PRELIMINARY TEMESCAL COMMERCIAL INFILL DEVELOPMENT SEWER AREA STUDY

RIVERSIDE COUNTY, CA

December 2023

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KHA Project # 194053006

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

The proposed development "Temescal Commercial" is located south of the city of Corona, west of interstate 15, and at the cross-sections of Temescal Canyon Road and Lawson Road. The entire site is within the Design Theme Policy Area in the Temescal Canyon Area Plan of the Riverside County Integrated Project (RCIP). The project site is designated as a Commercial Tourist land use and zoned as Scenic Highway Commercial (C-P-S).

The Temescal Commercial Project is comprised of a proposed Light Industrial/Commercial lot identified as "Lot 1" on the enclosed Conceptual Sewer Study Exhibit and two undeveloped areas that are located south of Lot 1 that are designated as "Open Space." (Conceptual Sewer Study is enclosed in Appendix C.)

The Temescal Commercial will be tied into the existing Temescal Valley Water District (TVWD – formerly Lee Lake Water District) sewer line in Temescal Canyon Road through the proposed gravity sewer lines along Temescal Canyon Road.

PURPOSE

The purpose of this study is to determine the required capacity of this project and corresponding pipelines necessary to support this development for the ultimate condition. In addition to this, a gravity sewer hydraulic analysis was performed to evaluate the demand and capacity of the proposed and existing sewer main lines per TVWD sizing standards.

CHAPTER 2

DESIGN CRITERIA

This chapter presents the design criteria used to evaluate sewer system facility sizing in this report. Unless otherwise noted, the criteria utilized in this report is in accordance with the August 2008 Lee Lake Sewer District Sewer System Facility Requirements, see Appendix A.

To convert land uses to projected average daily flows, the sewer generation factors provided in Table 2-1 were utilized. To convert average flows to peak flows, the peaking factor curve provided in Appendix A was utilized.

Table 2-1
Sewage Generation Factors

Land Use	Generation Factors
Industrial	2,000 gpd/Ac*

* Generation Factors per Lee Lake Water District Sewer System Facility Requirements (2008)

All gravity sewers have been designed to convey peak wet weather flow with a minimum velocity of 2.0 feet per second and a maximum velocity of 8.0 feet per second. For pipes with a diameter of 10-inches and smaller, the sewers have been designed to convey this flow when flowing half full. For pipes with a diameter of larger than 10-inches, the sewers have been designed to convey peak wet weather flow when flowing three-fourths full by depth. Manning's Equations with an "n" value of 0.013 was used to size all gravity sewers.

CHAPTER 3

STUDY AREA AND PROJECTED FLOWS

This chapter presents projected sewage flows from properties within the study area.

Study Area

Apart from the existing Mission Clay Products property, the properties within the study area are generally undeveloped. The proposed development plans and zoning for properties within the study area were utilized to determine ultimate projected sewer flows.

The total average flow (MGD) and total peak flow (MGD) generated by the Temescal Commercial project were considered in this report. The proposed gravity sewer lines will be constructed to tie into the existing 15-inch sewer line on Temescal Canyon Road.

Projected Flow

For the properties identified within the study area, Table 3-1 presents the projected average and peak sewage flows. The land use assumptions and/or source for the proposed development on these properties are footnoted on Table 3-1. The peak factor calculations were taken per Lee Lake Water District Sewer System Facility Requirements (2008), Appendix A. As shown, the projected ultimate average flow for the study area is 0.22 MGD. Using the peaking factor curve in Appendix A this results in a projected peak flow of 0.58 MGD.

TABLE 3-1
SEWER GENERATION PEAK FLOW

Lot Number	LAND USE	LOT SIZE (AC)	GENERATION FACTOR	AVG GAL/DAY	AVG MGD	PEAK MGD
1	LIGHT INDUSTRIAL	10.80 ac	2,000 gpd/ac	21,600	0.022	0.057
2	OPEN SPACE	0.21 ac	0	0	0	0
3	OPEN SPACE	0.60 ac	0	0	0	0
-	*FUTURE CONNECTION #1 (WEST)	-	-	-	0.096	0.250
-	*INDUSTRIAL/SCHOOL FUTURE CONNECTION #2 (NORTH)	-	-	-	0.096	0.250
-	**COMMERCIAL FUTURE CONNECTION #3 (EAST)	-	-	-	N/A	N/A
					0.221	**0.575**

Refer to Figure 3 for the location map of the planning areas.
*Potential future calculated per maximum allowable flow.
** Potential future commercial connection is to Temescal Canyon Road

CHAPTER 4

EXISTING SEWER FACILITIES

All sewage within the District is conveyed to the TVWD Reclamation Facility for treatment and re-use. Flow is currently conveyed northerly to this facility in a 15-inch sewer main located in Temescal Canyon Road, per Appendix D.

15" Existing sewer lines run along Temescal Canyon Road serviced by Temescal Canyon Water District. There are no records of existing sewer lines within the project area.

CHAPTER 5

SEWER SYSTEM REQUIREMENTS

This chapter presents the recommended regional sewer facilities required to provide service to the properties within project area. The concept is to construct a new sewer line to tie into the existing 15-inch sewer line.

Gravity Sewer Lines

In the ultimate condition, it is proposed to construct a gravity sewer line to convey flows to the Temescal Valley Water District sewer line on Temescal Canyon Road. These pipe sizes are preliminary based on allowable flows and utilizing Flowmaster to estimate the proposed pipe size. Appendix B provides a hydraulic analysis of the sewer line sizing required to serve the lots shown in the Conceptual Sewer Study Exhibit, per Appendix C. Final sizing to be confirmed during final engineering.

At A1, Future Connection #1 has an assumed peak flow of 0.250 MGD based on surrounding acreage and land use. Using the Flowmaster application, the pipe size at A1 on the Conceptual Sewer Study Exhibit, per Appendix B, was sized to be 8", as it meets the TVWD criteria of having a minimum velocity of 2.0 feet per second while conveying this flow when flowing half full at a slope of 0.5%.

Similarly, at B1, Future Connection #2 has an assumed peak flow of 0.250 MGD based on surrounding acreage and land use. Using the Flowmaster application, the pipe size at B1 on the Conceptual Sewer Study Exhibit, per Appendix B, was sized to be 8", as it meets the TVWD criteria of having a minimum velocity of 2.0 feet per second while conveying this flow when flowing half full at a slope of 0.5%.

At A2, the peak flows from Future Connection #1 and Future Connection #2 sum up to 0.50 MGD. Using the Flowmaster application, the pipe size at A2 on the Conceptual Sewer Study Exhibit, per Appendix B, was sized to be 10", as it meets the TVWD criteria of having a minimum velocity of 2.0 feet per second while conveying this flow when flowing half full at 0.5%.

At A3, the peak flows from Future Connection #1, Future Connection #2, and the light industrial lot sum up to 0.56 MGD. Using the Flowmaster application, the pipe size at A3 on the Conceptual Sewer Study Exhibit, per Appendix B, was sized to be 10", as it meets the TVWD criteria of having a minimum velocity of 2.0 feet per second while conveying this flow when flowing half full at 4.9%.

CHAPTER 6

CONCLUSION

The projected ultimate average flow for the Temescal Commercial Project is 0.21 MGD, and the projected peak flow is 0.56 MGD. The total average flow was calculated through maximum allowable flows, project acreages, land uses, and sewer generation factors as shown in Table 3-1.

After the completion of the Temescal Commercial Project, the project will connect to the existing 15-inch Temescal Valley Water District sewer line. For reference, see Appendix C.

All proposed sewer mains are sized to meet the August 2008 Lee Lake Sewer District Sewer System Facility Requirements (Appendix A) for the flow depth, and slope requirements.

APPENDIX A

AUGUST 2008 LEE LAKE WATER DISTRICT SEWER SYSTEM FACILITY REQUIREMENTS

Lee Lake Water District

Sewer System Facility Requirements

August 2008

LEE LAKE WATER DISTRICT

SEWER SYSTEM FACILITY REQUIREMENTS

AUGUST 2008

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LEE LAKE WATER DISTRICT
SEWER SYSTEM FACILITY REQUIREMENTS

TABLE OF CONTENTS

APPENDICES

SECTION I
INTRODUCTION

A. GENERAL

The Lee Lake Water District was formed in 1965 as a California Water District in order to provide water and wastewater service to properties within the I-15 corridor north of Lake Elsinore and South of the City of Corona.

One of LLWD's responsibilities is the delivery of potable water to its customers. LLWD receives all of its water from Western Municipal Water District (WMWD) via WMWD's Mill's Pipeline which receives treated imported State Water Project water through the Mills Filtration Plant located on Allesandro Boulevard in Riverside.

The other responsibility of the District is to provide wastewater service through the collection, treatment, and disposal of sewage produced within the District boundary. Currently, the District operates one treatment facility called the Lee Lake Water Reclamation Facility (LLWRF) with a capacity of 1,580,000 gallons per day. The LLWRF is capable of producing reclaimed water suitable for landscape irrigation uses in compliance with Title 22 of the State Department of Health Services.

The District owns and operates many miles of water transmission and wastewater collection facilities within the District boundaries in order to convey water and wastewater to their respective endpoints.

B. REQUIREMENTS

1. Developer shall design, construct, and dedicate to Lee Lake Water District the sewage collection, pumping and transmission facilities in accordance with the requirements of Lee Lake Water District.

2. Developer shall provide all financial arrangements necessary to plan, design, and construct the project.

3. Developer shall obtain and dedicate sewer utility right-of-way to Lee Lake Water District. Sewer facilities must be in either dedicated road right-of-way or in easements granted to Lee Lake Water District.

4. Developer shall pay current applicable fees (refer to District's Rates and Charges) in addition to completing those requirements listed above. Fees may include; Plan Checking Fees, Connection Charges, Inspection Fees, Added Facilities Charges. District staff should be consulted for current and applicable fees.

5. Lee Lake Water District will review all drawings, and may revise, modify, or require redesign of any concepts, drawings, or details submitted. All concepts and drawings must be approved by the District Engineer.

6. The Developer shall pay for any corrosion engineering costs. These costs shall include a corrosion site survey and a cathodic protection design, if necessary.

7. Procedures for development of sewer systems are similar for Tract Map developments, Parcel Map developments, and single lot main extension

developments. Most procedures and design requirements herein have been prepared for Tract Map developments, but certain portions apply to all sewer system development work within Lee Lake Water District's service area.

SECTION II
PROCEDURES
CONSTRUCTION DRAWING APPROVAL

A. CONSTRUCTION DRAWINGS APPROVAL

District staff will review all sewer construction drawings and may revise, modify, or require redesign of any concepts, drawings, or details submitted. All concepts and drawings must be approved by the District Engineer. Construction must begin within one year of approval of Sewer Construction Drawings. If more than one year has elapsed, the project must go though plan check procedure again before starting construction. The steps required to obtain Sewer Facilities Construction Drawing approval are as follows:

1. Submit Engineering Service Application and Plan Check Deposit.
2. Submit Tract Sewer System and Sewer System Analysis.
3. Submit first plan check.
4. Submit subsequent plan checks.
5. Submit original Construction Drawings for approval.
6. Provide District with drawings.

A flowchart for Construction Drawing Approval is shown in Appendix "A". A plan check status sheet to be used by District staff is shown in Appendix "B". Each required step is discussed in detail below:

l. Submit Engineering Service Application and Plan Check Deposit: The Sewer Service Application (available from the District) shall be completed and filed with the Customer services staff. The plan check deposit shall be submitted with the completed application. A copy of the Sewer Service Application is shown in Appendix "C".

2. Submit Tract Sewer System and Sewer System Analysis: Approximately one week after receiving the completed sewer services application and the plan check deposit, District staff will provide contributing sewer flows at connections to the District's system. If the District has no data on existing contributing sewer flows, then District may direct developer to measure sewer flows at selected manholes. District staff may, in addition, provide design recommendations for the sewer system and may request analysis of impact of project on existing downstream sewer facilities.

   For commercial and industrial developments, pretreatment may be required.

   Based on contributing sewer flows and design recommendations provided by the District, Developer shall submit to the District the following:

   a. One copy of the County of Riverside Conditions of Approval.

   b. Two copies of a master plan of the Tract with the proposed sewer facilities superimposed on same. Said plan shall show sewer manholes, diameter

and slopes of sewers between manholes, and average daily flow for each reach of sewer between manholes.

c. Two copies of the sewer system analysis of the proposed sewer system.

Details regarding sewer system analysis are included in Section III, Design Criteria.

District staff will review the Tract Sewer System and the sewer system analysis and return one set with comments to the Developer. Minor revisions may be incorporated in the first plan check submittal. If major revisions are required, the Tract Sewer System and sewer system analysis shall be resubmitted until approved by District staff.

3. Submit First Plan Check

1. After review and approval of Tract Sewer System and sewer system analysis, Developer shall submit the following for plancheck review and approval:

a. Two copies of the sewer/water construction drawings.

b. One copy of the street improvement drawings.

c. One copy of the grading plan.

d. One copy of the approved Tract Sewer System and sewer system analysis.

e. Two copies of easement documents.

f. One copy of Tract/Parcel Map.

g. Copy of receipt showing submittal to County for plan check of facilities within public rights-of-way.

Construction Drawing plancheck submittals must be complete or they will be rejected. Each submittal shall include a transmittal listing all items submitted and referencing the District project number.

Details regarding sewer design criteria are included in Section III, Design Criteria. Details regarding preparation of construction drawings and easement documents are included in Section IV, Construction Drawing Preparation.

Water and sewer drawings should be combined and shown on the same drawing whenever possible.

The District will provide comments on one set of the sewer construction drawings and return same to Engineer for revisions. The goal of the District staff is to complete the first plan check within three weeks of receipt of submittal. Plan review time varies depending on the number of plans in the review process, size of project, complexity of plans, and completeness of drawings.

4. Submit Subsequent Plan Checks

For each subsequent plan check, Developer shall submit the following:

a. Previous District plan check set.

b. Two copies of revised sewer construction drawings.

c. Two copies of easement documents.

d. Any additional material requested.

e. One copy of revised submittal showing County comments for facilities to be installed in public rights-of-way.

Submittals must be complete or they will be rejected. If drawings and easement documents are not yet satisfactory, District will make comments on one set of the drawings and easement documents and return same to Engineer for revisions. This procedure will be repeated as necessary until drawings and easement documents are complete. If Engineer does not return previous District redlined plan check sets, then plan check procedure will start from the beginning including payment of plan check deposit.

Each cycle of the subsequent plan check would normally be completed in approximately three weeks.

5. Submit Original Construction Drawings for Approval

After all plan checks are completed and the sewer construction drawings are acceptable to the District, the original drawings shall be submitted to the District for signature. Prior to District approval of the sewer construction drawings, Developer shall pay all remaining plan checking fees and submit:

a. Previous District plan check set and one copy of revised sewer construction drawings.

b. Copy of tentative tract/parcel map showing dedications of streets for road purposes and public utilities purposes,

and/or

c. Executed Grant of Easement.

Easements shall have the following width:

Sewer Flowline Depth (ft)	Easement Width (ft)
All Depths	20

District reserves the right to review requirements on a case by case basis, but the above should be used for planning purposes.

6. Provide District with Drawings

When drawings have been fully approved by all agencies, the Developer shall provide the District with a clean set of photo mylars and three sets of bluelines for District's use.

SECTION III
DESIGN CRITERIA

Sewer systems for inclusion into the District's service area shall be designed in accordance with the District's Standard Specifications and Standard Drawings for Water and Sanitary Sewer Facilities, or latest revision, and the following criteria:

A. SEWER SYSTEM ANALYSIS CRITERIA

The District reserves the right to determine the criteria for each sewer system or subsystem based upon conditions that may exist for that particular location, anticipated level of development, planned use, or other criteria. In general, however, the sewer system shall be sized to handle the highest flow within the general area of the tract and shall conform to the following minimum standards:

1. Sewer Diameters: The minimum sewer main diameter is 8".

2. Sewer Friction Factors: The friction factor for gravity sewers (PVC and VCP) shall be n = 0.013. The friction factor for force mains (PVC) shall be "C" = 120.

3. Average Daily Flow: The residential flow factor shall be 100 gallons per capita per day and the number of people per dwelling unit shall be 2.6 people. Each Equivalent Dwelling Unit (EDU) is equal to 260 gallons per day. The commercial and industrial flow factor shall be 2,000 gallons per acre per day.

4. Peak Flows: Peak flow shall be computed from the average daily flow and the peaking factors shown in Appendix "R".

5. System Analysis: Each sewer in the proposed sewer system shall be analyzed for the following two conditions:

   a. Average Daily Flow

   b. Peak Wet Weather Flow

   Gravity sewers shall be designed at peak flow with a minimum velocity of 2 feet per second and a maximum velocity of 8 feet per second. The ratio of depth of flow to sewer diameter at peak flow shall not exceed 0.50 for 10" sewer diameters, and smaller and 0.75 for sewer diameters 12" and larger.

   Force mains shall be designed to maintain a velocity of between 3 and 5 feet per second. Head losses for force mains shall be approximately 5 feet per 1,000 feet of force main.

B. SEWAGE LIFT STATIONS AND METERING STATIONS

Design of sewage lift stations and metering stations may be performed by the District at Developer's expense. Otherwise, the District will review these stations on a case-by-case basis at the sole cost of the Developer.

C. SEWER CONSTRUCTION DRAWING DESIGN CRITERIA

1. Sewer Location: Unless otherwise approved by the District, all sewers shall be located on the north or east side of the street, six feet from the street centerline per the Riverside County Road Department standards. Location is not to interfere with other existing utilities.

   Pipe joint deflection shall not be more than manufacturer's recommended offset in a curved alignment. Joint deflection angle shall be indicated on all horizontal and vertical curves.

   Sewer installation near water lines shall be in accordance with State Department of Health Services, Criteria for the Separation of Water Mains and Sanitary Sewers. In general, sewers should cross perpendicular to water lines a minimum of one foot below the water. Sewer lines parallel to water lines shall be located a minimum of 10 feet (clear space) from the water line.

   When crossing other utilities, provide a minimum of one foot vertical clearance.

2. Minimum Sewer Cover: The minimum cover over the top of sewer shall be 7 feet from finished road grade, unless at the end of a cul-de-sac where minimum shall be 4 feet. Adequate depth shall be provided so that the sewer laterals will have a minimum cover of five (5) feet at the property line with a minimum slope of 2% from the sewer to property line, unless at end of cul-de-sacs.

   The minimum cover over the top of force mains shall be 42-inches from the finished road grade.

3. Sewer Materials: Unless otherwise authorized by District, all sewers shall be constructed of the following materials:

Residential Sewers:	PVC (SDR 35) for depth of cover 15 feet or less, PVC (C900 or C905) for depth of cover over 15 feet.
	or
	VCP (extra strength or high strength)
Commercial/Industrial:	PVC (C900 or C905), unless DIP required by District
Force Mains:	up to 12-inch diameter - PVC (C900), Class 200 minimum (residential force main only)
	All diameters greater than 12-inches - ductile iron pipe

4. Pipe Slope: Gravity sewers shall have the following minimum slope:

Diameter (Inches)	Slope (ft / 100 ft)
8	0.40
10	0.30
12	0.24
15	0.18
18	0.11
21	0.10
24	0.08
27	0.07
30	0.06
33	0.044
36	0.040
42	0.032

Minimum slope out of a cul-de-sac or where less than 10 EDUs are connected is 2%. Minimum slope where 10 to 40 EDUs are connected is 1%.

Minimum slope of forcemains shall be 0.5% unless otherwise authorized by District. Air valves shall be located at all high points of force mains. Minimum size of air valves shall be 1-inch and shall be sized per manufacturers recommendation.

Blowoffs shall be located at all low points of the forcemain. Minimum size of Blowoffs shall be 4-inches. Consult with District staff regarding size.

5. Manholes: Manholes shall be spaced at 300 foot maximum intervals and at all grade breaks, changes in horizontal alignment, changes in sewer diameter, and at the end of all sewers. Drop manholes are NOT allowed without special review and approval by the District Engineer.

Manhole rim elevations shall be lower than all pad elevations immediately down stream. If this condition cannot be met, then back flow prevention valve must be installed in accordance with the plumbing code (Section 409-a). A list of the affected lots shall be prepared by the Design Engineer and submitted to the contractor/developer/owner with a carbon copy to the District Engineer.

Drop of elevation through manholes shall be 0.10 foot. At right angle alignment or bend drop shall be 0.20 foot.

Pre-cast concrete manholes shall be used. Standard 4-foot structures with 2-foot frame and cover shall be called out on the plans where the depth of manhole measured from the flow line to the rim is less than 12-feet, and pipe diameters are less than or equal to 10-inches. Manholes shall be 5-feet in diameter with 3-foot frame and two piece cover under the following conditions;

a. Depth of the structure from the top of pipe to the rim is equal to or greater than 12-feet.

b. Sanitary sewer main diameter is 12-inch or greater.

Manhole Lining: For 1) all new manholes on sewers 15-inches or greater in diameter, 2) all new manholes where the entering pipe slope is 5% or greater, 3) all existing manholes with new connections, and 4) all manholes within 1,000 feet of receiving a force main discharge; the manholes shall be provided with Integrally Locking PVC or Polyurethane Protective Lining System per Section 500-2 of the Greenbook.

6. Sewer Laterals: Sewer laterals shall have a minimum diameter of 4" and shall be constructed of the same materials as the sewer. Lateral minimum size for commercial and industrial shall be 6-inch. Each building shall have a separate lateral. Laterals shall have a minimum slope of 2 % and shall have a minimum cover of 5' at the property line. Laterals shall be below the water main with a minimum clearance of 12-inches. Where clearances are critical, and laterals designed to clear the waterline, they shall be detailed on the plans. Laterals shall not enter a manhole. Laterals must have 10-foot separation from water service. Bends are not allowed in laterals without the approval of the District Engineer. Only when bends are approved, they shall be provided with cleanouts at each approved bend.

7. Sewer Curves:

a. Curvilinear alignments for sanitary sewers shall be specifically requested by the Engineer associated with the project. The request shall include all data (calculations and preliminary plan layouts) needed to evaluate the design of the sewer system.

b. All curvilinear sanitary sewers shall be designed within the street right-of-way and concentric with the radius of horizontal curves. In no case shall horizontal curvilinear alignments be allowed outside dedicated street right-of-ways. Poor construction techniques resulting in deflection of a straight sewer shall not be accepted as a curvilinear sewer.

c. Both horizontal and vertical curvilinear sewers may be used. However, vertical curves shall not be permitted in the same reach with horizontal curves.

Curvilinear alignments shall not be permitted in sanitary sewers carrying commercial and industrial wastes, except with the specific approval of the District Engineer.

e. The use of curvilinear alignments shall be prohibited in areas of potential root growth except with the specific approval of the District Engineer.

f. Manholes shall be required for all changes in direction, both horizontal and vertical, and for all changes in the radius of curvature.

g. The minimum radius of curvature for VCP shall be 200', providing that the deflection shall not exceed ASTM C-425. The minimum radius of curvature for PVC shall be 280'.

h. All bedding material shall be sand (sand equivalency = 30) unless otherwise required or approved by the District Engineer and comply with Lee Lake Water District Standard Drawing, S-1.

i. Inspection of all curvilinear sewers shall be requested a minimum of seven (7) days before the start of construction.

j. All reaches containing curvilinear alignments shall be televised after all other testing of the sanitary sewers is complete. Televising shall include a visual identification of each reach and a continuous display of the distance from the entry manhole. All video equipment needed to review the televised sewer shall be furnished by the developer. Alternatively, the District may contract for the televising of curved sewers and require the developer to bear all costs incurred.

8. Easement Criteria: Sewers not located within public right-of-way must be located in easements granted to the District on the District's Grant of Easement form. Easements shall be a minimum of 20-feet in width unless otherwise specified (see Section II, 5c). Details for grant of easement documents are included in Section IV, Construction Drawing Preparation.

SECTION IV
CONSTRUCTION DRAWING PREPARATION

A. GENERAL

Engineer shall prepare sewer system improvement drawings that are clear, concise, and meet District standards.

Drawings shall be plotted on D size mylar sheets (24" x 36") with Lee Lake Water District approval block.

The drawings shall be professional quality drawings especially prepared as SEWER DRAWINGS or WATER AND SEWER DRAWINGS. Work shall be of standard engineering practice and shall be legible and present the proposed construction without confusion. The drawings shall be signed by a California Registered Civil Engineer.

Water and sewer design may be shown on the same drawings if the drawings are clear and concise. The District shall be the sole judge as to when separate drawings are necessary.

B. COVER SHEET

The cover sheet shall show as a minimum:

1. General notes (Appendix "D")
2. Legend (Appendix "E")
3. Estimate of quantities (Appendix "E")
4. Approval for Construction Box (Appendix "F")
5. Sewer System Certification (Appendix "F")
6. Index of Drawings
7. Vicinity Map
    a. Scale
    b. North Arrow
    c. Street Names
    d. Title and Location of Project
8. Index Map
    a. Scale
    b. North Arrow
    c. Tract Layout with Street Names and Lot Numbers
    d. Proposed Sewers Identified by Size and Type
    e. Symbols for all Appurtenances
        l. Manholes

2. Sewer Laterals
3. Clean-outs
4. Valves, Air Valves, and Blowoffs for Forcemains

f. Sheet Numbers Corresponding to Plan and Profile Sheets

The use of a second sheet to include all information is permissible.

C. PLAN AND PROFILE SHEETS

The plan/profile sheets shall be drawn at a horizontal scale of 1" = 40' and a vertical scale of 1" = 4', and as a minimum the drawings shall show the following:

PLAN PORTION

1, Title Block: Title block shall show Tract No. and scale of drawings. District approval blocks shall be incorporated into the title block.

2. North Arrow: North arrow shall point up or to the left if possible to conform with Item 11.

3. Right-of-Way: Existing and proposed right-of-way shall be identified with dimensions for same shown.

4. Curb Separation: Existing and/or proposed curb separation shall be identified with dimensions for same shown.

5. Easements: Existing or proposed easements shall be identified with dimensions for same shown.

6. Street Names: All street names shall be shown.

7. Lot Lines: All lot lines and parcel lines shall be shown. All lots shall be numbered or labeled. All adjacent tracts shall be identified.

8. Utilities: All existing and proposed Utilities shall be shown. Utilities to be shown shall include, but not be limited to, sewer (existing sewers shall be identified by District Plan No.), water, gas, power, telephone, storm drain, irrigation, traffic, and cable television. Each utility shall be identified with a symbol and the size of the utility shall be shown.

9. Existing and Proposed Improvements: All existing surface improvements shall be shown including, but not limited to, curb and gutter, edge of pavement, power poles, driveways, sidewalks, and fences.

10. Match Lines: Match lines for each end of the street shall be shown as follows:

    Sta 15+00.00 Match Line

    See Sheet 5

11. Stationing: Stationing along the centerline of the improvement shall be shown. Only stationing along centerline of improvement (right-of-way) may be used unless otherwise allowed by District Engineer. Unless otherwise specified,

station shall increase from left to right and uphill. Stationing shall be identified with tick marks at 100 foot intervals.

12. Proposed Sewer: Proposed sewer shall be indicated with a heavy line. Dimensions from street centerline to centerline of pipeline shall be shown. Pipeline shall be identified as:

_____" VCP (High strength or Extra Strength) Sewer

OR

_____"PVC (SDR 35) Sewer

OR

_____"PVC C900 DR18 Sewer

OR

_____"PVC C905 DR18 Sewer

OR

_____"PVC C900 Class ____ Force Main

13. Appurtenances: All sewer appurtenances including manholes and clean-outs shall be identified by station and Lee Lake Water District Standard Number as follows:

Sta 12+25.00 Manhole No. 1 per LLWD Std. Dwg. No.

All sewer laterals shall be indicated on the drawings. The stationing of laterals is not required on the drawings, however, after construction of proposed facilities, the engineer shall provide the District with an "as-built" stationing table of the laterals on the record drawings.

All connections to existing sewer system shall be identified by station and size. A station equation and District plan number shall be used to reference existing sewers. Details for connections shall be used where required.

PROFILE PORTION

Only profiles for water and sewer shall be shown. All other utility profiles shall not be shown unless conflicting or where crossing over or under (i.e. storm drain).

1. Stationing: Stations shall be shown along bottom of profile at 100 foot intervals. Profile stationing shall line up with plan stationing.

2. Elevations: Elevations shall be shown on both ends of the profile sheet.

3. Existing and Proposed Ground Surface: Existing ground surface or pavement over the proposed sewer shall be identified as follows:

"Existing Top of Pavement (or ground surface) over Centerline of Sewer"

Proposed ground surface or pavement over the proposed sewer shall be identified as follows:

"Proposed Top of Pavement (or ground surface) over Centerline of Sewer"

4. Match Lines: Match lines for each end of sheet shall be shown as follows:

"STA 15+00.00 Match Line
See Sheet 5"

5. Flow line of proposed sewer forcemain pipeline shall be identified as follows:

FL_____" C900 Class_____PVC Force Main

6. Stationing, Invert Elevation, and Rim Elevation: Sewer stationing and rim elevations shall be shown for every manhole as follows:

STA 14+00.00 MANHOLE NO. 1
RIM ELEVATION =1197.00

Sewer stationing and invert elevations shall be shown for all connections into and out of each sewer manhole as follows:

STA 12+25.00
1190.00 INV

Sewer station and invert elevation shall be shown for each utility crossing.

7. Sewer Lengths and Sewer Slopes: Sewer lengths and sewer slopes shall be shown between all grade breaks and manholes as follows:

S = 0.005 135.00 LF_____" PVC
_____" VCP

8. Minimum Cover: The minimum cover shall be 7' between the top of sewer and existing or proposed ground surface, unless otherwise allowed.

A checklist for the preparation of sewer construction drawings is shown in Appendix "G".

D. GRANT OF EASEMENTS

The Grant of Easement shall be on District form and shall consist of three parts, Grant of Easement form, legal description, and plat.

The legal description shall be designated as Exhibit "A" and if appropriate shall have the assessor's parcel number indicated on the upper right corner of the exhibits. The legal description shall be prepared by a California Registered Civil Engineer or Land Surveyor and signed and stamped by said engineer or surveyor.

The plat shall be designated as Exhibit "B" and shall be prepared on District plat map and signed and stamped.

Copies of Grant of Easement form and plat are shown in Appendix "H". Items to be included on the plat map are shown in said appendix.

SECTION V
PROCEDURES
SEWER SYSTEM
FACILITY CONSTRUCTION

All sewer facility projects will be constructed by Developer and inspected by District inspectors. Work. performed without the knowledge or the observation of a District inspector will not be accepted. The steps required to obtain approval of construction of sewer facilities are as follows:

1. Submit Customer Service Application and Inspection Deposit.

2. Provide Submittals, Sewer System Construction Agreement, Bonds, and Certificate of Insurance.

3. Attend Preconstruction Meeting.

4. Notify District Regarding Construction Start.

5. Construct Sewer System Facilities.

b. Pressure Test Sewer System Facilities.

7. Pay any Remaining Fees and Charges.

8. Provide Unconditional Lien Waiver and Release, Sewer System Grant Deed, and Record Drawings.

9. Notice of Completion Filed by District.

10. Connect to Existing Sewer System.

A flowchart for sewer system facility construction is shown as Exhibit "I". A construction status sheet to be used by District is shown in Appendix "J". Each required step is discussed in detail below:

1. Submit Sewer Service Application and Inspection Deposit: The sewer service application (available from the District) shall be completed and filed with the District staff. A copy of the sewer services application is shown in Appendix "C". The inspection deposit and three copies of approved sewer construction drawings shall be submitted with the completed application.

2. Construction Submittals:

   a. Developer/Contractor shall provide three copies of proposed materials for completion of the project (see Approved Materials List within the Lee Lake Water District Standard Drawings).

   b. District Engineer reviews submittals and returns submittal with redline corrections, if necessary, to Developer/Contractor.

c. Submittal proccess shall be repeated as necessary until all materials are approved by District Engineer.

2. Provide Sewer System Construction Agreement, Bonds and Certificate of Insurance: Developer shall submit to District staff the following:

   a. Contractor information sheet (Appendix "K").

   b. Two copies of Encroachment Permits.

   c. One copy of recorded tract/parcel map showing dedication of streets for road and public utility purposes (not required if executed Grant of Easement provided earlier).

   After District executes Sewer System Construction Agreement (Appendix "L"), approves Contractor, and approves materials list, Developer shall submit the following:

   a. Copy of the Contract between Developer and Contractor verifying cost of sewer system facility construction.

   b. Certification of streets to final grade (Appendix "M").

   c. Certificates of Insurance for Contractor (Appendix "N").

   d. Faithful Performance Bond (Appendix "O"). Performance bonds provided to the City/County are satisfactory if the facilities to be turned over to the District are included.

   After District reviews and approves all submittals, District staff will issue a Notice to Proceed.

   Thereafter, Developer shall schedule a preconstruction meeting with District staff. A one week notice is required prior to said preconstruction meeting.

3. Attend Construction Meeting: Preconstruction meeting shall be held at the District office and shall be attended by Developer's representative, Developer's contractor, and construction superintendent as well as by District staff.

4. Notify District Regarding Construction Start: Contractor shall notify District, in writing, a minimum of 1 week prior to construction start. Prior to construction, Contractor shall submit three copies of the construction cut sheets for Districts use during construction. Sewers shall be staked at 25 foot intervals and at all sewer laterals, manholes, cleanouts, and grade breaks.

