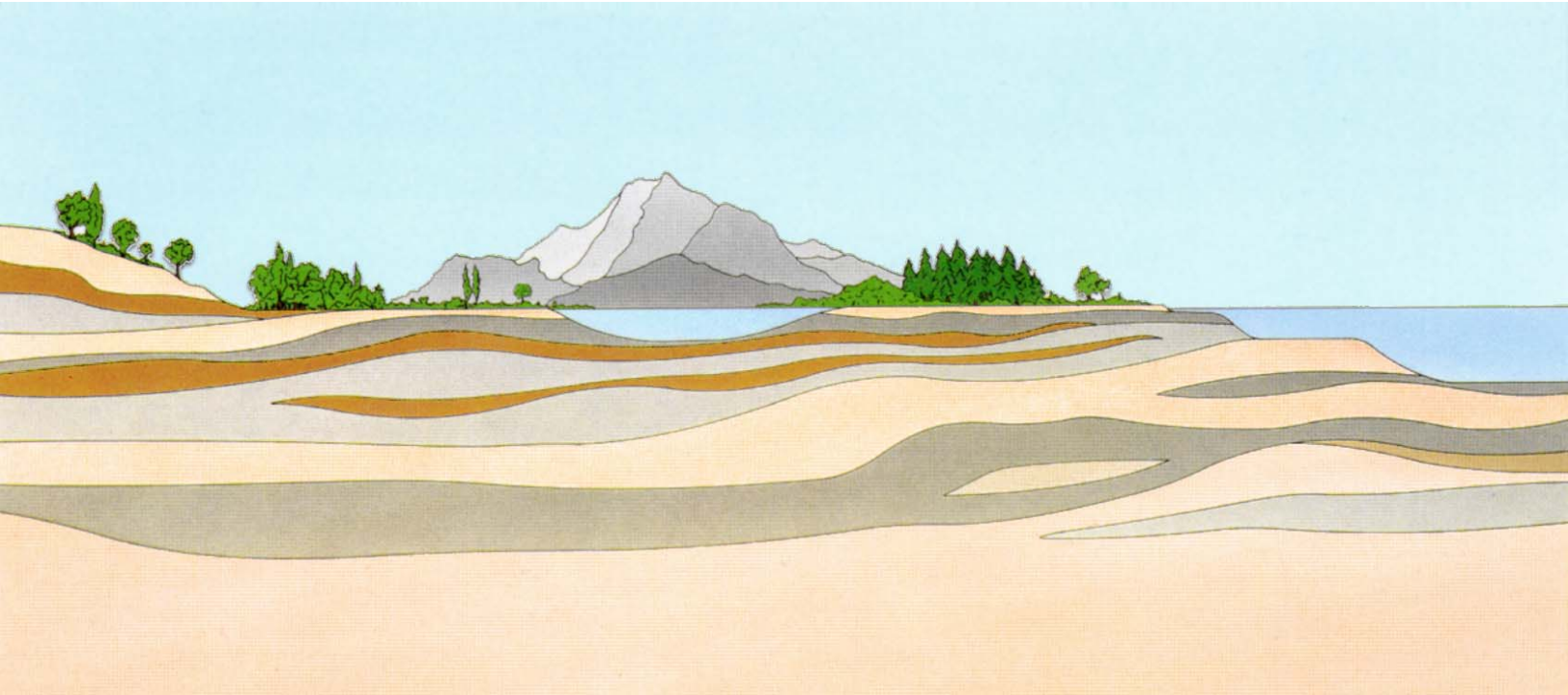
FUGRO CONSULTANTS, INC.

CHORRO VALLEY GROUNDWATER BASIN ASHURST WELL FIELD AREA HYDROGEOLOGIC ASSESSMENT AND WELL CONSTRUCTION WORK PLAN

Prepared for:
CITY OF MORRO BAY
Public Services
955 Shasta Street
Morro Bay, CA 93422

Prepared by:
FUGRO CONSULTANTS, INC.
660 Clarion Court
San Luis Obispo, CA 93401

September 2012



FUGRO CONSULTANTS, INC.

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September 10, 2012
Project No. 04.62120030

City of Morro Bay, Public Services
955 Shasta Street
Morro Bay, California 93442

Attention: Mr. Dylan Wade, P.E.
Utilities/Capital Projects Manager

Subject: Chorro Valley Groundwater Basin, Ashurst Well Field Area Hydrogeologic Assessment and Well Construction Work Plan

Dear Mr. Wade:

In accordance with our proposal to the City of Morro Bay (City) dated March 6, 2012, we have completed an assessment of groundwater conditions at and in the vicinity of the Ashurst well field area in the Chorro Creek Groundwater Basin of San Luis Obispo County. The purpose of our assessment was to review readily available hydrogeologic information for the area to determine the feasibility of constructing as many as six domestic water wells on various parcels planned by the City to be disconnected from the existing municipal water distribution system. We understand that due to certain engineering and distribution system constraints associated with the existing municipal water distribution system, as well as a trend of groundwater quality impairment in the Ashurst well field area, the City intends to cooperatively work with certain property owners to disconnect the wells from the municipal water system and develop individual water wells on each of the parcels.

This letter report describes the general hydrogeologic conditions that occur in the Ashurst well field area and, from a hydrogeologic perspective, our opinion as to whether the above described program is technically feasible. The main hydrogeologic issue relative to the success of the program is whether an adequate thickness of saturated aquifer materials exists on each parcel. The Chorro Creek Groundwater basin is very well defined in the Ashurst Well field area and, while known to contain coarse-grained alluvial deposits, these deposits are of limited thickness and often only partially saturated. The ability to construct small-capacity (i.e., on the order of 5 to 10 gallons per minute [gpm]) domestic water wells on each parcel will also need to meet minimum well construction standards (particularly surface sanitary seal depths) that will be enforced by the County of San Luis Obispo Environmental Health Department.

This report is one of two reports describing the general hydrogeologic conditions in the Chorro Creek Groundwater Basin. A similar hydrogeologic assessment of the Romero well field area located about 1 mile east of the Ashurst well field area is also being concurrently prepared by Fugro for the City with the objective of constructing as many as four domestic water wells on four parcels of land. Our hydrogeologic assessment of the Romero well field area is presented in a separate letter report.

Ashurst Well Field Area Physical Setting and Hydrogeologic Features

As indicated on Plate 1 - Geologic Map, the Ashurst well field area is located within portions of Sections 32 and 33 of T29S/R11E (SBBM) of the California Department of Water Resources (DWR) designated Chorro Hydrologic Subarea. As described in DWR Bulletin No. 63-6 (1972), in DWR Bulletin 118 (2004), in Cleath (1993), and in Cleath-Harris Geologists, Inc. (CHG; 2009), the Chorro Creek Basin covers some 3,100 acres. The City of Morro Bay has historically operated up to six water supply wells in the Ashurst area, four of which are active, since at least as early as the 1950s, with annual groundwater extractions being on the order of from 400 to 800 acre-feet per year (afy). Due to elevated nitrate ion concentrations which have periodically exceeded State Drinking Water Standards, the City has substantially reduced groundwater pumpage from the Ashurst well field since about 1998 (CHG 2009, Figure 5). In the last several years City groundwater production from the area has been less than 30 afy.

As described by CHG (2009), the Chorro Creek watershed drains about 45 square miles at its confluence with the Morro Bay estuary. San Bernardo Creek is the main tributary to Chorro Creek just east of the Ashurst Well field area. Stream gaging in the area (Chorro Creek at Canet Road) documents annual stream flows of about 400 acre-feet in periods of critical drought, to over 20,000 acre-feet in wet years. Annual precipitation in the area ranges from about 18 to 22 inches. Elevations in the area range from about +40 feet above mean seal level (MSL) at the eastern boundary of the area to about +20 feet at the western boundary (refer to Plate 2 - Well Location Map, Ashurst well field area).

