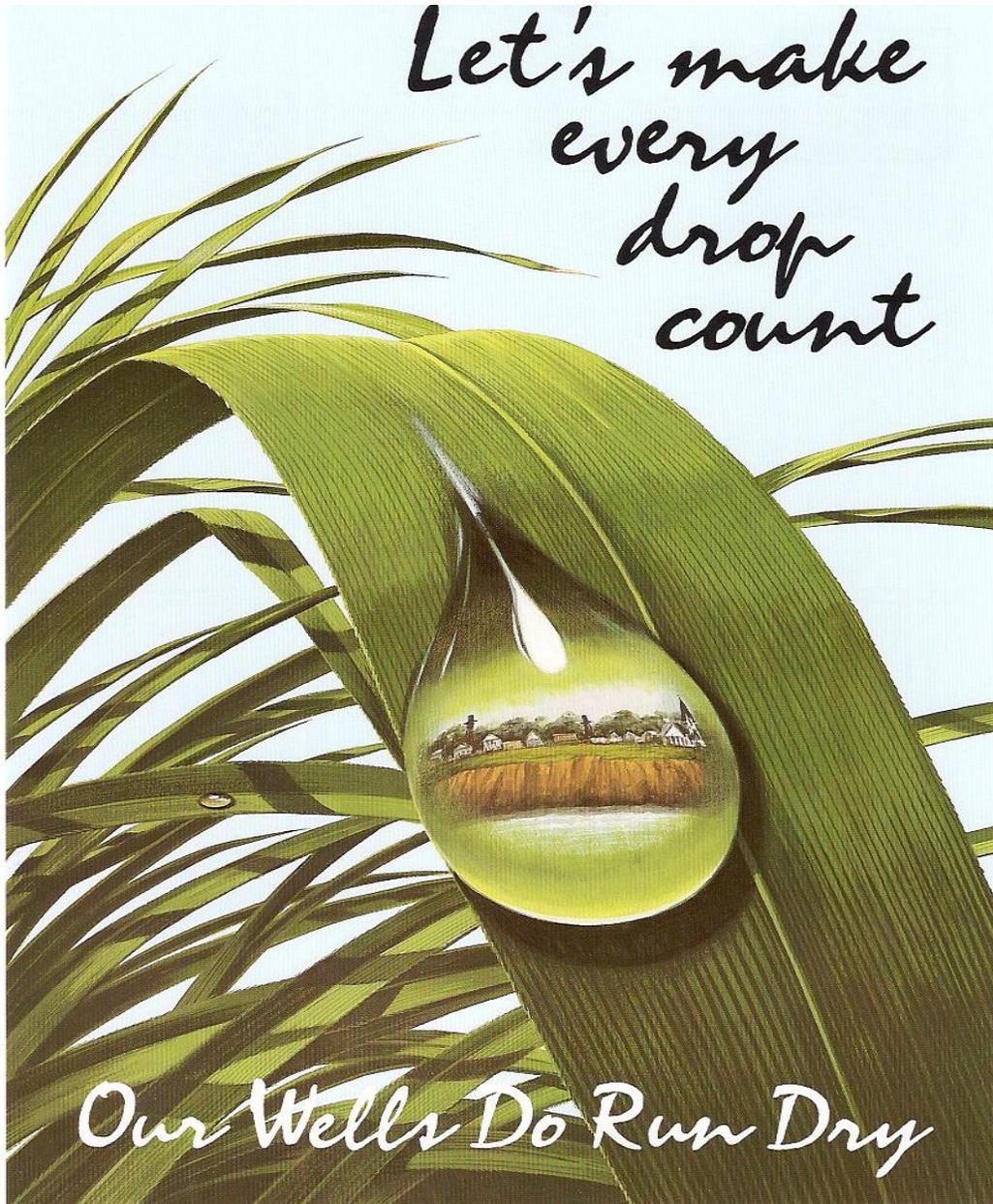


Mendocino City Community Services District
Groundwater Management Plan and Programs



Draft Submitted by James Jackson, Planner, to the Board of Directors of the
Mendocino City Community Services District, September 1, 1988

Groundwater Management Plan Adopted: February 26, 1990; Amended: May 30, 2012

Mendocino City Community Services District

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Section 1 Mendocino City Community Services District Groundwater Management

MISSION

To manage and protect the groundwater resources within the boundaries of the Mendocino City Community Services District for the common good of all present and potential users.

GOALS

- Promote water conservation
- Limit groundwater withdrawals to prevent aquifer overdraft
- Manage Mendocino's groundwater supply during drought
- Ensure groundwater quality is protected
- Develop groundwater management programs that serve as a foundation for groundwater management decision-making

OBJECTIVES

- Implement effective administrative procedures for groundwater extraction permitting
- Develop a representative updatable numerical groundwater model to provide a comprehensive overview of Mendocino's hydrogeology
- Regularly monitor groundwater elevations and quality in the Mendocino Headlands Aquifer
- Conserve groundwater through Recycled Water and Water Conservation Programs
- Utilize the Water Shortage Contingency Plan to help prevent aquifer depletion during drought conditions

INTRODUCTION

The Town of Mendocino was established in 1851. For the first 120 years, the Community did not have a public wastewater collection system, and to this day does not have a public water system. Wastewater facilities consisted of cesspools, septic tanks, and some small private collectors, which discharged untreated wastes over the bluff directly to the ocean. Mendocino's water source was from hundreds of privately owned wells.

A study by Mendocino County Health Department in 1971 found that most of the wells in Mendocino were contaminated with coliform bacteria, which was an indicator of the possible presence of pathogenic organisms in the wells. The contaminated water supply was suspected as the cause of the January 1972 hepatitis outbreak in Town.

On January 19, 1971, Mendocino City Community Services District was formed as a first step in solving the community's wastewater and water problems. Since Mendocino had limited financial resources, the wastewater treatment plant was given first priority. Through the efforts of citizens, business owners, students, and the original MCCSD Board of Directors the general

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obligation bonds for the treatment facility were approved by an 86% “yes” vote. The treatment plant and the collection system went online in 1975, only four years after the District was formed. In 1985, the District called an election on the issue of additional water powers and submitted to the electorate the issue of whether powers as set forth in the California Public Contract Code Section 20681(a) regarding water should be given to the District. An election was held that November, and the question on the ballot was as follows:

“Shall the District acquire the powers regarding water as set forth in the California Public Contract Code Section 20681 (a)?”

This measure voted on in November passed 141/76 in favor. Following the election, the District, for a period of years, pursued the issue of finding a water source suitable both in quantity and quality to provide for a community water system for the town of Mendocino.

In 1987, the California Legislature passed Water Code Section 10700 - 10717, which provided the District with the authority to establish programs for the management of groundwater resources within the District. In 1990, the District assumed responsibility for groundwater management from Mendocino County, as authorized by AB 786 (Appendix A), and adopted a Groundwater Management Plan (GMP), Groundwater Extraction Permit Ordinance (Ord. 90-1). MCCSD entered into an agreement with the County of Mendocino Public Health Department to regulate groundwater extraction within the District’s boundaries in accordance with Water Code Sections 10700–10717 and Mendocino County BOS Agreement No. 90-113 (Appendix A). The County Health Department had previously enforced the groundwater extraction provisions of Policy 4.13-16, in the Mendocino Town Plan. Groundwater management authority was considered an interim program, which was to be dismantled following the development of a community water system. The District was unsuccessful in locating an adequate water source for a municipal system, so Mendocino residents and business owners continue to rely on approximately 400 privately owned wells for their water supply. MCCSD has since used its GMP to extend and protect the Town’s groundwater supply.

The District developed the Groundwater Management Plan with a groundwater withdrawal program (currently Ord. 07-1, Appendix B), which limits groundwater extraction. The Groundwater Management Plan is the Groundwater Extraction Permit (GWEP) Ordinance (Appendix B). The GWEP ordinance allows local government to mandate the amount of naturally occurring groundwater that can be withdrawn from the Town’s aquifer on a sustained basis to prevent depletion of the Town’s groundwater by not exceeding the aquifer’s perennial or safe yield, which is the amount of water that can be pumped regularly and permanently without dangerous depletion of the storage reserve.

MCCSD was formed forty-one years ago to solve the community’s wastewater and water problems. The District has accomplished only half of its original mandate. The Town has one of the most efficient small wastewater treatment plants in the region.

A community water system water source was not located, so the need for groundwater management has continued until present. The District’s current groundwater management policies are to promote water conservation measures, to increase the use of reclaimed water to reduce groundwater extraction, and to collect information on the groundwater conditions within the District boundaries for groundwater management decision-making.

Section 2
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The Hydrogeology of Mendocino

PHYSICAL SETTING

The Town of Mendocino is located on the Mendocino Headlands along the Pacific Coast in Mendocino County, California. The Mendocino Headlands lie in the California Coast Ranges geomorphic province (Bailey 1966). The physical setting of the Mendocino Headlands is a key factor influencing the groundwater resource in the area.

LOCATION

The Town of Mendocino is located on the Mendocino Headlands between Slaughterhouse Gulch and Big River (Figure 1). California State Highway 1 dissects the eastern portion of the unincorporated town. The District covers over one square mile and is defined as the watershed which recharges the Mendocino Headlands aquifer in the MCCSD service area. The upland areas of the District are located between Slaughterhouse Gulch and Big River.

The permanent population of the Town of Mendocino is about 1,000. However, Mendocino is a well-known tourism destination and the population increases significantly during the high tourist season. The main business district of the Town of Mendocino is along the southern portion of the peninsula along Mendocino Bay. The population is concentrated near the main business district. Other residential areas are located to the north and east of the main business district. The northern and western portions of the peninsula are primarily open space with much of the land included in Mendocino Headlands State Park.

TOPOGRAPHY

The Mendocino Headlands are formed by a broad headland peninsula that is bounded on three sides by sea cliffs that range in height from 40 to 100 feet. Maximum elevations within the town lie at the east edge of the peninsula near Hillcrest Cemetery and approximately 220 feet on the west edge of Grindle Park. The land slopes downward to the west of Highway 1 at an average slope of approximately 10 percent with a broad gentle ridgeline roughly bisecting the peninsula. Hillslopes to the east of Highway 1 are steeper and include areas up to 35 % slope.

Toward the edge of the seacliffs there are long unbroken vistas and some unusual natural features have developed, including blowholes where the roofs of sea caves have collapsed. This area is part of the Mendocino Headlands State Park. Vegetation of the Mendocino Headlands varies with topography. The upland areas east of Highway 1 have more significant coverage by trees. The level areas on the peninsula west of Highway 1 are primarily grass covered.

CLIMATE

The climate is maritime Mediterranean and is characterized by cool, foggy summers and cool, rainy winters. Windy conditions prevail much of the year with prevailing sea breezes from the west, while gale force winds are not uncommon during winter storms. The average maximum

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temperature in September is 66° and average minimum temperature in January is 40°. The temperature range is moderated by the proximity of the Pacific Ocean.

MCCSD maintains a weather station. Historical precipitation data are available from 1901. The average annual precipitation at Mendocino over this period is 40.29 inches. The average annual precipitation from 1970 to 2003 is 44.45 inches. This difference is due to several high rainfall years during this period, and several extended historical droughts in the 1920's and 1930's.

The rainy season for Mendocino generally extends from November through March. Monthly rainfall averages about 7 inches per month during this period. Actual monthly precipitation ranged from 1.5 to 20 inches during the period from 1991 to 2003. Significant late season rains typically occur during April through June. However, precipitation typically begins to decline during the late season from an average April precipitation of 3 inches to an average June precipitation of 0.5 inches. Precipitation in July, August, and September is generally minimal. Early season rains typically begin in October, which has an average precipitation of 1.3 inches.

HYDROGEOLOGY

The Mendocino Headlands lie in the Coast Range which is characterized by high ridges and narrow valleys (DWR 1985). The California Coast Range province is characterized by particular rock types and structures. At the Mendocino Headlands, the geology is characterized by Franciscan bedrock overlain by Quaternary Marine Terrace deposits (Bailey 1966). Areal geology map adapted from the DWR (1985) Report shows the distribution of the bedrock and terrace deposits (Figure 2).

GEOLOGY

The Mendocino Headlands are primarily underlain by rocks of the Tertiary Franciscan Complex Coastal Belt (DWR 1985). The Franciscan Complex rocks range from thinly interbedded greywacke sandstone and shale to more massive greywacke with discontinuous shale beds. The dense greywacke sandstones typically contain a clayey matrix (DWR 1985). The Franciscan Complex has a very low primary porosity since rocks are typically well-indurated and cemented, and/or contain a clayey matrix. However, rocks of the complex contain significant secondary porosity due to the presence of a pervasive system of rock fractures. This secondary porosity is thought to decrease with depth (DWR 1985). Most of the wells produce water from zones of fractured rock; however, there is no known or predictable pattern to the rock fracturing and no obvious structural control. Wells which produce water in the range of 15 to 20 gallons per minute (gpm) may be located less than 200 feet from wells which are only capable of producing water at 2 to 3 gpm.

Overlying the Franciscan Complex rocks are four separate sets of marine terrace deposits that represent former beach deposits (DWR 1985). Multiple levels of marine terraces occur in many places along the Pacific Coast. Marine terraces are characteristically discontinuous and rarely can be traced for more than a few miles (Bailey 1966).

The four marine terraces at the Mendocino Headlands are named the Caspar Point, Jughandle Farm, Railroad, and Fern Creek terraces. The Caspar Point is the youngest terrace (100,000 years old) and is found closest to the current coastline (DWR 1985). It occurs between

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elevations of 40 to 80 feet. The Jughandle Terrace lies inland of the coastal regions. It ranges in elevation from 80 to 160 feet and is about 200,000 years old (DWR 1985). It ranges up to 35 feet thick and averages about 20 feet thick. The Railroad Terrace is found more in the northern portion of the Mendocino Headland. It ranges in elevation from 160 to 300 feet and is about 300,000 years old (DWR 1985). It ranges up to 45 feet thick and averages about 25 feet thick. The Railroad Terrace is primarily composed of fine-grained sand but does contain variable amounts of silt and clay in higher percentage than the younger terraces. The Fern Creek Terrace is highest and oldest terrace (400,000 years old). The Fern Creek Terrace ranges up to 15 feet thick and forms a thin mantle over much of the eastern headlands area. The Fern Creek Terrace is primarily composed of silts and clayey sands (DWR 1985).

The marine terraces form noticeable physiographic features atop the headlands (DWR 1985). The terraces form a thin cover over the bedrock that forms an essentially flat surface. Where the terraces have eroded, the bedrock forms a rough and uneven surface. The terraces are also overlain by a 1 to 4 foot thick sandy organic soil horizon as seen in the dark colored material near the top surface (DWR 1985).

GROUNDWATER

The physical setting of the Mendocino Headlands is a key factor that influences groundwater flow in the area. Groundwater occurs in the marine terrace deposits and Franciscan Complex rocks in the Mendocino Headlands. The Franciscan Complex is generally considered as a non-water-bearing formation; however, on the Mendocino Headlands, they are the primary water-yielding geologic unit. This is not due to a difference in its physical character, but rather to the lack, or relative thinness, of the marine terrace deposits (DWR 1985).

The terrace deposits act as a holding reservoir by storing water that recharges the underlying fractured bedrock. The primary porosity of the sands is much greater than the secondary porosity (largely fracture porosity) of the bedrock and, therefore, the marine terrace deposits provide an important contribution to the overall groundwater storage for the Town of Mendocino. The DWR (1985) mapped the extent of saturated terrace deposits in October 1984. The distribution of the areas of saturated terrace deposits plays a key role in maintaining groundwater levels in the Mendocino Headlands aquifer.

Unlike typical California groundwater basins which contain alluvial sediments surrounded by low permeability bedrock that holds the water in the basin, the Mendocino Headlands aquifer is surrounded by cliffs and the major portion of the annual inflow discharges out of the cliffs through springs. Spring flow is also highly seasonal with the highest flow rates observed in the late winter and spring following significant rainfall. These springs are located at various elevations throughout the horizontal profile of the steeply inclined to vertical cliffs bounding the Mendocino Headland. Late-season springs typically consist of weeps emanating from the fractured bedrock. Variability in the elevation of the springs along the vertical profile of the coastal cliffs results in lower elevation springs acting as a source of groundwater discharge for a longer span during the yearly hydrologic cycle, while springs at higher elevation are often active only for short periods of time following rainfall events.

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HYDROGEOLOGICAL CONCEPTUAL MODEL

Groundwater flows from the highland areas east of Mendocino towards the headland cliffs surrounding the town where it discharges to the Pacific Ocean via springs. The highest groundwater elevations are observed in the upland area to the east. On the peninsula, a groundwater ridge exists that runs essentially east-west down the center of the peninsula to the north of the main business district. The general groundwater flow direction is from this ridge towards the cliffs.

The lowest groundwater elevations are noted in the Fall prior to the first substantial rainfall of the wet season. Groundwater elevations appear to start to rise after about 9 inches of precipitation (DWR 1985). Groundwater levels continue to increase in response to each rainfall event throughout the main rainy season from January through April. Following the last large rainfall event in April or early May, the groundwater levels begin their summer decline. The limited ability of the fractured rock to transmit water reduces the outflow rate to the springs allowing groundwater to remain in the system through the summer months. The pumping wells essentially intercept groundwater that would otherwise have discharged to the ocean through the springs along the cliffs. By the end of the summer, many of the terrace deposits become unsaturated. In addition, many wells go dry by the end of the summer. The timing of this drying out is dependent upon the amount of spring rainfall and the timing of the last substantial rainfall.

Groundwater conditions in the Mendocino Headlands typically show strong seasonal variations (DWR 1985). The groundwater cycle corresponds to the hydrologic cycle for Mendocino. A conceptual cross section of the hydrologic balance for the Mendocino Headlands is shown on Figure 3. Groundwater recharge is almost entirely dependent upon precipitation. It is interesting to note that the maximum and minimum groundwater elevations do not change significantly from year to year despite significant changes in annual precipitation. Despite the fact that groundwater elevations respond with rainfall, other hydraulic controls are present that appear to limit the maximum and minimum groundwater elevations. The likely control on the maximum groundwater elevation is the existence of shallow groundwater at certain locations. When water levels reach the ground surface, groundwater is discharged to surface drainages such as streams and ditches. Groundwater can also be intercepted by utility trenches several feet below the ground surface in developed areas.

The control on minimum groundwater elevations is considered the result of a combination of physical limits and hydraulic processes. The physical limit would be the lower hydraulic level that is set by the elevation of cliff seepage points and springs. The hydraulic process component is a fraction of the delayed recharge effect from precipitation that has slowly percolated through the soil and unsaturated zone sediments. The other limiting hydraulic process is the rate of leakage from the terrace deposits to the deeper bedrock aquifer. The early fall portion of the hydrograph curve indicates that water levels are still declining when the sudden jump in water levels occurs in response to the initial significant rains. This suggests that multiple low rainfall years in succession could cause water levels to drop significantly below the typical seasonal minimum.

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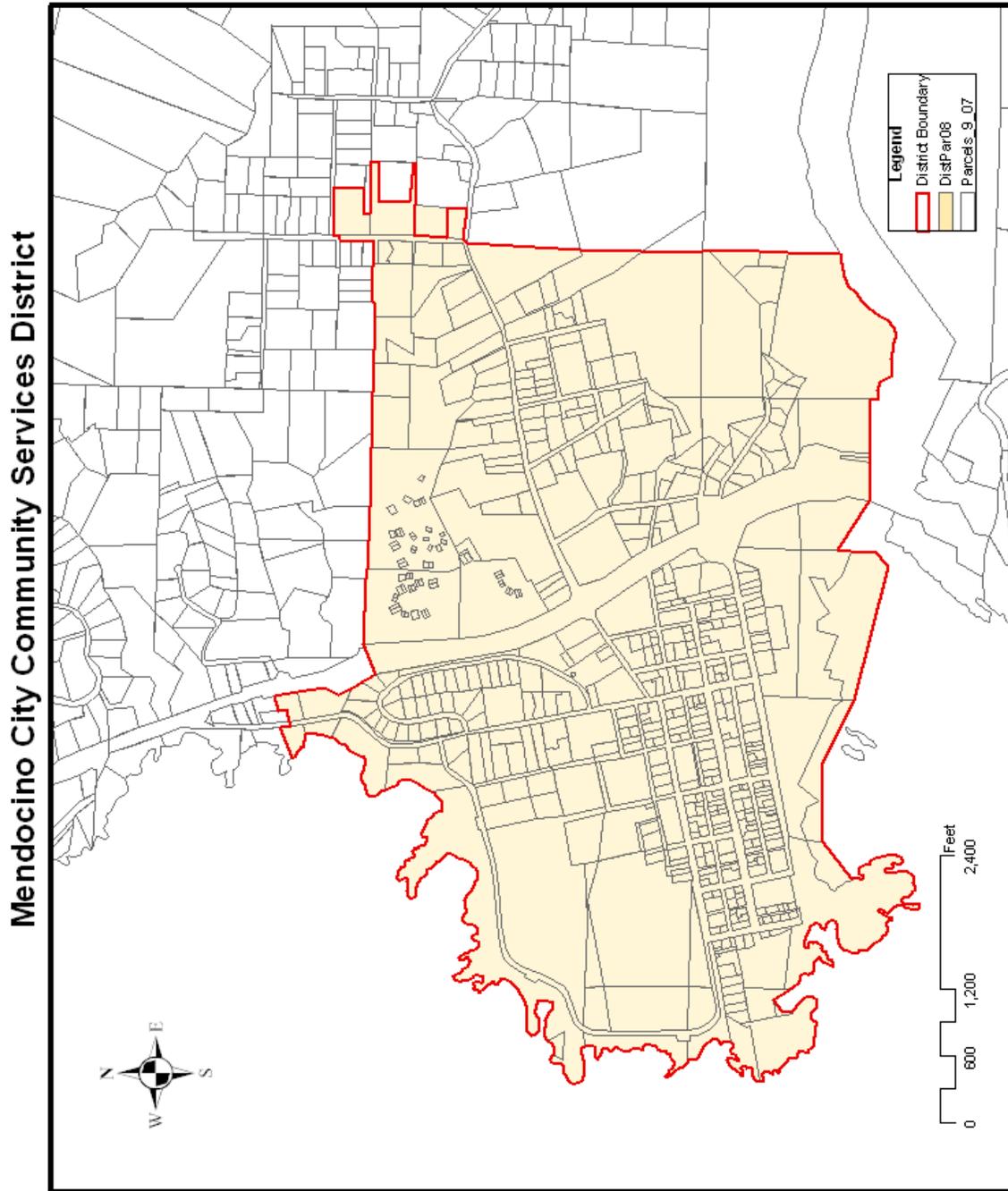
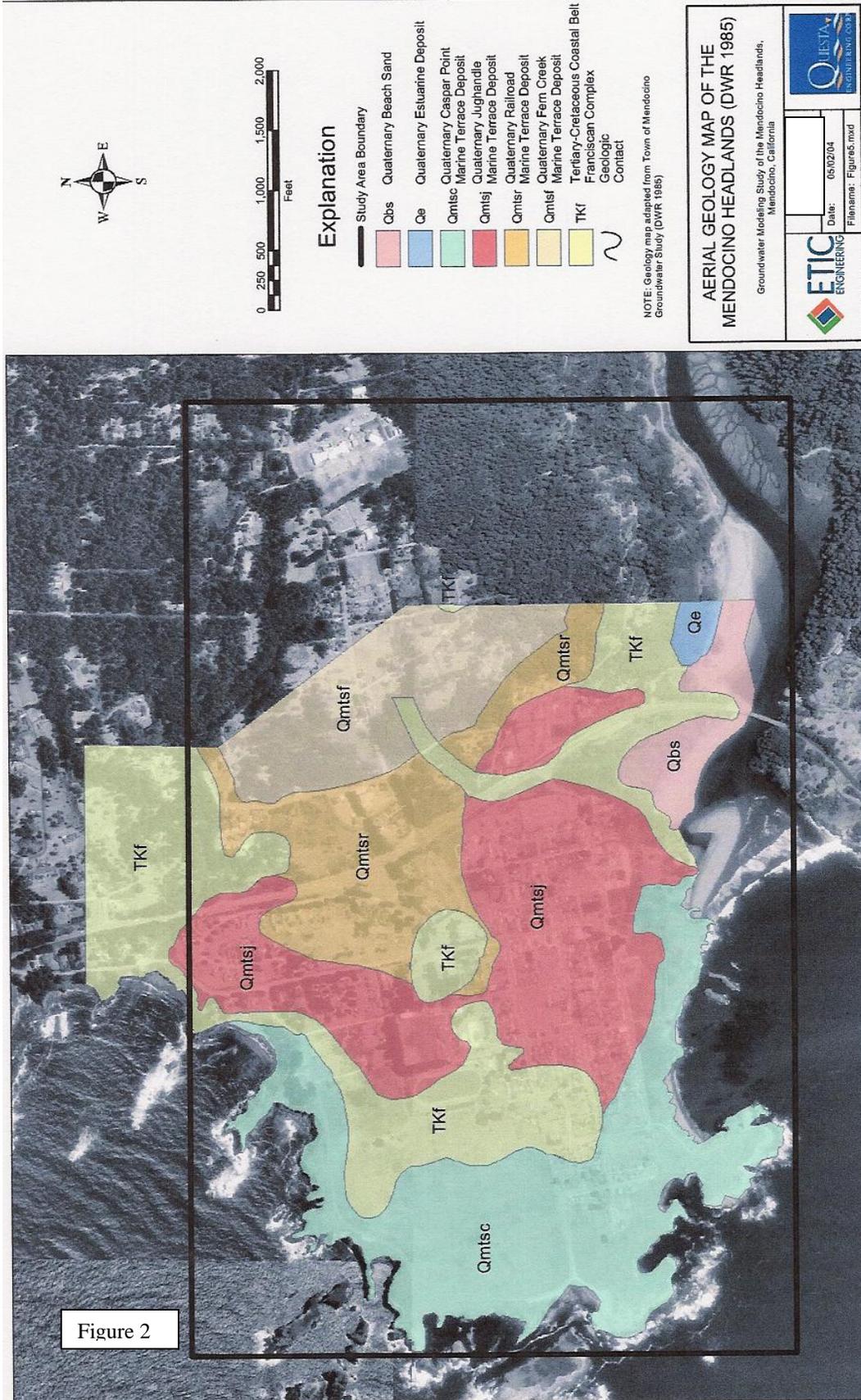