5. Construct Sewer System Facilities: The sewer system facilities shall be constructed by Developer's contractor and inspected by District inspectors. After completion of construction, Developer's contractor shall complete all items on District's inspection list prior to testing sewer facilities.

6. Test Sewer System Facility: After sewer facilities are completed to satisfaction of District inspector including all items on inspector's construction deficiencies list, and after Contractor furnishes evidence that compaction of trenches has been completed to the satisfaction of the County of Riverside Road Department, Contractor shall test the sewer facility in accordance with District Standards.

7. Pay Any Remaining Fees and Charges: Any remaining fees and charges must be paid in full.

8. Provide Unconditional Lien Waiver and Release Sewer System Grant Deed and Record Drawing

   Before District will allow removal of sewer plugs, Contractor shall:

   a. Provide Unconditional Lien Waiver and Release for sewer construction (Appendix "P").

   b. Provide Grant Deed dedicating sewer system to District. Said Grant Deed is effective only after final Notice of Completion for sewer system facilities is filed by District staff. Grant Deed must be filed on form provided by District (Appendix "Q").

   c Provide Sewer system record ("As-Builts") drawings.

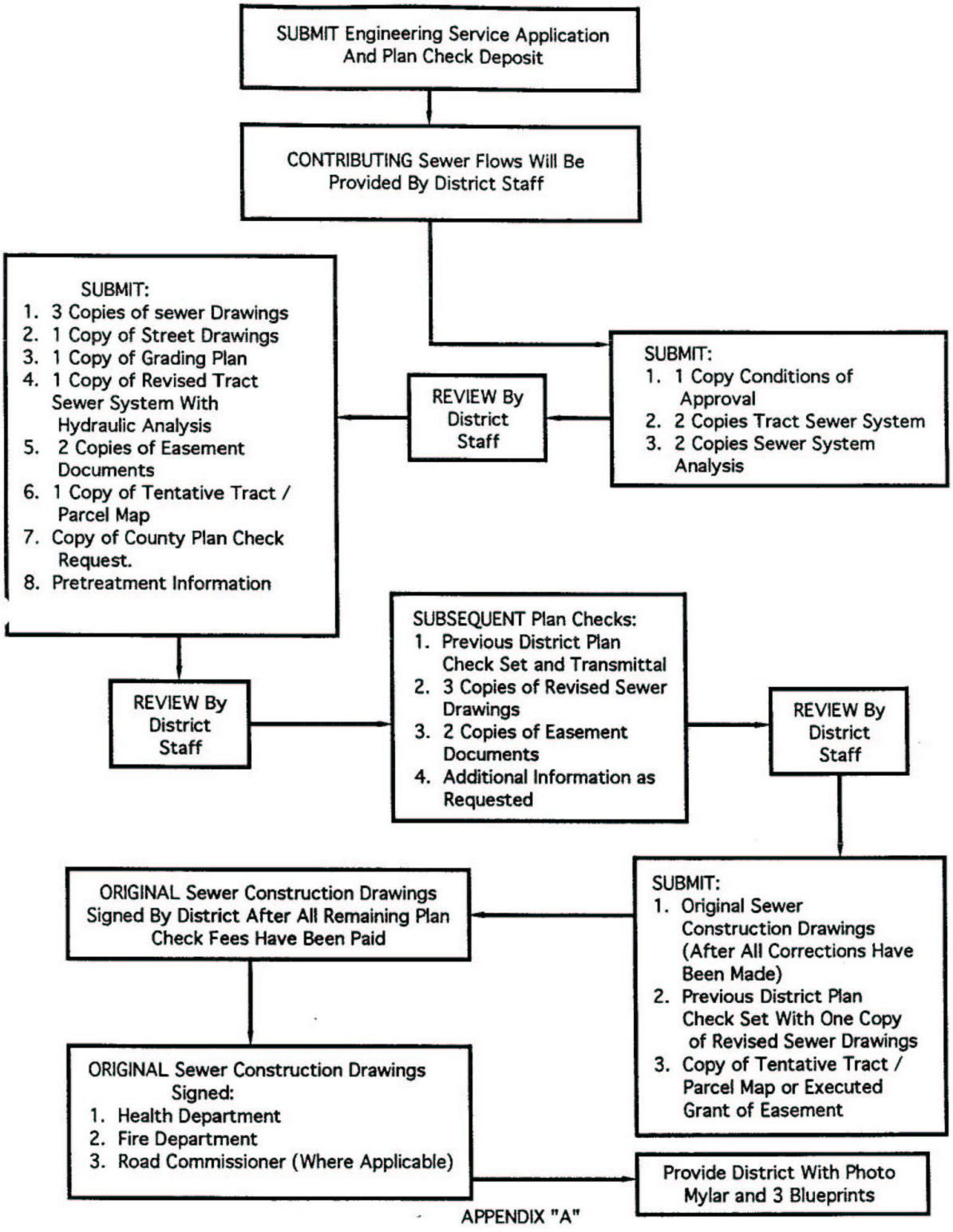
9. Notice of Completion Filed District: After receipt, and approval of items in Section 8, District will file Notice of Completion.

10. Connect to Existing Sewer System: After Notice of Completion has been filed by District, District will notify Contractor that he may connect sewer facilities to existing sewer facility system by removing sewer plugs.

APPENDIX A

FLOWCHART FOR CONSTRUCTION DRAWING APPROVAL

FLOWCHART FOR CONSTRUCTION DRAWING APPROVAL



APPENDIX "A"

APPENDIX B

PLAN CHECK STATUS SHEET

LEE LAKE WATER DISTRICT SEWER SYSTEM FACILITY REQUIREMENTS

PLAN CHECK STATUS SHEET

LLWD JOB NO. _____ TRACT NO. _____

PARCEL MAP NO. _____

NAME OF PROJECT: _____

DEVELOPER: _____

LOCATION OF PROJECT: _____

ENGINEER: _____ PHONE: _____

	ITEM	DATE	INITIAL
1.	Received Engineering Service Application and Plan Check Deposit (Engineer)	_____	_____
2.	Provide Contributing Sewer Flows (District)	_____	_____
3.	Received:		
	- Pretreatment Information	_____	_____
	- One Copy of Conditions of Approval (Engineer)	_____	_____
	- Two Copies of Tract Map with Proposed Sewer System Including Manholes (Engineer)	_____	_____
	- Two Copies of Sewer System Analysis of Proposed System (Engineer)	_____	_____
4.	Review Item 3 and Provide Comments (District)	_____	_____
5.	Received First Plan Check (Engineer):		
	- Three Copies of Sewer/Water Construction Drawings	_____	_____
	- One Copy of Street Improvement Drawings	_____	_____
	- One Copy of Grading Plan	_____	_____
	- One Copy of Revised Tract Map with Sewer System Analysis	_____	_____
	- Two Copies of Easement Documents	_____	_____
	- One Copy of Tract/Parcel Map	_____	_____
	- Copy of City/County Plan Check Receipt	_____	_____
6.	Review First Plan Check, Provide Comments (District)	_____	_____
7.	Received Second Plan Check (Engineer):		
	- Previous District Plan Check Set and Transmittal	_____	_____
	- Three Copies of Revised Sewer Construction Drawings .	_____	_____
	- Two Copies of Easement Documents	_____	_____
	- Copies of Additional Information as Requested	_____	_____

8.	Review Second Plan Check, Provide Comments (District):	_____	_____
9.	Received Third Plan Check (Engineer):		
	- Previous District Plan Check Set and Transmittal	_____	_____
	- Three Copies of Revised Sewer Construction Drawings	_____	_____
	- Two Copies of Easement Documents	_____	_____
	- Copies of Additional Information as Requested	_____	_____
10.	Review Third Plan Check, Provide Comments (District)	_____	_____
11.	Received Original Construction Drawings for Signature (Engineer)	_____	_____
	- Previous District Plan Check Set and One Copy of Revised Sewer Construction Drawings	_____	_____
	- All Remaining Plan Check Fees Paid	_____	_____
	- Copy of Tentative Tract/Parcel Map or	_____	_____
	- Executed Grant of Easement		
12.	Construction Drawings Signed (District)	_____	_____
13.	Received One Set of Photo Mylars and Three Sets of Construction Drawings (Engineer)	_____	_____

APPENDIX C

REQUEST FOR SEWER SERVICES APPLICATION

LEE LAKE WATER DISTRICT

Request for Sewer Services Application

Work Order # _____

Applicant's Name and Address:

Name	
Street Address	Telepbone ( )
City	State

Owner/Responsible Party Name and Mailing Address:

Name	
Street address	Telephone
City	State

Services Required:

☐ Sewer Service [ ] Street [ ] Easement [ ] New Lateral [ ] Exist. Lateral [ ] Main Line extension

[ ] Residential [ ] Commercial [ ] Size: (Circle one) 4" 6" 8"

☐ Plan Check ☐ Inspection of Pipeline

☐ Feasibility Study ☐ Pipeline Extension ☐ Will Serve (Sewer Availability) ☐ Other

Location Where Services are Required:

APN	Street #/Name
Depth of Lateral	Location of Lateral
Other Location Information	

Calculation of Costs:

Sewer Service Fees:

		Reimbersement Agreements			$
		Other			$
Plan Check Deposit:	$	Processing Fee + $	1st 1,000 Ft. + $	addit'l footage	$
Inspection Deposit:	$	Processing Fee + $	1st 1,000 Ft. + $	addit'l footage	$
Other Fees:		Temporary Service Agreement			$
		Annexation			$
		Other:			$
					$

Cust. Acct. Type	Cust. Act. No.	**TOTAL DUE: $**
Total Received $	Check #	

CUSTOMER RECEIPT

APPENDIX "C"

APPENDIX D

GENERAL CONSTRUCTION NOTES

LEE LAKE WATER DISTRICT
GENERAL CONSTRUCTION NOTES

1. CONSTRUCTION NOTES

A. CONTRACTOR SHALL FURNISH AND INSTALL ALL FACILITIES IN ACCORDANCE WITH LEE LAKE WATER DISTRICT (LLWD) WATER SYSTEM FACILITY REQUIREMENTS, STANDARD SPECIFICATIONS AND STANDARD DRAWINGS. LLWD STANDARD SPECIFICATIONS AND STANDARD DRAWINGS ARE AVAILABLE AT THE DISTRICT OFFICE. CONTRACTOR SHALL BE IN POSSESSION OF DISTRICT'S SPECIFICATIONS AND STANDARD DRAWINGS ON THE JOB SITE AT ALL TIMES.

B. ALL PERMITS REQUIRED BY LAW SHALL BE ACQUIRED BY THE APPLICANT OR THEIR CONTRACTOR AND ARE MADE PART OF THE SPECIFICATIONS.

C. THE DRAWINGS AND DATA HEREON ARE HEREBY MADE PART OF THE SPECIFICATIONS.

D. REVISIONS WILL NOT BE MADE TO THESE PLANS WITHOUT THE APPROVAL OF LLWD.

E. APPROVAL OF THESE PLANS BY LLWD DOES NOT CONSTITUTE A REPRESENTATION OF THE ACCURACY OF THE LOCATION OR EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITY, PIPE OR STRUCTURE WITHIN THE LIMITS OF WORK.

F. CONTRACTOR SHALL NOTIFY THE LLWD ONE WEEK PRIOR TO STARTING CONSTRUCTION.

G. THE LLWD INSPECTOR SHALL BE FURNISHED THREE SETS OF PROJECT DRAWINGS.

H. THE CONTRACTOR SHALL CONFORM TO CURRENT CAL OSHA SAFETY REQUIREMENTS.

I. THE CONTRACTOR SHALL SUBMIT TO THE LLWD A SOILS REPORT BY A QUALIFIED GEOTECHNICAL ENGINEER WHICH CERTIFIES THAT ALL TRENCH BACKFILL WAS COMPACTED AS DIRECTED BY THE SOILS ENGINEER IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND LLWD SPECIFICATIONS.

J. EACH LOT SHALL BE SERVICED WITH A FOUR (4)-INCH SEWER LATERAL SET AT A MINIMUM GRADE OF 2.0% WITH A MINIMUM INVERT DEPTH OF 5.0 FEET BELOW THE BOTTOM OF THE CURB AT THE PROPERTY LINE, UNLESS OTHERWISE APPROVED BY THE LLWD.

K. ALL LATERALS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS, ADJUSTED UNDER LLWD INSPECTION TO CLEAR DRIVEWAYS AND OTHER IMPROVEMENTS. LATERALS SHALL BE FOUR (4)-INCH MINIMUM DIAMETER UNLESS OTHERWISE NOTED ON THE DRAWINGS. ALL LATERALS SHALL HAVE A CLEAN OUT IN ACCORDANCE WITH STANDARD DRAWINGS NO. S-9 AND S-30. LATERALS SHALL BE INSTALLED IN ACCORDANCE WITH LLWD STANDARD DRAWING NOS. S-4, S-5, S-6, AND S-7.

L. JOB-MIXING OF CONCRETE IS NOT PERMITTED.

M. ALL CONCRETE TESTING REQUIRED BY THE LLWD WILL BE AT THE EXPENSE OF THE CONTRACTOR.

N. THE CONTRACTOR SHALL SECURE APPROVAL FROM THE LLWD INSPECTOR PRIOR TO BACKFILLING OVER ANY SEWER PIPE OR WYE.

O. ALL SEWER LATERALS AND MAINS SHALL BE TESTED BY "AIR TEST METHOD" AFTER CONSTRUCTION AS SPECIFIED BY THE LLWD SPECIFICATIONS.

P. ALL ACCESS HOLES (MAN HOLES) SHALL BE TESTED BY "VACUUM TESTS" AS SPECIFIED IN THE LLWD STANDARD SPECIFICATIONS.

Q. CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION REQUESTING A SYSTEM SHUTDOWN FOR CONNECTIONS TO EXISTING SYSTEM. SAID NOTIFICATION SHALL BE OF THREE WEEKS PRIOR TO SAID SHUTDOWN TO THE LLWD DISTRICT ENGINEER.

R. CONTRACTOR SHALL DESIGNATE A QUALIFIED SUPERINTENDENT WITH FULL AUTHORITY TO ACT ON BEHALF OF THE CONTRACTOR. SAID SUPERINTENDENT SHALL BE ON THE JOB SITE AT ALL TIMES.

S. CONTRACTOR SHALL PERFORM ALL WORK UNDER RIVERSIDE COUNTY ROAD DEPARTMENT JURISDICTION IN ACCORDANCE WITH ALL REQUIREMENTS OF SAID DEPARTMENT INCLUDING TRAFFIC CONTROL, PAVEMENT REMOVAL, TEMPORARY PAVEMENT (INCLUDING BASE MATERIAL) AND TEMPORARY AND PERMANENT TRAFFIC STRIPPING.

T. ALL MATERIALS, TESTING, AND INSPECTION OF THE SEWER SHALL BE IN CONFORMITY WITH THE REQUIREMENTS OF LLWD AND RIVERSIDE COUNTY STANDARDS. FAILURE TO MEET ANY REQUIREMENTS OF THE ABOVE REFERENCED AGENCIES WILL BE CAUSE FOR REJECTION.

U. SEWER SHALL BE _____-INCH PVC (SDR 35) OR _____-INCH PVC C900 OR C905 (REQUIRED FOR SEWER DEPTH>15-FEET) IN ACCORDANCE WITH LLWD SPECIFICATIONS AND STANDARDS.

V. FORCE MAINS SHALL BE _____-INCH PVC IN ACCORDANCE WITH LLWD SPECIFICATIONS AND STANDARDS (PROVIDE FORCE MAIN DIAMETER, C900 OR C905, AND PIPE CLASS 200 OR GREATER).

W. STANDARD MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH LLWD STANDARD DRAWING NO. S-12. TERMINUS TYPE MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH LLWD STANDARD DRAWING NO. S-13.

X. STANDARD MANHOLE COVERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH LLWD STANDARD DRAWING NO. S-14 AND S-15. IN UPAVED AREAS LOCKING TYPE MANHOLE COVERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH LLWD STANDARD DRAWING NO. S-17.

Y. SEWER BEDDING, BACKFILL, CAPS, AND ENCASEMENT, CAPS SHALL BE IN ACCORDANCE WITH LLWD STANDARD DRAWING NO. S-1, S-2, AND S-3.

Z. CONTRACTOR SHALL PROVIDE AND BEAR THE TOTAL COST OF CLOSED CIRCUIT VIDEO INSPECTION OF ALL NEW INSTALLED PIPELINES UNLESS OTHERWISE DIRECTED BY THE DISTRICT INSPECTOR.

AA. PRIOR TO POURING OF MANHOLE BASE, CONTRACTOR SHALL INSTALL A MANHOLE ADAPTER MADE BY GPK PRODUCTS, INC FOR ALL INLET(S) AND OUTLET AT THE PROPER GRADE AND DIRECTION.

BB. EACH MANHOLE SHALL BE VACUUM TESTED IMMEDIATELY AFTER ASSEMBLY AND PRIOR TO BACKFILLING BY THE CONTRACTOR. AFTER THE CONTRACTOR COMPLETES BACKFILLING AND PRIOR TO ACCEPTANCE BY THE DISTRICT, EACH MANHOLE SHALL BE RE-TESTED IN THE PRESENCE OF THE DISTRICT INSPECTOR.

CC. NO GROUT SHALL BE PLACED IN THE HORIZONTAL JOINTS BEFORE TESTING.

DD. A VACUUM OF 10 INCHES OF MERCURY SHALL BE DRAWN AND THE PUMP SHUT OFF. WITH ALL VALVES CLOSED, THE MANHOLE SHALL HOLD 10 INCHES OF MERCURY FOR 60 SECONDS.

EE. IF THE MANHOLE FAILS THE INITIAL TEST, NECESSARY REPAIRS SHALL BE MADE WITH A NON-SHRINK GROUT TO THE OUTSIDE WHILE THE VACUUM IS STILL BEING DRAWN. RETESTING SHALL PROCEED UNTIL A SATISFACTORY TEST IS OBTAINED.

FF. MANHOLE DIAMETERS SHALL BE 48-INCH FOR SEWER DIAMETER 24-INCH AND SMALLER, AND 60-INCH FOR SEWER PIPE DIAMETER 27-INCH AND LARGER AND FOR ALL MANHOLES WITH A DEPTH OF 12-FEET OR MORE. 36-INCH CONE SHALL BE USED WITH A 60-INCH MANHOLE.

GG. FOR 1) ALL NEW MANHOLES ON SEWER DIAMETERS 15-INCHES OR GREATER 2) ALL NEW MANHOLES WHERE UPSTREAM SEWER SLOPE IS 5% OR GREATER 3) ALL MANHOLES WITHIN 1000 FEET OF A FORCEMAIN DISCHARGE AND 4) EXISTING MANHOLES WITH NEW CONNECTIONS SHALL BE PROVIDED WITH INTEGRALLY LOCKING PVC OR POLYURETHANE PROTECTIVE LINING SYSTEM PER SECTION 500-2 OF THE GREENBOOK.

2. UTILITIES

A. AT LEAST 48 HOURS BEFORE COMMENCING ANY EXCAVATION, CONTRACTOR SHALL REQUEST UNDERGROUND SERVICE ALERT (1-800-422-4133) AND NON-MEMBER COMPANIES, OR UTILITIES TO MARK OR OTHERWISE INDICATE THE LOCATION(S) OF THEIR SUBSURFACE FACILITIES INCLUDING, BUT NOT LIMITED TO, STRUCTURES INCLUDING VAULTS, MAIN CONDUCTORS OR CONDUITS, AND SERVICE CONNECTIONS.

B. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL EXPOSE EXISTING FACILITIES AT PROPOSED CONNECTIONS AND CROSSINGS AND VERIFY ELEVATIONS, LOCATIONS, AND SIZE OF EXISTING FACILITIES.

C. CONTRACTOR SHALL NOT INTERRUPT OR DISTURB ANY UTILITY FACILITY WITHOUT AUTHORITY FROM THE UTILITY. WHERE PROTECTION IS REQUIRED TO ENSURE INTEGRITY OF UTILITY FACILITIES (INCLUDING DISTRICT-OWNED UTILITIES). CONTRACTOR SHALL FURNISH AND PLACE ALL NECESSARY PROTECTION.

D. WHENEVER A WATERLINE ENCOUNTERS A STORM DRAIN PIPE OR OTHER OBSTRUCTION AND CROSSING OVER THE OBSTRUCTION WILL RESULT IN LESS THAN 42 INCHES OF COVER OVER THE TOP OF THE WATER, THE WATERLINE SHALL CROSS UNDER THE OBSTRUCTION WITH A MINIMUM CLEARANCE OF 12 INCHES.

3. CONSTRUCTION DRAWINGS

A. MINIMUM FORCE MAIN COVER SHALL BE 42 INCHES FROM FINISHED GROUND SURFACE. MINIMUM SEWER COVER SHALL BE 7 FEET FROM FINISHED GROUND SURFACE.

B. SEWER FORCE MAIN PROFILE ELEVATIONS ARE TO FLOW LINE OF SEWER FORCE MAIN. SEWER MAIN PROFILE ELEVATIONS ARE TO INVERT ELEVATION OF SEWER MAIN.

C. STATIONING FOR SEWER AND FORCE MAIN AS SHOWN ON PLAN PORTION OF DRAWINGS IS PERPENDICULAR TO CENTERLINE OF RIGHT-OF-WAY.

D. SEPARATION BETWEEN SEWER AND WATER SHALL CONFORM TO RIVERSIDE COUNTY STANDARD NO. 817 AND LLWD STANDARD DRAWING S-23 AND LLW-33.

5. CONSTRUCTION TOLERANCES

SEWERS SHALL BE CONSTRUCTED SO THAT ACTUAL FLOW LINE ELEVATIONS ARE WITHIN 0.02 FOOT OF DESIGN FLOW LINE ELEVATIONS. FORCE MAINS SHALL BE CONSTRUCTED SO THAT ACTUAL FLOW LINE ELEVATIONS ARE WITHIN 0.1 FOOT OF DESIGN FLOW ELEVATIONS. SEWERS,

WHEN INSTALLED, SHALL HAVE CONTINUOUS DOWN SLOPE. FORCE MAINS, WHEN INSTALLED, SHALL HAVE CONTINUOUS UPGRADE OR DOWNGRADE, CORRESPONDING WITH DESIGN SLOPE, WITHOUT ANY HIGH SPOTS. FORCE MAINS SHALL BE CONSTRUCTED SO THAT ACTUAL PIPELINE CENTERLINES ARE WITHIN 0.1 FOOT OF DESIGN PIPELINE CENTERLINES.

SEWER AND FORCE MAIN CONSTRUCTION SHALL CONFORM WITH CONSTRUCTION DRAWINGS IN ACCORDANCE WITH THE ABOVE SPECIFIED TOLERANCES. CONTRACTOR SHALL ASSIST DISTRICT AS REQUIRED TO CONFIRM COMPLIANCE WITH CONSTRUCTION TOLERANCES. CONTRACTOR SHALL MAKE OR ASSIST IN MAKING ALL NECESSARY MEASUREMENTS AS DETERMINED BY DISTRICT.

6. INSPECTION FEE

THREE WEEKS PRIOR TO CONSTRUCTION, A DEPOSIT FOR INSPECTION FEE WILL BE MADE. THIS FEE IS ESTIMATED AT $. SHOULD ACTUAL COSTS BE GREATER, THE BALANCE SHALL BE PAID TO THE DISTRICT BY THE APPLICANT. SHOULD ACTUAL COSTS BE LESS, THE BALANCE SHALL BE REFUNDED TO THE APPLICANT. FEES SUBJECT TO CHANGE WITHOUT NOTICE.

7. ENGINEERING FIRM

PRIOR TO SIGNING OF SEWER CONSTRUCTION DRAWINGS BY LLWD, ALL QUESTIONS CONCERNING THIS PROJECT SHALL BE DIRECTED TO:

_____

(NAME)

_____

(TITLE)

_____

(FIRM)

APPENDIX E

LEGEND AND ESTIMATE OF QUANTITIES

LEGEND AND ESTIMATE OF QUANTITIES

1. The Legend and Estimate of Quantities shall be included on the same sheet as the Index Map, in the following format.

Quantitiy	Unit	Description	Standard Drawing Refernce
200	L.F.	8" PVC (SDR 35) Sewer Pipe	per S-1, & S-2

2. A separate entry is required for each size and type of all materials necessary for this project.

APPENDIX F

CONSTRUCTION APPROVAL BOX/ SEWER SYSTEM CERTIFICATION

LEE LAKE WATER DISTRICT

APPROVED FOR CONSTRUCTION:

_____ _____

General Manager *Date*

_____ _____ _____

Engineering *R.C.E.* *DATE*

WATER SYSTEM CERTIFICATION

*I CERTIFY THAT THE DESIGN OF THE WATER SYSTEM IN _____*_____ IS IN ACCORDANCE WITH THE WATER SYSTEM MASTER PLAN OF LEE LAKE WATER DISTRICT AND THAT THE WATER SERVICE, STORAGE AND DISTRIBUTION SYSTEM WILL BE ADEQUATE TO SUPPLY WATER TO SAID PROJECT. THIS CERTIFICATE DOES NOT CONSTITUTE A GUARANTEE THAT IT WILL SUPPLY WATER TO SAID PROJECT AT ANY SPECIFIC QUANTITIES, FLOWS, OR PRESSURE FOR FIRE PROTECTION OR ANY OTHER PURPOSE.*

_____ _____

General Manager *Date*

SEWER SYSTEM CERTIFICATION

*I CERTIFY THAT THE DESIGN OF THE SEWER SYSTEM IN _____*_____ IS IN ACCORDANCE WITH THE SEWER SYSTEM REQUIREMENTS OF LEE LAKE WATER DISTRICT AND THAT THE DISTRICT HAS PROGRAMMED ADEQUATE CAPACITY TO TREAT THE WASTES FROM THE PROPOSED PROJECT.*

_____ _____

General Manager *Date*

** WATER AND SEWER SYSTEM CERTIFICATION BLOCK TO BE COMPLETED BY THE ENGINEER OF RECORD SPECIFIC TO THE PROJECT.*

IMPROVEMENT PLAN SIGNATURE BLOCKS AND CERTIFICATIONS

1/27/2006 4:21:19 PM L:\Agency Standards\Lee Lake Water District\Sign_Blocks

Sign_Blocks.dwg

APPENDIX G

SEWER CONSTRUCTION DRAWINGS CHECKLIST

LEE LAKE WATER DISTRICT

SEWER CONSTRUCTION DRAWINGS CHECKLIST

TRACT NO. _____ LLWD W.O. _____

COVER SHEET

VICINITY MAP		
Scale _____		
North Arrow		
Street Names		
Title and Location of Project		
INDEX MAP		
Scale _____		
North Arrow		
Proposed Water/Sewer Line		
Layout of Project		
Appurtenances		
Manhole		
Fire Hydrants		
Detector Checks		
Air Valves		
Blow-Offs		
Pipeline		
Quantities		
Plan LayoutlSheet Reference		
NOTES		
Sewer System Certification		
Notifications		
General Sewer Notes		
LLWD Signature Block		

LEE LAKE WATER DISTRICT

SEWER CONSTRUCTION DRAWINGS CHECK LIST

TRACT NO. _____ LLWD W.O. _____

PROFILE

SHEET NO.												
Stations at Bottom of Profile												
Elevations at Side of Profile												
Existing Ground Surface												
Proposed Finished Ground Surface or Pavement												
Match Lines (Station & Sheet Number)												
Flow line of Sewer Identified												
Stationing and Flow Line Elevations for.												
a Manholes												
b. Grade Breaks												
c. End of Pipe												
Sewer Slopes												
Sewer Lengths												
7’ Minimum Cover												
Separation from Water												

LEE LAKE WATER DISTRICT

SEWER CONSTRUCTION DRAWING S CHECK LIST

TRACT NO. _____ LLWD W.O. _____

PLAN

SHEET NO.												
LLWD Signature Block												
Title Block												
Scale (Hor. – 1" =40') (Vert. – 1" = 4')												
North Arrow												
Location and Width of Right-of-Way												
Location and Width of Curb Separation												
Location and Width of Easements												
Street Names												
Lot (Parcel) Lines & Numbers, All Adjacent Tracts Identified												
Existing/Future Utilities												
Existing/Proposed Improvements												
Match Lures (Station & Sheet Number)												
Existing Sewer Dwg. Reference												
Sewer Located per County Standard No. 817 and Identified												
Separation from water												
Stations and O.D. Elevations of Crossings (water, Sewer, Storm drain, and reclaimed water)												
Centerline Offset to Proposed Sewer and Other Utilities												
Centerline Stationing (100' tick marks with Station)												
Centerline Curve Data												
Type and Size of Proposed Sewer												
Lateral Connection (Sizes, Approximate Locations)												
Manhole Locations												

APPENDIX H

GRANT OF EASEMENT

WHEN RECORDED, MAIL TO:

LEE LAKE WATER DISTRICT
22646 Temescal Canyon Road
Corona, California 92883

NO RECORDING FEE PER GOVT CODE 6103 & 27383

APN
TRA:

TRANSACTION EXEMPT FROM DOCUMENTARY
TRANSFER TAX PER REV. & TAX CODE 11922

DEED OF EASEMENT

For valuable consideration, receipt of which is hereby acknowledged, _____, Grantor, hereby grants to LEE LAKE WATER DISTRICT, Grantee, a permanent easement and right of way for the installation, operation, maintenance, repair and replacement of a pipeline or pipelines, together with incidental appurtenances, connections and structures in, over, under, upon, along, through and across the real property situated in the County of Riverside, State of California, described on Exhibit A hereto, and as depicted on Exhibit B.

Together with the right to grade and improve said right of way and to enter upon and pass and repass over and along said strip of land for the construction, operation and maintenance, repair and replacement of the pipeline or pipelines, appurtenances, connections and structures to be constructed in said easement by the Lee Lake Water District.

It is understood and agreed that the easement and right of way hereby granted is subject to the right of the servient owner, his successors and assigns, to use the surface of the land within said easement and right of way to the extent that such use is compatible with the full and free exercise of said easement and right of way by the Lee Lake Water District; provided however, that no trees, vegetation, fences, block walls, or other structures or other improvements shall be constructed upon, across or over said easement and right of way, nor shall owner place or maintain any fill or paving of any nature over the surface of the easement, nor remove any earth from the cover of said pipeline or other facility after construction.

DATED:_____

_____
Company Name

A _____Corporation

By:_____
Name

STATE OF CALIFORNIA)
) ss.
COUNTY OF RIVERSIDE)

On_____, before me, _____, a Notary Public in and for said County and State, personally appeared_____, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument, the entity upon behalf of which the person acted, executed the instrument.

WITNESS me hand and official seal.

