CITY OF GREENFIELD

2005 – 2025 Wastewater System Capital Improvement Plan Update and Capacity Charge Study

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EXECUTIVE SUMMARY

The purpose of this Wastewater System Capital Improvement Plan Update for the City of Greenfield wastewater system is to identify deficiencies in the wastewater system (both existing and build-out) and recommend improvements to correct them. (This Wastewater System Capital Improvement Plan Update includes identifying capacity deficiencies in the City Wastewater Treatment Plant (WWTP) and recommends expansion improvements.) A staged capital improvement program (CIP) is proposed that presents the costs of the required improvements and the approximate time frame when they will be needed.

WASTEWATER SYSTEM ANALYSIS

The existing City of Greenfield wastewater system has been analyzed for its capacity to convey existing and future flows. In addition, sewer extensions to serve presently undeveloped areas were identified and their capacity and sizing requirements determined.

Wastewater flows were estimated based on land use information provided by the City of Greenfield Planning Department and on design criteria established by Terra Engineering.

The results of the capacity analysis indicate that there are no significant deficiencies in the existing wastewater collection system under existing development conditions. Accordingly, the City's existing wastewater collection system will have to be enlarged to meet future demand and the required improvements identified in the analysis are necessary to serve future development.

RECOMMENDED CAPITAL IMPROVEMENT PROGRAM (CIP)

The recommended capital improvement program projects to correct the build-out deficiencies are indicated individually as shown below.

Recommended Wastewater System Capital Improvement Projects	
Facility	**Estimated Construction Cost**
Pipelines	**$ 1,488,000**
Pump Stations	**$ 300,000**
SCADA	**$ 200,000**
Wastewater Treatment Plant	**$12,700,000**
Total Construction Cost	**$14,688,000**
Administration, Engineering & Contingencies	**$ 5,140,800**
Total Capital Improvement Cost	**$19,828,800**
Administration (1.5% of total costs)	**$ 297,432**
Total Wastewater Capacity Charge Costs	**$20,126,232**

All recommended projects will be sized to handle the build-out flows, and are fully attributed to future development. New sewers to serve currently undeveloped areas are included in the table.

PROJECT IMPLEMENTATION

Implementation of the CIP should be undertaken as soon as possible. Implementation activities should include:

- Incorporate CIP recommendations into City's CIP program.
- Incorporate recommendations into City's rate study.
- Develop a plan for the environmental review of the projects.
- Coordinate the sewer projects with other construction projects such as storm drains and water; gas, electric, or telephone transmission facilities; or street paving projects that may share common alignments.

WASTEWATER CAPACITY CHARGES

Shown below are the wastewater capacity charges that must be imposed on new development to finance new developments share of the costs of the recommended capital improvement projects.

Type	**Unit Cost**
Typical Residence Cost (DFU/DU) x ($178.68)	**$3,573.68**
Typical Commercial Cost (Unit Cost per drain fixture unit)	**$178.68**

(From Section 7 - Table 10)

SECTION 1 – INTRODUCTION

This report presents the City of Greenfield Wastewater Capital Improvement Plan Update. It identifies wastewater collection, treatment, and disposal system capacity deficiencies, both existing and at build-out under the 2005 – 2025 general Plan, recommends projects to correct these deficiencies, and summarizes the planning level capital costs associated with these projects. In addition, it identifies the general locations and sizes for trunk sewer extensions to serve further development within the study area.

The current capacity of the City of Greenfield Wastewater Treatment Plant (WWTP) is 1.0 million gallons per day. The WWTP has reached and exceeded 75% of the permitted capacity, and a separate planning report about the next plant expansion was submitted to and approved by the California Regional Water Quality Control Board (CRWQCB).

The recommendations included in the report are based on the existing system conditions, existing service area, and anticipated demands within the planning area as defined by the 2005 – 2025 Greenfield General Plan (which becomes effective June 30, 2005). The City of Greenfield Sphere of Influence, which includes areas for future growth in accordance with the General Plan, is shown on Figure 4 – Future Land Use (from the 2005 – 2025 Greenfield General Plan). The City's intent in commissioning this update is to sustain an ongoing reasonable planning, design, and construction effort that stays ahead of the anticipated growth and development of the City of Greenfield.

BACKGROUND

The City of Greenfield has undertaken this Capital Improvement Plan Update effort to ensure adequate wastewater collection and wastewater treatment capacity for existing and future users and to plan for "trunk" sewer collection main extensions in developing areas. In addition to the analysis of the major trunk mains, this Capital Improvement Plan Update effort provides a base map of the existing wastewater system and improvements needed that will maintain adequate and dependable service.

This Update is being performed in conjunction with a similar study of the City's domestic water distribution system. The results of this water update are presented in a separate Water System Capital Improvement Plan Update. These Capital Improvement Plan Updates have relied on common land use assumptions made in previous Master Plans and current 2003 General Plan Update to describe existing development and projected future growth in the study area.

PROJECT SCOPE

This Wastewater System Capital Improvement Plan Update was prepared to identify improvements in the wastewater system to determine deficiencies, optimize existing operations and to meet projected growth demands. This Wastewater System Capital Improvement Plan analyzed the existing wastewater system to determine necessary improvements to correspond to expected potential growth.

Land use data and wastewater use data provided the basis to determine the existing characteristics of the collection and treatment system. Major tasks completed during this Wastewater System Capital Improvement Plan are as follows:

- **Review Existing Information**. Available planning reports, documents, and maps were reviewed to develop a comprehensive informational database. Potential future developments and necessary extensions of the existing system were defined. Wastewater treatment plant and water consumption data were obtained and are also included in the informational database.

- **Describe Existing Wastewater System**. Existing collection, pumping, and treatment system basins were described and defined by topographic features and system basins established.

- **Develop Design Flows**. Existing and future wastewater flows were projected. The actual growth for each basin for future growth was determined to quantify the sanitary flow. Using infiltration/inflow characteristics from the existing system and accepted values for new construction, groundwater infiltration and rainfall dependent infiltration/inflow values were determined. Existing and future sanitary characteristics combined with I/I compose the design flows expected from each basin.

- **Determine System Capacity**. Present and future flow information was routed through the existing major collection system pipelines, using a computer model to determine the required pipe sizes to transport flows through the system without surcharge or overflow.

- **Analyze WWTP Capacity Requirements.** Average flow conditions for 2003 were totaled and compared with capacity available at the WWTP. Alternatives to expand the capacity and to improve effluent quality were evaluated.

- **Present Results**. The results are presented as required improvements for the City to upgrade the wastewater collection and treatment system to convey flows under future peak wet weather design conditions expected without surcharge or overflow.

This Wastewater System Capital Improvement Plan should remain flexible to incorporate changes in development categories. The significant influence affecting new collection system pipelines is the size of the development. As additional information becomes available, the facilities in the recommended plan should be reviewed and updated.

STUDY AREA

Greenfield is located in southern Monterey County approximately 42 miles south of Salinas. It has no common boundaries with other municipalities, and is completely surrounded by unincorporated areas of Monterey County. The City's nearest neighbors are Soledad, approximately eight miles to the north, and King City, approximately ten miles to the south. The location of the City of Greenfield is shown in **Figure 1 – Location Map.**

The study area is situated on a flat alluvial plain between the Santa Lucia Range to the west and the Gabilan Range to the east. The study area is located in the central Salinas Valley. The majority of the study area consists of a moderate slope to the northeast towards the Salinas River. The principal watercourse within the immediate area is the Salinas River that flows generally to the northwest to join the Monterey Bay near the community of Pajaro, approximately fifty-five miles north of Greenfield.

The climate of Greenfield is characterized by tepid, windy summers, and cool, moist winters. The mean annual precipitation averages about 12 inches. Most of the annual precipitation occurs during the period from November through April.

The study area encompasses a total area of approximately 3.25 square miles, with more than half of the area currently developed. The area is assumed to be fully developed at build-out. The population of Greenfield is about 13,167 people within the existing City core area. At present, the wastewater system serves only the City core area and does not serve any adjacent unincorporated areas. At build-out, the City population is projected to be about 36,000 people. Also included in this Capital Improvement Plan Update are some lands outside the current boundary of the planning area that will be served by the City’s wastewater system.

The study area for this Capital Improvement Plan Update is shown on **Figure 2 – Study Area** and includes the planning area defined in the 2005 – 2025 Greenfield General Plan.

Greenfield occupies a central location in the southern part of the county along U.S. Route 101. Commercial activities are centered along El Camino Real in the downtown area, which is defined as the area bounded by Cherry Avenue on the north, the Elm Avenue on the south. The older residential area of the City is located just west and east of the downtown area. New residential development is expected to occur mainly in the western, northern, and eastern portions of the study area. Industrial development is generally located to the along El Camino Real from Cherry Avenue to Thorne Road in the northern area of the City and east of Hwy. 101 and south of Oak Avenue in the in the southeastern area portions of the City. Industrial development is expected to occur in the same areas in

the future. The current developed land use is approximately three-quarters residential and one-quarter commercial/industrial. At General Plan build-out, future growth will be about 40% residential and 60% commercial/industrial.

SECTION 2 - EXISTING WASTEWATER SYSTEM

The City of Greenfield wastewater system serves the entire City of Greenfield. Wastewater collection, treatment, and disposal are accomplished in accordance with the **Waste Discharge Requirements Order No. R3-2002 - 0062** that has been established by the California Regional Water Quality Control Board, Central Coast Region. A copy of this order is included as **Appendix A** of this report

COLLECTION SYSTEMS

The City wastewater collection system includes more than 110,000 feet of gravity wastewater pipelines, ranging in diameter from 6 to 24 inches and two large 0.4 mgd and four small sewage pump stations. This system is shown on **Figure 3 – Greenfield Wastewater System.**

The wastewater system has been extended over time as the City grew. Located in alleys and easements of the original downtown area, the sanitary sewer pipe is predominately 6-inch diameter clay pipe. New pipes in newer residential areas to the west and east of the downtown area tend to be 8-inch diameter polyvinyl chloride (PVC) pipe and are generally aligned in street right-of-ways. There is a network of trunk sewers greater than or equal to 12 inches in diameter that generally flow from west to east and discharge into the Greenfield Wastewater Treatment Plant at the eastern end of Walnut Avenue.

The March 2000 Wastewater System Capital Improvement Plan Update by Creegan + D'Angelo is referenced and used for comparison. The intent of this Wastewater System Capital Improvement Plan Update is to compare the previous master plan recommendations to the capital improvement construction that has taken place in the study area and update and revise the list of proposed capital improvements.

WASTEWATER TREATMENT PLANT DESCRIPTION

The City of Greenfield Wastewater Treatment Plant (WWTP) is located easterly of the City along the westerly banks of the Salinas River at the easterly terminus of Walnut Avenue.

The WWTP was reconstructed and completed in 1978. Additional plant improvements completed in 1993 increased the capacity to 1.0 million gallons per day (MGD). The plant provides treatment and disposal of sanitary wastewater contributed by the residents of the City. **Figure 4 – Wastewater Treatment Plant**.

As previously stated, wastewater treatment and disposal is accomplished in accordance with the **Waste Discharge Requirements Order No. R3-2002 - 0062** that has been established by the California Regional Water Quality Control Board, Central Coast Region. A copy of this order is included as **Appendix A** of this report. This order

allows the capacity of the facility to be increased upon submittal by the City and approval by the Board of documentation that sufficient improvements have been made to the facility.

The treatment process, generally considered primary treatment, is to remove a portion of the solids in the wastewater through a settling process. The solids collected are transferred to a basin in which they are reduced in a process know as aerobic digestion. After digestion, the solids are dried in a lagoon and then buried. **Figure 5 Wastewater Treatment plant Flow Schematic** is a schematic of the treatment process.

The basic disposal concept is to percolate all the wastewater into the ground in a manner that protects the public health, maintains or enhances the existing groundwater quality and does not create a visual or odor nuisance. No wastewater effluent is discharged to any of the adjacent surface waters. The wastewater quantities are such that with the ample amount of land available, treatment and disposal of wastewater is quite simple and straightforward.

The major portion of the settleable solids are removed by settling in the primary sedimentation tank and then decomposed by aerobic digestion. The settled wastewater is then conveyed to a series of ponds where treatment of dissolved organic matter through a natural oxidation process occurs. Final effluent disposal is accomplished by percolation through the sandy soil into the ground, eventually reaching the groundwater underlying the area. In addition, a spray irrigation system with an estimated capacity of 1.0 MGD has been added to the disposal facilities.

Therefore, the treatment facilities provide primary treatment for solids removal followed by oxidation and percolation. Criteria applicable to this plant for the present design conditions are summarized below.

Design Criteria

Wastewater Flows and Loads	
Average flow	1.00 mgd
Peak flow, process	3.00 mgd
Peak flow, hydraulic	5.0 mgd
Biochemical Oxygen Demand BOD	240 mg/l = 2000 lb./day
Suspended Solids SS	240 mg/l = 2000 lb./day
Primary Treatment	
Headworks Channel	0.1 to 2.5 MGD
Grinder Screen	0.1 to 2.5 MGD
Flow Measuring	0.1 to 2.5 MGD
Primary Sedimentation	
Removal Rate	60% of SS
Removal Lbs.	1,200 lbs.
Number of Units	2
Surface Loading	707 gal/sf per day
Detention Time	2.2 hours

Weir Overflow	5,300 gal/lf per day
Sludge Digestion and Disposal	
Aerobic Sludge Digesters	
Volatile SS (75% of SS)	900 lbs per day
Removal Rate	40%
Volume Treated	347 cubic feet per day
Number	1
Size	30 ft. Ø x 13.5 ft. depth.
Volume	9600 cubic feet
Solids Retention Time	30 days
Rotary Lobe Blower	10 HP
Blower Capacity	500 CFM
Loading Rate	0.04 lb. VSS/cf. per day
Sludge Drying Lagoons	
Loading	315,360 lbs per year
Number	6
Area	62,500 s.f.
Volume	125,000 cubic feet
Loading Rate	2.52 lb/cf. per year
Effluent Disposal	
Oxidation	
Number	3
Area	6.25 ac.
Depth	5 ft.
Detention Time	5.1 days
BOD Loading	200 lb./acre per day
Percolation Ponds	
Number	2
Area	4.21 ac.
Depth	5 ft.
Percolation Rate	47,850/gal/ac/day
Capacity	0.21 MGD
Spray Irrigation Fields	
Acreage	13 ac.
Application	0.8 MGD
Application Rate	2.3 inches per day

The design of the major plant units generally follows conventional practice. The treatment structures are constructed of reinforced concrete and the pond embankments are constructed of compacted native soil. All wastewater flow through the plant is by gravity and the only process pumping used is for transferring sludge and scum from the sedimentation tank into the digestion tank. The plant water system includes a well on the plant site. Well water is pumped into a hydropneumatic tank.