Figure 1 Location Map

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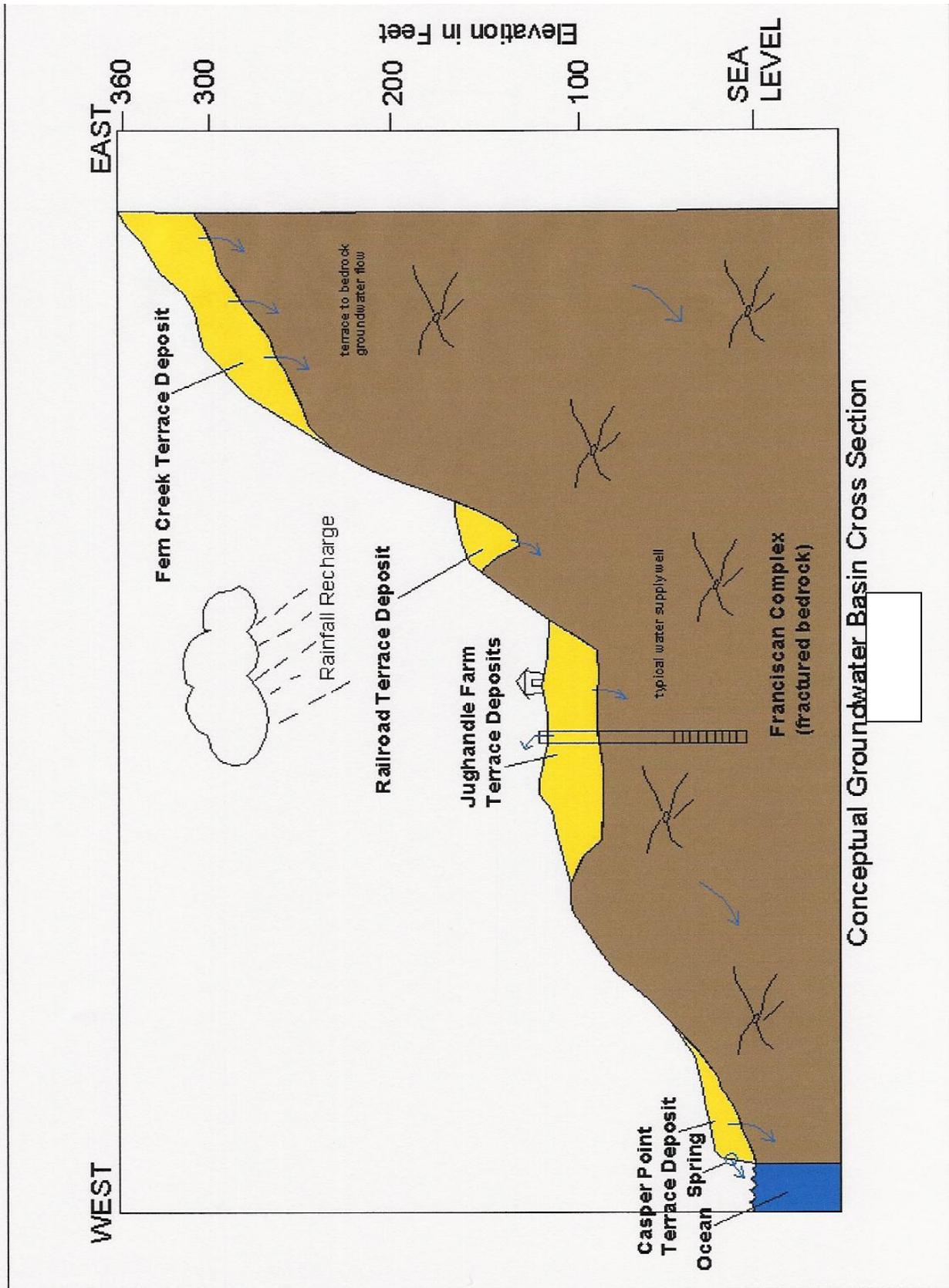


Figure 3.

WATER USAGE

Groundwater is the primary water supply for the Town of Mendocino. Approximately 400 individual wells are used to supply both commercial and domestic water usage. A summary of Mendocino water demand is presented on Table 1.

GROUNDWATER USE

Groundwater pumping wells are located throughout the Town of Mendocino and across the entire extent of the District, with the highest density of pumping wells lying in the southern portion of the Mendocino Headlands where commercial development is most concentrated. Well depths typically range between 40 to 200 feet, with most new wells in the range of 100 to 150 feet. A few older wells are as shallow as 20 to 25 feet. Shallower wells may be completed solely in the terrace gravels; however, most wells are composite and are completed in the underlying Franciscan bedrock. Flow rates to wells are quite variable, but typically range from less than 1 gallon per minute (gpm) to over 25 gpm. Wells which produce above 10 gpm are considered high yield wells in this area, while typically high yield wells in most areas produce over 100 gpm. Higher flow rates are typically for short time intervals and during high water level periods during the winter months.

Because of these low yields, most properties employ storage tanks and, through the MCCSD, the community has implemented significant water conservation measures. Even so, some wells run dry in the late fall months, especially in drier than normal years, and water is trucked in to replenish storage tanks at several properties on a regular basis in the fall. This practice becomes more widespread during periods of drought.

1985 DWR HYDROLOGIC BUDGET

A water balance or hydrologic budget is a quantitative statement of the balance of the total water gains and losses from the aquifer for a given time period. Hydrologic budgets were developed for the Mendocino Headlands for both the 1984-85 water year and for average conditions in the Town of Mendocino Ground Water Study (DWR 1985). A summary of the DWR (1985) hydrologic budget is presented in Table 2, and is provided below.

Table 1: Mendocino water demand summary based on records from the Mendocino City Community Services District.

Water Use Category	Estimated Water Demand (gallons per day)			
	2000-01	2001-02	2002-03	2011-12
Residential	80,420	80,720	80,820	85,180
Inns, Hotels, B&Bs, Vac. Home Rentals	56,600	58,600	39,400	41,400
Restaurants, Bars	59,634	59,633	52,335	34,700
Retail, Office, Grocery, Service Station, Home Occupation, Personal Services, gov. buildings	25,322	25,183	26,619	27,980
Library, Art and Community Center	2,000	2,150	4,190	1,257
Churchs, Halls	na	7,565	3,822	3,765
Ballpark, MFPD	na-	800	800	1,200
Rainbow School	12,150	11,625	11,190	240
Headlands Park	25,000	24,990	24,990	2,000
TOTAL (gallons per day)	261,126	272,466	244,566	197,722
TOTAL (acre-feet per year)	293	305	274	221

Table 2: Mendocino Headlands hydrologic budget from the DWR (1985) Groundwater Study

	INFLOW			OUTFLOW						
Year	Precipitation	Imported Water	Total	Native Evapo-transpiration	Urban Evapo-transpiration	Sewage Outflow	Runoff	Subsurface Outflow	Total	Change in Storage
1984-85	917	11	928	396	20	109	59	363	947	-19
Average	1225	11	1236	430	25	119	78	584	1236	0

1984-85 WATER YEAR

The DWR (1985) study reported a precipitation total of 31.7 inches across the 347 acre study area for the May 1984 to May 1985 period. This results in a total volume of 917 acre-feet of precipitation falling within the DWR study area for the 1984-85 water year. This represents a drier year than normal with only about 75% of the average annual precipitation. In addition, approximately 11 acre-feet of imported water was noted within the study area. Subsurface groundwater inflow was considered negligible. The total inflow was estimated at 928 acre-feet (DWR 1985). Of this inflow, DWR (1985) estimated that 470 acre-feet percolated to the groundwater during the 1984-1985 water year.

The total outflow for the 1984-85 water year was estimated to be 947 acre-feet. Total annual groundwater withdrawals are estimated in the 1985 DWR report for the aquifer by using annual outflow quantities from the MCCSD sewage treatment facility. Any imported water used by residents or businesses within the study area must be subtracted from the annual sewage outflow volume when estimating annual withdrawals via pumping wells. The outflow was estimated to be comprised of 416 acre-feet of evapotranspiration, 109 acre-feet of sewage outflow (used as an indicator of groundwater extraction through well pumpage), 59 acre-feet of precipitation runoff, and 363 acre-feet of subsurface outflow through the cliff springs. This results in an overall estimated loss in storage of 19 acre-feet for the 1984-85 water year which is attributable to the lower than average rainfall experienced during the DWR study period.

AVERAGE CONDITIONS

For average long-term conditions, the DWR (1985) Study used an average annual precipitation for the Mendocino Headlands of 42.31 inches. This results in an average volume of annual rainfall falling on the study area of 1,224 acre-feet (DWR, 1985). Similarly, approximately 11 acre-feet of imported water was noted within the study area. Subsurface groundwater inflow was considered negligible. The DWR (1985) report estimates that under average conditions, groundwater recharge is 625 acre-feet or about 50 percent of the total precipitation that fall on the Mendocino Headlands.

Discharge or outflow from the aquifer is derived from well pumpage, bedrock outflow (primarily through coastal springs), and evapotranspiration. During an average water year, the DWR (1985) report estimates a total aquifer outflow of 1,236 acre-feet, comprised of 455 acre-feet of evapotranspiration, 119 acre-feet of sewage outflow (used as indicator of groundwater extraction through well pumpage), 79 acre-feet of precipitation runoff, and 584 acre-feet of subsurface outflow. This results in an overall estimate of no net change in storage for the aquifer during a water year of average precipitation.

GROUNDWATER MODEL BASED WATER BUDGET

A groundwater flow model was developed for Mendocino using MODFLOW 2000 (Harbaugh et al 2000) during a 2002-04 DWR funded groundwater study. The groundwater model covers about 678 acres or about one square mile. The model grid is comprised of 250 rows and 400 columns with a uniform grid spacing of 20 feet. The entire four layer model contains a total of 200,000 model grid cells. The model aquifer properties and boundary conditions were set up consistent with the hydrogeological conceptual model developed in the DWR (1985) Report.

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The Mendocino Groundwater Model was calibrated using three separate criteria including groundwater elevation maps, statistical analysis, and hydrographs. The statistical analysis showed a strong correlation of measured to simulated groundwater elevations with a correlation coefficient of 0.998. The 2002-03 water year transient groundwater model was calibrated to 552 measured groundwater elevations from 24 wells completed in the Mendocino Headlands aquifer. The hydrograph calibration demonstrates that the model is capable of simulation groundwater trends over time across the entire model domain. The model has an extremely low mass balance differential of 0.16 percent indicating that the model is accurately simulating groundwater flow. The calibration results indicate that the hydrogeological conceptual model does accurately portray groundwater flow through the Mendocino Headlands aquifer.

Through model calibration to the measured groundwater elevations, insight was gained in the groundwater recharge processes. Precipitation is typically highest from November through March. However, during May through October, a base level of precipitation recharge is sustained. The physical process represented by this sustained recharge is the movement of water through the soil and unsaturated sediments. This delayed aspect to recharge is a key element in sustaining groundwater elevations during the summer. This aspect is also supports the observation by DWR (1985) that late season rains are especially important in sustaining groundwater elevations throughout the dry season.

The overall water balance based on the calibrated MODFLOW model is 1,212 AFY (Table 3). The most basic form of perennial yield is to add groundwater pumpage plus the change in storage. Total groundwater pumpage is 250 AFY. During this time, groundwater storage increased by 9 AFY. Together, these two components contribute 259 AFY towards the perennial yield. By assuming that 5 percent of the cliff discharge could be captured by groundwater extraction well, this would add an additional 24 AFY. By adding the groundwater pumpage, increase in storage, and potential discharge available for capture, the estimated perennial yield for the Mendocino Headlands aquifer based on the Mendocino Groundwater Model is 283 AFY.

The model is well calibrated based on the comparison of model results to historical data across the aquifer. Therefore, the model is ready for use in forecasting future case scenarios. The model can serve as a useful tool to evaluate potential future trends in groundwater and water quality. The model has the capability to evaluate several different water augmentation strategies including surface application of recycled water and recharge ponds to enhance the perennial yield of the aquifer.

The Groundwater Model has been updated three times since development as additional groundwater data became available.

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Table 3: Model-based hydrologic budget summary used for 2004 perennial yield estimate.

Month	INFLOW			OUTFLOW					Total	Change in Storage
	Precipitation	Ground water inflow	Total Inflow	Cliff Springs	Stream	Utility	Evapo-transpiration	Pumping Wells		
1984-85	886	21	908	443	165	18	162	251	1038	-130
1997-98	1588	15	1604	553	253	70	348	251	1476	128
1998-99	1395	17	1412	520	221	43	285	251	1320	92
1999-00	1164	19	1184	481	187	23	217	251	1158	26
2000-01	863	23	886	421	143	9	150	251	974	-88
2001-02	1083	19	1103	477	196	34	202	264	1174	-71
2002-03	1370	18	1388	512	215	43	280	234	1283	105
TOTAL	8350	133	8484	3407	1379	240	1644	1752	8423	62
7-year Average	1193	19	1212	487	197	34	235	250	1203	9
Percent of Total	98.4%	1.6%		40.4%	16.4%	2.8%	19.5%	20.8%		

Section 3

Mendocino City Community Services District Discussion of Groundwater Management Plan

GROUNDWATER MANAGEMENT PLAN ORDINANCE

Groundwater Management Plan: The original Groundwater Management Plan (GMP) draft, submitted to the Board of Directors in September of 1988, recommended incorporation of a number of facets in the GMP. Water conservation education, groundwater monitoring, groundwater data collection, groundwater modeling to analyze groundwater conditions within the District, and groundwater extraction permitting procedures were the major elements of the proposed GMP. The adopted plan initially incorporated two of the originally recommended elements: Groundwater Extraction Permit procedures and a mandatory water conservation requirement.

Groundwater Extraction Permit Ordinance: On January 29, 1990 MCCSD adopted a Resolution of Intention, Resolution No. 113 (Appendix A), to adopt the Groundwater Management Plan, which was the Groundwater Extraction Permit Ordinance, and on February 26, 1990 the District Board of Directors voted in favor of Groundwater Extraction Permit Ordinance 90-1. The elements of the original GMP draft that were adopted were the groundwater extraction permitting procedures and a mandatory water conservation requirement. The District implemented Groundwater Monitoring and Water Reclamation Programs in 1997, and there has been an ongoing Voluntary Water Conservation Education Program since 1991.

There have been six amendments to the original GMP ordinance (90-1): 91-3, 92-2, 00-1, 01-1, 04-1, and 07-1. Ordinance 00-1 placed the aquifer test procedures and the hydrological study outline in an appendix. The purpose of the 00-1 amendment was to clearly outline the hydrological study and aquifer test procedures and methodology, and to conform to the Mendocino Coastal Groundwater Development Guidelines (Questa, 1988) aquifer test and hydrological study model. Ordinance 01-1, the fourth amendment to the Groundwater Extraction Permit Ordinance, was to clarify several of the definitions in the appendix and the definition of adverse effects in the Pump Test Data Analysis section of the Hydrological Study Guidelines, and add Mitigation of Adverse Effect to the report outline. Ordinance 04-1 modified several of the definitions, and addressed the issue of cumulative effects to surrounding wells during aquifer testing. Ordinance 07-1 updated the aquifer testing protocol in the Hydrological Testing Guidelines and the administrative procedures for issuing extraction permits.

Groundwater Extraction Permit: The District's extraction permit ordinance requires any person (Applicant) seeking to extract groundwater for a new development, change in use, expansion of existing use, or to construct or modify a well within the Mendocino City Community Services District to apply for and obtain a valid and current MCCSD Groundwater Extraction Permit (GWEP).

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If the MCCSD determines that the application is complete, a GWEP shall be issued to the Applicant. Compliance with MCCSD hydrological study requirements shall be necessary before any water may be used, except that water may be pumped during an aquifer test. Such water shall be put to beneficial use either through storage or distribution for recharge in an area beyond the influence of the aquifer test.

Following receipt of a GWEP and a County well drilling permit, the Applicant may drill a well (including any test bore holes necessary for observation purposes) on the site as described in the application. A copy of the well driller's report shall be provided to the MCCSD. The copy retained by the MCCSD will constitute data collection for the purpose of developing a hydrological model of the District aquifer as a guide to future groundwater management. The MCCSD shall organize and analyze this data in furtherance of the development of such a model.

Hydrological Study: Following satisfaction of permit application requirements, the Applicant shall be permitted to conduct an aquifer pump test to prepare a hydrological study for the purpose of proving that the amount of water extracted from the test well will support the proposed development without adversely effecting hydrologically contiguous wells. Water may not be imported from outside the District to supplement available local water for the purposes of proving the existence of adequate water.

Water use standards have been established by the MCCSD for all proposed new development and changes in use. The ordinance Water Use Standards shall be periodically reevaluated based on actual data collected by the District from metered water users. All proposed new developments or change in use shall be required to prove that adequate water can be extracted to support the proposed new use without serious adverse effect to the existing water users. Reference to the water use criteria will determine whether the proposed project will require increased water use.

Projects with no anticipated increase in water use will be excused from the hydrological study requirements. The Board shall also exempt projects anticipating a de minimis increase in water use, although cumulative impacts shall be considered before any such exemption may be granted.

The hydrological study requirement shall not extend to work conducted in the repair and maintenance of existing wells, such as cleaning, re-casing or reasonable deepening, or drilling of a replacement well. The hydrological study shall include the results of an aquifer pump test conducted continuously over a seventy-two (72) hour period during the driest time of the year (currently established as from August 20 until 6 inches of rainfall has been recorded at the District office) followed by a monitored twenty-four (24) hour recovery period. The Board upon public notice may modify the time of year for permitted hydrological testing. The hydrological study shall contain at minimum: flow rate measurements of the subject well(s); monitoring of the effects on wells within the cone of influence of the subject well; and calculation of aquifer characteristics including safe yield.

This hydrological data shall be compiled into a report and submitted to the Board. The hydrologist conducting the test shall render an opinion as to: whether there is an adequate water

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supply during the dry months for the proposed development; whether the proposed development will deplete the groundwater supply of contiguous or surrounding uses; whether any cumulative impact to the aquifer will result from the proposed use; and any other findings specified by the Board. All assumptions and equations used by the hydrologist in compiling the study shall be set forth in an introduction prefacing the report. Approved aquifer test methodology and required elements of the hydrological study are outlined in the Groundwater Extraction Permit Ordinance.

No more than one hydrological study should be conducted at one time within the District. The District Superintendent shall resolve scheduling conflicts. Ten days prior to the aquifer pump test the District shall publish in a local newspaper of general circulation in the Town of Mendocino a notice of the upcoming test. Contiguous property owners shall be noticed ten days prior to the test. A Notice of Aquifer Test shall also be posted on the test parcel ten days before the test. The purpose of this notice provision is to give potentially affected property owners the opportunity to monitor their wells to assess the effect of the aquifer test.

Any person adversely affected by the aquifer test, as defined by the Groundwater Extraction Permit, shall have the right to publicly comment to the Board or request denial of the water development permit. The Board of Directors shall deny a Groundwater Extraction Permit application if the aquifer pump test had an adverse impact on a hydrologically contiguous well. Any interested party may present testimony at this meeting. The Applicant shall receive actual notice of this meeting and shall be given an opportunity to present evidence. The Board may consider mitigation measures that eliminate adverse impacts to surrounding wells as a condition of approval of an extraction permit.

Once the hydrological study has been completed, it shall be delivered to the District office. The Board will refer each hydrological study to an approved hydrologist for review. This review shall include consideration of adherence to testing conventions, completeness of data, cumulative impact to the District groundwater resources and any reported adverse effects to surrounding and contiguous uses. The Applicant shall pay all costs of such review.

Public comment on the proposed development shall be heard at a regular meeting of the Board of Directors. Following public comment, the Board shall independently determine whether to issue a GWEP. The Board may require the Applicant to submit supplemental information before issuing a permit.

One condition precedent to the issuance of a GWEP shall be the installation of an approved water meter to monitor water use. Meter readings shall be taken and this information shall be sent monthly to the District office. The Applicant and all successors in interest shall continue to submit meter reading records so long as this permit program remains in force. A deed restriction for the allotment permitted to the parcel shall be recorded with the County Recorder. The District shall retain a right to enter the Applicants' premises for purposes of collecting meter information upon notice to the Applicant.

The issuance of a valid MCCSD GWEP shall be a prerequisite to the issuance of a County building permit for any new development or a user permit for any change in use within the District.

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Development of water within the District without submitting to this permit program shall be a wrongful act. Persons committing such a wrongful act shall incur a penalty of one hundred dollars (\$100) for each violation. Every day of non-compliance with this permit program shall be deemed a separate violation for the purpose of assessing penalties under this program. Noncompliance shall be determined commencing with the first day of water extraction activities regulated by this program. Cure shall be affected by compliance with all provisions of this permit program. Nothing in this permit program shall be deemed to diminish the authority of the Board to act in any manner consistent with existing laws.

Section 4
Mendocino City Community Services District
Groundwater Management Programs

The two major elements of the 1988 Groundwater Management Plan (GMP) draft were adopted in the final 1990 GMP: the groundwater extraction permitting procedures and a mandatory water conservation requirement. Since the adoption of the GMP, MCCSD has initiated the other elements from the 1988 draft of the GMP as the: Water Conservation Program, the Groundwater Monitoring Program, the Data Management Program, the District's Water Reclamation Program, and the Water Shortage Contingency Program.

WATER CONSERVATION PROGRAM

Conservation, or appropriate water use, must form the capstone of groundwater management. Mendocino residents are acutely aware of the need for water conservation. DWR-85 noted that Mendocino is already extremely conservative in its water use as compared with other north coast towns (an estimated 70 gpd per capita on average, 76-45% of use in towns similarly situated). Conservative water use in Mendocino will help extend existing town water supplies as far as possible.

The following recommendations (updated in part) were made by DWR-82 and hold continued relevance to any discussion of water conservation. DWR states that the first two recommendations could reduce water consumption by 50%, while the next four are designed to maximize groundwater recharge while minimizing run-off.

1. All new development should incorporate proven water conservation technology in planning and construction of the project (E.g., low-flush toilets, low-flow shower heads, single faucets with aerators, water-efficient clothes washer and dishwashers, hot-water pipe insulation, water reclamation, water storage, and drought-tolerant landscaping).
2. The installation of efficient irrigation systems, such as drip irrigation, soil moisture sensors, and automatic timers, which minimize runoff and evaporation and maximize the amount of water reaching the plant's roots, is recommended to all citizens.
3. Where feasible, all new development should endeavor to retain rainwater for groundwater recharge. At minimum, the development and construction of a project should be designed to reduce, retard, and disperse runoff. (E.g., mulched or terraced slopes reduce erosion and retain rainfall; porous drain swales and paving materials allow infiltration of rainwater; out sloped roads spread runoff evenly down a slope; landscaping with drought-resistant ground cover will protect the soil, facilitate infiltration, and reduce runoff.)
4. Cluster development should be encouraged wherever appropriate.
5. The preservation of existing natural drainage areas and incorporation of natural drainage in new developments aids groundwater recharge.
6. Flood plains and aquifer recharge areas, which are the best sites for groundwater recharge, should be preserved as open space.

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In addition, all new street and off-street parking development should utilize permeable materials to aid groundwater recharge. Water that might otherwise recharge the aquifer is presently lost to run-off from the use of non-permeable paving materials.

The District adopted its Water Conservation Program on February 25, 1991 (Appendix A). The District promotes water conservation by both voluntary water conservation education program and a mandatory water conservation requirement in the GMP ordinance.

Voluntary Water Conservation Education Program: MCCSD uses an ongoing public awareness campaign to promote water conservation in Mendocino. In 1988 water conservation information packets were mailed to every District billing address (letter to residents, Appendix A). A Citizen Advisory Committee was used to conduct follow-up telephone survey to determine that most District residents received their package and that a sizable majority had used the enclosed information and devices. Conservation information was available at the District office and the library. The District Board commissioned a local artist to design a water conservation placard, which is distributed to all visitor serving facilities and restaurants (see cover page). Press releases have been published in the 1990's in the Mendocino Beacon, which informed the public of drought conditions and the need for conservation. In 1992, Resolution 131 and 132 were passed to inform residents about limited water availability during that drought period. Due to below normal rainfall in 2000-2001, District residents were informed of low groundwater levels, and were surveyed to determine water availability in their wells.

Mandatory Water Conservation: MCCSD has adopted a Groundwater Extraction Permit ordinance. Section 5 of this ordinance requires that water conservation devices be installed for all new development as a condition of permit approval. Water use standards have been included in the ordinance to limit the quantity of water that can be extracted for new development, changes of use, or expansion of an existing use.