Signature_____ (Seal of Notary)

PLAT REQUIREMENTS

1. North Arrow
2. Subdivision Title With Recording Data
3. Lot of Parcel #'s
4. Street Names
5. Right-Of-Way Widths
6. Townships, Sections and Ranges
7. All Distances, Bearings and References Stated With Legal Description
8. Point Of Beginning
9. Bold and Distinct Line Around Proposed Easement
10. Scale
11. RCE / LS Signature and Stamp

LEE LAKE WATER DISTRICT

This Plat Is solely An Aid In Locating The Parcel(S) Described In The Attached Document. It Is Not A Part Of The Written Description Therein.			SHEET
EXHIBIT	**PREPARED BY:**	**SUBJECT:**	OF _____ SHEET(S)
SCALE: 1"= _____ DRAWN BY: _____ DATE: _____CHECKED BY: _____			W.O.# _____

PLAT REQUIREMENTS

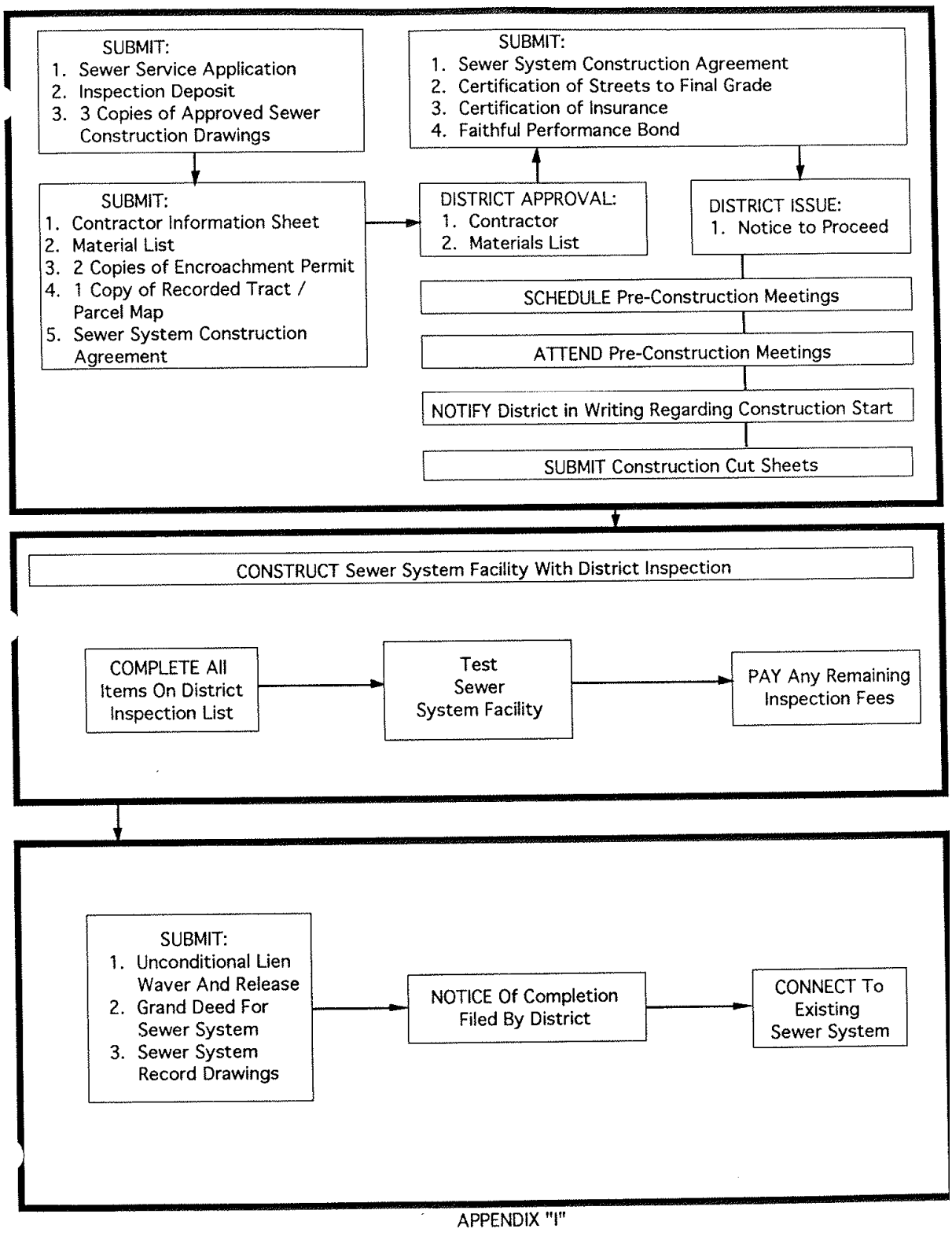
1. North Arrow
2. Subdivision Title With Recording Data
3. Lot of Parcel #'s
4. Street Names
5. Right-Of-Way Widths
6. Townships, Sections and Ranges
7. All Distances, Bearings and References Stated With Legal Description
8. Point Of Beginning
9. Bold and Distinct Line Around Proposed Easement
10. Scale
11. RCE 1 LS Signature and Stamp

This Plat Is solely An Aid In Locating The Parcel(S) Described In The Attached Document. It Is Not A Part Of The Written Description Therein.		**LEE LAKE WATER DISTRICT**	
EXHIBIT	**PREPARED BY:**	**SUBJECT:**	SHEET OF ____ SHEET(S)
		SCALE: 1"= _____ DRAWN BY: _____ DATE: _____CHECKED BY: _____W.O.# _____	

APPENDIX I

FLOWCHART FOR CONSTRUCTION OF SEWER FACILITIES

FLOWCHART FOR CONSTRUCTION OF SEWER FACILITIES



APPENDIX "I"

APPENDIX "J"

CONSTRUCTION STATUS SHEET

CONSTRUCTION STATUS REPORT

LLWD Job No. _____ Inspector _____

Location: _____

Developer: _____

Contractor: _____

RECEIVED	APPROVED	SUBMITTED
_____	_____	Engineering Service Application
_____	_____	Inspection Deposit
_____	_____	Approved Sewer Construction Drawings (3 Sets)
_____	_____	Contractor Information Sheet
_____	_____	Materials List
_____	_____	Encroachment Permit (2 Copies)
_____	_____	Recorded Tract/Parcel Map (1 Copy)
_____	_____	Sewer System Construction Agreement
_____	_____	Contract for Water System Construction
_____	_____	Certification of Streets to Final Grade
_____	_____	Certificates of Insurance
_____	_____	Faithful Performance Bond

DATE	
_____	Notice to Proceed issued by District
_____	Preconstruction Meeting Conducted
_____	Received Cut Sheets
_____	Installed Sewer and all Appurtenances
_____	Completed all Items on Inspectors Deficiency List

DATE

_____ Received County Campaction Tests Sign-off

_____ Tested Sewer System

_____ All Remaining Fees and Charges Paid

RECEIVED APPROVED SUBMITTED

_____ _____ Unconditional Lien Waiver and Release

_____ _____ Sewer System Grant Deed

_____ _____ Record Drawings

DATE

_____ Filed Notice of Completion

_____ Connection(s) to Existing System Completed

APPENDIX K

CONTRACTOR INFORMATION SHEET

CONTRACTOR INFORMATION SHEET

Firm Name and Address: _____

_____

_____

Contractor's License No.: _____

License Class: _____

License Expiration Date: _____

Telephone No.: _____

Emergency Telephone No.: _____

Contractor's Project Manager:

Name: _____

Telephone No.: _____

Emergency Telephone No.: _____

Contractor's Superintendent:

Name: _____

Telephone No.: _____

Emergency Telephone No.: _____

Contractor's Signature: _____ Date: _____

Received: Lee Lake Water District:

By: _____ Date: _____

Contractor shall furnish three references for similar projects completed within the past three (3) years.

Contract Amount	Type of Work	Date Completed	Owner (Name & Address)	Person in Charge of Project	Phone Number of Person in Charge

APPENDIX L

SEWER SYSTEM CONSTRUCTION AGREEMENT

LEE LAKE WATER DISTRICT OF RIVERSIDE COUNTY

SEWER SYSTEM CONSTRUCTION AGREEMENT (DEVELOPER INITIATED/CONTRACTOR INSTALLED)

THIS AGREEMENT is made of this _____ day of _____, 20___, by and between LEE LAKE WATER DISTRICT OF RIVERSIDE COUNTY, A California Water District, hereinafter designated as the "District", and _____

_____

located at _____

Telephone No. _____, represented by _____

hereinafter designated as the "Developer".

WHEREAS, Developer is planning a _____(Tract)_____

consisting of _____ residential (commercial) lots known as _____

_____, records of Riverside County, California, as further shown on the map attached hereto as Exhibit A, and which is hereinafter referred to as the "Development"; and

WHEREAS, said subdivision will require a sewer system to provide domestic sewer service to the Development; and

WHEREAS, Developer is desirous of having the District provide domestic sewer service to the Development and is willing to convey to the District the sewer system after the construction thereof, contingent upon the District's acceptance of such conveyance on the terms and conditions set forth herein.

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

1. District agrees to provide domestic sewer service to the Development on the terms and conditions hereinafter provided and subject to all of the District's rules, regulations, ordinances, orders and rates.

2. Developer agrees to construct the sewer system facilities necessary for aforesaid Development in accordance with the following terms and conditions:

A. Developer will cause all of the sewer system pipelines and facilities necessary or desirable to serve the Development to be constructed at Developer's expense. The required pipelines and facilities are hereinafter referred to as the "Sewer System".

B. Developer will cause the Sewer System plans, specifications and construction drawings to be prepared at Developer's expense and submit said materials to

District for its approval which approval must be obtained prior to letting any contract or allowing construction. The plans, specifications and drawings shall fully comply with all applicable rules, regulations and ordinances of District including, but not limited to, District's "Standard Specifications on Standard Drawings for Sewer and Sewer Facilities".

C. All construction of Sewer System shall be done by qualified and properly licensed contractors. The prime contractor for the work shall be required to have a "C-34" or General Engineering "A" license and shall be experienced in the construction of domestic sewer systems. The qualifications of the prime contractor for the work must be approved by District in advance of any work being done on the system.

D. Sewer construction drawings for said Sewer System shall be approved by District prior to the presentation thereof to contractors for bidding purposes and said Sewer System shall be constructed and installed in full compliance with said approved sewer construction drawings and District specifications referenced in paragraph B above.

E. Prior to acceptance of the Sewer System by District, District will require:

(1) Submittal to District of _____ sets of "as built" drawings.

(2) Evidence satisfactory to District that Developer can grant the Sewer System to District free and clear of all liens, claims and encumbrances.

(3) Evidence satisfactory to District and subject to physical inspection that the Sewer System has been constructed pursuant to the terms and conditions of this Agreement and is in good condition and repair.

(4) A Faithful Performance Bond satisfactory to District bonding compliance with this Agreement and the terms and conditions hereof.

(5) All fees and charges of District have been paid in full.

(6) An unconditional lien waiver release.

(7) Recordation of the Notice of Completion.

(8) A form of Grant Deed of the Sewer System satisfactory to District.

F. District will not accept the Sewer System or be responsible for it in any way until District has accepted the Sewer System in writing. Any damage to the Sewer System prior to acceptance will be solely the responsibility of Developer.

G. Developer will protect all existing District Facilities in place and will immediately repair or replace any District facility damaged as a result of work or other activity in connection with the Development.

H. Developer will pay, on demand, all costs incurred by District in connection with this Agreement including, but not limited to, the cost to District of an inspector or inspectors to inspect the work in progress and the completed work for compliance with this Agreement and testing if reasonably required. All rates paid will be reasonable and in accord with local applicable rates at the time of inspection, review or testing.

3. Construction shall not begin until District issues a "Notice to Proceed". Prior to District issuing "Notice to Proceed", Developer shall submit the following:

A. Copy of contract between Developer and Contractor verifying cost of Sewer System construction.

B. Certification of streets to final grade.

C. Certificates of insurance for contractor and all subcontractors in a form satisfactory to District. The insurance company shall be rated A in the latest issue of Best's Key Rating Guide, Property-Casualty, Written by A. M. Best Company.

D. A faithful performance bond with corporate surety or sureties satisfactory to the District. The bonding company shall be rated A in the latest issue of Best's Key Rating Guide, Property-Casualty, Written by A. M. Best Company) on District form. If separate City/County bonding is required, Developer can submit approved City/County bonding in lieu of District bond. Said performance bond shall be for not less than one hundred percent (100%) of the total contract price. Said bond guarantees the completion of the Sewer System (including submission of the Unconditional Lien Waiver and Release and the Sewer System Grant Deed) and guarantees the materials and workmanship of the installed domestic Sewer System against failures of any type for one (1) year from the date of the filing of the "Notice of Completion". Said bond shall provide for the payment of all costs incurred by the District for the repair of such failures within the one (1) year guarantee period.

4. In the event construction of the Sewer System does not commence prior to_____ _____, 20___, District may, at its option, cancel this Agreement by written notice to Developer; provided, however, that in the event such cancellation does not occur within sixty (60) days after said date, such cancellation shall require sixty (60) days' advance notice and, if construction commences during the sixty (60) day notice period, the cancellation shall not be effective.

In the event the Sewer System has not been accepted by District prior to _____, 20_____, District may, at its option, cancel this Agreement upon sixty (60) days' written notice to Developer. If during the sixty (60) day notice period, Developer completes the Sewer System

and complies with the conditions precedent to acceptance of the Sewer System by District, the cancellation shall not be effective.

In the event of cancellation under this paragraph, District's obligation to accept the Sewer System and to furnish sewer service to the Development shall cease and District shall retain all amounts previously paid to District hereunder.

Nothing herein shall be construed to prevent District from accepting the Sewer System or furnishing sewer service to the Development on such other terms and conditions as District may agree.

5. Developer agrees to indemnify and save District, its employees and agents free and harmless from any and all liabilities, loss, damage or injury to persons or property arising out of or in connection with construction of the Sewer System as herein provided.

6. In the event either party brings an action in court to enforce any term, provision or condition hereof, or to recover damages for any default hereunder, the prevailing party shall be entitled to recover its reasonable attorney's fees.

7. This Agreement is not assignable by Developer without the express written consent of District. Subject to that condition, this Agreement shall be binding upon and inure to the benefit of the successors and assigns of the parties hereto.

8. Whenever in this Agreement notice is required to be given, the same shall be given by certified mail, postage prepaid, addressed to the respective parties at the following addresses:

To District: LEE LAKE WATER DISTRICT
22646 Temescal Canyon Road
Corona, California 92883

To Developer: _____
_____
_____
_____

9. This Agreement contains all of the terms, conditions and agreements of the parties relating to the subject matter hereof and no amendment or alteration hereof shall be effective for any purpose unless contained in a writing duly executed by the parties hereto.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first above written.

LEE LAKE WATER DISTRICT

By: _____

General Managers

Date: _____

DEVELOPER

Company: _____

By: _____

Name: _____

Title: _____

Date: _____

APPENDIX M

CERTIFICATION OF STREETS TO FINAL GRADE

TO: LEE LAKE WATER DISTRICT

FROM: _____

(ADDRESS) _____

_____

_____

SUBJECT: Certification of Streets to Final Grade

Tract Map No. _____, or

Parcel Map No. _____

l. There has been executed a "SEWER SYSTEM CONSTRUCTION AGREEMENT" for the sewer mains described above; said Agreement being between:

a. The Lee Lake Water District, hereinafter designated as the "District";

b. _____
hereinafter designated as the "Developer".

All terms and conditions of said Agreement are hereby incorporated by reference.

2. Pursuant to Section 3 of said Agreement, the Developer certifies that all streets requiring sewer mains are to the required Final Grade and ready for installation of sewer mains; wherein the Final Grade shall be defined as the finished grade of the street base or sub-base required by the Riverside County Road Department, or the District.

3. Developer agrees that if there is a change required in the final grade of the street which occurs during or after the construction of the sewer mains, and requires the relocation of any sewer facilities, the Developer will make full payment for all costs necessary to relocate said sewer facilities.

Developer: _____

Address: _____

City/State/Zip: _____

Telephone: _____

Authorized Agent (sign): _____

Name (type): _____

Title: _____

APPENDIX N

CERTIFICATE OF INSURANCE

CERTIFICATE OF INSURANCE
LEE LAKE WATER DISTRICT

This certifies to the LEE LAKE WATER DISTRICT, located at 22646 Temescal Canyon Road, Corona, California 92883, that the following described policies have been issued to:

Insured: _____

_____

Address: _____

_____

Coverage is provided for the following operation(s)/locations(s):

_____

_____

_____

Type of Insurance	Insurer of Policy No.	Policy Expiration Date	Limits of Liability in thousands (000) Policy Covers Each Occurrence	Aggregate
GENERAL LIABILITY-"Occurrence" Policies Only				
[ ] Comprehensive Form		BODILY		
[ ] Premises-Operations		INJURY	$	$
[ ] Owners & Contractors Protective				
[ ] Blanket Contractual		PROPERTY		
[ ] Products and/or		DAMAGE	$	$
Completed Operations		BODILY	$	$
		INJURY		
		& PROPERTY		
[ ] Explosion & collapse Hazard		DAMAGE		
		COMBINED		
[ ] Underground Hazard				
[ ] Broad Form Property Damage				
[ ] Policy to include severability of interest clause				
[ ] Personal Injury Exclusion "C" Removed				
		PERSONAL INJURY	$	$

(Coverage shall be at least as broad as Insurance Service Office Form No. GL 0002 covering Comprehensive General Liability and Insurance Service Office Form No. GL 004 covering Broad Form Comprehensive General Liability; Broad Form Comprehensive General Liability; or Insurance Service Office Commercial General Liability coverage, Occurrence Form No. CG 0001).

AUTOMOBILE LIABILITY - "Occurrence" Policies Only

[ ] Comprehensive Form	BODILY INJURY (EACH PERSON)	$
[ ] Owned	BODILY INJURY (EACH OCCURRENCE)	$
[ ] Hired	PROPERTY DAMAGE	$
[ ] Non-owned	BODILY INJURY PROPERTY DAMAGE COMBINED	

(Coverage shall be at least as broad as Insurance Service Office form number CA 0001 covering automobile liability, Code 1 "any auto" and endorsement number CA 0025.)

EXCESS LIABILITY - "Occurrence" Policies Only

[ ] Umbrella form	BODILY INJURY & PROPERTY DAMAGE COMBINED	$
[ ] Other than umbrella form		
WORKERS COMPENSATION [ ] AND EMPLOYERS' LIABILITY	STATUTORY	$ (EACH ACCIDENT)

(Coverage shall be as broad as required by the Labor Code of the State of California and Employer's liability coverage.)

BUILDERS RISK (FIRE "ALL RISK") - "Occurrence" Policies Only [ ] ON 100% OF COMPLETED VALUE BASIS – $

The following provisions apply:

1. The Lee Lake Water District, its officers, agents, employees, and consultants are hereby declared to be additional insureds on all of the above-mentioned described liability insurance policies, as respects the operations of the named insured at or from the premises of the Lee Lake Water District described above.

2. The above-described liability insurance policies are primary insurance and no insurance held or owned by the designated additional insureds shall be called upon or looked to in order to cover a loss under said policy; the Lee Lake Water District shall not be liable for the payment of premiums or assessments under these policies.

3. None of the above-described policies will be canceled, limited or non-renewed until thirty (30) days after receipt by the Lee Lake Water District or a written notice of such cancellation or reduction of coverage as evidenced by receipt of a registered letter.

4. The insured(s) issuing the above described workers' compensation and/or builders risk insurance policies waives all rights of subrogation against the Lee Lake Water District, its officers, agents, employees, and consultants, designated as additional insured.

5. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the Lee Lake Water District, the Owner's Representative, the Engineer/Architect and their officers, agents, employees, consultants, and volunteers.

6. The named insured(s) insurance coverage shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insured's liability.

Insurance Agency: _____

Address: _____

_____

_____

Authorized Representative: _____

Phone: _____ Date: _____

APPENDIX O

FAITHFUL PERFORMANCE BOND

BOND NO. _____

FAITHFUL PERFORMANCE BOND

FOR

SEWER SYSTEM CONSTRUCTION AGREEMENT

KNOWN ALL PERSONS BY THESE PRESENTS: That WHEREAS, the Lee Lake Water District, has entered into a Sewer System Construction Agreement (All terms and conditions of said Agreement are hereby incorporated by reference) with _____, as Principal, (hereinafter designated as the "Developer"), for construction of:

_____

_____

_____;and

WHEREAS, said Principal is required under the terms of said Agreement to furnish a bond for the faithful performance of said contract.

NOW, THEREFORE, we, _____, as Developer, and _____ as Surety, are held and firmly bound unto the Lee Lake Water District (hereinafter called the "District"), in the sum of _____

DOLLARS ($ _____) (this amount being not less than one hundred percent (100%) of the total price of the work), lawful money of the United States of America, for payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT, if the hereby bonded Developer, its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by and well and truly keep and perform all the undertakings, terms, covenants, and conditions in said Agreement and any alteration thereof, made as therein provided, all within the time and in the manner therein designated in all respects according to their true intent and meaning, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect until Developer has completed construction of the facilities including repair of any damage of existing

District facilities and provided District with an Unconditional Lien Waiver and Release and a Sewer System Grant Deed and has paid all fees and charges.

As a condition precedent to the satisfactory completion of the work (including submission of the Unconditional Lien Waiver and Release, submission of the Sewer System Grant Deed, payment of all fees and charges, and repair of any damage of existing District facilities), the above obligation shall hold good for a period of one (1) year after the completion of the Work and fling of the Notice of Completion by the district, during which time if Developer shall fail to make full, complete, and satisfactory repair and replacements and totally protect the District from loss or damage made evident during the period of one (1) year from the date of filing of the Notice of Completion by the District, and resulting from or caused by defective materials or faulty workmanship, the above obligation in penal sum thereof shall remain in full force and effect. Notwithstanding anything in this paragraph to the contrary, the obligation of Surety hereunder shall continue so long as any obligation of Developer remains.

FURTHER, the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or modification of the Agreement, or of the work to be performed thereunder, shall in any way affect its obligations on this bond; and it does hereby waive notice of any change, extension of time, alteration or modification of the Agreement or of work to be performed thereunder.

IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Developer and Surety named therein, on the day of ____, 20___ , the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

_____

Developer (seal)

Name: _____

Title: _____

Signature: _____

_____

Surety (seal)

Name: _____

Title: _____

Signature: _____

APPROVED AS TO FORM:

Clayson, Mann, Arend & Yeager

District Legal Counsel

Address: _____

By: _____

(SEAL AND NOTARIAL ACKNOWLEDGEMENT OF SURETY)

APPENDIX P

UNCONDITIONAL LIEN WAIVER AND RELEASE

UNCONDITIONAL LIEN WAIVER AND RELEASE

DATE: _____

TO WHOM IT MAY CONCERN:

The undersigned has been paid in full for all labor, services, equipment or materials furnished to _____ ("Contractor") on the job for the Lee Lake Water District ("District") located at _____ in the County of Riverside, State of California ("Property").

The undersigned does hereby waive and release Contractor and District from any and all liability for liens for all materials delivered and labor performed by it, all Mechanic's Liens, including ones that have been recorded, Stop Notices, or any right against a Labor and Material Bond, to or for the Job and the Property on which it is located.

This Unconditional Lien Waiver and Release, materials and Labor, is made in accordance with Civil Code s3262 and s5 of the Sewer System Construction Agreement between Lee Lake Water District and Developer _____, dated _____.

NOTICE: THIS DOCUMENT WAIVES RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF **YOU HAVE NOT BEEN** PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL RELEASE FORM.

_____ _____
Firms Name

_____ _____
Address

_____ _____
City, State

_____ By: _____
Authorized Representative

APPENDIX Q

SEWER SYSTEM GRANT DEED

W.O. _____

SEWER SYSTEM GRANT DEED

FOR VALUABLE CONSIDERATION paid and received,

_____ hereby grant(s) to Lee Lake Water District all right, title and interest in the sewer system improvements for the entire sewer system facilities for the development referenced with records of the County of Riverside, State of California as _____ and agrees to indemnify the District for any and all claims, liens, causes of action or any type of liability arising from or in any way related to the construction of said facilities.

Said sewer system improvements are shown in detail on the construction drawings {Sheets _____ thru _____) for said development. This Grant Deed is in accordance with Section 5 of the Sewer System Agreement between Lee Lake Water District and dated _____ _____, and is effective upon Developer providing the Unconditional Lien Waiver and Release and upon filing of the Notice of Completion by the District for the aforementioned sewer system improvements.

SELLERS for his heirs, executors and administrators, covenants and agrees to warrant and defend this sale of property, goods and chattels, against all and every persons claiming the same.

DATE: _____

_____

BY: _____

SEAL AND NOTARIAL ACKNOWLEDGEMENT

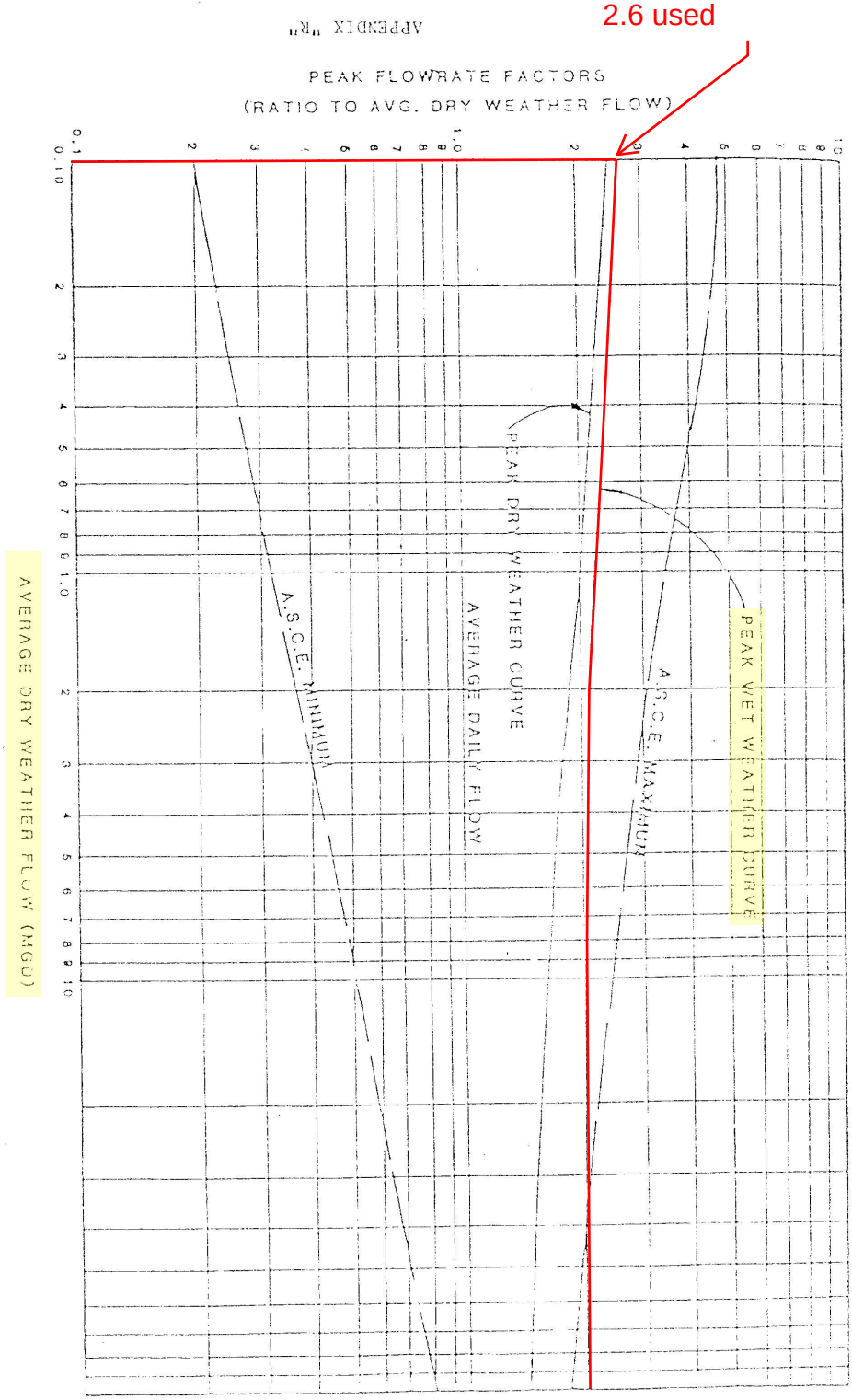
APPENDIX R

PEAK FLOW FACTORS

Peak flowrate factor
2.6 used

APPENDIX "R"

PEAK FLOW FACTORS



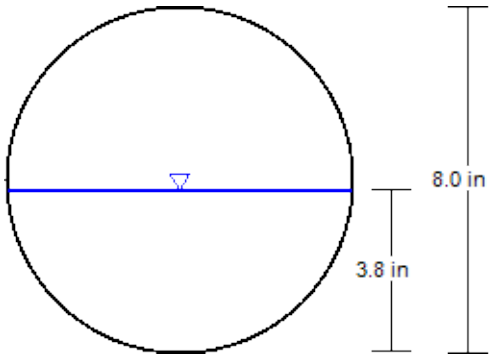
APPENDIX B

GRAVITY SEWER HYDRAULIC ANALYSIS

Cross Section for A1/B1 8-inch PVC @0.5%

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.500	%
Normal Depth	3.8	in
Diameter	8.0	in
Discharge	0.250	MGD

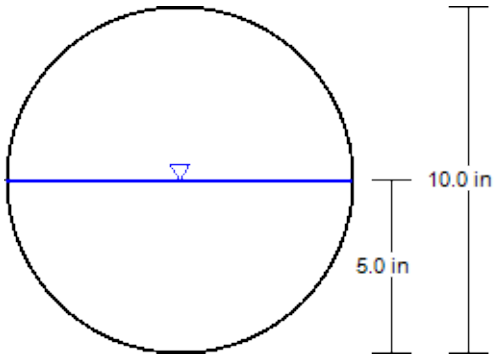


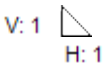
V: 1
H: 1

Cross Section for A2 10-inch PVC @0.5%

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.500	%
Normal Depth	5.0	in
Diameter	10.0	in
Discharge	0.500	MGD

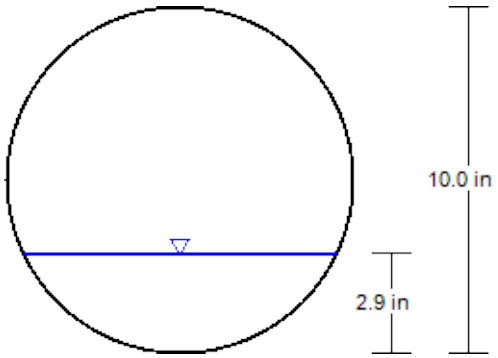




Cross Section for A3 10-inch PVC @4.9%

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	4.900	%
Normal Depth	2.9	in
Diameter	10.0	in
Discharge	0.560	MGD



V: 1
H: 1

Worksheet for A1/B1 8-inch PVC @0.5%

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.500	%
Diameter	8.0	in
Discharge	0.250	MGD

Results		
Normal Depth	3.8	in
Flow Area	0.2	ft²
Wetted Perimeter	1.0	ft
Hydraulic Radius	1.9	in
Top Width	0.67	ft
Critical Depth	3.5	in
Percent Full	47.2	%
Critical Slope	0.671	%
Velocity	2.39	ft/s
Velocity Head	0.09	ft
Specific Energy	0.40	ft
Froude Number	0.853	
Maximum Discharge	0.594	MGD
Discharge Full	0.552	MGD
Slope Full	0.102	%
Flow Type	Subcritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	35.2	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	3.8	in
Critical Depth	3.5	in
Channel Slope	0.500	%
Critical Slope	0.671	%

Worksheet for A2 10-inch PVC @0.5%

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.500	%
Diameter	10.0	in
Discharge	0.500	MGD

Results		
Normal Depth	5.0	in
Flow Area	0.3	ft²
Wetted Perimeter	1.3	ft
Hydraulic Radius	2.5	in
Top Width	0.83	ft
Critical Depth	4.7	in
Percent Full	49.9	%
Critical Slope	0.634	%
Velocity	2.84	ft/s
Velocity Head	0.13	ft
Specific Energy	0.54	ft
Froude Number	0.876	
Maximum Discharge	1.077	MGD
Discharge Full	1.001	MGD
Slope Full	0.125	%
Flow Type	Subcritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	50.0	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	5.0	in
Critical Depth	4.7	in
Channel Slope	0.500	%
Critical Slope	0.634	%

Worksheet for A3 10-inch PVC @4.9%

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	4.900	%
Diameter	10.0	in
Discharge	0.560	MGD

Results		
Normal Depth	2.9	in
Flow Area	0.1	ft²
Wetted Perimeter	0.9	ft
Hydraulic Radius	1.6	in
Top Width	0.75	ft
Critical Depth	4.9	in
Percent Full	28.6	%
Critical Slope	0.649	%
Velocity	6.73	ft/s
Velocity Head	0.70	ft
Specific Energy	0.94	ft
Froude Number	2.871	
Maximum Discharge	3.372	MGD
Discharge Full	3.134	MGD
Slope Full	0.156	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	28.6	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.9	in
Critical Depth	4.9	in
Channel Slope	4.900	%
Critical Slope	0.649	%

APPENDIX C

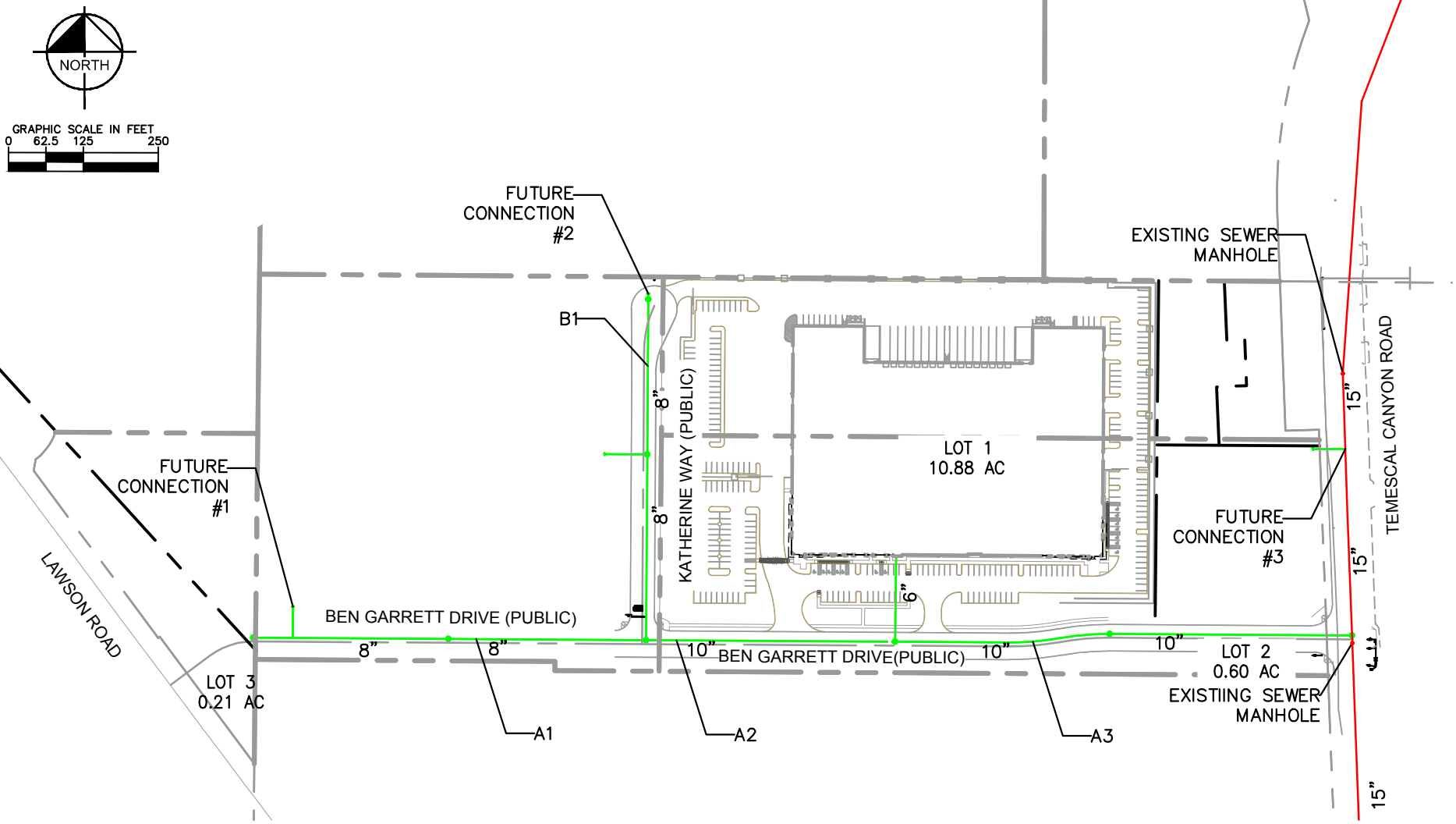
FIGURES

TEMESCAL COMMERCIAL CONCEPTUAL SEWER STUDY EXHIBIT

LEGEND

EXISTING GRAVITY SEWER MAIN (SIZE AS NOTED)