The flow through the plant to the disposal area is represented schematically in **Figure 5 - Wastewater Treatment Plant Flow Schematic.** The flow enters the plant headworks through a 14 inch diameter cast iron pipe which conveys the raw wastewater from the collection system to the plant. At the headworks the wastewater passes through dual grinders installed in 1998 which shred the solids, and through a 6 inch Parshall flume which measures the flow.

The wastewater then passes into the primary sedimentation tank where quiescent settling occurs. Here most of the settleable and much of the suspended solids settle to the bottom of the tank and are pumped to the digester. Scum is also removed from the surface of the sedimentation tank to a scum pit from which the scum is periodically pumped to the digester.

The effluent from the sedimentation tank flows over weirs and in the 18 inch diameter effluent pipe which conveys the wastewater to the pond area.

Sludge and scum pumped from the sedimentation tanks into the digesters are decomposed aerobically and stabilized. A diffused aeration piping is installed which is designed to operate 24 hours per day. Supernatant and overflow pipes are connected which allow a simple, manually controlled process to be maintained.

Aerobic digestion is used for three principal reasons; ease of operation, cost advantage, and minimal odor potential. The Greenfield wastewater has a high sulfur content with a resulting hydrogen sulfide odor problem when operating under anaerobic conditions; thus through the use of the aerobic digestion process, the possible generation of hydrogen sulfide is minimized.

The digesters can be operated either on a continuous or a fill and draw basis. Waste digested sludge can be piped to either the upper or lower drying beds and then removed and used on adjacent fields or may be buried after drying.

The three disposal ponds provide oxidation which supports biological activity to further treat the wastewater. Two percolation ponds serve as disposal ponds.

Transfer piping between all the ponds is provided which enables removing any one pond from service for scarifying or maintenance without preventing use of the remaining ponds. The transfer piping is arranged so a number of combinations of series and parallel operation of the oxidation and percolation ponds may be accomplished.

The oxidation ponds normally are operated in parallel with the flow divided approximately equally to each pond.

Maintenance requires that the percolation ponds be occasionally taken out of service. When this occurs the entire flow is diverted to another pond. This operating condition normally lasts approximately two days when it occurs.

The existing spray irrigation system consists of a pump station building with two booster pumps with a capacity of about 600 gpm. The spray irrigation system is composed of above ground portable farm type distribution piping with riser mounted spray heads. About 13 acres are irrigated in this manner. Periodically the above ground pipes are moved and the spray fields disked to cut vegetation.

The 2002 annual report indicates the average daily flow (ADF) ranged from a low of 0.82 MGD to a high of 0.91 MGD. This compares with the permit limit of 1.0 MGD. Therefore, it is timely to apply for an increase in the waste discharge permit volume.

IMPROVEMENTS SINCE 1987

Over the period of 1987 to 2003, the following major capital improvements have been completed that were described in previous Wastewater System Capital Improvement Plan Updates:

- El Camino Real/Cypress Interceptor – including a 12-inch line from Pine Avenue to Cypress, to a new lift station on Cypress Avenue; a 12-inch line along Cypress to Livingston Road to the future Yanks Air Museum; a 12-inch line along Cypress then north from Cypress to Thorne Road was completed in 2004.
- A 0.4 MGD lift station on Cypress Avenue was completed in 2004.
- Third Street/Cherry Avenue/El Camino Real Interceptor – including a 24-inch line from Third/Walnut to Cherry, to El Camino Real; and an 18-inch line in El Camino Real to Pine Avenue.
- Apple Avenue/Walnut Avenue Interceptor – including a 12-inch line for a new 0.4 MGD lift station on El Camino Real near Tyler Street to Elm Avenue, to Fifth Street, to Apple Avenue: a 21-inch line Apple Avenue from Hwy 101 to Third Street, to Walnut Avenue; and a 24-inch line in Walnut Avenue from Third Street to the WWTP.
- A second Primary Clarifier at the WWTP.
- A 0.4 MGD lift station on El Camino Real near Tyler Street with 6-inch force main to 400-feet south of Elm Avenue.
- Replacement of the existing communator at the WWTP with two larger more efficient sewage grinders.
- Pond And Spray Field Capacity - Pond acreage is 10.5 acres in 5 ponds. 10 acres of spray fields was expanded to 25 acres with the purchase of an additional 15 acres and subsequent spray field expansion.
- The aerobic digester was modified with replacement of the mixer with a diffused aeration system.
- On April 21, 2003 TERRA ENGINEERING sent a letter to the Central Coast Regional Water Quality Control Board indicating the engineering reports required in Waste Discharge Requirements Order R3-2002-0062 are in process as the first step in the expansion of the Greenfield WWTP.

EFFLUENT WATER QUALITY

The City of Greenfield Wastewater Treatment Plant is operated and maintained in accordance with **Waste Discharge Requirements Order No. R3-2002 - 0062** that has been established by the California Regional Water Quality Control Board, Central Coast Region **City of Greenfield Sewage Treatment Plant, Monterey County**.

The plant influent and effluent are monitored daily and monthly for various constituents and contaminants according to schedules required by the Waste Discharge Order: The overall performance of the wastewater treatment plant has been satisfactory.

SECTION 3 – FUTURE LAND USE

The planning criterion for the Wastewater System Capital Improvement Plan Update includes a number of factors such as the land use assumptions, wastewater demand factors, and hydraulic parameters. Existing and future land use assumptions were developed for use in estimating wastewater demand. All of these factors are described in this section of the report.

LAND USE CATEGORIES

The land use categories for the Capital Improvement Plan Update process were determined from the 2005 – 2025 Greenfield 2003 General Plan. There are 14 land use categories identified in the General Plan, as set forth in the table below. Those proposed land uses and the acreages of each designation were used o determine future demand.

RE	Residential Estate (1-2 DU/acre)
LDR	Low Density Residential (3-7 DU/acre)
MDR	Medium Density Residential (7-12 DU/acre)
HDR	High Density Residential (12-20 DU/acre)
NC	Neighborhood Commercial
DTC	Downtown Commercial
HC	Highway Commercial
LI	Light Industrial
HI	Heavy Industrial
PO	Professional Office
PQP	Public Quasi Public
A	Agricultural
AAVS	Artisan Agricultural Visitor Serving
ROS	Recreation Open Space

FUTURE LAND USE ASSUMPTIONS

Figure 6 – Future Land Use shows land use map and the build-out land uses assumed for Greenfield. **Table 1 – Future Land Use** describes each of the future growth areas.

Table 1
Future Land Use

Designation	Zoning	Vacant Existing City Limits	Vacant Future Growth Area	Vacant Total
		(ac.)	(ac.)	(ac.)
Residential Estate (1-2 DU/acre)	**RE**	0	129	129
Low Density Residential (3-7 DU/acre)	**LDR**	10	235	245
Medium Density Residential (7-12 DU/acre)	**MDR**	0	194	194
High Density Residential (12-20 DU/acre)	**HDR**	0	0	0
Neighborhood Commercial	**NC**	0	4	4
Downtown Commercial	**DTC**	4	0	4
Highway Commercial	**HC**	97	152	249
Light Industrial	**LI**	102	39	141
Heavy Industrial	**HI**	0	296	296
Professional Office	**PO**	0	0	0
Public Quasi Public	**PQP**	0	0	0
Artisan Ag. Visitor Serving	**AAVS**	0	315	315
Recreation Open Space	**ROS**	0	19	19
Total		**213**	**1,383**	**1,596**

Multiple uses for areas were assumed as shown. Average unit densities for the different uses were assumed such that equivalent housing units could be calculated.

DEVELOPMENT ASSUMPTIONS

Land uses were quantified by the number of units in each land use category for two different time frames: Existing (2003) and Build-out (2025.)

- ***Existing Development*** - For the purposes of this study, existing development corresponds to the start of 2003.
- ***Build-out Development (2025)*** - Build-out development refers to build-out according to the Greenfield 2005 – 2025 General Plan at an even rate for twenty years.

Specific development assumptions are shown in Section 4.

SECTION 4 – WASTEWATER DEMAND REQUIREMENTS

This chapter develops existing and future wastewater demand (design flow) requirements for the City of Greenfield. The projected wastewater demand requirements are based on historical wastewater consumption, the land use assumptions set forth in section 3, and estimated wastewater demand rates. The future wastewater requirements are used to determine the treatment and collection facilities necessary to serve the City at General Plan build-out.

EXISTING WASTEWATER FLOW

Historical treatment plant flows are the primary basis for the overall base wastewater flow balance. Treatment plant flow data may also be used to determine peak wet weather flow rates when other data, such as local wet weather flow metering data, are not available. The average daily flow for the City of Greenfield ranged from 0.80 MGD to 0.91 MGD. The flow for the period January 2003 through October 2004 is shown on **Table 2 – Average Daily Flows to Greenfield Wastewater Treatment Plant** below.

Table 2

Years 2003 and 2004 Monthly Average Daily and Maximum Daily Flows to Greenfield Wastewater Treatment Plant

Month	Average	Peak
	MGD	MGD
Jan-03	0.799	0.950
Feb-03	0.849	1.049
Mar-03	0.839	0.940
Apr-03	0.874	0.968
May-03	0.870	1.024
Jun-03	0.893	0.998
Jul-03	0.880	0.989
Aug-03	0.891	0.980
Sep-03	0.883	1.002
Oct-03	0.888	1.010
Nov-03	0.856	0.961
Dec-03	0.795	0.942
Jan-04	0.803	0.891
Feb-04	0.853	0.947
Mar-04	0.849	0.933
Apr-04	0.900	1.420
May-04	0.881	0.987
Jun-04	0.883	1.020
Jul-04	0.906	0.977
Aug-04	0.907	0.995
Sep-04	0.877	1.069
Oct-04	0.894	1.390
Summary	0.867	1.420

WASTEWATER FLOW PROJECTIONS

The average wastewater flow is computed by multiplying the number of acres in each land use category by a unit flow factor for that category. The basis for the unit flow factors is presented here for residential and non-residential land uses.

Residential Flow - Residential flows are considered those flows being generated by regular household uses. The residential wastewater flow is the most easily estimated since household use tends to be fairly consistent among communities. Based on a end of 2002 population of 12,825 people and 2,271 dwelling units in Greenfield reported in the **2002 Annual Report to the Drinking Water Program** prepared by City of Greenfield staff, Greenfield has a rate of 66 gallons per day per capita for residential wastewater use. An average household density of 5.65 persons per household was used with an average generation rate of 371 gallons per day per household for existing homes. For the purposes of this report, the residential rate has been rounded up to 400 gpd per dwelling unit

Commercial Flows - Commercial flows are considered those flows being generated by commercial uses. This report uses the average flow rate of 1,000 gpd per acre for commercial flows.

Industrial Flows - Industrial flows are considered those flows being generated by industrial uses. These flows are generally highly variable depending on the specific industry. This report uses the average flow rate of 1,000 gpd per acre for industrial flows.

Wastewater Flow Peaking Factors

Flow varies throughout the day and from day-to-day in response to the personal habits of the general population and special events. Peaking factors are used to determine the peak design flow in a collection pipe. Peaking factors are often calculated by dividing the peak 15-minute dry weather flow by the average daily dry weather flow. The values generally range from about 2.0 to 3.0, with the highest values associated with the lowest flows. For the purpose of this report, a maximum value of 230% was used to determine peak wastewater flows.

The wastewater flow projections are calculated by multiplying the unit flow factors by the various land use types for existing and future conditions. The projections were calculated for the following flow conditions with corresponding peaking factors shown below on **Table 3 – Wastewater Peaking Factors:**

Table 3
Wastewater Peaking Factors

Flow Factor	Peaking Factor
Minimum Flow	0.82
Average Flow	1.00
Maximum Flow	1.22
Peak Flow	2.30

Wet Weather Flow Factor

The wet weather flow factors include two components as defined previously, rainfall dependent infiltration/inflow and groundwater infiltration. These factors are generally determined from either wet weather flow monitoring or from historical treatment plant flow records. Review of monthly flow records from the Greenfield Wastewater Treatment Plant indicates little if any wet weather flow factors acting on the flows to the plant. Therefore, this value was assumed to be nonexistent.

Groundwater Infiltration Factor

Groundwater infiltration is normally determined by examining minimum flow values. By estimating what portion of the minimum flow is wastewater flow, the groundwater infiltration can be determined by subtracting the estimated minimum wastewater flow from the total minimum flow. An alternative method for determining the groundwater infiltration is to compare the minimum flow at the end of the wet weather season to the late summer minimum flows, when the groundwater infiltration would be close to zero. Review of monthly flow records from the Greenfield Wastewater Treatment Plant indicates no groundwater infiltration acting on the flows to the plant. Therefore, this value was assumed to be nonexistent.

ESTIMATES OF FUTURE WASTEWATER DEMANDS

Wastewater demands are calculated by multiplying the acreage of each land use within a sub-area by the appropriate unit demand factor. Water demand estimates were developed based on unit demand factors discussed previously. The following **Table 4 – Existing and Future Wastewater Use** shows average day flows (ADF) for each area.