District Recommendations: Gardeners should be encouraged to cultivate drought tolerant plants. Visitors must be exhaustively reminded that in Mendocino we must conserve even on vacation. A catalog of low water use technology should be compiled. The District should adopt the recommendations from DWR-82 when applicable. The District also plans to expand the recycled water system.

The water conservation recommendations and requirement outlined here are intended to encourage habits of appropriate water use by residents and visitors. Water conservation will forestall the drying of wells located in the District, and can help prevent depletion of the local aquifers.

GROUNDWATER MONITORING PROGRAM

The purpose of the groundwater level monitoring program is to provide information that will allow computation of the change of groundwater in storage. The information needed includes spring and fall groundwater levels, the hydraulic properties of the aquifer (such as permeability and specific yield), and the land area covered by the District.

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An adequate monitoring well network has been developed with 24 monitoring wells that are representative of the vertical and lateral dimensions of the aquifers. Establishing the network of monitoring wells required that each monitoring well log was reviewed to insure that the well tapped the monitored aquifer.

Data collected from each monitoring well is entered into a computer database. These data can then be used to create hydrographs, groundwater elevation contour maps, groundwater change contour maps that will provide the tools to evaluate groundwater levels and determine changes in the amount of groundwater in storage, and to update the Mendocino Groundwater Model. Changes in average groundwater levels have been monitored in the revised well field since October of 2002 (see Figure 4).

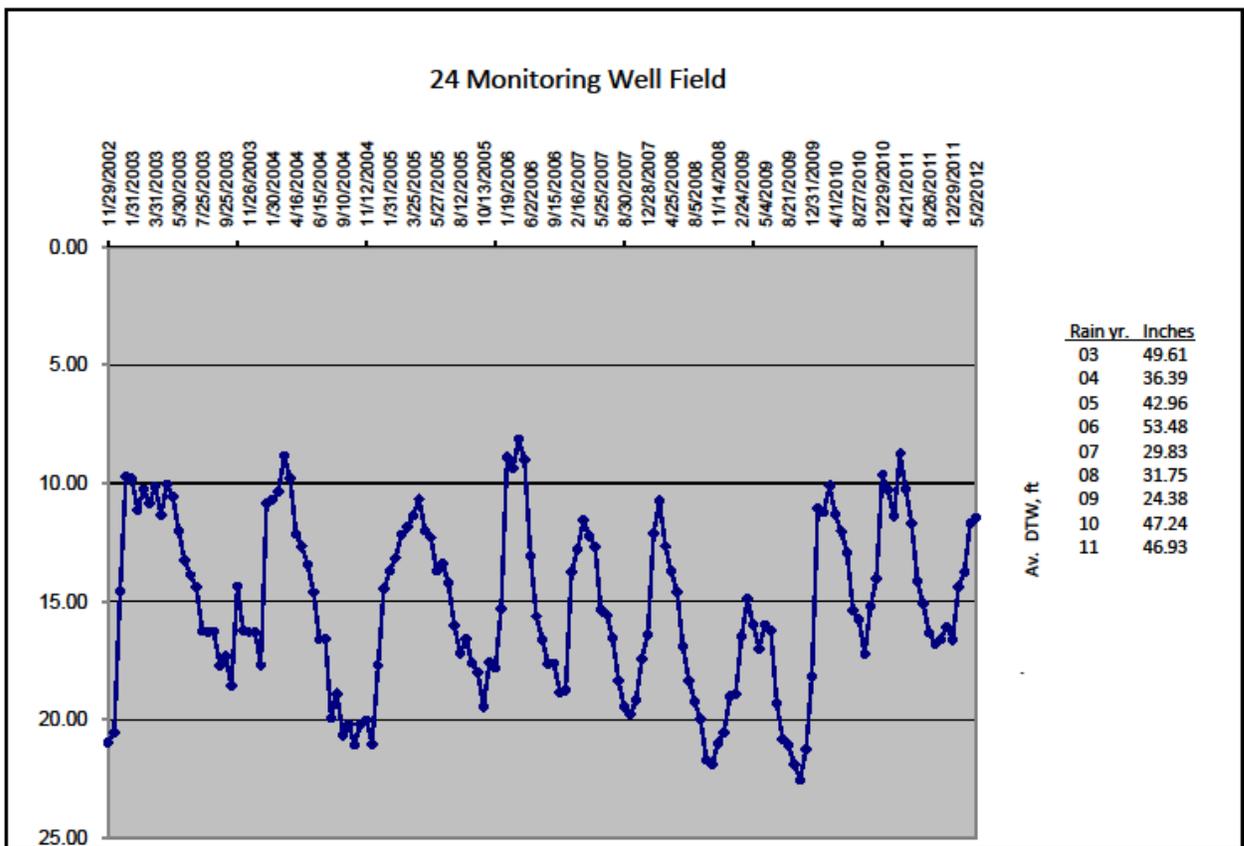


Figure 4. Average Depth to Groundwater in Mendocino (2002 to 2012)

District groundwater level monitoring data since 2002 (Figure 4) indicate that changes in groundwater storage are directly relates to annual precipitation and are not due to increased groundwater extraction, since Mendocino water demand has declined since 2002. The District’s GMP has been effective in preventing aquifer depletion by conserving the groundwater resource based on current groundwater level data.

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WATER RECYCLING PROGRAM

MCCSD and Mendocino Unified School District approved a Memorandum of Understanding and Joint Resolution 97-1 (Appendix D) at the regular Board of Directors meeting on February 24, 1997 to commit the necessary capital for the water reclamation project. The regulatory requirements for the new water reclamation system were approved on August 27, 1997 when the California Regional Water Quality Control Board North Coast Region, after consulting with and receiving the recommendations of the State Department of Health Services, signed Order No. 97-66. Water Reclamation Requirements Order No. 97-66 outlined the provisions and limitations of the MCCSD and MUSD joint water reclamation system. Following adoption of Order 97-66, the original water reclamation order, that was approved by the Regional Water Board on June 23, 1977, was rescinded. MCCSD's 2010 NPDES permit No. CA0022870 (Order No. R1-2004-0055) also includes additional Regional Water Board recycled water requirements.

On June 9, 1998, a ribbon was cut by the Mendocino High School (MHS) Soccer Coach to celebrate the use of a new water reclamation system that was constructed with funds provided by Mendocino City Community Services District and the grant received by Mendocino High School from the Reebok Corp. By the end of 2000, MCCSD has committed over \$ 44,000.00 to the water reclamation project, and has continued to improve the new system. The new reclamation system replaced an old reclaimed water system used in the late-1970s. The original system was abandoned due to lack of operational funding.

Approximately two million gallons per year of reused water has been used on the MHS athletic fields for irrigation since the new system was installed. Due to many field improvements and reclaimed water, the MHS soccer field is now considered one of the best in the conference. The new water reclamation system now provides adequate irrigation to the High School athletic field for the first time in over 100 years. An expansion of the recycled system may include: 1) a recycled water fire hydrant system, 2) an irrigation system for the middle and grammar schools, and 3) an irrigation system for Friendship Park.

The Water Reclamation System has been a very successful program. The fields are in excellent condition. Injuries caused by students playing on a hard dry field have been lowered, but most importantly, the use of recycled water has reduced groundwater extraction from the local aquifers.

DATA MANAGEMENT PROGRAM

Mapping Project: Groundwater data has been collected by the District for the past 15 years. The data has been used by the MCCSD Board for their groundwater management decision-making process. Groundwater information collected by the District includes: groundwater level measurements collected from the monitoring well network, information from 39 hydrological studies, annual rainfall records, well log data, and the 1985 DWR Study.

The 1988 draft of the Groundwater Management Plan (GMP) recommended developing a Town-map with all available groundwater information. This map would serve as a foundation for groundwater management decision-making; administrative procedures would be supported by

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groundwater data. A mapping project with associated data analysis was envisioned as a method to generate a sophisticated model of the Town's hydrogeology. The value of the mapping project was discussed on page 46 of the 1988 GMP draft:

“Mapping Project. A map of the Town should be developed describing experience with water availability within the District. Sources include government studies and the personal reminiscences of townspeople. All available information should be compiled and plotted on the map. This map may serve as the basis for describing sub-districts within the District with differing historic and contemporary experiences with water availability. This conceptualization may give rise to a rational basis for distinctive policies within wet and dry districts and a basis for informing persons contemplating development within these districts. The more information that can be compiled and modeled the greater the foundation for later informed actions. Eventually, data collected through this map can be combined with meter collection data to generate sophisticated models of the Town's hydrogeology.”

Since the adoption of the District's GMP, a practical data viewing and analysis tool has been developed by MCCSD, the MCCSD Geographic Information System (GIS). Many layers of information can be overlaid onto the base map, such as topography, District and parcel boundaries, cultural features, roads, watershed information, well locations, sewer locations, and geology. Database information that is georeferenced to a location can be selected, and queried database information can be displayed. The District approved development a GIS on September 24, 2001.

In 2002, MCCSD received a DWR Local Groundwater Management Assistance Grant. Part of the grant was used to develop a groundwater model using the U.S. Geological Survey developed model code MODFLOW to assist MCCSD in managing the groundwater resources for the Town of Mendocino. Other portions of the grant funded the development of an updated groundwater monitoring system, including the drilling and completion of ten new monitoring wells to supplement the existing monitoring well network.

A numerical model, Groundwater Modeling Study of the Mendocino Headlands, was developed to help implement the District's groundwater management program. Model development combined the existing understanding of the Mendocino Headland hydrogeology from the DWR (1985) study with recently collected data from the MCCSD. This existing data includes historic pump test results, new pump tests completed on the monitoring wells, a well water level canvass, and topographic survey information. The model development includes locating the saturated zones of the marine terrace deposits. Model calibration was based on groundwater elevation data collected by MCCSD from wells in the area. From the model results, an estimate of the perennial or safe yield (Todd 1980) of the Mendocino Headlands aquifer was calculated.

Mendocino City Community Services District received a Local Groundwater Assistance Program Grant from the Department of Water Resources, Division of Planning and Local Assistance for fiscal year 2004-2005. One of the major tasks of the grant project was to create a GIS geodatabase to upgrade the District's GIS and to expand the well database. The geodatabase

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allowed for easy presentation of charts, graphs, and maps from attribute data for wells, parcel maps, water demand, and other themes in the database. Potential future uses included determination of drought stage in accordance with the Water Shortage Contingency Plan, assistance in project review for permitting new extraction wells, permitting for well abandonment, permitting for changes to existing wells, and groundwater management planning and infrastructure engineering.

WATER SHORTAGE CONTINGENCY PLAN

The Mendocino Groundwater Model was developed in 2002. Based on below normal rainfall scenarios input into the 2002 Mendocino Groundwater Model, a new Water Shortage Contingency Plan was developed in 2006 for the Groundwater Management Plan. The various rainfall/recharge and water conservation scenarios for the Water Shortage Contingency Plan were based on typical drought year rainfall. The Model was modified to reflect current information on a parcel basis on land use and water demand (2006 data, Appendix C). The Water Shortage Contingency Plan draft was completed in late August 2006.

The District's hydrologists from Questa Engineering and ETIC Engineering produced the Mendocino Groundwater Model in 2002, and Questa Engineering and Kennedy/Jenks Consultants updated the Groundwater Model to develop the 2006 Water Shortage Contingency Plan. Current year groundwater level and rainfall data were added to the Mendocino Groundwater Model. Five numeric groundwater model scenarios were run: baseline average rainfall, 25% below normal rainfall, 40% below normal rainfall, historic drought (64% below normal rainfall), and a no rainfall year scenarios.

The Water Shortage Contingency Plan was based on the response of the Model to the 25%, 40%, and historic drought rainfall year runs. The Water Shortage Contingency Plan was prepared with a plan for serious and critical water shortages (Appendix E). The Plan included how to determine a groundwater shortfall, possible responses to a water supply shortage, a water shortage contingency plan with drought stage conditions and requirements, and an emergency water rationing plan.

Background research to develop the Plan involved reading through similar plans created for other small communities and water districts in Coastal California. The Department of Water Resources website was also consulted with requirements adopted from their own outline. The plan is useful for the following reasons: (1) It provides a strategy and specific response measures for different stages of drought; (2) As much as possible it is scientifically based on the groundwater model runs; (3) It forecasts drought impacts, so that appropriate measures can be taken to curtail water use for overall protection of the groundwater supply for the community; (4) It estimates the financial impacts of drought to understand the consequences of wasteful practices, and establishes a program of voluntary and mandatory water conservation measures to be implemented after the Plan is reviewed and adopted by the District. Since the Town of Mendocino is entirely dependent on groundwater resources, this plan is essential.

More specifically, the Water Shortage Contingency Plan documents the drought history of the District, previous DWR Grants, existing MCCSD Groundwater Management Planning, and the Water Budget. An analysis of the water budget includes correlation of pumping demand and

Mendocino City Community Services District

rainfall correlated from the groundwater model. This information and model data was used to determine the criteria for declaring four different drought stages with corresponding conservation efforts.

Critical to the plan is determination of drought stage based on both rainfall records and actual measurement of the water table in indicator wells. Five indicator wells were selected since pumping least influences them and they therefore best reflect hydrostatic water levels in the aquifer. An estimate of the minimum sustainable supply and procedures in the event of a catastrophic interruption are also documented. Finally, an economic impact analysis of drought was completed and is summarized in the plan.

The Water Shortage Contingency Plan is intended to promote water conservation and to monitor changes in groundwater storage. The first goal of the GMP was to promote water conservation, and the Water Shortage Contingency Plan advances the District's efforts to conserve groundwater to protect the aquifer from overdraft. This Water Shortage Contingency Plan is a strategic way to manage future groundwater extraction and to plan for the next drought.

In addition to the Water Shortage Contingency Plan a Water Shortage Emergency Ordinance draft was prepared. The new ordinance was developed to address both the need for the Board of the Mendocino City Community Services District to declare a water shortage emergency, and also to implement non-emergency water conservation measures. The Draft Ordinance was based on a review of a number of Water Conservation Ordinances and Water Shortage Emergency Ordinances throughout California, but was specifically tailored to Mendocino's unique conditions. A draft resolution was also prepared. The District adopted both the Water Shortage Contingency Plan and the Water Shortage Emergency Ordinance in 2007.

Section 5 Summary

Mendocino City Community Services (MCCSD) was formed in 1971 to solve the community's wastewater and water problems. A wastewater treatment plant was designed and constructed within four years of the formation of the District.

In 1990, MCCSD assumed groundwater management authority, and adopted a Groundwater Management Plan (GMP), the Groundwater Extraction Permit Ordinance, 90-1. The District's groundwater management authority was considered an interim program, which was to be dismantled following the development of a community water system. Since a community water system was never constructed, the Groundwater Management Plan (currently Ordinance 07-1) has stayed in effect.

Two elements of the original draft of the GMP, submitted to the Board of Directors in 1988, were incorporated into the adopted original GMP ordinance: 1) groundwater extraction permitting procedures, and 2) the mandatory water conservation requirement. Since the adoption of the GMP the District has established additional programs that were in the original GMP draft: 1) the Voluntary Water Conservation Education Program, 2) the Groundwater Monitoring Program, 3) a Water Recycling Program, 4) a Data Management Program (the "Mapping Project"), and 5) a Water Shortage Contingency Plan.

The current Groundwater Management Plan has been effective in limiting groundwater extraction to help prevent aquifer overdraft. Applicants for new development have been required to prove that there was adequate water for any new development and that the additional extraction would not adversely impact hydrologically contiguous wells. The Water Conservation and Water Recycling Programs have helped reduce groundwater extraction and conserve the resource. All groundwater data is entered into the District's Geographic Information System, which is part of the District's Data Management Program. The Data Management Program now uses a Geographic Information System to analyze and map groundwater and well information. A numeric groundwater model was developed through a 2002-04 DWR Local Groundwater Assistance Grant. The Mendocino Groundwater Model has been used to describe the hydrogeology of the Mendocino Headlands Aquifer, to calculate the groundwater storage capacity of the aquifer, and has calculated perennial or safe yield of the Town's aquifer. The Water Shortage Contingency Plan was developed with funding from a 2004-06 Local Groundwater Assistance Grant. MCCSD now has a strategic plan to manage future groundwater extraction or the next drought.

The District's current groundwater management policies are to promote water conservation measures, to increase the use of reclaimed water to reduce groundwater extraction, and to collect and analyze information on groundwater conditions within the District boundaries to assist the Board in its groundwater management decision-making process.

Appendix A

Groundwater Management Authority Documentation

Mendocino City Community Services District

RESOLUTION NO. 113

RESOLUTION OF INTENTION
TO ADOPT GROUNDWATER EXTRACTION
PERMIT ORDINANCE

The Board of Directors of the Mendocino City Community Services District does hereby adopt a Resolution of Intention to Adopt and Implement the Groundwater Extraction Permit Ordinance, as amended, attached hereto and incorporated herein. This intention to adopt was passed and adopted on the 9th day of January, 1990 by the following vote:

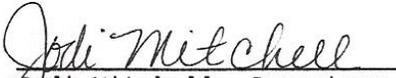
AYES: Directors Zacha-Peterson, Lobell, Smith and Dawson

NOES: Director O'Brien

ABSENT: None


Gail Dawson
President

Attest:


Jodi Mitchell, Secretary

Mendocino City Community Services District

Assembly Bill No. 786

CHAPTER 472

An act to add Part 2.7 (commencing with Section 10700) to Division 6 of the Water Code, relating to groundwater.

[Approved by Governor September 9, 1987. Filed with Secretary of State September 9, 1987.]

LEGISLATIVE COUNSEL'S DIGEST

AB 786, Hauser. Groundwater resources: Town of Mendocino.

Under existing law, certain special districts are authorized to establish programs for the management of groundwater resources within their boundaries.

This bill would, subject to specified limitations, authorize any local agency whose jurisdiction includes the area within the Mendocino City Community Services District, and which is authorized by law to provide water services, to establish, by ordinance, or by resolution if not authorized to act by ordinance, programs for the management of groundwater resources within the area in which that water service is being provided in accordance with prescribed procedures. The bill would authorize the local agency to exercise specified powers of a water replenishment district and, subject to approval of the voters of the agency, to fix and collect rates for the extraction of groundwater or to levy a water replenishment assessment. The local agency would no longer be authorized to exercise these powers upon completion of a municipal central water system, as prescribed.

The people of the State of California do enact as follows:

SECTION 1. Part 2.7 (commencing with Section 10700) is added to Division 6 of the Water Code, to read:

PART 2.7. GROUNDWATER RESOURCES

Mendocino City Community Services District

WATER CODE SECTION 10700-10717

10700. This part applies only to the area within the existing boundaries of the Mendocino City Community Services District.

10701. (a) As used in this part, "local agency" means any city, county, district, agency, or other political subdivision of the state for the local performance of governmental or proprietary functions within limited boundaries.

(b) As used in this part, "groundwater" and "groundwater resources" do not include those subsurface waters incidentally produced in connection with or as a result of natural resource extraction activities when the disposal of those subsurface waters is regulated by state or federal law.

10702. Any local agency which is authorized by law to provide water services may, by ordinance, or by resolution if the local agency is not authorized to act by ordinance, establish programs for the management of groundwater resources.

10703. Prior to the adoption of a groundwater management program, the governing board of the local agency shall hold a public hearing, after publication of notice pursuant to Section 6066 of the Government Code, on the proposed groundwater management program. At the hearing, the board may alter the program or require further study on the program and continue the hearing. At the conclusion of the hearing, the board may adopt a resolution of intention to adopt and implement the program.

10704. After the conclusion of the hearing, and if the governing board adopts a resolution of intention, copies of the groundwater management program shall be published in a newspaper of general circulation. Upon written request, any interested person shall be provided with a copy of the program.

10705. After the adoption of a resolution of intention, the governing board shall hold a second hearing and consider protests to the implementation of the program. Any interested person may appear to be heard concerning any matter set forth in the resolution or matters material thereto. Any time prior to the conclusion of the hearing, any eligible registered voter of the local agency may file a written protest or withdraw a protest previously filed.

10706. A majority protest shall be determined to exist if the governing board finds that the protests filed and not withdrawn prior to the conclusion of the second hearing represent more than 50 percent of the eligible registered voters residing within the boundaries of the local agency.

If the governing board finds that a majority protest exists, the groundwater management program shall be abandoned and no new program shall be considered by the board for a period of one year following the date of the second hearing. If a majority protest has not been filed, the board, within 35 days after the conclusion of the second hearing, may adopt an ordinance or resolution to implement the program.

10707. A local agency authorized to establish programs for the management of groundwater resources pursuant to this part may for that purpose enter into a joint powers agreement pursuant to Chapter 5 (commencing with Section 6500) of Division 7 of Title 1 of the Government Code.

Mendocino City Community Services District

10708. A local agency which establishes a program for the management of groundwater resources pursuant to this part may fix and collect rates for the extraction of groundwater to pay expenses incurred by the local agency for purposes of groundwater management.

10709. For purposes of groundwater management, a local agency authorized to establish programs for the management of groundwater resources pursuant to this part may, in addition to the powers set forth in this act, exercise any of the powers of a water replenishment district under Part 4 (commencing with Section 60220) of Division 18 and may levy a water replenishment assessment in accordance with Part 6 (commencing with Section 60300) of Division 18.

10710. Before a local agency may levy a water replenishment assessment as authorized in Section 10709 or may otherwise fix and collect rates for the extraction of groundwater pursuant to this part, the local agency shall hold an election on the proposition of whether or not the local agency shall be authorized to levy a water replenishment assessment or to fix and collect rates for the extraction of groundwater, and a majority of the votes cast at the election shall be in favor of the proposition. The election shall be conducted in the manner prescribed by the principal act of the local agency.

10711. No local agency shall exercise the powers authorized by this part within the boundaries of another local agency authorized by law to provide water service to any or all of the lands within its boundaries, without the prior agreement of the governing body of that other local agency.

10712. No local agency shall exercise the powers authorized by this part within the boundaries of another local agency providing water service to any or all of the lands within its boundaries, without the prior agreement of the governing body of that other local agency.

10713. If a local agency annexes land subject to a groundwater management program of another local agency, the local agency annexing the land shall continue to comply with the groundwater management program for the annexed property.

10714. This part neither preempts, negates, affects, nor infers the existence of any powers of a local agency in other groundwater basins of the state to establish programs for the management of groundwater resources.

10715. This part is in addition to, and not a limitation on, any powers of a local agency otherwise granted by law.

10716. This part does not exempt any local agency formed under any act requiring the approval of its leases, contracts, or issuance of securities by the Treasurer from obtaining the report, investigation, and approval of the Treasurer as required by that act or by the District Securities Investigation Law of 1965.

10717. A local agency shall no longer be authorized to exercise the powers conferred by this part upon the completion and implementation of a municipal central water system supplying water to the inhabitants within the boundaries of the local agency.

Mendocino City Community Services District

Mendocino City Community Services District

Post Office Box 1029
Mendocino, California 95460

Business Phone (707) 937-5790 Treatment Plant (707) 937-5751

POLICY STATEMENT ON GROUNDWATER MANAGEMENT

WHEREAS, The Mendocino City Community Services District Board of Directors is aware that the shortage of groundwater in the Town of Mendocino is so severe in drought years as well as in normal years that it will not adequately support the present needs of the community, nor will it support anticipated future needs as authorized in the Town Plan, and

WHEREAS, enabling legislation as outlined in Water Code Sections 10700 - 10717 authorizes the District to develop a Groundwater Management Plan,

WE HEREBY STATE that we will take action to establish a Groundwater Management Plan. This plan will provide for the common benefit of the District as a whole. It is the Board's intention to use a Citizens Advisory Committee to assist the Board in developing this plan and to present the plan for approval to the voters according to the procedures outlined in AB786 (Water Code Sections 10700 - 10717).

Approved by unanimous vote of the Board of Directors (Director Farber absent), December 22, 1987.

Mendocino City Community Services District

BOS AGREEMENT NO. 90-1

MEMORANDUM OF UNDERSTANDING BETWEEN
MENDOCINO CITY COMMUNITY SERVICES DISTRICT
AND
MENDOCINO COUNTY PUBLIC HEALTH DEPARTMENT

WHEREAS, The Mendocino City Community Services District, hereinafter referred to as "District," has adopted an ordinance to manage groundwater within its District boundaries as authorized by Water Code sections 10700 through 10717, and

WHEREAS, the Environmental Health Division of the Public Health Department of Mendocino County, hereinafter referred to as "COUNTY", issues well permits and enforces the groundwater provisions of Policy 4.13-16 of the Mendocino Town Plan, IT IS HEREBY AGREED between DISTRICT and COUNTY as follows:

1. Upon the effective date of DISTRICT's ordinance expressly regulating groundwater extraction within its boundaries, DISTRICT shall authorize and regulate groundwater extraction within its boundaries pursuant to such District Ordinance and Water Code sections 10700-10717.
2. COUNTY shall thereafter relinquish to District to the extent authorized by law COUNTY's regulation of groundwater extraction, except as provided below.
3. COUNTY shall retain its jurisdiction as to all standards for the construction, repair, reconstruction or destruction of wells, test wells and test holes, as described in Mendocino County Code Chapter 16.04.
4. DISTRICT shall monitor and enforce any groundwater extraction quantity limitation established by COUNTY pursuant to any use permit or land division approved by COUNTY prior to the

Mendocino City Community Services District

effective date of this Memorandum of Understanding, expect as described in paragraph 5 below.