The reports referenced above as well as the geologic maps of the area prepared by Dibblee (2006) and Hall et.al., (1979) indicate alluvial sediments of Holocene and late Pleistocene ages occur along Chorro Creek, but that the deposits are of fairly limited thickness (CHG 2009). In the Ashurst well field area the extent of alluvial sediments are well-defined to the north and south by exposures of the Franciscan Formation bedrock (refer to Plates 1 and 2).

Well completion reports available for wells drilled by the City and from private wells in the area indicate the maximum thickness of alluvial sediments is on the order of 70 feet thick, thinning rapidly to zero on the margins of the Chorro Creek floodplain. Cleath (1993) provides a series of very useful cross sections depicting the thickness of alluvial sediments in the area as well as a contour map of equal elevation of the base of the alluvial sediments for the Chorro Creek area from the Morro Bay estuary to east of the Romero well field area. Plate 2 indicates the contours of equal elevation of the base of the alluvial sediments is more or less symmetrically aligned to the north and south reaching maximum thickness just north of the present day east-west flow line of Chorro Creek. City Well Nos. 9, 9A,10, 10A, and 16, as shown on Plates 2 and 3, are all located to take advantage of this maximum alluvial thickness, being within the equal elevation contour depicted on Plate 2 as "-40 feet" (refer to Plates 4 - Orientation of Hydrogeologic Cross Sections and 5 - Hydrogeologic Cross Sections, Ashurst well field area).

Well completion reports for these City wells indicate mixtures of sand and gravel predominate with thin, laterally discontinuous, interbeds of brown clay. The aquifer system is unconfined and there are no confining beds of significance that would create perched water conditions or variations in groundwater quality relative to dissolved mineral constituents such as nitrate species. The City well logs indicate that properly designed and constructed wells in the area can produce in the low hundreds of gpm, depending in part also on seasonal groundwater levels.

The well completion reports of several private wells in the area indicate either a lack of a surface sanitary seal, or a surface seal to a depth of between 20 and 35 feet.

As described by CHG (2009) groundwater levels in the Chorro Creek Groundwater basin have been monitored for many decades and provide a fairly complete picture of the basin's ability to be recharged essentially completely during years of average rainfall and stream flow. Seasonal water-level variations (refer to Appendix A, CHG 2009) typically are on the order of 10 feet or less, but can be up to 40 feet during periods of drought (e.g., 1978, 1991, etc.). Following periods of drought and recharge from stream flow in Chorro Creek, water level rises of up to 40 feet can occur in wells within a matter of several weeks. Inspection of hydrographs for City wells in the Ashurst well field area indicates historic water-level lows to elevation -16 MSL (City Well No. 16) and -13 MSL (City Well No. 10A). This being the apparent case and alluvial well depths being restricted due to the limited thickness of alluvium, drought period water levels in the area still provide up to about 20 feet of saturated aquifer materials. That is, while City well yields would be expected to experience some decline in yield during periods of drought, small capacity domestic water wells such as being considered as part of this program would be expected to maintain their anticipated well yields of from 5 to 10 gpm with little difficulty. This reliability of well yield issue would be little affected by the depth of a surface sanitary seal, as long as the seal depth was no deeper than the 35 foot depth range.

Groundwater quality conditions in the Ashurst well field area are described in considerable detail by CHG (2009). Stiff diagrams and Piper diagrams present the general mineral chemical character of groundwater, based on chemical analysis for City wells for the period from the early 1960s to 2010 (Figures 9, 10, 14, 16 and 17, and in Appendix G of CHG 2009). Chemical hydrographs for City Well Nos. 9, 9A, 10, 10A, and 16 indicate nitrate ion concentrations (expressed as NO_3 or nitrate in milligrams per liter) for many of the wells have periodically exceeded the 45 mg/l maximum contaminant level established by the California Department of Public Health (DPH). The exceedances, while variable temporally, are most noticeable during the period from about 1985 to about 1995. With the significant reduction in pumpage by the City from their wells in the Ashurst area commencing about 1998, the frequency of sampling for nitrate ion concentrations has been reduced. Nitrate concentrations have also dropped significantly, typically falling to within a range of from 15 to 20 mg/l until about 2008, and thereafter nitrate concentrations have again spiked up significantly, in many cases exceeding the DPH 45 mg/l upper limit. Since 2010 (i.e., after completion of the CHG 2009 report) nitrate concentrations in the City wells have ranged from about 10 to 15 mg/l. The reason for the lower concentrations is unknown, but is possibly related to rainfall/ streamflow recharge, which can temporarily flush nitrate species held in the soil zone, changes in land use patterns and nitrate loading associated with irrigated agriculture, and/or improved nitrate removal processes associated with wastewater discharged from the California Men's Colony WWTP located upstream.

The general mineral character of groundwater in the Ashurst well field area is predominantly magnesium-calcium bicarbonate with total dissolved solids concentrations ranging from about 600 to 800 mg/l. Other than the above described nitrate concentration issues, the groundwater is generally acceptable for most domestic uses.

Potential for Sea Water Intrusion

The potential for seawater intrusion in the Chorro Creek basin, particularly relative to the Ashurst well field area as a result of implementation of this project, is dependent on the occurrence

of a hydraulic connection of the aquifers with the ocean (located about one mile to the west) and a sustained reversal of the groundwater gradient to levels below sea level. The former condition is known to occur in the westerly part of the Chorro Creek groundwater basin as indicated in various hydrogeologic cross sections prepared by CHG and shown in this report (refer to Plate 5 in this report which shows that aquifers in the Ashurst well field area extend to depths of about 50 feet below sea level). Inspection of hydrographs in CHG (2009, Appendix A) show that when the City was extracting groundwater in the area up until about 1997, there was no sustained period of water levels being below sea level. During periods of drought (1978, 1986, 1991, etc.) the static water levels in the City's wells extended to depths of -10 feet mean sea level (msl) for brief periods of time (up to several months). Dynamic pumping water levels were presumably somewhat deeper (perhaps an additional 10 feet). There has been, to our knowledge, no documented evidence of seawater intrusion in the Chorro Creek groundwater basin. With the relatively recent significant reduction in extractions of groundwater from the Ashurst well field area, the potential for seawater intrusion in the area has been greatly reduced. For the aggregate quantities of groundwater that would be produced from the proposed new wells in the Ashurst and Romero well field areas, the potential for seawater intrusion is considered extremely unlikely.

Private Well Feasibility Assessment

Six parcels in the Ashurst well field area are being considered for the construction of small capacity domestic water wells. These parcels are shown on Plates 2 and 3. Information for each parcel relative to parcel number (the entire APN number is not shown), size, history of water use, estimated thickness of alluvial deposits, anticipated well yields, anticipated nitrate ion concentrations, and recommended surface sanitary seal depths for each parcel are provided in Table 1 - Summary of Parcel Well Construction Information.

As indicated, the thickness of alluvial deposits on each parcel is estimated to range from about 55 to 70 feet. The proposed well depths on each parcel vary accordingly. The hydrogeologic data support that small capacity domestic wells with yields of 10 gpm can be constructed on each parcel and, given the historical and anticipated future water demands for each parcel, can adequately serve the water needs of each parcel, including during periods of critical drought. A tentative well location for each parcel is shown on Plates 2 and 3.

Each well will require obtaining a well construction permit from the County of San Luis Obispo (see attached Well Permit Application). Design of each well should generally consist of using 6-inch-diameter SDR 21 F-480 PVC casing with well screen (0.040-inch screen) placed from depths of about 35 to 70 feet, depending on parcel specific geologic (i.e., depth to bedrock) conditions. The wells should be gravel packed using an 8 by 20 (Lapis #3) standard gradation, and provided with surface sanitary seals extending from ground surface to a depth of 35 feet. Well development should use a combination of air lift and pumping methods followed by the performance of a 24-hour pump test and water quality sampling. Construction of each well is viewed as straightforward and should require about 1 week to complete on each parcel (mobilization, well drilling, well construction, well development and testing, and demobilization. We understand that Filipponi & Thompson Drilling has provided the City of Morro Bay with a preliminary cost quote to construct each well which is on the order of $10,000.