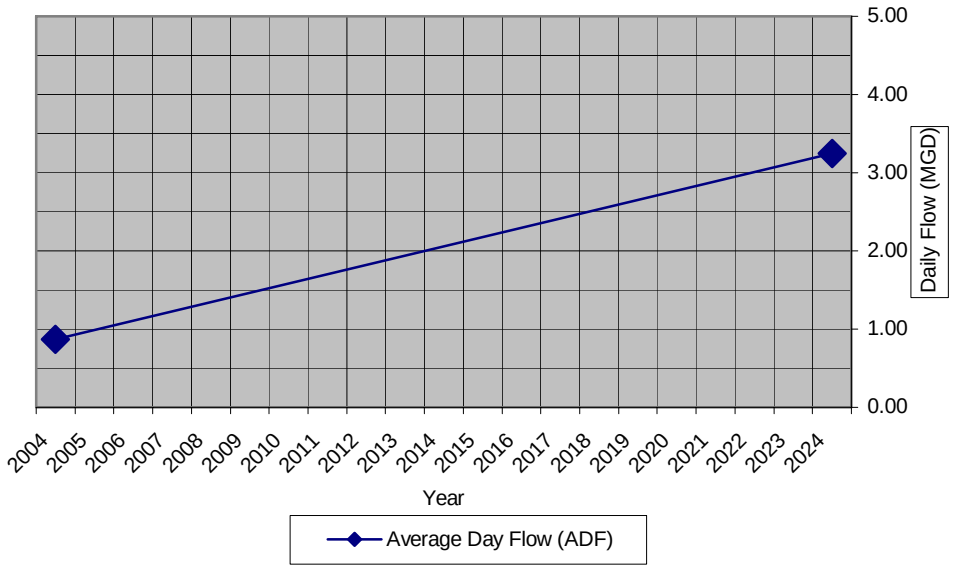
Table 4
Existing and Future Wastewater Use

Designation	Zoning	Total	Ave. DU	Total DU	Unit Rate	ADF	DFU
		(ac.)			(gpd)	(gpd)	(drain fixture unit)
Existing 2003 Use				**2,271**		**865,071**	
Future Growth							
Residential Estate	**RE**	129	2	258	400	103,200	5160
Low Density Residential	**LDR**	245	5	1225	400	490,000	24,500
Med. Density Residential	**MDR**	194	10	1940	400	776,000	38,800
High Density Residential	**HDR**	0	16	0	400	0	
Neighborhood Commercial	**NC**	4	N/A		1,000	4,000	120
Downtown Commercial	**DTC**	4	N/A		1,000	4,000	120
Highway Commercial	**HC**	249	N/A		1,000	249,000	7,473
Light Industrial	**LI**	141	N/A		1,000	141,000	4,230
Heavy Industrial	**HI**	296	N/A		1,000	296,000	22,209
Professional Office	**PO**	0	N/A		1,000	0	
Public Quasi Public	**PQP**	0	N/A		1,000	0	
Artisan Ag. Visitor Serving	**AAVS**	315	N/A		1,000	315,000	9,454
Recreation Open Space	**ROS**	19	N/A		100	1,900	570
Total Future Growth				**3,423**		**2,380,100**	**112,636**
Total Wastewater Flow				**5,694**		**3,245,171**	
Standard Residential Dwelling = 20 drain fixture units							

As can be seen from the table, projecting future growth will result in Greenfield's wastewater rising from about 0.9 MGD to about 3.3 MGD. This increase would mean that the treatment plant would have to have a capacity of about 3.5 MGD.

Assuming a 20-year built rate, **Table 5 – Future Wastewater Demand** is a graph showing the future wastewater flows extended at a constant rate over the twenty year period.

Table 5
City of Greenfield
Future Wastewater Flow



SECTION 5 – FACILITIES EVALUATION

Section 2 – Existing Wastewater System presented a brief description of the City's existing sewer collection system, and **Section 4 – Design Flow Requirements** described planning criteria related to wastewater flow estimates and hydraulic requirements. This section presents an analysis of the sewer collection system based on its ability to meet planning criteria for existing conditions and wastewater pipeline extensions to serve future development.

COLLECTION SYSTEM PIPELINES

Previous analysis of the existing wastewater collection system shows that the existing pipelines are generally sufficient to convey the wastewater easterly from the existing city core area west of Highway 101 to the wastewater treatment plant. The main trunk line in Walnut Ave. to the wastewater treatment plant is of adequate size. Therefore, pipeline additions necessary are in the eastern undeveloped area of the city and are generally collector pipeline in the major streets.

TREATMENT PLANT

As previously stated, the plant capacity is 1.0 MGD average daily flow. Future growth will require a capacity of about 3.5 MGD. Existing flows are approaching the plant capacity. To accommodate current use and future growth, a minimum 3.0 MGD capacity increase is needed for future growth.

SECTION 6 - RECOMMENDED CAPITAL IMPROVEMENT PROGRAM

The recommended Capital Improvement Program (CIP) for the Greenfield sewer collection and wastewater treatment system is based on the need for additional facilities and capacity to meet the increased flows due to growth in Greenfield.

A number of assumptions have been made in developing this CIP, among these include:

- The sizing of collection pipelines is based on build-out conditions.
- Replacement collection pipeline materials recommended are High Density Polyethylene (HDPE) and Polyvinyl chloride (PVC) pipes for all line replacements. (Manning's n = 0.010 or better)
- Pumping plants will be constructed in areas of future growth where ground elevations do not allow for gravity flow to the existing or future collection system
- A Supervisory Control and Data Acquisition (SCADA) System to monitor and control the pump stations and the wastewater treatment plant will be installed.
- Treatment Plant Capacity in the form of treatment and disposal of the future flows will be provided.

Pipeline extensions will need to be designed to accommodate the specific developments as they are planned and constructed. The City will need to review projects that are designed and built by developers to ensure adequate ultimate capacity in the system. The information presented herein is intended to serve as a sizing guideline.

Only pipes shown in this Wastewater System Capital Improvement Plan will be paid for by proposed Impact Fees. All other pipes are considered as serving the specific development project and are to be paid for by the developers.

RECOMMENDED COLLECTION PIPELINE PROJECTS

As previous stated analysis of the existing wastewater collection system shows that the existing pipelines are generally sufficient to convey the wastewater easterly from the existing city core area west of Highway 101 to the wastewater treatment plant. The main trunk line in Walnut Ave. to the wastewater treatment plant is of adequate size. Therefore, pipeline additions necessary are in the eastern undeveloped area of the city and are generally collector pipeline in the major streets.

Collection pipeline extensions will be required to serve future development. These extensions have been identified conceptually and sized as part of the Capital Improvement Plan Update process and are discussed in **Section 5 - Facilities Evaluation;** however, the exact alignments will need to be defined as part of the detailed subdivision planning required for the area.

These future collection pipeline extensions are shown on **Figure 7 – Wastewater System Capital Improvement Projects**. These collection pipelines have been routed along existing roads or assumed extensions of existing roads.

The sizes provided in the Capital Improvement Plan Update are intended to serve as a guideline for the City to use in evaluating and possibly up-sizing projects proposed by developers. The actual alignments and design details of the future collection pipelines will depend on the specific development schemes. These future collection pipelines will be designed and constructed as development occurs and all costs of these future collection pipelines are attributable to future users.

Shown below on **Table 6 – Recommended Collection Pipelines** are pipelines that are needed:

	Table 6
	Recommended Collection Pipelines
No.	**Size and Location**
1	8" Pine Ave. - 101 west to El Camino Real
2	8" Pine Ave. - 101 east to Third St.
3	8" Pine Ave. - Third St. east to Second St.
4	8" Third St. - Pine Ave. south to Cherry Ave.
5	8" Second St. - Pine Ave. south to Cherry Ave.
6	8" Cherry Ave. - Third St. east to Second St.
7	8" Second St. - Cherry Ave. south to Walnut Ave.
8	8" Elm Ave. - Third St. east to Second St.
9	8" Second St. - Elm Ave. north to Apple Ave.
10	8" Twelfth St. - Walnut Ave. north to Cherry Ave.
11	8" Twelfth St. - Pine Ave. south to Cherry Ave.
12	8" Cherry Ave. - Twelfth St. east to El Camino Real
13	8" Tenth St. Walnut Ave. north to El Cherry Ave.
14	8" Pine Ave. - Tenth Street east to El Camino Real

RECOMMENDED PUMP STATION PROJECTS

Based on the preliminary topographic maps, a new sanitary sewer pump station will be needed near the intersection of Second Street and Elm Ave. This pump station will serve the area to the south of Elm Street and the east of Highway 101. The exact size of this pump station will depend on the industrial development proposed in this area.

RECOMMENDED SCADA PROJECT

The antiquated state of the existing pumping plants and treatment plant systems will require that a modern control and data acquisition system be installed which could monitor and control all aspects of the wastewater collection, pumping and treatment system.

Each existing and new pumping plant should be connected by telephone lines or radio communication signals to a master control panel where the status of each facility can be viewed. This would include all status, flow, and level measurements at each facility. All measurements can be recorded on a continuous basis from which daily, weekly,

monthly, and yearly summary status reports can be generated. The master control panel should be located in the Public Works Department office.

RECOMMENDED TREATMENT PLANT EXPANSION PROJECT

This Wastewater System Capital Improvement Plan Update report is recommending that an additional 3.0 MGD be provided for future anticipated growth in the City of Greenfield at the existing treatment plant. This additional capacity would bring the treatment plant capacity to 4.0 MGD.

Expansion of the plant will require that both the treatment portion of the plant (primary clarifiers and secondary ponds), sludge treatment (digesters), and effluent disposal (percolation ponds and spray fields) facilities be expanded.

Shown on **Figure 8 - Preliminary 3.0 MGD Treatment Plant Expansion** is the aerial photo preliminary plan of a proposed expansion of the plant including additional property acquisition, headworks, grinders, primary clarifiers, aerated oxidation ponds, digesters, sludge drying facilities, and effluent spray irrigation pump stations and spray fields. The following is a description of each component of the proposed expansion:

Additional property in the amount of about 80 acres will need to be purchased. A preliminary site has been chosen which is immediately westerly and adjacent to the existing treatment plant (see Figure 8). This property extends on both sides of the bluff along the Salinas River. Most of the new facilities will be constructed on the bluff area with spray irrigation fields and a sludge drying bed located in the lower area.

A new headworks facility including flow measuring device and grinders will be constructed as well as three new 1.0 MGD circular clarifiers. One of the clarifiers will be constructed within the grounds of the existing treatment plant site while the other two will be constructed on the new property westerly of the existing site. Scum pumps, sludge pumps and three new 1.0 MGD aerobic digesters will also be needed.

Two new oxidation ponds with floating aerators will be constructed as well as a new spray irrigation pump station with additional spray fields. In addition, the existing oxidation ponds, irrigation pump station and spray fields located easterly of the existing treatment plant site will be modified with new floating aerators, pumps and fixed spray irrigation systems. The entire property will be appropriately fenced.

The expanded site will also include the treatment, disinfection, storage, and pumping facilities for a wastewater reclamation landscape irrigation system that the City will initiate.

CONSTRUCTION COSTS

The cost estimates are planning-level capital costs and include construction costs including bonds, profit, and overhead, plus 35 percent for appraisal, legal, administrative, engineering, construction management, and contingencies. The proposed Capital Improvement Project Program construction costs are shown on **Table 7 – Recommended Wastewater System Capital Improvement Projects and Costs**:

Table 7
Recommended Wastewater System
Capital Improvement Projects

No.	Facility	Size	Length	Unit Cost	Estimated Construction Cost
	Pipelines				
1	8" Pine Ave. - 101 west to El Camino Real	8"	1,000	$60	$60,000
2	8" Pine Ave. - 101 east to Third St.	8"	2,000	$60	$120,000
3	8" Pine Ave. - Third St. east to Second St.	8"	2,600	$60	$156,000
4	8" Third St. - Pine Ave. south to Cherry Ave.	8"	1,300	$60	$78,000
5	8" Second St. - Pine Ave. south to Cherry Ave.	8"	1,300	$60	$78,000
6	8" Cherry Ave. - Third St. east to Second St.	8"	2,600	$60	$156,000
7	8" Second St. - Cherry Ave. south to Walnut Ave.	8"	1,300	$60	$78,000
8	8" Elm Ave. - Third St. east to Second St.	8"	1,300	$60	$78,000
9	8" Second St. - Elm Ave. north to Apple Ave.	8"	2,600	$60	$156,000
10	8" Twelfth St. - Walnut Ave. north to Cherry Ave.	8"	1,300	$60	$78,000
11	8" Twelfth St. - Pine Ave. south to Cherry Ave.	8"	1,300	$60	$78,000
12	8" Cherry Ave. - Twelfth St. east to El Camino Real	8"	2,600	$60	$156,000
13	8" Tenth St. Walnut Ave. north to El Cherry Ave.	8"	1,000	$60	$60,000
14	8" Pine Ave. - Tenth Street east to El Camino Real	8"	2,600	$60	$156,000
	Subtotal				**$1,488,000**
	Pump Stations				
15	New PS @ Elm and Second St.	0.2 MGD	l.s.	$300,000	$300,000
	Subtotal				**$300,000**
	SCADA				
16	Install System At Pump Stations and WWTP Facilities			$200,000	$200,000
	Subtotal				**$200,000**
	Wastewater Treatment Plant				
17	Treatment Plant Expansion	3 MGD			
17a	Property Acquisition in acres	75	acre	$50,000	$3,750,000
17b	1 MGD Primary Clarifiers and Appurtenances	3	each	$350,000	$1,050,000
17c	30 Foot Diameter Digester	3	each	$150,000	$450,000
17d	Sludge and Scum Pump Building inc. pumps	1	each	$250,000	$250,000
17e	Secondary Lagoons	100,000	cy	$15	$1,500,000
17f	Floating Aeratation System		l.s.	$150,000	$150,000
17g	Site Piping and Appurtenances		l.s.	$200,000	$200,000
17h	Spray Irrigation Pump Station		l.s.	$200,000	$200,000
17i	Spray Irrigation Distribution System		l.s.	$600,000	$600,000
17j	1,000 Amp Electrical Service		l.s.	$150,000	$150,000
17k	Electrical & Control		l.s.	$250,000	$250,000
17l	Sludge Drying Beds		l.s.	$200,000	$200,000
17m	Wastewater Reclamation Treatment Facility		l.s.	$3,950,000	$3,950,000
	Subtotal				**$12,700,000**
	Total Construction Cost				**$14,688,000**
13	**Contract Administration, Engineering & Contingencies**		35%		**$5,140,800**
	Total Capital Improvement Cost				**$19,828,800**

PROJECT IMPLEMENTATION

Implementation of the CIP should be undertaken as soon as possible. Implementation activities should include the following:

- Incorporate CIP recommendations into the City's Capitol Improvement Plan.
- Incorporate recommendations and costs into City's capacity charge study.
- Develop a plan for environmental review of projects
- Coordinate the sewer projects with other construction projects such as storm drains, water, gas, electric, or telephone transmission facilities, or street paving projects that may share common alignments.

