

ENGINEERING DEPARTMENT STORMATIC . MALPR ... # PRE ____ DRAWN BY: A. GALINDO DESIGNED BY: CHECKED BY: A.F.G. APPROVED BY:

> SERVIC WING ATER ARD × CALIFORNIA STAN]

POLDER NO.: BETIMATE NO.: DRAWING NO.:

CWDWGS1

EUT 1 OF 8

38319C

PIPE AND APPURTENANCES HAND ING (CONTINUED):

accordance with the manufacturer's recommendations.

he installed in accordance with the nanufacturer's recommendations

authorized Company representatives

checked with a feeler gauge.

value between 75 and 90 ft-lbs.

On ductile iron pipe, fittings, and a purtenences, a relyethylene encasement shall be

Installed over the pipe, fittings, and appurtenances per latest revision of AWWA

Standard C105 Polyethylene Encast nent for Ductile-Iron Piping and per the plans and

specifications, or as requested as directed by the Company Engineer or other

RUBBER RING JOINTS FOR PVC -900 AND DUCTILE IRON PIPE: Push-on type

rubber ring joints with rubber rings for integral bell ends shall be joined as follows:

The ring groove, bell socket, and pl n end should be wiped clean of all sand, dirt, and

grit. Insert the gasket making sur that it faces the proper direction and that it is

correctly seated. The plain end s all be beveled and free of any sharp or ragged

edges which may damage or dislod eithe gasket. Lubricate the entire outside end of

the pipe including the pipe beyel, a lo lubricate the exposed portion of the rubber ring

gasket in the bell. Push the plain and into the bell by hand or with the use of a bar

and block until it is completely attend, keeping the joint straight while pushing.

Construction machinery shall not to used to push the pipe into a pipe bell end or a

fitting bell end. After assembly, the resulting position of the rubber ring shall be

If "Field Lok" gaskets are specified on the plans, the gasket shall be installed in

If "TR FLEX" restrained joint syster is specified on the plans, the joint assembly shall

MECHANICAL JOINTS: Mechanics joints shall be joined as follows: The socket and

plain end should be wiped clean of all sand, dirt, and grit and any excess coating in

the bell should be removed. The plain end, bell socket, and gasket should be washed

with a soap solution to improve the seating of the gasket in the socket and to help the

various parts slide together along the pipe. Place the gland on the plain end with the

lip extension toward the plain end c. the pipe, followed by the gasket with the narrow

edge of the gasket toward, the end of the pipe. Insert the pipe into the socket and

press the gasket firmly and evenly into the gasket recess. Keep the joint straight

during the assembly. Push the gland toward the socket and center it around the pipe

with the gland lip against the gasket. Insert bolts and hand tighten nuts. Partially

tighten the bottom bolt first; then the top bolt; next the bolts at either side; and

finally the remaining bolts. Repeat his process until all the bolts are torqued to a

If "Mega Lug" mechanical joint retainer glands are specified on the plans, the gland

THRUST BLOCKS: Concrete thrus: blocks shall be provided for all fittings to prevent

movement when the main is under pressure, this includes tees, ells, reducers, caps,

and plugs. Forms, if required, shall be smooth, mortar tight, and of sufficient strength

to maintain shape during the placing of the concrete. All concrete thrust blocks shall

assembly shall be installed in accordance with the manufacturer's reculimendations.

be manufactured by Mueller, James Jones, or Ford.

chlorine solution into water which is being used to fill the water main. Equipment required includes an ordinary hand test pump, solution hose, and a five gallon or larger container to hold the strong chlorine solution. A Gould Hydraulic Test Pump is satisfactory. A compact and convenient assembly can be made by mounting

container in the proportions shown in Table III.

etc.) with a chlorine concentration of 5%. It is also available as high strength solution (for commercial laundries or swimming pools) with a chlorine concentration of approximately 12%. H.T.H. comes as granules which must be dissolved in water. Strong chlorine solutions should be handled with care. The solutions are dangerous to the eyes, irritating to the skin, and will damage shoes and clothes.