Subject to review and approval of the conclusions and recommendations of this report by the County of San Luis Obispo, the next step in the program should be to finalize the location of each

well on each parcel, dependent on drill-rig access issues, locations of the proposed wells relative to leach fields on the parcels, property lines, and other well construction permit issues such as the suggested depth of sanitary seals to be determined by the County of San Luis Obispo. Prior to the approving and finalizing the proposed well sites, the locations of the septic systems and septic system expansion areas of each parcel will need to be delineated on a scaled exhibit and submitted to the County for review and approval.

Fugro will remain available to assist the City of Morro Bay in this process, as well as in the oversight of the drilling and testing of each well

Sincerely,

FUGRO CONSULTANTS, INC.

Paul A. Sorensen, PG, CHg
Principal Hydrogeologist

David Gardner, PG, CHg
Principal Hydrogeologist

Copies:(Pdf) Addressee

Attachments: Table 1 - Summary of Parcel Information
Plates 1 through 5
Well Permit Application

REFERENCES

Cleath & Associates (1993), City of Morro Bay Water Management Plan Update, Appendix B - Ground Water Analysis, Final Draft, October.

Cleath-Harris Geologists, Inc. (2009), Ashurst Well Field Nitrate Study, Chorro Valley, San Luis Obispo County, Prepared for the City of Morro Bay, May.

Dibblee (2006), Geologic Map of the Morro Bay South Quadrangle, San Luis Obispo County,

Hall, C.A. Hr., Ernst, W.G., Prior, S.W., and Wiese, J.W., (1979), Geologic Map of the San Luis Obispo-San Simeon Region, U.S.G.S. Miscellaneous Investigations Series, Map I-1097.

State of California, Department of Water Resources (1972), Sea Water Intrusion: Morro Bay Area, San Luis Obispo County, Bulletin No. 63-6, February.

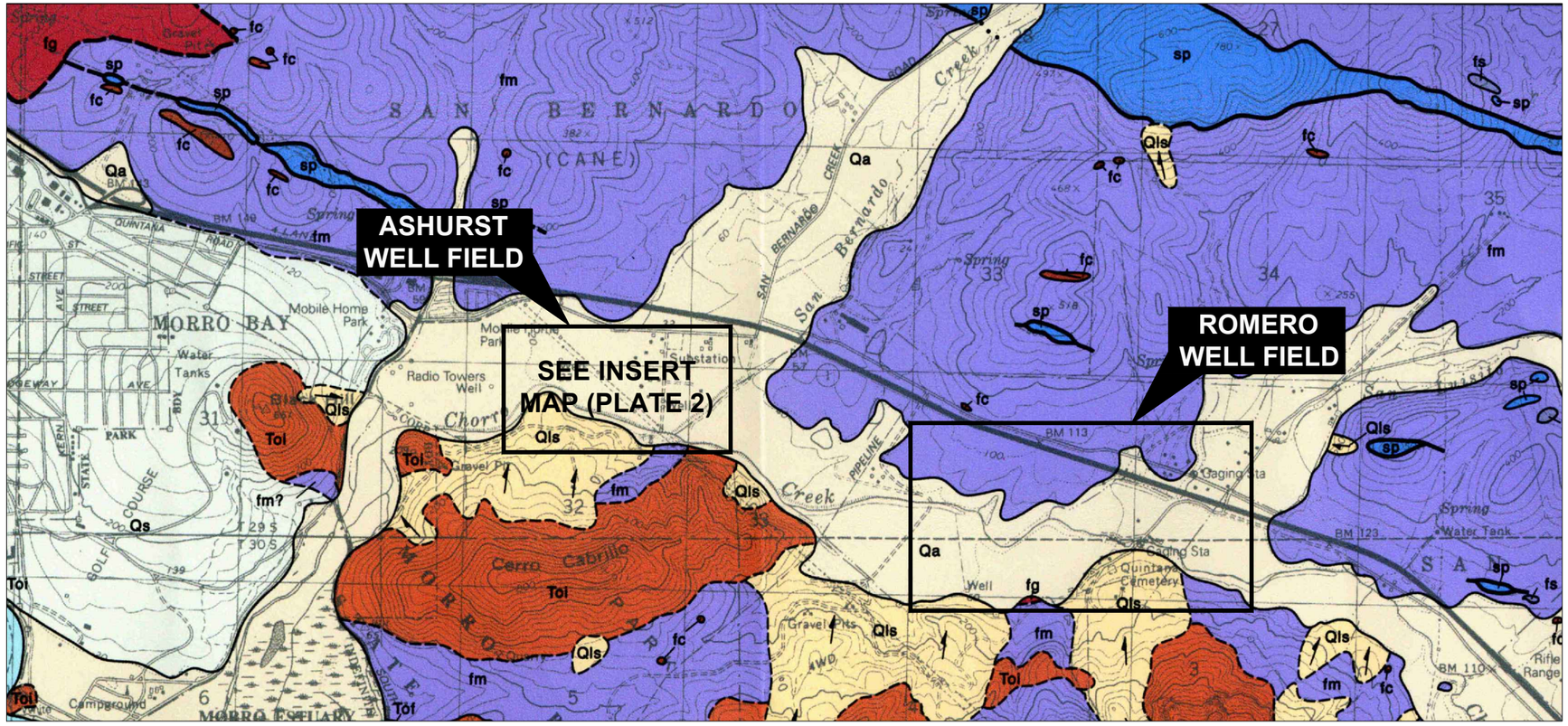
_____ (2004), California's Groundwater, Bulletin 118

Wade, Dylan (2012), Personal Communication - Well Groundwater Nitrate Results, dated April 30.

Table 1. Summary of Parcel Information

Parcel Number	Parcel Size	Water Use gpm	Estimated Thickness of Qal (feet)	Recommended Well Depth (feet)	Anticipated Well Yield (gpm)	Recommended Depth of Sanitary Seal (feet)	Anticipated 2012 NO_3 Concentration (mg/l)
xxx-131-002	4.2	0.11	50	55	10	35	15
xxx-131-018	0.8	0.13	70	75	10	35	15
xxx-131-019	0.7	0.18	55	60	10	35	15
xxx-133-012	6.2	0.57	70	75	10	35	15
xxx-131-004	5	0.04	70	75	10	35	15
xxx-131-016	1.9	1.72	70	75	10	35	15

PLATES



BASE MAP SOURCE: Geologic Map of the Morro Bay South Quadrangle, San Luis Obsipo County (Dibblee, 2006).

NORTH

0 2000 4000
FEET

LEGEND

Qa	Alluvial gravel
Qs	Beach and dune sand sediments
Qls	Landslide rubble
Tol	Porphyritic dacite; Morro Rock complex
sp	Serpentine
Franciscan Rocks	
fm	Malange of pervasively sheared, dark gray claystone and graywacke with coherent fragments of graywacke, greenstone chert, and blueshist
fc	Varicolored chert
fg	Greenstone (meta basalt)
— — —	Geologic Contact, dashed where approximate