5. COUNTY will continue to enforce permit conditions placed by COUNTY on any subdivision with community water systems, which permit conditions require review or testing before such subdivision may be expanded to maximum build-out. However, DISTRICT will enforce its own regulations for groundwater extraction if any subdivision applicant applies to construct any new well, proposed development, or change of use not consistent with such applicant's original subdivision application.

6. COUNTY will promptly advise DISTRICT of any application for use permit, land division, building permit or well drilling permit for any property located within DISTRICT's boundaries.

7. DISTRICT and COUNTY will work cooperatively to implement the transition of authority over groundwater extraction from COUNTY to DISTRICT.

DATE 5/15/90 BY Norman L. de Vall
NORMAN de VALL, VICE-CHAIRMAN
Mendocino County Board of Supervisors

DATE 6/1/90 BY Grail Dawson
GRAIL DAWSON, President of the Board
Mendocino City Community Services
District

APPROVED AS TO FORM:
H. PETER KLEIN, County Counsel
By Yves A. Hebert
YVES A. HEBERT, Deputy

Mendocino City Community Services District

ADOPTED 2/25/91 MCCSD BOARD OF DIRECTORS

PROPOSAL FOR A WATER CONSERVATION PROGRAM IMPLEMENTED BY MCCSD

In a time when not only Mendocino but the whole state of California faces a severe water shortage after years of low annual rainfall water conservation is imperative. In Mendocino water conservation is not simply an alternative to a water system but will be necessary with or without one given California's dwindling water resource. A water conservation program should be addressed with this in mind.

- I. . . A voluntary water conservation program has the best chance for success.
 - a) Any attempt to regulate the use of private wells would meet with resistance in the community and alienate residents.
 - b) State law is very shaky on ground-water rights. Enforced conservation would very likely lead to law-suits.
 - c) The water extraction ordinance already gives MCCSD control over additional draw-down of the aquifer.
- II. The best method to promote voluntary water conservation is through a continuous educational program.
 - a) With a weekly column in the Mendocino Beacon which would cover
 1. Information on the hydrologics of individual wells, types of wells dug and drilled, measuring well depth and level, well repairs, cleaning and maintenance.
 2. Water savers: low flow devices for bath and kitchen, drought resistant-low water use gardens.
 3. Understanding the Mendocino aquifer.

Mendocino City Community Services District

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4. Water storage: Tanks and catchment.

5. Where the water goes: the quantity of water used for various indoor and outdoor activities.

(To cover these subjects MCCSD would solícite contributions to the column from local plumbers, well drillers, plumbing suppliers, landscape gardeners etc. to augment material available from the Department of Water Resources and other agencies. Interest could be sparked by publishing a weekly water saving tip submitted by locals.

b) Posters urging water conservation placed in shops and other public places.

c) A well designed pamphlet placed in all tourist serving facilities, including vacation home rentals, outlining in a friendly way steps tourists can take to save water while visiting Mendocino. The content, design and production of this pamphlet should be left to the business community.

d) Create an awards program to acknowledge: The water saving garden of the year (selected by local landscape gardeners) the best water saving tip of the year (by popular acclaim), the tourist accomodation best promoting conservation (chosen by innkeepers).

e) Introduction of water conservation education into school curriculum.

III. Water storage assistance

a) Establish a fund from voluntary contributions to assist low income residents with the installation of storage tanks.

b) And or solícite local plumbers and plumbing suppliers to give discounts to low income residents for tank installations.

c) Individuals or merchants contributing funds or discount

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to be given due recognition.

- IV. Work with County Building and Planning Department on enforcement and tightening of codes related to the use of low water use fixtures in new and remodeled buildings.
- V. Evaluate the success of the program at four month interval based on participation and feed-back from the community.
- VI. Incorporate any workable suggestions from the community.

Mendocino City Community Services District

Mendocino City Community Services District

Post Office Box 1029
Mendocino, California 95460

Business Phone (707) 937-5790 Treatment Plant (707) 937-5751

June 10, 1988

Dear MCCSD Customer,

Despite the welcome late spring rains this year's precipitation has been well below normal and this summer might be very dry. In order to help customers cope with diminishing supplies of groundwater, the MCCSD Board of Directors has approved the mailing of the enclosed water conservation kit. Use of the suggestions and materials provided in these kits will save you water. Saving water saves you money otherwise spent on pumping and heating. Your MCCSD Water Conservation Kit Contains:

Water Displacement Bag: Every flush of the average toilet uses five gallons of potable water. This bag displaces one half gallon of water, reducing every flush by 10%. A filled plastic bottle can also be used to displace water, or more sophisticated toilet dams can be purchased for a few dollars. Displacing water with a brick is **not** advised because of the brick's potential for crumbling and clogging your pipes. The best remedy for high water use in the bathroom is the installation of an ultra low flush toilet.

Leak Detection Tablets: Placed in your toilet tank, these tablets will release a vegetable dye into the bowl if there are any leaks in that part of your system. Drops of vegetable dye may also be used. Repair any leaks you discover as quickly as possible; even a small leak can let substantial amounts of precious water drip away unconsumed.

Flow Restrictors: An average five minute shower uses 45 gallons of water. A three minute shower using flow restrictors can cut water use to 10 gallons. A more substantial improvement can be gained by the purchase and installation of a high quality low flow showerhead.

"Easy Ways to Save Water, Money & Energy at Home": This booklet is a highly informative look at appropriate water use. Please place it in an area of high domestic water use where it will be sure to be read.

Thank you for your participation in this important program. Any questions concerning water conservation and the District's groundwater management plan should be directed to the MCCSD office.

The Board of Directors, MCCSD

Mendocino City Community Services District

Mendocino City Community Services District

Post Office Box 100
Mendocino, California 95501

Telephone (707) 937-2321

June 10, 1988

June 10, 1988

Dear MCCSD Customer,

As described on the other side of this letter, the MCCSD Board of Directors has approved the mailing of a water conservation kit to every billing address in the District. Use of the suggestions and materials provided in these kits will save your tenants water. Saving water saves you and your tenants money otherwise spent on pumping and heating. If you provide the name and local address of the tenants using the services billed at this out of town address, the Board will be happy to provide your tenants with a water conservation kit. Additional copies of the water conservation kit are available from the District for one dollar each while supplies last.

Thank you for your support in this important public project. Appropriate use of water should be a concern of all property owners within the District. We look forward to receiving your list of addressees in the not too distant future.

The Board of Directors, MCCSD

Appendix B

Groundwater Management Plan Ordinance
(Groundwater Extraction Permit Ordinance, 07-1)

Mendocino City Community Services District

**MENDOCINO CITY COMMUNITY SERVICES DISTRICT
ORDINANCE NO. 07-1
GROUNDWATER EXTRACTION PERMIT**

Pursuant to the authority as set forth in the California Water Code Sections 10700 through 10717, the Mendocino City Community Services District (MCCSD) adopts the following Groundwater Extraction Permit Ordinance amending and replacing Groundwater Extraction Permit Ordinance No. 90-1, No. 91-3, No. 92-2, No. 00-1, No. 01-1, and No. 04-1. All real property within the boundaries of MCCSD shall be subject to these regulations. The intent of this ordinance is to protect the groundwater resources within the boundaries of the MCCSD for the common good of all present and potential users.

1. Permits Required

No person shall extract groundwater within the boundaries of the MCCSD for “new development”, “change in use”, or “expansion of existing use” and no water shall be extracted from a well constructed or modified following the adoption of this ordinance within the boundaries of MCCSD unless the person possesses a valid and current Groundwater Extraction Permit as set forth herein.

A Groundwater Extraction Permit shall be required:

1. prior to the issuance of a Mendocino County Use Permit; or Coastal Development Permit
2. prior to the issuance of a Mendocino County Building Permit for other than minor repair and maintenance;
3. prior to the issuance of a Mendocino County Well Permit; or
4. following the sale of real property within the boundaries of the MCCSD.

A Groundwater Extraction Permit shall not be necessary for minor repair and maintenance to existing structures and wells, or cleaning of an existing well, but a Groundwater Extraction Permit shall be required for any modifications in the structure or depth of the well. The District shall not issue a Groundwater Extraction Permit unless the applicant has obtained all other appropriate drilling permits, including but not limited to permits required by the California Coastal Commission and the County of Mendocino.

The District Superintendent is authorized to advise appropriate agencies that no permit action is required with regard to cases exempt from permit procedures established by this Ordinance.

2. Application Required for Groundwater Extraction Permit

Application for a Groundwater Extraction Permit shall be made in writing on forms provided by MCCSD. The Groundwater Extraction Permit application shall contain the assessor’s parcel number, a description of the parcel, the address of the parcel, a description of the proposed change to the parcel, a description of the proposed new development and/or the change in use, a list of all adjacent property owners and their addresses, the existing and proposed placement of wells and water storage facilities on the parcel, the location of existing wells on all adjacent properties, if known, and the maximum amount of water per day anticipated to be extracted by the applicant for the project. A scaled plot map showing all structures, wells, and the proposed development shall be attached to the Groundwater Extraction Permit application. A floor plan for all existing and proposed structures shall be included with the Groundwater Extraction Permit Application. A fee in an amount determined by the Board to cover the cost of administering this groundwater extraction permit process shall accompany the application. The application shall be

Mendocino City Community Services District

deemed complete once it is reviewed by the District Superintendent and accepted as complete. The District Superintendent shall contact the applicant regarding the completeness of the application within 30 days of submission and may require further information from the applicant.

3. Hydrological Study

Except as set forth below in Section 4 of this ordinance, all applicants shall be required to submit a hydrological study prior to the issuance of a Groundwater Extraction Permit. A qualified hydrologist (see definition, Appendix B) must perform the hydrological study. Once an application is deemed complete, the applicant shall be permitted to conduct an aquifer pump test for the proposed well(s), as set forth in the application, for the purpose of proving that the amount of water capable of being extracted from that well will support the proposed project as described in the application, based on water use standards established by the Board. The aquifer pump test is also required in order to determine whether the proposed water extraction will have any adverse effect and adverse cumulative effect on hydrologically contiguous wells (see definitions, Appendix B).

The aquifer pump test (Appendix A) shall be conducted continuously over a seventy-two (72) hour period, followed by a monitored twenty-four (24) hour recovery period. Said test shall be conducted during the Hydrological Testing Period (see definitions). The Board may modify the time of year for the test upon determination that weather conditions make such modification appropriate. All aquifer pump tests in the District shall be scheduled by the District Superintendent to avoid conflict in the data obtained. Water pumped shall be conserved by storage or shall be routed to a recharge/discharge area beyond the influence of the pump test at the applicant's expense.

The hydrological study shall present data obtained and conclusions derived from the aquifer pump test (see Appendix A for hydrological study outline). The hydrological study should include consideration of local geology and hydrology, documentation of current groundwater development, estimation of water use by the development, a pump test, assessment of on-site availability of groundwater, analysis of potential impacts of the proposed groundwater development, and an analysis of cumulative effects to hydrologically contiguous wells. The hydrological study should be documented in a report summarizing the information and analyses, and it should include appendices containing supporting data.

The following report outline is suggested:

- Introduction
- Estimated Water Allotment
- Hydrological Setting
- Performance of Pump Test
- Pump Test Data Analysis
- Mitigation of Adverse Effect and Adverse Cumulative Effects
- Conclusions
- Appendices

All conclusions expressed by the hydrologist in the hydrological study shall be supported by data and other facts, consistent with good hydrological practices. All assumptions and equations relied on by the hydrologist in conducting the aquifer test and forming his/her conclusions shall be included in the hydrological study report. The hydrological study shall consider: 1) the adequacy of the water supply to support the proposed new development, expansion of existing use, or change in use during the dry summer months and drought

Mendocino City Community Services District

conditions, and 2) any adverse effects and adverse cumulative effects to hydrologically contiguous wells. Once a hydrological study has been completed it shall be delivered to the District Office for review.

4. Exceptions to Hydrological Study Requirement

a. No Increase in Water Extraction

If it is clear, based on the Groundwater Extraction Permit Application, that the proposed water extraction will not increase the applicant's existing quantity of water extraction, the District Superintendent may administratively issue the requested Groundwater Extraction Permit without requiring an applicant to submit a hydrological study. If the proposed new use results in a decrease in water use, a new allotment shall be calculated, and shall be based on the new use. If there is an existing deed restriction for a previous Groundwater Extraction Permit, the applicant shall be required to execute a new deed restriction for the new allotment.

b. Limited Increase in Water Extraction

Based on the information contained in the Groundwater Extraction Permit application, the Board may issue a Groundwater Extraction Permit without requiring an applicant to submit a hydrological study if the proposed change results in a limited increase in water demand. A limited increase is the quantity of water required for "new development", "change in use", or "expansion of existing use", as defined by the Water Use Standard adopted by the Board. A limited increase is determined by the increased water demand for the proposed project. As calculated from the Water Use Standard, a limited increase shall not exceed:

1. 30% of an existing water demand that is less than or equal to 320 gallon per day.
2. 10% of an existing water demand that is greater than 320 gallons per day.

As a condition of approval for an exception to the hydrological study requirement, the applicant agrees not to exceed the water use allotment for current and present use. A limited increase only applies to Section 4(b) of the ordinance. Following the issuance of a Groundwater Extraction Permit under Section 4(b) Exceptions to Hydrological Study Requirements, future "new development", "change in use", or "expansion of existing use", which result in a limited increase in water demand, may require approval of a Hydrological Study prior to issuance of a new Groundwater Extraction Permit to review the effect that incremental development may have on adjacent wells or the aquifer.

c. Modification in the Structure or Depth of an Existing Well or Drilling a New Well

No hydrological study shall be required for modification in the structure or depth of an existing well or to construct a new well for residential or commercial property.

Permittees who have received a permit pursuant to this section 4 shall install water meters, record monthly water meter readings, and submit readings to the District as required. Permits shall specify the quantity of groundwater that the permittee may extract. For those properties assigned water use allotments under provisions of this Ordinance, a penalty will be assessed for continued water use in excess of such allotment. If total use exceeds that allowed by the permit by 25% for three months, the Board may revoke the Groundwater Extraction Permit.

Mendocino City Community Services District

d. Prior to Issuance of a Mendocino County Use Permit or a Coastal Development Permit

A Groundwater Extraction Permit shall be required prior to the issuance of a Mendocino County Use Permit or a Coastal Development Permit. No hydrological study shall be required prior to issuance of a Mendocino County Use Permit unless project is a “new development”, “change of use”, or “expansion of existing use”. The District may administratively issue a Groundwater Extraction Permit with an allotment for current and present use. An administrative fee shall be charged for issuance of a Groundwater Extraction Permit.

e. Prior to Issuance of a Mendocino County Building Permit

A Groundwater Extraction Permit shall be required prior to the issuance of a Mendocino County Building Permit. A Groundwater Extraction Permit shall not be necessary prior to issuance of a Mendocino County Building Permit for minor repair and maintenance, such as painting, minor repairs to structures, and repair and replacement of roofs. No hydrological study shall be required prior to issuance of a Mendocino County Building Permit unless project is a “new development”, “change of use”, or “expansion of existing use”. The District may administratively issue a Groundwater Extraction Permit with an allotment for current and present use. An administrative fee shall be charged for issuance of a Groundwater Extraction Permit.

f. Following the Sale of Real Property

A Groundwater Extraction Permit shall be required, following the sale of developed real property within the boundaries of the MCCSD. The applicant shall have 30 days to submit an application for a GWEP, and 90 days to complete all of the application approval conditions and obtain the GWEP final. No hydrological study shall be required for the sale of real property. The District may administratively issue a Groundwater Extraction Permit with an allotment for current and present use. An administrative fee shall be charged for issuance of a Groundwater Extraction Permit.

5. Board Shall Adopt Water Use Standards and Require Conservation Devices

Water use standards shall be established by the Board designating the quantity of water necessary for a new development or change in use. These water use standards shall be periodically re-evaluated based on actual data collected by the District. The Board shall require water conservation devices including, but not limited to, low flush toilets, to be installed by permittees.

6. Hydrological Study Review

Once a hydrological study has been completed it shall be delivered to the District Office for review.

The District shall refer the hydrological study to an approved hydrologist for review. This review shall include, but not be limited to, consideration of adherence to testing conventions, completeness of data, adequacy of the groundwater supply for the proposed development or change in use, cumulative impact on the District’s groundwater resources, and any reported adverse effects and adverse cumulative effects to hydrologically contiguous wells. The applicant shall pay a fee as determined by the Board

Mendocino City Community Services District

to cover the cost of such review. The hydrological review and the initial study shall then be submitted to the Board for consideration.

7. Board's Decision on Permit

Within 60 days after the filing of said hydrological study the Board shall consider the Groundwater Extraction Permit application at a regular meeting or a special meeting. Public comment on the proposed Groundwater Extraction Permit shall be heard at the regular or special meeting called by the Board. If necessary, the Board may require the applicant, reviewing hydrologist, or author of the hydrological study to submit supplemental information before deciding whether to approve or deny a Groundwater Extraction Permit. In such case, the Board shall explain the reasons why such information is required.

a. In making their decision, the Board shall independently consider the findings of the aquifer pump test and the hydrological study, all challenges to the aquifer pump test and the hydrological study that have been received by the District during or prior to the public hearing, all information provided by the reviewing hydrologist, and any and all public comment.

b. If, based on the considerations as set forth above, the Board finds that the issuing of a proposed Groundwater Extraction Permit would more likely than not have an adverse effect on the groundwater supply, or the evidence shows that there is insufficient groundwater to support the change in use and/or new development, the Board shall deny the permit. The Board may consider mitigation measures that eliminate adverse effects and adverse cumulative effects to hydrologically contiguous wells as a condition for approval of the hydrological study.

c. The Board shall approve or deny a permit or grant a continuance, within one hundred twenty (120) days of the time the applicant's hydrological report is filed. If the Board does not so act, a Groundwater Extraction Permit shall automatically be approved for the requested water extraction quantity as set forth in their application.

d. The Board shall establish the maximum amount of groundwater an applicant is allowed to extract, and the permit for groundwater extraction shall be issued on condition of that limitation. If total use exceeds that allowed by the permit by 25% for three months, the Board may revoke the Groundwater Extraction Permit.

8. Reconsideration of Denial

If an applicant is denied a Groundwater Extraction Permit, the applicant may request reconsideration. Said request shall be in writing stating the reason for the request and must be filed with the District Office within 20 days of the Board's decision. The Board shall continue, approve or deny the reconsideration within forty-five (45) days of said request and if they do not act within forty-five (45) days, the request is deemed approved.

9. Water Meter Requirement

Prior to the issuance of any Groundwater Extraction Permit, the applicant shall agree in writing to install an approved water meter prior to any groundwater extraction, at his/her expense. The applicant agrees to install the water meter as a condition of the groundwater extraction permit approval within the date specified in the approval

Mendocino City Community Services District

condition. All applicants and permittees shall give permission for the meter to be read by a District employee. Following the issuance of the Groundwater Water Permit, the District, its agents and assigns, may enter onto owner's real property at reasonable times to read the water meter if the property owner fails to submit monthly meter readings for two consecutive months. The water meter shall be accessible by the District during regular business hours. Applicants and Permittees shall provide permission for District employees to sample and test water and to take well depth readings as required for District records, at District expense.

A letter from the District will be sent with self-addressed envelopes requesting that the applicant provide the District with water extraction readings beginning 30 days after the issuance of the Groundwater Extraction Permit, and thereafter on the first of each month. The District will give the applicant 50 days to respond to this notice. (15 day advance notice and 30 days to develop monthly extraction data plus 5 days grace period to submit readings). If the applicant has not responded to the first correspondence, the District will then contact that person in writing and ask them to comply with the earlier request or to establish an acceptable timetable for expected compliance within 30 days. If the second correspondence is not answered within 30 days, the District will write a third letter asking again for compliance and telling the applicant that in the event that they do not comply the matter will be referred to the Board of Directors. The applicant will have two weeks to respond to this letter. This matter will then be administratively referred to the Board Attorney for legal enforcement. The staff attorney will contact the applicant in writing and tell the applicant that Section 15 of the Groundwater Extraction Ordinance will be enforced and damages will begin to accrue in the amount of \$100.00 a day. The applicant will have two weeks to respond to that letter. If the applicant does not respond within two weeks, the staff attorney will advise the applicant that a court complaint will be filed in which damages of \$100.00 a day will be sought. If no response to this letter, the complaint will be filed. In the event the District prevails, the applicant shall be responsible for expert witness and attorney's fees and court costs.

10. Completion of the Groundwater Extraction Permit Process

Once a permittee has complied with the conditions of the Groundwater Extraction Permit, including evidence to show that all required well permits have been obtained, the deed restriction has been recorded (see Section 16), and the water meter has been installed, the District shall issue a final Groundwater Extraction Permit. The District shall have the right to inspect the well site and to inspect all improvements and/or changes to the property relative to increased groundwater extraction as enumerated in the permit.

11. Revocation of Permitted Water Extraction

The applicant shall have two years to complete the Groundwater Extraction Permit process if the water source was not in use at the time of the Groundwater Extraction Permit Approval was issued. If groundwater is currently extracted from an existing well, the applicant shall complete the groundwater extraction permit process within the timeframe stated as a condition of the approval. The Groundwater Extraction Permit Application Approval shall automatically expire by its own terms if the applicant does not obtain final approval within the time frame stated as a condition of the approval of his/her

Mendocino City Community Services District

application. The applicant may request from the Board an extension for a period of two years and the Board shall approve or deny that request for extension based on information showing that the conclusions of the hydrological study are still valid. There will be a fee for a Groundwater Extraction Permit extension.

If total use exceeds that allowed by the permit by 25% for three months, the Board may revoke the Groundwater Extraction Permit.

12. Permitted Water Extraction Allotment

The Groundwater Extraction Permit shall state the maximum amount of water to be extracted. This limit shall constitute an allotment of groundwater to be extracted by the applicant, and the District shall not reduce this amount unless there is evidence of an error in the hydrological study, discovered within twelve months, evidence of a changed circumstance, which the Board determines is sufficient to justify a quantity modification, or there is a change of use under section 4(a), which would lower the water use allotment.

13. Monitoring of Prior Approvals by County

The District will monitor any restrictions on water usage imposed by the County in groundwater extraction permits issued prior to effective date of this Ordinance, and enforce such restrictions under provisions of this Ordinance.

14. Action on County Referrals of Applications for Use Permits, Land Use Permits, Land Divisions, Local Coastal Plan Consistency Reviews and Coastal Development Permits

The provisions of this Ordinance shall be applied to all County referrals regarding use permits, land divisions, Local Coastal Plan consistency reviews and Coastal Development Permits.

15. Misdemeanor and Penalty

After the adoption and publication of this ordinance, it shall be a misdemeanor for any person to violate any provision, restriction or prohibition contained in this ordinance or any condition of any valid permit issued pursuant to this ordinance, until said ordinance has been repealed. For those properties assigned water use allotments under provisions of this Ordinance, a penalty will be assessed for continued water use in excess of such allotment. Penalty will be at a rate of two cents per gallons of excess use per month, up to 10% overage, five cents for each gallon in excess of 10%, after there has been excess use for two consecutive months, or for three months during any yearly period. If total use exceeds that allowed by the permit by 25% for three months, the Board may revoke the Groundwater Extraction Permit. The District is authorized to read meters to verify water usage. For all other violations, a penalty of \$100.00 shall be incurred for each violation. Each day of non-compliance with this ordinance or with the permit conditions shall be deemed a separate violation for purposes of assessment of penalties under this Ordinance. Non-compliance shall be determined commencing with the first day of water extraction activities regulated by the program.

In the event the District is required to file legal action to enforce any provision of this ordinance, the District shall be entitled to recover reasonable attorneys fees and costs (including expert costs) incurred in such legal proceedings in addition to such other relief as may be granted.

Mendocino City Community Services District

16. Conditions shall be Part of Real Property Title Record

The District shall record with the Mendocino County Recorder the conditions on which the permit is issued.

All conditions on the Groundwater Extraction Permit including, but not limited to, the amount of water extraction allowed shall be binding on the applicant as well as his/her heir, assigns or successors in interest to the real property. If the applicant, his/her heirs, or assigns or successor in interest breaches any conditions, the Board may revoke the permit after providing notice of hearing.

17. Severability

If any section, subsection, paragraph, sub-paragraph, sentence, clause or phrase of this is for any reason held to be invalid or unconstitutional, such invalidity or unconstitutionality shall not affect the validity or constitutionality of the remaining portions of this ordinance and such remaining portions of this ordinance shall remain in full force and effect.

18. Board May Issue Emergency Permit

Nothing in this permit process shall be deemed to diminish the authority of the Board to act in any manner consistent with the existing laws. Nothing in this permit process shall prohibit the Board from issuing any permit for groundwater extraction or other water development without public notice in the event that the Board determines that an emergency situation requires the issuance of such permit.

19. Constitutionality

This ordinance is not intended to authorize, and shall not be construed as authorizing, the MCCSD to exercise its power in a manner which will take or damage private property for public use. This ordinance is not intended to increase or decrease the rights of any owner of property under the Constitution of the State of California or the United States of America.