- 2. Compute the gallons of strong chlorine solution required by dividing 3 into the time required to fill the water main.
- 3. Use Table III to determine the strength of chlorine solution required.
- 4. Connect pump to water main to be disinfected. Use a corporation cock for this purpose and make connection at, or ahead of, the inlet end of the water main to be
- 5. After flushing the line thoroughly, adjust the filling rate by measuring the time required to fill a five-gallon or other suitable container.
- 6. Pump strong chlorine solution into the line at a rate of one-gallon of strong solution per three minutes.
- discharge end of the water main being disinfected shows at lanst 25 p.p.m. chlorine.
- Disconnect and flush pump thoroughly with fresh water.
- 9. Refer to "General Instructions" for the steps on flushing and sampling new water

Special Note for Tapping Sleeves Before a tapping sleeve is installed, the Inside surface of the tapping sleeve must be heavily dusted with H.T.H. granules or swabbed with grocc y store liquid bleach.

> TABLE 1B ALLOWABLE LEAKAGE PER 1000 FT. OF PVC C-900 PIPELINE AVERAGE TEST PRESSURE | NOMINAL PIPE DIAMETER-INCHES

* If the pipeline under test contains sections for various diameters, the

•	1.530	LENGTH OF SECTION				0	F	PIPE	
ı	LENG					8	10"	12"	
ı			NUM	BER	OF T	ABLET	S REQ	UIRED	
	1	3' or less	1	1	2	2	3	5	
1		18'	1	1	2	3	5	6	
1		20'	1 1	1	2	3	5	7	
1		30'	1	2	3	5	7	10	
		40'	1	2	4	6	9	14	
		TABLE III						,	
	STRONG CHLO	RINE SOLUTION HAND PUM	P METHO	0 0	F MA	IN C	ILORIN	ATION	
	FLOW RATE AT WHICH	GROCERY STORE LIQUID	COI	MERC	WL.	:			

FLOW RATE AT WHICH WATER MAIN IS FILLED IN GALLONS PER	GROCERY STORE LIQUID BLEACH (CLOROX, PUREX, ETC.) 5% CL2	COMMERCIAL LIQUID BLEACH (LAUNDRIES, SWIMLIING POOLS) 12% CL2		
MINUTE	AMOUNT OF CHEMICA	L TO MIX IN 5 CALLONS O	SOLUTION	
10 gpm	1 quart	1 pint	2 ozs.	
20 gpm	2 quarts	2 pints	4 ozs.	
35 gpm	3 quarts	3 pints	5 ozs.	
50 gpm	1 gallon	2 quarts	8 ozs.	
75 gpm	1.5 gallons	3 quarts	12 ozs.	
100 gpm	2 gallons	1 gallon	1 lb.	

SPECIFICATIONS FOR MATERIALS (CONT.) 2" BALL VALVES: Two inch ball valves shall be as shown on the drawing and shall

TRACER WIRE: Tracer wire shall be minimum #12 AWG stranded copper wire with THW, THWN, or THHN rated insulation, color blue and installed with all PVC C-900 pipe, plastic service pipe, and/or nonferrous pipe. For installation details see the latest revision of drawing CW 850.

SERVICE MATERIALS: All 1" and 2" service material specifications except copper tubing and plastic PE pipe shall be as shown on the latest revision of drawings CW-555 or CW-436 which includes alternate manufacturers. All service material specifications for services larger than 2" shall be as specified on the plan and/or as specified on the latest revision of the CW drawing for that size service.

Solder - All solder shall be lead free. Copper Tubing - All copper tubing shall conform to the latest revision of ASTM Specification B88 and be Type K soft.

Polyethylene (PE) Pipe - All PE plastic pipe for services shall comply with the latest revision of ASTM D2239 with a Standard Code Designation of PE 3408. Dimensions and tolerance of pipe shall be as specified in Table 3 of the latest revision of AWWA Standard C901 for PC 200-IDR7. This is a high density polyethylene plastic pipe conforming to the inside-diameter dimensions of iron pipe sizes and having a 200 p.s.i. pressure rating. The pipe shall be approved by N.S.F. as suitable for potable water products.