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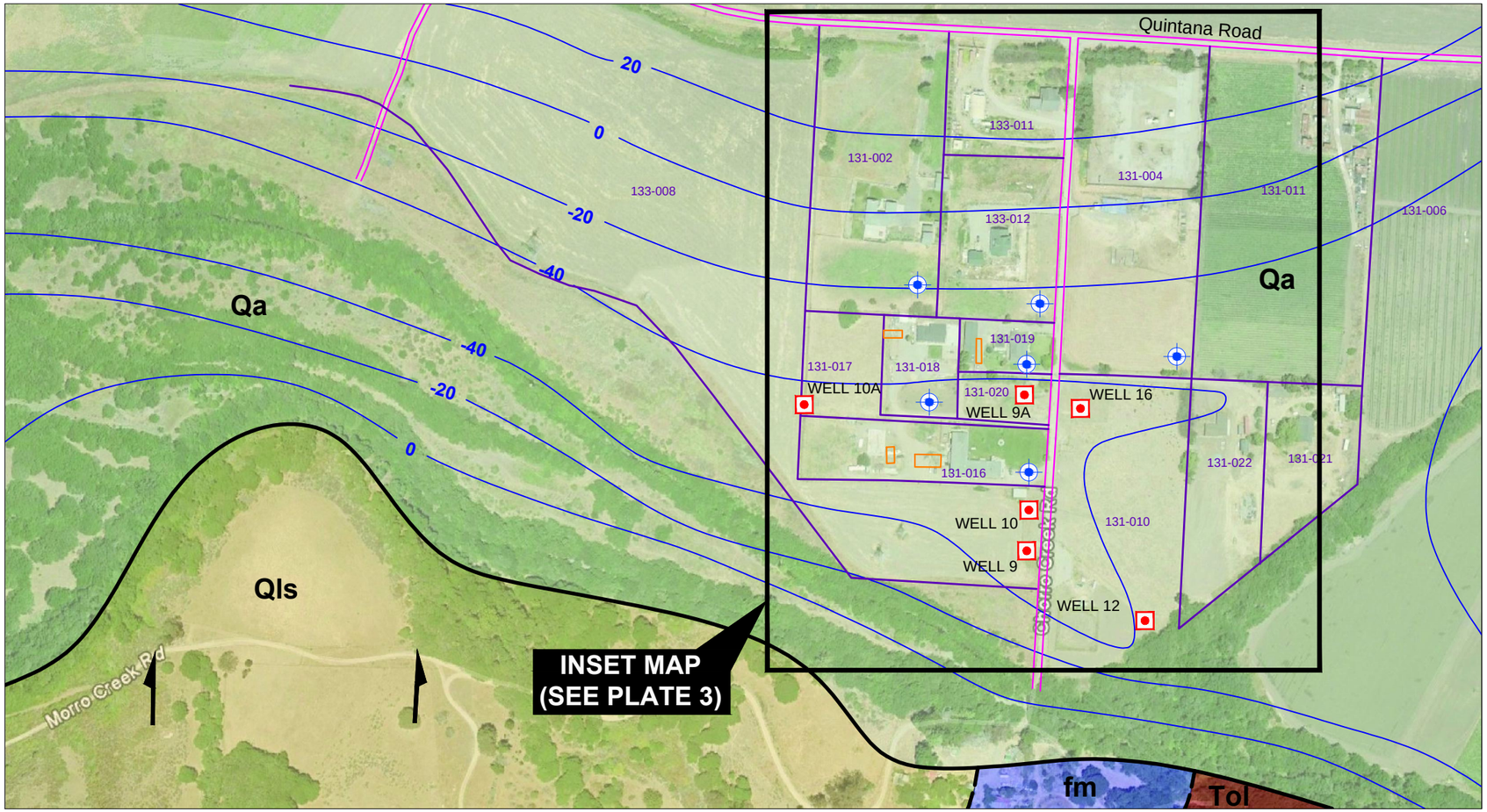
GEOLOGIC MAP
Chorro Creek Groundwater Basin Study
City of Morro Bay, California

PLATE 1



BASE MAP SOURCE:
* Ashurst Well Field, Proposed Stream Gage Locations, City of Morro Bay Department of Public Works (March 2010)
* Aerial photograph provided by Google Earth Pro, 2012
* Geologic Map of the Morro Bay South Quadrangle, San Luis Obispo County (Dibblee, 2006)
* Well Location Map, City of Morro Bay, Cleath & Associates (October 19, 1993).

NORTH

0 300 600
FEET

LEGEND

- Location of Proposed Well
- WELL 10A — Location of City of Morro Bay Well
- Parcel boundary being considered for proposed well construction
- Location of domestic wastewater leach field
- Roadway
- Qa — Alluvial gravel
- Qls — Landslide rubble
- Tol — Porphyritic dacite; Morro Rock complex
- fm — Malange of pervasively sheared, dark gray claystone and graywacke with coherent fragments of graywacke, greenstone chert, and blueshist
- Geologic Contact, dashed where approximate
- -20 — Contour of equal elevation of effective base of Alluvial Sediments, in feet (Cleath & Associates, 1993)

WELL LOCATION MAP
ASHURST WELL FIELD AREA
Chorro Creek Groundwater Basin Study
City of Morro Bay, California

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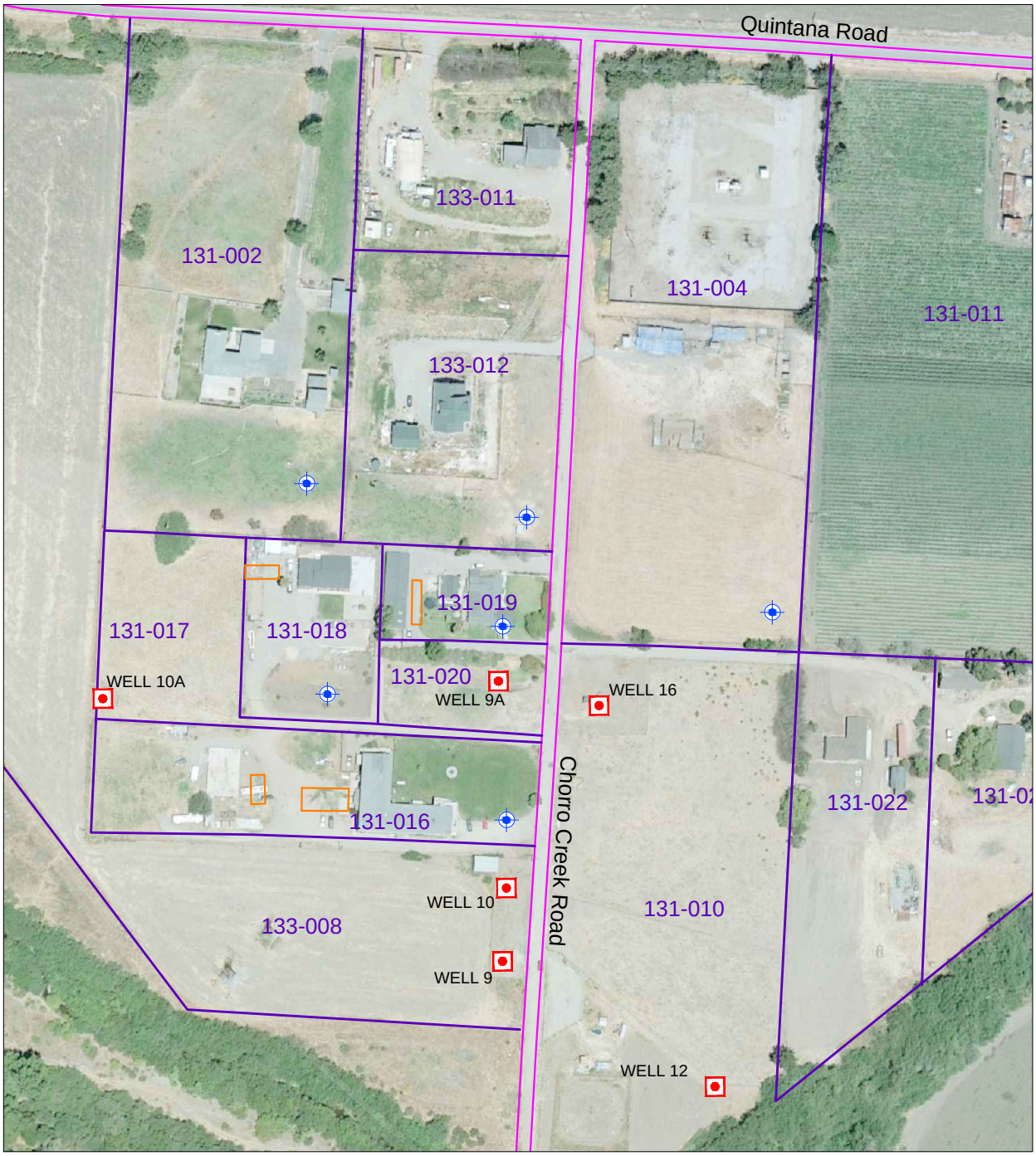