SECTION 7 – WASTEWATER CAPACITY CHARGES

This section presents the wastewater capacity charges derived from the previous sections of this report. This section identifies a schedule of wastewater capacity charges to ensure that proposed capital improvements attributable to new development in the City can be made in a reasonable manner.

CURRENT FEES

The City of Greenfield currently has a Fee Schedule, which includes impact fees for wastewater treatment and other categories. These current sanitary sewer facilities mitigation fees are summarized in **Table 8 - City of Greenfield Sanitary Sewer Facilities Mitigation Fees**.

Table 8
City of Greenfield Sanitary Sewer Facilities Mitigation Fee

Category	Fee	Unit
Single Family Residential	$ 1,990	per dwelling unit
Duplex Residential	$ 1,850	per dwelling unit
Triplex Residential	$ 1,645	per dwelling unit
Multifamily Residential	$ 1,360	per dwelling unit
Commercial, Industrial, Agricultural and Public	$ 99.60	per fixture unit

These fees are based on previous capital improvement studies and may not provide the revenue required to cover the capital expenses proposed that are required to serve new development in the City. Due to this Wastewater System Capital Improvement Plan Update, the wastewater capacity charges should be adjusted to ensure revenues from the capacity charges match the City's capital improvement costs to accommodate growth and changing State and Federal regulations.

Under California law, wastewater capacity charges may not exceed the estimated reasonable cost of providing the service for which the fee or charge is imposed. The proposed wastewater capacity charge would imposed for the purpose of defraying the costs associated with providing the additional capacity in the wastewater system necessary to serve build-out under the 2005–2025 Greenfield General Plan. To show that the capacity charge meets these requirements, this study must demonstrate that the estimated costs of the facilities are reasonable, and that those costs are allocated among the users (i.e. those connecting to the facilities in the future) in a fair and equitable manner.

This section calculates the maximum justifiable wastewater capacity charge. Section 5 describes the additional facilities made necessary by new development, and Section 6 set forth the estimated costs of those facilities. Using the data and analysis set out in those two sections, this section allocates those costs among the future users in a fair and equitable manner to calculate the wastewater capacity charge.

CIP IMPROVEMENTS AND THE DEVELOPMENT OF WASTEWATER CAPACITY CHARGES

Development impact fees must allocate, in an equitable manner, the costs to provide public facilities to serve new developments. **Section 6 – Recommended Capital Improvement Program** identified facilities and costs for improvements to existing facilities required for future service needs.

WASTEWATER CAPACITY CHARGE PROGRAM

Table 9 - Derivation of Wastewater Capacity Charges presents the recommended wastewater capacity charges. The Water Capacity Charges presented in this study are based on the General Plan land use and development projections set forth above, the need for additional facilities in the City, and the best available construction cost estimates, and land acquisition cost estimates, available, all as described in earlier sections of this analysis. The calculation includes a component for the City's costs of administering the program, which is set at 1.5% of the total costs. This administrative charge is intended to allow the City to recover the costs of preparing the analysis that supports the charge, to prepare the necessary documents to adopt the charge, to calculate the annual inflationary increases, and to administer and collect the fee throughout its lifespan.

Table 9
Derivation of Wastewater Capacity Charges

Item	**Derivation**	**Amount**
Total Capital Improvement Cost (TCIC)	Table 7	$19,828,800
Administration (1.5% of total costs)		$297,432
Total Wastewater Capacity Charge Costs		$20,126,232
Total Drain Fixture Units	Table 4	112,636
Unit Cost per drain fixture unit =	TWCCC / TDFU	**$178.68**

Table 9 is based on average day flow for proposed development which is 2,380,100 gallons per day. This figure does not include the existing average day flow of 865,071 gallons per day.

Table 10-Impact Fees by Type is shown below:

Table 10
Wastewater Capacity Charges by Type

Designation	Derivation	DFU	Cost	Wastewater Capacity Charge	Unit
Residential Estate	Table 9	5,160	$922,010	$3,573.68	per dwelling unit
Low Density Residential	Table 9	24,500	$4,377,753	$3,573.68	per dwelling unit
Medium Density Residential	Table 9	38,800	$6,932,932	$3,573.68	per dwelling unit
High Density Residential	Table 9	0	$0	$3,573.68	per dwelling unit
Neighborhood Commercial	Table 9	120	$21,442	$178.68	per drain fixture unit
Downtown Commercial	Table 9	120	$21,442	$178.68	per drain fixture unit
Highway Commercial	Table 9	7,473	$1,335,304	$178.68	per drain fixture unit
Light Industrial	Table 9	4,230	$755,832	$178.68	per drain fixture unit
Heavy Industrial	Table 9	22,209	$3,968,389	$178.68	per drain fixture unit
Professional Office	Table 9	0	$0	$178.68	per drain fixture unit
Public Quasi Public	Table 9	0	$0	$178.68	per drain fixture unit
Artisan Ag. Visitor Serving	Table 9	9,454	$1,689,278	$178.68	per drain fixture unit
Recreation Open Space	Table 9	570	$101,850	$178.68	per drain fixture unit
Total		112,636	$20,126,232		

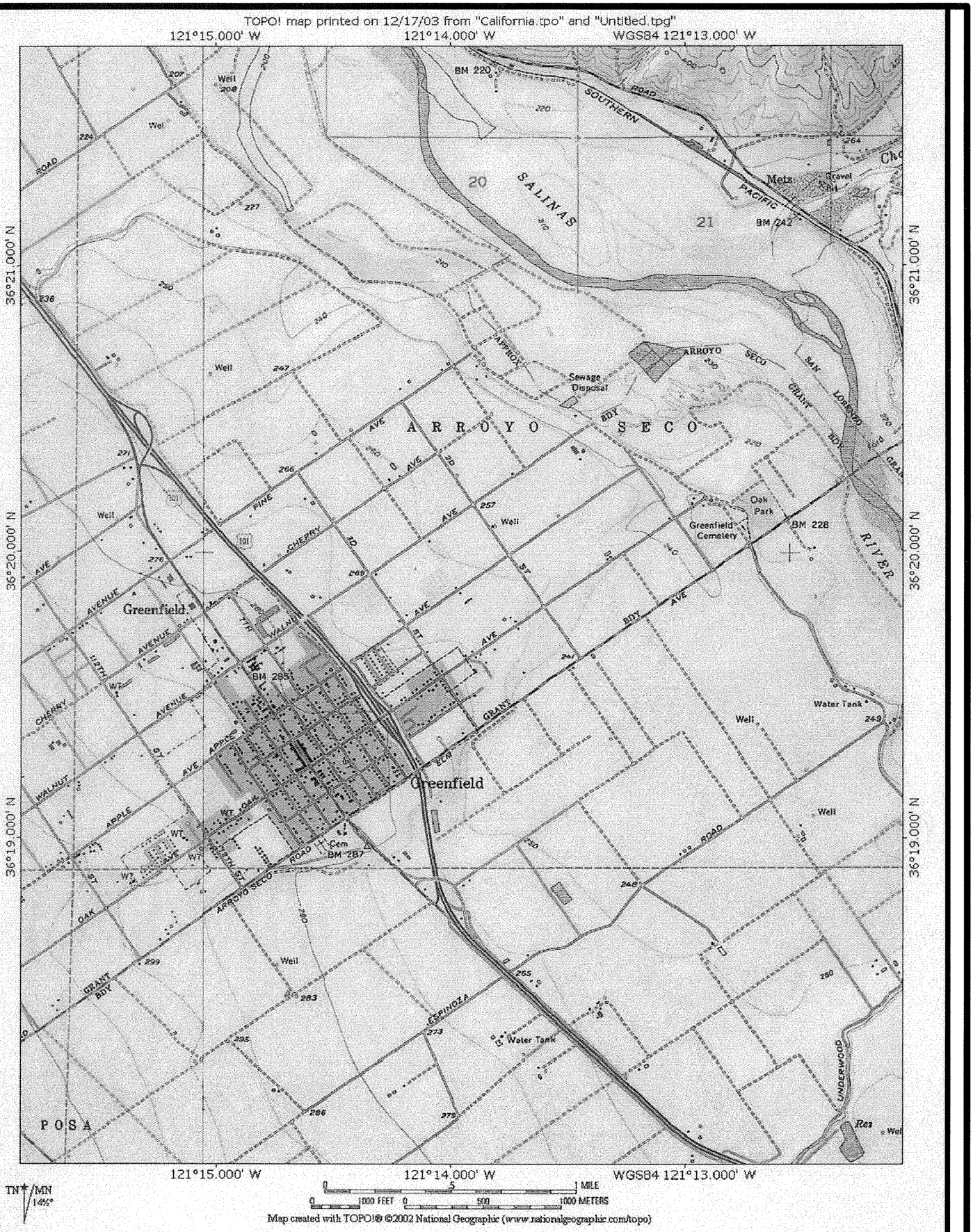
Table 10 assumes a Standard Residential Dwelling Unit = 20 drain fixture units (average). Dwelling units that exceed 20 dfu shall have impact fees increased proportionately to the number of drain fixture units.

Since the wastewater capacity charges developed herein are estimates based on the best available information to date, it is recommended that adjustments to the wastewater capacity charges be made every five years to determine if development projects and costs estimates are still appropriate. In any case, it is recommended that the City use the Engineering News Record – Construction Cost Index (ENR - CCI) to reflect the cost of construction. In addition, the City may wish to consider adopting a policy that requires new development projects that propose changes to the City's General Plan, to perform an analysis of impacts to the Wastewater Capacity Studies and to quantify corresponding impacts to the fees.

It is also recommended that the City adopt a policy that requires development that triggers the need for certain facilities to construct those facilities or otherwise advance the necessary funding for those facilities. When a developer is required to construct facilities or advance monies for the construction of such facilities, the developer should be provided a credit against the Wastewater Capacity Charge, which may be used to satisfy the developer's obligations and which may be transferred to other developers. The credit could also convert to a right of reimbursement after a specified period of time, provided that the City had sufficient fee revenues available.