METER BOXES: All meter boxes for 1" services and 2" services shall be as specified on the latest revision of drawings CW-555 or CW-436. All meter boxes for services larger than 2" shall be as specified on the plans and/or as specified on the latest revision of the CW drawing for that size service.

All mater boxes for 1" services and 2" services shall be supported by placing 2"x " pressure treated lumber or bricks under two sides of the base of the box.

Caddles for PVC C-900 Pipe: Service saddles shall be All Bronze, No. J-996 Series manufactured by James Jones Company, No. S-90 Styles manufactured by the Lord Meter Box Company, or H-13400 Series manufactured by Mueller Company for Cast Iron Outside Diameter dimensions.

Saddles for Ductile Iron Pipe: Service Saddles shall be Malleable Iron Double Strap type manufactured by Ford Meter Box Company, Rockwell International, Mueller Company, or Apac Products.

CEMENT MORTAR LINED AND COATLU STEEL PIPE (CL & C): All cement mortar lined and coated steel pipe shall be fabricated from steel cylinder ASA schedule as indicated on the drawing, with ASTM A53 test pressure and ASTM A36 physical properties. Cement mortar protective coating shall be 3/4" and the lining 1/2" for 12" and larger and 3/8" for 6" and 8", and conform to the latest revision of AWWA C205 Standard. 14 gauge wire reinforcing shall be spirally wound in the center of the coating. All CL&C steel pipe required for the water main installation shall be as specified on the drawing.

PVC "CERTA-LOK" VIP RESTRAINED JOINT PIPE: All PVC "Certa-Lok" VIP Restrained Joint pipe shall be "CertainTeed" pipe made per AWWA C-900 Standards. Pipe is made to cast-iron-outside-diameter, DR 18, Class 150, in 20' laying lengths, with twin gasket Certa-Lok couplings, nylon splines, and rubber rings.

MACHINE BOLTS: All steel bolts and nuts used for flanged fittings, flexible couplings. or other bolted appurtenances shall be 304 stainless steel and field coated per CWS Company Standard for bare steel protection coating explication. Ductile iron bolts are acceptable when the appurtenance is made of ductile iron and comes with the option of ductile iron bolts, such as mechanical joint fit ngs.

2" BLOWOFF ASSEMBLIES: All materials used for 2" blowoff essemblies shall be as shown on the latest revision of drawing CW-122.

FLEXIBLE COUPLINGS: During installation of new mains, the Company may require f'exible couplings to be epoxy coated if soil conditions are determined to be corrosive. If the flexible coupling is steel the sleeve must be a minimum of 10 inches long, if the flexible coupling is ductile iron or cast iron then a standard sleeve length may be used unless the drawing specifies otherwise.

SPECIFICATIONS FOR DISINFECTION OF NEW MAINS

NOTE: The disposal of all chlorinated water generated from the procedures in the "SPECIFICATIONS FOR DISINFECTION OF NEW MAINS" shall be the Contractor's responsibility. The Contractor shall meet all local agency's requirements and dispose of all chlorinated water in a safe and lawful manner.

If dechlorination of the water is required, then the chlorinated water that is discharged to an open stream or storm drain shall be dechlorinated by water industry accepted methods. The dechlorinated water will be tested for chlorine residual to verify that no detectable amount of free chlorine is present. This testing will take place from the onset of discharging the water and at frequent intervals throughout the dewatering of

GENERAL INSTRUCTIONS

1. Precautions shall be taken to prevent soiling of pipe, fittings and other materials. Pipe and fittings shall be stored so as not to accumulate mud or water, and other material shall be stored in a clean, dry location. Particular care shall be taken to keep rubber gaskets and pipe ends clean.