BASE MAP SOURCE: * Ashurst Well Field, Proposed Stream Gage Locations, City of Morro Bay Department of Public Works (March 2010).
* Aerial photograph provided by Google Earth Pro, 2012

LEGEND

- Location of Proposed Well
- WELL 10A — Location of City of Morro Bay Well
- Roadway
- Parcel boundary being considered for proposed well construction
- Location of domestic wastewater leach field

NORTH

0 200
FEET

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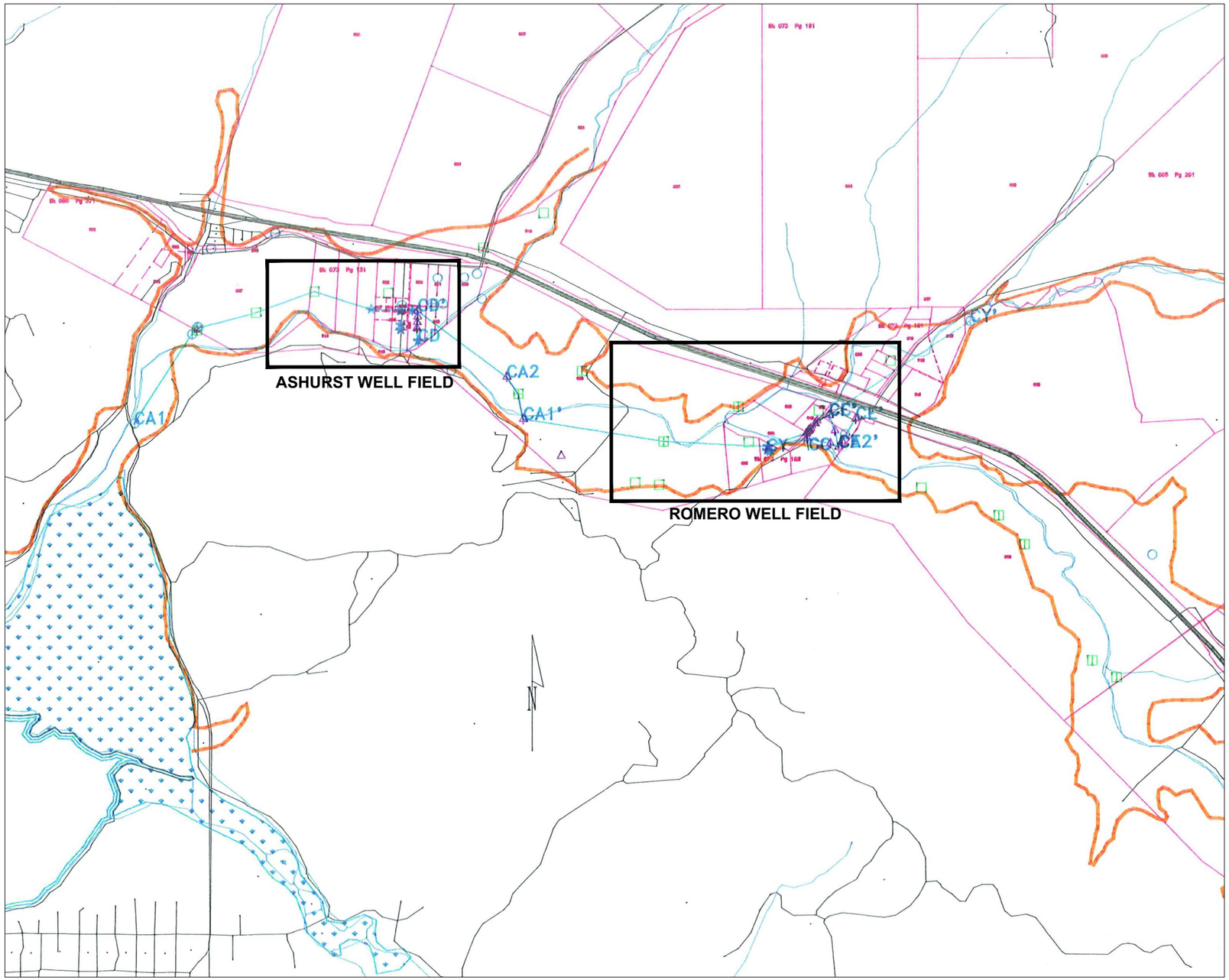
ASHURST INSET - WELL LOCATION MAP

Chorro Creek Groundwater Basin Study
City of Morro Bay, California

PLATE 3



BASE MAP SOURCE: Well Location Map, City of Morro Bay, Cleath & Associates (October 19, 1993).

EXPLANATION

- Sea Water Wells
- Morro Bay City Wells
- PG&E Plant Wells
- Irrigation Wells
- Other Wells
- Morro Bay Test Wells
- Edge of Alluvial Basin
- Cross Section Lines

NORTH

0 2000 4000
FEET

ORIENTATION OF HYDROGEOLOGIC CROSS SECTIONS
Chorro Creek Groundwater Basin Study
City of Morro Bay, California

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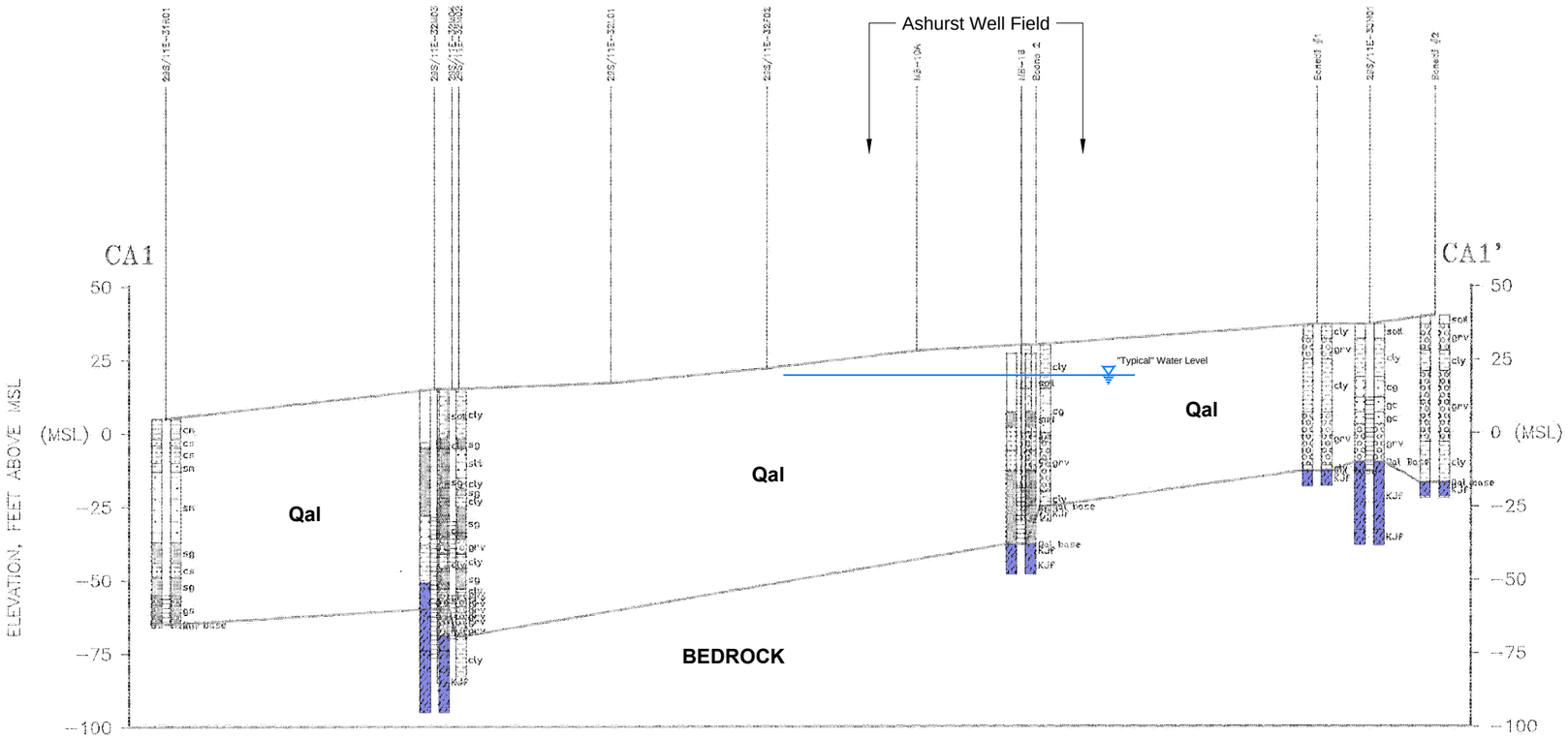
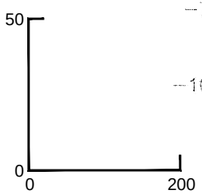