This ordinance shall be published once in the Mendocino Beacon, a newspaper of general circulation published within the District. This Ordinance was introduced at a meeting of the Board of Directors on December 18, 2006, and adopted by the Board of Directors on January 29, 2007 by the following vote:

AYES: Directors Kraynek, Bowery, Jelic, Schwartz, and O'Brien

NOES: None

ABSENT: None

Edward O'Brien III, Board President

ATTEST:

Jodi Mitchell, District Secretary

Appendix A

Hydrological Study Guidelines

General

No person shall extract groundwater within the boundaries of the MCCSD for “new development”, “change in use”, or “expansion of existing use” and no water shall be extracted from a well constructed or modified following the adoption of this ordinance within the boundaries of MCCSD unless the person possesses a valid and current Groundwater Extraction Permit. Except as noted in the ordinance, all applicants shall be required to submit a hydrological study prior to issuance of a Groundwater Extraction Permit.

Approved Hydrologists

MCCSD will maintain a list of approved hydrologists who are authorized to conduct hydrological studies and/or peer review hydrological studies conducted by other approved hydrologists.

Professional Qualifications of Hydrologist

A California Registered Geologist, who is a hydrologist, a Certified Engineering Geologist, and/or a California Certified Hydrogeologist /or a California licensed Civil Engineer, or Registered Geologist with a minimum of five (5) years of experience in groundwater hydrology are eligible to be approved hydrologists.

Elements of the Hydrological Study

The hydrological study should include consideration of local geology and hydrology, documentation of current groundwater development, estimation of water use by the development, a pump test, assessment of on-site availability of groundwater, analysis of potential impacts of the proposed groundwater development, and an analysis of cumulative effects to hydrologically contiguous wells. The hydrological study should be documented in a report summarizing the information and analyses, and should include appendices containing supporting data. The following report outline is suggested:

- **Introduction**

The introduction should include: 1) a description of the project, 2) a description of the location of the proposed development with respect to contiguous properties and wells, and 3) location and site maps. The well head location and elevation should be surveyed in using a benchmark and datum acceptable to MCCSD.

- **Estimated Water Allotment**

The water allotment for the proposed development shall be calculated from the Groundwater Extraction Permit Ordinance Water Use Standard. The allotment is based on the size and type of proposed development described in the Water Use Standard.

Mendocino City Community Services District

- **Hydrological Setting**

Include a summary of the local hydrological setting, site characteristics, and present groundwater use on the contiguous properties and current groundwater use on the proposed development parcel. Discuss the following:

- 1. Local Geology and Groundwater**

Describe the local geology and occurrence of groundwater. Locate all streams and springs on the project parcel and on contiguous parcels, and measure the spring and stream flows, or estimate their dry season flow from available reports by California Department of Water Resources, State Water Resources Control Board, and others.

- 2. Aquifer Description**

Identify the aquifer(s) to be developed. For terrace aquifers, note the extent of the aquifer, average thickness, and average storage capacity. For bedrock aquifers, and composite terrace/bedrock aquifers, provide information on weathering and fracturing, depth to hard bedrock, and other relevant information.

- 3. On-Site Hydrological Conditions**

Document on-site hydrological conditions, including geologic materials encountered during the drilling of the well, and static depth to water during the Hydrological Testing Period (see Appendix B Definitions). DWR Water Well Drillers Report(s) of the well(s) should be included.

- 4. Existing Wells**

Identify all wells on the study parcel and on contiguous parcels. Show well locations and elevations on the assessor's parcel map and on the well inventory and topographic map of the Mendocino Headlands available from MCCSD show measured distances to the pumping well. Describe each well, including depth, pump setting, well construction details, geological log if available, static water level in wells, use and estimated pumpage, and water level fluctuations. Observed well interference between hydrologically contiguous wells identified in previous hydrological studies that are within the radius of influence of the test well must be included in the Hydrological Study. Geologic cross-sections illustrating information from available well logs are recommended.

- **Performance of Pump Test**

The pump test is intended to document that an adequate groundwater supply is available on the site for the proposed project and to determine any adverse effect and adverse cumulative effects on local groundwater users and the aquifer(s) as a whole. Pump testing requirements for hydrological studies are as follows:

- 1. Notice Requirements for Aquifer Pump Test**

At least ten days before the beginning of the aquifer test, the District shall publish notice of the test in a local paper of general circulation in the town of Mendocino.

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The District shall also post notice of the aquifer test at the District Office, the Mendocino Fire House and the Mendocino Post Office ten days before the beginning of said test. At least ten days before the beginning of the aquifer pump test the District shall notify in writing all adjacent property owners along with any person who requests notice in writing. All notifications will be mailed certified-return receipt requested. The **Notice(s) of Aquifer Test** supplied by MCCSD shall be posted in conspicuous visible location(s) on the parcel where the test is to be conducted ten days prior to the test. Such notices shall inform such property owners of date, time, location and purpose of the pump test, and provide a contact name, phone number and address in the event that their wells are apparently affected by the test. The notices will emphasize the importance of response as soon as any effects are observed. The notices shall also advise property owners that they can request that their wells be included in the monitoring process. Surrounding property owners who feel that their wells may be hydrologically contiguous may request that their wells be included in the monitoring process. Such request shall be made to the District at least 72 hours prior to beginning of the pump test. Any expense related to this monitoring of wells involved in the pump test shall be borne by the applicant. Any property owner that requests that their well be monitored must agree not to use the well during the aquifer pump test. The Superintendent shall schedule all aquifer tests that are to be conducted in the District.

2. Pump Testing Method

A hydrological study aquifer pump test shall be designed and conducted by or under the supervision of an approved Hydrologist. Pump testing shall be conducted generally in accordance with the procedures outlined in the Mendocino County Coastal Groundwater Development Guidelines (Questa, Engineering, 1989), which details the test procedures for the Constant Rate and Step Drawdown Tests.

Authorization to use any other than the constant rate pump test must be obtained from the District Superintendent before conducting the actual test, and shall be based on submission of items “a”, “b”, and “c” below.

- a) Provide peer reviewed, multiple literature documentation showing that the substitute test provides equal or greater accuracy for predicting aquifer and well characteristics in the study area setting, compared to the constant rate pump test.
- b) Supply industry recognized literature thoroughly documenting how the substitute pump test should be conducted, and the limitations of the test.
- c) Supply industry recognized literature showing how the substitute pump test is analyzed.

The minimum pump test duration will be for 72-hours, with a 24-hour monitoring of aquifer recovery. A minimum of 10 groundwater level measurements per log cycle shall be collected from the test well and monitoring well used to determine aquifer characteristics. Water level measurements are to be accurate within 0.1-foot (or 1-inch). The pump discharge rate is to be monitored and maintained to within 10-percent of the selected pump test rate.

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Any variation from these guidelines including total length of pumping time, gaps in pumping, and variation in pump discharge, will require a technical explanation by the professional under whom the tests were performed. It should be noted that these guidelines are not rigid requirements, with the understanding that the ultimate goal of the pump test is to allow a determination of ground water availability and potential effects on the aquifer and nearby wells.

3. Monitoring Well(s)

Pump testing for hydrological studies shall include water level observations in at least one monitoring well throughout the pumping period. It is recommended that at least one monitoring well be installed within the area of influence of the pumped well specifically for use in the pump test. If a monitoring well is installed specifically for the pump test, care should be taken to assure that the screened interval of the monitoring well intersects the aquifer from which the pumped well draws water. As an alternative, existing nearby water wells may be suitable as monitoring wells, provided: (a) they have a screened interval, which intersects the same aquifer as the well to be tested; (b) they are not pumped during the test. A 24-hour pre-test monitoring of water levels in the well to be pumped and in the monitoring wells is recommended. The pre-test monitoring is used to establish any background influences on groundwater levels, i.e., other pumping activities.

Throughout the full duration of the pump test and recovery period, water level measurements in the monitoring well(s) should be made at regular intervals, similar to readings taken for the pumped wells. Measurements are to be accurate within 0.1-foot.

• Pump Test Data Analysis

An analysis should be provided of the pump test results and other information in order to document proof of adequate water supply and to determine impacts on local water users and the regional aquifer.

1. Well and Aquifer Characteristics

The following calculations and data should be provided from field measurements to characterize the pumped well and local aquifer.

- a) Drawdown and Recovery. Plot aquifer drawdown and recovery curves on log paper for both the pumped well and monitoring well(s). The curves should be presented for easy comparison. Tabulate all time, water level, and pump rate data in an appendix.
- b) Transmissivity and Storativity. Compute transmissivity and storativity for the local aquifer using the Theis equation, Cooper-Jacobs method (Todd, 1980) or other appropriate techniques. Document methodology, including equations and assumptions, and interpretations. If pump testing data analysis software is used, provide information on the software (program name and synopsis).
- c) Well Efficiency and Specific Capacity. Compute well efficiency and the specific capacity of the well, if appropriate (Todd, 1980).

2. Proof of Adequate Water Supply

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The observed pump rate during the pump test should be a minimum of 2.5 times the estimated daily water use allotment to establish proof of an adequate water supply for the proposed development.

3. **Aquifer Effects**

The observed and computed drawdown at neighboring wells or installed monitoring wells will provide the basis for assessing the extent of adverse effects and adverse cumulative effects on the aquifer and wells on surrounding properties.

a) Evaluation Criteria for Adverse Effects and Adverse Cumulative Effects

Adverse Effect: An adverse effect on the water table or aquifer shall be considered to occur if the pump rate during the aquifer test results in an aquifer drawdown at the well of an adjacent property or at a well within the radius of influence which either:

- 1) amounts to more than 10-percent of the available water column at such well; or,
- 2) causes a decline (estimated or observed) in the existing well yield to a level, which is less than 90-percent of maximum day water use demand for the hydrologically contiguous property.

Adverse Cumulative Effect: An adverse cumulative effect will be considered to occur when the sum of incremental drawdown(s) from the current test well(s) and test well(s) from previously approved hydrological studies:

- 1) amounts to more than 10-percent of the maximum available water column at a hydrologically contiguous well.

The cumulative effect is based on the calculated drawdown using:

- 1) the aquifer parameters computed for each well when the well was tested,
- 2) the aquifer conditions for the current test,
- 3) the pump rate for the drawdown calculation for each test well that is equivalent to their approved allotment, and
- 4) a three day pumping period for the calculation.

This analysis assumes that adjacent wells or wells within the radius of influence operate under similar hydrogeologic conditions and physical characteristics as the pumped well, unless evidence to the contrary is available. If more than one well is proposed; it must be demonstrated by calculations, or by actual pump testing, that the cumulative drawdown effect from all wells will be less than 10-percent of the available water column at adjacent wells or wells within the radius of influence.

b) Pump Test Results. Aquifer drawdown at all wells within the radius of influence of the production well in the study area shall be reported or computed for conditions during pump testing. Various procedures for

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computing drawdown and the zone of influence of the pumping well are provided in Appendix A of the Mendocino County Coastal Groundwater Development Guidelines, 1989.

c) Projected Drawdown. The projected drawdown effect on the aquifer and the adjacent wells should also be estimated for the following conditions: 1) maximum day water use demand, 2) 90-day dry weather conditions, and 3) 180-day drought conditions.

4. Regional Aquifer Impact

To evaluate the regional impact on the aquifer, the expected annual pumpage of the well should be computed. If the well penetrates a terrace aquifer, compare the annual well pumpage amount to the storage capacity of the local aquifer and annual recharge as estimated from water balance calculations. Refer to the Groundwater Modeling Study of the Mendocino Headlands (Questa Engineering and ETIC, June 2004) for additional background information. The Regional Aquifer Impact determination is for informational purposes and for use by MCCSD in further developing and implementing a groundwater management plan, and will not be the basis for issuing the groundwater extraction permit.

Mitigation of Adverse Effect And Adverse Cumulative Effect

Mitigation measures that eliminate adverse effects and adverse cumulative effects on hydrologically contiguous wells shall be included in the hydrological study.

- **Conclusions**

Conclusions should include: 1) comparison of the estimated water allotment for the proposed development and the well capacity used to establish proof of an adequate water supply for the development; 2) summary of effects on hydrologically contiguous wells; and, 3) comparison of annual well pumpage and storage capacity of the aquifer to assess the impact of the well on available groundwater supply.

- **Appendices**

Appendices should include all relevant pump test data and well logs, as well as letters or other communications from nearby well owners, and written responses.

Peer Review of Hydrological Studies

The District shall refer the hydrological study to an approved hydrologist for review. This review shall include, but not be limited to, consideration of adherence to testing conventions, completeness of data, adequacy of the groundwater supply for the proposed development or change in use, cumulative impact on the District's groundwater resources, and any reported adverse effects and adverse cumulative effects to hydrologically contiguous wells. The applicant shall pay a fee as determined by the Board to cover the cost of such review. The hydrological review and the initial study shall then be submitted to the Board for consideration.

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REFERENCES

1. Calif. Dept of Water Resources (DWR) Town of Mendocino Groundwater Study, June 1985, 53 pp
2. Driscoll, F. G., Groundwater and Wells, 1995.
3. Questa Engineering Corp., Mendocino County Coastal Groundwater Development Guidelines, 1989
4. Questa Engineering Corp. and ETIC, Inc. Groundwater Modeling Study of the Mendocino Headlands, Mendocino, Calif., Consultant Report prepared for MCCSD. June 2004
5. Todd, David Keith, Groundwater Hydrology, 1980 2nd edition, John Wiley & Sons, New York, 535p.

Appendix B

DEFINITIONS

ADEQUATE WATER SUPPLY: Sufficient quantities of water to support proposed uses and to maintain contiguous and surrounding uses. Adequate water supply is 2.5 times the daily water use allotment established by this Ordinance for the project involved.

ADJACENT: Any real property parcels that shares a common border with an applicant's parcel and all surrounding parcels that are separated by a road or easement.

ADVERSE CUMULATIVE EFFECT: An adverse cumulative effect will be considered to occur when the sum of incremental drawdown(s) from the current test well(s) and test well(s) from previously approved hydrological studies:

- 1) amounts to more than 10-percent of the maximum available water column at a hydrologically contiguous well.

The cumulative effect is based on the calculated drawdown using:

- 1) the aquifer parameters computed for each well when the well was tested,
- 2) the aquifer conditions for the current test,
- 3) the pump rate for the drawdown calculation for each test well that is equivalent to their approved allotment.
- 4) a three day pumping period for the calculation.

ADVERSE EFFECT: An adverse effect on the water table or aquifer shall be considered to occur if the pump rate during the aquifer test results in an aquifer drawdown at the well of an adjacent property or at a well within the radius of influence which either:

- 1) amounts to more than 10-percent of the available water column at such well; or,
- 2) causes a decline (estimated or observed) in the existing well yield to a level, which is less than 90-percent of maximum day water use demand for the hydrologically contiguous property.

ALLOTMENT: The maximum amount of water an applicant may extract on a daily basis, as averaged over a thirty-day (30-day) period.

APPLICANT: Any person as defined herein who applies for a Groundwater Extraction Permit.

AQUIFER: A saturated bed, formation, or group of formations or strata, which yields water in sufficient quantity to be economically useful.

AQUIFER PUMP TEST: Physical testing for evaluation of an aquifer to determine the existence of an adequate water supply and to provide data for the hydrological study. Test to be conducted during Hydrological Testing Period.

BOARD: Mendocino City Community Services District Board of Directors.

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CHANGE IN USE: Any change in use of the property to a different use category as defined in the Water Use Standard.

CHANGED CIRCUMSTANCE: A hydrological change that diminishes water availability within the boundaries of the Mendocino City Community Services District or any part therein.

CLEANING: Shall include removal of silt and other soft materials, but does not include removal of rock or rock materials.

CONE OF DEPRESSION: The depression, roughly conical in shape, produced in a water table by the extraction of water from a well at a given rate. The volume of the cone varies with the rate and duration of withdrawal of water.

CUMULATIVE EFFECTS: The sum of incremental drawdown effects by the test well(s) and by previous aquifer pumps tests performed for hydrological studies for granted Groundwater Extraction Permit Approval(s) on a hydrologically contiguous well.

DEplete: The lowering of groundwater levels in an aquifer to the point where there is no longer an adequate water supply for existing uses.

DISTRICT: Mendocino City Community Services District (MCCSD)

EMERGENCY: A sudden, generally unexpected occurrence or set of circumstances demanding immediate action.

EXPANSION OF EXISTING USE: Any increase in water usage by action other than New Development or Change of Use.

GROUNDWATER: That part of the subsurface water which is the zone of saturation, including underground streams.

HYDROLOGY: The science that deals with continental water (both liquid and solid), its properties, circulation, and distribution, on and under the Earth's surface and in the atmosphere, from the moment of its precipitation until it is returned to the atmosphere through evapotranspiration or is discharged into the ocean.

HYDROLOGIST: A Registered Geologist, a Certified Engineering Geologist, a Registered Hydrologist, or a Registered Civil Engineer with a minimum of five (5) years of experience in groundwater hydrology and hydrological studies.

HYDROLOGICALLY CONTIGUOUS WELL: Any well serving a contiguous or surrounding property where such well is hydraulically connected to the pumping well where there is a reasonable expectation of well interference during the aquifer test or increase in water extraction.

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HYDROLOGICAL STUDY: A study of the hydrology of a defined area.

HYDROLOGICAL TESTING PERIOD: The hydrological testing period will commence on August 20 of any given year and will terminate when 6 inches of rainfall has been recorded beginning August 1st of the same year, as measured on the Community Services District's rain gauge. After December 31st, if 6 inches of rainfall has not been recorded, the testing period will be extended and will terminate when 7 inches of rain has fallen since August 1st of the prior year. After January 31st, if 7 inches has not been recorded, additional extension will allow hydrological testing until 8 inches has fallen as measured from August 1st of the prior year. After February 28th, termination of the testing period will occur when 9 inches of rain has fallen or March 31st, whichever comes first. During the defined testing period, no hydrological testing will be allowed for 5 consecutive days following a recorded rainfall of 1 inch or more. Testing may be resumed after the 5-day waiting period, provided that the total rainfall has not exceeded the above-defined limits of the hydrological test period. The hydrological test period as defined may be modified by Board action in case of unusual rainfall patterns.

LIMITED INCREASE: A limited increase is the quantity of water required for "new development", "change in use", or "expansion of existing use", as defined by the Water Use Standard adopted by the Board. A limited increase is determined by the increased water demand for the proposed project. As calculated from the Water Use Standard, a limited increase shall not exceed:

1. 30% of an existing water demand that is less than or equal to 320 gallons per day.
2. 10% of an existing water demand that is greater than 320 gallons per day.

As a condition of approval for an exception to the hydrological study requirement, the applicant agrees not to exceed the water use allotment for current and present use. A limited increase only applies to Section 4(b) of the ordinance. Following the issuance of a Groundwater Extraction Permit under Section 4(b) Exceptions to Hydrological Study Requirements, future "new development", "change in use", or "expansion of existing use", which result in a limited increase in water demand, may require approval of a Hydrological Study prior to issuance of a new Groundwater Extraction Permit to review the effect that incremental development may have on adjacent wells or the aquifer.

MAXIMUM DAY WATER USE DEMAND: Daily water allotment based on the Groundwater Extraction Permit Water Use Standards.

MINOR REPAIR AND MAINTENANCE: Repair and maintenance to the existing well structure or equipment. Minor repair and maintenance does not include deepening the well or replacing the casing in the well. Minor repair and maintenance includes painting or minor repairs to structures, replacement of windows, floor coverings, and interior and exterior siding, and repair and replacement of roofs. Construction of a foundation under an existing structure is not considered minor repair and maintenance.

NEW DEVELOPMENT: Development of any new water source, division of an existing parcel, or any project, which requires a building or use permit according to Mendocino County regulations.

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PERSON: Includes any state or local governmental agency, private corporation, partnership, individual, group of individuals, owner(s) or developer(s) of a property subdivision, or, to the extent authorized by law, any federal agency.

RADIUS OF INFLUENCE: Is the horizontal distance from the center of a pumping well to the limit of the cone of depression.

SAFE YIELD: The maximum quantity of water that is allotted in the Groundwater Extraction Permit Water Use Standard for the proposed development, which can be withdrawn from an aquifer without causing an undesirable effect.

SUSTAINED YIELD: Is the maximum pumping rate that a pump can remove water from a well without lowering the water level in the well below the pump intake. A sustained yield in a well exists when drawdown stabilizes and equilibrium conditions are achieved during the aquifer test.

WATER DEMAND: Is the quantity of water use calculated from the Water Use Standards for all uses on a parcel. Existing allotments may be greater than or less than the parcel water demand.

WATER METER: Any device used to accurately measure water that is extracted from a groundwater source.

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Appendix C

<u>Water Use Standard</u>	<u>Gallons/Day</u>	<u>Units</u>
<u>Residential:</u>		
<u>Single Family Residence-</u>		
1) 1-2 Bedrooms	200 gal/ d	per unit
2) Each additional bedroom, attached or detached	60 gal/ d	each bedroom
<u>Additional Residence</u>		
1) Additional residence w/ 1 or 2 bedrooms	200 gal/ d	per unit
2) Each additional bedroom	60 gal/ d	per bedroom
<u>Guest Cottage</u>	100 gal/ d	per unit
<u>Commercial Visitor Accommodations:</u>		
<u>Bed and Breakfast, Hotel, Motel, Inn</u>		
1) Dwelling unit, w/ kitchen	160 gal/ d	per bedroom
2) Sleeping unit, w/o kitchen,	120 gal/ d	per bedroom
3) With on-site Laundry	40 gal/ d	per bedroom
<u>Vacation Home Rental</u>		
1) 1-2 bedrooms	200 gal/ d	per unit
2) Each additional bedroom	60 gal/ d	per bedroom
<u>Single Unit Rental</u>		
1) 1-2 bedrooms, w/ kit.	200 gal/ d	per unit
2) 1-2 bedroom, w/o kit.	140 gal/d	per unit
3) Each additional bedroom	60 gal/d	per bedroom
<u>Commercial Business:</u>		
<u>Cottage Industry/ Home Occupation</u>		
Residence w/ 1-2 bedrooms	200 gal/ d	per unit
Each additional bedroom	60 gal/d	per bedroom
Business portion of residence	.15 gal/d/ft ²	business portion
<u>Retail Store/ Gallery/ Office</u>		
1) Retail store/Gallery	.15 gal/d/ft ²	Display Area
2) Office	.15 gal/d/ft ²	Work Area
<u>Food and Beverage Establishments</u>		
Full Service w/ bar	3.4 gal/d/ft ²	dining area
Full Service w/o bar	2.9 gal/d/ft ²	dining area
No Service, w/ seating, no dish washing	2.1 gal/d/ft ²	dining area
4) No On-Premise Consumption	2.1 gal/ d/ ft ²	work area

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<u>Water Use Standard</u>	<u>Gallons/Day</u>	<u>Units</u>
<u>Bar</u>		
1) Bar area	6.7 gal/d/linear ft.	bar length
2) Patron area	1.4 gal/d/ft ²	patron area
<u>Laundromat</u>		
1) Per machine	400 gal/ d	per machine
<u>Service Station</u>		
station	1,000 gal/ d	per service
<u>Grocery Store</u>		
	.2 gal/d/ft ²	work area
<u>Church</u>		
1) w/ kitchen seat	5 gal/ d	per sanctuary
2) w/o kitchen seat	3 gal/ d	per sanctuary
<u>Hall/Auditorium</u>		
	3 gal/ d	per seat
<u>Theater</u>		
	5 gal/ d	per seat
<u>School</u>		
1) Public	15 gal/ d	per student
2) Private	15 gal/ d	per student
<u>Government Office or Building</u>		
	.15 gal/d/ft ²	work area
<u>Personal Services</u>		
1) Beauty Salon/Barber Shop	1 gal/d/ft ²	work area
2) Spa Services	1.5 gal/d/ft ²	work area

The Board will handle types of establishments not listed here or special requests, on a case-by-case basis.

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Appendix D

Water Use Standard Definitions

Additional Residence shall mean occupancy, by non-transient residents, of a second dwelling unit on a parcel, attached to or detached from the primary residence or commercial business, with provisions for, sleeping, eating, cooking, and sanitation. Typical uses include an apartment or studio.

Bar shall mean an establishment or place of business primarily engaged in the sale of prepared food or beverages for on premises consumption.

Bed & Breakfast shall mean any building or portion thereof or group of buildings containing no more than four (4) dwelling units or sleeping units, which are designed or intended to be used, let, or hired out for occupancy by transient guests for compensation or profit, with the express permission of the owner, wherein breakfast may be provided for compensation or profit.

Cottage Industry shall mean a secondary use of a parcel containing a Single Family Residence, which is the primary residence of the owner or operator of the Cottage Industry. No Cottage Industry may occupy more than 640 square feet of area within any building or buildings on the same parcel and not more than 10 customers or clients shall come to the parcel for service or products during any one-day. Specific standards are:

1. Not more than one (1) outside person may be employed on the premises in addition to the members of the family residing on the premises;
2. The Cottage Industry shall be a secondary use of a parcel containing a Single Family Residence or Dwelling Unit as a principal residence of the owner or operator of the Cottage Industry.
3. No Cottage Industry permitted pursuant to the Ordinance may occupy more than 640 square feet of area within any building or buildings on the same parcel.
4. Not more than ten (10) customers or clients shall come to the residence for service or products during any one-day.

Detached Bedroom shall mean a separate incidental structure containing one (1) room only without a kitchen or sanitation facilities, designed for and intended to be used as a sleeping or living facility for family members to be used in conjunction with a main structure which includes kitchen and sanitation facilities. A detached bedroom shall be located no farther than one hundred fifty (150) feet from the main structure, and shall not exceed five hundred (500) square feet of floor area.

Dwelling Unit shall mean a living space, which provides independent living facilities for one or more persons, including provisions for sleeping, eating, cooking, and sanitation.

