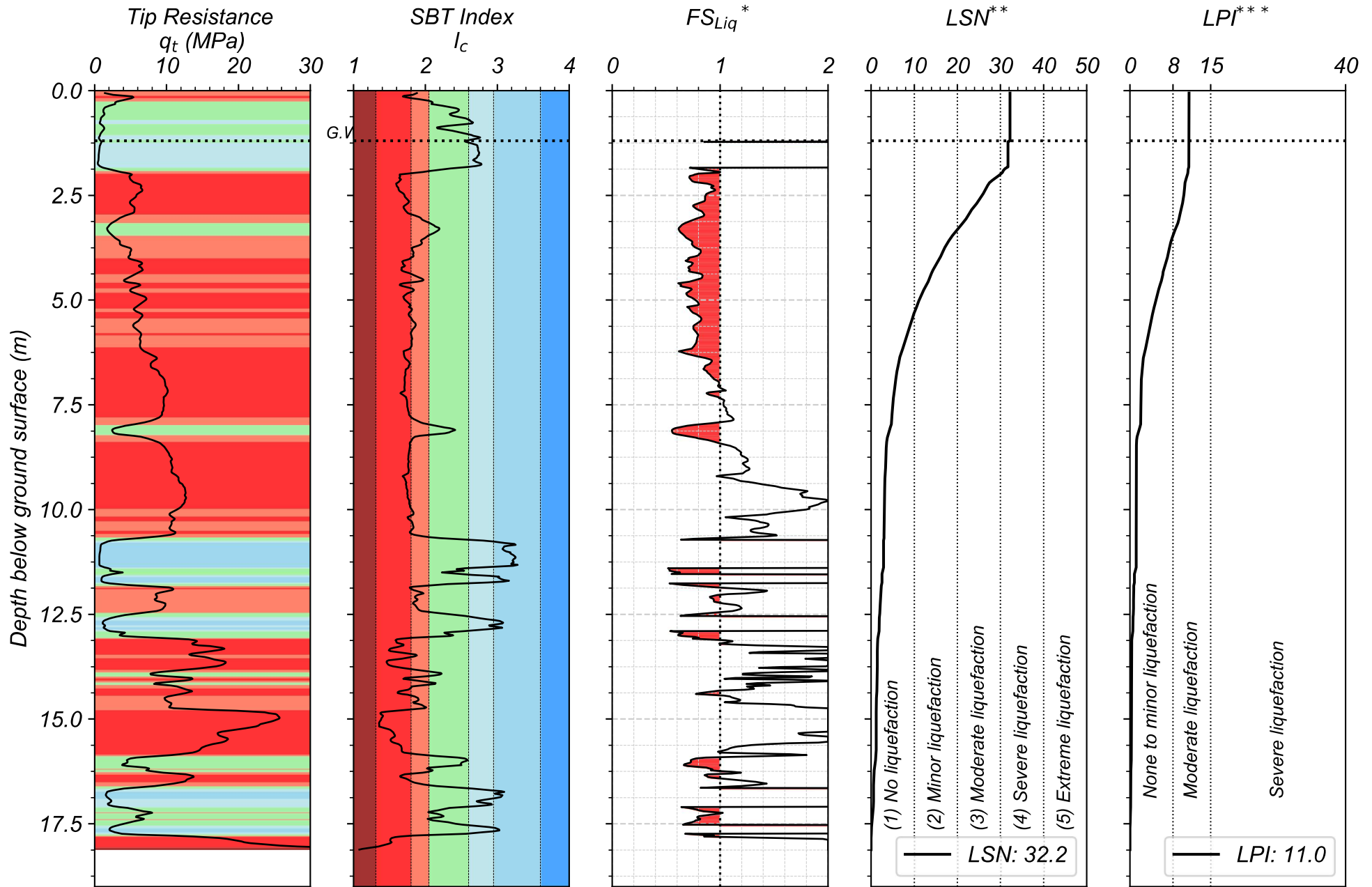
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 29 ; Event: JUN ; M_w : 6.2 ; a_{max} : 0.2859 g
 Site: Cresselly ; CPT#: 57353 ; G.W.L: 1.2 m
 Observed Ejecta Severity: Moderate ; Site Condition: Near Building



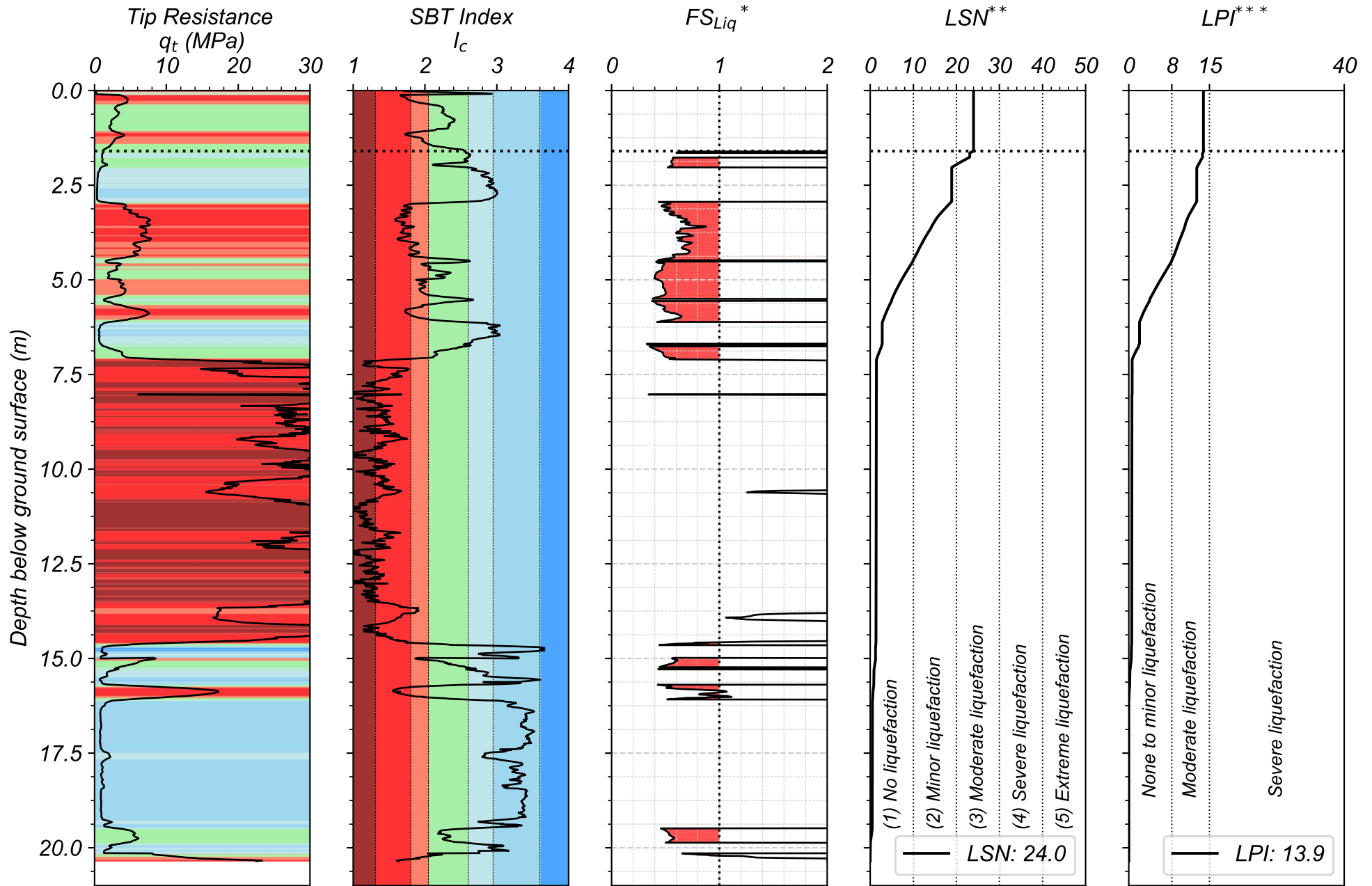
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 30 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.4213 g
 Site: Barrington ; CPT#: 37818 ; G.W.L.: 1.6 m
 Observed Ejecta Severity: Moderate ; Site Condition: Free-field flat