PROPOSED GRAVITY SEWER MAIN (SIZE AS NOTED)



Kimley»Horn

1100 TOWN AND COUNTRY RD SUITE 700, ORANGE, CA 92868
PHONE: 714-939-1030

APPENDIX D

AS-BUILT RECORD DRAWINGS FOR SEWER LINES

Lee Lake Water District

LOCATED WITHIN THE:

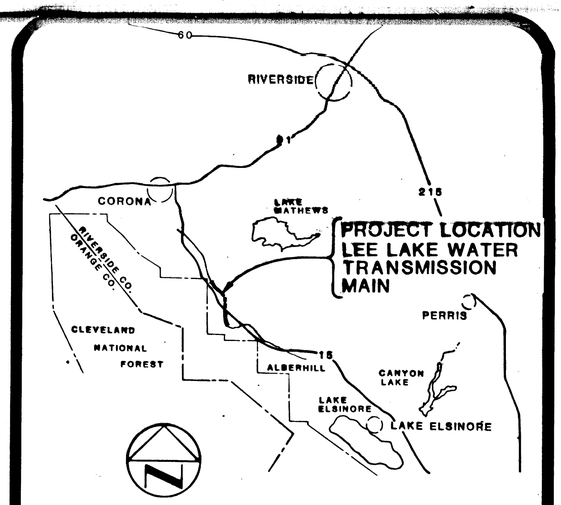
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

CONTRACT DRAWINGS FOR:

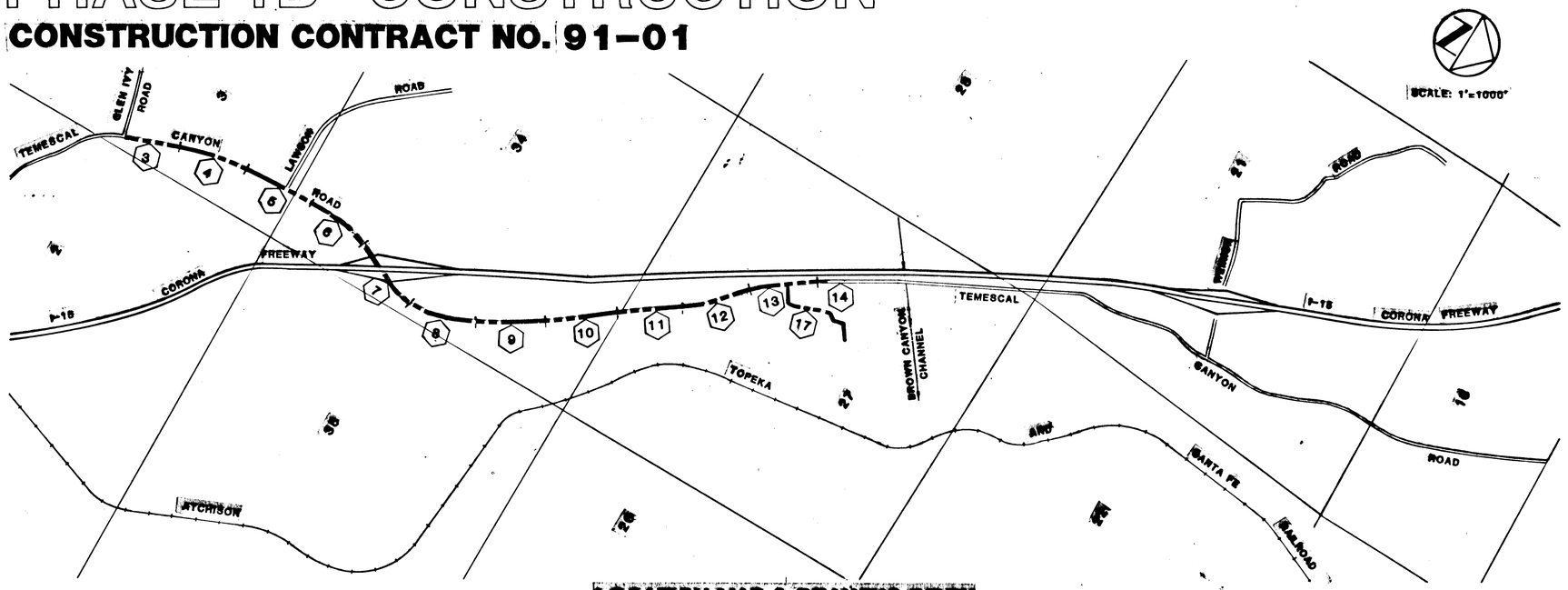
LEE LAKE WATER TRANSMISSION MAIN AND SEWER TRUNK LINE

PHASE 1B CONSTRUCTION

CONSTRUCTION CONTRACT NO. 91-01



VICINITY MAP



LOCATION MAP & DRAWING INDEX

(25) DENOTES DRAWING NUMBER

DRAWING INDEX	
DWG. NO.	DESCRIPTION
1	TITLE AND INDEX DRAWING
2	ABBREVIATIONS, LEGEND AND GENERAL NOTES
3-14	PLAN AND PROFILE DRAWINGS
15-16	NOT USED
17	PLAN & PROFILE DRAWINGS
18-20	MISCELLANEOUS DETAILS
21-24	TRAFFIC CONTROL PLAN AT I-15 ROSSIN

LEE LAKE WATER DISTRICT BOARD OF DIRECTORS

DAN ZIMMERMAN
CHARLES W. COLLADAY
JOYCE DELEO
CHRIS CHRISTOFFERSON
LAWRENCE M. WERNER

JOHN S. MURK ENGINEERS, INC.

RECOMMENDED John S. Murk DATE 8/27/91
R.C.E. 22403

LEE LAKE WATER DISTRICT

APPROVED Kevin A. Bell DATE 10/01/91
DISTRICT MANAGER

RECORD DRAWING
Date: 12/11/92 By: Kevin A. Bell
CAMP DRESSER & McKEE INC.

REGISTERED PROFESSIONAL ENGINEER
John Stephen Murk
No. 22403
Exp. 9-30-93
CIVIL
STATE OF CALIFORNIA

JSME
john s. murk engineers, inc.

Lee Lake Water District

ABBREVIATIONS

A	Air/Ampere
AB	Anchor Bolt
ACB	Air Circuit Breaker
ACFM	Actual Cubic Feet Per Minute
AC	Asphaltic Concrete/Alternating Current/Air Compressor
ACI	American Concrete Institute
ACP	Asbestos Cement Pipe
AF	Ampere Frame
AFC	Above Finish Concrete
AFF	Above Finish Floor
AFG	Above Finished Grade
AGC	Associated General Contractors
AGG	Aggregate
AISC	American Institute of Steel Construction
ALT	Alternate
ALUM	Aluminum
ANAD	Anaerobic Digester
ANNUN	Annunciator
ANSI	American National Standards Institute
APPROX	Approximate
APWA	American Public Works Association
AR	Alarm Relay
ARCH	Architectural
ARV	Air Release Valve
AS	Activated Sludge
ASA	American Standards Association
ASME	American Society of Mechanical Engineers
ASPH	Asphalt
ASSY	Assembly
ASTM	American Society for Testing and Materials
AT	Ampere Trip
AUTO	Automatic
AUX	Auxiliary
AVG	Average
AWG	American Wire Gauge
AWS	American Welding Society
AWT	Advanced Waste Treatment
AWWA	American Waterworks Association
AZ	Azimuth
B	Bell
BC	Begining of Curve
BD	Blowdown/Board
BF	Blind Flange
BFE	Biofilter Effluent
BKR	Breaker
BLDG	Building
BLK	Block
BM	Beam
BO	Blow Off
BOD	Biochemical Oxygen Demand
BRG	Bearing
BRKT	Bracket
B & S	Bell and Spigot
BTM, BOTT	Bottom
BTU	British Thermal Unit
BUSH	Bushing
BV	Buterfly Valve
BVC	Begin Vertical Curve
BW	Bottom Wall
BWF	Backwash Feed
BWG	Birmingham Wire Gauge
BWW	Backwash Waste
C	Channel/Conduit
°C	Degrees Centigrade
Ca	Caustic
CB	Catch Basin/Circuit Breaker
CENT	Centrate
CD	Ceiling Diffuser
CF	Cubic Feet
CFM	Cubic Feet Per Minute
CFS	Cubic Feet Per Second
CGV	Chlorine Gas Vacuum
CHKD	Checked
CHN'L	Channel
CH-O	Chain-operated
CI	Cast Iron
CIB	Curb Inlet Box
CIMJ	Cast Iron Mechanical Joint
CIP	Cast In Place/Cast Iron Pipe
CIRC	Circular
CIRCUM	Circumferential
CISP	Cast Iron Soil Pipe
CKT	Circuit
CKV	Check Valve
CL	Centerline
CLG	Chlorine Gas
CLL	Chlorine Liquid
CLR	Clearance
CLS	Chlorine Solution
CLV	Chlorine Vacuum
CL/	Centerline/Cement Lined
CL_2	Chlorine
CMLC	Cement Mortar Lined and Coated
CMP	Corragated Metal Pipe
CMV	Concrete Masonry Unit
CO	Clean Out/Conduit Only
COL	Column
COMPT	Compartment
CONC	Concrete
COND	Conductor
CONN	Connection
CONST	Construction
CONST JT	Construction Joint
CONT	Continuous/Continued/Control
CONTR	Contractor
CONTR JT	Contractor Joint
CONV	Conveyor
COTF	Clean Out Through Floor
CP	CP-1 Control Panel, Number As Noted
CPLG	Coupling
CPS	Cycles Per Second
CPVS	Chlorinated Polyvinyl Chloride
Cr	Chromium
CR	Contact Relay
CS	Carbon Steel
CT	Circuit Transformer
CTR	Center
CTRD	Centered
CU	Copper
CB	Control Valve
CW	Cold Water
CWP	Cold Working Pressure
D	Drain
DAF	Dissolved Air Flotation Thickener
DB	Decibles
DC	Direct Current
DEG (°)	Degrees
DET, DET'S	Detail, Details
DF	Douglas Fir
DI	Ductile Iron
DIA	Diameter
DIAG	Diagram
DIP	Ductile Iron Pipe
DIM	Dimension
DIMJ	Ductile Iron Mechanical Joint
DISC	Disconnect
DISCH	Discharge
DISCSW	Disconnect Switch
DPDT	Double Pole Double Throw
DPI	Differential Pressure Indicator
DPST	Double Pole Single Throw
DR	Door
DRWY	Driveway
DS	Digested Sludge
DWG	Drawing.
DWL	Dowel
DWL's	Dowels
DWN	Drawn
DWV	Drain Waste & Vent
DXS	Double Extra Strength
E	East
EA	Each
EC	End Curve/Electrical Conduit
ECC	Eccentric
EF	Each Face/Exhaust Fan
EFF	Effluent
EJMA	Expansion Joint Manufacturers Association
ELEC	Electrical
ELEV, EL	Elevation
ELL	Elbow
EMBED	Embedment
EMT	Electrical Metalic Tubing Conduit
ENG	Engineer
EO	Electrically Operated
EOV	Electrically Operated Valve
EP	Edge of Pavement
EPT	External Pipe Thread
EQUIP	Equipment
EVC	End Vertical Curve
EW	Each Way
EXCH	Exchanger
EXH	Exhaust
EXIST'G	Existing
EXP	Expansion
EXP JT	Expansion Joint
EXP-PROOF	Explosion Proof
EXT	Extend/Extension
°F	Degrees Fahrenheit
FA	Flange Adapter/Forced Air
FAB	Fabricate
FC	Flexible Coupling
FCO	Floor Clean-out
FCV	Flow Control Valve
FD	Floor Drain
FDR	Feeder
FE	Filter Effluent
FEB	Flow Equalization Basin
FET	Flow Equalization Tank
FF	Far Face/Flange x Flange
FH	Flat Head
FI	Flow Indicator
FIC	Flow Indicating Controller
FICV	Flow Indicating Control Valve
FIG	Figure Number
FIN FLR	Finished Floor
FIN GR	Finished Grade
FIRE HYD	Fire hydrant
FL	Flow Line
FLA	Full Load Amps
FLD	Field
FLEX	Flexible
FLG	Flange
FLG, FLG'D	Flange, Flanged
FLR	Floor
FM	Force Main
FOB	Flat On Bottom
FPM	Feet Per Minute
FPS	Feet Per Second
FPT	Female Pipe Thread
FR	Flow Recorder
FRC	Flow Recording Controller
FRCV	Flow Recorder Control Valve
FRP	Fiberglass Reinforced Plastic
FS	Finish Surface/Flow Switch
FT (')	Foot or Feet
FTG	Fitting
FUT	Future
FW	Fire Water
GA	Gauge, Gage
GAL	Gallon
GALV	Galvanized
GC	General Contractor
GCO	Grade Clean-out
GE	Grooved End
GEN	General/Generator
GIP	Galvanized Iron Pipe
GL	Glass Lined
GPM (gpm)	Gallons Per Minute
GR	Grade
GRD	Ground
GRV, GRV'D	Groove, Grooved
GS	Gravity Sewer
GSP	Galvanized Steel Pipe
GV	Gate Valve
H	Height
H/A	Hand/Auto
HB	Hose Bibb
HC	Handicapped
HCV	Hand-operated Control Valve
HDG	Hot Dipped Galvanized
HDR	Header
HEX	Hexagon
HEXC	Heat Exchanger
HGR	Hanger
HHWL	High-High Water Level
HH-1	Handhole, As Numbered
HOA	Hand/Off/Auto
HORIZ	Horizontal
HP	High Point
HR	Handrail or Hour
HRS	Hours
HVAC	Heating, Ventilating, and Air Conditioning
HVY	Heavy
HW	Hot Water
HWH	Hot Water Heater
HWL	High Water Level/Head Wall
HWR	Hot Water Return
HWS	Hot Water Supply
HYD	Hydraulic
HZ	Hertz
I	Iron
IA	Instrument Air
IBBM	Iron Body Bronzing Mounted
IC	Interrupting Current
ID	Inside Diameter
IE	Invert Elevation
IEEE	Institure of Electric and Electronics Engineers
IF	Inside Face
IMT	Intermediate Metal Galvanized Steel Conduit
IN (")	Inches
IND	Indicating/Indicator
INF	Influent
INST	Install
INSTR	Instrumentation/Instantaneous
INTLK	Interlock
INV	Invert (inside bottom of pipe)
IPS	Iron Pipe Size
IPT	Iron Pipe Tap/Internal Pipe Thread
ISP	Insulated Steel Pipe
ISO	Isometric
J/JB	Junction Box
JCT	Junction
JST	Joist
JT	Joint
KVA	Kilovolt Amperes
KW	Kilowatts
KWHR	Kilowatt Hours
KWHM	Kilowatt Hour Meter
KWM	Kilowatt Meter
L	Length
LA	Level Alarm
LAV	Lavatory
LBS	Pounds
LC	Level Controller
LCP	Local Control Panel
LCR	Level Control Recorder
LCV	Level Control Valve
LE	Large End
LEMJ	Large End Mechanical Joint
LEV	Level
LF	Lineal Feet
LG	Length
LI	Level Indicator
LIC	Level Indicating Controller
LICV	Level Indicating Control Valve
LIM	Limit
LLA	Liquid Level Alarm
LLC	Liquid Level Controller
LLI	Liquid Level Indicator
LLR	Liquid Level Recorder
LLWL	Low-Low Water Level
LOC	Location
LOS	Lockout Stop Station
LP	Low Point
LPG	Liquified Petroleum Gas
LRC	Level Recording Controller
LS	Level Switch/Limit Switch
LT	Light/Left
LTG	Lighting
LWL	Low Water Level
LWR	Lower
MA	Milliampere
MACH	Machine
MAINT	Maintained
MAN	Manual
MAR	Manual Air Release
MATL	Material
MAX	Maximum
MC	Maintained Contact/Mechanical Coupling
MCC	Motor Control Center
MCM	Thousand Circular Mils
MCP	Motor Circuit Protector
MDL	Model
MECH	Mechanical
MFGR	Manufacturer
MGD	Millian Gallons/Day
MH	Manhole
MIN	Minimum
MISC	Miscellaneous
MJ	Mechanical Joint
MOC	Middle of Curve
MOV	Motor Operated Valve
MPT	Male Pipe Thread
MSL	Mean Sea Level
MTG	Mounting
MTR	Motor
MV	Millivolt
MVC	Middle Vertical Curve
N	North
NA	Non-Automatic/Not Applicable
NC	Normally Closed
NCIO	Normally Closed, Instantaneously Open
NCTC	Normally Closed, Time Close
NCTO	Normally Closed, Time Open
NEC	National Electrical Code
NEG (-)	Negative
NEMA	National Electrical Manufactureres Association
NF	Near Face
NG	Natural Gas
NIC	Not In Contract
NIP	Nipple
NO. (#)	Number/Normally Open
NOIC	Normally Open, Instantaneously Close
NOM	Normal
NOTC	Normally Open, Time Close
NOTO	Normally Open, Time Open
NP	Nameplate
NPS	National Pipe Size
NPT	National Pipe Thread
NPW	Non-Potable Water
NRS	Nonrising Stem
NTS	Not To Scale
NV	Needle Valve
OC	On Center
OCA	Open/Close/Auto Switch
OD	Outside Diameter
OF	Outside Face
OH	Overhang
O/L	Outlet
OL	Overload Relay
OL&S	Outside Lever & Spring
OL&W	Outside Lever & Weight
OPNG	Opening
OPP	Opposite
ORIG	Original
OS&Y	Outside Screw & Yoke
PA	Plant Air
PB	Pushbutton
P/B	Pullbox
PC	Pressure Controller
PCC	Precast Concrete
PCV	Pressure Control Valve
P/C	Plain Concrete
PDRC	Pressure Differential Recording Controller
PDS	Pressure Differential Switch
PE	Plain End/Primary Effluent
PERP	Perpendicular
PG	Pressure Gauge
PI	Point of Intersection
P&ID	Process and Instrument Diagram
PL	Plate
P/L	Property Line
PLCS	Places
PLF	Per Linear Foot
PNL	Panel
POC	Point of Curve
POL	Polymer
POS	Positive/Position
POV	Pneumatically Operated Valve
PP	Power Pole
PR	Pressure Recording Controller/ Pressure Regulator-Pair
PRC	Pressure Controller
PRESS	Pressure
PRI	Primary
PRV	Pressure-reducing Valve
PS	Pipe Support/Pressure Switch
PSF	Pounds Per Square Foot
PSI (psi)	Pounds Per Square Inch
PSIA	Pounds Per Square Inch Absolute
PSIG	Pounds Per Square Inch Gauge
PT	Point/Potential Transformer
PV	Plug Valve
PVC	Polyvinyl Chloride
PVI	Point of Vertical Intersection
PW	Potable Water
QTY	Quantity
QUAD	Quadrant
R	Radius
RA	Return Air
RAG	Return Air Grille
RAS	Return Activated Sludge
RC	Ratio Controller
RCP	Reinforced Concrete Pipe
R/C	Reinforced Concrete
RD	Road
RECD	Received
RECEP	Receptacle
RECIRC	Recirculation
RED	Reducer
REF	Reference
REINF	Reinforce
REQ'D	Required
RET	Retain/Retaining
REV	Revision
RF	Raised Face
RFT	Rafter
RGS	Rigid Galvanized Steel Conduit
RPM	Revolutions Per Minute
RPMP	Reinforced Plastic Mortar Pipe
RS	Rising Stem
RSR	Riser
RT	Right/Retangular Tube
R/W	Right-of-Way
S	Slope/South
SAE	Society of Automative Engineers
SC	Sleeve Coupling
SCFH	Standard Cubic Feet Per Hour
SCFM	Standard Cubic Feet Per Minute
SCH	Schedule
SCRD	Screwed
SD	Storm Drain
SE	Secondary Effluent
SEC	Secondary
SECT	Section
SED	Sedimentation
SEL	Selection
SEMJ	Small End Mechanical Joint
SEW	Sewer
SF	Square Feet
SHT	Sheet
SIM	Similar
SJ	Slip Joint
SK	Skimming
SL	Slope
SM	Supernatant
S/O	Safe/Off Station
SP	Spare
SPD	Sump Pump Discharge
SPEC	Specification
SPEC PROV	Special Provisions
SPDT	Single Pole Double Throw
SPST	Single Pole Single Throw
SPT	Sound Powered Telephone
SQ	Square
SS	Stainless Steel
S/S	Start/Stop Station
SSPWC	Standard Specification for Public Works Construction
ST	Street
STA	Station
STD	Standard
STIFF	Stiffener
STL	Steel
STR	Starter
STRUCT	Structure
SUCT	Suction
SUPT	Support
SV	Solenoid Valve
SW	Sidewalk/Switch/Solvent Weld/Socket Weld
SWBD	Switchboard
SWP	Standard Working Pressure
SYM	Symetrical
SYST	System
T	Top
TAN	Tangent
TB	Terminal Box
T & B	Top and Bottom
TC	Temperature Controller
TCOND	Tee Conduit
T/C	Top of Curb
TDH	Total Dynamic Head
TDR	Time Delay Relay
TECH	Technical
TEF	Teflon
TEL	Telephone
TEMP	Temperature
TERM	Terminal
T & G	Tonhue and Groove
THBA	Thrust Block Bearing Area
THRD	Threaded
THRU	Through
TI	Temperature Indicator
TIC	Temperature Indicator Controller
TICV	Temperature Control Valve
TOC	Top of Concrete
TOG	Top of Grate
TOP	Top of Pipe
TOS	Top of Steel
TP	Telephone Pole
TS	Tubular Steel/Temperature Switch
TW	Top of Wall
TWSH	Twisted Shielded
TYP	Typical
UG	Underground
UL	Underwriters' Laboratories
UP	Utility Pole
UNK	Unknown
V	Vent/Volt
VAC	Vacuum
VAR	Varies
VC	Vertical Curve
VCP	Vitrified Clay Pipe
VERT	Vertical
VGJ	Victaulic Groove Joint
VSJ	Victaulic Shoulder Joint
VTR	Vent Through Roof
W	West/Watt
W/	With
W/O	Without
WAS	Waste Activated Sludge
WC	Water Closet
WCO	Wall Cleanout
WD	Wood
WDW	Window
WE	Welded End
WF	Wide Flange
WID	Width
WL	Water Level or Water Line
WLD	Weld
WM	Wattmeter
WOG	Water, Oil, and Gas Pressure
WP	Working Pressure/Weather Proof
WS	Water Service
WSEL	Water Surface Elevation
WSP	working Steam Pressure/Welded Steel Pupe
WSTP	Water Stop
WT	Weight
WW	Wastewater
WWF	Welded Wire Fabric
WWM	Woven Wire Mesh/Welded Wire Mesh
WSP	Welded Steel Pipe
XH	Extra Heavy
XMFR	Transformer
XMTR	Transmitter
XP	Explosion Proof
XS	Extra Strong
XXH	Double Extra Heavy
ZS	Position Switch
3W	Three Wire

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THESE SIGNED IMPROVEMENT PLANS AND SPECIAL PROVISIONS AND THE ADOPTED STANDARDS AND SPECIFICATION OF THE LEE LAKE WATER DISTRICT.
2. THE EXISTING UNDERGROUND UTILITIES SHOWN ARE PER THE PLANS FURNISHED BY THE RESPECTIVE UTILITY COMPANIES AND OTHER AVAILABLE PUBLIC RECORDS.
3. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES DURING CONSTRUCTION. THE ACTUAL LOCATION AND ELEVATION OF ALL EXISTING UNDERGROUND UTILITIES ARE TO BE VERIFIED BY THE CONTRACTOR AND ANY DISCREPANCY IS TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND LEE LAKE WATER DISTRICT.
4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO KEEP AN "AS-BUILT" RECORD OF ALL WATER MAINS, SEWER LINES AND APPURTENANCES INSTALLED UNDER THIS CONTRACT AND PROVIDE SAID RECORDS TO THE ENGINEER AT THE COMPLETION OF THE PROJECT.
5. A PRECONSTRUCTION CONFERENCE SHALL BE HELD AT THE SITE PRIOR TO THE BEGINNING OF THE WORK AND SHALL BE ATTENDED BY ALL REPRESENTATIVES RESPONSIBLE FOR CONSTRUCTION, INSPECTION, SUPERVISIONS, TESTING, UTILITY COMPANIES AND ALL OTHER ASPECTS OF THE WORK.
6. WHERE AN EXISTING ABANDONED PIPE LINE IS NOT REMOVED BY THE CONSTRUCTION OPERATION, IT SHALL BE REMOVED WITHIN THE TRENCH WALLS, PROPERLY PLUGGED WITH CONCRETE AND REPLACED WITH PROPERLY COMPACTED SOILS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DEWATERING OF ALL TRENCHES AND FOR THE FURNISHING AND SUPPLYING ALL NECESSARY IMPLEMENTS, PUMPS, PIPES AND ALL OTHER SUPPLIES NECESSARY TO ACCOMPLISH SAID DEWATERING.
8. ALL AREAS SHALL BE GRADED TO DRAIN. NO PONDING OF WATER WILL BE PERMITTED.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEBRIS OR DAMAGE OCCURRING ALONG THE HAUL ROUTES OR ADJACENT STREETS AS A DIRECT RESULT OF HIS TRENCHING OPERATION.
10. THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM THE STATE OF CALIFORNIA, DIVISION OF INDUSTRIAL SAFETY PRIOR TO STARTING CONSTRUCTION AND SHALL MAKE A COPY AVAILABLE TO LEE LAKE WATER DISTRICT.
11. ALL EXISTING FACILITIES THAT ARE MOVED OR REMOVED DURING CONSTRUCTION OR ARE PAVED OVER, INCLUDING VALVES BOXES AND COVERS, SHALL BE REINSTALLED AT A PROPER ELEVATION AND LOCATION PER THE SPECIAL PROVISIONS.
12. AN ENCROACHMENT PERMIT IS REQUIRED BEFORE ANY WORK MAY BEGIN IN OR NEAR THE STATE RIGHT-OF-WAY.
13. ALL WORK WITHIN THE STATE RIGHT OF WAY SHALL CONFORM TO THE LATEST STATE STANDARD PLANS & SPECIFICATIONS OR AS DIRECTED BY THE STATE'S REPRESENTATIVE (STANDARDS OTHER THAN STATE MUST BE PRE-APPROVED AND JUSTIFIED.)
14. NO EQUIPMENT OR MATERIALS MAY BE STORED ON THE STATE RIGHT OF WAY.
15. ALL DISTURBED AREAS IN THE STATE RIGHT-OF-WAY MUST BE TREATED FOR EROSION CONTROL (HYDROSEEDING OR EQUIVALENT, OR AS DIRECTED BY THE STATE'S REPRESENTATIVE). THE RESPONSIBILITY FOR MAINTAINING EROSION CONTROL WILL NOT BE RELEASED UNTIL THE SEEDING IS WELL ESTABLISHED. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF CALTRANS CLEANING ANY DRAINAGE STRUCTURES/CHANNELS WHICH HAVE BECOME CLUTTERED WITH DEBRIS AND/OR SILT AS A RESULT OF, OR CAUSED BY, THE CONSTRUCTION PROJECT.
16. ACCESS CONTROL ON THE FREEWAY WILL BE MAINTAINED AT ALL TIMES, I.E., THE WORK INSIDE THE STATE RIGHT-OF-WAY MUST BE FENCED OFF WITH NO ACCESS TO THE WORK AREA FROM THE FREEWAY.
17. NO FREEWAY RAMPS OR FREEWAY LANES MAY BE CLOSED OR OBSTRUCTED AT ANYTIME UNLESS SPECIFICALLY ALLOWED PER THE ENCROACHMENT PERMIT AND/OR AS DIRECTED BY THE STATE'S REPRESENTATIVE.
18. THE STRUCTURAL SECTION SHOWN WITHIN THE STATE RIGHT-OF-WAY IS FOR ESTIMATING PURPOSES ONLY. THE ACTUAL SECTION WILL BE DESIGNED BY A SOIL ENGINEER AFTER NATIVE SOIL TESTING HAS BEEN COMPLETED. A TRAFFIC INDEX (TI) OF 10 SHALL BE USED IN THE DESIGN OF THE TRAVELLED WAY, AND A TI OF 10 SHALL BE USED FOR THE SHOULDER DESIGN. THE LABORATORY REPORTS AND THE DESIGN CALCULATIONS SHALL BE SUBMITTED TO THE STATE'S REPRESENTATIVE FOR APPROVAL PRIOR TO CONSTRUCTION OF THE STRUCTURAL SECTION.
19. WHERE SURVEY MONUMENTS EXIST, SUCH MONUMENTS SHALL BE PROTECTED OR SHALL BE REFERENCED AND RESET PURSUANT TO BUSINESS AND PROFESSIONS CODE, SECTIONS 8700 TO 8805 (LAND SURVEYOR'S ACT.)
20. ALL SIGNS, ROADSIDE MARKERS, ELECTROLIERS, ETC., SHALL BE PROTECTED AND/OR REPLACED IN-KIND ACCORDING TO THE CURRENT STATE STANDARD PLANS AND THE CURRENT TRAFFIC MANUAL, AT NO COST TO THE STATE.

LEGEND

CONTROL OR STREET CENTERLINE

STREET RIGHT OF WAY LINE

EXISTING WATER LINE — PW — PW

EXISTING GAS LINE — G — G

EXISTING TELEPHONE CONDUITS — T — T

EXISTING ELECTRICAL CONDUITS — E — E

EXISTING STORM DRAINS

PROPOSED WATER LINE

PROPOSED WATER VALVE *

PROPOSED BLOW-OFF

PROPOSED AIR RELEASE VALVE

PROPOSED SEWER LINE

PROPOSED SEWER MANHOLE

PROPOSED CORROSION TEST STATION

PROPOSED VALVE INSULATOR TEST STATION

EXISTING PAVEMENT

* ALL VALVES 16" AND LARGER SHALL HAVE A VALVE BYPASS PER DETAIL, DWG. NO. 18

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THESE PLANS IS THE CENTERLINE OF TEMESCAL CANYON ROAD ADJACENT TO PARCEL 4 OF PARCEL MAP NO. 19201 AS FILED IN BOOK 129, PAGES 36 TO 42 OF PARCEL MAPS, RECORDS OF THE COUNTY OF RIVERSIDE AND NOTED AS NORTH 28°17'06' WEST.

BENCHMARK

BENCHMARK: USC & GS, S316-1935
ELEVATION: 910.868
DESCRIPTION: 0.6 MILES SOUTHERLY ALONG TEMESCAL CANYON ROAD FROM WEIRICK ROAD; 26 FEET ± WESTERLY OF THE EDGE OF PAVEMENT OF TEMESCAL CANYON ROAD; 24 FEET ± SOUTHERLY OF POLE NO. 1607913-E; 94 FEET ± NORTHWESTERLY OF POLE NO. 104241-H; 5 FEET ± WESTERLY OF 4' BARBED WIRE FENCE; 55 FEET ± EASTERLY OF THE EASTERLY ASPHALT BERM OF THE I-15 FREEWAY; A STANDARD 3-1/2" DIAMETER BRASS DISK IN 6" X 6" CONCRETE POST, SET FLUSH WITH THE GROUND AND STAMPED S316-1935. STANDARD USC&G WITNESS POST FOUND 1.0 FEET WESTERLY.

NOTIFICATIONS

1. THE CONTRACTOR SHALL NOTIFY RIVERSIDE COUNTY TRANS DEPT. PERMIT SECTION AT RIVERSIDE (714) 275-6790 AT LEAST 48 HOURS IN ADVANCE OF STARTING CONSTRUCTION.
2. AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY.
   - A. LEE LAKE WATER DISTRICT 1 (714) 737-1719
   - B. UNDERGROUND SERVICES ALERT (USA) 1 (800) 422-4133
   - C. ALL PERMIT AGENCIES
   - D. ALL OTHER AFFECTED UTILITIES;
     1. SO. CALIF. GAS TRANSMISSION DIVISION (USA 1 (800) 422-4133
     2. SO. CALIF. GAS CO. AT RIVERSIDE (USA 1 (800) 422-4133
     3. SO. CALIF. EDISON CO. (USA) 1 (800) 422-4133
     4. PACIFIC TELEPHONE (USA) 1 (800) 422-4133
     5. TEMESCAL WATER COMPANY 1 (714) 277-0811
     6. CITY OF CORONA 1 (714) 736-1205, DON WILLINGS

REGISTERED PROFESSIONAL ENGINEER — John Stephen Mark — No. 22403 — Exp. 9-30-93 — CIVIL — STATE OF CALIFORNIA

RECORD DRAWING
Date 12/11/92 By: [signature]
CAMP DRESSER & McKEE INC.