Figures

LIST OF FIGURES



TERRA ENGINEERING, INC

CONSTRUCTION ADMINISTRATION - CIVIL ENGINEERING

820 Park Row #592 Salinas, CA 93901 Tel. 831.455.2344 Fax. 831.455.1921

DATE:	1-21-04
SCALE:	NONE
DRAWN BY:	JPD
APPROVED BY:	TE
DRAWING NO.:	03108

FIGURE 1

City of Greenfield

SHEET **1** OF 8 SHEETS

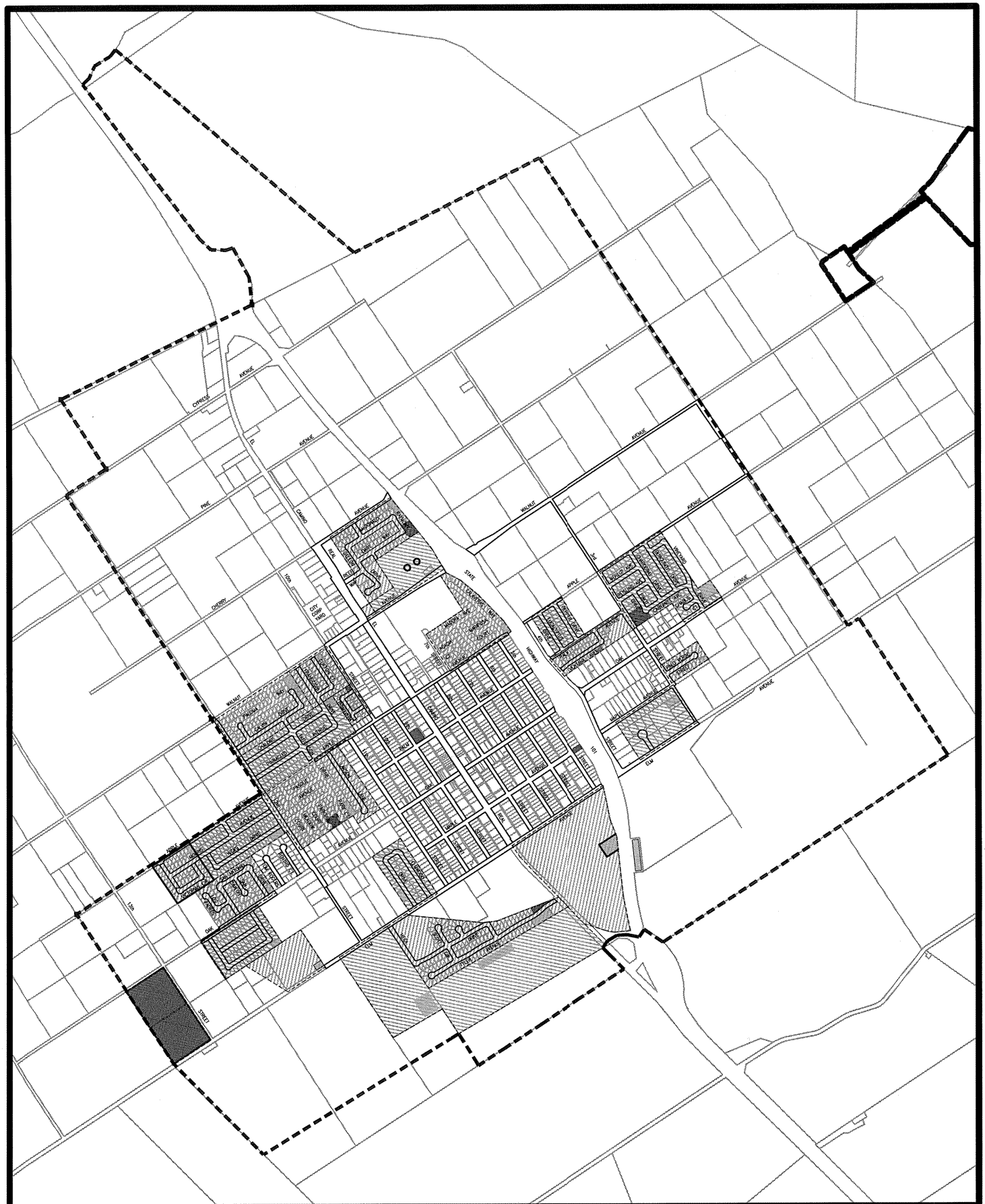


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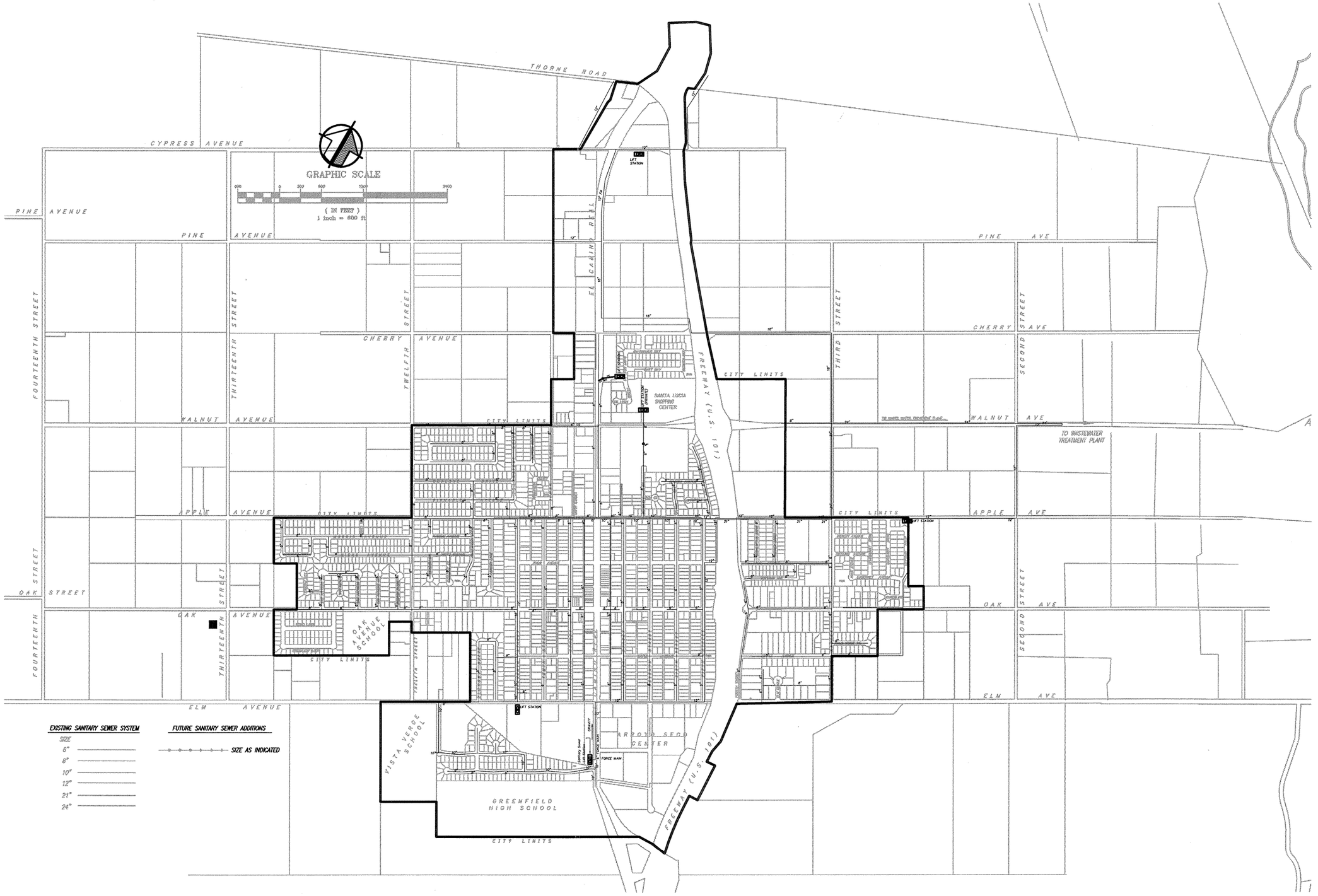
FIGURE 2
Study Area

SHEET 2 OF 8 SHEETS



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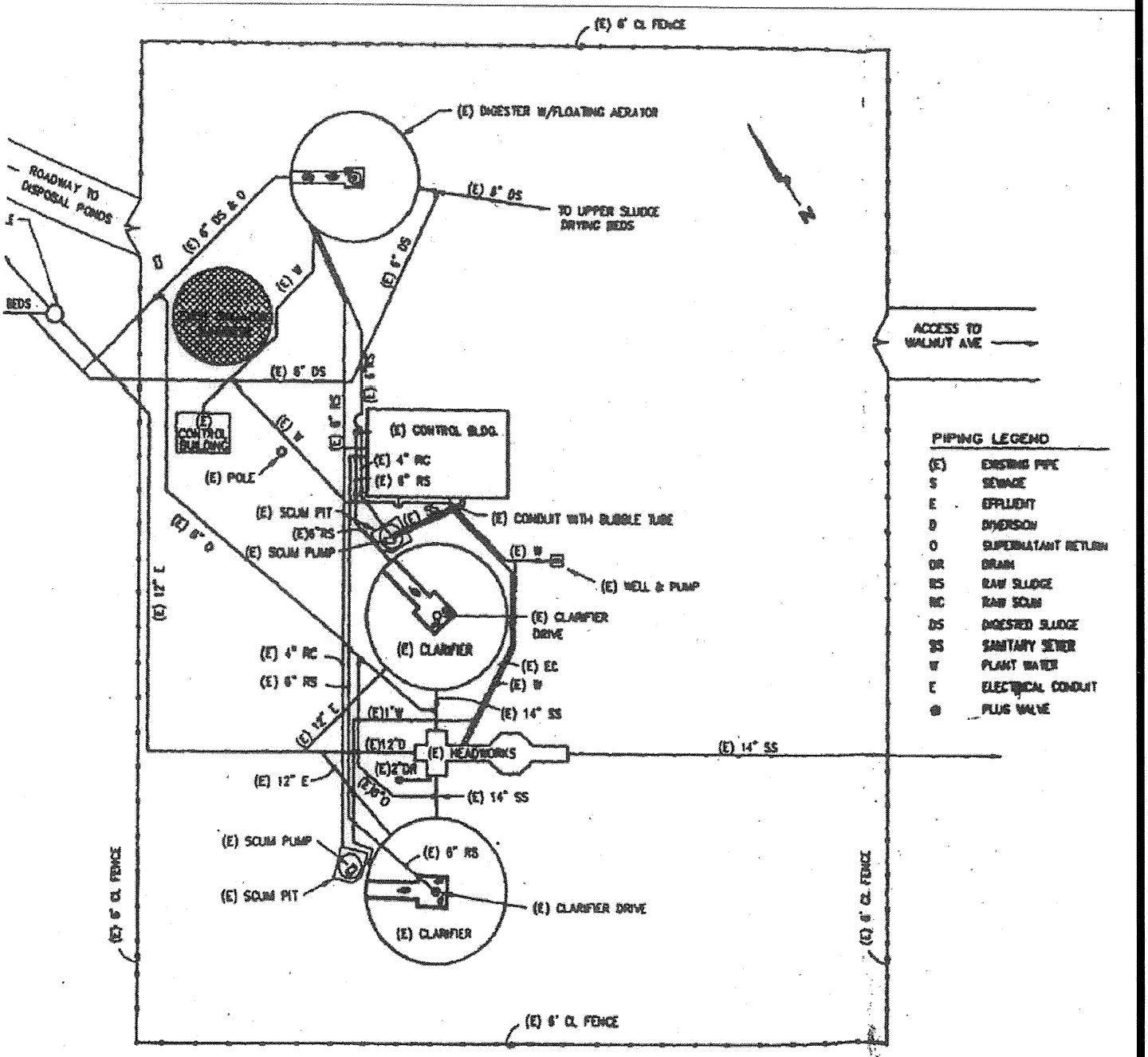
820 Park Row #592 Salinas, CA 93901 Tel. 831.455.2344 Fax. 831.455.1921

FIGURE 3
Greenfield Wastewater System



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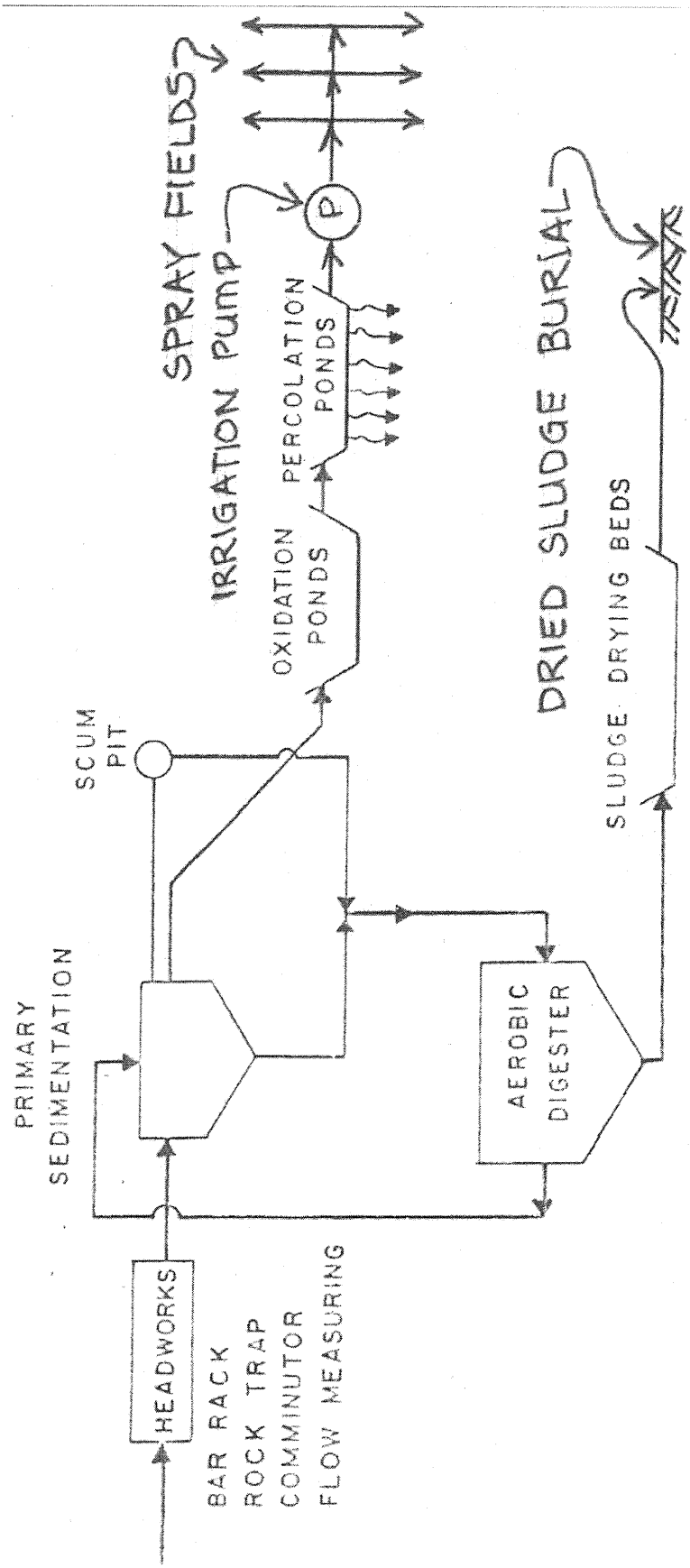
DATE:	1-21-04
SCALE:	NONE
DRAWN BY:	JPD
APPROVED BY:	TE
DRAWING NO.:	03108

FIGURE 4
Existing Plant Layout
Greenfield Wastewater Treatment Plant



TERRA ENGINEERING, INC
CONSTRUCTION ADMINISTRATION - CIVIL ENGINEERING
820 Park Row #592 Salinas, CA 93901 Tel. 831.455.2344 Fax. 831.455.1921