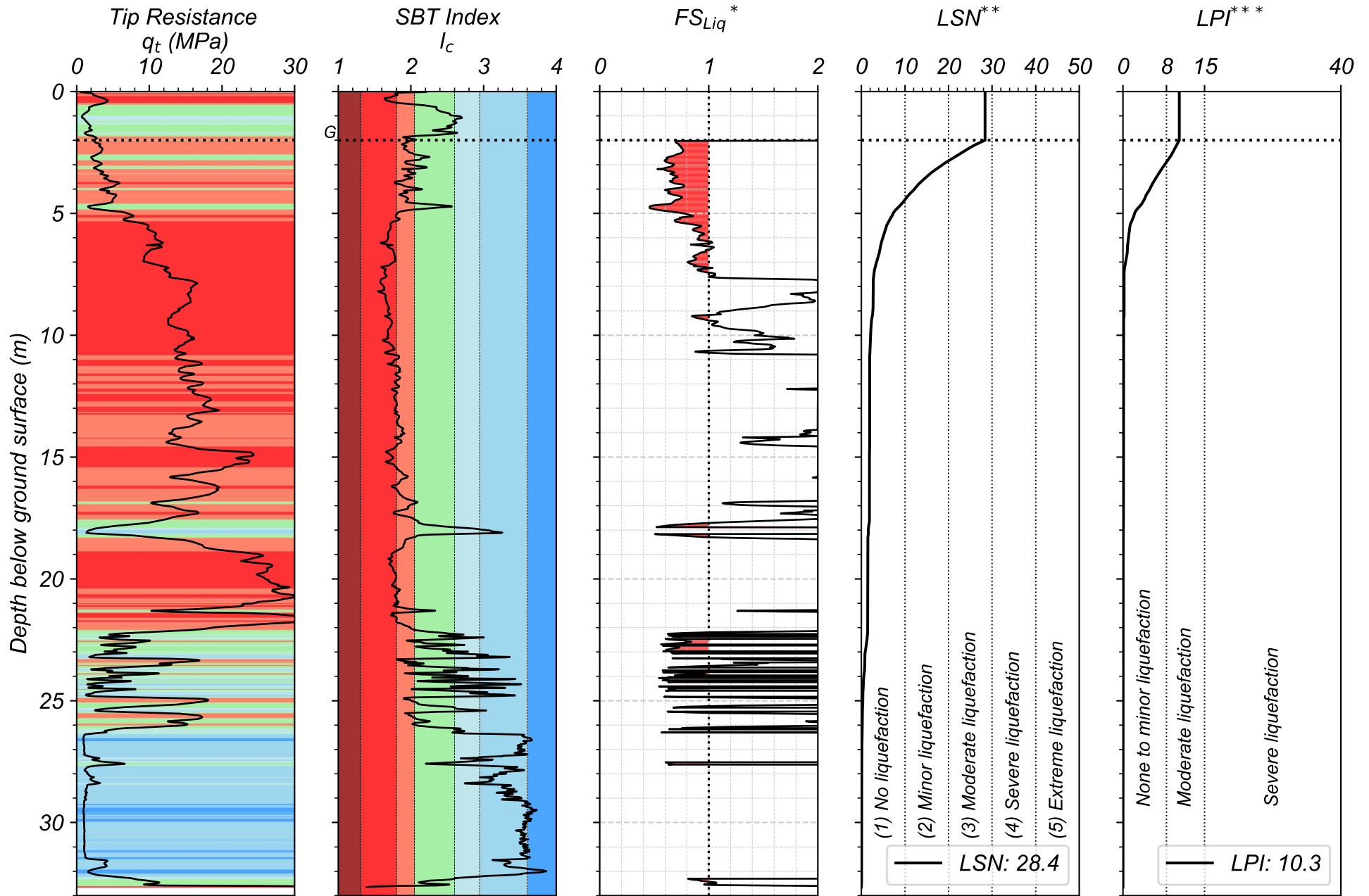
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 31 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.3959 g
 Site: Avondale PG ; CPT#: 57354 ; G.W.L: 2 m
 Observed Ejecta Severity: Moderate ; Site Condition: Free-field flat



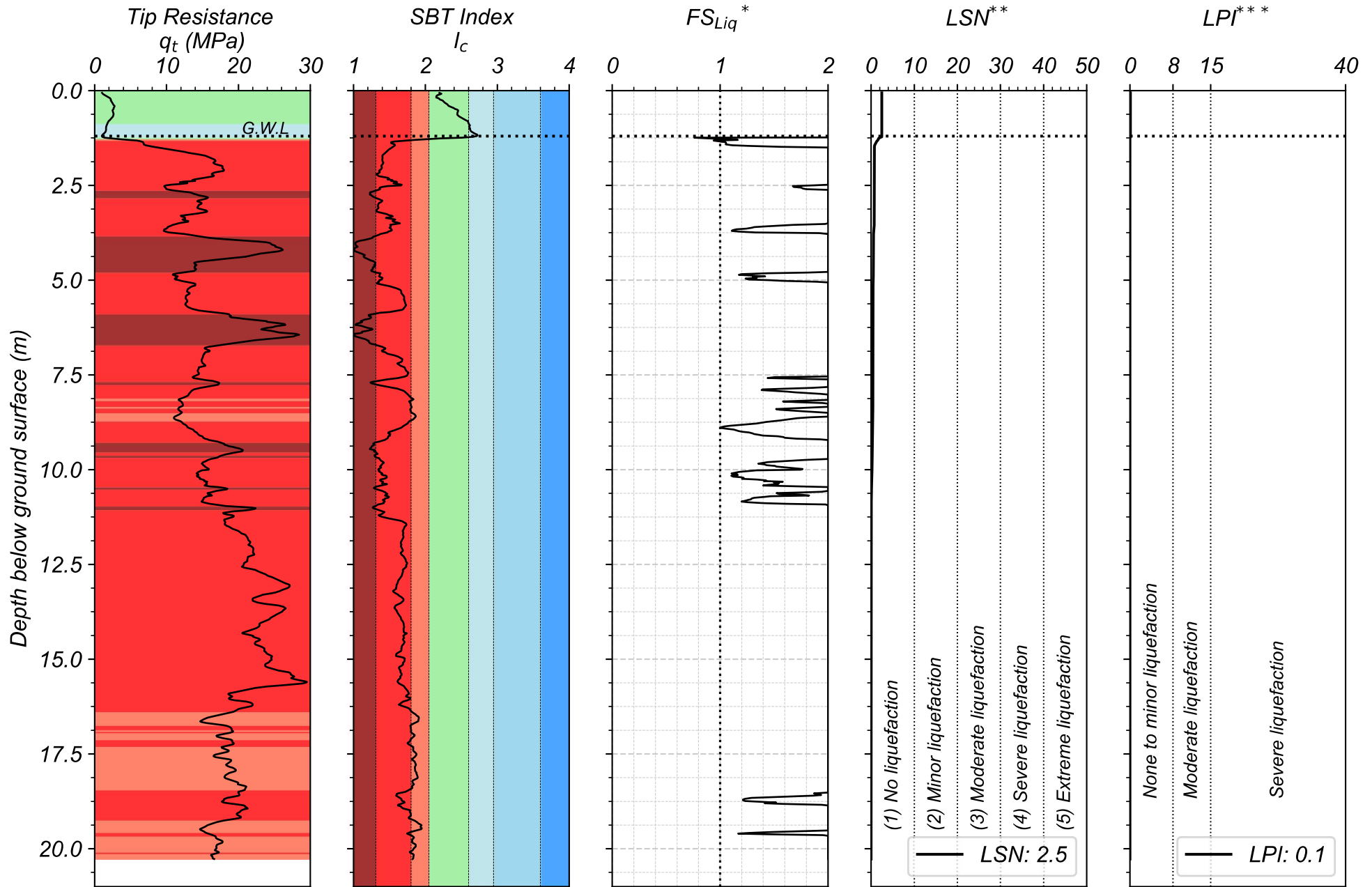
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 32 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.3435 g
 Site: Sabina ; CPT#: 57346 ; G.W.L: 1.2 m
 Observed Ejecta Severity: Moderate ; Site Condition: Free-field flat



