

APPENDIX D
COASTAL RECESSION
MEMORANDUM

MEMORANDUM

TO: WILL BURNS, DAVID J. POWER AND ASSOCIATES

FROM: JOHN KASUNICH, HARO, KASUNICH AND ASSOCIATES, INC. GEOTECHNICAL AND COASTAL ENGINEERS *JK*

DATE: 19 JUNE 2008

SUBJECT: REVIEW OF COASTAL DUNE CREST RECESSION LINE RELATIVE TO THE UPDATED COASTAL BLUFF ESTIMATED SETBACK CRITERIA ADOPTED BY THE CITY OF SAND CITY

REFERENCE: PROPOSED MONTEREY BAY SHORES RESORT REVISED GRADING AND LAYOUT PLAN BY BESTOR ENGINEERS SAND CITY, CALIFORNIA PROJECT NO. M5613.1

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1. David J. Powers asked Haro, Kasunich and Associates to review the location of the proposed Monterey Bay Shores Resort buildings relative to the 50 year coastal bluff (dune crest) recession setback line adopted by the City of Sand City in May 1990 based on a 1989 Moffatt & Nichol Shire Erosion Study and an updated coastal recession evaluation by Haro, Kasunich and Associates dated December 2003.
 2. In December 2003, Haro, Kasunich and Associates reviewed the Moffatt & Nichol estimated 50 year dune crest recession setback procedure adopted by the City of Sand City in their Local Coastal Plan. The purpose of the update was to review historic erosion rates along Sand City, compare them with the current erosion rates predicated by numerous coastal engineers and geologists, evaluate the beach and sand dune bluff conditions since the Moffatt & Nichol study and update the procedure to reflect current erosion and dune recession rates.

3. A report dated 23 December 2003 prepared by Haro, Kasunich and Associates presented the results of the Sand City coastal erosion evaluation study and included a procedure to determine 50 year estimated dune crest recession setback lines from the year 2003 based on field and survey work conducted at that time. Paragraph 13, Procedures A through H, pages 14 through 16 of the report present the procedures to determine the 50 year recession line. The estimated setbacks are also graphically shown on drawings in the appendix of the report.
4. Haro, Kasunich and Associates reviewed the preliminary grading plans and building layout plans prepared for the referenced project by Bestor Engineers, met with Bestor Engineers to evaluate the proposed layout relative to the procedure to estimate a 50 year dune crest recession setback line and assisted Bestor Engineers in utilizing that procedure to establish the 50 year estimated setback lines for a finish grade elevation of +32 feet NGVD.
5. Bestor Engineers then revised the grading and building layout plans to set the proposed buildings landward of an approximate 2083 bluff crest recession line at elevation 32 feet, NGVD, utilizing the procedures in the Haro, Kasunich and Associates coastal recession evaluation report for Sand City, dated December 2003.
6. We have reviewed the most recent grading and building layout plan prepared by Bestor Engineers. This plan shows the approximate 2058 and 2083 bluff crest recession line at elevation 32, NGVD. The buildings have been setback landward of the estimated 75 year setback line as calculated by Bestor Engineers using the procedures set forth in the Haro, Kasunich and Associates December 2003 Coastal Recession Evaluation. A review of those plans relative to the procedures suggested by Haro Kasunich and Associates indicate that the buildings have been setback well beyond the 50 year estimated recession line using the most current procedures adopted by Sand City. The plan also shows that the buildings have been setback landward of what is labeled a 2083 recession line, a 75 year setback line.
7. Haro, Kasunich and Associates briefly evaluated this longer timeframe recession setback line and based on the fact that some coastal processes are worsening over time (e. g. sea level rise related to global warming) felt that the 2003, 50 year procedure, may need to be evaluated based on recent information (2008) and

scientific data existing within the coastal and meteorological community. We then quickly utilized the 2003 procedure and re-evaluated the erosion rate based on a greater estimate of future sea level rise for 75 years compared to 50 years. Based on our reanalysis, we determined that the setback line labeled by Bestor as an approximate 2083 bluff crest recession line (a 75 year estimated setback line) is probably at least a 70 year or greater estimated setback line. Our reanalysis included an added factor of safety, an increase in estimated setback due to Bruun Rule recalculations, and a higher estimate of sea level rise during the 75 years compared to 50 years.

8. In our opinion the proposed current grading and building layout plans prepared by Bestor Engineers, for the proposed Monterey Bay Shores Resort project correctly locates the 50 year estimated bluff crest recession line and sets the buildings landward of a line that we estimate represents a greater than 70 year projected bluff crest recession for a finished grade at 32 feet, NGVD.