Food and Beverage Establishments shall mean:

- 1) Full Service w/ Bar: Eating and drinking establishments or places of business engaged in the sale of prepared food and beverages for on-premise consumption with a bar and full service.

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- 2) Full Service w/o Bar: Eating and drinking establishments or places of business engaged in the sale of prepared food and beverages for on-premise consumption without a bar and with full service.
- 3) No Service: Eating and drinking establishments or places of business engaged in the sale of prepared food and beverages for on-premise consumption with seating and no dish washing and no service.
- 4) No On-Premise Consumption: Eating and drinking establishments or places of business engaged in the sale of prepared food and beverages, and which no consumption of the product occurs on the premises.

Gallery shall mean an establishment that engages in the retail sale of art or specialty items.

Guest Cottage shall mean a living space without provisions for cooking, with provisions for sleeping, and sanitation, and where the person or persons are guest(s) of the regular occupants of the primary residence. Living space shall be restricted to 640 sq. ft.

Home Occupation shall mean an accessory use within a Single Family Residence for gainful employment, which involves the manufacture, provision or sale of goods and /or services, where such uses are clearly incidental and secondary to the use of the Single Family Residence for residential purposes, and must not change the character thereof, or adversely affect the residential or rural nature of its surroundings. Specific Standards are:

1. No person other than members of the family residing on the premises shall be engaged in such occupation;
2. No additional water or sewer demands will be created by the use;
3. The Home Occupation shall be incidental and subordinate to its use for residential purposes and not more than 25 % of the floor area of the residence shall be used for such occupation. Use of any accessory building or garage for these purposes shall be prohibited.
4. No more than ten (10) customers or clients shall come to the residence for service or products in any one-day.

Hotel shall mean any building or portion thereof containing five (5) or more dwelling units or sleeping units each used, designed or intended to be used, let or hired out for occupancy by transient guests for compensation or profit wherein meals may be provided for compensation or profit.

Inn shall mean any building or portion thereof or group of buildings containing five (5) or more dwelling units or sleeping units each used, designed or intended to be used, let or hired out for occupancy by transient guests for compensation or profit, and where regular meals may be provided for compensation or profit.

Motel shall mean any building or portion thereof or group of buildings containing five (5) or more dwelling units or sleeping units where such units are directly accessible from an outdoor parking area and where each is used, designed or intended to be used, let or hired out for occupancy by transient guests for compensation or profit.

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Office shall mean private firms or organizations, which are primarily used for the provision of professional, executive, management, or administrative services.

Personal Services shall mean an establishment or place of business primarily engaged in the provision of services of a personal nature. Typical uses include: beauty salon, barbershop, massages studio, or dance studio.

Retail Store shall mean a business that is engaged in the sale or rental of commonly used goods and merchandise for personal or household use.

Single Family Residence shall mean the occupancy of the primary residential unit of a parcel on a non-transient basis, and the dwelling unit shall provide provisions for sleeping, eating, cooking, and sanitation.

Single Unit Rental shall mean the rental of an attached or detached structure (not the primary residence or business) on a parcel for Visitor Accommodations for transient guests for compensation or profit (30 days or less), and shall provide provisions for sleeping, sanitation, and with or without eating and cooking.

Sleeping Unit shall mean a living space, which provides living facilities for one or more persons, but does not include provisions for cooking and eating within the unit.

Vacation Home Rental shall mean the rental of Single Family Residence, that the only use on the property is for Visitor Accommodations, to be let or hired as an entire unit for occupancy by transient guests for compensation or profit, and limited to one unit per parcel (30 days or less).

Visitor Accommodations shall mean establishments engaged in the provision of lodging services on a less than monthly basis, which may provide incidental food and drink intended for the convenience of the guests.

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RESOLUTION NO. 113

RESOLUTION OF INTENTION
TO ADOPT GROUNDWATER EXTRACTION
PERMIT ORDINANCE

The Board of Directors of the Mendocino City Community Services District does hereby adopt a Resolution of Intention to Adopt and Implement the Groundwater Extraction Permit Ordinance, as amended, attached hereto and incorporated herein. This intention to adopt was passed and adopted on the 9th day of January, 1990 by the following vote:

AYES: Directors Zacha-Peterson, Lobell, Smith and Dawson

NOES: Director O'Brien

ABSENT: None


Graig Dawson
President

Attest:


Jodi Mitchell, Secretary

Appendix C

2012 Mendocino Water Demand

Mendocino City Community Services District

2011-12 Water Demand

Water User Category	Unit Type	Total Units	Water Standard gal/d/unit	ESD Per Unit	Total ESD's	GPD	Water Demand, %
Residential*:							
Residence on sewer & septic	per unit	419	200	1.00	419.00	83,800	42.38%
Apartment	per unit	0	140	0.70	0.00	0	0.00%
Guest Cottage	per unit	9	100	0.50	4.50	900	0.46%
Sleeping Units	per unit	4	120	0.60	2.40	480	0.24%
Visitor Accommodation:							
Vacation Home Rental							
Vac. Home Rental / SUR	per unit	25	200	1.00	25.00	5,000	2.53%
Inns, Hotels, B&B's, Motel							
Dwelling Unit, w/ kit.	per bdr.	16	160	0.80	12.80	2,560	1.29%
Dwelling Unit, w/ kit., laundry	per bdr.	8	200	1.00	8.00	1,600	0.81%
Sleeping Unit w/o kit.	per bdr.	114	120	0.60	68.40	13,680	6.92%
Sleeping Unit w/o kit, laundry	per bdr.	116	160	0.80	92.80	18,560	9.39%
Commercial Business:							
Cottage Ind./Home Occupation							
Residence	per unit	1	200	1.00	1.00	200	0.101%
Business Portion of Res.	per ft ² bus. portion	400	0.15	0.00075	0.30	60	0.030%
Retail Store/ Gallery/Office	ft ² display/work area	146144	0.15	0.00075	109.61	21,922	11.09%
Library	1- 1,680 ft ² area	1	200	1.00000	1.00	200.00	0.10%
Food and Beverage Establishments:							
Full Service w/ bar	per ft ² dining area	2680	3.4	0.0170	45.58	9,112	4.61%
Full Service w/o bar	per ft ² dining area	4423	2.9	0.0145	64.13	12,827	6.49%
No Serv., w/seats, no dish wash	per ft ² dining area	965	2.1	0.0105	10.13	2,027	1.02%
No On-Premise Consumption	per ft ² work area	948	2.1	0.0105	9.95	1,991	1.01%
Bar:							
Bar area	per linear ft. of bar	127	6.7	0.0335	4.25	851	0.43%
Patron area	per ft ² patron area	5637	1.4	0.007	39.46	7,892	3.99%
Laundromat	per machine	0	400	2.00	0.00	0	0.00%
Service Station	per pump	1	1000	5.00	5.00	1,000	0.51%
Grocery Store	per ft ² work area	6512	0.2	0.001	6.51	1,302	0.66%
Churches:							
Church w/ kit.	per sanctuary seat	60	5	0.025	1.50	300	0.15%
Church w/o kit.	per sanctuary seat	315	3	0.015	4.73	945	0.48%

Mendocino City Community Services District

Water User Category	Unit Type	Total Units	Water Standard	ESD Per Unit	Total ESD's	GPD	Water Demand, %
Hall/ Auditorium	per seat	705	3	0.015	10.58	2,115	1.07%
Theater	per seat	81	5	0.025	2.03	405	0.20%
School:							
MUSD	per person	0	15	0.07500	0.00	0	0.00%
Rainbow School	per person	16	15	0.075	1.20	240	0.12%
Government Office/ Building	ft ² work area	5284	0.15	0.00075	3.96	792.60	0.40%
Personal Services:							
Hair Salons	ft ² work area	1184	1	0.005	5.92	1,184	0.60%
Hot Tubs	ft ² work area	800	1.5	0.0075	6.00	1,200	0.61%
Miscellaneous:							
Hills Ranch Wtr. Trmnt.		1	0	0.00	0.00	0	0.00%
Ballpark		1	800	4.00	4.00	800	0.40%
Mendo. Coast Park & Rec.		7047	0.15	0.00075	5.29	1,057	0.53%
State Park		1	2000	10.00	10.00	2,000	1.01%
MFPD		2	200	1.00	2.00	400	0.20%
Veterinary Hospital	ft ² work area	416	0.77	0.00385	1.60	320	0.16%
TOTAL NUMBER OF WATER DEMAND ESD'S					988.61		
TOTAL WATER DEMAND, GALLONS PER DAY						197,722	
TOTAL WATER DEMAND, AC-FT/YR						221,49	
TOTAL WATER DEMAND, %							100%

* There are 409 residences on sewer, 10 residences on septic, and 1 residence w/ Home Occ./Cot. Ind. This Water Demand assumes all residences have a 200 gal/d water uses

Appendix D

Water Reclamation Program Documentation

Mendocino City Community Services District

**MEMORANDUM OF UNDERSTANDING
MENDOCINO CITY COMMUNITY SERVICES DISTRICT
AND
MENDOCINO UNIFIED SCHOOL DISTRICT**

WHEREAS, the efficient use of local water resources is an appropriate concern of local Districts; and

WHEREAS, the Mendocino City Community Services District (hereinafter referred to as MCCSD) desires to make efficient use of its waste water resources; and

WHEREAS, the Mendocino Unified School District (hereinafter referred to as MUSD) has a continuing need for irrigation water for its school athletic fields; and

WHEREAS, the MCCSD has the desire and ability to supply recycled water to the MUSD for the purpose of irrigating its athletic fields.

IT IS HEREBY AGREED between MCCSD and MUSD as follows:

1. MCCSD agrees to provide tertiary disinfected recycled water to irrigate Mendocino High School athletic fields. It is presently estimated that approximately 50,000 gallons of recycled water from the waste water treatment plant per week will be utilized by the Mendocino High School to irrigate the athletic fields during the summer and fall months of the year.

2. MCCSD agrees to make necessary modifications to its waste water treatment plant process to accommodate MUSD's need for recycled water and to meet additional water quality standards and record keeping requirements of the California Department of Health Services. These required necessary modifications and other requirements are described in detail in a letter dated November 25, 1996, from District Engineer Bruce H. Burton, PE of the Department of Health Services. A copy of this letter is attached to this Agreement as Exhibit A and hereby incorporated by reference as though fully set forth herein. MCCSD estimates the initial costs of these modifications to be \$30,000.00 in addition to ongoing costs of approximately \$500.00 per month. These additional costs will be incurred primarily during the approximate 4 month period during which recycled water will be provided to MUSD. MCCSD agrees to undertake ongoing maintenance and operation of the improvements constructed pursuant to this Agreement. All such improvements are located within the MCCSD plant site.

Memorandum of Understanding

Mendocino City Community Services District

... as well as repair an existing water transfer line. The estimated cost of these improvements is \$42,000.00. Furthermore, MUSD will incur costs of approximately \$100.00 per month (in addition to staff time) during the approximate 4 period during which recycled water will be used by MUSD. MUSD agrees to be responsible for ongoing maintenance and operation of the improvements constructed pursuant to the Agreement.

4. MCCSD and MUSD mutually agree to construct the improvements necessary to provide MCCSD recycled water to MUSD. The Districts presently intend to complete construction of these improvements by Fall 1997. MCCSD and MUSD further agree that they shall maintain these improvements, including necessary monthly costs, until such time as it is otherwise agreed by the respective Districts.

5. In order to comply with the requirements in the attached Exhibit A, it will be necessary for MUSD to maintain certain records and provide these records to MCCSD. Specifically, MUSD must perform chlorine testing in accordance with the criteria set forth in the attached Exhibit A. Such testing must be done at the storage tank prior to irrigation. Furthermore, MUSD must conduct a total coliform test in accordance with the criteria set forth in the attached Exhibit A. MUSD agrees to conduct the necessary sampling and testing, obtain and log test results, and provide the test results to MCCSD on a monthly basis. In the event of any failure to meet the required chlorine residual and storage detention time or total coliform MPN as set forth in Exhibit A, MUSD agrees to immediately notify MCCSD. MUSD further agrees not to use the recycled water for irrigation purposes until such time as the water passes the required chlorine and total coliform tests.

Dated: February 24, 1997

MENDOCINO UNIFIED SCHOOL DISTRICT

By Ronald Matheson

Title: Superintendent

Dated: February 24, 1997

MENDOCINO CITY COMMUNITY SERVICES DISTRICT

By Edward O'Brien
EDWARD O'BRIEN, Chairman

Mendocino City Community Services District

**MENDOCINO CITY COMMUNITY SERVICES DISTRICT
MENDOCINO UNIFIED SCHOOL DISTRICT**

JOINT RESOLUTION NO. 97-1

A resolution of the Mendocino City Community Services District and Mendocino Unified School District concerning the use of recycled water for irrigation of school athletic fields.

WHEREAS, the efficient use of local water resources is an appropriate concern of local districts; and

WHEREAS, the Mendocino City Community Services District desires to make efficient use of its waste water resources; and

WHEREAS, the Mendocino Unified School District has a continuing need for irrigation water for its school athletic fields; and

WHEREAS, the Mendocino City Community Services District has the desire and ability to supply recycled water to the Mendocino Unified School District for the purpose of irrigating its athletic fields.

IT IS HEREBY JOINTLY RESOLVED, by the Mendocino City Community Services District (MCCSD) and the Mendocino Unified School District (MUSD) that these two Districts will enter into a memorandum of understanding whereby recycled water from the MCCSD Waste Water Treatment Plant could be used for the irrigation of MUSD school athletic fields. The estimated initial cost to the MCCSD will be \$30,000.00. The estimated initial cost to the MUSD will be \$42,000.00. A detailed discussion of the relationship between the two Districts with respect to this project will be set forth in a memorandum of understanding between these two Districts.

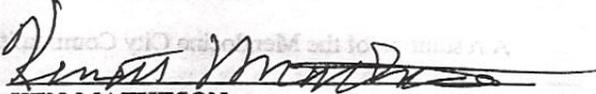
Joint Resolution No. 97-1

Mendocino City Community Services District

Dated: February 24, 1997


EDWARD O'BRIEN
Board President
Mendocino City Community Services District

Dated: February 13, 1997


KEN MATHESON
District Superintendent
Mendocino Unified School District

ATTEST:


Jodi Mitchell
District Secretary

Joint Resolution No. 97-1

Mendocino City Community Services District

MINUTE ORDER FROM THE
BOARD OF SUPERVISORS
COUNTY OF MENDOCINO STATE OF CALIFORNIA

DATE: 1/2/90

SUPERVISORS PRESENT: Redding, Eddie, Henry, de Vall, Butcher
SUPERVISORS ABSENT: None

(a) Mendocino City Community Services District - Chairman authorized to sign the letter pursuant to Water Code Section 10711 authorizing the Mendocino City Community Services District to develop groundwater ordinance and to exercise its powers accordingly.

STATE OF CALIFORNIA)

ss.

COUNTY OF MENDOCINO)

I, JOYCE A. BEARD, Clerk of the Board of Supervisors, in and for the County of Mendocino, State of California, do hereby certify the foregoing to be a full, true and correct copy of an order made by the Board of Supervisors, as the same appears upon their minute book.

WITNESS my hand and seal of said Board of Supervisors, affixed this 8th day of January, 1990.

JOYCE A. BEARD
Clerk of the Board

By: Virginia Goodace
Deputy

Appendix E

Water Shortage Contingency Plan

***Water Shortage
Contingency Plan***

***Mendocino City
Community Services
District***

Mendocino, California

Prepared by:

Questa Engineering Corporation

December 29, 2006

Water Shortage Contingency Plan
Mendocino City Community Services District
Mendocino, California

Prepared for:

Mendocino City Community Services District
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Questa Project no. 240090

December 29, 2006

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Introduction

This Water Shortage Contingency Plan is intended to guide emergency water supply shortage planning and response implementation for the Mendocino City Community Services District (MCCSD). MCCSD is a Community Services District in accordance with Title 6, Division 3, of the California Government Code, Section 61000 *et seq.* MCCSD provides wastewater treatment, groundwater management, and street lighting to a small rural district of coastal Mendocino County, serving approximately 425 customers (total population of about 1,000). It is a local public agency as defined in California Water Code (CWC) 71720 and as provided under Section 10795. The MCCSD has power generally to perform all acts necessary to fully carry out the provisions of Division 3, Title 6, of the Government Code in accordance with Section 61622, including adopting ordinances.

The Contingency Plan includes information on the community, background information on the hydrogeology and water supply and demand, criteria for a declaring a Water Shortage Emergency, and water shortage response procedures. It is to be used in conjunction with the proposed companion Ordinance, “Prohibition of Water Wastage, Year-Round Water Conservation Measures, Establishment of Provisions for Designation of Water Shortage Emergency Conditions, and the Adoption and Implementation of a Water Shortage Contingency Plan,” which provides administrative procedures for declaring a Water Shortage, requirements for water conservation and water wastage prohibitions, and enforcement actions and penalties.

The Urban Water Management Planning Act (UWMPA) requires certain water suppliers to prepare and submit an Urban Water Management Plan (UWMP) in compliance with CWC Section 10610 *et. seq.* An “urban water supplier” means a supplier, either publicly or privately owned, that provides water for municipal purposes either directly or indirectly to more than 3,000 customers or supplies more than 3,000 acre-feet of water annually (CWC Section 10617). The MCCSD is not an “urban water supplier” per se, and is not subject to the UWMPA. Because the MCCSD has fewer than 3,000 connections (in this case, only 425 customers with individual wells), the MCCSD is not required to prepare a UWMP under CWC Section 10610 *et. seq.*, nor the Water Shortage Contingency Plan element of a UWMP. However, this Contingency Plan has been prepared following UWMPA guidelines.

Also, since MCCSD is not a traditional water provider, in that it does not have reservoirs, storage tanks, or delivery pipelines, but rather is the responsible agency for groundwater management per CWC Sections 10700-10717, with the authority of a water provider, a number of modifications to the typical formatting of a Water Shortage Contingency Plan were required.

Background

The history of water shortage planning in the area of the Town of Mendocino is closely associated with the development and control over extraction of groundwater in response to historical and geographical limitations over water access and land development. Groundwater is a critical resource since there are no surface reservoirs and riparian rights are very limited. The Mendocino City Community Services District (MCCSD) manages the groundwater supply of the Town of Mendocino and surrounding area. Since 1987, the District has maintained authority for the management of groundwater resources within the District (California Water Code Section 10700 – 10717) and in 1990 they adopted an Ordinance for Groundwater Extraction Permits authorized by Assembly Bill (AB) 786. As part of this legislation they entered into an agreement with the County of Mendocino Public Health Department to regulate groundwater extraction within district boundaries and honor the groundwater extraction allotments issued by the County prior to MCCSD Groundwater Management Program authority.

The current groundwater withdrawal program limits groundwater extraction through terms of the Groundwater Extraction Permit (GWEP) Ordinance (District Ordinance 07-1). This ordinance requires that an applicant obtain a Groundwater Extraction Permit for any new development, change in use for existing development, expansion of existing use, deepening or reconstruction of an existing well, and drilling a new well. Terms of the permit include completion of a hydrological study, the stipulation of a groundwater allotment for the proposed development based on Ordinance 07-1 Water Use Standards, and District verification that the permittee has complied with the conditions of the preliminary Groundwater Extraction Permit prior to issuance of a final Groundwater Extraction Permit. Typically the terms and conditions of the permit require the installation of water conservation plumbing fixtures, such as low-flow showerheads and low-flush toilets, and limit exterior landscaping. Permit conditions also include filing a deed restriction limiting groundwater extraction to the permit allotment, installing a water meter at the wellhead, and sending in monthly meter readings of water use to the District office.

While the Groundwater Extraction Ordinance has been effective in protecting surrounding wells from groundwater level decline or potential interference of new wells on existing wells, cumulative impacts to the overall aquifer from multiple new water allocations are generally not considered in detail in individual hydrological studies. Faced with a limited supply, the District has applied for and received a Department of Water Resources (DWR) grant to further evaluate and model the groundwater system for future water shortage planning and to establish better allocation standards and guidelines. The groundwater study funded by the DWR grant has enabled the development of the proposed Draft Water Shortage Contingency Plan presented here.

DWR Local Groundwater Assistance Grants and MCCSD Groundwater Management Planning

The District has applied for and received two Department of Water Resources (DWR) AB 303 Local Groundwater Assistance grants. A 2002 grant was used to develop a GIS-compatible three-dimensional computer model (MODFLOW) of MCCSD's Mendocino Headland's aquifer (Questa Engineering Corporation and ETIC, 2004). This model is being used to analyze District-wide impacts from groundwater extraction for new developments and is based on existing groundwater data from the 1985 DWR Groundwater Study of Mendocino (DWR, 1985), applicable data from the twenty-two hydrological studies conducted within the District over a ten year period, well logs, and from the existing database of monitoring wells that is used to monitor groundwater levels with the least possible influence from pumping. Some 22 new wells and pump tests were completed in 2003 and used to calibrate the model. Modeling was used to determine the perennial (safe) yield of the aquifer to insure that groundwater extraction was not depleting the Town's water supply, and to calculate the annual groundwater storage.

The current grant project is aimed at better calibrating the groundwater model and updating the Groundwater Monitoring and Management Plans. A primary element is the Water Shortage Contingency Plan, presented here. This Plan is based on below-normal rainfall scenarios input into the updated Mendocino Groundwater Model, climate and well data, and from adaptation of previously developed plans for similar small coastal communities in California (Questa Engineering Corporation and Kennedy Jenks, 2006). The major goals of this Water Shortage Contingency Plan are to establish criteria for when to declare a water shortage through four (4) stages of alert and action, identify appropriate conservation measures and response actions for each water shortage alert stage, and assess water shortage financial impacts. This Water Shortage Contingency Plan, upon adoption by the MCCSD's Board of Directors, will become part of the overall groundwater management plan designed to protect the water resources in and around the Town of Mendocino.

Regional Overview

The Town of Mendocino is located on the Mendocino Headlands between Slaughterhouse Gulch and Big River, in the central part of Mendocino County. The broad headlands peninsula containing most of the Town is bounded on three sides by sea cliffs ranging in height from 40 to 100 feet. State Route 1 dissects the eastern portion of the unincorporated town. **Figure 1** shows the limits of the MCCSD service area. The service area has a total population of about 1,000, with MCCSD serving about 425 customers with individual, privately owned wells.



Climate

The climate is maritime Mediterranean and is characterized by cool, foggy summers and cool, rainy winters. Windy conditions prevail much of the year with prevailing sea breezes from the west, while gale force winds are not uncommon during winter storms.

The nearest Western Region Climate Center is at Fort Bragg, located approximately 12 miles north of Mendocino. At Fort Bragg, the average rainfall from 1948 through 2003 was 41 inches, with an average maximum temperature in September of 66 degrees, and average minimum temperature of 40 degrees in January. These results are very similar to the climate data reported in the 1985 DWR report, which correlated the Fort Bragg and Point Arena weather stations. MCCSD also maintains a weather station, and information from the MCCSD station was used in the development and calibration of the numerical groundwater model.

The most variable aspect of climate is annual precipitation, which is sensitive to global climate phenomena such as “El Niño.” These climate phenomena may help to explain the variability in annual rainfall, with extremes ranging from 16 inches to 71 inches. Rainfall is typically limited to the wet season from October to May, when the East Pacific High Pressure Cell has sufficiently weakened to allow the jet stream to cross the area and bring storms from the Gulf of Alaska and Central Pacific.

Geology

The Mendocino Headlands are underlain by rocks of the Franciscan Complex Coastal Belt (DWR, 1985). The Franciscan Complex rocks range from thinly interbedded greywacke sandstone and shale to more massive greywacke with discontinuous shale beds. The dense greywacke sandstones typically contain a clayey matrix. The Franciscan Complex has a very low primary porosity since rocks are typically well indurated and cemented, and/or contain a clayey matrix. However, rocks of the complex contain significant secondary porosity due to the presence of a pervasive system of rock fractures. This secondary porosity is thought to decrease with depth. Most of the wells produce water from zones of fractured rock, however there is no known or predictable pattern to the rock fracturing and no obvious structural control. Wells which produce water in the range of 15 to 20 gallons per minute (gpm) may be located less than 200 feet from wells which are only capable of producing water at 2 to 3 gpm.

Overlying the Franciscan Complex rocks are four terraces that represent former beach deposits. These marine terraces, named the Caspar Point, Jughandle Farm, Railroad, and Fern Creek terraces, form noticeable physiographic features atop the headlands. The terrace deposits consist of sand and gravel deposits that range up to 45 feet thick, but are mainly 10 to 20 feet thick. Typically the younger terrace deposits do not overlie older terraces, but rest directly atop the bedrock. Often a basal gravel layer occurs in the zone immediately above the bedrock. The upper elevation, or older terraces, which occur mainly east of Highway 1, have more highly weathered marine deposits than the younger terrace deposits and appear to have less porosity than the younger terrace deposits to the west of Highway 1.

The primary porosity of the sands is much greater than the secondary porosity (largely fracture porosity) of the bedrock and therefore the marine terrace deposits provide an important contribution to the overall groundwater storage for the Town of Mendocino.

Groundwater

Groundwater depth is very seasonal, with water table depth typically between 20 and 30 feet during the winter maximum, declining to at least 40 or 50 feet below ground surface during the late fall. Water levels and rates of decline and recharge are closely correlated to rainfall amounts and annual recharge volumes, and fluctuate both seasonally and depending on total rainfall received the previous winter recharge period.