DATE:	1-21-03
SCALE:	NONE
DRAWN BY:	JPD
APPROVED BY:	TE
DRAWING NO.:	03108

FIGURE 5
Existing Plant Layout
Greenfield Wastewater Treatment Plant

SHEET 5 OF 8 SHEETS

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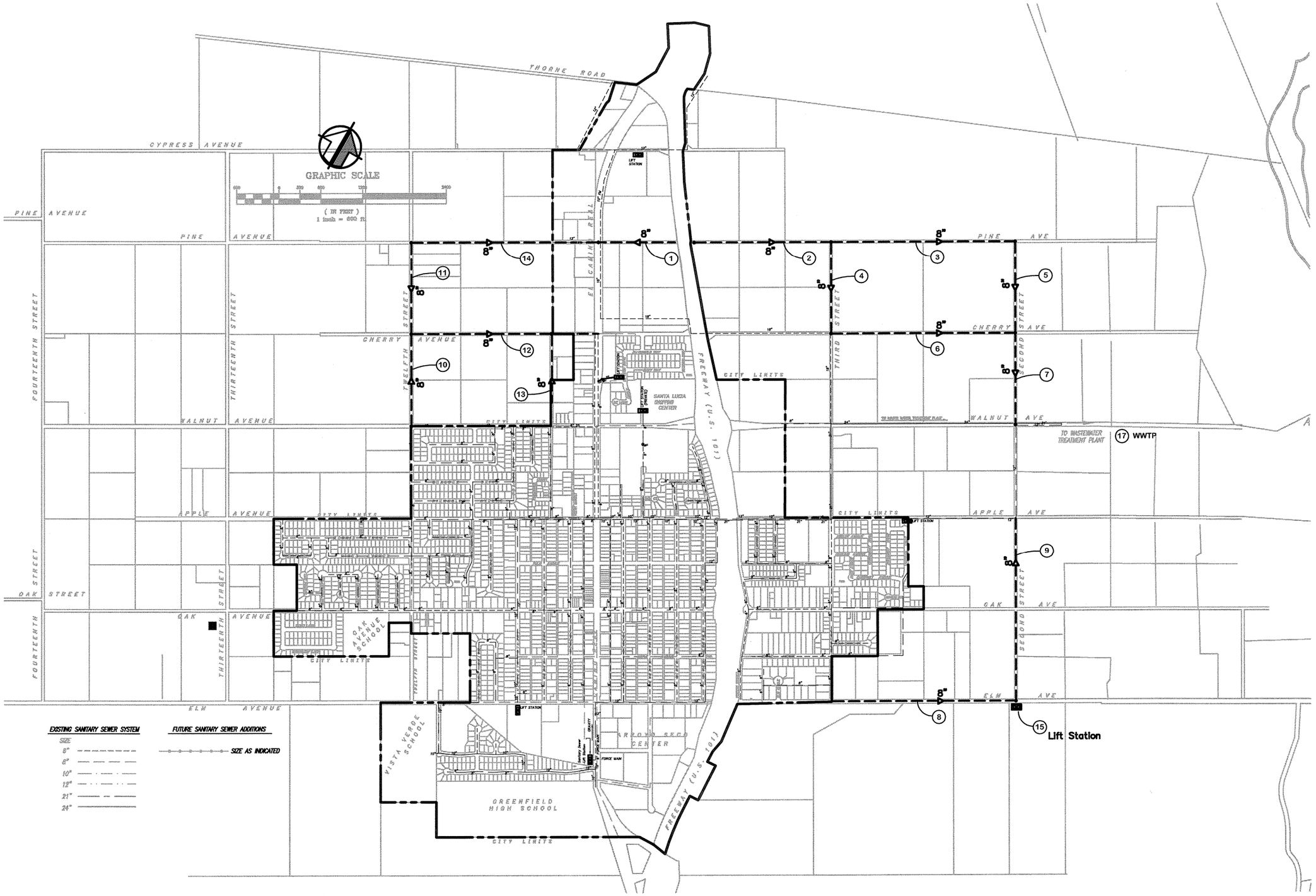
820 Park Row #592 Salinas, CA 93901 Tel. 831.455.2344 Fax. 831.455.1921

10/9/03 - CITY COUNCIL PREFERRED ALTERNATIVE

PMC

FIGURE 6
Future Land Use
City of Greenfield

SHEET 6 OF 8 SHEETS



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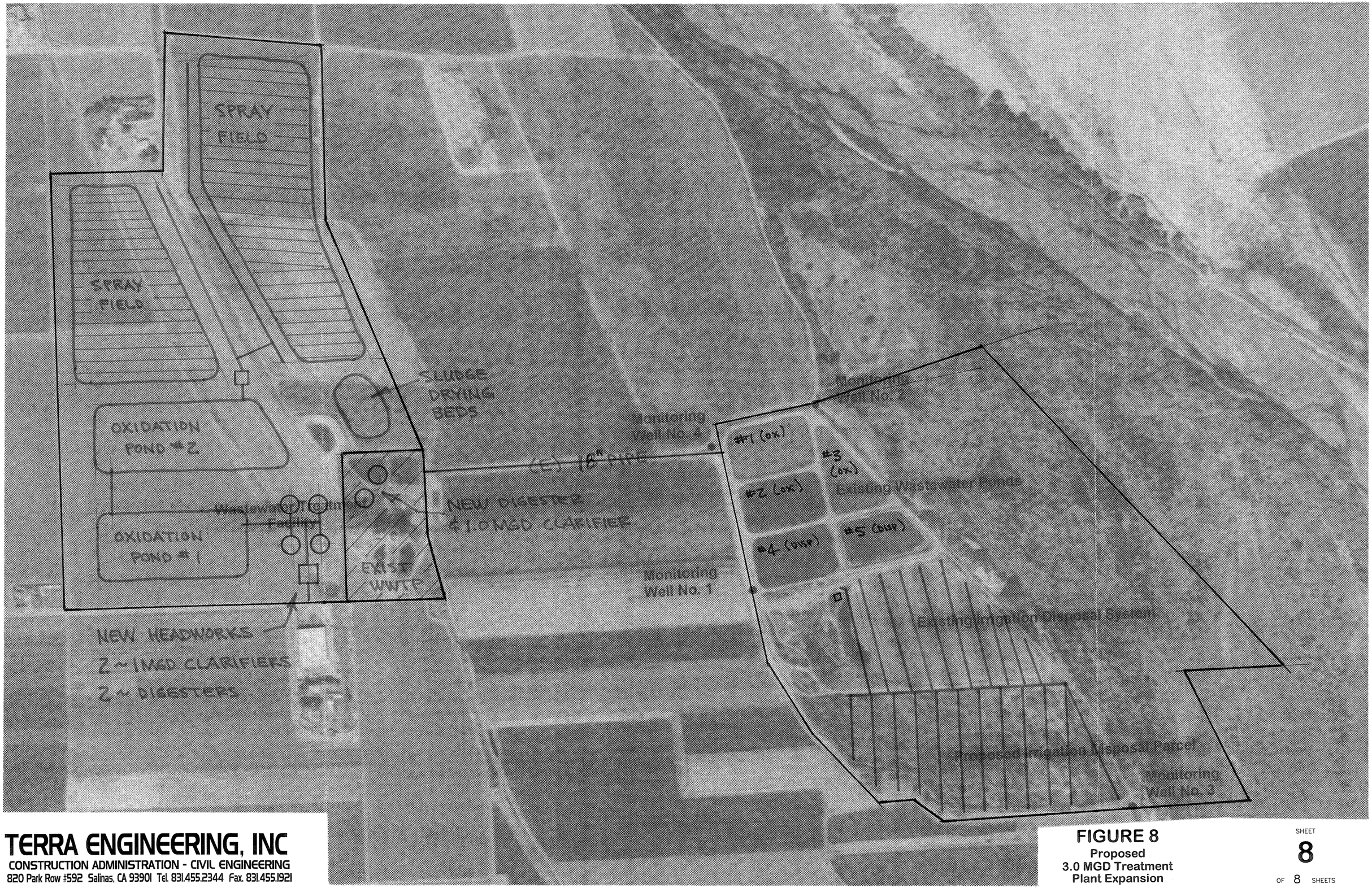
820 Park Row #592 Salinas, CA 93901 Tel. 831.455.2344 Fax. 831.455.1921

FIGURE 7
Wastewater System
Capital Improvement Projects



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820 Park Row #592 Salinas, CA 93901 Tel. 831.455.2344 Fax. 831.455.1921

FIGURE 8
Proposed
3.0 MGD Treatment
Plant Expansion

Appendix A

Waste Discharge Requirements Order No. R3-2002 – 0062

of the California Regional Water Quality

Control Board, Central Coast Region

California Regional Water Quality Control Board
Central Coast Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov/~rwqcb3
81 Higuera Street, Suite 200, San Luis Obispo, California 93401-5427
Phone (805) 549-3147 • FAX (805) 543-0397

Gray Davis
Governor

June 5, 2002

John Alves
Deputy City Manager/Public Works Director
City of Greenfield
P.O. Box 127
Gonzales, CA 93927

Dear Mr. Alves

REVISED WASTE DISCHARGE REQUIREMENTS ORDER NO. R3-2002-0062 FOR THE CITY OF GREENFIELD WASTEWATER TREATMENT PLANT, MONTERREY COUNTY

Enclosed are the final Waste Discharge Requirements and Monitoring and Reporting Program for the City of Greenfield Wastewater Treatment Plant adopted by the Board at its May 31, 2002 meeting.

If you have any questions, please call **Martin Fletcher at (805) 549-3694** or Eric Gobler at (805) 549-3467.

Sincerely,

Bradley E. Hagemann
FOR Roger W. Briggs
Executive Officer

Enclosures:

1. Order No. R3-2002-0062
2. MRP No. R3-2002-0062
3. Customer Service Survey

:\WB\Central Watershed\S \WDRs\City of Greenfield WWTP\Final OrderCover letter.doc
Task: 121-01
File: Discharger file; City of Greenfield WWTP

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
81 Higuera Street, Suite 200
San Luis Obispo, California 93401

WASTE DISCHARGE REQUIREMENTS ORDER NO. R3-2002-0062

Waste Discharger Identification No. 3 2750105001
Proposed for Consideration at the May 31, 2002 Meeting

For

CITY OF GREENFIELD
WASTEWATER TREATMENT PLANT
MONTEREY COUNTY

The California Regional Water Quality Control Board, Central Coast Region (Regional Board), finds that:

FACILITY OWNER AND LOCATION

1. The City of Greenfield (hereafter "Discharger") owns and operates the Greenfield Wastewater Treatment Plant (hereafter "Facility").

2. The Facility is located along Walnut Avenue approximately 1.5 miles northeast of the City of Greenfield. The Facility is in the southwest ¼ of Section 21, the northeast ¼ of section 29, northwest ¼ of section 28, and southeast ¼ of section 20, Township 18 South, Range 07 East, of the Mount Diablo Base & Meridian along the west bank of the Salinas River, as shown on Attachments "A".

PURPOSE OF ORDER

3. On October 29, 2001, John Alves, Deputy City Manager and Public Works Director for the City of Greenfield submitted a Report of Waste Discharge for authorization to continue discharging treated domestic wastewater within the Salinas River sub-basin.

4. Order No. R3-2002-0062 revises waste discharge requirements for the Facility that are intended to:
   a) allow the discharge described in the Dischargers Report of Waste Discharge,
   b) uphold State water quality standards and,
   c) revise the Monitoring and Reporting Program.

SITE/FACILITY DESCRIPTION

5. The Discharger provides sewage service to the City of Greenfield and has direct responsibility for the wastewater collection system.

6. The Facility is located on 80 acres and includes pretreatment headworks, two primary clarifiers, one aerobic sludge digester, three oxidation ponds, two percolation ponds, and 13 acres of spray field disposal, as shown in Attachment "B".

Discharge Type

7. The Facility discharges treated domestic wastewater.

8. Analysis of the City water supply, submitted with the Discharger's October 2001 Self Monitoring Report, identifies the following:

Constituent	City Water Supply October 3, 2001
Total Dissolved Solids	400
Sodium	42
Chloride	33
Sulfate	110
Boron	0.14

9. Analysis of the Facility's wastewater effluent, submitted with the Discharger's October 2001 Self Monitoring Report, identifies the following:

Constituent	WTTP Effluent October 3 2001
Total Dissolved Solids	660
Sodium	140
Chloride	140
Sulfate	88
Boron	0.49

Design and Current Capacity

10. Pretreatment occurs at the headworks and consists of a manual vertical bar screen followed by two comminuters in parallel.

11. Treatment consists of two primary clarifiers in parallel, three oxidation ponds, two percolation ponds, and 13 acres of spray irrigation and an aerobic sludge digester.

12. Following recommendations made by the Discharger's consultant in 1992, the Facility's capacity was increased to 1.0 million gallons per day (MGD).

13. The Facility, from January 2000 through December 2000, treated an average flow of 0.853 MGD. The peak month, average daily flow, occurred during July 2000 and averaged 0.91 MGD.

14. The Discharger plans to expand the Facility to a design capacity of at least 1.5 MGD. Expected additions include the following: a primary clarifier, a sludge pump, a sludge digester, an aeration pond, and land for effluent disposal.

Wastewater Disposal

15. Wastewater disposal occurs by percolation and evaporation within the ponds, and spray irrigation.

Solid Waste Disposal

16. Solid wastes generated from the treatment system consist of biosolids separated from the wastewater though the primary clarifiers. The biosolids are treated in a digestor and drying bed prior to being stored onsite adjacent to the spray irrigation areas.

Domestic Water Supply and Wastewater Geology

17. The ponds and spray irrigation areas are located on relatively level topography consisting of sandy soils.

Hydrogeology

18. Monitoring reports submitted by the Discharger during 2001, indicate a depth to groundwater of ranging from 12 to 19 feet, with a northwest groundwater gradient.

Surface Water

19. The ponds and spay irrigation areas are located southwest of and adjacent to the Salinas River, which flows in a northwesterly direction to Monterey Bay. The ponds and spray irrigation areas are protected from the river by a levee designed to withstand a 100-year flood.