EXPLANATION

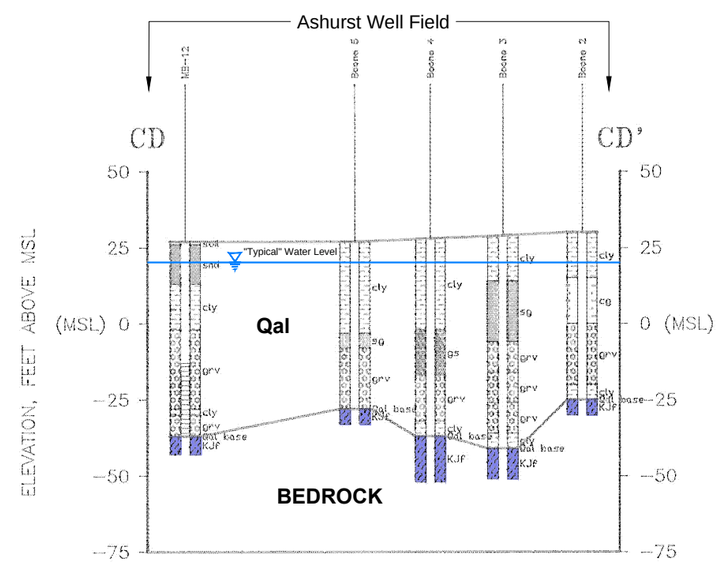
See Well Location Map
for Section Location
See Abbreviation List for Full
Lithologic Description and Color

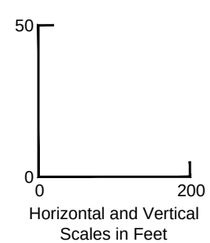
Major Lithologic Contact
Minor Lithologic Contact

Perforated Interval

Bedrock

ASHURST WELL FIELD AREA





BASE MAP SOURCE: Well Location Map, City of Morro Bay, Cleath & Associates (October 19, 1993).

HYDROGEOLOGIC CROSS SECTIONS
ASHURST WELL FIELD AREA
Chorro Creek Groundwater Basin Study
City of Morro Bay, California

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WELL PERMIT APPLICATION

COUNTY OF SAN LUIS OBISPO

PUBLIC HEALTH DEPARTMENT
Environmental Health Services
2156 Sierra Way • P.O. Box 1489
San Luis Obispo, CA 93406-1489
Phone: (805) 781-5544 FAX: (805) 781-4211

OFFICE USE
Permit No _____
Submittal Complete ☐
Date ____/____/____
By: _____
Attachments: Yes ☐ **No** ☐
_____
SR No.

WELL PERMIT APPLICATION

Name of Well Owner _____ Phone No. _____
Name of Property Owner _____ Phone No. _____
Mailing Address of Property Owner _____
Name of Drilling Contractor _____ C-57 License No. _____
Drilling Company Name _____
Business Address _____ Phone No. _____

Proposed Well Site Address _____ City or Area of County _____
Assessor's Parcel No. _____ Township _____ Range _____ Section _____
Parcel Size (acres) _____ In Coastal Zone? _____ GPS Coordinates _____ N _____ W
Is the parcel served water by a public water agency? Yes ☐ No ☐ Is the proposed well located within city limits? Yes ☐ No ☐

Well Type	Purpose of Well		Drilling Method	
☐ Construction	☐ Domestic Private	☐ Irrigation	☐ Rotary	☐ Cable Tool
☐ Repair/Modify	☐ Domestic Public	☐ Livestock Water	☐ Reverse Rotary	☐ Air Rotary

Proposed Depth _____ Casing Diameter _____ Annular Seal Depth _____

Do you anticipate drilling into a water bearing formation that has the potential to degrade a higher quality aquifer? Yes ☐ No ☐
If yes, please explain_____.

Is there any known potential to encounter a water bearing formation where levels of water quality constituents such as nitrate, selenium, hydrogen sulfide, boron, organics, etc., are a concern? Yes ☐ No ☐ If yes, please explain_____
_____.

I hereby agree to comply with all applicable laws and regulations of the County of San Luis Obispo and the State of California pertaining to well construction, destruction, repair or modification. Within sixty days after completion of the well, I will furnish Environmental Health Services with a completed well log. This application becomes a valid permit following sign off by Environmental Health Services.
Only the above named C-57 Licensed driller may sign this permit application.

Signed _____ Date _____
Drilling Contractor

Print Drilling Contractor Name _____

Note: The "Well Permit Plot Plan" shall be attached to this application and indicate within a two hundred foot radius around the proposed well the following items: A) Property lines, B) Sewage disposal and/or sewer lines, C) Animal enclosures and/or any other concentrated sources of pollution, D) All intermittent or perennial, natural or artificial water bodies or water courses, E) Surface water drainage pattern of the site, F) Existing wells, G) Access roads. The proposed site shall be designated with a flagged surveyor's stake labeled "Well Site." (See second page) **Drilling shall not commence until this application is approved.**

OFFICE USE ONLY

Received By _____ Date _____ Fee Paid $ _____ Check # _____
Well Site Approved Yes ☐ No ☐ By _____ Date _____
Site Letter _____ X-Conn Letter _____ Final Letter Sent? Yes ☐ No ☐ _____
Well Site Approval GPS Coordinates _____ N _____ W
Special Requirements and /or Comments for Drilling Contractor _____
_____
Water Quality Testing Conducted? Yes ☐ No ☐ Constituents Tested for _____
Well Seal Witnessed? Yes ☐ No ☐ By _____ Date _____ Seal Depth _____
Well Seal GPS Coordinates N _____ W