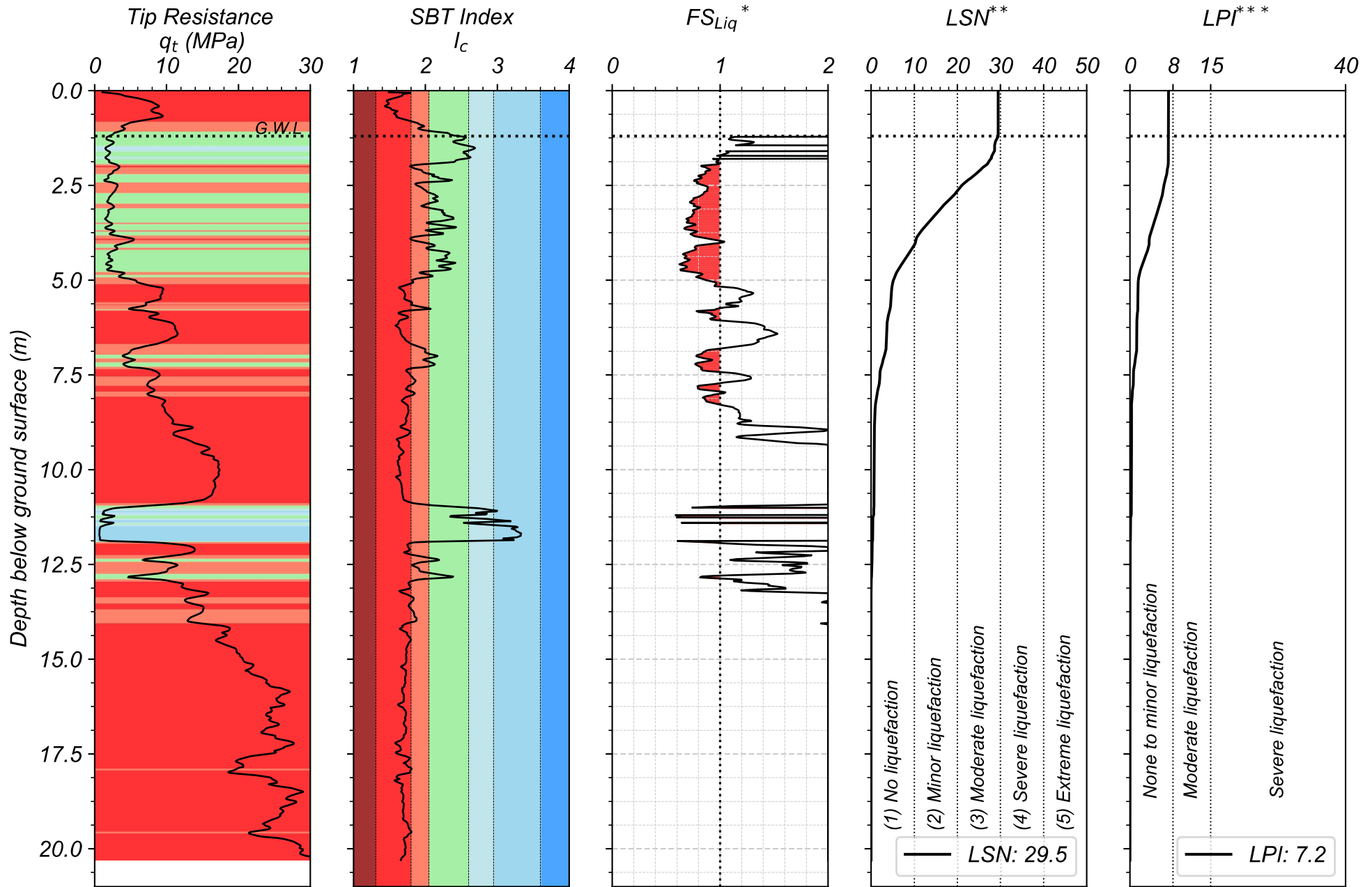
* Using Boulanger & Idriss (2016): I_{c-cut} =2.6, P_L =50%, and C_{FC} =0.13 (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 33 ; Event: JUN ; M_w : 6.2 ; a_{max} : 0.2531 g
 Site: Avondale Park ; CPT#: 57342 ; G.W.L: 1.2 m
 Observed Ejecta Severity: Moderate ; Site Condition: Free-field flat



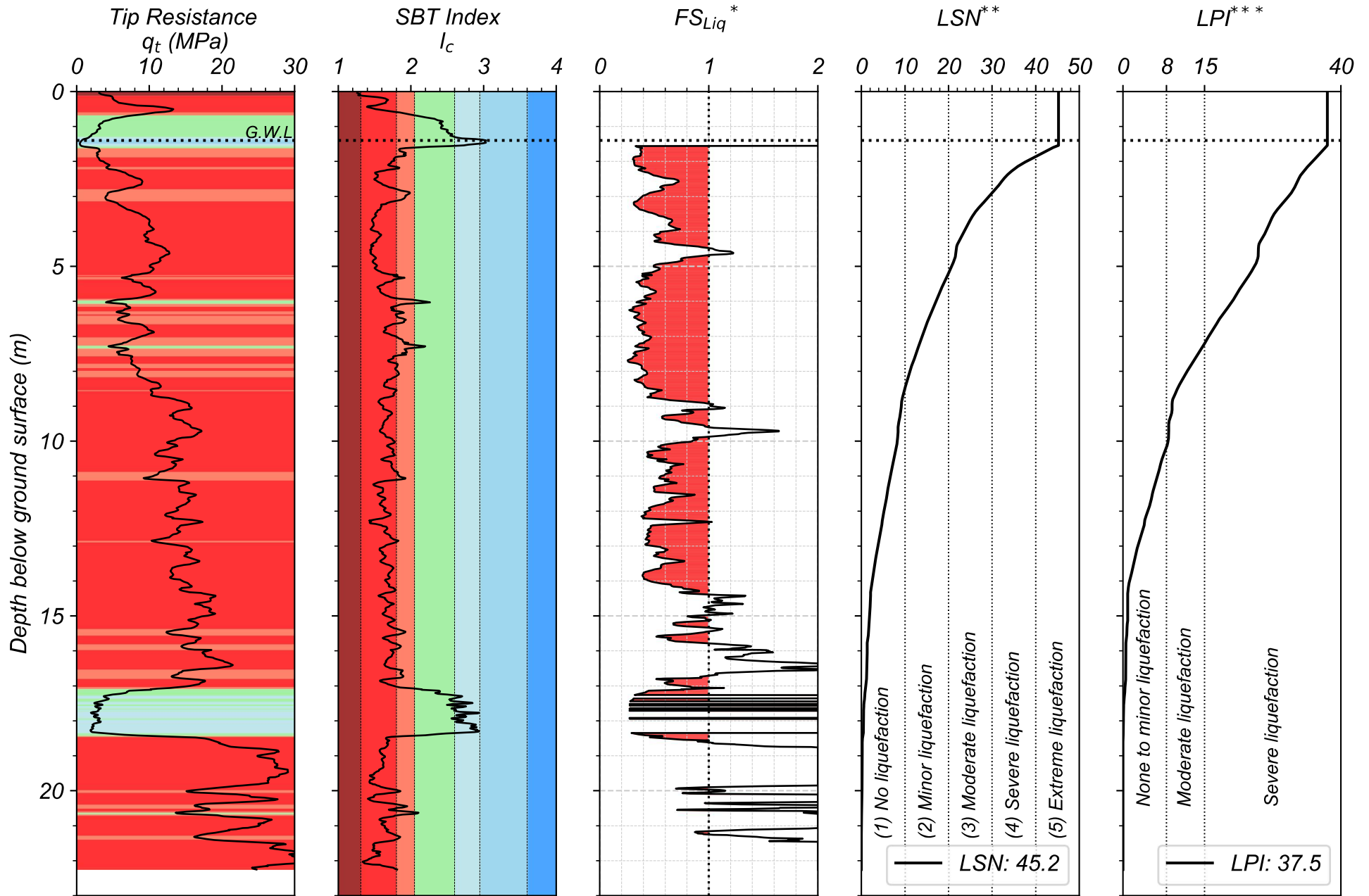
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 34 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.6768 g
 Site: Palinurus_2 ; CPT#: 62761 ; G.W.L: 1.4 m
 Observed Ejecta Severity: Severe ; Site Condition: Free-field flat



* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

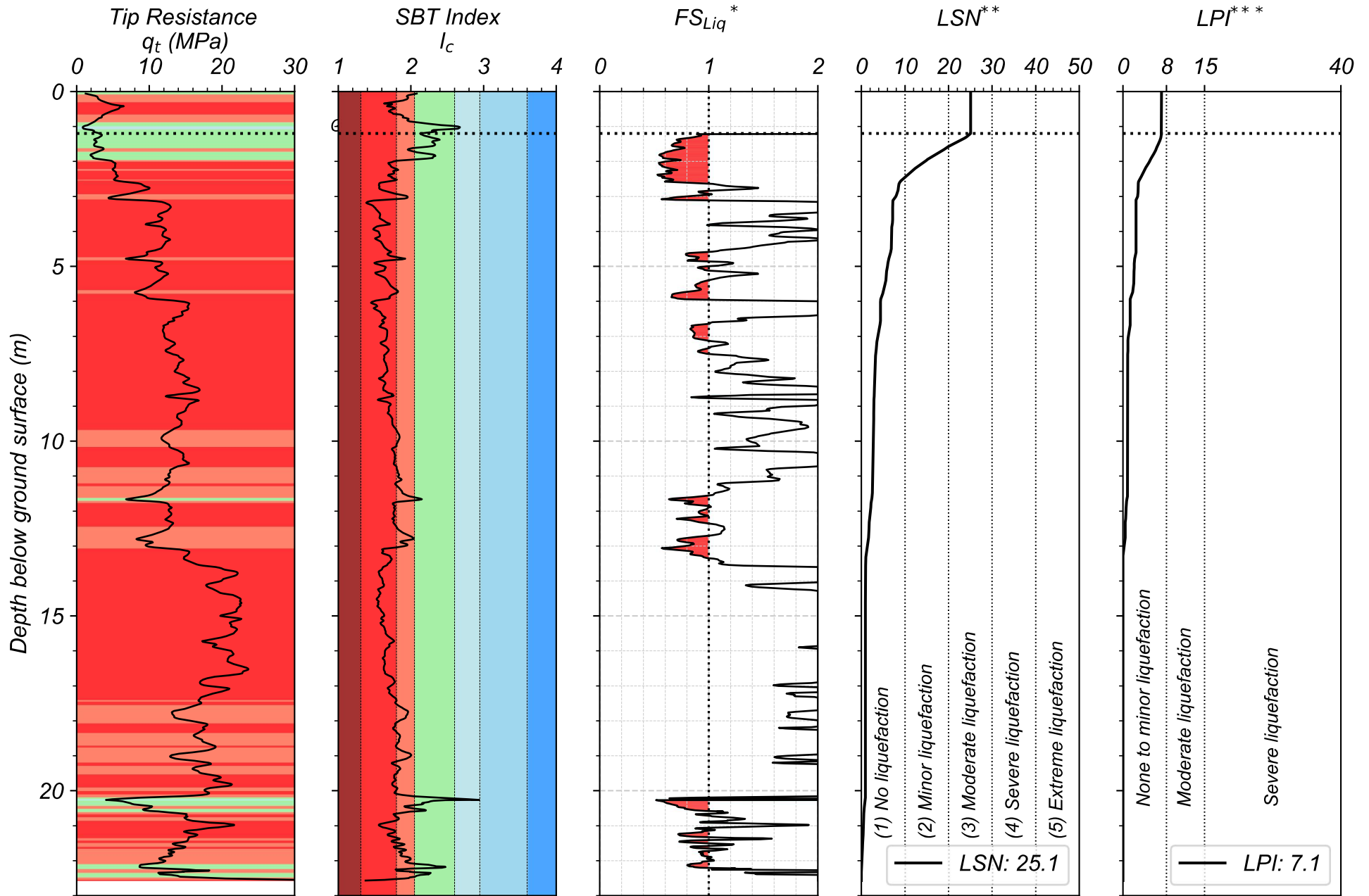
*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 35 ; Event: JUN ; M_w : 6.2 ; a_{max} : 0.434 g

Site: Ti Rakau ; CPT#: 57341 ; G.W.L: 1.2 m

Observed Ejecta Severity: Severe ; Site Condition: Free-field flat



* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

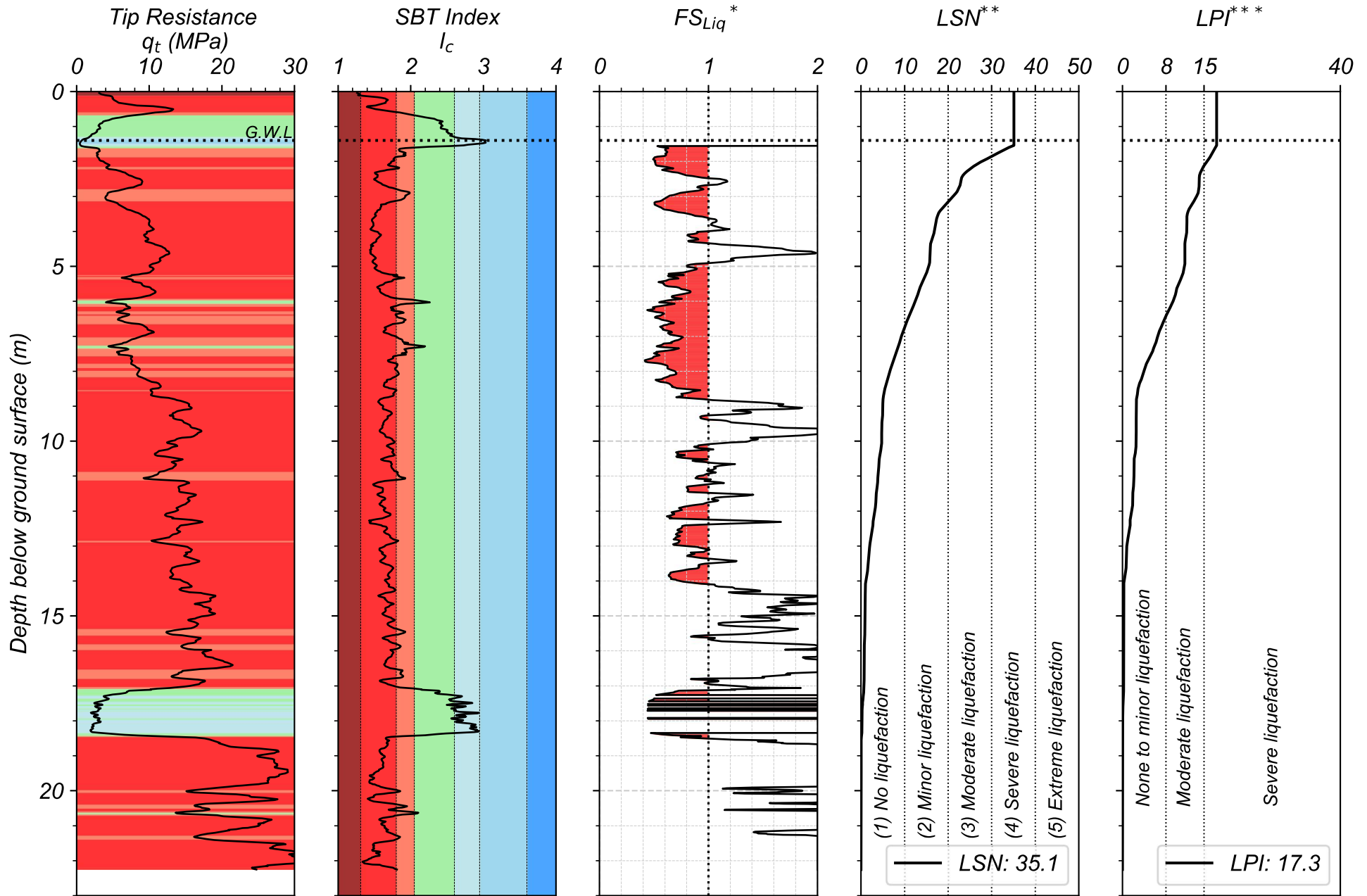
*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 36 ; Event: JUN ; M_w : 6.2 ; a_{max} : 0.4178 g