Groundwater flows from the highland areas east of the Town of Mendocino towards the headland cliffs surrounding the town, where it is discharged through a large number of springs at the cliffs edge. Groundwater recharge is almost entirely dependent upon precipitation, and changes in groundwater levels through the year reflect the precipitation pattern. The lowest groundwater elevations are noted in the fall prior to the first substantial rainfall of the wet season. DWR (1985) noted that groundwater elevations appeared to start to rise after about 9 inches of precipitation. Groundwater levels continue to increase in response to each rainfall event throughout the main rainy season from January through April. Following the last large rainfall event in April or early May, the groundwater levels begin their summer decline.

Figure 2 presents a typical well hydrograph showing seasonal groundwater trends.

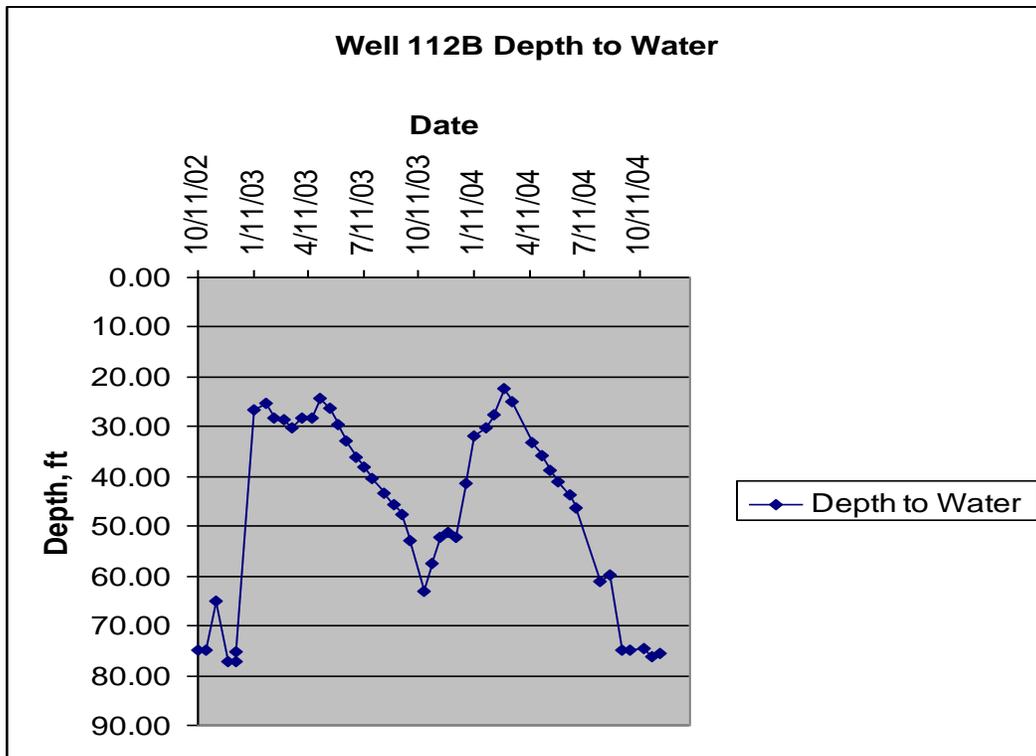


Figure 2: Typical Well Hydrograph

Water Use

Groundwater is the primary water supply for the Town of Mendocino. Individual wells are used to supply both commercial and domestic water usage. Well depths typically range between 40 to 200 feet, with most new wells in the range of 100 to 150 feet. A few older wells are as shallow as 20 to 25 feet. Shallower wells may be completed in marine terrace sands or gravels; however, most wells are composite and are completed in the underlying Franciscan bedrock. Flow rates to wells are quite variable, but typically range from less than 1 gpm to over 25 gpm. Wells that produce above 10 gpm are considered high-yield wells in this area, while typically high-yield wells in most areas produce over 100 gpm. Higher flow rates typically occur over short time intervals and during high water level periods during the winter months.

Because of these low yields, most properties employ storage tanks and the community, through the MCCSD, has implemented significant water conservation measures. Even so, some wells run dry in the late fall months, especially in drier than normal years; water is trucked in to replenish storage tanks at several properties on a regular basis in the fall, and the practice is more widespread during periods of drought.

Water Supply and Demand

The usefulness of a Water Shortage Contingency Plan relies heavily on the accuracy of a water budget. A water budget compares available water supply with water demand over a series of years, including those with average, above-average, and below-average rainfall or drought conditions. The MCCSD water budget has been refined over the past several years with improved modeling of groundwater. This section presents information about how the MCCSD assesses supply and demand based on the pattern of precipitation and groundwater levels. This information and recent groundwater modeling results completed as part of the preparation of the Water Shortage Contingency Plan are used to determine when a shortfall should first be declared, and the severity or stage of that shortfall and subsequent continuing shortfalls.

Table 1 shows the total annual water demand from 2000 to 2005 in gallons per day and acre-feet per water year (July 1-June 31), and illustrates an almost inverse relationship between precipitation and demand.

Table 1: Mendocino Water Demand

Water Demand	2001-02	2002-03	2003-04	2004-05	2005-06
Rainfall (in)	34.85	49.39	36.54	43.09	53.48
gallons per day	272,466	244,566	248,019	207,387	195,691
acre-feet per year	305.22	273.96	277.83	232.32	219.21

The highest demand occurred during the driest year, while demand decreased significantly during a wetter than normal year. Yet demand did not increase significantly following the below-average rainfall year of 2003-2004 when 36.54 inches of rainfall were recorded, which is less than the average rainfall of 41 inches per year. This is likely due to the seasonal timing of rainfall and may also be related to generally improved water conservation, in part due to newly established groundwater allotments.

Figure 3 shows pumping demand versus annual rainfall.

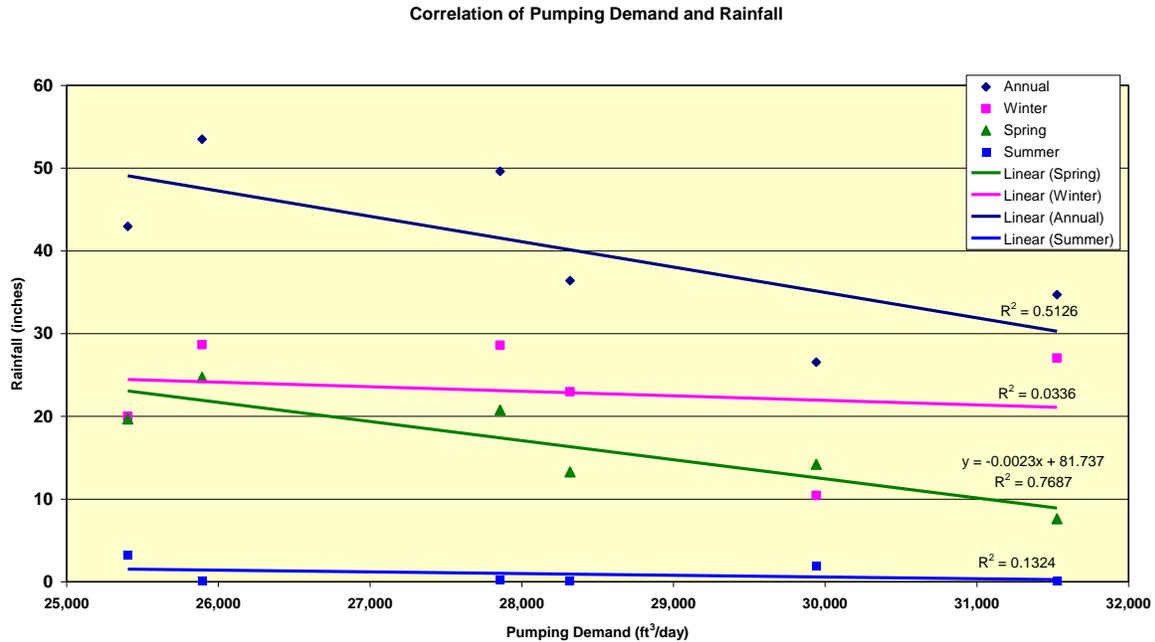


Figure 3: Correlation of Pumping Demand and Rainfall

Figure 3 shows daily demand increased from 25,403 cubic feet/day (190,014 gallons per day) to 31,529 cubic feet/day (235,836 gallons per day) when rainfall fell by 40 percent. This would not be sustainable during periods of water shortage. In the case of a water shortage, the demand would have to decrease with available supply, rather than increase. This is why a Water Shortage Contingency Plan is needed. The Plan must result in decreased water usage through increasingly more strenuous water conservation, so that available supply is not exceeded. Ideally, a 25-percent decline in rainfall (and groundwater recharge) should be matched by a 25-percent decline in water usage.

The chart also shows that the timing of precipitation is an important factor influencing demand. Pumping is more likely to increase with a dry (low-rainfall) spring than with a dry winter, indicating that most recognize the potential onset of drought from a dry winter and implement “voluntary” water conservation measures, but do not make the same association with a dry spring. This indicates the need for additional outreach and education on necessary water conservation and water use reduction, especially during and following dry springs.

In terms of the overall water supply, the annual demand of 200 to 300 acre-feet per year should be placed in context of the total water budget. According to the 2004 *Groundwater Modeling Study of the Mendocino Headlands, Mendocino, California* (Questa Engineering Corporation and ETIC, Inc.), human consumption (domestic well pumping) of water accounted for approximately 15 to 20 percent of estimated outflow between 1997 and 2003. Outflow varied between 974 acre-feet per year (AFY) in 2000/01 and 1,476 AFY in 1997/98. Inflow ranged from 886 AFY in 2000/2001 to 1,604 AFY in 1997/98.

Table 2: Water Balance for Select Years – Acre-Feet/Year

% normal	Year	Inflow			Outflow			Inflow-Outflow
		Precip.	GW Inflow	Total Inflow	Pumping Wells	Other Outflow*	Total Outflow	
84	1984-1985	886	21	908	251	787	1,038	-120
82	2000-2001	863	23	886	251	723	974	-88
103	2001-2002	1,083	19	1,103	264	910	1,174	193
111	1999-2000	1,164	19	1,184	251	907	1,158	6

Average precipitation approximately 1,050 mm/yr.

* Primarily spring discharge over cliff bluffs.

For 2006, the District estimated there were 427 residential well users, in addition to 254 guest units in hotels, bed and breakfasts, and motels that rely on well water. Residential well water users are typically single-family homes. Commercial users include restaurants, retail and service shops, and bars. Approximately 43 percent of the District’s monthly meter readings are from residential property owners, 30 percent from commercial businesses, and 20 percent from commercial lodging providers, such as hotels and bed and breakfast establishments. The remaining 7 percent of the readings are from schools and for various miscellaneous uses.

Overall domestic water use is less significant than seepage from cliffs and surface water runoff and comparable to the annual loss to the water supply from evaporation and transpiration. The aquifer has negligible year-to-year carryover storage and annual outflow nearly always balances with inflow. For this reason the MCCSD groundwater supply is extremely sensitive to annual variation in rainfall.

Whatever rainfall infiltrates into the soil and shallow groundwater and is not used essentially seeps out the cliffs or is evaporated from the upper soil layers and shallow groundwater table. Should rainfall that is not infiltrated be able to be stored in a reservoir, there could be as much as a two- to three-year backup supply. However, because of physical conditions making diversion and storage extremely difficult to engineer within the Mendocino headlands, this is not the case, and since annual demand is close to the estimated perennial yield of 259 AFY (rather than a small percent), the available groundwater supply must be carefully allocated during times of drought to avoid extreme water shortages. The importance of water shortage contingency planning can be seen in **Figure 4**, which shows the variability in annual precipitation in the area.

**Fort Bragg Calendar Year Precipitation 1949-2006
Mendocino Water Year Precipitation 1992/93-2005/2006**

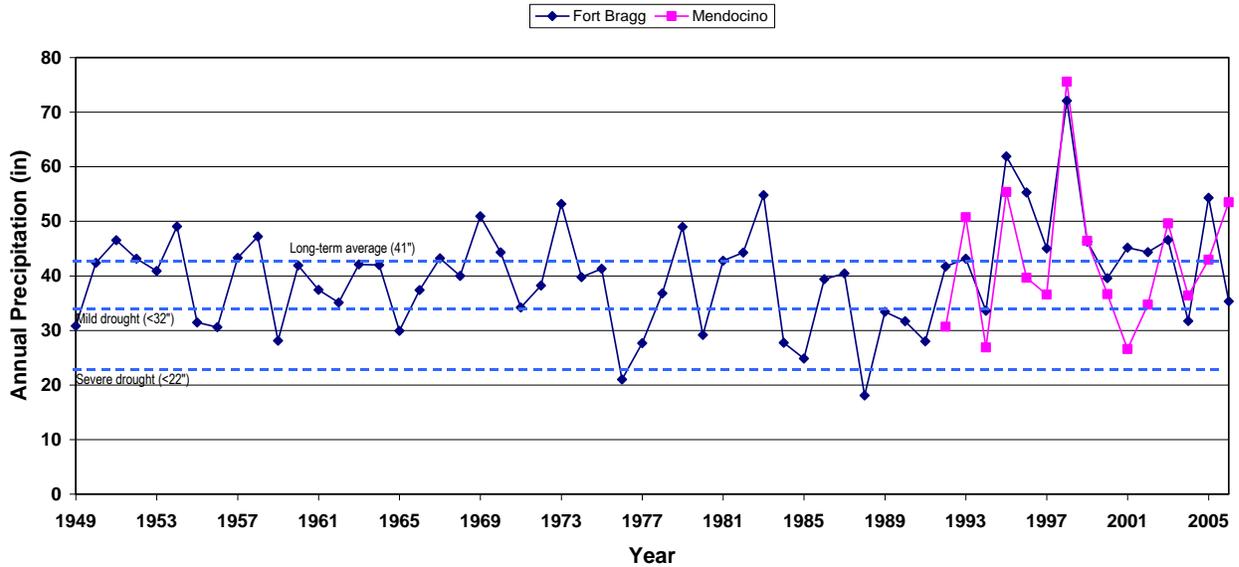


Figure 4: Historical Precipitation

Considering that normal rainfall is approximately 41 inches per year, there have been minor water shortages (less than 32 inches of rainfall) at least once every five years and major water shortages (less than 22 inches of rainfall) every 10 to 30 years, with the most significant in water years 1975/76 through 1977/78 and 1988/89. The last minor water shortage in the Town of Mendocino area was in water year 2000/2001. In response to past water shortages, the MCCSD and town residents have enacted their own largely voluntary water conservation measures, such as use of paper plates in restaurants, wise domestic use of potable water, and severely limiting landscape irrigation and other outdoor water usage. Although some customers supplement their well water with imported (trucked in) water even during periods of normal rainfall, this practice increases during times of drought. While emergency measures were informally issued, no formal water shortage emergency has ever been declared in Mendocino. **Figure 4** shows that, if available, a Water Shortage Contingency Plan could have been instituted several times in the past 58 years and, based on past history, is very likely to be required again in the not-too-distant future.

In terms of future water demand, it should be noted that the MCCSD area is largely “built-out,” with no significant increase in water demand expected over the next 10 to 20 years.

Stages of Action and Water Shortage Condition Criteria

A water shortage emergency should be declared when a lack of groundwater supply appears imminent, such as after an unusually dry winter, or following a period of consecutive dry seasons. For the MCCSD, groundwater supply is generally adequate during the wet season from December through April, even during minor drought years. The critical period, when supplies are most likely to be short, is typically from May through November. In order to determine the severity of the potential shortfall, the District must compare the total expected water supply against the expected demand. Due to the limited available storage volume of the Mendocino Groundwater Aquifer, lack of inter-annual (carryover groundwater) storage with no reservoirs, and no existing water rights to neighboring rivers or groundwater basins, the MCCSD area really is on a water shortage watch every year. This means the carryover surplus from an unusually wet year will be quickly erased by a succeeding dry year, often evident as early as February 1st. For this reason, the severity of the water shortage versus demand must be analyzed each month and since the supply is strongly seasonal, this analysis and determination of water shortage stage must be completed well before the middle of the rainy season, in early February. In order to be most effective, water conservation measures should always be in effect and water shortage response, including mandatory water conservation, should be enacted as soon as supply versus demand can be reliably forecast from measurement of precipitation and groundwater levels.

The basic information needed for determining the severity of a pending water shortage or drought for the MCCSD area is from measurement of cumulative rainfall. Precipitation falling directly on the Headlands is the primary source of groundwater recharge, and water levels in the area are strongly influenced by rainfall. During the winter and spring months, the variation of groundwater levels between potential water shortage conditions is within the range of potential natural variation. This is because groundwater recharge and water level recovery lags by several months after incident rainfall. Therefore, groundwater level is a poor predictor of potential upcoming water shortage conditions, especially during the winter. Only during the onset of the dry season (late April to early May) is measurement of groundwater levels an adequate indicator of water supply.

Groundwater modeling shows groundwater levels in the summer months are most sensitive to the preceding wet season starting October 1st, as well as late winter and spring starting from February 1st of the previous year.

Four stages of water shortage are recognized:

1. Mild Drought (alert)
2. Moderate Drought (warning)
3. Severe Drought (emergency)
4. Historic Drought (crisis)

The four stages of water shortage, with criteria for declaration of a water shortage based on cumulative rainfall, are presented in **Table 3**.

Table 3: Water Shortage Stage Criteria (Previous Year with Normal Rainfall)*

Water Shortage Stage	Severity	Rainfall	Expected Recurrence	Evaluation Date/ Cumulative Rainfall Total		
				Jan. 31	March 31	May 31
1 Alert	mild	75% to 82.5% of normal	±5 years	14-19"	29-32" and <7" since Feb 1	32-35" and <10" since Feb 1
					26-29" and 7-18" since Feb 1	26-29" and 10-20" since Feb 1
					22-26" and >18" since Feb 1	22-26" and >20" since Feb 1
2 Warning	moderate	60% to 75% of normal	±8 years	10-14"	26-29" and <7" since Feb 1	26-29" and <10" since Feb 1
					22-26" and 7-18" since February 1	22-26" and 10-20" since February 1
					16-22" and >18" since Feb 1	16-22" and >20" since Feb 1
3 Emergency	severe	50% to 60% of normal	±15 years	8-10"	22-26" and <7" since Feb 1	22-26" and <10" since Feb 1 16-22" and 10-20" since Feb 1
					16-22" and 7-18" since Feb 1	16-22" and >20" since Feb 1
4 Crisis	historic	less than 50% of normal	±50 years	<8"	16-22" and <7" since Feb 1	16-22" and <10" since Feb 1
					<16"	

*Rainfall measured from October 1.

The criteria presented in **Table 3** should be used each year to determine water shortage onset stage and modified appropriately if there is a pre-existing water shortage (drought from the previous year or earlier), according to the following criteria:

- If there is a pre-existing **Stage 1 Water Shortage**, follow the Water Shortage Condition Criteria without modification.
- If there is a pre-existing **Stage 2 or 3 Water Shortage**, modify the Water Shortage Condition Criteria recommendation for the appropriate date to the next most severe water shortage condition.

To stay on track the MCCSD must evaluate conditions on a regular schedule. Such a schedule must enact a Water Shortage Contingency Response Plan as soon as a shortage is forecast.

Table 4: Calendar for Declaring Water Shortage & Determining Water Shortage Response Plan

Target Date	Action
October - December	Monitor rainfall amounts
Late January	Prepare written status report on water supply conditions; report to Board
Early February	Present initial estimate of water supply availability for year ahead to Board
Early March	Present revised estimate of water supply availability for year ahead
Mid to late March	MCCSD determines target water budget and need for mandatory response.
April through May	Monitor select wells. MCCSD formally declares Water Shortage Emergency, implements provisions of emergency ordinance, if applicable
End of May	Mandatory water shortage regulations become effective for shortage stage

If water shortage is not declared by the end of May, no further evaluation is required until the following January 31. However, if a water shortage condition is defined prior to May 31, there should be additional evaluation dates on August 31, November 30, and December 31 to evaluate whether the water shortage condition should be continued, increased in stage, or terminated. Depth to groundwater and rainfall criteria shall determine if: (1) initial voluntary water conservation or other mitigation measures were sufficient to ease the water shortage restrictions, (2) conditions have worsened and more stringent water shortage restrictions and mandatory water conservation measures are necessary, or (3) conditions have remained unchanged.

August 31 Evaluation Date

Typically, no significant rainfall occurs during the period from May 31 to August 31; therefore, depth-to-groundwater levels are considered as the primary tool for groundwater supply

evaluation for the end of summer. Depth-to-groundwater levels are defined for five indicator wells that will be used as the primary basis for declaration of a potential water supply shortage during the summer months, based on model results and historic data. Because a range of conditions may occur based on this analysis, the average condition should be considered as the indicator of the water shortage condition, in which a majority of wells (e.g., three out of five) fall within the depth-to-water criteria for a particular stage (different wells may sometimes indicate different stages).

Table 5: Indicator Well Groundwater Levels to Trigger Water Shortage

	No Water Shortage	Stage 1	Stage 2	Stage 3	Stage 4
Well 139					
August	<18'	18'-22'	22'-26'	26'-34'	>34'
November or December	<15'	15'-19'	19'-23'	23'-29'	>29'
Well 25					
August	<38'	38'-40'	40'-44'	44'-50'	>50'
November or December	<35'	35'-37'	37'-41'	41'-47'	>47'
Well 134A					
August	<17'	17'-19'	19'-23'	23'-30'	>30'
November or December	<14'	14'-16'	16'-20'	20'-27'	>27'
Well 134B					
August	<17'	17'-19'	19'-23'	23'-30'	>30'
November or December	<13'	13'-15'	15'-19'	19'-25'	>25'
Well 136					
August	<14'	14'-16'	16'-20'	20'-24'	>24'
November or December	<14'	14'-16'	16'-20'	20'-24'	>24'

November 30 and December 31 Evaluation Dates

Modeling results indicate that unless rainfall is well below average in the fall, groundwater levels can be restored to near-normal conditions, even when the previous year is drier than normal and there is a lack of significant carryover storage in the aquifer. This of course depends on the severity of the pre-existing water shortage condition. The criteria are based on the December 31 conditions. November 30 is considered an interim date, so that if high rainfall occurs in November, water shortage conditions can be modified prior to December 31.

For the November 30 and December 31 evaluations, the decision-making data will consist of both rainfall and depth to groundwater. If rainfall and depth to groundwater evaluations do not agree, then the more conservative (severe) of the conditions will be used. The rainfall conditions are defined as cumulative rainfall since October 1 in relation to the pre-existing water shortage condition. **Table 6** shows the decision matrix, should there be a continuing water shortage.

Table 6: Water Shortage Stage Criteria for Continuing Water Shortage

Pre-existing Water Shortage Stage	November 30, December 31	Action
1	>12" since Oct 1	No Water shortage
	<12" since Oct 1	Continue Stage 1
2	>16" since Oct 1	No Water shortage
	12-16" since Oct 1	Change to Stage 1
	<12" since Oct 1	Continue Stage 2
3	>22" since Oct 1	No Water shortage
	16-22" since Oct 1	Change to Stage 1
	12-16" since Oct 1	Change to Stage 2
	<12"	Continue Stage 3
4	>22" since Oct 1	Change to Stage 1
	16-22" since Oct 1	Change to Stage 2
	12-16" since Oct 1	Change to Stage 3
	<12"	Continue Stage 4

Estimate of Minimum Supply

The minimum available groundwater supply (defined as that available to water supply wells) has been estimated from long-term water budget data compiled for the 2004 Groundwater Modeling Study (Questa and ETIC, 2004) and from the 2006 Mendocino Drought Contingency Modeling Scenarios (Questa and Kennedy-Jenks, 2006). **Table 2**, presented earlier, shows a general water balance completed for the Mendocino Headlands Aquifer. The 2004 report determined a safe yield for the aquifer of 259 AFY.

Climate records indicate that a minimum supply was probably reached near the end of 1977 after two water shortage years, and near the end of 1989 after an extremely dry fall. In these instances the available groundwater supply likely dropped to 40 percent of the average. Forty percent of the perennial yield of 259 AFY is 104 AFY. This yield is assumed to be a reasonable estimate of minimum supply. As discussed subsequently, a 40-percent water demand reduction is recommended during severe, or historic Stage 4, droughts.

Catastrophic Supply Interruption Plan

In addition to drought-caused water shortages, there are a number of scenarios that could affect the available water supply. California Water Code section 10632 (c) requires water suppliers to describe the necessary actions to prepare and implement following a catastrophic interruption of water supplies. This includes floods, earthquakes, fires, and spills of hazardous materials.

There is no significant threat to disruption of water storage facilities or transmission lines from earthquakes, floods, or fires within the MCCSD service area, since nearly all water is extracted by private wells rather than transmitted through District-owned pipelines. A more significant

potential catastrophic occurrence is the threat of contamination from a hazardous materials spill or leaking underground storage tank that could spread fairly rapidly, given the permeability and limited extent of the aquifer. The potential threat of a spreading plume of contaminated groundwater is exacerbated by the high density of active wells.