PERMIT IS VALID FOR SIX MONTHS FROM ISSUANCE

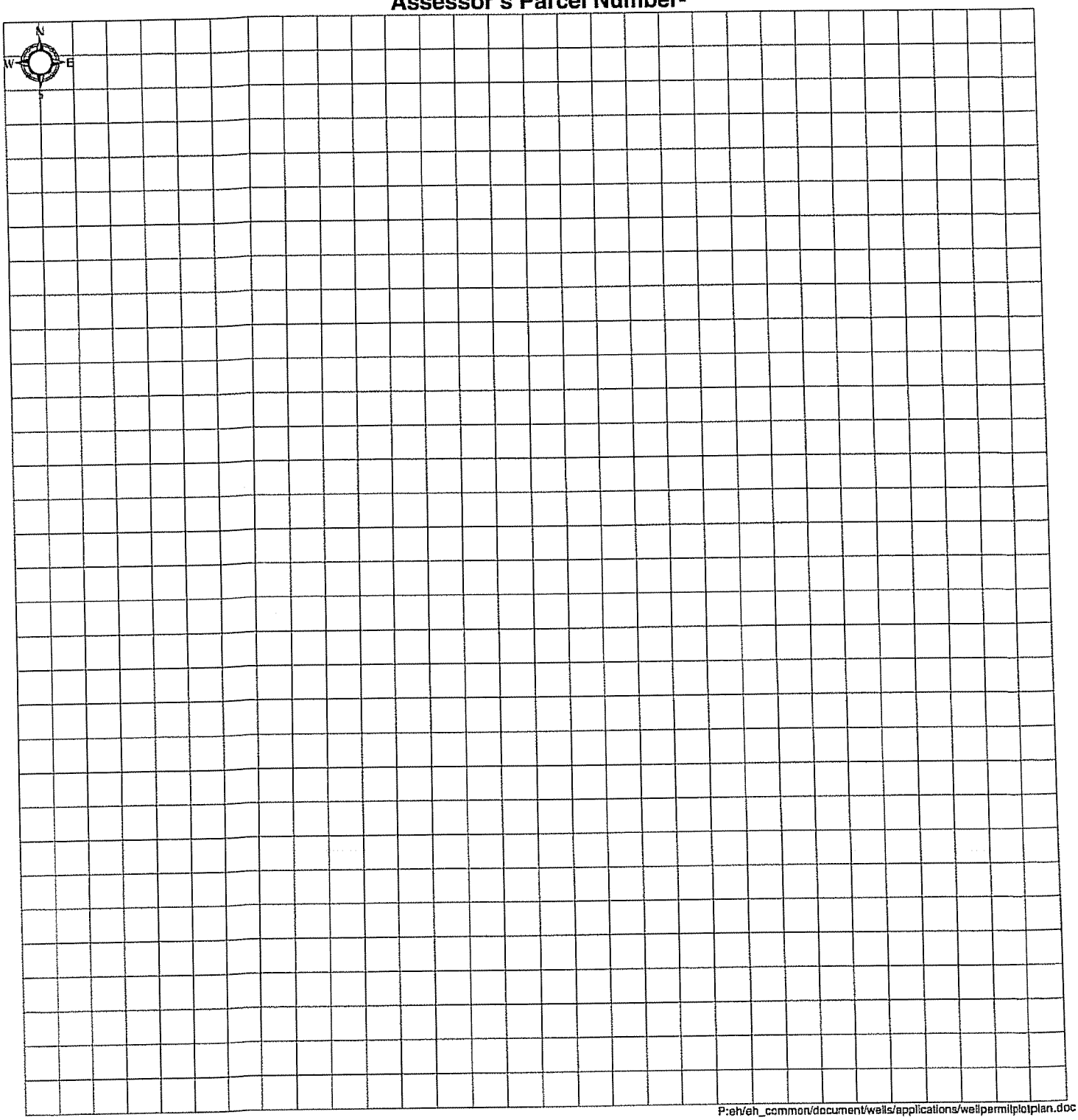
WELL PERMIT PLOT PLAN

SAN LUIS OBISPO COUNTY ENVIRONMENTAL HEALTH SERVICES
2156 Sierra Way
San Luis Obispo, California 93401
Telephone: 805-781-5544

SCALE: ¼" = 25"

INDICATE BELOW THE **EXACT LOCATION** OF PROPOSED WELL WITH RESPECT TO THE FOLLOWING ITEMS: PROPERTY LINES, WATER BODIES OR WATER COURSES, DRAINAGE PATTERN, ROADS, EXISTING WELLS, SEWERS AND PRIVATE SEWAGE DISPOSAL SYSTEMS, ANIMAL ENCLOSURES AND ANY OTHER CONCENTRATED SOURCES OF POLLUTION. **INCLUDE DIMENSIONS. ALL PROPOSED WELL SITES SHALL BE DESIGNATED WITH A FLAGGED SURVEYOR'S STAKE LABELED "WELL SITE." DRILLING SHALL NOT COMMENCE UNTIL THIS APPLICATION IS APPROVED.**

Assessor's Parcel Number-



Chapter 8.40 - CONSTRUCTION, REPAIR, MODIFICATION AND DESTRUCTION OF WELLS

Sections:

8.40.010 - Purpose.
8.40.020 - Definitions.
8.40.030 - Acts prohibited, permit required.
8.40.040 - Permits.
8.40.050 - Inspection.
8.40.060 - Standards.
8.40.062 - Location of well installation.
8.40.065 - Water wells within the coastal zone.
8.40.070 - Public nuisance.
8.40.080 - Immediate abatement.

Minimum Distance to Septic - 100 ft.

8.40.010 - Purpose.

It is the purpose of this chapter to provide for the construction, repair, modification and destruction of wells in such a manner that the ground water of this county will not be contaminated or polluted and that water obtained from wells will be suitable for beneficial use and will not jeopardize the health, safety or welfare of the people of this county.

8.40.020 - Definitions.

The following words and phrases shall, for the purpose of this chapter, have the meanings ascribed to them in this section:

(1)

"Abandoned" or "abandonment" shall apply to a well which has not been used for a period of one year, unless the owner declares in writing to the health officer, his intention to use the well again for supplying water or other associated purpose (such as an observation well or injection well) and received approval of such declaration. All such declarations shall be renewed annually. Test holes and exploratory holes shall be considered abandoned twenty-four hours after construction work has been completed, unless otherwise approved by the health officer;

(2)

"Agricultural wells" mean water wells used to supply water for irrigation or other agricultural purposes, including stock wells;

(3)

"Cathodic protection well" means any artificial excavation in an aquifer or in excess of fifty feet, constructed by any method for the purpose of installing equipment or facilities for the protection electrically of metallic equipment in contact with the ground commonly referred to as cathodic protection;

(4)

"Community water supply well" means a water well for domestic purposes in systems subject to Chapter 7 of Part 1 of Division 5 of the California Health and Safety Code (commencing with Section 4010);

(5)

"Completion or completion operation" means any work conducted after artificial excavation to include:

(A)

Placement of well casing,

(B)

Gravel packing,

(C)

Sealing,

(D)

Casing perforation, or

(E)

Other operations deemed necessary by the health officer;

(6)

"Contamination" means an impairment of the quality of water to a degree which creates a hazard to the public health through poisoning or through spread of disease;

(7)

"Destruction or destroy" means the complete filling of a well in such a manner that it will not produce water or act as a conduit for the interchange of water, when such interchange will result in deterioration of the quality of water in any water-bearing formations penetrated;

(8)

"Electrical grounding well" means any artificial excavation in an aquifer or in excess of fifty feet, constructed by any method for the purpose of establishing an electrical ground;

(9)

"Health officer" means the health officer of San Luis Obispo County, his medical deputies, his environmental health officers, or his duly authorized representatives;

(10)

"Individual domestic well" means a water well used to supply water for domestic needs of an individual residence or commercial establishment;

(11)

"Industrial wells" mean water wells used to supply industry on an individual basis;

(12)

"Modification or repair" means the deepening of a well, reperforation, sealing or replacement of a well casing;

(13)

"Observation well" means a well used for monitoring or sampling the condition of a water-bearing aquifer, such as water pressure, depth, movement or quality;

(14)

"Person" includes any person, firm, association, corporation, organization, partnership, business trust, company, or special district formed under the laws of the state of California;

(15)

"Pollution" means an alteration of the quality of water to a degree which unreasonably affects:

(A)

Such waters for beneficial uses, or

(B)

Facilities which serve such beneficial uses. Pollution may include contamination;

(16)

"Public nuisance," when applied to a well, means any well which threatens to impair the quality of ground water or otherwise jeopardize the health and safety of the public;

(17)

"Salt water (hydraulic) barrier wells" mean wells constructed to extract or introduce water into the ground as a means of preventing intrusion of salt water into a fresh water-bearing aquifer;

(18)

"Test or exploratory hole" means an excavation used for determining the nature of underground geological or hydrological conditions, whether by seismic investigation, direct observation, or any other means;

(19)

"Well" means any artificial excavation constructed by any method for the purpose of extracting water from or injecting water into, the underground, or for providing cathodic protection or electrical grounding of equipment, or for making tests or observations of underground conditions, or for any other similar purpose. Wells include, but shall not be limited to, community water supply wells, individual domestic wells, industrial wells, agricultural wells, cathodic protection wells electrical grounding wells, test and exploratory holes, observation wells and salt water (hydraulic) barrier wells, as defined herein, and other wells whose regulation is necessary to fulfill the purpose of this chapter. This definition shall not include:

(A)

Oil and gas wells, or geothermal wells constructed under the jurisdiction of the State Department of Conservation, except those wells converted to use as water wells, or

(B)

Wells used for the purpose of:

(i)

Dewatering excavation during construction,

(ii)

Stabilizing hillsides or earth embankments,

(C)

And the following artificial excavations:

(i)

Drill holes for soil testing purposes where such holes are less than twenty-five feet in depth,

(ii)

Holes or excavations for soil percolation tests,

(iii)

Drill holes for seismic exploration where such drill holes are less than twenty-five feet in depth,

(iv)

Excavations for drainage percolation ponds or spreading basins;

(20)

"Well drilling contractor" means a contractor licensed in accordance with the provisions of the Contractors License Law, Chapter 9 of Division 3 of the Business and Professions Code (commencing with Section 7000) and who shall possess a valid C-57 water well contractors license.