Site: Palinurus_2 ; CPT#: 62761 ; G.W.L: 1.4 m

Observed Ejecta Severity: Severe ; Site Condition: Free-field flat



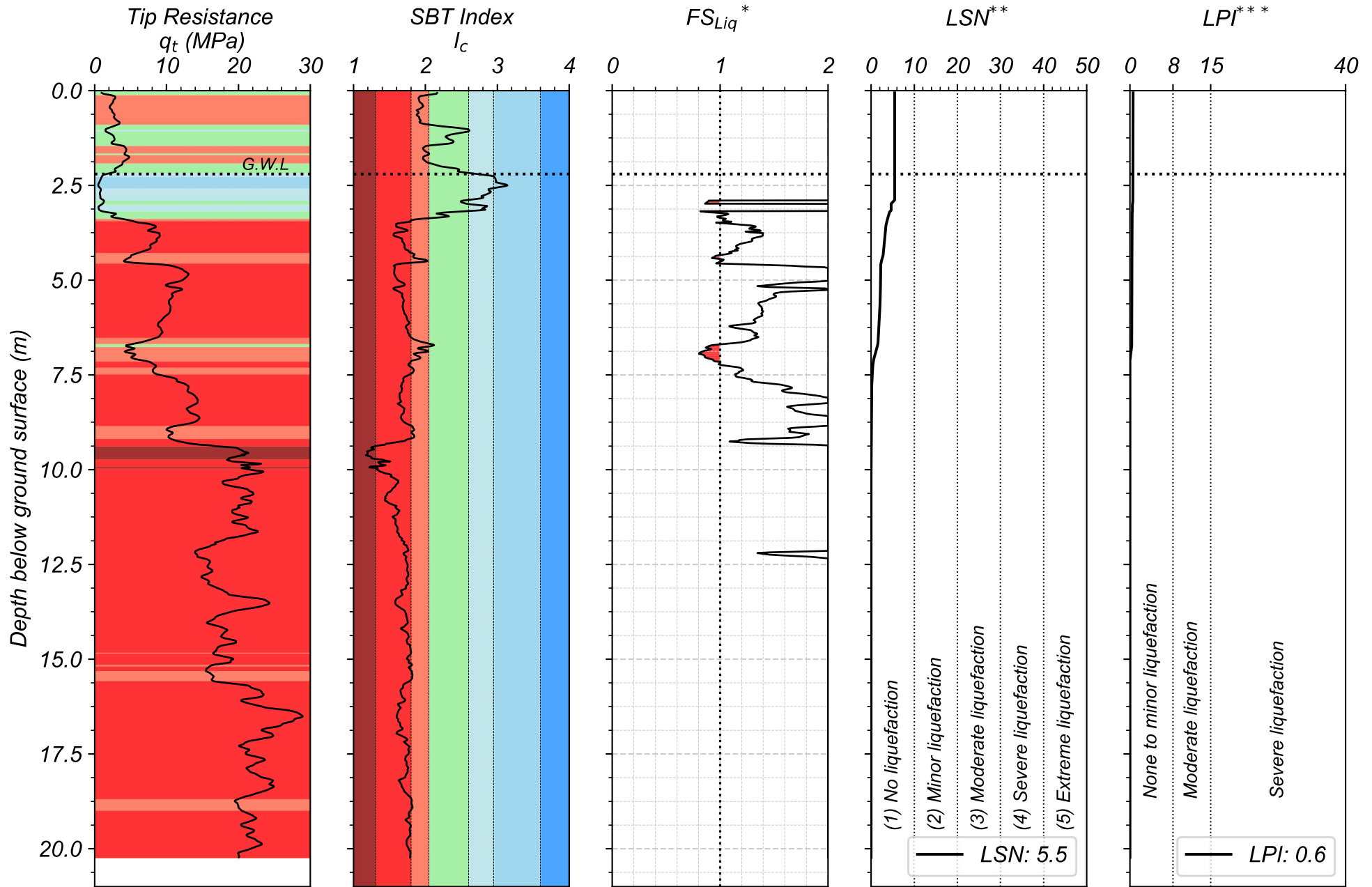
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 37 ; Event: JUN ; M_w : 6.2 ; a_{max} : 0.25 g
 Site: Shirley ; CPT#: 57366 ; G.W.L: 2.2 m
 Observed Ejecta Severity: Severe ; Site Condition: Free-field flat



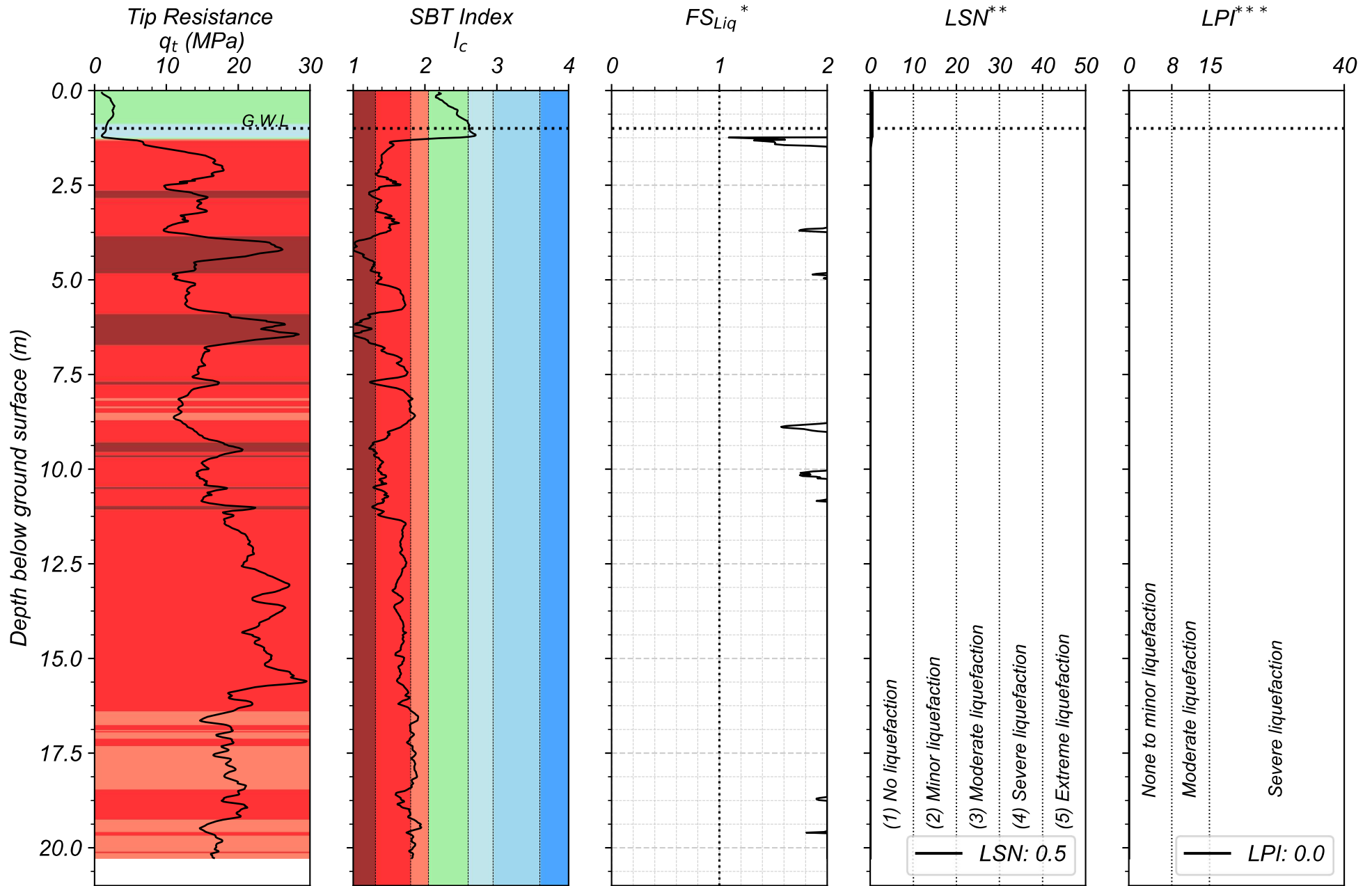
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 38 ; Event: JUN ; M_w : 6.2 ; a_{max} : 0.219 g
 Site: Sabina ; CPT#: 57346 ; G.W.L.: 1 m
 Observed Ejecta Severity: Severe ; Site Condition: Free-field flat