Land Uses

20. The Facility is surrounded by agricultural land.

Regional Basin Plan

21. The Water Quality Control Plan, Central Coast Basin (Basin Plan) was adopted by the Regional Board on November 19, 1989 and approved by the State Water Resources Control Board (State Board) on August 16, 1990. The Regional Board approved amendments to the Basin Plan on February 11, 1994 and September 8, 1994. The Basin Plan incorporates statewide plans and policies by reference and contains a strategy for protecting beneficial uses of State Waters. This Order implements the Basin Plan.

22. Historical beneficial uses of groundwater near the discharge include:

    a. Municipal and Domestic Water
    b. Agricultural Water Supply
    c. Industrial Water Supply

23. Present and anticipated beneficial uses of the Salinas River between Nacimiento River and Chualar include:

    a. Municipal and Domestic Supply

b. Agricultural Supply
c. Industrial Process Supply
d. Industrial Service Supply
e. Groundwater Recharge
f. Water Contact Recreation
g. Non-Contact Water Recreation
h. Wildlife Habitat
i. Cold Freshwater Habitat
j. Warm Freshwater Habitat
k. Migration of Aquatic Organisms
l. Spawning, Reproduction, and/or Early Development
m. Rare, Threatened, or Endangered Species
n. Commercial and Sport Fishing

MONITORING PROGRAM

24. Monitoring and Reporting Program No. R3-2002-0062 is a part of the proposed Order. The Monitoring Program requires routine water supply, pond, influent, effluent, groundwater, solids/biosolids, facility, inflow/infiltration, and salt monitoring to verify compliance and protection of groundwater quality.

25. Monitoring reports are due quarterly, January, April, July, and October. An annual report summarizing the year's events and monitoring is due in January.

ENVIRONMENTAL ASSESSMENT

26. These waste discharge requirements are for an existing facility and are exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21000, et. seq.) in accordance with Section 15321, Article 19, Chapter 3, Division 6, Title 14 of the California Code of Regulations.

Total Maximum Daily Load

27. Total maximum daily load (TMDL) allocations will be developed for impaired surface waters in the Salinas River Basin. TMDL documents will allocate responsibility for constituent loading throughout the watershed. Draft TMDL documents are anticipated by June 2003 for siltation, June 2004 for nutrients and pesticides, and June 2009 for salinity. During development of the TMDL source assessment and implementation plan, if Regional Board staff find constituent contributions from waste discharged may adversely impact beneficial uses or exceed water quality objectives, TMDL documents may require changes in Waste Discharge Requirements. Waste Discharge Requirements may be modified to implement applicable TMDL provisions and recommendations.

EXISTING ORDERS/GENERAL FINDINGS

28. The discharge was previously regulated by Waste Discharge Requirements Order No. 89-19, adopted by the Regional Board on February 10, 1989. The Regional Board has regulated this discharge since 1965.

29. Discharge of Waste is a privilege, not a right, and authorization to discharge is conditional upon the discharge complying with provisions of Division 7 of the California Water Code and any more stringent effluent limitations necessary to implement water quality control plans, to protect beneficial uses, and to prevent nuisance.

30. On March 14, 2002, the Regional Board notified the Discharger and interested parties of its intent to issue waste discharge requirements for the discharge and has provided them with a copy of the proposed Order and an opportunity to submit written views and comments.

31. After considering all comments pertaining to this discharge during a public hearing on May 31, 2002, this Order was found consistent with the above findings.

IT IS HEREBY ORDERED, pursuant to authority in Sections 13263 and 13267 of the California Water Code, that the City of Greenfield their agents, successors, and assigns, may discharge waste at the above-described Facility providing compliance is maintained with the following:

All technical and monitoring reports submitted pursuant to this Order are required pursuant to Section 13267 of the California Water Code. Failure to submit reports in accordance with

schedules established by this Order, attachments to this Order, or failure to submit a report of sufficient technical quality to be acceptable to the Executive Officer, may subject the discharger to enforcement action pursuant to Section 13268 of the California Water Code.

Note:
Other prohibitions and conditions, definitions, and the method of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated January 1984. Superscripted terms are defined in Section, D. Definitions.

A. PROHIBITIONS

1. Discharge of treated wastewater to areas other than disposal areas shown in Attachment "B", is prohibited.

2. Discharge of any wastes including overflow, bypass, seepage, and overspray; from transport, treatment, storage, or disposal systems to adjacent drainageways or adjacent properties not listed in this Order is prohibited.

3. Bypass of the treatment facility and discharge of untreated or partially treated wastes directly to the designated disposal area is prohibited.

B. SPECIFICATIONS

Effluent

1. Daily wastewater flow averaged over each month shall not exceed 1.0 MGD, until Facility improvements are complete (with design capacity supported by sufficient documentation), and approved by the Executive Officer.

2. Upon completion of Facility improvements, documented design capacity, and approval by the Executive Officer, daily wastewater flow, averaged over each month, shall not exceed the design flow documented and approved.

Groundwater Protection

3. The discharge shall not cause groundwater to exceed the following limitations:

Constituents	Units*
pH	Between 6.5 - 8.4
TDS	1,500 mg/l
Sodium	150 mg/l
Chloride	250 mg/l
Sulfate	850 mg/l
Boron	0.5 mg/l

* as measured in groundwater downgradient of the disposal area

4. The discharge shall not cause nitrate concentrations in groundwater downgradient of the disposal area to exceed 8 mg/l (as N).

5. The discharge shall not cause a significant increase of mineral constituent concentrations in underlying groundwater, as determined by comparison of samples collected from wells located upgradient and downgradient of disposal areas.

6. The discharge shall not cause concentrations of chemicals and radionuclides in groundwater to exceed limits set forth in Title 22, Chapter 15, Articles 4 and 5 of the California Administrative Code.

System Operation

7. Treatment and disposal areas shall be fenced and posted (English and Spanish) to advise the public that the Facility contains domestic wastewater.

8. Extraneous surface drainage shall be excluded from the wastewater treatment and disposal facilities.

9. Treatment and disposal ponds shall have a freeboard greater than two feet at all times.

Wastewater Disposal

10. Effluent shall not be discharged within 100 feet of any existing water supply well.

11. Disposal ponds shall be alternated to permit emptying for maintenance purposes.

12. Disposal ponds shall be dried and disced at least annually.

13. Wastewater application to spray irrigation areas shall be managed to prevent ponding.

14. Wastewater application to spray irrigation areas shall not take place during rains.

15. Wastewater application to spray irrigation areas shall not result in runoff beyond the property boundary, to surface waters or to drainage courses that are tributary to surface waters.

16. Spray irrigation areas shall be operated using a regular rotation. Rotation from one irrigation area to another shall occur at least weekly. Between applications, irrigated areas shall be allowed to dry to approximately the field moisture condition of non-irrigated areas.

Solid Waste

17. All solids generated from the screening and treatment process must be reclaimed or disposed of in a manner acceptable to the Executive Officer.

Storm Water

18. All storm water contacting domestic wastewater shall be contained onsite.

Inflow/Infiltration

19. Best management practices shall be implemented to minimize the inflow and infiltration of storm water and/or unauthorized wastewater into the Facility.

C. PROVISIONS

1. Order No. 89-18, "Waste Discharge Requirements for City of Greenfield, Monterey County," adopted by the Regional Board on February 10, 1989, is hereby rescinded.

2. The Discharger shall comply with "Monitoring and Reporting Program (MRP) No. R3-2002-0062, as specified by the Executive Officer.

3. The Discharger shall comply with all applicable items of the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements," dated January 1984.

4. All discharges from the Facility shall comply with lawful requirements of the municipalities, counties, irrigation districts, drainage districts, and other local agencies regarding discharges of waste to land and surface waters within their jurisdiction.

5. The Discharger shall evaluate salt management practices and implement a long term Salt Management Program to access and reduce salt loading to the Facility. By March 1, 2003, the Discharger shall submit a report to the Executive Officer identifying findings and making recommendations as needed to manage salts.

6. The Discharger shall submit an engineering report to the Executive Officer not later than November 30, 2002 addressing:
   a. Whether the hydraulic gradient for groundwater below the Facility is consistent with the configuration of the monitoring wells;
   b. Whether current groundwater monitoring wells adequately represent groundwater upgradient and downgradient of the Facility.

   If the current groundwater monitoring system is inadequate, the Discharger shall propose a revised groundwater monitoring system with an implementation schedule.

7. The Discharger shall submit an engineering report to the Executive Officer, not later than March 1, 2003 evaluating various wastewater disposal options. The report shall consider recycling and reuse, and if viable, develop a schedule for phased implementation.

8. The Discharger shall give advance notice to the Regional Board of any planned changes in the permitted facility or waste management activities that may result in noncompliance with this Order.

9. This Order may be reopened to address any changes in State or Federal plans, policies, or regulations that would affect the quality requirements for the discharges.

10. In the event of any change in control or ownership of land or facilities presently owned or utilized by the Discharger, the Discharger shall notify the succeeding owner(s) or operator(s) of the existence of this Order by letter, a copy of which shall be forwarded to the Regional Board.

11. Pursuant to Title 23, Chapter 3, Subchapter 9, of the California Administrative Code, the Discharger must submit a written report to the Executive Officer not later than September 22, 2011, addressing:

    a. Whether there will be changes in the continuity, character, location, or volume of the discharge;

    b. Whether, in their opinion, there is any portion of the Order that is incorrect, obsolete, or otherwise in need of revision; and

    c. A summary of all violations of Waste Discharge Requirements, Order No. R3-2002-0062, which occurred since adoption of the order along with a description of the cause(s) and corrective action taken.

I, Roger W. Briggs, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Central Coast Region, on May 31, 2002.

Madley E. Hagaman
for Roger W. Briggs, Executive Officer

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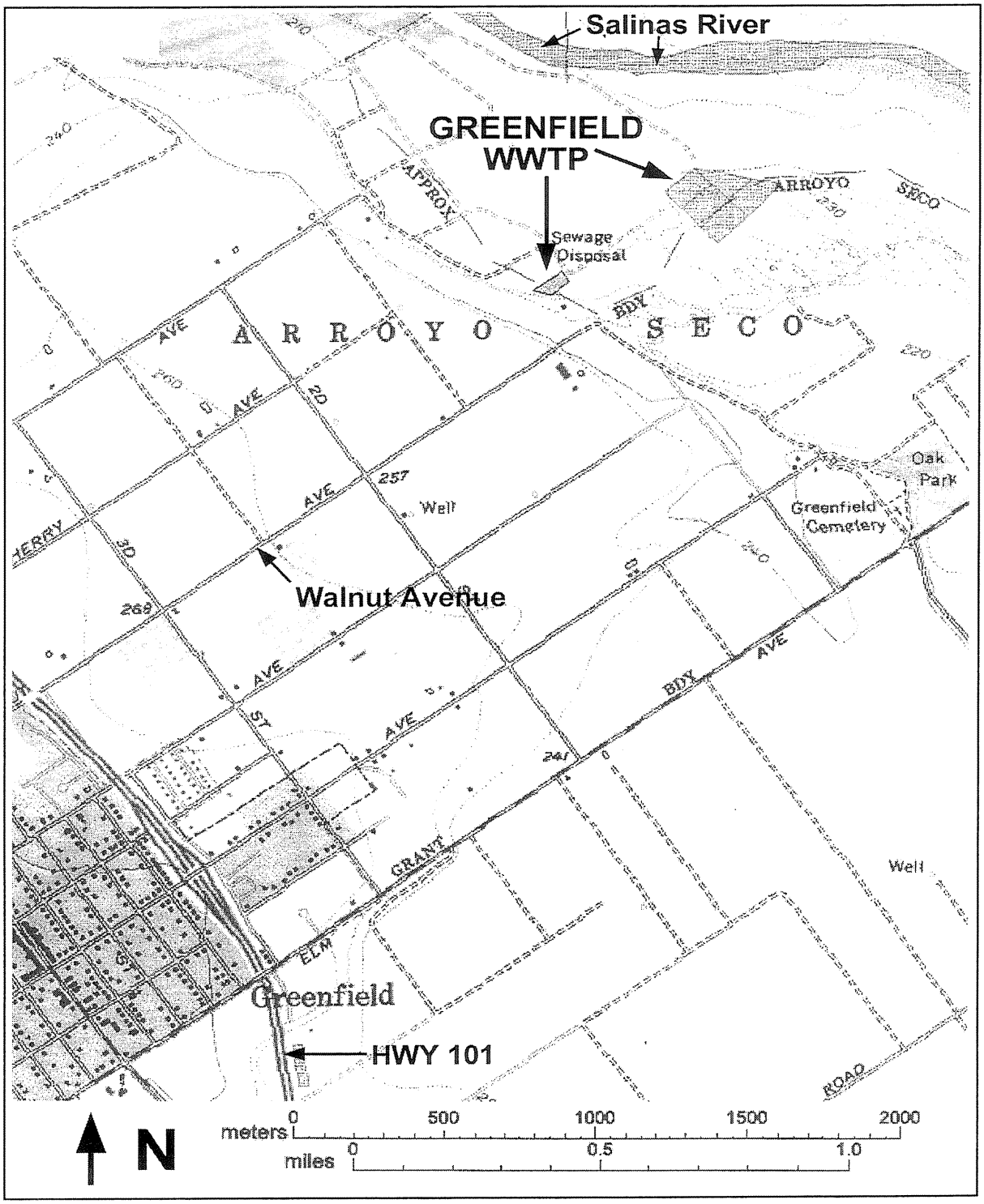
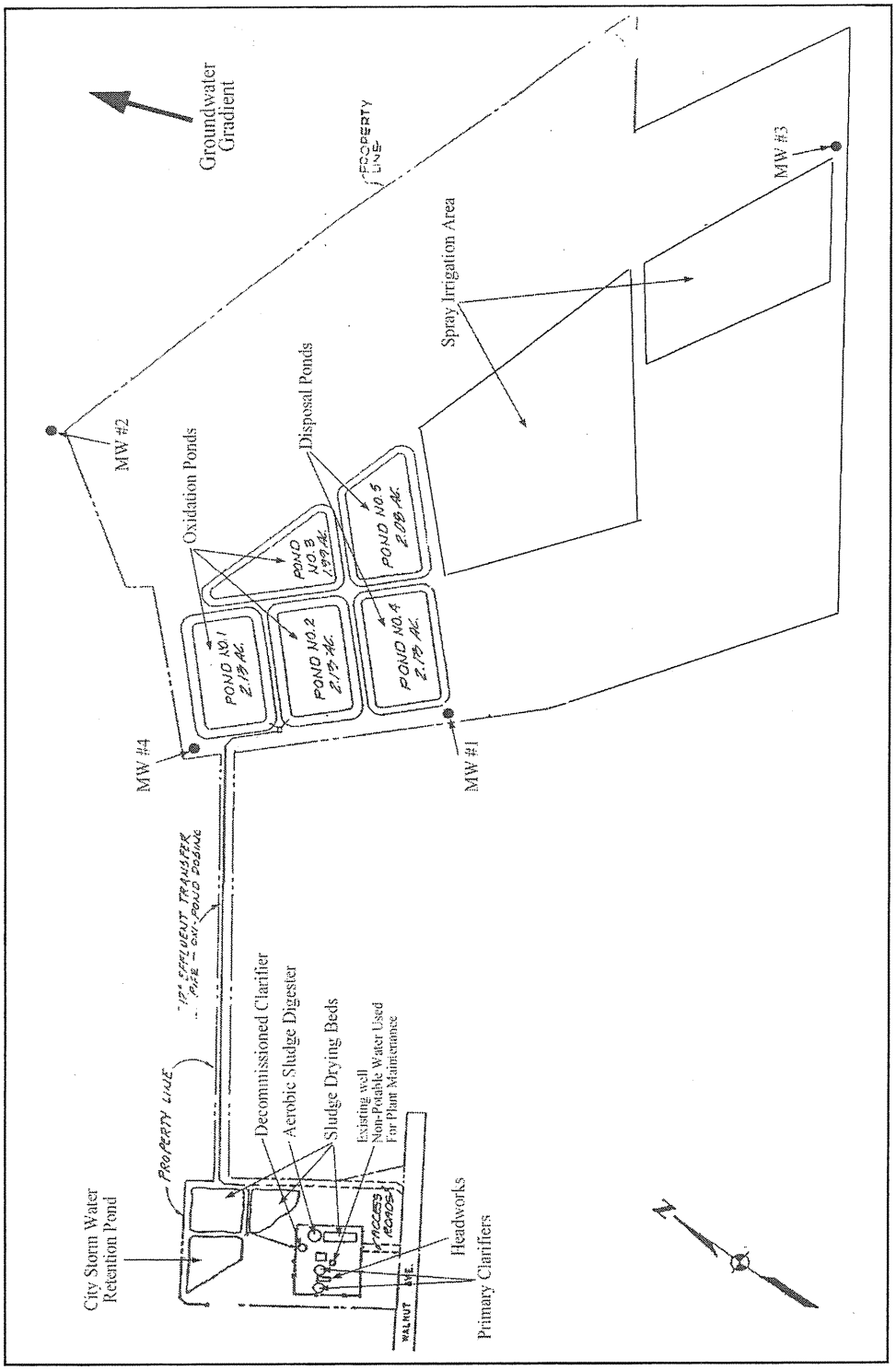
City of Greenfield Wastewater Treatment Plant
Order No. R3-2002-0062
Location Map