8.40.030 - Acts prohibited, permit required.

(a)

No person shall, within the unincorporated area of San Luis Obispo County, construct, repair, modify or destroy any well unless such person possesses a valid permit issued by the health officer as provided in this chapter.

(b)

No person shall construct, repair, modify or destroy any well unless such construction, repair, modification or destruction is in conformance with the terms, conditions, and standards specified in this chapter and in the written permit issued by the health officer.

(c)

No person shall conduct any site grading or fill activities in conjunction with the construction, repair, modification or destruction of any well without first satisfying all applicable provisions of Sections 22.05.020 et seq. or Sections 23.05.020 et seq. of this code (grading), which may include the necessity of obtaining a grading permit from the county department of planning and building in addition to the permit required by this chapter.

8.40.040 - Permits.

(a)

Applications. Applications for permits shall be made to the health officer and shall include the following:

(1)

A plot plan indicating the exact location of the well with respect to the following items within a radius of two hundred feet of the well:

(A)

Property lines,

(B)

Sewage disposal systems or works carrying or containing sewage or industrial wastes,

(C)

All intermittent or perennial, natural or artificial water bodies or water courses,

(D)

Drainage pattern of the property,

(E)

Existing wells,

(F)

Access roads;

(2)

Location of the property (include township, range, section, and assessor's parcel number);

(3)

Name of the person who will construct the well;

(4)

Estimated or proposed depth of well;

(5)

Use of well;

(6)

Other information as may be necessary to determine if underground waters will be protected;

(b)

Fees.

(1)

Permit Application Fees. All applications for permits shall be on a form supplied by the county health department and, except for those made by a public agency, shall be accompanied by payment of the fee as established by resolution of the board of supervisors, none of which shall be refundable;

(2)

Expiration of Permit. Each permit issued pursuant to this chapter shall expire within six months following the issuance of the permit. Upon expiration of any permit issued pursuant hereto, no further work may be done in connection with construction, repair, modification, or destruction of a well unless and until a new permit for such purpose is secured in accordance with the provisions of this chapter;

(c)

Prohibition. No permit shall be issued to any person who is not a well drilling contractor in possession of a valid C-57 (Water Code Section 13750.5);

(d)

Bonds. As a condition precedent to the issuance of a permit, every applicant for a permit shall file or have on file with the health officer, a corporate surety bond in the sum of twenty-five thousand dollars issued by a surety company licensed to do business in this state, or in lieu thereof, a cash deposit in the sum of twenty-five thousand dollars.

As used in this subsection, the term "cash deposit" includes, without limitation, certificates of deposit payable to the county issued by banks doing business in this state, investment certificates or share accounts assigned to the county and issued by savings and loan associations doing business in this state, or bearer bonds issued by the United States government or by this state.

The surety bond shall be conditioned to secure the compliance and faithful performance by the permittee of the terms, conditions and standards imposed by this chapter, or by any permit issued hereunder.

If cash is deposited in lieu of such bond, the cash deposit shall secure the compliance and faithful performance by the permittee of the terms, conditions and standards imposed by this chapter, or by any permit issued hereunder;

(e)

Conditions. Permits shall be issued subject to compliance with the standards provided in Sections 8.40.060 and 8.40.065

(f)

Term, Completion of Work. The permittee shall complete the work authorized by the permit prior to the expiration date set forth in the permit. The permittee shall conspicuously post the property where the well construction will occur with a sign noting property owner name, assessor's parcel number, and well construction permit number. The permittee shall notify the health officer in writing upon completion of the work and such work shall not be deemed to have been completed until such written notification has been received;

(g)

Reports. A copy of the well driller report required under Section 13751 of the California Water Code shall be submitted to the health officer upon completion of construction of each well;

(h)

Appeal Procedure. Any person aggrieved by the refusal of the health officer to issue a permit or by the terms of a permit may appeal from the action of the health officer to the board of supervisors by filing a written notice of appeal with the clerk of the board. The clerk shall set the matter for hearing before the board and shall give reasonable notice of the time and place thereof to the applicant and to the health officer. The board of supervisors shall hear the evidence offered by the applicant or permittee and the health officer, and shall forthwith decide the issue. Unless the board of supervisors rescinds the health officer's action by a majority vote, his decision shall be deemed affirmed.

8.40.050 - Inspection.

The health officer and his inspectors may at any and all reasonable times enter any and all places, property, enclosures and structures for the purpose of making examinations and investigations to determine whether any provision of this chapter is being violated. The health officer may require that each completion, modification, repair or destruction operation be inspected prior to any further work.

8.40.060 - Standards.

(a)

State Standards. Standards for the construction, repair, modification or destruction of wells shall be as set forth in Chapter II of the California Department of Water Resources Bulletin No. 74-81 entitled "Water Well Standards: State of California" and its Appendices B, C, and D; and those pertaining to Zones II and III as delineated in Figure 1 of the Department of Water Resources Bulletin No. 74-7 entitled "Water Well Standards, Arroyo Grande Basin, San Luis Obispo County," and as set forth in Chapter II of the same, in Department of Water Resources Bulletin No. 74-1, entitled "Cathodic Protection Well Standards, State of California."

(b)

Types of Wells	Minimum Depth of Seal	
i.	Community Water Wells	50 feet
ii.	Individual Domestic Wells	50 feet
iii.	Industrial Wells	50 feet
iv.	Agricultural Wells	50 feet
v.	Monitoring Wells	20 feet

County Standards. The depth of water well seals (annular seals) shall be as follows:

The above minimum depths shall not apply to shallow wells where the water to be developed is at a depth less than fifty feet. However, in no case shall the seal be less than ten feet in depth. The well driller shall notify the health department the day prior to sealing with a notice of intent to seal. All well seals shall be subject to inspection by health department personnel, or registered geologists and registered engineers approved by the health department for monitoring well inspections, however, if an inspector is not available or present, at the appointed time, the driller shall be allowed to proceed.

8.40.062 - Location of well installation.

A new water well shall be located no closer than ten feet from any property line.

8.40.065 - Water wells within the coastal zone.

In some areas of the coastal zone established by the California Coastal Act of 1976, groundwater is limited and extraction must be monitored to satisfy the requirements of the Coastal Act. All water well permit applications within the coastal zone shall be reviewed by the county engineer to determine if participation in a water monitoring program is necessary to assure records are available for use in the resource management system. The manner in which a permit applicant shall participate in the monitoring program, including the frequency and type of reporting shall be determined by the county engineer.

8.40.070 - Public nuisance.

In the event the health officer determines that a well constitutes a public nuisance, the health officer shall abate the nuisance in accordance with the provisions of Chapter 22.10 of the San Luis Obispo County Code.

8.40.080 - Immediate abatement.

If the health officer finds that immediate action is necessary to prevent impairment of the ground water or a threat to the health or safety of the public, the health officer may immediately abate the nuisance without complying with the provisions of Sections 22.10.100 et seq. of the San Luis Obispo County Code. (Ord. 2400 § 1 (part), 1989: Ord. 1271 § 1 (part), 1973)