RECOMMENDED BY: [signature] JSME R.C.E.
DATE: 8/27/91

APPROVED BY: [signature] for DISTRICT MANAGER
DATE: 10/9/91

Lee Lake Water District
PHASE 1B CONSTRUCTION

NO.	REVISIONS	INITALS	DATE

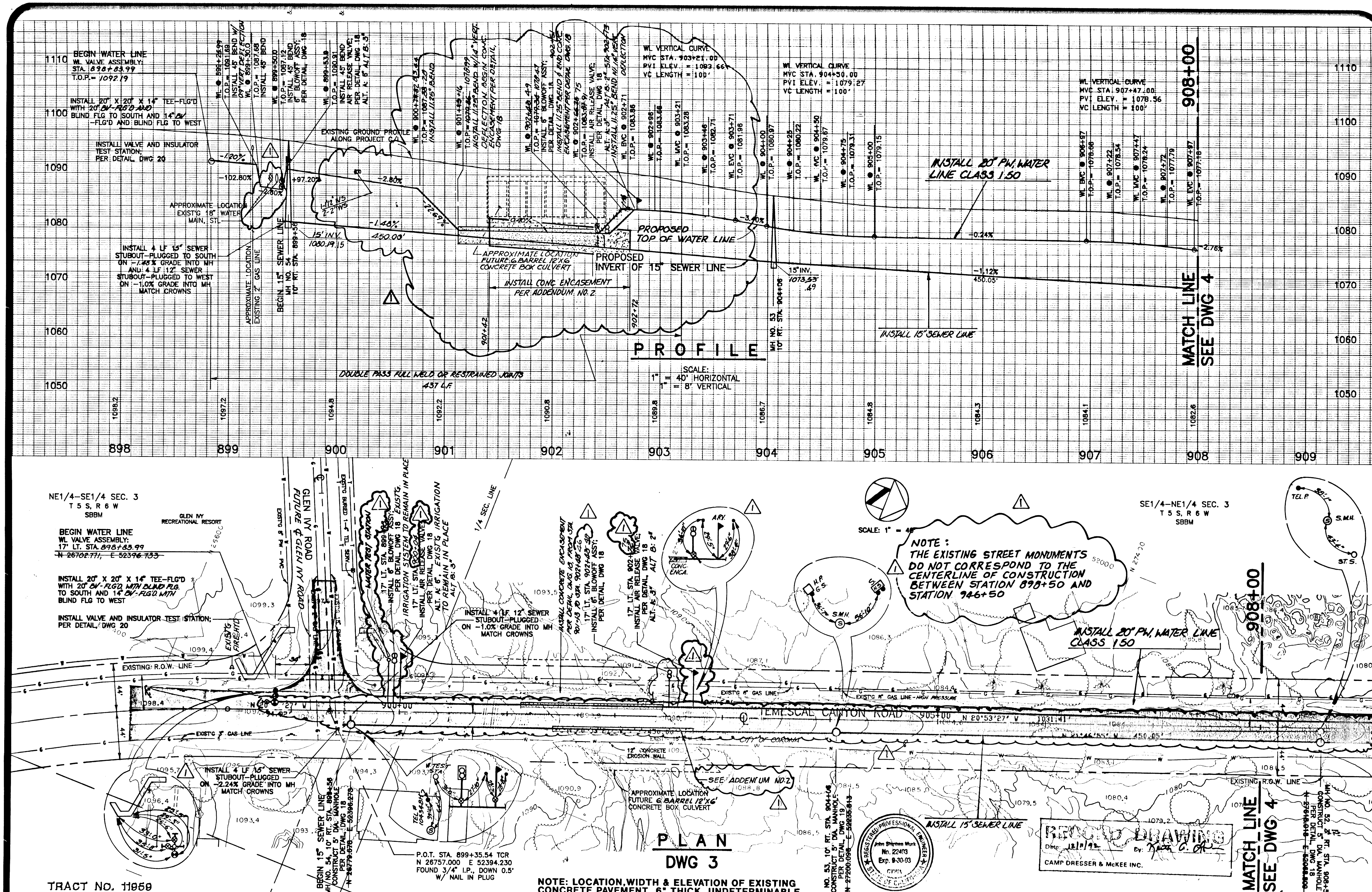
DESIGNED RLV
CHECKED KM/MT
DRAWN CLP
DATE

JSME
John S. Mark Engineers, Inc.
2770 El Camino Real
Carlsbad, California 92009
(619) 942-2100

LEE LAKE WATER DISTRICT

ABBREVIATIONS, LEGEND AND GENERAL NOTES

SCALE NO SCALE
SHEET NO. 2
OF 24 SHEETS
DWG. NO. 2



RECOMMENDED BY: JSME R.C.E. DATE: 8/27/91

APPROVED BY: DISTRICT MANAGER DATE: 10/1/91

Lee Lake Water District

PHASE 1B CONSTRUCTION

JSME
john s. murk engineers, inc.
7770 El Camino Real
Carlsbad, CA. 92009-2506
(619) 942-2100

LEE LAKE WATER DISTRICT

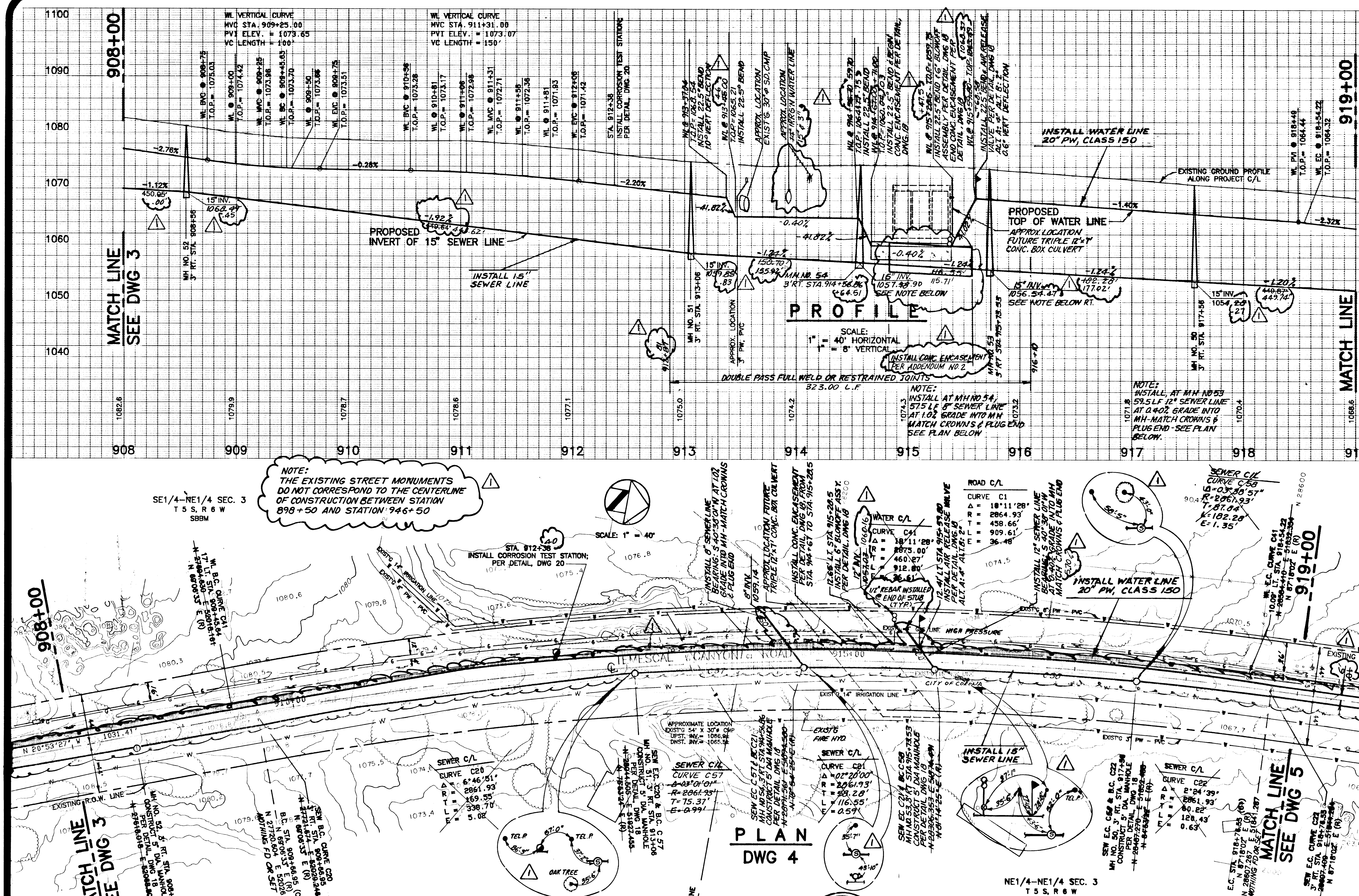
PLAN & PROFILE: TEMESCAL CANYON RD
WATER & SEWER LINES
STA. 899+15 TO STA. 908+00

DESIGNED VJ | CHECKED R.V./JH | DRAWN VJ | DATE

AS BUILT | JC | 10-12-92
NO. | REVISIONS | INITIALS | DATE

SCALE AS SHOWN
SHEET NO. 3 OF 24 SHEETS
DWG. NO. 3

PROFILE
SCALE:
1" = 40' HORIZONTAL
1" = 8' VERTICAL
BEGIN WATER LINE
WL VALVE ASSEMBLY:
STA. 898+83.99
T.O.P.= 1092.19
INSTALL 20" X 20" X 14" TEE-FLG'D WITH 20" BV-FLG'D AND BLIND FLG TO SOUTH AND 14" BV-FLG'D AND BLIND FLG TO WEST
INSTALL VALVE AND INSULATOR TEST STATION; PER DETAIL, DWG 20
EXISTING GROUND PROFILE ALONG PROJECT C
APPROXIMATE LOCATION EXIST'G 18" WATER MAIN, STL
INSTALL 4 LF 15" SEWER STUBOUT-PLUGGED TO SOUTH ON -1.48% GRADE INTO MH AND 4 LF 12" SEWER STUBOUT-PLUGGED TO WEST ON -1.0% GRADE INTO MH MATCH CROWNS
APPROXIMATE LOCATION EXISTING 2" GAS LINE
BEGIN 15" SEWER LINE
APPROXIMATE LOCATION FUTURE 6 BARREL 12'X6' CONCRETE BOX CULVERT
INSTALL CONC ENCASEMENT PER ADDENDUM NO.2.
PROPOSED TOP OF WATER LINE
PROPOSED INVERT OF 15" SEWER LINE
DOUBLE PASS FULL WELD OR RESTRAINED JOINTS
437 LF
WL VERTICAL CURVE
MVC STA. 903+21.00
PVI ELEV. = 1083.66
VC LENGTH = 100'
WL VERTICAL CURVE
MVC STA. 904+50.00
PVI ELEV. = 1079.27
VC LENGTH = 100'
WL VERTICAL CURVE
MVC STA. 907+47.00
PVI ELEV. = 1078.56
VC LENGTH = 100'
INSTALL 20" PW, WATER LINE CLASS 150
INSTALL 15" SEWER LINE
MATCH LINE SEE DWG 4
908+00
NE1/4-SE1/4 SEC. 3
T 5 S, R 6 W
SBBM
SE1/4-NE1/4 SEC. 3
T 5 S, R 6 W
SBBM
GLEN IVY RECREATIONAL RESORT
GLEN IVY ROAD
FUTURE GLEN IVY ROAD
TEMESCAL CANYON ROAD
N 20°53'27" W 1031.41'
EXISTING R.O.W. LINE
EXIST'G 6" GAS LINE
CITY OF CORONA
12" CONCRETE EROSION WALL
SEE ADDENDUM NO.2
NOTE : THE EXISTING STREET MONUMENTS DO NOT CORRESPOND TO THE CENTERLINE OF CONSTRUCTION BETWEEN STATION 898+50 AND STATION 946+50
INSTALL 20" PW, WATER LINE CLASS 150
INSTALL 4 LF 12" SEWER STUBOUT-PLUGGED ON -1.0% GRADE INTO MH MATCH CROWNS
INSTALL 4 LF 15" SEWER STUBOUT-PLUGGED ON -2.24% GRADE INTO MH MATCH CROWNS
APPROXIMATE LOCATION FUTURE 6 BARREL 12'X6' CONCRETE BOX CULVERT
P.O.T. STA. 899+35.54 TCR
N 26757.000 E 52394.230
FOUND 3/4" I.P., DOWN 0.5' W/ NAIL IN PLUG
INSTALL 15" SEWER LINE
PLAN
DWG 3
NOTE: LOCATION, WIDTH & ELEVATION OF EXISTING CONCRETE PAVEMENT, 6" THICK, UNDETERMINABLE. CONTRACTOR SHALL VERIFY LOCATION BEFORE TRENCHING & SAW-CUT STRAIGHT VERTICAL FACE.
TRACT NO. 11959
SEC. LINE
1/4 SEC. LINE
RECORD DRAWING
CAMP DRESSER & McKEE INC.
REGISTERED PROFESSIONAL ENGINEER
John Stephen Murk
No. 22403
Exp. 9-30-93
CIVIL
STATE OF CALIFORNIA
RECOMMENDED BY :
JSME R.C.E.
DATE: 8/27/91
APPROVED BY:
DISTRICT MANAGER
Lee Lake Water District
PHASE 1B CONSTRUCTION
LEE LAKE WATER DISTRICT
PLAN & PROFILE: TEMESCAL CANYON RD
WATER & SEWER LINES
STA. 899+15 TO STA. 908+00
JSME
john s. murk engineers, inc.
2770 El Camino Real
Carlsbad, CA. 92009-3506
(619) 942-2100
DESIGNED VJ
CHECKED RLV/JH
DRAWN VJ
AS BUILT
REVISIONS
SCALE AS SHOWN
SHEET NO. 3
OF 24 SHEETS
DWG. NO. 3



RECORD DRAWING

Date 12/11/92 By Kent A. [illegible]

CAMP DRESSER & McKEE INC.

NOTE: LOCATION, WIDTH & ELEVATION OF EXISTING CONCRETE PAVEMENT, 6" THICK, UNDETERMINABLE. CONTRACTOR SHALL VERIFY LOCATION BEFORE TRENCHING & SAW-CUT STRAIGHT VERTICAL FACE.

REGISTERED PROFESSIONAL ENGINEER — John Stephen Murk — No. 22403 — Exp. 9-30-93 — CIVIL — STATE OF CALIFORNIA

RECOMMENDED BY: John S. Murk R.C.E. JSME DATE: 8/27/91

APPROVED BY: Kent A. [illegible] DISTRICT MANAGER DATE: 10/1/91

Lee Lake Water District

PHASE 1B CONSTRUCTION

NO.	REVISIONS	INTIALS	DATE
1	AS BUILT	J.C.	10-1-92

DESIGNED VJ — CHECKED RLV/JH — DRAWN VJ — DATE

JSME john s. murk engineers, inc. 7770 El Camino Real Carlsbad, CA. 92009-2506 (619) 942-2100

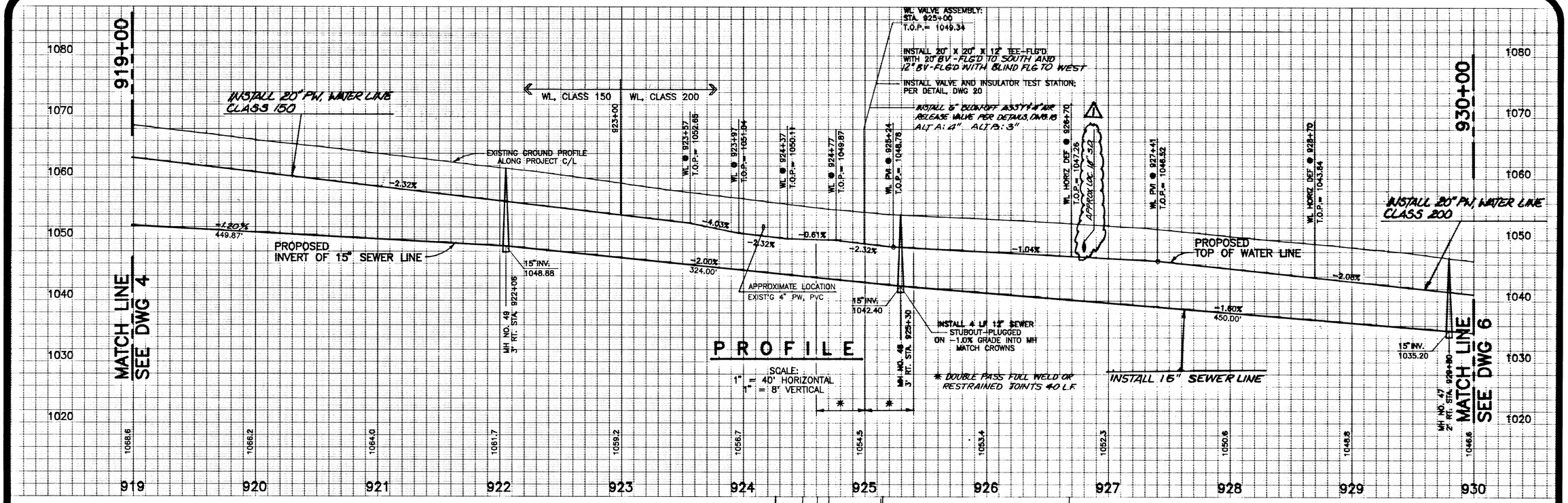
LEE LAKE WATER DISTRICT

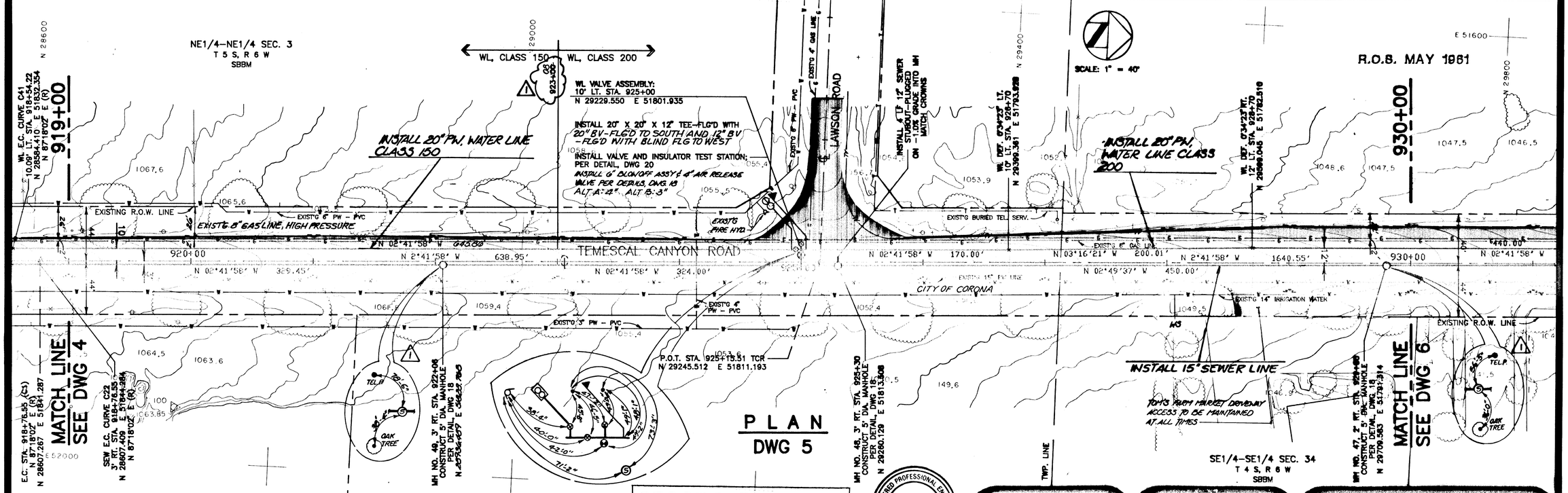
PLAN & PROFILE: TEMESCAL CANYON RD. WATER & SEWER LINES STA. 908+00 TO 919+00

SCALE AS SHOWN

SHEET NO. 4 OF 24 SHEETS

DWG. NO. 4





RECORD DRAWING
Date: 12/11/92 By: Keith A. Pol
CAMP DRESSER & McKEE INC.

REGISTERED PROFESSIONAL ENGINEER — John Stephen Murk No. 22403 Exp. 9-30-93 CIVIL — STATE OF CALIFORNIA

RECOMMENDED BY: John S. Murk JSME R.C.E. DATE: 8/27/91

APPROVED BY: for DISTRICT MANAGER DATE: 10/1/91

Lee Lake Water District
PHASE 1B CONSTRUCTION

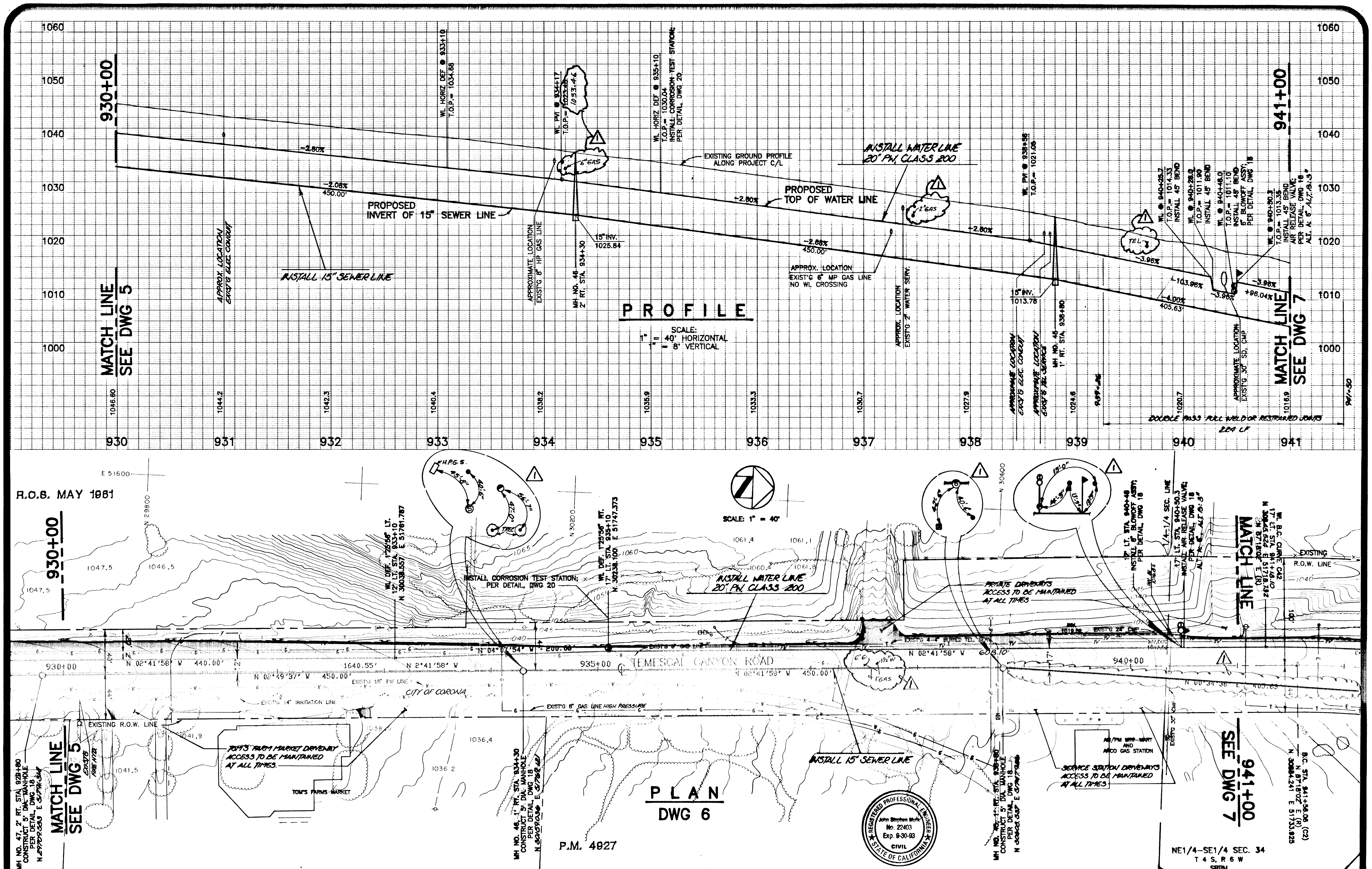
NO.	AS BUILT REVISIONS	INITALS	DATE
		J.C.	6-4-92

DESIGNED VJ
CHECKED KLV/JH
DRAWN VJ
DATE

JSME
John S. Murk engineers, inc.
7770 El Camino Real
Carlsbad, CA. 92009-8506
(619) 942-2100

LEE LAKE WATER DISTRICT
PLAN & PROFILE: TEMESCAL CANYON RD
WATER & SEWER LINES
STA. 919+00 TO STA. 930+00

SCALE AS SHOWN
SHEET NO. 5
OF 24 SHEETS
DWG. NO. 5



NOTE: LOCATION, WIDTH & ELEVATION OF EXISTING CONCRETE PAVEMENT, 6" THICK, UNDETERMINABLE. CONTRACTOR SHALL VERIFY LOCATION BEFORE TRENCHING & SAW-CUT STRAIGHT VERTICAL FACE.

RECORD DRAWING
Date: 12/11/92 By: Keith C. ...
CAMP DRESSER & McKEE INC.

REGISTERED PROFESSIONAL ENGINEER — John Stephen Murk — No. 22403 — Exp. 9-30-93 — CIVIL — STATE OF CALIFORNIA

RECOMMENDED BY: JSME R.C.E. DATE: 8/27/91

APPROVED BY: DISTRICT MANAGER DATE: 10/1/91

Lee Lake Water District
PHASE 1B CONSTRUCTION

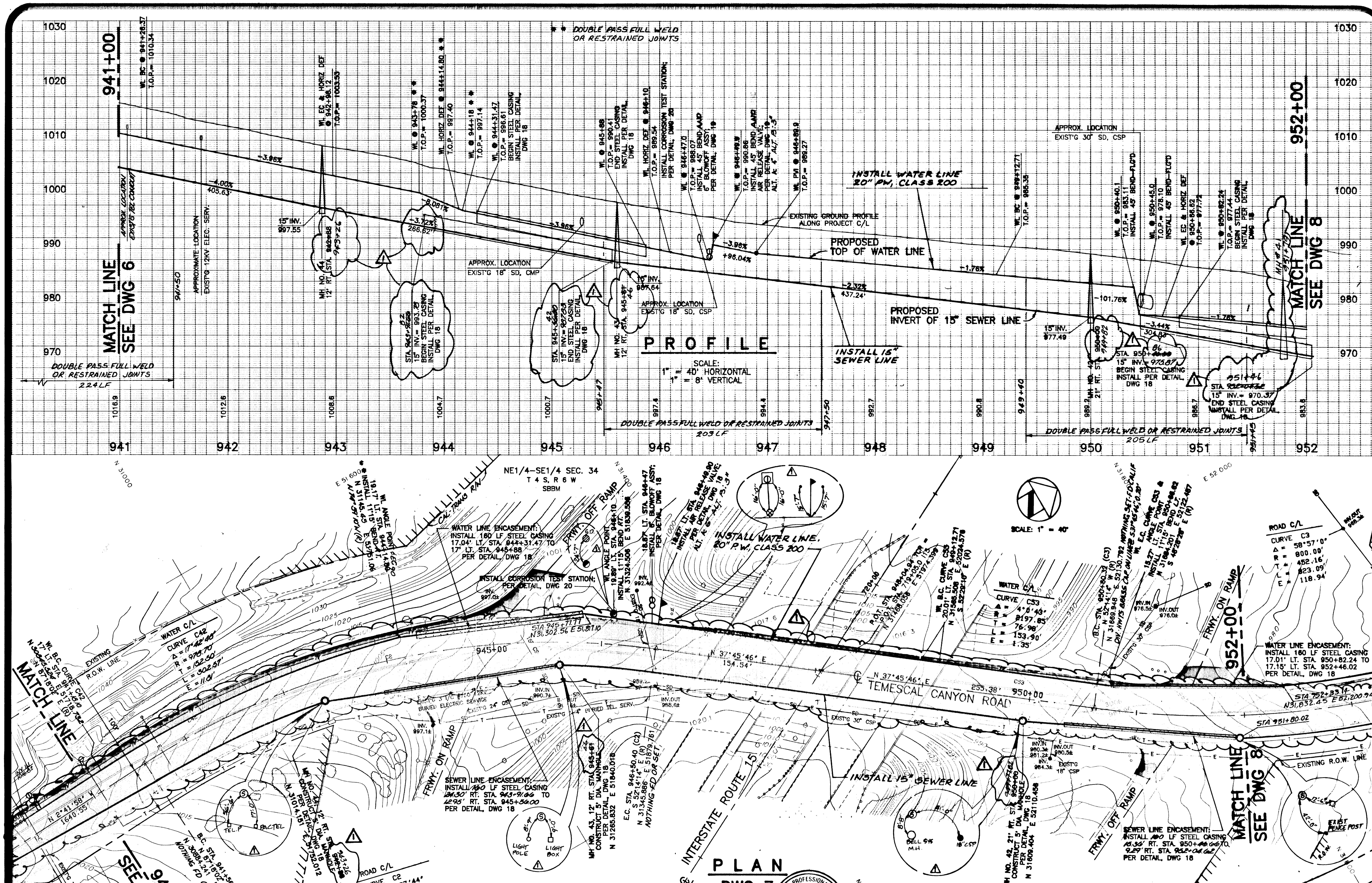
NO.	REVISIONS	INITIALS	DATE
1	AS BUILT	J.C.	12-12-92

DESIGNED JV
CHECKED RLV/JH
DRAWN JV
DATE

JSME
john s. murk engineers, inc.
2270 El Camino Real
Carlsbad, CA. 92008-2506
(619) 942-2100

LEE LAKE WATER DISTRICT
PLAN & PROFILE: TEMESCAL CANYON RD
WATER & SEWER LINES
STA. 930+00 TO STA. 941+00

SCALE AS SHOWN
SHEET NO. 6 OF 24 SHEETS
DWG. NO. 6



RECORD DRAWING
Date: 12/11/92 By: Keith C. Ohl
CAMP DRESSER & McKEE INC.