Attachment "A"

City of Greenfield Wastewater Treatment Plant
Order No. R3-2002-0062
Facility Map



Attachment "B"

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
81 Higuera Street, Suite 200
San Luis Obispo, California 93401-5411

MONITORING AND REPORTING PROGRAM NO. R3-2002-0062
Waste Discharge Identification No. 3 270105001
Proposed for Consideration at May 31, 2002 Meeting

For

CITY OF GREENFIELD
WASTEWATER TREATMENT PLANT
MONTEREY COUNTY

Reporting responsibilities are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code. This Discharge Monitoring Program is issued in accordance with Provision C.2 of Regional Board Order No. R3-2002-0062.

WATER SUPPLY MONITORING

Representative samples of the City water supply shall be collected and analyzed for the constituents and at the frequency specified below:

Parameter/Constituent	Units	Sample Type	Minimum Sampling and Analyzing Frequency
General Minerals*	mg/l	Grab	Annually (September)

* General Mineral analyses shall include the following constituents: Calcium, Magnesium, Sodium, Sulfate, Carbonate, Bi-Carbonate, Chloride, Total Hardness, Total Alkalinity, Total Dissolved Solids, pH, Electrical Conductivity, Boron, Iron, and Nitrate (as N). Sampling results for the Department of Health Services may be submitted to satisfy this requirement.

INFLUENT MONITORING

Representative samples of the influent shall be collected and analyzed for the constituents and at the frequencies specified below:

Parameter/Constituent	Units	Sample Type	Minimum Sampling and Analyzing Frequency
Flow Volume	MGD	Metered	Daily
Maximum Daily Flow	MGD	Metered	Monthly
Mean Daily Flow	MGD	Calculated	Monthly
BOD_5	mg/l	24 hr Composite	Quarterly (Dec., March, June, Sept.)
Total Suspended Solids	mg/l	24 hr Composite	Quarterly (Dec., March, June, Sept.)
Settleable Solids	ml/l	Grab	Quarterly (Dec., March, June, Sept.)
pH	-	Grab	Quarterly (Dec., March, June, Sept.)
Total Dissolved Solids	mg/l	24 hr composite	Annual (September)
Sodium	mg/l	24 hr composite	Annual (September)
Chloride	mg/l	24 hr composite	Annual (September)
Sulfate	mg/l	24 hr composite	Annual (September)
Boron	mg/l	24 hr composite	Annual (September)

POND MONITORING

Representative samples of wastewater contained in each treatment and disposal pond shall be collected and analyzed for the constituents and at the frequency specified below:

Constituent	Units	Sample Type	Minimum Sampling and Analyzing Frequency
pH	-	Grab*	Weekly
Dissolved Oxygen	mg/l	Grab*	Weekly

* Grab sample to be taken at one-foot depth.

EFFLUENT MONITORING

Representative samples of wastewater being discharged to the spray irrigation areas shall be collected and analyzed for the constituents and at the frequencies specified below:

Constituent	Units	Sample Type	Minimum Sampling and Analyzing Frequency
pH	-	Grab	Quarterly (Dec., March, June, Sept.)
BOD_5	mg/l	Grab	Quarterly (Dec., March, June, Sept.)
Total Suspended Solids	mg/l	Grab	Quarterly (Dec., March, June, Sept.)
Settleable Solids	ml/l	Grab	Quarterly (Dec., March, June, Sept.)
Total Dissolved Solids	mg/l	Grab	Quarterly (Dec., March, June, Sept.)
Sodium	mg/l	Grab	Quarterly (Dec., March, June, Sept.)
Chloride	mg/l	Grab	Quarterly (Dec., March, June, Sept.)
Boron	mg/l	Grab	Quarterly (Dec., March, June, Sept.)
Sulfate	mg/l	Grab	Quarterly (Dec., March, June, Sept.)
Nitrite (as N)	mg/l	Grab	Quarterly (Dec., March, June, Sept.)
Nitrate (as N)	mg/l	Grab	Quarterly (Dec., March, June, Sept.)
Total Kjeldahl Nitrogen (as N)	mg/l	Grab	Quarterly (Dec., March, June, Sept.)
Total Nitrogen (as N)	mg/l	Grab	Quarterly (Dec., March, June, Sept.)
Aluminum	mg/l	Grab	Annually (September)
Antimony	mg/l	Grab	Annually (September)
Arsenic	mg/l	Grab	Annually (September)
Barium	mg/l	Grab	Annually (September)
Berylium	mg/l	Grab	Annually (September)
Cadmium	mg/l	Grab	Annually (September)
Chromium	mg/l	Grab	Annually (September)
Copper	mg/l	Grab	Annually (September)
Cyanide	mg/l	Grab	Annually (September)
Flouride	mg/l	Grab	Annually (September)
Lead	mg/l	Grab	Annually (September)
Mercury	mg/l	Grab	Annually (September)
Nickel	mg/l	Grab	Annually (September)
Selenium	mg/l	Grab	Annually (September)
Thalium	mg/l	Grab	Annually (September)
Zinc	mg/l	Grab	Annually (September)
VOCs	mg/l	Grab	Once/5 years (September)
PCBs	mg/l	Grab	Once/5 years (September)
Pesticides	mg/l	Grab	Once/5 years (September)

SOLIDS/BIOSOLIDS MONITORING

The Discharger shall submit a summary of activities regarding solids handling with each quarterly monitoring report. Prior to biosolid removal or change in disposal practices (location, process, frequency), the Discharger shall submit all disposal information to the Executive Officer for approval. Representative samples of the biosolids to be disposed off shall be collected and analyzed for the constituents and at the frequencies specified below:

Parameter/Constituent *	Units	Sample Type	Minimum Sampling and Analyzing Frequency **
Quantity	Tons or yds^3	Measured during removal	Each load
Moisture Content	%	Grab	Prior to transport/disposal
Nitrate (as N)	mg/kg	Grab	Prior to transport/disposal
Total Phosphorus	mg/kg	Grab	Prior to transport/disposal
pH	pH units	Grab	Prior to transport/disposal
Grease & Oil	mg/kg	Grab	Prior to transport/disposal
Arsenic	mg/kg	Grab	Prior to transport/disposal
Antimony	mg/kg	Grab	Prior to transport/disposal
Barium	mg/kg	Grab	Prior to transport/disposal
Beryllium	mg/kg	Grab	Prior to transport/disposal
Boron	mg/kg	Grab	Prior to transport/disposal
Cadmium	mg/kg	Grab	Prior to transport/disposal
Cobalt	mg/kg	Grab	Prior to transport/disposal
Copper	mg/kg	Grab	Prior to transport/disposal
Chromium, VI & Total	mg/kg	Grab	Prior to transport/disposal
Lead	mg/kg	Grab	Prior to transport/disposal
Mercury	mg/kg	Grab	Prior to transport/disposal
Molybdenum	mg/kg	Grab	Prior to transport/disposal
Nickel	mg/kg	Grab	Prior to transport/disposal
Selenium	mg/kg	Grab	Prior to transport/disposal
Silver	mg/kg	Grab	Prior to transport/disposal
Thallium	mg/kg	Grab	Prior to transport/disposal
Tin	mg/kg	Grab	Prior to transport/disposal
Vanadium	mg/kg	Grab	Prior to transport/disposal
Zinc	mg/kg	Grab	Prior to transport/disposal
Pesticides	mg/kg	Grab	Prior to transport/disposal***
Organic Lead	mg/kg	Grab	Prior to transport/disposal***
PCBs	mg/kg	Grab	Prior to transport/disposal***

* Characterization required by disposal facility may be submitted in place of this list.

** If no need for sludge/biosolids removal occurs during a given year, the Discharger will have no obligation for biosolids monitoring. Reporting in this case shall explain the absence of this monitoring.

*** At least once every 5 years prior to transport or disposal.

NOT Applicable

RECEIVING WATER MONITORING

Representative samples of groundwater shall be collected from shallow wells upgradient and downgradient of disposal areas. To ascertain compliance with Waste Discharge Requirements in establishing new, or verifying existing upgradient and downgradient monitoring wells, the monitoring network shall be supported by sufficient, as determined by the Executive Officer, geologic and hydrogeologic documentation. Samples of groundwater shall be collected and analyzed for the constituents and at the frequencies specified below:

Parameter/Constituent	Units	Sample Type	Minimum Sampling and Analyzing Frequency
Depth to Groundwater	feet	Measured	Semi-Annually (March and September)
pH	-	Grab	Semi-Annually (March and September)
Total Dissolved Solids	mg/l	Grab	Semi-Annually (March and September)
Sodium	mg/l	Grab	Semi-Annually (March and September)
Chloride	mg/l	Grab	Semi-Annually (March and September)
Boron	mg/l	Grab	Semi-Annually (March and September)
Sulfate	mg/l	Grab	Semi-Annually (March and September)
Nitrite (as N)	mg/l	Grab	Semi-Annually (March and September)
Nitrate (as N)	mg/l	Grab	Semi-Annually (March and September)
Total Kjeldahl Nitrogen (as N)	mg/l	Grab	Semi-Annually (March and September)
Total Nitrogen (as N)	mg/l	Grab	Semi-Annually (March and September)

FACILITY MONITORING

The Discharger shall make at least bi-weekly inspections of the treatment and disposal systems. During the inspections, the Discharger shall note compliance status with this Order, particularly Discharge Prohibitions A.1, 2, and 3. A log of these inspections shall be maintained and a summary of observations made during the inspections shall be submitted with each quarterly monitoring report.

INFLOW/INFILTRATION MONITORING

The Discharger shall submit a summary of activities regarding its Best Management Practices for inflow/infiltration control with the annual monitoring report. The summary should address investigations into inflow/infiltration, and efforts to reduce inflow/infiltration to the City of Greenfield Wastewater Treatment Plant.

SALT MONITORING

The Discharger shall submit a summary of activities regarding its Salt Management Program with the annual monitoring report. The summary should address investigations into salt loading sources, and efforts to reduce salt loading to the City of Greenfield Wastewater Treatment Plant.

REPORTING

Monitoring reports are required quarterly, by the 30th of January, April, July, and October, and shall contain all data collected or calculated over the previous three months. Pursuant to Standard Provisions and Reporting Requirements, General Reporting Requirement C.16, an annual report is required by the 30th of January along with the 4th quarter monitoring report.

IMPLEMENTATION

This monitoring and reporting program shall be implemented immediately.

ORDERED BY Bradley E. Hogaman
FOR Executive Officer
6/5/02
Date

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