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Subject: Soitec GMMP Language in spoonfed format
Date: Monday, October 14, 2013 2:37:41 PM

Here you go!

3.2 Groundwater Dependent Habitat Monitoring

The following monitoring program will establish the current status and health of the existing oak woodland and document oak conditions up to a 5 year post-construction timeframe. If water levels in Wells RM-1, RM-3 and RSD-1 do not drop more than 3 feet below baseline during the 1year construction period, monitoring will cease at that time. The goal is to determine if the project's use of groundwater is impacting area oak trees/woodlands.

3.2.1 Baseline Data Collection

Baseline data will be collected over the course of approximately 1 year prior to Project-related groundwater extraction. Potentially affected native trees within the study area will be evaluated for overall physical condition and attributes. The trees shall be inventoried by an ISA Certified Arborist or Registered Professional Forester with specific experience evaluating native oak species, in particular coast live oaks. The baseline monitoring evaluations will include the following:

- Establishment of 72 pseudo-randomized 0.1 acre plots around oak groupings and scattered individual trees (Figure 3). Sample plots would include the range of existing habitat conditions, including elevation, slope and aspect, proximity to roads and other land uses.
- Tagging of trees and recording species, tag number, trunk diameter at breast height (dbh) (in.), height (ft.) and dominance (i.e., whether the tree is under the canopy of another tree or forms the uppermost canopy). Slope, aspect, and elevation of each tree location, existing understory species (including proportion of natives to exotics), presence of debris and litter, and soil type, depth, and parent material will be noted for each tree or plot.
- Placement of tensiometers (or similar) to measure soil moisture levels
  - Soil moisture levels will be recorded quarterly at depths up to 48-inches
- Assessment of tree status, including documentation of:
  - Trunk diameter at breast height (dbh), measured at 4.5 feet above ground (according to standard practices)
  - Number of stems
  - Overall tree height (based on ocular estimates)

- Tree crown spread (measurement in each cardinal direction, based on ocular estimate)
- Overall tree health condition (Good, Fair, Poor, Dead)
- Overall tree structural condition (Good, Fair, Poor, Dead)
- Pest presence (Type, Extent – minimal, moderate, high)
- Disease presence (Type, Extent – minimal, moderate, high)
- Other specific comments

- Assessment of acorn production, seedling establishment and sapling tree densities and conditions
- Creation of oak tree database using GIS or similar application

3.2.2 Ongoing Monitoring

Ongoing monitoring will be carried out quarterly during the 1 year Project construction period. If the Certified Arborist or Registered Professional Forester observes an impact to the oak woodland after this period, monitoring will continue in years 2 through 5 following initiation of Project-related groundwater extraction. Monitoring will include the following components:

- Monitoring inspections will include re-evaluation of the baseline data as well as collection of soil moisture data from pre-placed tensiometers.
- Monitoring will include re-evaluating the trees to determine if changes are occurring that may indicate ground water drawdown is having a deleterious effect on oak woodlands or individual trees. The following information will be recorded during each monitoring visit and the data will be compared to previous monitoring results:
  - Trunk diameter at breast height (dbh), measured at 4.5 feet above ground (according to standard practices)
  - Number of stems
  - Overall tree height (based on ocular estimates)
  - Tree crown spread (measurement in each cardinal direction, based on ocular estimate)
  - Overall tree health condition (Good, Fair, Poor, Dead)
  - Overall tree structural condition (Good, Fair, Poor, Dead)
  - Pest presence (Type, Extent – minimal, moderate, high)
  - Disease presence (Type, Extent – minimal, moderate, high)
  - Other specific comments

In particular, monitoring evaluations will focus on examining crowns for discoloration, loss of vigor, foliage curling, and/or pest presence; and trunks and root crowns for beetle/borer symptoms, bleeding cankers, or seeping areas (indicative of fungal infections). These and similar signs may indicate that a tree or a grouping of trees is experiencing stress, which can be corroborated by tensiometer readings. Trees under stress are more susceptible to disease and insect attacks.

3.3 Groundwater Mitigation Criteria

The following mitigation criteria will be established to protect groundwater resources and groundwater-dependent habitat in the Project area:

- If the groundwater levels at off-site wells located within 0.5 miles of Well B (RM-1, RM-3 or RSD-1) drops 10 feet below the baseline water levels, groundwater pumping at Well B will cease until the water level at the well that experienced the threshold exceedance has increased above the threshold and remained there for at least 30 continuous days. Additionally, written permission from the County Planning and Development Services (PDS) must be obtained before production may be resumed.
- If the groundwater levels in the vicinity of the groundwater dependent habitat (RM-1 or RM-3) drops below 10 feet of the pre-pumping static water level and there is evidence of deteriorating oak tree health by the Arborist or Forester, there may be a temporary or permanent cessation of pumping at Well B. If evidence of deterioration persists after the 5 year period, mitigation will consist of offsite wetland/ oak woodland credits at a 3:1 ratio.
- If an impact to the oak woodland habitat is observed by the monitoring Certified Arborist or Registered Professional Forester over the duration of the Project construction period, routine monitoring of the oak woodland will continue for a maximum up to 5 years following initiation of Project-related groundwater extraction. The monitoring Certified Arborist or Registered Professional Forester will base mitigation recommendations on the type and extent of tree issues observed. If groundwater drawdown is determined to be the cause of tree stress, resulting in the presence of secondary pests (insects and/or disease), halting groundwater extraction may be recommended.
- If less than 3 feet of drawdown is observed at monitoring wells RM-1 and RM-3 at the end of Project construction and no deleterious health effects are observed in the oak woodland habitat, monitoring can cease at the end of the first year of project operation as long as the wells operate only as intended under the Project's conditions of approval.
- For the 1 year construction period 18 acre-feet of water is proposed to be pumped form on-site supply Well B. For subsequent years 6 afy will be pumped from Well B for O&M of the Project. The groundwater storage within 0.5-mile radius study area surrounding Well B is estimated at 387 acre-feet. The average annual recharge for the study area within 0.5-mile radius of Well B is estimated at 27 afy. Thus, average

annual recharge within the 0.5-mile radius study area is sufficient to meet Project construction and operational water demands.

4.0 REPORTING REQUIREMENTS

A groundwater monitoring report will be completed by a Certified Hydrogeologist registered in the State of California and submitted to the County PDS each month, no later than 28 days following the end of the monitoring month. The report will include the following information:

- Water level hydrographs and tabulated water level data for each monitoring well.
- Tabulated groundwater production volumes from each production well.
- Documentation of groundwater drawdown at off-site monitoring wells RM-1 and RM-3.
- Documentation of any threshold-included curtailment of groundwater production.
- Appendix documenting groundwater dependent habitat monitoring as described above.

If the baseline water levels at the off-site monitoring wells RM-1, RM-3 and RSD-1 are exceeded by 5 feet, the County PDS will be notified via letter and electronic mail within five working days of the exceedance. Additionally, if water level thresholds at the off-site wells are exceeded by 10 feet, pumping of Well B shall cease and the County PDS notified via letter and electronic mail within five working days.

In addition to the monthly groundwater monitoring reports, annual reports will also be submitted to the county PDS summarizing groundwater-dependent habitat monitoring efforts and any mitigation recommendations implemented in the field during the monitoring year. The monitoring year will coincide with the calendar year. The annual reports will document tree health and mortality, tensiometer readings, water level readings, well production and success of mitigation efforts (if any were necessary). Annual reports will be completed prior to the end of January in the next calendar year.