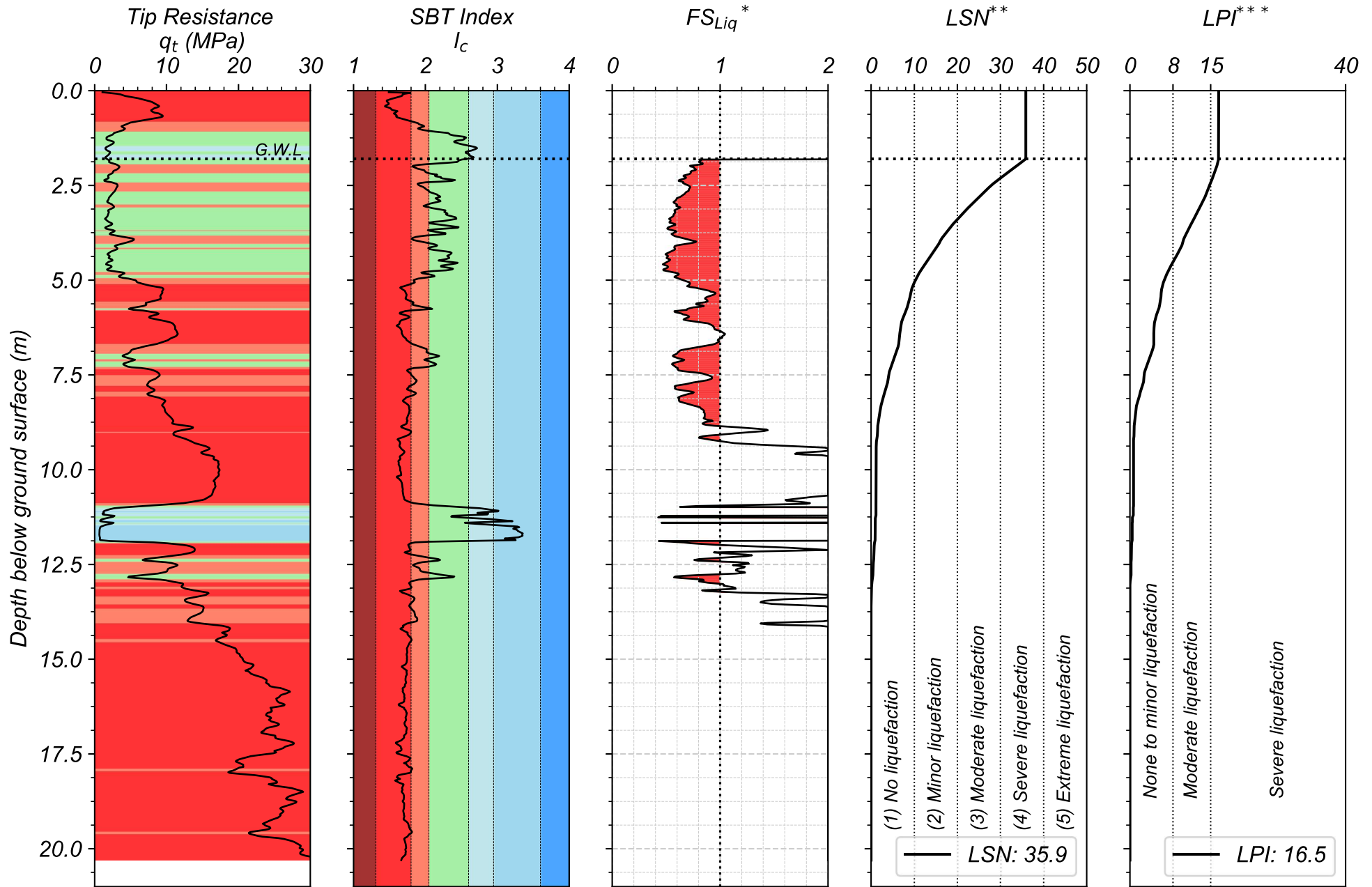
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

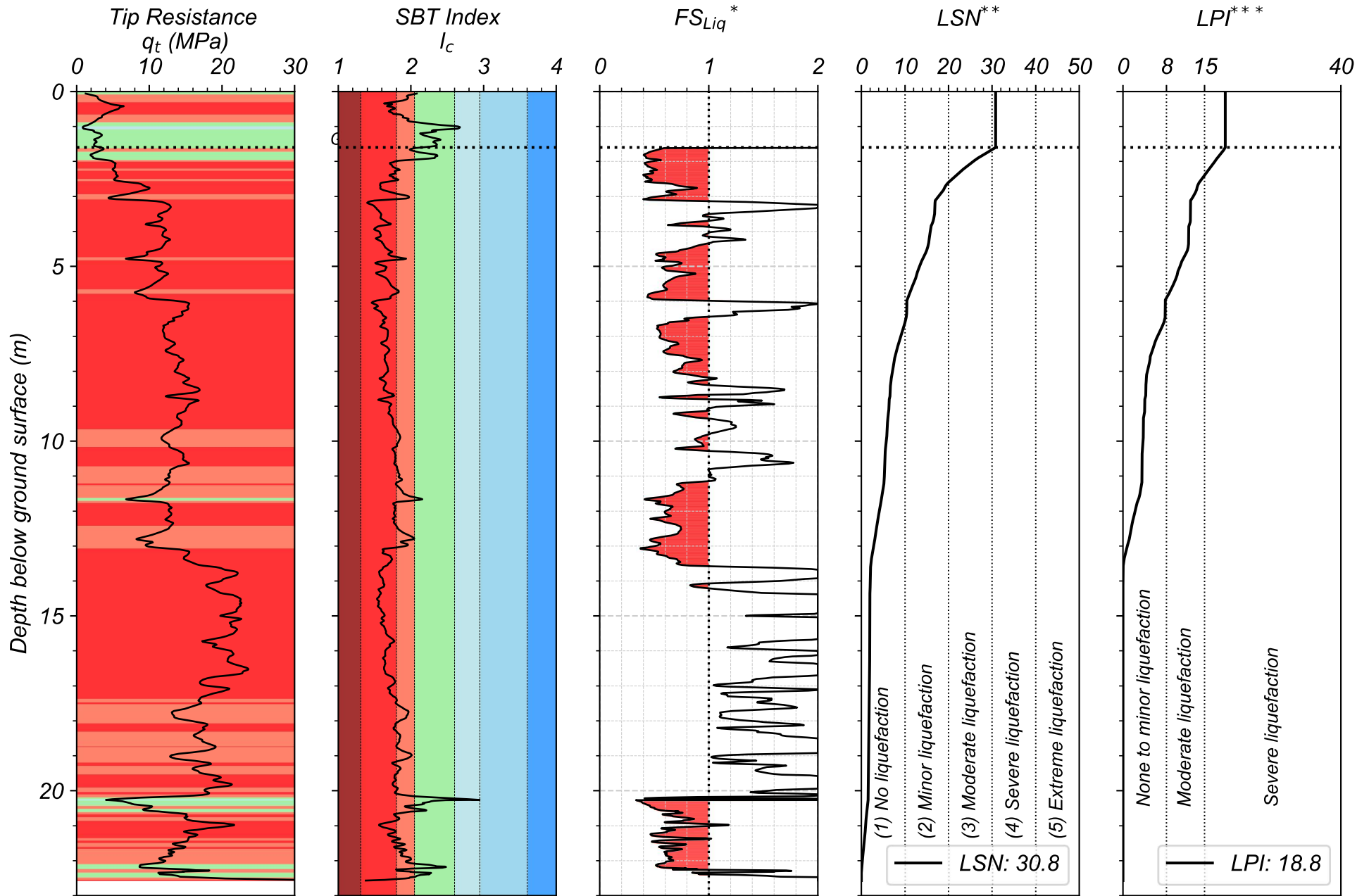
Scenario #: 39 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.371 g
 Site: Avondale Park ; CPT#: 57342 ; G.W.L: 1.8 m
 Observed Ejecta Severity: Severe ; Site Condition: Free-field flat



* Using Boulanger & Idriss (2016): I_{c-cut} =2.6, P_L =50%, and C_{FC} =0.13 (Maurer et al. 2019)
 **: Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)
 ***: Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 40 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.6811 g
 Site: Ti Rakau ; CPT#: 57341 ; G.W.L: 1.6 m
 Observed Ejecta Severity: Moderate ; Site Condition: Free-field flat



* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

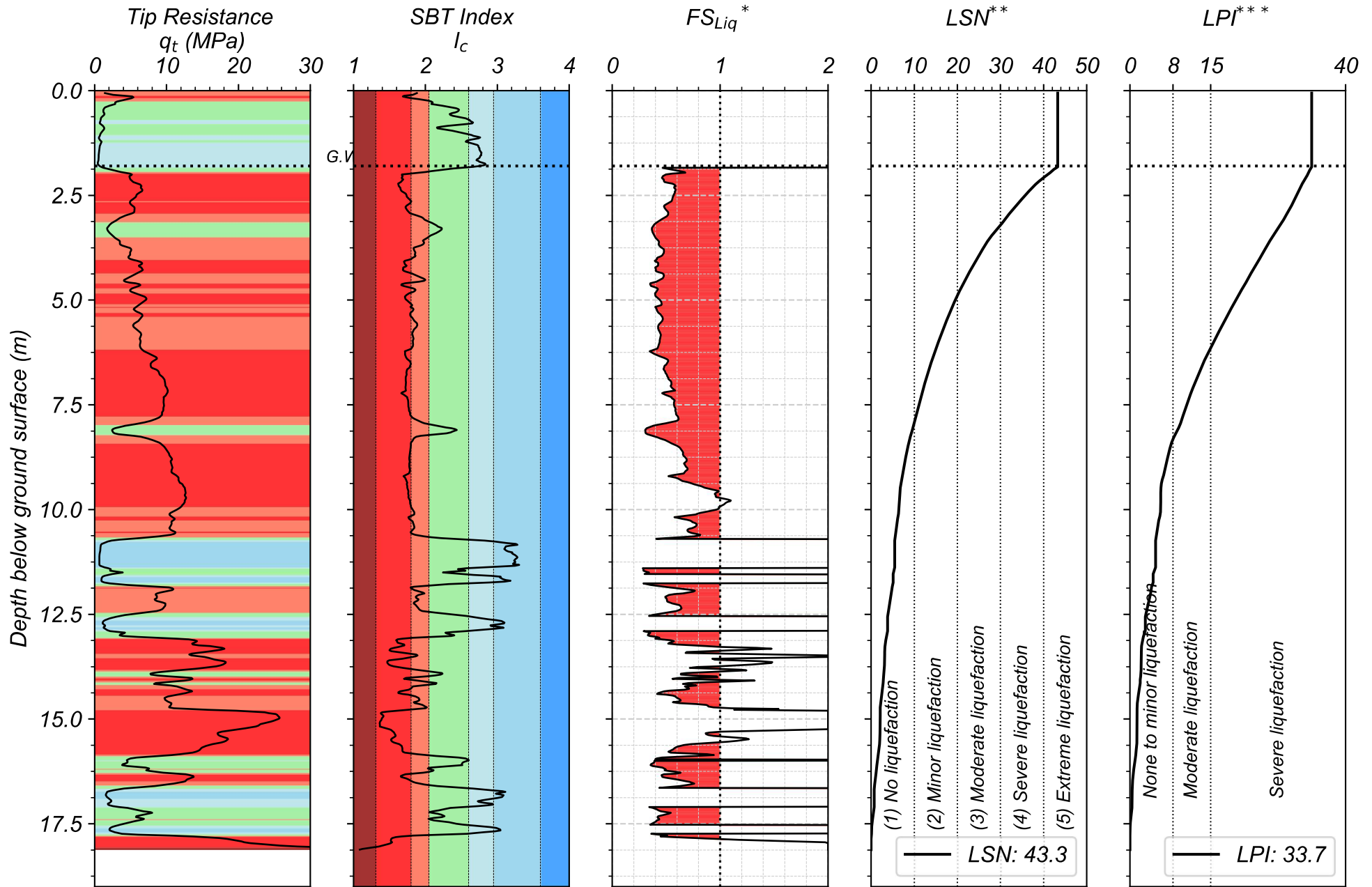
*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 41 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.5498 g

Site: Cresselly ; CPT#: 57353 ; G.W.L: 1.8 m

Observed Ejecta Severity: Severe ; Site Condition: Near Building



* Using Boulanger & Idriss (2016): I_{c-cut} =2.6, P_L =50%, and C_{FC} =0.13 (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

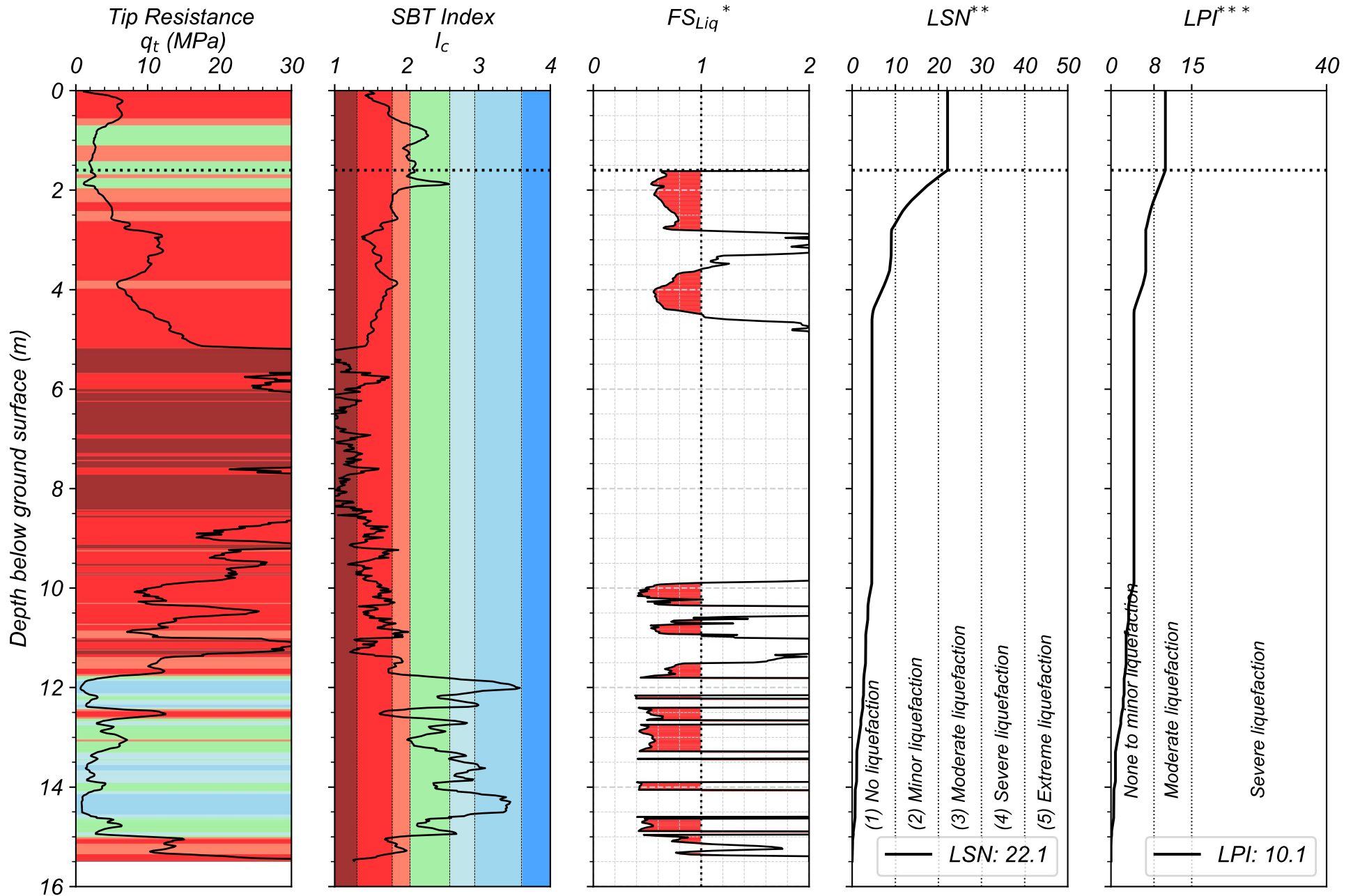
*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 42 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.4386 g