REGISTERED PROFESSIONAL ENGINEER
John Stephen Murk
No. 22403
Exp. 9-30-93
CIVIL
STATE OF CALIFORNIA

RECOMMENDED BY: John S. Murk
JSME R.C.E.
DATE: 8/27/91

APPROVED BY: Keith C. Ohl
for DISTRICT MANAGER
DATE: 10/1/91

Lee Lake Water District

PHASE 1B CONSTRUCTION

NO.	REVISIONS	INITALS	DATE
△	AS-BUILT	RJ	10-12-92

DESIGNED VJ
CHECKED RL/VJ/JH
DRAWN VJ
DATE

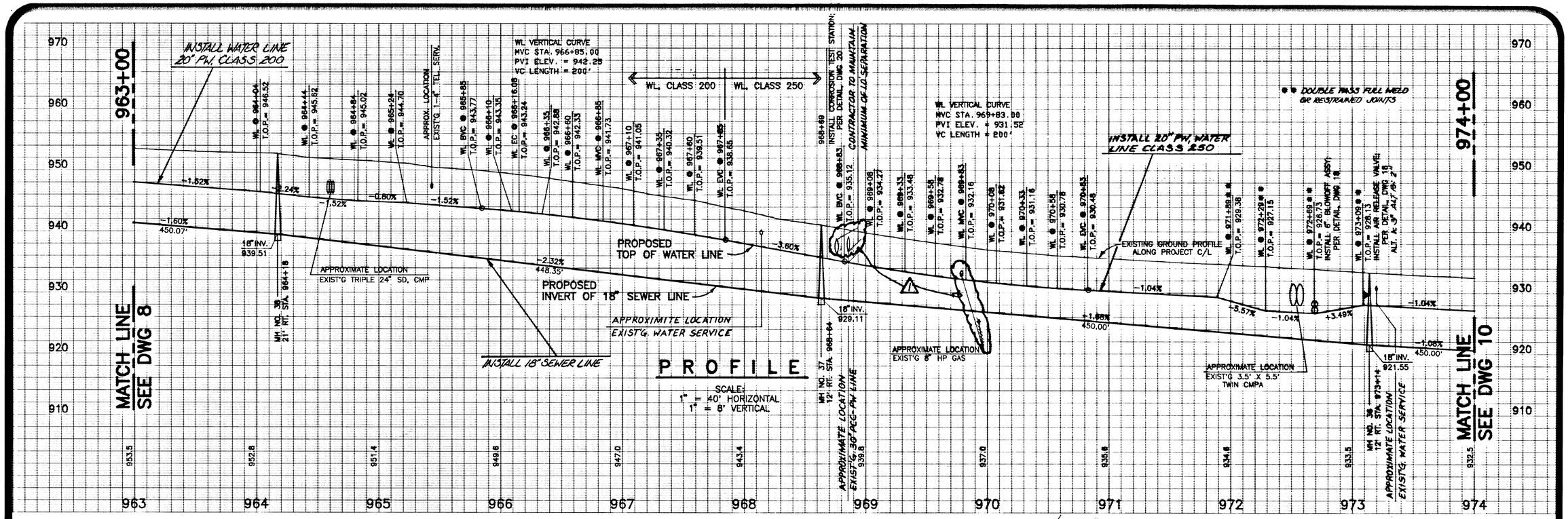
JSME
john s. murk engineers, inc.
2770 El Camino Real
Carlsbad, CA. 92009-2506
(619) 942-2100

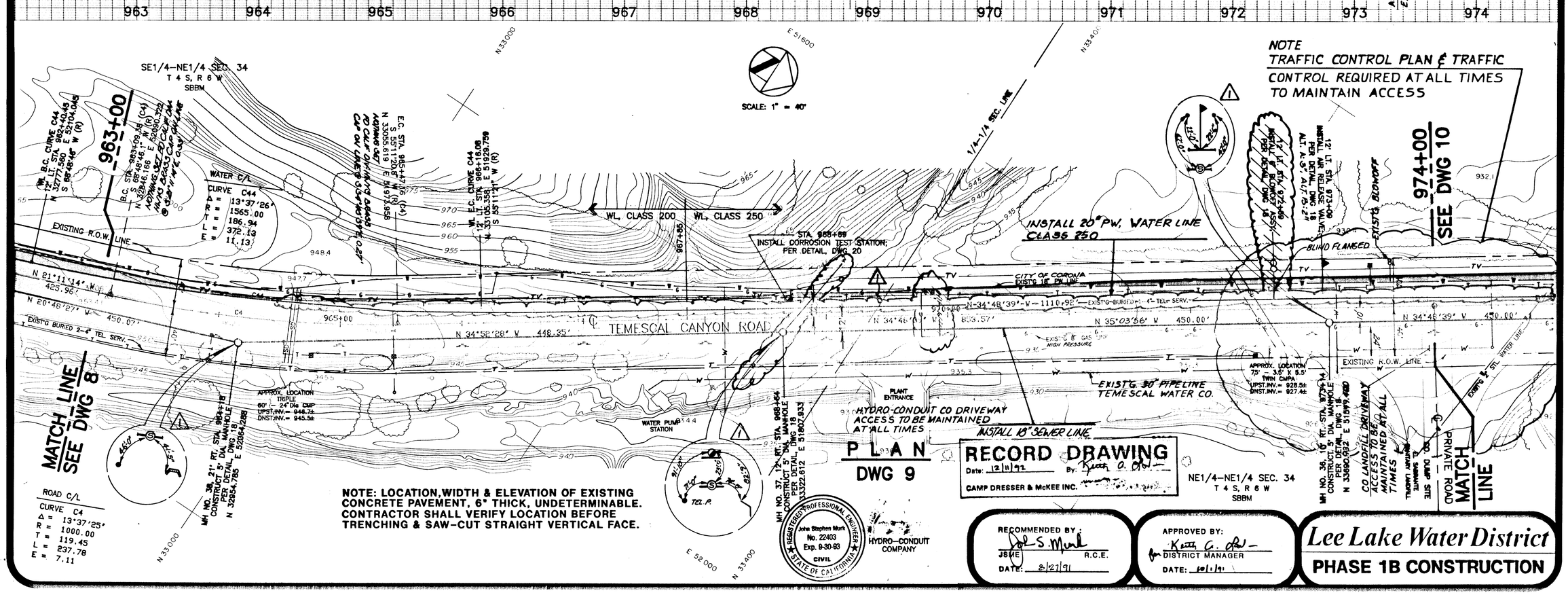
LEE LAKE WATER DISTRICT

PLAN & PROFILE: TEMESCAL CANYON RD
WATER & SEWER LINES
STA. 941+00 TO STA. 952+00

SCALE AS SHOWN
SHEET NO. 7 OF 24 SHEETS
DWG. NO. 7

PROFILE
SCALE: 1" = 40' HORIZONTAL 1" = 8' VERTICAL
WL VERTICAL CURVE
MVC STA. 953+11.00
PVI ELEV. = 973.42
VC LENGTH = 100'
WL VERTICAL CURVE
MVC STA. 956+68.00
PVI ELEV. = 957.71
VC LENGTH = 200'
WL VALVE INSTALLATION: STA. 957+18
T.O.P.= 957.13
INSTALL 20" BV-FLGD., 6" BLOWOFF ASSY & AIR RELEASE VALVE-4" PER DETAILS DWG 18
ALT. A: 4", ALT. B: 2"
INSTALL VALVE & INSULATOR TEST STATION PER DETAIL DWG 20
DOUBLE PASS FULL WELD OR RESTRAINED JOINTS
PROPOSED TOP OF WATER LINE
EXISTING GROUND PROFILE ALONG PROJECT C/L
INSTALL WATER LINE 20" PW, CLASS 200
PROPOSED INVERT OF 15" SEWER LINE
PROPOSED INVERT OF 18" SEWER LINE
INSTALL 15" SEWER LINE
INSTALL 18" SEWER LINE
APPROXIMATE LOCATION EXIST'G 8" HP GAS LINE
DOUBLE PASS FULL WELD OR RESTRAINED JOINTS 231 LF
MATCH LINE SEE DWG 7
MATCH LINE SEE DWG 9
952+00
963+00
NOTE: LOCATION, WIDTH & ELEVATION OF EXISTING CONCRETE PAVEMENT, 6" THICK, UNDETERMINABLE. CONTRACTOR SHALL VERIFY LOCATION BEFORE TRENCHING & SAW-CUT STRAIGHT VERTICAL FACE
SCALE: 1" = 40'
SE1/4-NE1/4 SEC. 34 T 4 S, R 6 W SBBM
NE1/4-SE1/4 SEC. 34 T 4 S, R 6 W SBBM
WL VALVE INSTALLATION: 21.6' LT. STA. 957+18
N 32286.196 E 52266.428
INSTALL 20" BV-FLG'D
INSTALL VALVE AND INSULATOR TEST STATION: PER DETAIL, DWG 20
INSTALL 6" BLOWOFF ASSY & 4" AIR RELEASE VALVE PER DETAILS, DWG 18 ALT. A: 4", ALT. B: 2"
WATER C/L CURVE C43 Δ = 6°27'46" R = 2071.57' L = 116.96' T = 233.67' E = 3.30'
WATER C/L CURVE C44 Δ = 13°37'26" R = 1565.00' L = 186.94' T = 372.13' E = 11.13'
SEWER C/L CURVE C23 Δ = 16°15'14" R = 1200.00' T = 171.36' L = 340.42' E = 12.17'
SEWER C/L CURVE C24 Δ = 12°32'36" R = 1200.00' T = 131.88' L = 262.70' E = 7.22'
ROAD C/L CURVE C3 Δ = 58°57'0" R = 800.00' T = 452.16' L = 823.09' E = 118.94'
ROAD C/L CURVE C4 Δ = 13°37'25" R = 1000.00' T = 119.45' L = 237.78' E = 7.11'
TEMESCAL CANYON ROAD
FRWY. ON RAMP
PLAN DWG 8
RECORD DRAWING
CAMP DRESSER & McKEE INC.
RECOMMENDED BY: JSME R.C.E. DATE: 8/27/91
APPROVED BY: DISTRICT MANAGER DATE: 10/1/91
REGISTERED PROFESSIONAL ENGINEER John Stephen Murk No. 22403 Exp. 9-30-93 CIVIL STATE OF CALIFORNIA
Lee Lake Water District
PHASE 1B CONSTRUCTION
LEE LAKE WATER DISTRICT
PLAN & PROFILE: TEMESCAL CANYON RD
WATER & SEWER LINES
STA. 952+00 TO STA. 963+00
JSME john s. murk engineers, inc. 7770 El Camino Real Carlsbad, CA. 92009-8506 (619) 942-2100
DESIGNED VJ CHECKED RLY/JH DRAWN VJ
AS BUILT JC
SCALE AS SHOWN
SHEET NO. 8 OF 24 SHEETS
DWG. NO. 8





NO.	REVISIONS	INITIALS	DATE
1	AS BUILT	JC	10-12-92

DESIGNED JV
CHECKED RLV/JH
DRAWN JV
DATE

JSME
john s. mork engineers, inc.
2770 El Camino Real
Carlsbad, CA. 92009-8506
(619) 942-2100

LEE LAKE WATER DISTRICT

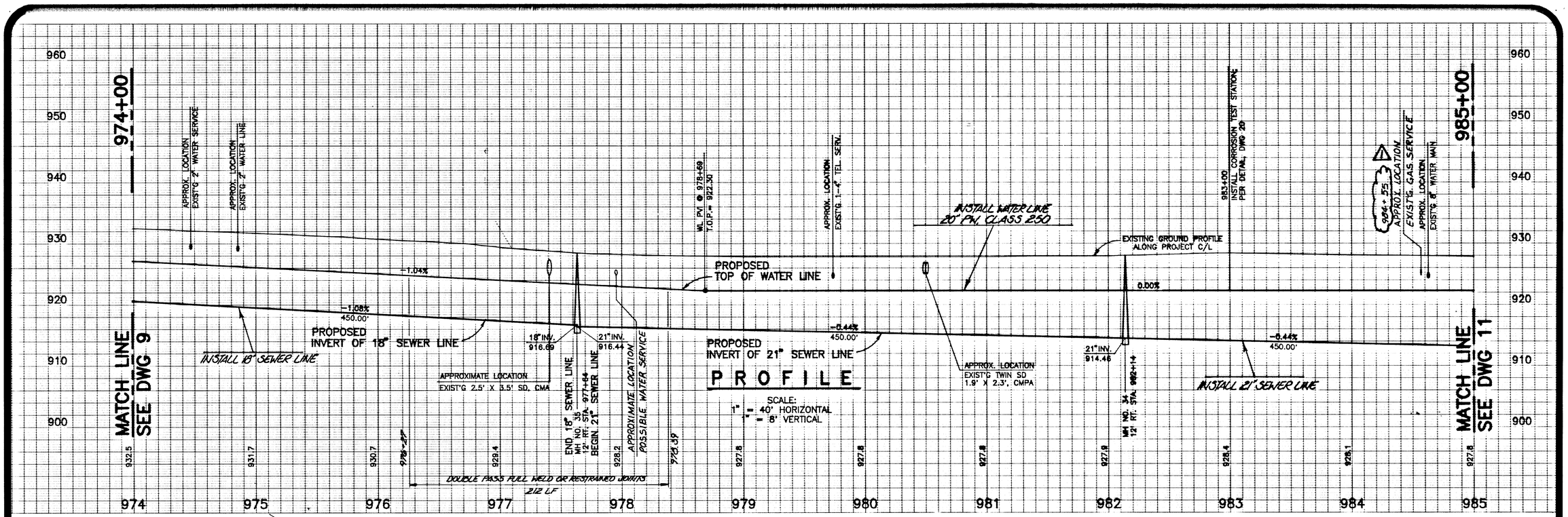
PLAN & PROFILE: TEMESCAL CANYON RD
WATER & SEWER LINES
STA. 963+00 TO STA. 974+00

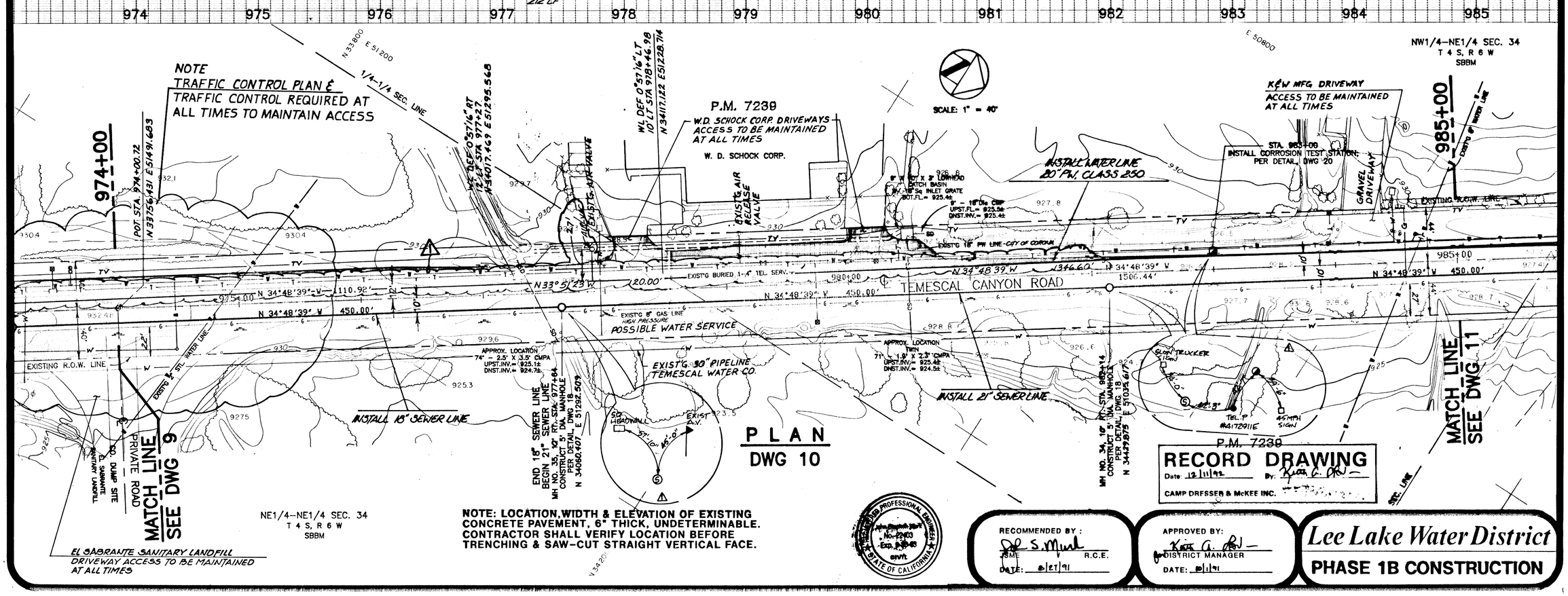
RECOMMENDED BY
JSME R.C.E.
DATE: 8/27/91

APPROVED BY:
for DISTRICT MANAGER
DATE: 10/1/91

Lee Lake Water District
PHASE 1B CONSTRUCTION

SCALE AS SHOWN
SHEET NO. 9
OF 24 SHEETS
DWG. NO. 9





PLAN
DWG 10

NOTE: LOCATION, WIDTH & ELEVATION OF EXISTING CONCRETE PAVEMENT, 6" THICK, UNDETERMINABLE. CONTRACTOR SHALL VERIFY LOCATION BEFORE TRENCHING & SAW-CUT STRAIGHT VERTICAL FACE.

RECOMMENDED BY: John S. Mark JSME R.C.E. DATE: 8/27/91

APPROVED BY: Kevin A. Orr DISTRICT MANAGER DATE: 8/1/91

Lee Lake Water District
PHASE 1B CONSTRUCTION

NO.	REVISIONS	INITIALS	DATE
1	AS-BUILT	EU	10-12-92

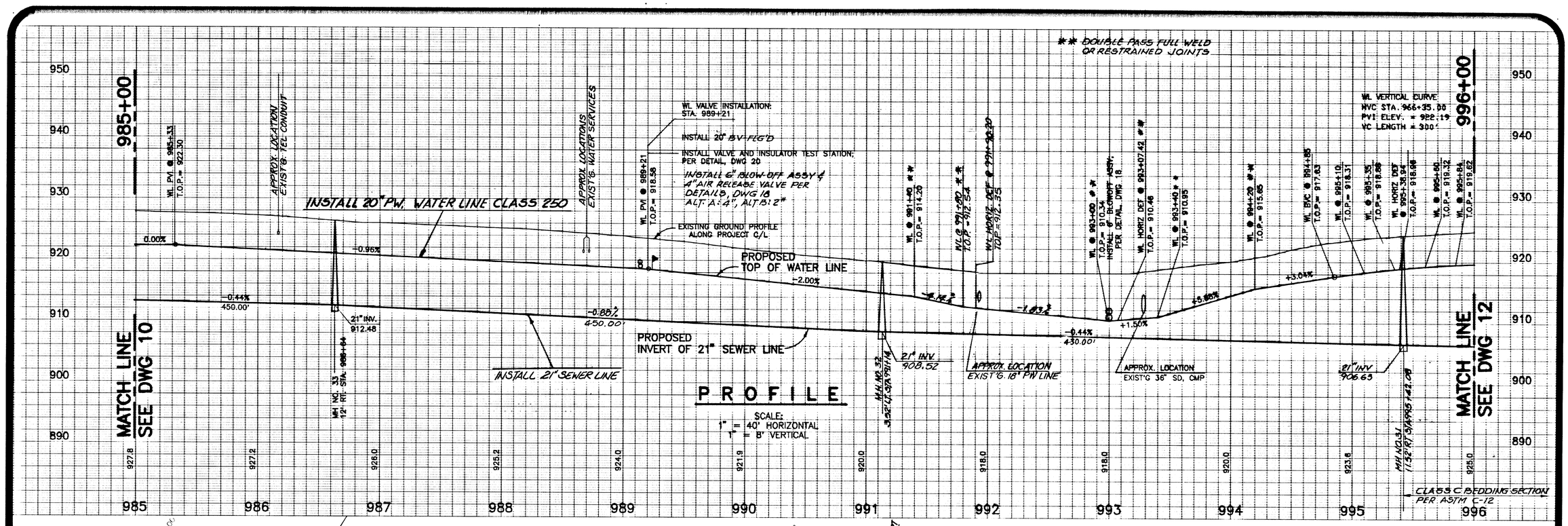
DESIGNED VU
CHECKED RV/JM
DRAWN VU
DATE

JSME
john s. mark engineers, inc.
7776 El Camino Real
Carlsbad, CA. 92009-8506
(619) 942-2100

LEE LAKE WATER DISTRICT

PLAN & PROFILE: TEMESCAL CANYON RD
WATER & SEWER LINES
STA. 974+00 TO STA. 985+00

SCALE AS SHOWN
SHEET NO. 10
OF 34 SHEETS
DWG. NO. 10



NO.	REVISIONS	INITIALS	DATE
1	AS BUILT	T.C.	10-12-92

DESIGNED JV
CHECKED RLV/JH
DRAWN JV
DATE

JSME
john s. mirk engineers, inc.
7776 El Camino Real
Carlsbad, CA. 92009-8506
(619) 942-2100

LEE LAKE WATER DISTRICT

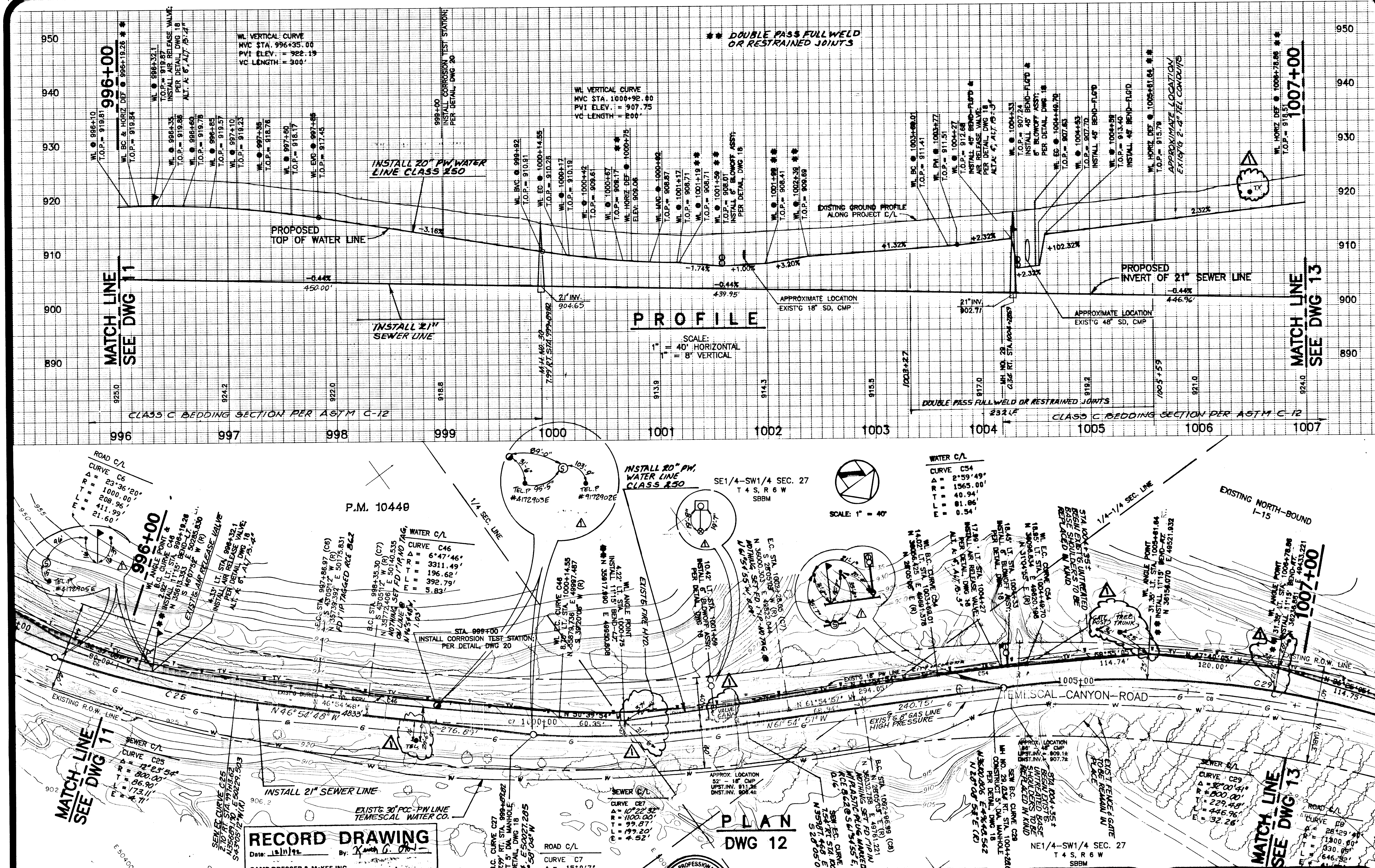
PLAN & PROFILE: TEMESCAL CANYON RD WATER & SEWER LINES STA. 985+00 TO STA. 996+00

RECOMMENDED BY: JSME R.C.E. DATE: 8/27/91

APPROVED BY: DISTRICT MANAGER DATE: 10/1/91

Lee Lake Water District
PHASE 1B CONSTRUCTION

SCALE AS SHOWN
SHEET NO. 11 OF 24 SHEETS
DWG. NO. 11



RECORD DRAWING

Date: 12/11/92 By: Keith A. [signature]

CAMP DRESSER & McKEE INC.

NOTE: LOCATION, WIDTH & ELEVATION OF EXISTING CONCRETE PAVEMENT, 6" THICK, UNDETERMINABLE. CONTRACTOR SHALL VERIFY LOCATION BEFORE TRENCHING & SAW-CUT STRAIGHT VERTICAL FACE.

REGISTERED PROFESSIONAL ENGINEER — John Stephen Murk — No. 22483 — Exp. 9-30-93 — CIVIL — STATE OF CALIFORNIA

RECOMMENDED BY: [signature] JSME R.C.E. DATE 8/27/91

APPROVED BY: [signature] DISTRICT MANAGER DATE: 10/1/91

Lee Lake Water District

PHASE 1B CONSTRUCTION

NO.	REVISIONS	INITIALS	DATE
1	AS-BUILT	RJ	10-12-92

DESIGNED JY
CHECKED RLY/JH
DRAWN JY
DATE

JSME
john s. murk engineers, inc.
7770 El Camino Real
Carlsbad, CA. 92009-2506
(619) 942-2100

LEE LAKE WATER DISTRICT

PLAN & PROFILE: TEMESCAL CANYON RD.
WATER & SEWER LINES
STA. 996+00 TO STA. 1007+00

SCALE AS SHOWN
SHEET NO. 12 OF 24 SHEETS
DWG. NO. 12

INSTALL 20" PW. WATER LINE CLASS 250
EXISTING GROUND PROFILE ALONG PROJECT C/L
PROPOSED TOP OF WATER LINE
PROPOSED INVERT OF 21" SEWER LINE
INSTALL 21" SEWER LINE
PROFILE
SCALE: 1" = 40' HORIZONTAL 1" = 8' VERTICAL
** DOUBLE PASS FULL WELD OR RESTRAINED JOINTS
CLASS C BEDDING SECTION PER ASTM C-12
WL VALVE INSTALLATION: STA. 1013+04 T.O.P.= 925.42
INSTALL 20" X 20" X 12" TEE-FLG'D WITH 12" BV-FLG'D WITH BLIND FLG TO EAST
INSTALL VALVE AND INSULATOR TEST STATION; PER DETAIL, DWG 20
MATCH LINE SEE DWG 12
MATCH LINE SEE DWG 14
1007+00
1018+00
NOTE: LOCATION, WIDTH & ELEVATION OF EXISTING CONCRETE PAVEMENT, 6" THICK, UNDETERMINABLE. CONTRACTOR SHALL VERIFY LOCATION BEFORE TRENCHING & SAW-CUT STRAIGHT VERTICAL FACE.
INSTALL 20" PW. WATERLINE CLASS 250
EXISTING NORTH-BOUND INTERSTATE ROUTE 15
INSTALL CORROSION TEST STATION; PER DETAIL, DWG 20
TEMESCAL CANYON ROAD
EXIST'G 30" PCC LINE TEMESCAL WATER CO.
SEWER EASEMENT C/L
PROPOSED FUTURE WL C/L
INSTALL 21" SEWER LINE
PLAN
DWG 13
SEE DWG 17
NE1/4-SW1/4 SEC. 27 T 4 S, R 6 W SBBM
RECORD DRAWING
CAMP DRESSER & McKEE INC.
RECOMMENDED BY: JSME R.C.E. DATE: 8/27/91
APPROVED BY: DISTRICT MANAGER DATE: 10/1/91
Lee Lake Water District
PHASE 1B CONSTRUCTION
JSME john s. murk engineers, inc. 770 El Camino Real Carlsbad, CA. 92008-2506 (619) 942-2100
LEE LAKE WATER DISTRICT
PLAN & PROFILE: TEMESCAL CANYON RD. WATER & SEWER LINES STA. 1007+00 TO STA. 1018+00
AS BUILT J.C. 10/2/92
DESIGNED JY CHECKED RLV/JH DRAWN JY
SCALE AS SHOWN
SHEET NO. 13 OF 24 SHEETS
DWG. NO. 13

970 960 950 940 930 920 910

1018+00

MATCH LINE SEE DWG 13

1019+00 INSTALL CORROSION TEST STATION; PER DETAIL, DWG 20

WL PVI @ 1019+35.00 T.O.P.= 928.43 INSTALL AIR RELEASE VALVE; PER DETAIL, DWG 18 ALT. A; 3"; ALT. B; 2"

EXISTING GROUND PROFILE ALONG PROJECT C/L

+0.40% −0.96% −0.96%

INSTALL 20" PW, WATER LINE CLASS 250

PROPOSED TOP OF WATER LINE

NOT A PART OF THIS CONTRACT

WL VALVE INSTALLATION: STA. 1020+67.38 T.O.P.= 928.16 (20")

ALTERNATE A: INSTALL 20" X 20" X 12" TEE-FLG'D WITH 12" PLUG VALVE-FLG'D TO NE

INSTALL VALVE AND INSULATOR TEST STATION; PER DETAIL, DWG 20

INSTALL 20" PLUG VALVE - FLG'D. TO BE WITH BLD FLG.

WL VERTICAL CURVE MVC STA. 1023+31.00 PVI ELEV. = 925.69 VC LENGTH = 200'

WL BVC @ 1022+31 T.O.P.= 926.59

WL @ 1022+56 T.O.P.= 926.38

WL @ 1022+81 T.O.P.= 926.24

WL @ 1023+06 T.O.P.= 926.16

WL @ 1023+23.31 T.O.P.= 926.15 INSTALL 6" BLOWOFF ASSY; PER DETAIL, DWG 18

WL MVC @ 1023+31 T.O.P.= 926.15

WL @ 1023+56 T.O.P.= 926.20

WL @ 1023+81 T.O.P.= 926.32

WL @ 1024+06 T.O.P.= 926.50

WL EVC @ 1024+31 T.O.P.= 926.75

WL EVC @ 1024+06.38 T.O.P.= 926.52

WL VALVE INSTALLATION: STA. 1025+95.54 T.O.P.= 928.59

ALTERNATE A: INSTALL 20" X 20" X 12" TEE-FLG'D WITH 12" PLUG VALVE-FLG'D AND BLIND FLG TO EAST

INSTALL VALVE AND INSULATOR TEST STATION; PER DETAIL, DWG 20

WL EC @ 1026+85.54 T.O.P.= 926.38

WL @ 1027+38 T.O.P.= 930.15 INSTALL AIR RELEASE VALVE; PER DETAIL, DWG 18 ALT. A; 4"

WL @ 1028+11.5 T.O.P.= 928.86

+1.12% −2.00% −0.28%

FURNISH AND INSTALL WATER LINE ALTERNATE A: 20" PW, CLASS 250

APPROXIMATE LOCATION EXIST'G. 30" WATER MAIN

APPROX. LOCATION EXIST'G. 12" WATER MAIN

APPROXIMATE LOCATION EXIST'G. 24" WATER MAIN

APPROX. LOCATION EXIST'G 8" WATER MAIN

1029+00 INSTALL CORROSION TEST STATION; PER DETAIL, DWG 20

MATCH LINE SEE DWG 2

934.4 934.8 934.3 932.4 931.4 931.8 933.0 933.8 935.3 936.1 935.2

160' DOUBLE PASS FULL WELD OR RESTRAINED JOINTS

160' DOUBLE PASS FULL WELD OR RESTRAINED JOINTS

* 40' MINIMUM - DOUBLE PASS FULL WELD OR RESTRAINED JOINTS

1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029

PROFILE

SCALE: 1" = 40' HORIZONTAL 1" = 8' VERTICAL

REMOVE EXIST'G. BLIND FLG.

CONNECT TO EXIST'G 20" BV-FLG WITH 4' SPOOL & 10" BUTTSTRAP WITH HANDHOLE (FULL WELD DOUBLE PASS). SEE DETAIL DWG 19 CONNECTION SHALL NOT BE MADE UNTIL AFTER THE COMPLETION OF ALL TESTING AND EXIST'G TEST STATION WIRES SHALL BE CONNECTED TO NEW PIPE PER CORROSION DETAILS, DWG 20

1/4-1/4 SEC. LINE

NW1/4-SW1/4 SEC. 27 T 4 S, R 6 W SBBM

FENCE P TEL P # 104263H

12" LT. STA. 1019+35 INSTALL AIR RELEASE VALVE; PER DETAIL, DWG 18 ALT. A; 3", ALT B; 2"

STA. 1019+00 INSTALL CORROSION TEST STATION; PER DETAIL, DWG 20

NOTE: AV CONCRETE BASE ENCROACHES 12" IN TO CALTRANS R/W

EXISTING NORTH-BOUND INTERSTATE ROUTE 15

FURNISH AND INSTALL WATER LINE ALTERNATE A: 20" PW, CLASS 250

P.O.T. STA. 1020+80.28 TCR = P.I. STA. TO+00.0 EASEMENT N 37412.467 E 48662.075

12" LT. STA. 1023+23.3 INSTALL 6" BLOWOFF ASSY; PER DETAIL, DWG 18

WL B.C. CURVE C49 12" LT. STA. 1024+08.74 N 37680.009 E 48471.147 N 56°34'45" E (R)

WATER C/L

CURVE C49
Δ = 5°8'9"
R = 2876.93
T = 129.03
L = 257.88
E = 2.89

SCALE: 1" = 40'

WL VALVE INSTALLATION: 12" LT. STA. 1025+95.54 N 37839.877 E 48372.979

ALTERNATE A: INSTALL 20" X 20" X 12" TEE-FLG'D WITH 12" PLUG VALVE-FLG'D AND BLIND FLG TO NE

INSTALL VALVE AND INSULATOR TEST STATION; PER DETAIL, DWG 20

WL E.C. CURVE C49 12" LT. STA. 1026+85.54 N 37901.320 E 48538.842 N 61°42'54" E (R)

SW1/4-NW1/4 SEC. 27 T 4 S, R 6 W SBBM

STA. 1029+00 INSTALL CORROSION TEST STATION; PER DETAIL, DWG 20

1029+00

EXISTING 12" WATER LINE

12" LT. STA. 1027+38 INSTALL AIR RELEASE VALVE; PER DETAIL, DWG 18 ALT. A; 4"

EXISTING 8" WATER LINE

EXISTING R.O.W. LINE

TEMESCAL CANYON ROAD

N 33°25'15" W 763.28' 1020+00 N 33°25'15" W 763.28' 1021+00 N 33°25'15" W 328.46' 1025+00 C49 C5 N 28°17'6" W 400.00'

EXIST'G 6" GAS LINE EXIST'G 18" PW LINE EXIST'G 8" GAS LINE EXIST'G 30" PCC WATER LINE

INSTALL 20" WATER LINE CLASS 250

EXISTING R.O.W. LINE

MATCH LINE SEE DWG 13

WL VALVE INSTALLATION: 12" LT. STA. 1020+67.28 N 37395.007 E 48659.320

ALTERNATE A: INSTALL 20" X 20" X 12" TEE-FLG'D AND 20" PLUG VALVE-FLG'D WITH BLIND FLG TO SE AND 12" PLUG VALVE-FLG'D TO NE

INSTALL VALVE AND INSULATOR TEST STATION; PER DETAIL, DWG 20

NOTE: LOCATION, WIDTH & ELEVATION OF EXISTING CONCRETE PAVEMENT, 6" THICK, UNDETERMINABLE. CONTRACTOR SHALL VERIFY LOCATION BEFORE TRENCHING & SAW-CUT STRAIGHT VERTICAL FACE.

