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LIST OF ABBREVIATIONS

| | |
|-------|--|
| CED | Coastal Engineering Division |
| CEM | Coastal Engineering Manual |
| CH | Chainage |
| cm | centimeter |
| DID | Department of Irrigation and Drainage Malaysia |
| EDM | Electronic Distance Measuring |
| FDC | Fixed Depth Change |
| h_c | Depth of Closure |
| HAT | Highest Astronomical Tide |
| LAT | Lowest Astronomical Tide |
| LSD | Land Survey Datum |
| m | meter |
| mm | millimeter |
| MSL | Mean Sea Level |
| MHW | Mean High Water |
| MHHW | Mean Higher High Water |
| MLHW | Mean Lower High Water |
| MLW | Mean Low Water |
| MHLW | Mean Higher Low Water |

| | |
|------|---|
| MLLW | Mean Lower Low Water |
| MMD | Malaysian Meteorological Department |
| MRCB | Malaysia Resource Corporation Berhad |
| NOS | National Ocean Survey |
| PEM | Pressure Equalization Modules |
| SDDC | Standard Deviation Depth Change |
| SSMO | Synoptic Shipboard Meteorological Observation |
| USGS | U.S Geological Survey Quadrangles |

LIST OF SYMBOLS

| | |
|-----------------|--|
| A | profile scale parameter with dimensions of length to the 1/3 power |
| D_{16} | size of material of which 16% is finer |
| D_{50} | size of material of which 50% is finer |
| D_{84} | size of material of which 84% is finer |
| $D_c/ h^*/ h_c$ | closure depth |
| g | gravity |
| h | water depth at distance y from the shoreline |
| h_{Ci} | depth of closure, innershore; from profile survey |
| h_{cm} | depth of closure, middleshore; from profile survey |
| h_{co} | depth of closure, outershore; from profile survey |
| H_e | non breaking significant wave height that is exceeded 12 hour per t years or $(100/730t)\%$ of the time |
| $H_{0.137}$ | significant wave height exceeded 12 hours in a year |
| \bar{H}/H_s | annual mean significant wave height |
| m | fore shore slope of the beach profile |
| t | time |
| T_e | wave period associated with H_e |

| | |
|------------|---|
| y | equilibrium beach profile |
| v_b | amplitude of the wave induced bottom velocity |
| ρ | mass densities of water |
| ρ_s | mass densities of sediment |
| σ_H | standard deviation |

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