Site: Rydal ; CPT#: 57344 ; G.W.L: 1.6 m

Observed Ejecta Severity: Severe ; Site Condition: Free-field flat



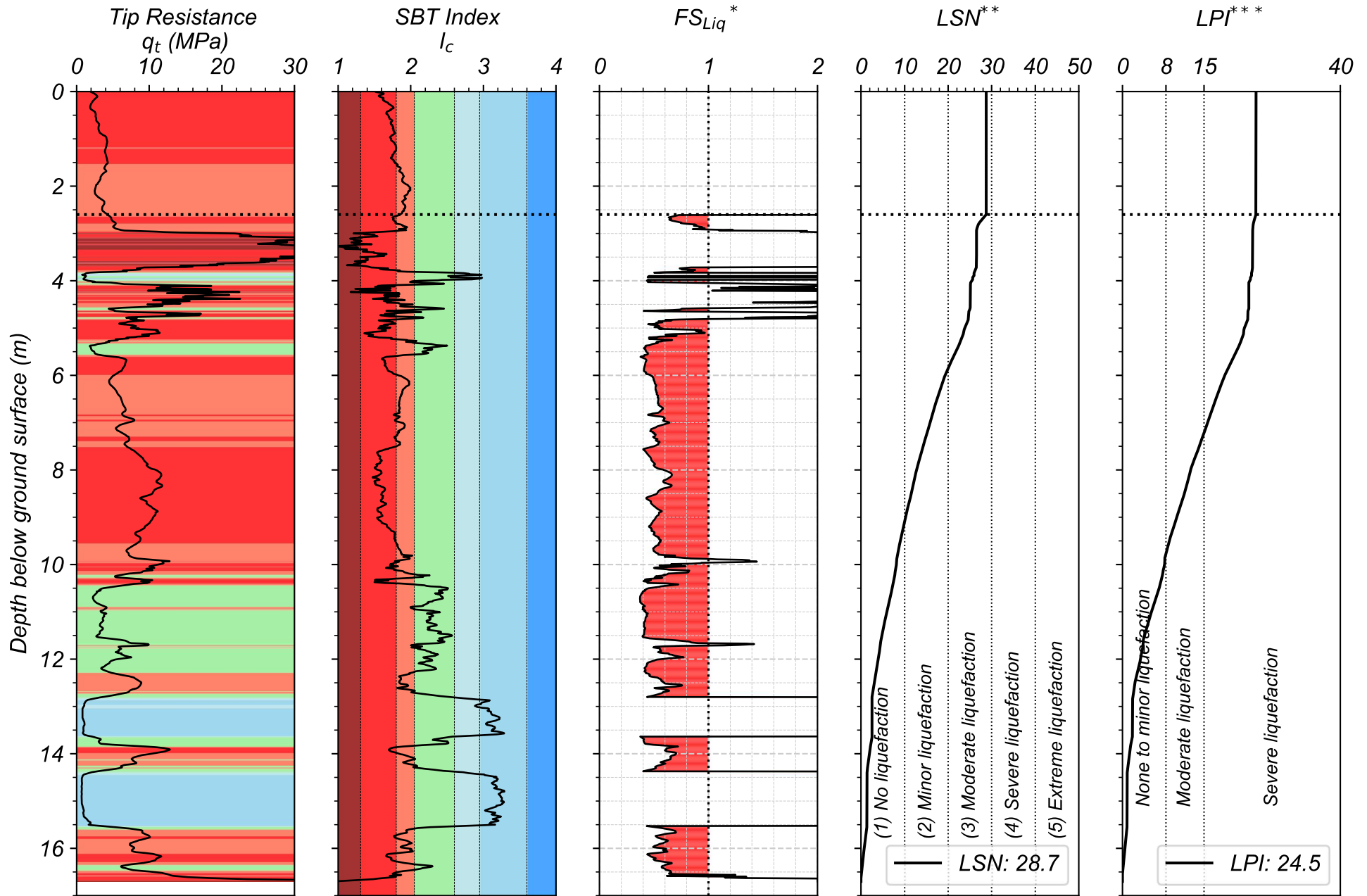
* Using Boulanger & Idriss (2016): I_{c-cut} =2.6, P_L =50%, and C_{FC} =0.13 (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 43 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.45 g
 Site: Cashmere SW ; CPT#: 33758 ; G.W.L: 2.6 m
 Observed Ejecta Severity: Extreme ; Site Condition: Free-field flat



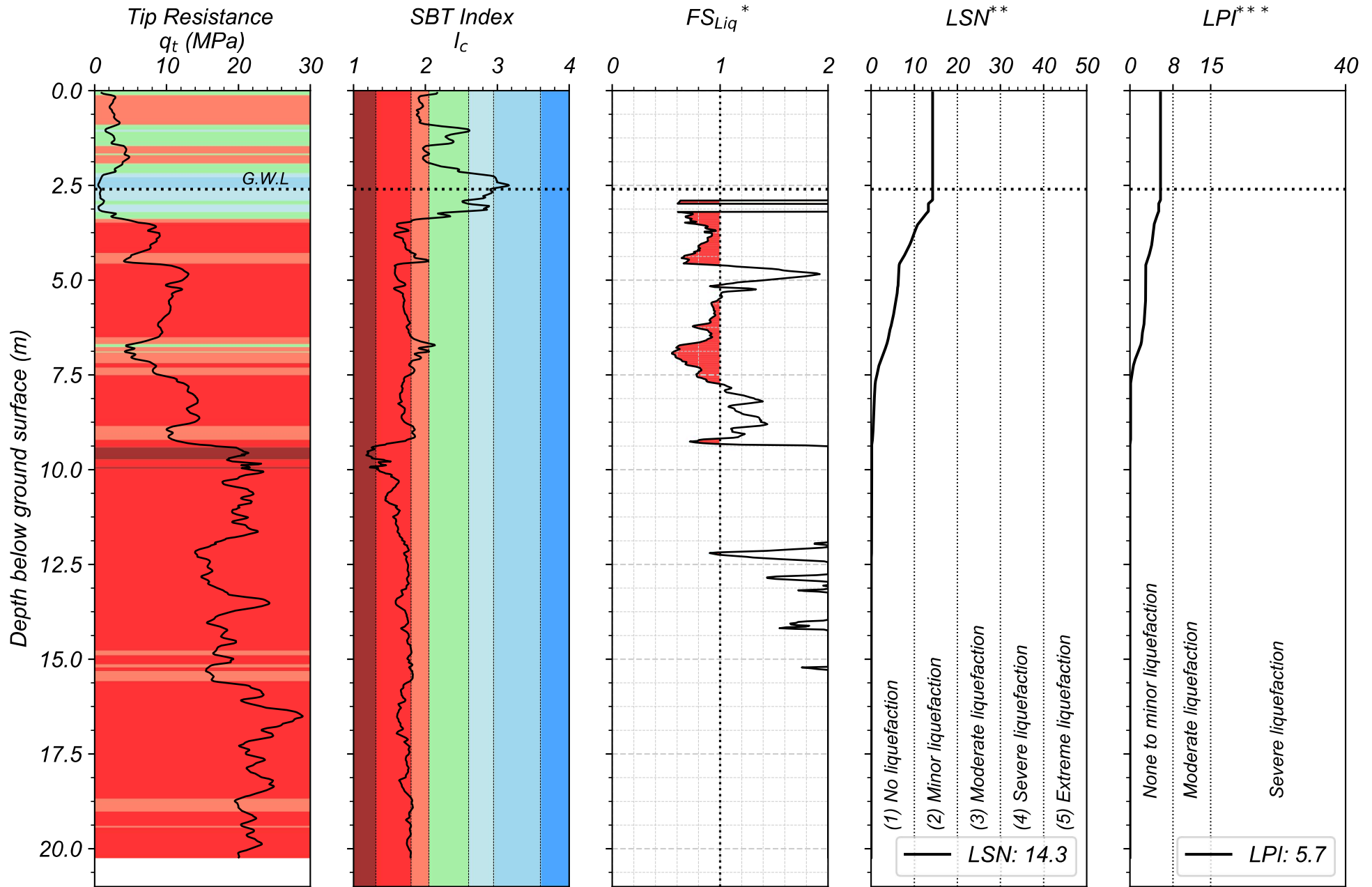
* Using Boulanger & Idriss (2016): $I_{c-cut}=2.6$, $P_L=50\%$, and $C_{FC}=0.13$ (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)

CPT-BASED LIQUEFACTION TRIGGERING ANALYSIS

Scenario #: 45 ; Event: CHC ; M_w : 6.2 ; a_{max} : 0.38 g
 Site: Shirley ; CPT#: 57366 ; G.W.L: 2.6 m
 Observed Ejecta Severity: Extreme ; Site Condition: Free-field flat



* Using Boulanger & Idriss (2016): I_{c-cut} =2.6, P_L =50%, and C_{FC} =0.13 (Maurer et al. 2019)

** Based on van Ballegooy et al. (2014) & Tonkin+Taylor (2013)

*** Based on Maurer et al (2014)