1/4 SEC. LINE

ORCHARD

INSTALL AIR RELEASE VALVE; PER DETAIL TEMESCAL WATER CO. STD DWG. #12 ADJ. & DNST. 12" VALVE ALT. A; 2"

B.C. STA. 10+94.86 (C13) N 33°25'15" W (R) N 37464.714 E 48741.249

30' EASEMENT

NOT A PART OF THIS CONTRACT

WL B.C. CURVE C51 13' RT. STA. 10+94.86 N 37453.864 E 48748.410

SEE DWG 3

SE1/4-NW1/4 SEC. 27 T 4 S, R 6 W SBBM

PLAN

B.C. STA. 1024+08.74 (C9) N 56°34'45" E (R) N 37686.618 E 48481.163 FD. NOTHING -1"D W/PLASTIC PLUG MARKED ACE #186 SET @ N56°34'45"E. 8.00'

ROAD C/L

CURVE C9
Δ = 5°8'9"
R = 2864.93
T = 128.49
L = 256.80
E = 2.88

P.O.C. STA. 1026+08.54 TCR N 37857.081 E 48377.019

PROPOSED FUTURE WL C/L

FUTURE STREET C/L

E.C. STA. 1026+85.54 (C9) N 37901.320 E 48538.842 N 61°42'54" E (R) FD. NOTHING -1"D W/PLASTIC PLUG MARKED ACE #186 SET @ N61°42'54"E. 8.00'

RECORD DRAWING Date 12/11/92 By: Kevin A. Hall CAMP DRESSER & McKEE INC.

MATCH LINE SEE DWG 2

REGISTERED PROFESSIONAL ENGINEER John Stephen Mark No. 22403 Exp. 9-30-93 CIVIL STATE OF CALIFORNIA

RECOMMENDED BY: JSME R.C.E. DATE: 5/27/91

APPROVED BY: for DISTRICT MANAGER DATE: 10/1/91

Lee Lake Water District

PHASE 1B CONSTRUCTION

NO.	REVISIONS	INITALS	DATE
1	AS BUILT	JC	10-92

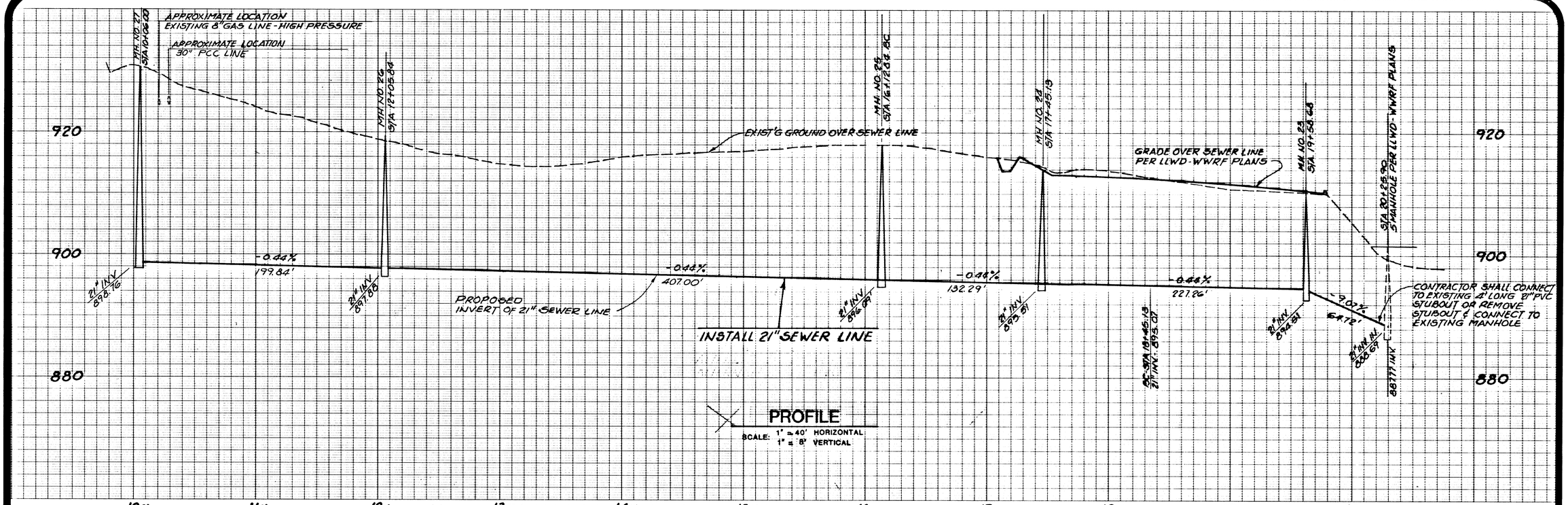
DESIGNED VJ
CHECKED RLV
DRAWN VJ
DATE 01-10-91

JSME
john s. mark engineers, inc.
7770 El Camino Real
Carlsbad, CA. 92009-8506
(619) 942-2100

LEE LAKE WATER DISTRICT

PLAN & PROFILE
TEMESCAL CANYON ROAD WATER LINE
STA 1018+00 TO STA 1020+67.28

SCALE AS SHOWN
SHEET NO. 14
OF 24 SHEETS
DWG. NO. 14



NO.	REVISIONS	INITALS	DATE

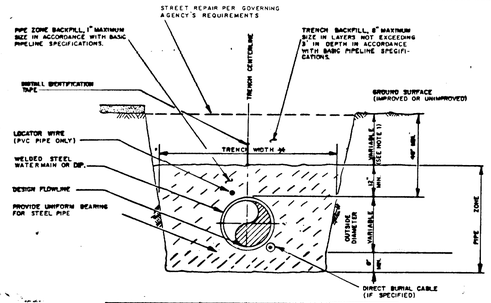
DESIGNED RJE/RJC
CHECKED RLV
DRAWN RJC
DATE 7-24-91

JSME
john s. munk engineers, inc.
7770 El Camino Real
Carlsbad, CA. 92009-8506
(619) 942-2100

LEE LAKE WATER DISTRICT

PLAN & PROFILE
21" SEWER TRUNK LINE
STA. 10+06 TO STA. 20+39.61

SCALE AS NOTED
SHEET NO. 17
OF 24 SHEETS
DWG. NO. 17



PIPE DIAMETER (INCHES)	TRENCH WIDTH * MINIMUM (FEET)	MAXIMUM (FEET)
12 OR LESS	2.0	2.5
14 THRU 18	2.5	3.5
20 THRU 27	3.0	4.0
30 THRU 36	4.0	5.0
39 THRU 42	4.5	5.5

* AT TOP OF PIPE

NOTES:

1) TRENCH SIDES SHALL BE SLOPED OR SHORED IN ACCORDANCE WITH CAL-OSHA CONSTRUCTION SAFETY ORDERS FOR TRENCH DEPTHS 5' AND GREATER.

2) ALL EXISTING PAVEMENT SHALL BE SAW CUT PRIOR TO TRENCHING, AND WHERE TRENCH SIDES SLUFF AND PAVEMENT BREAKS AWAY, IT SHALL BE SAW CUT PRIOR TO PERMANENT PAVEMENT REPAIR.

3) WHERE BOTTOM OF EXCAVATION IS IN ROCK WHICH CANNOT BE EXCAVATED TO PROVIDE UNIFORM BEARING FOR THE PIPE, TRENCH SHALL BE OVEREXCAVATED 8" MINIMUM AND REFILLED WITH SELECT EXCAVATED MATERIAL OR IMPORTED BACKFILL MATERIAL COMPACTED TO 90% MINIMUM RELATIVE COMPACTION.

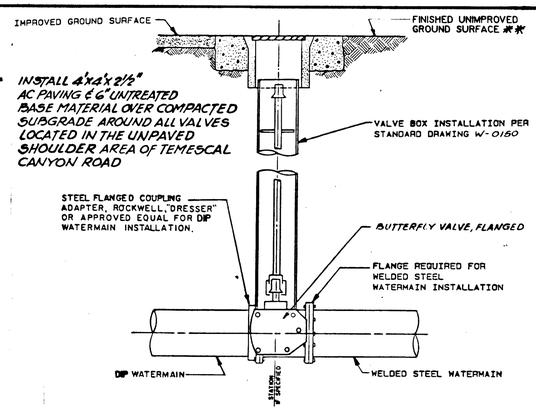
4) WHENEVER BOTTOM OF TRENCH IS INSUFFICIENTLY STABLE TO PROVIDE A SUITABLE FOUNDATION FOR THE PIPE, TRENCH SHALL BE OVEREXCAVATED AS SPECIFIED AND REFILLED WITH SELECT EXCAVATED MATERIAL OR IMPORTED BACKFILL MATERIAL COMPACTED TO 90% MINIMUM RELATIVE COMPACTION.

5) WHENEVER EXISTING UTILITY FACILITIES, EXCEPT SEWERS, ARE ENCOUNTERED, PIPELINES SHALL CLEAR "OEM BY 6" MINIMUM, BOTH HORIZONTALLY AND VERTICALLY, CONSISTENT WITH ABOVE PIPELINE REQUIREMENTS. PIPELINES SHALL CLEAR SEWERS IN ACCORDANCE WITH *CALIFORNIA WATER WORKS STANDARDS. SPECIFIED CLEARANCES OR SEPARATIONS SHALL NOT BE REDUCED UNLESS ORDERED OR PERMITTED BY OWNER. PIPELINES SHALL NOT BE IN CONTACT WITH OR REST AGAINST OTHER UTILITY FACILITIES.*

6) *THIS DETAIL BASICALLY CONFORMS TO STANDARD DRAWING W-1550*

TYPICAL TRENCH DETAIL

NOT TO SCALE



NOTES:

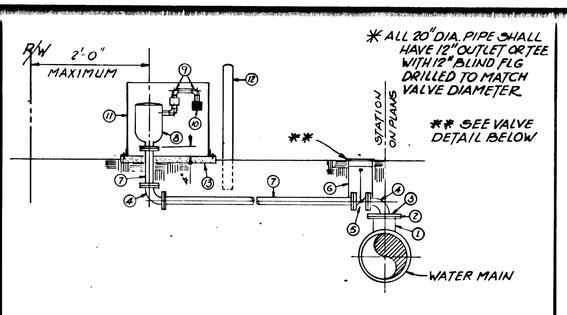
1) VALVE SHALL OPEN WITH COUNTERCLOCKWISE ROTATION OF OPERATING NUT.

2) BOLTS SHALL BE STANDARD SQUARE HEAD MACHINE PER ASTM A-307 WITH GRADE 'B' HEX NUTS, COLD-PRESS SEMI-FINISHED STEEL PER ASTM A-194, GRADE "2H". THREADS SHALL BE LUBRICATED WITH GRAPHITE AND OIL. AFTER INSTALLATION, ALL EXPOSED STEEL SHALL BE FIELD COATED WITH AN APPROVED BITUMASTIC.

3) VALVE SHALL BE LOCATED SO THAT OPERATOR AND OPERATING NUT ARE SITUATED ON STREET OR EASEMENT CENTERLINE SIDE OF VALVE.

VALVE INSTALLATION DETAIL

NOT TO SCALE



ITEM	NUMBER REQUIRED	DESCRIPTION
1*	1	12" STEEL OUTLET OR TEE
2	1	DIELECTRIC INSULATING FLG AND TEST STATION PER DETAIL, DRAWING NO. 20
3*	1	12" BLIND FLG DRILLED TO MATCH VALVE DIAMETER
4	2	STANDARD WEIGHT BLACK 90° STREET ELL FLG'D
5	1	BUTTERFLY VALVE FLANGED
6	1	VALVE BOX INSTALLATION PER STD DWG W-0212
7	VARIES	STANDARD WEIGHT BLACK NIPPLE
8	1	COMBINATION AIR VACUUM-AIR RELEASE VALVE APCO SERIES 1100A OR APPROVED EQUAL
9	3	STD. WEIGHT BLACK STL 90° STREET ELBOW
10	1	AIR VALVE SCREEN, 6" DIA MIN.
11	1	10 GA. WELDED STL PLATE AIR VAC ENCLOSURE
12	2	GUARD POSTS PER STD. DWG W-1520
13	1	4'X4'X6" CONC. SLAB W/6"G-W1.4XW1.4 WIRE MESH

NOTES:

1) PIPE THREADS SHALL BE CLEAN AND SHARP AND SEALED WITH APPROVED JOINT COMPOUND.

2) PIPE TO BE TAPE WRAPPED WITH "PROTECTO WRAP" #200A PLASTIC TAPE (40 MIL MINIMUM THICKNESS) WITH #1170 PRIMER LAPPED 60 PERCENT, OR APPROVED EQUAL.

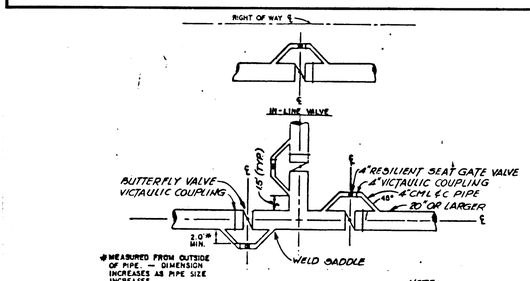
3) EXPOSED PIPING, AIR VALVE, AIR VALVE COVER, AND AIR VALVE SCREEN, EXCEPT WIRE CLOTH AND STAINLESS STEEL BANDS, SHALL BE PAINTED IN ACCORDANCE WITH THE BASIC PAINTING SPECIFICATIONS. THE FINAL TWO COATS SHALL BE SUNSET YELLOW (RUST-OLEUM)

4) *PIPING SHALL CLEAR EXISTING PIPING BY 12" MINIMUM OR AS APPROVED BY THE OWNER.*

5) PIPING, FITTINGS AND VALVES SHALL BE THE SAME DIAMETER AS THE AIR RELEASE VALVE SHOWN ON THE PLANS.

AIR RELEASE VALVE DETAIL

NOT TO SCALE

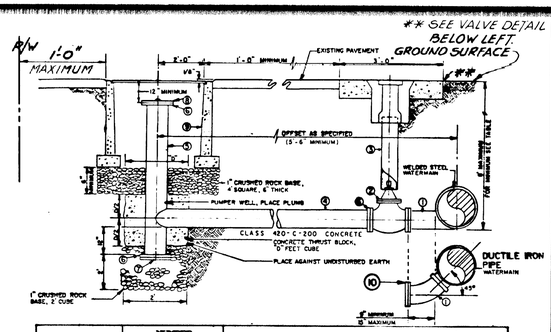


NOTES

1. BYPASS ASSEMBLY TO BE INSTALLED ON ALL VALVES 20" OR LARGER.
2. BYPASS ASSEMBLY TO BE LOCATED ON RIGHT SIDE OF MAIN WHEN FACING THE CROSS OR TEE.
3. EXCLUDING TEES AND CROSSES, BYPASS ASSEMBLY TO BE LOCATED TOWARDS RIGHTS OF WAY CENTER LINE ON ALL IN-LINE VALVES.
4. MAINLINE VALVE OPERATING NUT TO BE LOCATED ON SAME SIDE OF MAIN AS BYPASS ASSEMBLY.
5. BYPASS VALVE TO BE CENTERED ON MAINLINE VALVE.
6. BYPASS DETAIL TO BE SUBMITTED TO OWNER FOR APPROVAL PRIOR TO FABRICATION.

BYPASS VALVE DETAIL

NOT TO SCALE



ITEM	NUMBER REQUIRED	DESCRIPTION
1	1	FLANGED TANGENTIAL SIDE OUTLET ON WELDED STEEL WATERMAIN OR FLANGED CAST IRON TEE WITH FLANGED CAST IRON 45° ELL ON DIP WATERMAIN
2	1	FLANGED *GATE VALVE*
3	1	VALVE BOX INSTALLATION PER STANDARD DRAWING W-0212
4	VARIES	10 GAGE CEMENT MORTAR LINED AND CEMENT MORTAR COATED WELDED STEEL PIPE AND FITTINGS.
5	VARIES	10 GAGE CEMENT MORTAR LINED AND CEMENT MORTAR COATED WELDED STEEL PUMPER WELL.
6	2	AWWA CLASS D FLANGE.
7	1	AWWA CLASS D BLIND FLANGE WITH 3/8" DIAMETER WEEP HOLE.
8	1	AWWA CLASS D BLIND FLANGE WITH 1" SCREW TAP AND PLUG.
9	2	BLOWOFF VAULT PER STANDARD DRAWING W-0212
10	1	DIELECTRIC INSULATING FLG & TEST STATION SEE DETAIL, DWG. NO. 20

NOTES:

1) VARIABLE DIMENSIONS SHALL BE FIELD MEASURED BY CONTRACTOR AND APPROVED BY AGENCY PRIOR TO FABRICATION UNLESS SUFFICIENT DIMENSIONS ARE CONTAINED ON CONSTRUCTION DRAWINGS. FIELD JOINTS MAY BE FLANGED OR WELDED BUT SHALL NOT PERMANENTLY IMPAIR INTERIOR LINING OF PIPE.

2) IF WELDED STEEL WATERMAIN IS OTHER THAN CEMENT MORTAR LINED AND CEMENT MORTAR COATED, LINING AND COATING FOR BLOWOFF PIPE AND FITTINGS SHALL MATCH WELDED STEEL WATERMAIN UNLESS SPECIFIED OTHERWISE.

3) BOLTS SHALL BE STANDARD HEX HEAD MACHINE PER ASTM A-307 WITH GRADE "B" HEX NUTS, COL-PRESS SEMI-FINISHED STEEL PER ASTM 1-194, GRADE "2H". BURIED THREADS SHALL BE LUBRICATED WITH GRAPHITE AND OIL, THEN COATED WITH BITUMASTIC.

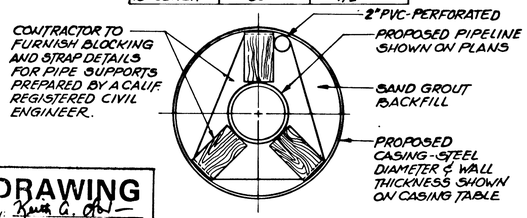
4) ALL EXPOSED PIPING AND INTERIOR OF VAULT COVER SHALL BE FIELD PAINTED IN ACCORDANCE WITH THE BASIC PAINTING SPECIFICATIONS. THE FINAL TWO COATS SHALL BE FEDERAL SAFETY BLUE (RUST-OLEUM).

5) *PIPING SHALL CLEAR EXISTING PIPING BY 12" MINIMUM OR AS APPROVED BY THE OWNER.*

6" BLOWOFF DETAIL

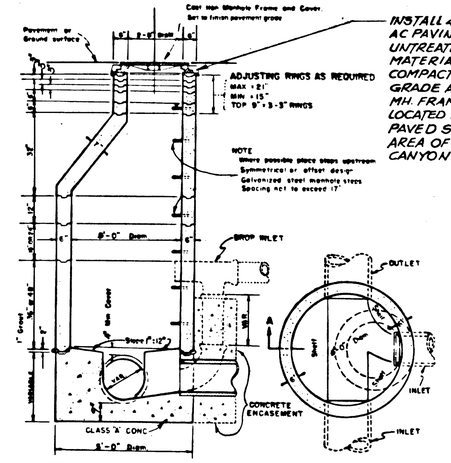
NOT TO SCALE

CASING TABLE		
PIPELINE	CASING DIAMETER	WALL THICKNESS
12" WATER	28"	1/2"
20" WATER	36"	1/2"
12" SEWER	28"	1/2"
15" SEWER	30"	1/2"



CASING DETAIL

NOT TO SCALE

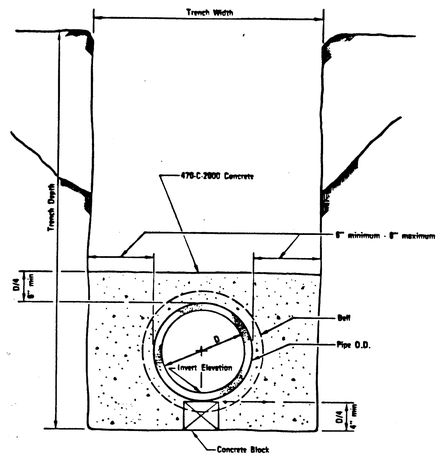


PLAN SECTION

SECTION A - A

PRE-CAST CONCRETE MANHOLE DETAIL

NOT TO SCALE



SECTION

NOTE:
Encase pipe to the nearest flexible joint.

CONCRETE ENCASEMENT DETAIL

NOT TO SCALE

RECORD DRAWING
Date: 12/11/92
By: Kurt A. Ohl
CAMP DRESSER & McKEE INC.

REGISTERED PROFESSIONAL ENGINEER — John Stephen Mark, No. 22403, Exp. 9-30-93, CIVIL — STATE OF CALIFORNIA

STANDARD DRAWING REFERENCES ARE TO WESTERN MUNICIPAL WATER DISTRICT "WATER AND SEWEREGE SYSTEM-DESIGN AND CONSTRUCTION MANUAL", FEBRUARY, 1990 EDITION, ADOPTED BY THE LEE LAKE BOARD OF DIRECTORS.

RECOMMENDED BY: John S. Mark
JSME R.C.E.
DATE: 8/27/91

APPROVED BY: Kurt A. Ohl
DISTRICT MANAGER
DATE: 10/1/91

Lee Lake Water District

PHASE 1B CONSTRUCTION

NO.	REVISIONS	INITIALS	DATE

DESIGNED R.C.V.
CHECKED K.H./M.F.
DRAWN P.A./J.D.
DATE

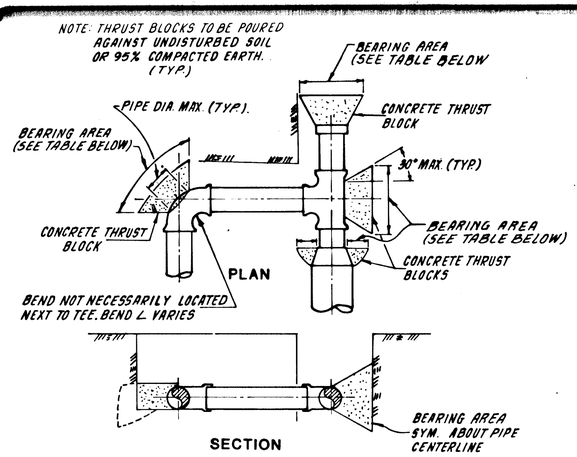
JSME
John S. mark engineers, inc.
7770 El Camino Real
Carlsbad, California 92009
(619) 942-2100

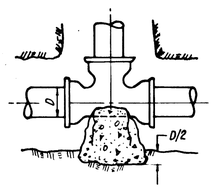
LEE LAKE WATER DISTRICT

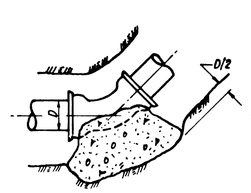
MISCELLANEOUS DETAILS I

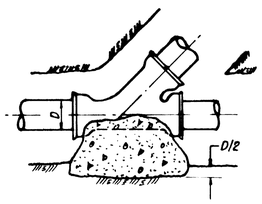
TEMESCAL CANYON ROAD WATER LINE

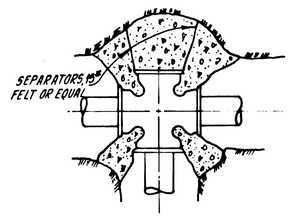
SCALE AS NOTED
SHEET NO. 18
OF 24 SHEETS
DWG. NO. 18

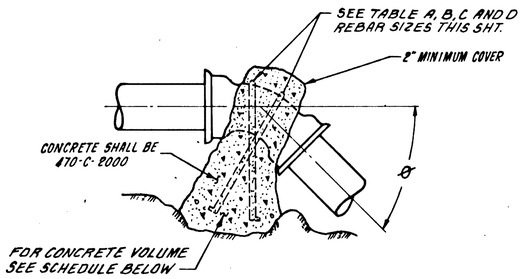


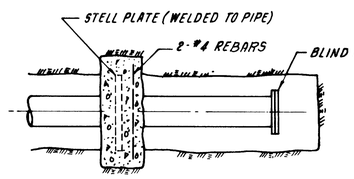


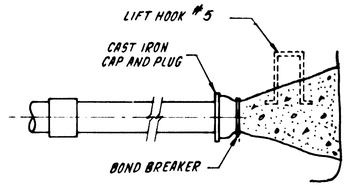












DEAD END BLOCKING

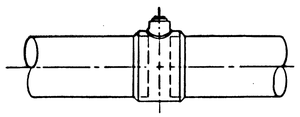
THRUST BLOCK DETAILS

NOT TO SCALE

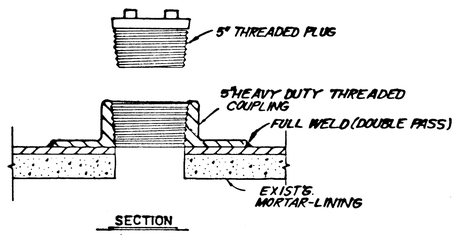
SCHEDULE OF THRUST BLOCKS

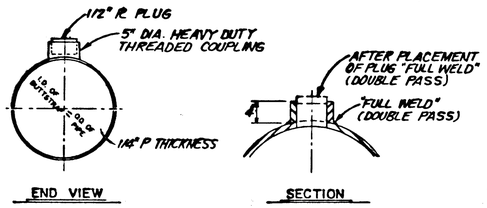
TEST PRESSURE (PSIG)	PIPE DIAMETER (INCHES)	TEE OR DEAD END	BEARING AREA (SQUARE FEET) ∅=11-1/4°	∅=22-1/2°	∅=45°	∅=90°	VERTICAL THRUST BLOCK VOLUME OF CONCRETE (CUBIC YARDS) ∅=22-1/2°	∅=45°
150	12	4	1	1	2	10	46	86
	14	5	1	1	3	14	63	117
	16	6	1	1	3	18	82	152
	18	8	1	1	4	23	104	193
	20	10	1	1	5	28	129	238
	24	14	1	2	8	40	185	343
	30	22	1	3	12	63	290	536
	36	32	1	5	17	91	417	771
200	12	5	1	1	3	13	62	114
	14	6	1	1	4	18	84	156
	16	8	1	1	5	24	110	203
	18	11	1	2	6	30	139	257
	20	13	1	2	7	34	172	317
	24	19	1	3	10	54	247	457
	30	30	1	4	16	84	386	714
	36	43	2	6	23	121	556	1028

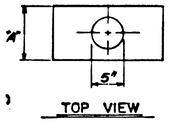
TEST PRESSURE (PSIG)	PIPE DIAMETER (INCHES)	TEE OR DEAD END	BEARING AREA (SQUARE FEET) ∅=11-1/4°	∅=22-1/2°	∅=45°	∅=90°	VERTICAL THRUST BLOCK VOLUME OF CONCRETE (CUBIC YARDS) ∅=22-1/2°	∅=45°
250	12	6	1	1	3	17	77	143
	14	8	1	1	4	23	105	194
	16	11	1	2	6	30	137	254
	18	13	1	2	7	38	174	321
	20	17	1	2	9	47	214	397
	24	24	1	4	13	67	309	571
	30	37	1	6	20	105	483	893
	36	53	2	8	29	151	696	1285
350	12	8	1	1	5	24	108	200
	14	11	1	2	6	32	147	272
	16	15	1	2	8	42	192	355
	18	19	1	3	10	53	243	450
	20	23	1	3	13	65	301	555
	24	33	1	5	18	94	433	800
	30	52	2	8	28	147	676	1250
	36	75	3	11	41	212	974	1799



NOTE:
1. I.D. OF BUTTSTRAP EQUALS O.D. OF PIPE







DIMENSIONS	
PIPE DIA	A
6"	6"
8"	6"
12"	8"
16"	8"
20"	10"
24"	10"
30"	12"
36"	12"

BUTTSTRAP WITH HANDHOLE DETAIL

NOT TO SCALE

RECORD DRAWING
Date: 12/18/92 By: Kevin C. Ahl
CAMP DRESSER & McKEE INC.

JOHN STEPHEN MARK No. 22403 Exp. 9-30-93 REGISTERED PROFESSIONAL ENGINEER CIVIL STATE OF CALIFORNIA

RECOMMENDED BY: JSME R.C.E.
DATE: 8/27/91

APPROVED BY: for DISTRICT MANAGER
DATE: 10/1/91

Lee Lake Water District
PHASE 1B CONSTRUCTION

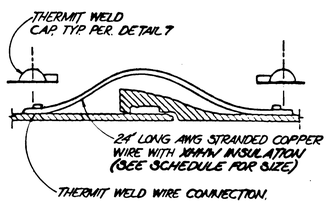
NO.	REVISIONS	INITIALS	DATE

DESIGNED T.C.
CHECKED K.H./M.T.
DRAWN P.A./J.D.
DATE

JSME
John S. Mark engineers, Inc.
7770 El Camino Real
Carlsbad, California 92009
(619) 942-2100

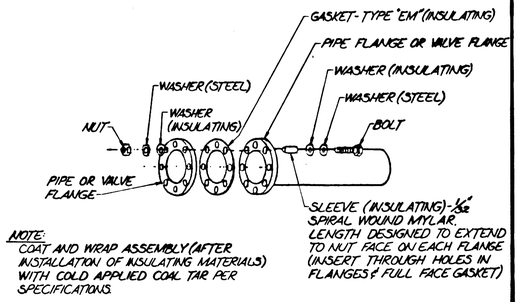
LEE LAKE WATER DISTRICT
MISCELLANEOUS DETAILS II
TEMESCAL CANYON ROAD WATER LINE

SCALE AS NOTED
SHEET NO. 19
OF 24 SHEETS
DWG. NO. 18



DUCTILE IRON PUSH-ON JOINT BOND DETAIL 1

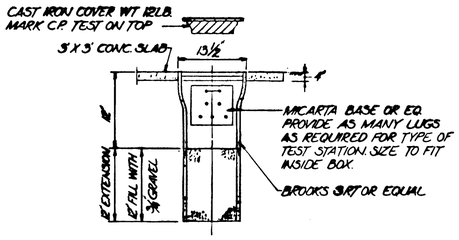
N.T.S.



NOTE:
COAT AND WRAP ASSEMBLY (AFTER INSTALLATION OF INSULATING MATERIALS) WITH COLD APPLIED COAL TAR PER SPECIFICATIONS.

INSULATING FLANGE DETAIL 2

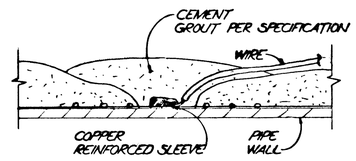
N.T.S.



TEST LEAD BOX DETAIL 3

N.T.S.

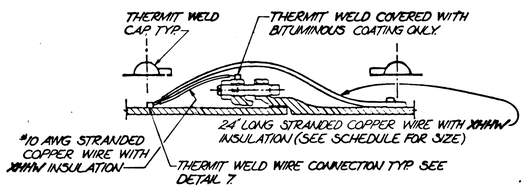
BOND CABLE SIZE SCHEDULE				
PIPE MATERIAL	PIPE I.D. (in)	JOINT LENGTH (ft)	MIN SIZE WIRE (AWG)	TOTAL BOND LENGTH (in)
Steel Class 150	20 20	20 40	6 8	24 24
Steel Class 200	20 20	20 40	4 8	24 24
Steel Class 250	20 20	20 40	4 6	24 24



CML & C THERMIT WELD DETAIL 4

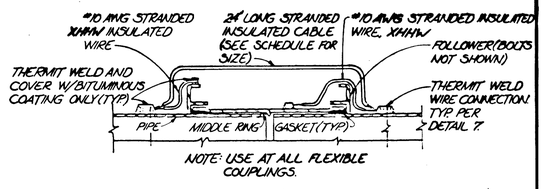
N.T.S.

NOTE: USE AT ALL BURIED DUCTILE IRON PIPE MECHANICAL JOINTS AT RESERVOIR SITE.



MECHANICAL JOINT BOND DETAIL 5

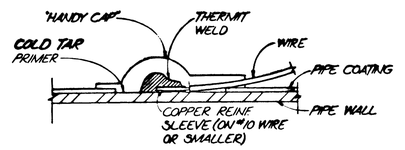
N.T.S.



NOTE: USE AT ALL FLEXIBLE COUPLINGS.

FLEXIBLE COUPLING BOND DETAIL 6

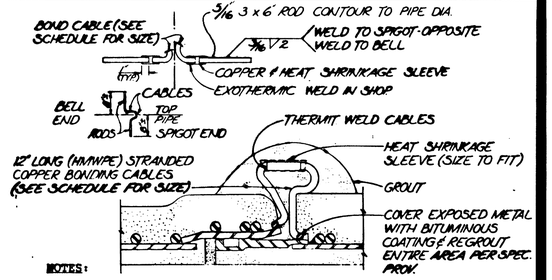
N.T.S.