Records of leaking underground fuel tanks (LUFTs) are compiled in a database that can be accessed through the State Water Resources Control Board Website (geotracker.swrcb.ca.gov). The database includes three sites in Mendocino: 1) a fuel tank at the Mendocino Headlands Park at 725 Main Street, 2) the Presbyterian Church at 44831 Main Street, and 3) the Chevron Station at 44901 Main Street. The Park tank is reported for a leak of gasoline discovered in 1998, for which no further action has been instigated, although the case is still considered open. The Presbyterian Church is reported for a leak of diesel fuel oil first discovered in 1993. Following excavation of contaminated soil and replacement with clean fill, the case was officially closed in 2004. The only active site is the Chevron Station at 44901 Main Street. Records indicate gasoline leakage from buried fuel tanks and ongoing site assessment since 1988, when the case file was opened. A network of monitoring wells is currently located around the buried tanks that supply the station. According to the latest available quarterly monitoring report dated July 1, 2006, there is significant groundwater contamination from gasoline, and benzene, toluene, ethylene and xylene (BTEX). This contamination is concentrated in Monitoring Well 2, located between the Pump Island and Church Street. Sampling and testing results indicate total petroleum hydrocarbons occurring as gasoline as high as 70,000 micrograms per liter on July 23, 2001 have typically been declining to as low as 5,900 micrograms per liter from the last sample taken on April 18, 2006.

Groundwater monitoring and vigilance in containing and remediating any contaminant spills is especially important considering the high density of water wells in the community. A spill from one of several underground fuel tanks would pose a major threat to the available water supply and negatively impact the water balance. It is therefore considered critical that remediation efforts and actions following detection or suspicion of groundwater contamination be carefully coordinated between the MCCSD, the North Coast Regional Water Quality Control Board, the County of Mendocino, and the responsible party.

Various possible catastrophes and MCCSD response actions are summarized in **Table 7**.

Table 7: Preparation Actions for a Catastrophe

Possible Catastrophe	Summary of Actions
Regional Power Outage	Individual wells and electric pumps not operable. MCCSD to contact utility (PG&E) for repair service. MCCSD has standby generator for its use and 6,000-gallon storage tank available to customers.
Earthquake/Flood Damage	MCCSD makes customer visits and initiates repairs to wastewater treatment plant. Temporary distribution of trucked water by private vendors for prolonged outages, or use of private generators and bottled water. Responsibility of individual customer to check wells and pump/pressure tanks and repair where broken.
Locally Contaminated Aquifer and Spreading Plume	Switch to alternate source for drinking water (i.e., bottled water, trucked-in water). MCCSD to test District monitoring wells to see if supply may still be suitable to use for non-potable uses such as showers, toilets, and outdoor uses. MCCSD to coordinate with responsible party, Mendocino County Environmental Health, California Department of Health Services, and North Coast Regional Water Quality Control Board re: aquifer testing, investigation, and cleanup. MCCSD to provide emergency supply from 6000-gallon storage tank.

Water Demand Reduction Methods, Prohibitions, and Penalties

General

This Contingency Plan's voluntary and mandatory water conservation and water demand reduction methods, including various prohibitions and penalties based on the proposed water wastage prohibition and water conservation ordinance, are summarized in **Table 8**. In general, uniform District-wide rationing is not feasible since District residents and businesses use groundwater pumped from private wells; therefore, water can only be shut off with well closure by court order for blatant violations. In addition, the MCCSD has established water allotments for only about 50 percent of customers, and only these have meters. As **Table 8** shows, when a Stage 3 Water Shortage Emergency is declared, customers with allotments would have their allotment reduced 20-percent, with a 40-percent reduction during a Stage 4 water shortage emergency. Other consumers without meters would submit records of water consumption and monitoring applied toward a voluntary water conservation program.

Most water use restrictions, mandatory water conservation measures, and prohibitions with penalties addressed in the proposed Ordinance are focused on a reduction in landscape watering and prohibition of outdoor washing for non-sanitary needs, with fines for reported repeat violators. Unauthorized use of water would include watering of landscaping in a manner that allows excess water to run to waste, uncorrected plumbing leaks, outdoor washing of hard surfaces without the use of a positive shut-off nozzle, etc. Any hosing of exterior surfaces would be prohibited during a Stage 3 or Stage 4 Water Shortage Emergency.

Table 8: MCCSD Water Shortage Contingency Plan

Water Shortage Stage/ Condition	Customer Requirements	Water District Activities	Penalties
<p>1. Conservation Alert:</p> <p>Mild shortage. Frequent condition after March 1 due to lack of inter-annual (carryover) storage.</p>	<ul style="list-style-type: none"> ➤ Voluntary water conservation ➤ Prohibition of water waste (hose washing driveways, parking area, walkways or other paved surface, except as is required for sanitary purposes) ➤ Display of conservation information by hotels and restaurants 	<ul style="list-style-type: none"> ➤ Ongoing public information campaign, media outreach ➤ Request voluntary water conservation with 10% use reduction 	<ul style="list-style-type: none"> ➤ Warning letter on need for water conservation ➤ Possible penalties on blatant water wastage after first warning
<p>2. Mandatory Restrictions:</p> <p>Moderate Shortage</p>	<ul style="list-style-type: none"> ➤ Designated irrigation days and times ➤ No vehicle washing except with a hand-held bucket or hose equipped with a positive shutoff nozzle ➤ Prohibition on refilling of decorative fountains or ponds unless such water is part of a recycling system. ➤ No refilling of hot tubs or swimming pools. ➤ Drinking water served at restaurants only upon request 	<ul style="list-style-type: none"> ➤ Step up enforcement of prohibition on water waste ➤ Request voluntary % reduction ➤ Intensify media outreach and information campaign ➤ Mobilize Drought Patrol 	<ul style="list-style-type: none"> ➤ Warnings ➤ Excess water use limit ➤ Educational letter, visit by MCCSD representative ➤ Water wastage penalties (e.g., fine for any person that causes or allows the water to run off landscape areas into adjoining streets, sidewalks, or other paved areas due to incorrectly directed or maintained sprinklers or excessive watering and hard surface washing)
<p>3. Limited Rationing:</p> <p>Serious Shortage</p>	<ul style="list-style-type: none"> ➤ Residential usage allotments ➤ % reduction for non-residential customers ➤ Irrigation audit for landscape maintenance. ➤ Use of paper plates at restaurants to avoid dishwashing. ➤ School restrictions on showers. 	<ul style="list-style-type: none"> ➤ 20% allotment reduction ➤ Intensify public relations ➤ Step up Drought Patrols, provide conservation repair audits ➤ Recommend to County Planning/ Building, no building permits with increased water allotment. ➤ Prohibition on new groundwater extraction permits. ➤ Prohibitions on pump tests. 	<ul style="list-style-type: none"> ➤ Warnings ➤ Surcharge or penalty for repeat offenders
<p>4. Full Rationing:</p> <p>Severe Shortage</p>	<ul style="list-style-type: none"> ➤ Rationing for all customers 	<ul style="list-style-type: none"> ➤ 40% allotment reduction ➤ Intensify all Stage 3 actions ➤ MCCSD coordinates outside water delivery to meet demand, provided by private vendors. ➤ MCCSD makes water from its storage tank available; coordinates with private vendors for efficient delivery. 	<ul style="list-style-type: none"> ➤ Warnings ➤ Rigorous enforcement with penalties and surcharges ➤ Possible shutdown of wells for serious repeat violators

Note: Each increasingly severe water shortage stage includes the requirements, activities, and penalties of the less severe stages. In Stage 4, suppliers (vendors with water trucks) who anticipate they can handle the demand can supply water shortage water privately.

The MCCSD has access to a well owned by the State Park and a 6,000-gallon tank located down-gradient of the downtown area aquifer that could also supply emergency drinking water for a limited period.

At Stage 4 the intention of the plan is to restrict water demand to vital functions, such as human consumption, sanitation, and fire protection. This should equate to a minimum supply of 50 gallons per person per day or approximately 50,000 gallons per day, about one-quarter of the average daily demand calculated for the 2005/2006 rainfall year with above average rainfall.

Demand Reduction

Water Wastage Prohibition

The companion Ordinance prohibits the following water wastage practices:

- Indiscriminate running of extracted groundwater that is wasteful and without reasonable purpose.
- Allowing extracted groundwater to spill into streets, curbs, or gutters.
- Using extracted groundwater in any manner that results in runoff beyond the immediate area and intended purpose of use.
- Watering using extracted groundwater to establish new lawns and other high water demand (non-Xeric) landscaping

Water Conservation

The companion Ordinance limits the watering of existing established landscaping to manual garden hose watering or use of a drip irrigation system between the hours of 7:00 PM and 10:00 AM. However, since extensive outdoor landscaping is not common in this community, the Water Conservation portion of the companion Ordinance focuses on the following:

- **Washing of Vehicles.** The washing of personal and commercial motor vehicles, including boats and other equipment, is permitted only by means of a “bucket and sponge,” and a hose with a shutoff nozzle.
- **Cleaning of Exterior Surfaces.** The hosing down of porches, sidewalks, driveways, and other hard surfaces is prohibited, except as needed for health and safety reasons.
- **Cleaning of Structures.** Using a hose to clean the exterior of buildings is prohibited, except as is necessary to avoid creation of a public nuisance.
- **Pools and Spas.** Emptying and refilling a swimming pool, hot tub, or spa except to prevent or repair structural damage or to comply with public health regulations, are

prohibited. All pools, hot tubs, and spas are to be covered to prevent evaporative losses when not in use.

- **Fountains.** Use of decorative fountains is discouraged. Using water to operate a fountain is prohibited unless such water is recirculated.
- **Visitor-Serving Facilities.** Owners and managers of hotels, motels, bars, restaurants, and other visitor-serving facilities are to display placards or decals promoting public awareness of the need for water conservation and/or advising the public that waste of water is prohibited.
- **Restaurants.** Restaurants in the District are only to serve water to restaurant customers upon request.
- **Construction.** No potable water obtained from the MCCSD groundwater supply may be used for soil compaction or dust control during construction activities. All water hoses used in connection with construction activities are to be equipped with an automatic shutoff nozzle.

Water conservation would be voluntary during a declared Stage 1 Water Shortage and become mandatory in Stages 2 through 4.

Recycled Water

MCCSD currently provides recycled water to Mendocino High School for irrigation of its athletic field. There are no other large turf grass areas or large blocks of landscaping with high water demand where it would be feasible to bring in recycled water for landscape irrigation.

Indoor Water Conservation and Plumbing Retrofit Program

MCCSD does not have direct building permit approval authority over plan submittals for new buildings or substantial remodeling projects, or retrofit of existing structures where a remodeling building permit has submitted, which would enable it to require use of water-conserving indoor plumbing fixtures. Since the Town of Mendocino is an unincorporated area, Mendocino County has planning/building approval authority in this area. Mendocino County has an existing Water Conservation Ordinance requiring the use of low-flush toilets for all new building and remodeling projects. All projects that also require a groundwater extraction permit issued by MCCSD are referred to the District by the County. Use of water-conserving indoor plumbing fixtures (i.e., low-flush toilets, low-flow showerheads, water-conserving water softeners, commercial dishwashers, etc.) is made a condition of approval for both the County building permit and the groundwater extraction permit.

Since the MCCSD does not have planning/building approval authority, it currently does not administer a water-conserving fixture retrofit rebate program.

Water Pricing Structure and Historic Use Improvement Incentives

This element of the Water Shortage Contingency Plan is not currently applicable to MCCSD, as the District does not sell water to its customers; its duties as a water provider are in groundwater management as well as development and implementation of this Contingency Plan, including

education, outreach, and enforcement of water wastage and water conservation provisions of its proposed ordinance. All customers have their own wells, some of which have meters and water allotments.

As noted in the **Analysis of District Fiscal Impacts During Drought** section, MCCSD does impose a surcharge on its customers for administering its groundwater management program, based on estimated water usage and wastewater flow for various types of land use (residential, hotel, restaurant, bar, etc.). Since not all MCCSD customers have meters on their wells, the District currently cannot provide an economic incentive for water conservation based on improvement over historic water use patterns, an ascending rate structure, or as a surcharge for higher than normal uses.

MCCSD will continue to examine the feasibility of placing meters on its customers' wells, for instance beginning with commercial customers, and will reexamine the feasibility of using an incentive-based pricing structure to further encourage water conservation during periodic updates to this Contingency Plan.

Public Education and Outreach

The Town of Mendocino and surrounding area is very unique from a water supply and water conservation planning perspective. All of the residents and business owners in the community are aware of the limited water supply available to them from their individual wells, and virtually all (by necessity) have a strong water conservation understanding and ethic. Nearly all are also very aware of the need to “ramp up” water conservation efforts late in the summer and fall, even during normal rainfall years, and to achieve even higher water conservation practices during times of drought.

Accordingly, the MCCSD public education and outreach program regarding water conservation will focus on the following:

- 1) Informing the public and MCCSD customers when a Water Shortage has been declared by the District Board and providing additional water conservation tips.
- 2) Informing tourists and visitors to the community of the ongoing, perennial water supply situation and any declared Water Shortage Emergencies, as well as the need for them to help conserve water.
- 3) Conducting “drought patrols” to identify, educate, and inform MCCSD customers regarding the Ordinance on Water Wastage and, as applicable, on voluntary and mandatory water conservation measures.
- 4) Performing water conservation “audits” at the request of residential and business customers to help identify additional water conservation strategies.
- 5) Providing brief water conservation seminars to community groups and local schools.

Public education and outreach during declared Water Shortage Emergencies will be achieved by the following mechanisms:

- Quarterly newsletter article
- Information on MCCSD Website (water conservation links)
- Billing inserts
- Tent cards on water conservation in hotels and restaurants.

Penalties

Violation of the companion Ordinance would be considered a public nuisance. The Ordinance provides for enforcement mechanisms and a penalty structure, which includes written warnings and visits by MCCSD staff for first offenses, with penalties and surcharges on customer bills for subsequent violations.

Analysis of Fiscal/Economic Impacts During Drought

Drought Impact on MCCSD

A drought or water shortage emergency can potentially have significant adverse financial impacts on most Water Districts or water providers, as typically user fees and other revenues for metered water services decrease as water usage drops due to water conservation, while services and district costs related to public outreach, including media advertising, water conservation education, and staff time for assessments, audits, and code enforcement for water wastage and poor water conservation practices increase sharply.

Due to MCCSD's unique structure, it is not thought that a drought, and the subsequent declaration of a drought emergency, will have a serious effect on District financing, or the ability of MCCSD to provide additional services during a drought. That is because MCCSD's groundwater management budget is limited to approximately \$60,000 per year. Most of the District's groundwater management planning has been supported by grants. Revenues to support MCCSD groundwater management responsibilities are based on a surcharge of 10.8% on top of monthly customer wastewater or sewer usage fees. Although water usage, and consequently wastewater flows, will likely drop during times of drought, the surcharge fee collected for groundwater management services provided by the District is relatively stable, since the surcharge is based on unmetered sewer charges, which in turn are based on equivalent dwelling unit charges for residential and commercial properties.

District costs will rise during the declaration of a Water Shortage, especially Stages 3 and 4, principally as staff costs needed for conducting public outreach and education, the initiation of drought patrols to find and educate water wasters and individuals practicing poor water conservation, and in staff time to track water usage, issue citations, and calculate estimates of water savings needed for allocation reductions.

It is currently thought that MCCSD staff can handle the duties associated with the proposed Water Conservation Ordinance and Contingency Plan adoption as part of their current workload

during a normal year, or during a Stage 1 declared Water Shortage. Part of the reason for this is the strong water conservation ethic already established in the Town of Mendocino area. All residents and businesses are keenly aware of the limited supply of water in the area and nearly all implement self-imposed water conservation measures that reflect this knowledge. Those who import potable water from time to time also realize the high costs associated with outside water purchase and the prudence of water conservation.

The adopted Water Conservation Ordinance and Water Shortage Contingency Plan may require the hiring of a part-time (1/4-time) water conservation staff person to carry out the duties of the Ordinance during the declaration of a Stage 3 or Stage 4 Water Shortage Emergency, when additional staff time and paperwork are required to notify customers of changed water allocations, to issue citations and written notices for Ordinance violations, and when additional tracking of actual water use versus reduced water allotments is needed. Costs of a part-time water conservation staff person, including salary, disability, workers compensation, and health insurance, and other payroll taxes and benefits are estimated to be on the order of \$30,000 to \$40,000 per year.

In addition to the possible part-time water conservation staff person, the MCCSD may experience outside costs in public education outreach and advertising on water conservation, in the District's attorney's fees in reviewing and enacting a Water Shortage Emergency Resolution, and in assistance in enforcement actions against serious violators of the Ordinance. These outside costs are difficult to estimate. The MCCSD could join with other nearby cities and with the County in cost sharing for water conservation outreach and media advertising. The District attorney's time for legal fees for ordinance-related matters, including enforcement actions, will likely be at least partially supported by fines and judgments. Additional outside costs for advertising and other expenses are conservatively estimated to be about \$5,000 to \$7,000 per year during times of severe drought.

The MCCSD maintains a very minimal reserve fund that could potentially be drawn upon to partially support increased groundwater management and water conservation program requirements during declared Water Shortage Emergencies. It would also be necessary for the District to increase the surcharge fee on the monthly sewer bill to fund the increased groundwater management and water conservation activities. This would require public noticing of the proposed surcharge fee increase and approval by the Board of Directors.

Drought Impact on the Local Economy

A drought and water shortage can also potentially have significant adverse impacts on a local economy, especially one that is tourist dependent, and focused on water-dependent recreational activities such as boating, rafting, fishing, and swimming.

Although the Town of Mendocino's economy is dependent on local and area-wide tourism, and although the Town is located along the coast with water-dependent recreational activities, drought and water shortages are not thought to adversely affect this sector of the local economy. For one thing, winter climate along the north coast tends to be much improved during drought years compared to years of normal and above-average rainfall, and if anything there would likely

be a small upsurge in tourism associated with longer periods of favorable weather conditions. In addition, the tourism industry is not dependent on streams or reservoirs subject to water level fluctuations during times of drought.

It is highly unlikely that any commercial business would have to cut back or curtail activities during even a severe or historic water shortage. Restaurants would only offer water to customers upon request, and could provide bottled water. Hotels could send laundry service outside of the area to be cleaned. Many commercial businesses currently import water via private-vendor water trucks during the late summer and fall months and would continue to do so, with water importation perhaps beginning earlier for these customers, as would a number of additional customers who do not now typically import water, except during droughts.

Should a prolonged Stage 4 water shortage occur, a significant amount of water importation would be needed. Meeting the absolute minimum demand of 25 gallons per person each day for basic sanitation would require approximately 25,000 gallons be trucked in, equivalent to about 8.5 water trucks holding 3,000 gallons each. Each water truck would cost about \$300, with a total daily cost of about \$2,500. Assuming, per the Drought Scenario Model, most wells are dry by July 1 and not replenished until December 1 (five months), this corresponds to about 150 days of water importation, or an impact of approximately \$375,000 on the local economy. Therefore, the cost of importation during a severe water shortage is expected to be significant. As a result, even though local revenue loss to the local economy during a severe drought is unlikely, there could be a significant increase in cost of living and in doing business locally.

A higher imported water usage of 50 gallons per person per day would double the costs to \$750,000. In fact, actual per capita water usage during the relatively dry winter of 2001-02 (35 inches of rainfall, vs. the average of 41 inches) was about 272 gallons, which also reflects commercial uses. Assuming a 40-percent reduction in daily water demand, total importation could be well over 100,000 gallons a day (requiring 35 to 40 water trucks).

Considering that development of a municipal water supply, storage, and transmission system would likely cost several million dollars, there are no readily identifiable alternative supply sources. The Town will likely continue to rely on strict water conservation and trucked-in water during the inevitable severe to historic drought that typically occurs every 15 to 50 years.

Use Monitoring Procedure

In order to assess the effectiveness of this Water Shortage Contingency Plan, the MCCSD should continue to monitor customer water use (as reported on meter readings and through mail-in surveys), groundwater wells in the monitoring network, and wastewater treatment plant flow as indicators of groundwater extraction. Some water use mechanisms are presented in **Table 9**.

Table 9: Water Use Monitoring Mechanisms

Mechanisms for determining actual reductions	Type and quality of data expected
Continue monitoring of treatment plant flow.	Good record of daily bulk consumption, but little detail.
Customer Survey	Identification of water use patterns, fair quality

Contingency Plan Implementation Recommendations

There are two potentially controversial issues associated with adoption of this Water Shortage Contingency Plan and the associated Conservation and Drought Ordinance, as well as their subsequent implementation and enforcement, that will require additional public discussion and community input to the Board, as part of the Board's decision making process. The Board will need to hold a public hearing on these items, and either a) vote formally for adoption of the Contingency Plan and implementation of the Ordinance, b) vote for specified modifications to the provisions of the Plan and Ordinance, or c) direct staff to make other specified changes or take other actions. These important issues were brought up during a community meeting on the Draft Ordinance and Contingency Plan, held in the Town of Mendocino on October 26, 2006.

The first issue was whether the MCCSD Groundwater Management Plan groundwater extraction water allocation system with mandatory water use metering and use reporting should be imposed community wide at some time in the near future, or if it should continue to be gradually phased in associated with new construction or substantial remodeling.

Several persons in attendance at the meeting estimated that in their opinion, only about 25% of the wells within the Town are metered and subject to water use allocations, and therefore they wondered how effective the Contingency Plan and Ordinance would be.

According to District records, there are 164 parcels with groundwater extraction permits (GWEPs) and 168 parcels without GWEPs, representing approximately 50-percent extraction permit coverage when expressed on a parcel-by-parcel basis. With an estimated 88,223 gallon/day water demand for parcels with permits and a 65,658 gallon/day water demand for parcels without permits, over 57-percent of the water demand is for parcels covered by GWEPs; the majority of the commercial well users are metered and have groundwater extraction allocations.

The balance of the unallocated groundwater demand for Mendocino is for undeveloped parcels (the Town of Mendocino is estimated to be over 90% built-out per the General Plan allowance), currently GWEP-exempt parcels (such as undeveloped State Park lands), undeveloped residential parcels in subdivisions with existing community water systems, road right-of-ways and open-space parcels, and the Mendocino Unified School District (their water system is outside of the MCCSD boundaries and therefore not subject to the issuance of groundwater extraction permits).

Some attending the community meeting were in favor of having the water allocation system apply to all water well users, as being the most fair and most effective in managing the Town's limited groundwater supply. Some meeting attendees with water meters thought the current allocation and reporting system was not a large burden. Generally speaking, the people at the town meeting that were in favor of requiring more immediate community-wide well metering were residents with existing GWEPs, while most of those without a GWEP would naturally want to avoid spending the time and costs of obtaining a meter and accompanying water allocation.

The following arguments support continuation of a phased water allocation implementation approach:

- 1) One of the main purposes of the District's Groundwater Management Program is to prevent aquifer overdraft. The District's current permitting strategy of requiring a property owner to get a permit and to limit their future extraction following some permit triggering action by the owner has generally worked well. For instance, the two recent groundwater studies described in this Contingency Plan that were funded by the Department of Water Resources have provided evidence that, although almost entirely allotted, Mendocino's aquifer is not being seriously depleted.
- 2) The MCCSD Board currently favors a gradual, phased permitting approach to limiting extraction. To ensure this permitting policy protects the groundwater resource, MCCSD has developed a numeric groundwater model, which is updated annually. The Mendocino Groundwater Model calculates the perennial yield (safe yield) of the aquifer on a yearly basis. If the groundwater monitoring data collected and analyzed by the District indicates an adverse change in groundwater availability, a more immediate GWEP implementation policy can be considered by the District Board of Directors at that time.

Another issue brought up during the meeting involved penalties and enforcement of the Ordinance provisions. Currently the draft Ordinance proposes no fines or penalties for first-time offenders, and modest but increasing penalties for second and repeat violators of the proposed Ordinance provisions. The violations would be considered a civil offense, like a parking ticket, not a criminal law offence. This issue was not very controversial, although several in attendance pointed out that it may be difficult to get the County sheriff, or County Planning and Building Department staff (as the Ordinance provides, along with the District Superintendent) to effectively provide enforcement, issue citations, and collect fines and penalties.

Summary

The Water Shortage Contingency Plan presented here is intended to provide technical support, including program implantation, for the companion Ordinance “Prohibition of Water Wastage, Year-Round Water Conservation Measures, Establishment of Provisions for Designation of Water Shortage Emergency Conditions, and the Adoption and Implementation of a Water Shortage Contingency Plan” to curtail demand to meet available supply. Since supply is primarily limited to a shallow, limited, and seasonally replenished groundwater aquifer, the Plan should be successful for mild to moderate water shortages, while a severe water shortage (two or more years of drought) is likely to have severe impacts that cannot be fully mitigated by water demand reduction management. The only alternatives will be to further reduce demand through innovative use of recycled water and conservation or to develop another supply. Such a supply would likely involve sharing of water rights that are now reserved for other uses, such as those of the Big River. Other options, such as a desalinization plant, are infeasible for a small town until such time that the technology is sufficiently improved to reduce costs. Nevertheless, the Plan is considered to be effective except in the most severe cases and should improve advance planning for water shortages.

A Community Meeting was held on October 26, 2006, during which the results of the groundwater modeling were reviewed, and the proposed Draft Water Shortage Contingency Plan and Water Conservation and Drought Ordinance were presented. Comments from the public were also received at the Town meeting. Although a number of technical questions were asked regarding the results of the groundwater analysis, and on the Contingency Plan, the primary comments were regarding whether the groundwater extraction permit with its mandatory water metering and water allocations system should be imposed throughout the community, or if the allocation and meter requirement should continue to be phased in associated with new buildings or substantial remodeling. Questions were also asked regarding enforcement of the Ordinance and the need for penalties. An additional Community meeting is recommended to discuss these issues, associated with the review and possible adoption of the Contingency Plan and Ordinance by the MCCSD Board of Directors.

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Appendix F

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