NOTES:
1. COAT WELD CONNECTION WITH BITUMINOUS COATING PRIOR TO PLACING CAP OVER WELD.
2. FOLLOW THERMIT WELD MANUFACTURER'S RECOMMENDATIONS FOR WELDING PROCEDURES.

DUCTILE IRON THERMIT WELD DETAIL 7

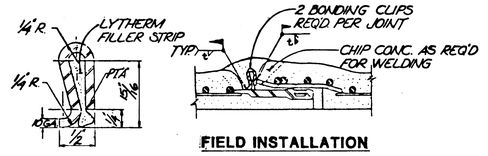
N.T.S.



NOTES:
1. TWO CABLES PER JOINT FOR ONE BOND ASSEMBLY.
2. SLIDE HEAT SHRINKAGE SLEEVE OVER WELD CONNECTION AND APPLY MODERATE HEAT.
3. FOLD CABLE ASSEMBLY IN JOINT SPACE AS SHOWN IN DETAIL.
4. FILL JOINT SPACE AND CABLE ASSEMBLY WITH GROUT.
5. ALTERNATIVE PIPE BOND. DETAIL 9 MAY BE SUBSTITUTED BY CONTRACTOR.

CONCRETE CYLINDER PIPE AND STEEL (CL & C) NON-WELDED JOINT BOND DETAIL 8

N.T.S.

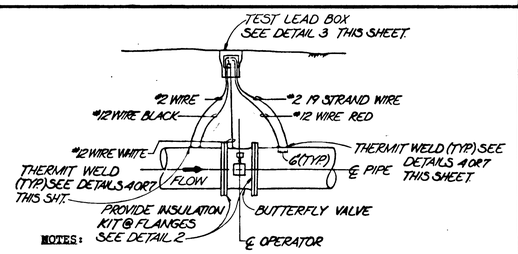


FIELD INSTALLATION

1. STEEL BONDING CLIP:
   MATERIAL SPECIFICATION....ASTM A366 (COMMERCIAL QUALITY)
   CUT LENGTH.....2 1/2 INCH ± 1/16 INCH
   WIDTH.....1 1/4 INCH ± 1/16 INCH
2. LYTHERM FILLER STRIP TO BE 1 INCH BY 1 1/2 INCH WIDE TO OVERLAP SIDES OF CLIP.
3. CRIMP THE STEEL JOINT BONDING CLIP OVER THE LYTHERM FILLER STRIP AT PT. "A" TO COMPRESS THE FILLER MATERIAL. CLOSE THE GAP AT PT. "A" AS MUCH AS POSSIBLE WITHOUT CUTTING THE LYTHERM FILLER STRIP.
4. IF THE LYTHERM FILLER STRIP IS CUT AT PT. "A" REMOVE THE ENTIRE STRIP AND REPLACE WITH A NEW LYTHERM FILLER STRIP PER THIS DETAIL.
5. INSTALL THE STEEL BONDING CLIPS ALONG THE TOP PORTION OF THE PIPE.

CARNEGIE JOINT M.L.C.P. OR S.C.C.P. DETAIL 9

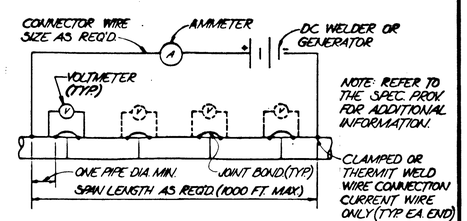
N.T.S.



NOTES:
1. LEAD WIRE COLOR AND PIPE STATION MUST BE RECORDED.
2. TEST LEADS SHALL NOT HAVE SPLICES.
3. PROVIDE THERMIT WELD CAPS AS SPECIFIED.
4. TYPE XHHW INSULATION ON ALL LEAD WIRES.

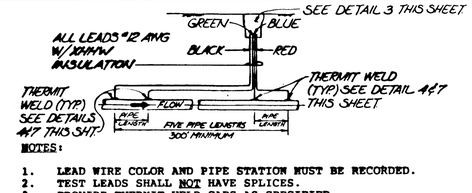
VALVE & INSULATOR TEST STATION DETAIL 10

N.T.S.



CONTINUITY TEST SCHEMATIC DETAIL 11

N.T.S.



NOTES:
1. LEAD WIRE COLOR AND PIPE STATION MUST BE RECORDED.
2. TEST LEADS SHALL NOT HAVE SPLICES.
3. PROVIDE THERMIT WELD CAPS AS SPECIFIED.

RECORD DRAWING
Date 12/10/92 By: Keith C. Moe
CAMP DRESSER & McKEE INC.

CORROSION TEST STATION DETAIL 12

N.T.S.

CORROSION PROTECTION NOTES

1. ALL BURIED STEEL PIPING SHALL BE CEMENT-MORTAR COATED.
2. NOT USED
3. ALL BURIED STEEL AND DUCTILE IRON PIPING SHALL BE BONDED AT JOINTS AND COUPLINGS PER THE DETAILS TO FORM AN ELECTRICALLY CONTINUOUS PIPE NETWORK.
4. BURIED STEEL COUPLING SHALL BE COATED PER THE SPEC. PROV.

REGISTERED PROFESSIONAL ENGINEER — John Stephen Munt, No. 22403, Exp. 9-30-93, CIVIL — STATE OF CALIFORNIA

RECOMMENDED BY: John S. Munt
JSME R.C.E.
DATE: 8/27/91

APPROVED BY: Keith C. Moe
DISTRICT MANAGER
DATE: 10/1/91

Lee Lake Water District

PHASE 1B CONSTRUCTION

NO. | REVISIONS | INITIALS | DATE

DESIGNED STAFF
CHECKED K.H./M.T.
DRAWN J.S.D./C.L.P.
DATE

JSME
john s. munk engineers, inc.
7270 El Camino Real
Carlsbad, California 92009
(619) 942-2100

LEE LAKE WATER DISTRICT

MISCELLANEOUS DETAILS III
TEMESCAL CANYON ROAD WATER LINE
CORROSION TESTING DETAILS

SCALE NONE
SHEET NO. 20
OF 24 SHEETS
DWG. NO. 20

970 960 950 940 930 920 910

1018+00

MATCH LINE SEE DWG 1

1019+00 INSTALL CORROSION TEST STATION; PER DETAIL, DWG 20

WL PVI ● 1019+35.00
T.O.P.= 928.42
INSTALL AIR RELEASE VALVE; PER DETAIL, DWG 18
ALT. A: 4"

EXISTING GROUND PROFILE ALONG PROJECT C/L

+0.40%

FURNISH AND INSTALL WATER LINE ALTERNATE A: 20" PW, CLASS 250

FUTURE WATERLINE BY OTHERS

WL VALVE INSTALLATION:
STA. 1020+67.28
T.O.P.= 928.16 (20")

ALTERNATE A:
INSTALL 20" X 20" X 12" TEE-FLG'D WITH 12" PLUG VALVE-FLG'D TO NE

INSTALL VALVE AND INSULATOR TEST STATION; PER DETAIL, DWG 20

INSTALL 20" PLUG VALVE - FLG'D. TO SE WITH BLD FLG.

PROPOSED TOP OF WATER LINE

-0.96%

WL VERTICAL CURVE
MVC STA. 1023+31.00
PVI ELEV. = 925.63
VC LENGTH = 200'

WL BVC ● 1022+31
T.O.P.= 926.59

WL ● 1022+56
T.O.P.= 926.38

WL ● 1022+81
T.O.P.= 926.24

WL ● 1023+06
T.O.P.= 926.16

WL ● 1023+23.31
T.O.P.= 926.15
INSTALL 6" BLOWOFF ASSY; PER DETAIL, DWG 18

WL MVC ● 1023+31
T.O.P.= 926.15

WL ● 1023+56
T.O.P.= 926.20

WL ● 1023+81
T.O.P.= 926.32

WL ● 1024+06
T.O.P.= 926.50

WL EVC ● 1024+08.38
T.O.P.= 926.52

WL EVC ● 1024+31
T.O.P.= 926.75

WL VALVE INSTALLATION:
STA. 1025+95.54
T.O.P.= 928.59

ALTERNATE A:
INSTALL 20" X 20" X 12" TEE-FLG'D WITH 12" PLUG VALVE-FLG'D AND BLIND FLG TO EAST

INSTALL VALVE AND INSULATOR TEST STATION; PER DETAIL, DWG 20

WL EC ● 1026+85.54
T.O.P.= 929.38

+1.12%

WL ● 1027+35
T.O.P.= 930.15
INSTALL AIR RELEASE VALVE; PER DETAIL, DWG 18
ALT. A: 4"

WL ● 1028+15
T.O.P.= 928.55

-2.00%

-0.28%

1029+00 INSTALL CORROSION TEST STATION; PER DETAIL, DWG 20

MATCH LINE SEE DWG 2

934.4 934.8 933.3 933.4 932.4 931.4 931.9 933.0 933.8 935.3 936.1 935.2

160' DOUBLE PASS FULL WELD OR RESTRAINED JOINTS

160' DOUBLE PASS FULL WELD OR RESTRAINED JOINTS

* 40' MINIMUM - DOUBLE PASS FULL WELD OR RESTRAINED JOINTS

1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029

PROFILE

SCALE:
1" = 40' HORIZONTAL
1" = 8' VERTICAL

1/4-1/4 SEC. LINE

NW1/4-SW1/4 SEC. 27
T 4 S, R 6 W
SBBM

SW1/4-NW1/4 SEC. 27
T 4 S, R 6 W
SBBM

SCALE: 1" = 40'

1018+00

12' LT. STA. 1017+06
INSTALL 6" BLOWOFF ASSY; PER DETAIL DWG 18

STA. 1019+00
INSTALL CORROSION TEST STATION; PER DETAIL, DWG 20

12' LT. STA. 1019+35
INSTALL AIR RELEASE VALVE; PER DETAIL, DWG 18
ALT. A: 4",

FUTURE WATER LINE BY OTHERS

EXISTING NORTH-BOUND INTERSTATE ROUTE 15

FURNISH AND INSTALL WATER LINE ALTERNATE A: 20" PW, CLASS 250

12' LT. STA. 1023+23.3
INSTALL 6" BLOWOFF ASSY; PER DETAIL, DWG 18

WL B.C. CURVE C49
12' LT. STA. 1024+08.74
N 37686.618 E 48481.147
N 56°34'45" E (R)

WL VALVE INSTALLATION:
12' LT. STA. 1025+95.54
N 37839.877 E 48372.979

ALTERNATE A:
INSTALL 20" X 20" X 12" TEE-FLG'D WITH 12" PLUG VALVE-FLG'D AND BLIND FLG TO NE

INSTALL VALVE AND INSULATOR TEST STATION; PER DETAIL, DWG 20

WATER C/L
CURVE C49
Δ = 5°8'9"
R = 2876.93
T = 129.03
L = 257.88
E = 2.89

WL E.C. CURVE C49
12' LT. STA. 1026+85.54
N 37901.320 E 48338.942
N 61°42'54" E (R)

12' LT. STA. 1027+35
INSTALL AIR RELEASE VALVE; PER DETAIL DWG 18
ALT. A 4",

STA. 1029+00
INSTALL CORROSION TEST STATION; PER DETAIL, DWG 20

1029+00

P.O.T. STA. 1020+80.28 TCR =
P.I. STA. 10+00.0 EASEMENT
N 37412.467 E 48662.075

EXIST'G 6" GAS LINE

EXIST'G 18" PW LINE

EXIST'G 12" WATER LINE

EXISTING 6" STL. WATER LINE

TEMESCAL CANYON ROAD

N 33°25'15" W 763.28'

N 33°25'15" W 1020+00

763.28'

1025+00

C49

C9

N 33°25'15" W 328.46'

EXIST'G 8" GAS LINE

EXIST'G 30" PCC WATER LINE

EXISTING R.O.W. LINE

EXISTING R.O.W. LINE

10+00
N 56°34'45" E
94.86'

INSTALL AIR RELEASE VALVE; PER DETAIL, TEMESCAL WATER CO. STD DWG. 112 ADJ. & DNST. 12" VALVE ALT. A: 2"

B.C. STA. 10+94.86 (C13)
N 33°25'15" W (R)
N 37464.714 E 48741.249

30' EASEMENT

13'

15' 15'

WL VALVE INSTALLATION:
12' LT. STA. 1020+67.28
N 37395.007 E 48659.220

ALTERNATE A:
INSTALL 20" X 20" X 12" TEE-FLG'D AND 20" PLUG VALVE-FLG'D WITH BLIND FLG TO SE AND 12" PLUG VALVE-FLG'D TO NE

INSTALL VALVE AND INSULATOR TEST STATION; PER DETAIL, DWG 20

13' RT. STA. 10+94.86
N 37453.864 E 48748.410
N 33°25'15" W (R)

WL B.C. CURVE C51

1/4 SEC. LINE

SE1/4-NW1/4 SEC. 27
T 4 S, R 6 W
SBBM

SEE DWG 3

P.O.C. STA. 1026+08.54 TCR
N 37857.081 E 48377.019

PROPOSED FUTURE WL C/L

13'

FUTURE STREET C/L

ROAD C/L
CURVE C9
Δ = 5°8'9"
R = 2864.93
T = 128.49
L = 256.80
E = 2.88

B.C. STA. 1024+08.74 (C9)
N 61°42'54" E (R)
N 37686.618 E 48481.163

E.C. STA. 1026+65.54 (C9)
N 61°42'54" E (R)
N 37907.007 E 48349.509

N 28°17'6" W
400.00'

40'

MATCH LINE SEE DWG 2

PLAN

RECOMMENDED BY :
JSME R.C.E.
DATE: 3/13/91

APPROVED BY:
DISTRICT MANAGER
DATE: 3/14/91

Lee Lake Water District

PHASE 1B CONSTRUCTION

NO.	REVISIONS	INITALS	DATE

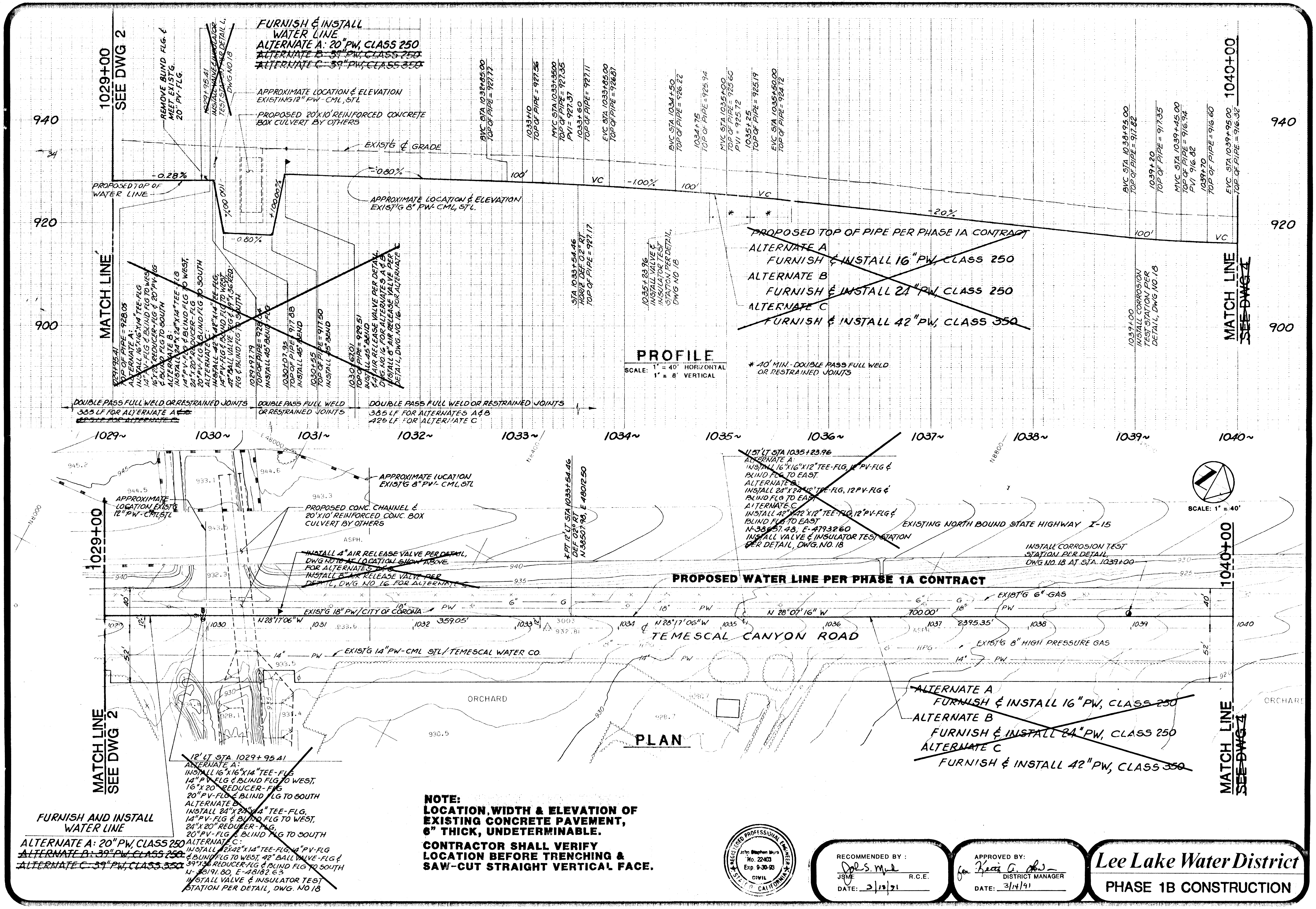
DESIGNED VJ
CHECKED RLV
DRAWN VJ
DATE 01-10-91

JSME
john s. mark engineers, inc.
7770 El Camino Real
Carlsbad, CA. 92009-6506
(619) 942-2100

LEE LAKE WATER DISTRICT

PLAN & PROFILE
TEMESCAL CANYON ROAD WATER LINE
STA 1020+67.28 TO STA 1029+00

SCALE AS NOTED
SHEET NO. 1
OF 3 SHEETS
DWG. NO. 1



FURNISH & INSTALL WATER LINE
ALTERNATE A: 20" PW, CLASS 250
ALTERNATE B: 39" PW, CLASS 250
ALTERNATE C: 39" PW, CLASS 350
1029+00 SEE DWG 2
MATCH LINE
REMOVE BLIND FLG & MEET EXIST'G. 20" PV-FLG.
APPROXIMATE LOCATION & ELEVATION EXISTING 12" PW-CML, STL
PROPOSED 20'X10' REINFORCED CONCRETE BOX CULVERT BY OTHERS
EXIST'G ℄ GRADE
PROPOSED TOP OF WATER LINE
-0.28%
-0.80%
+100.00%
-100.00%
-1.00%
-.20%
VC
APPROXIMATE LOCATION & ELEVATION EXIST'G 8" PW-CML, STL
PROPOSED TOP OF PIPE PER PHASE 1A CONTRACT
ALTERNATE A FURNISH & INSTALL 16" PW, CLASS 250
ALTERNATE B FURNISH & INSTALL 24" PW, CLASS 250
ALTERNATE C FURNISH & INSTALL 42" PW, CLASS 350
1040+00 MATCH LINE SEE DWG 4
940
920
900
PROFILE
SCALE: 1" = 40' HORIZONTAL 1" = 8' VERTICAL
* 40' MIN.- DOUBLE PASS FULL WELD OR RESTRAINED JOINTS
DOUBLE PASS FULL WELD OR RESTRAINED JOINTS 385 LF FOR ALTERNATE A & B 425 LF FOR ALTERNATE C
DOUBLE PASS FULL WELD OR RESTRAINED JOINTS
DOUBLE PASS FULL WELD OR RESTRAINED JOINTS 385 LF FOR ALTERNATES A&B 425 LF FOR ALTERNATE C
1029~ 1030~ 1031~ 1032~ 1033~ 1034~ 1035~ 1036~ 1037~ 1038~ 1039~ 1040~
APPROXIMATE LOCATION EXIST'G 8" PW- CML, STL
APPROXIMATE LOCATION EXIST'G 12" PW-CML STL
PROPOSED CONC. CHANNEL & 20'X10' REINFORCED CONC. BOX CULVERT BY OTHERS
INSTALL 4" AIR RELEASE VALVE PER DETAIL, DWG NO 16 AT LOCATION SHOWN ABOVE FOR ALTERNATES A & B; INSTALL 8" AIR RELEASE VALVE PER DETAIL, DWG NO 16 FOR ALTERNATE C
EXISTING NORTH BOUND STATE HIGHWAY I-15
INSTALL CORROSION TEST STATION PER DETAIL, DWG NO 18 AT STA. 1039+00
PROPOSED WATER LINE PER PHASE 1A CONTRACT
EXIST'G 6" GAS
EXIST'G 18" PW/CITY OF CORONA
N 28°17'06" W
N 28°07'16" W
359.05'
700.00'
2395.35'
TEMESCAL CANYON ROAD
EXIST'G 14" PW-CML STL/TEMESCAL WATER CO.
EXIST'G 8" HIGH PRESSURE GAS
ORCHARD
PLAN
SCALE: 1" = 40'
MATCH LINE SEE DWG 2
1029+00
1040+00
MATCH LINE SEE DWG 4
ALTERNATE A FURNISH & INSTALL 16" PW, CLASS 250
ALTERNATE B FURNISH & INSTALL 24" PW, CLASS 250
ALTERNATE C FURNISH & INSTALL 42" PW, CLASS 350
12' LT STA 1029+95.41
ALTERNATE A: INSTALL 16"X16"X14" TEE-FLG, 14" PV-FLG & BLIND FLG TO WEST, 16"X20" REDUCER-FLG, 20" PV-FLG & BLIND FLG TO SOUTH
ALTERNATE B: INSTALL 24"X24"X14" TEE-FLG, 14" PV-FLG & BLIND FLG TO WEST, 24"X20" REDUCER-FLG, 20" PV-FLG & BLIND FLG TO SOUTH
ALTERNATE C: INSTALL 42"X42"X14" TEE-FLG, 14" PV-FLG & BLIND FLG TO WEST, 42" BALL VALVE-FLG & 39"X36 REDUCER-FLG & BLIND FLG TO SOUTH
N-38191.80, E-48182.63
INSTALL VALVE & INSULATOR TEST STATION PER DETAIL, DWG. NO 18
FURNISH AND INSTALL WATER LINE
ALTERNATE A: 20" PW, CLASS 250
ALTERNATE B: 39" PW, CLASS 250
ALTERNATE C: 39" PW, CLASS 350

NOTE:
LOCATION, WIDTH & ELEVATION OF EXISTING CONCRETE PAVEMENT, 6" THICK, UNDETERMINABLE.
CONTRACTOR SHALL VERIFY LOCATION BEFORE TRENCHING & SAW-CUT STRAIGHT VERTICAL FACE.

REGISTERED PROFESSIONAL ENGINEER — John Stephen Mark — No. 22403 — Exp. 9-30-93 — CIVIL — STATE OF CALIFORNIA

RECOMMENDED BY: JSME R.C.E. DATE: 3/13/91

APPROVED BY: DISTRICT MANAGER DATE: 3/14/91

Lee Lake Water District

PHASE 1B CONSTRUCTION

NO.	REVISIONS	INITIALS	DATE

DESIGNED R.L.V. — CHECKED K.H. & M.T. — DRAWN R.V.C. — DATE 01-10-91

JSME john s. murk engineers, inc. 7770 El Camino Real Carlsbad, California 92009 (619) 942-2100

LEE LAKE WATER DISTRICT
PLAN & PROFILE
TEMESCAL CANYON ROAD WATER LINE
STA 1029+00 TO STA 1029+95.4

SCALE AS NOTED — SHEET NO. 2 OF 3 SHEETS — DWG. NO. 2

WL VALVE INSTALLATION:
STA. 9+88 = STA. 1020+67.28
T.O.P.= 927.83 (12")

ALTERNATE A:
INSTALL 20" X 20" X 12" TEE-FLG'D WITH 12" PLUG VALVE-FLG'D TO NE AND 20" PLUG VALVE-FLG'D WITH BLIND FLANGE TO SE

INSTALL VALVE AND INSULATOR TEST STATION; PER DETAIL, DWG 20

WL ADJ. & DNST. 12" VALVE
INSTALL AIR RELEASE VALVE; PER TEMESCAL WATER CO. STD. DWG. W112
ALT. A= 2"

WL @ 9+99.29
T.O.P.= 927.77
INSTALL 45° BEND

WL @ 10+02
T.O.P.= 925.05
INSTALL 45° BEND

WL BC @ 10+94.86
T.O.P.= 924.58

WL PVI @ 12+07.80
T.O.P.= 921.20

FURNISH AND INSTALL
WATER LINE
ALTERNATE A: 12" PW, CLASS 250

WL EC @ 13+63.28
T.O.P.= 913.42
INSTALL 45° BEND

WL PVI @ 16 + 00
TOP = 904.10

W" @ 16 + 76.83
TOP = 901.15
INSTALL 45° BEND

W" @ 16 + 80
TOP = 897.86
INSTALL 45° BEND & 4" BLOWOFF ASSY PER TEMESCAL WATER CO. STD. DWG. W117 ADJ. & UPST. 45° BEND

SEE DWG 1

APPROXIMATE LOCATION EXISTING 8" GAS LINE

APPROX. LOCATION EXISTING 30"ø PW LINE

-0.50%
-100.50%
-0.50 %
-3.00 %
-5.00 %
-105.00 %
-1.60 %
-3.84 %
-103.94 %
+0.80 %

PROPOSED
TOP OF WATER LINE

EXISTING GROUND PROFILE
ALONG EASEMENT C/L

FUTURE STREET PROFILE
ALONG EASEMENT C/L

FUTURE
36" SD-RCP

12" MIN

PROFILE

DOUBLE PASS FULL WELD
OR RESTRAINED JOINTS

SCALE:
1" = 40' HORIZONTAL
1" = 8' VERTICAL

WL @ 13 + 68.63
TOP = 907.80
INSTALL 45° BEND

FUTURE 18" SD-RCP

4' MIN

DOUBLE PASS FULL WELD
OR RESTRAINED JOINTS

80 LF MIN-
DOUBLE PASS FULL WELD OR RESTRAINED JOINTS

18+55.7

FURNISH AND INSTALL
WATER LINE
ALTERNATE A: 8" PW, CLASS 250

INSTALL AIR RELEASE VALVE;
PER TEMESCAL WATER CO. STD. DWG W112
ADJ. & DNST. 8" VALVE ALT. A: 2"

WL VALVE INSTALLATION:
STA. 18+68.70 =
STA. 18+47.79 SEE BELOW
T.O.P.= 899.04 (8")

FUTURE GROUND PROFILE
ALONG EASEMENT C/L

WL PVI @ 20+32.94±
T.O.P.= 898.45±
INSTALL 8" BLIND FLANGE

EXISTING GROUND PROFILE
ALONG EASEMENT C/L

-0.36%
0.00%

PROPOSED
TOP OF WATER LINE

50 LF MIN -
DOUBLE PASS FULL WELD
OR RESTRAINED JOINTS

18+55.7

INSTALL AIR RELEASE VALVE
PER TEMESCAL WATER CO. STD. DWG W112
ADJ. & UPST. 12" TEE
ALT A= 2"

WL VALVE INSTALLATION:
STA. 18+47.79 =
STA. 18+68.70 SEE ABOVE
T.O.P.= 899.20 (12")

ALTERNATE A:
INSTALL 12" X 12" X 8" TEE-FLG'D WITH 12" PLUG VALVE-FLG'D AND BLIND FLG. TO NE AND 8" PLUG VALVE-FLG'D TO SE

INSTALL VALVE AND INSULATOR TEST STATION; PER DETAIL, DWG 20

FUTURE 18" SD-RCP

L4' MIN

+0.80 %

DOUBLE PASS FULL WELD
OR RESTRAINED JOINTS

80 LF MIN-
DOUBLE PASS FULL WELD OR RESTRAINED JOINTS

18+55.7

10 11 12 13 14 15 16 17 18 19 20 21

960 950 940 930 920 910 900 890

933.7 929.5 926.0 921.7 917.1 916.7 914.7 911.2 909.6 907.0 904.0

SEE DWG 1

EASEMENT C/L
CURVE C13
Δ = 15°22'45"
R = 1000.00
T = 135.02
L = 268.42
E = 9.07

SE1/4-NW1/4 SEC. 27
T 4 S, R 6 W
SBBM

SCALE: 1" = 40'

P.O.T. STA. 1020+80.28 TOR =
P.I. STA. 10+00.0 EASEMENT
N 37412.467 E 48682.075

TEMESCAL CANYON ROAD

N 33°25'15" W 328.46'

EXISTING R.O.W. LINE

EXISTING 18" PW LINE

INSTALL AIR RELEASE VALVE; PER TEMESCAL WATER CO. STD. DWG. W112 ADJ. & DNST. 12" VALVE ALT. A= 2"

1/4-1/4 SEC. LINE

B.C. STA. 10+94.86 (C13)
N 33°25'15" W (R)
N 37464.714 E 48741.249

E.C. STA. 13+63.28
N 48°48'00" W (R)
N 37640.513 E 48942.882

INSTALL 4" BLOWOFF ASSY PER TEMESCAL WATER CO. STD. DWG. W117 ADJ & DNST 45° BEND

FURNISH AND INSTALL
WATER LINE
ALTERNATE A: 12" PW, CLASS 250

P.I. STA. 18+55.70
N 38011.178 E 49287.234
C/L DEF. 90° RT.

WL VALVE ASSEMBLY:
13' RT. STA. 18+47.79 = 7.91' RT. STA. 18+68.70
N 37996.663 E 49271.805

INSTALL 12" X 12" X 8" TEE-FLG'D AND 12" PLUG VALVE-FLG'D WITH BLIND FLG TO NE AND 8" PLUG VALVE-FLG'D TO SE

INSTALL VALVE AND INSULATOR TEST STATION; PER DETAIL, DWG 20

INSTALL AIR RELEASE VALVE
PER TEMESCAL WATER CO. STD. DWG W112
ADJ. & UPST. 12" TEE
ALT A= 2"

INSTALL AIR RELEASE VALVE;
PER TEMESCAL WATER CO. STD. DWG W112
ADJ. & DNST. 8" VALVE ALT. A: 2"

FURNISH AND INSTALL
WATER LINE
ALTERNATE A: 8" PW, CLASS 250

EXISTING NORTH-BOUND INTERSTATE ROUTE 15

30' EASEMENT

EASEMENT LINE

N 56°34'45" E
94.86

10+00

15+00

N 41°12'00" E 492.42'

N 41°12'00" E 484.51'

FUTURE ℄
18" SD-RCP

FUTURE ℄
36" SD-RCP

WL B.C. CURVE C51
13' RT. STA. 10+94.86
N 37453.864 E 48748.410
N 33°25'15" W (R)

WL E.C. CURVE C51
13' RT. STA. 13+63.28
N 37632.110 E 48952.663
N 48°48'00" W (R)

WATER C/L
CURVE C51
Δ = 15°22'45"
R = 1013.00
T = 136.78
L = 271.91
E = 9.19

S 48°48'00" E
124.27'

S 48°48'00" E
488.98'

30' UTILITY
EASEMENT

WL DEF. 2°14'04" RT.
7.91' RT. STA. 19+92.97
N 37914.809 E 49365.308
S 46°33'56" E
40.00'

P.O.T. STA. 20+44.68
N 37886.699 E 49409.425

WL DEF. 2°14'04" RT.
9.47' RT. STA. 20+32.94
N 37887.308 E 49394.352
INSTALL 8" BLIND FLG

N 44°19'52" W

LEE LAKE WATER DISTRICT
WASTE WATER RECLAMATION FACILITY
BOUNDARY

TREATMENT PLANT FACILITY:
EXISTING SEWER LINE SYSTEM
EXISTING WATER LINE SYSTEM

EXISTING R.O.W. LINE

FUTURE 20" WATER LINE
EXISTING 8" GAS LINE

N 33°25'15" W 1020+00
763.28

52'

WL VALVE INSTALLATION:
13' RT. STA. 9+88.00
N 37395.007 E 48659.220

ALTERNATE A:
INSTALL 20" X 20" X 12" TEE-FLG'D AND 20" PLUG VALVE-FLG'D WITH BLIND FLG TO NE AND 12" PLUG VALVE-FLG'D TO SE

INSTALL VALVE AND INSULATOR TEST STATION; PER DETAIL DWG 20

1/4 SEC. LINE

N 57400

SEE DWG 1

PLAN
DWG 16

RECOMMENDED BY :
JSME R.C.E.
DATE: 3/13/91

APPROVED BY:
for DISTRICT MANAGER
DATE: 3/14/91

Lee Lake Water District
PHASE IB CONSTRUCTION

NO.	REVISIONS	INITALS	DATE

DESIGNED VJ
CHECKED RLV
DRAWN VJ
DATE 01-09-91

JSME
john s. murk engineers, inc.
2770 El Camino Real
Carlsbad, CA. 92009-2506
(619) 942-2100

LEE LAKE WATER DISTRICT
PLAN & PROFILE
WATER LINE EASEMENT
STA 9+88 TO STA 20+32.94

SCALE AS NOTED
SHEET NO. 3
OF 3 SHEETS
DWG. NO. 3