- 2. All pipe shall be clean before lowering the pipe into the trench.
- 3. When the main is left unattended, even for a short time, the ends shall be plugged to prevent the entrance of foreign material or small animals.
- 4. Apply chlorine, using one of the methods described under "Chlorine Application
- 5. Isolate the main by closing valves and allow heavily chlorinated water to stand therein for a contact period of at least twenty-four hours.
- 6. At the end of the contact period, flush the main thoroughly. The test for chlorine should show no more chlorine in the water leaving the main than in the water
- 7. The Company's representative will collect a sample for bacteriological examination and send it to the laboratory. The sample should be taken from a service located near the end of the chlorinated section or from the sampling device illustrated in drawing
- 8. If bacteriological tests are positive, the action to take will be noted on the laboratory report. Prompt attention to these orders is essential.

CHLORINE APPLICATION METHODS

METHOD NO. 1 - H.T.H. TABLET METHOD: This method is preferred for short jobs and for small diameter pipe of any kind. It cannot be used where trench water has entered the main. This main cannot be flushed prior to disinfection, so the method requires that the pipe te kept clean during laying.

Using Permatex No. 1 as an adhesive, fasten the required number of tablets (see Table II) to the top of each length of pipe. Tubes of Permatex may be purchased locally at any auto parts store. The tablets may be fastened to the pipe before it is placed in the trench provided the top of the pipe is marked to avoid the possibility that

PERMITS: All specification sheets, city/county or other permits' necessary for the installation of facilities must be obtained by the Developer or Developer's Contractor and be on the job site prior to and during construction.

Compliance with all the Rules and Regulations of the California Occupational Safety and Health Act (CAL OSHA), Public Law 91-598, the "Williams' Steiger Occupational Safety and Health Act of 1970", is required on this project. The work practices for all pipe shall be in accordance with the latest revision of the American Water Works Association Publication C600 Standard for Installation of Ductile-Iron Water Mains and their Appurtenances, C900 Standard for Polyvinyl Chloride (PVC) Pressure Pipe, and M23 Manual of Water Supply Practices for PVC Pipe - Design and Installation. The Developer's Contractor shall comply with all regulations set forth by the Environmental Protection Agency and the requirements set forth by the local or state

MATERIALS: All materials installed for the facilities to be constructed by the Developer's Contractor must comply with the drawings and "Specifications for Material". No materials are to be supplied or furnished by California Water Service Company unless specifically indicated on the plans for special installations. All materials must be on the job site and inspected prior to start of construction. Any pipe, valve, or appurtenance whether installed or not, which in the opinion of the Company, does not meet the requirements of these specifications or otherwise found unfit, thall be rejected as being unfit and shall be immediately removed from the job

LINE AND GRADE: The horizontal and vertical alignment for installation of the pipe shall be established in the field by the Developer's Contractor in accordance with the plans and specifications. Location of water facilities including finished grades and elevations shall be staked with offsets on site by the Developer's project engineer prior to start of construction. Final elevations of installed facilities, meter boxes, valve covers, hydrants, etc. shall be signed off by the Developer's project engineer prior to

COVER: Under normal conditions all mains shall be covered to a depth of four feet below the finished grade above the pipeline, unless specified otherwise on the plans. Prior approval must be obtained from California Water Service Company to install mains with greater or less than four feet of cover.

SEPARATION BETWEEN WATER MAINS AND SANITARY SEWERS OR OTHER FACILITIES: Water mains shall be installed at least ten feet horizontally from and one foot higher than sanitary sewers located parallel to the main, unless specified otherwise on the plans. Install water mains one foot higher than sanitary sewers crossing the mains. At all storm and sanitary sewer crossings, a full pipe length shall be centered over the sewer pipe to keep an adequate distance between the sewer and the water pipe joints. A 20 feet length of PVC or 18 feet length of DI pipe is considered to be a full pipe length. The State of California Department of Health Services "Criteria for the Separation of Water Mains and Sanitary Sewers" shall be followed when installations can not meet the "Basic Separation Standards".

A minimum vertical clearance of twelve (12) inches shall be maintained between the water main and all foreign structures, and a minimum horizontal clearance of five (5) feet shall be maintained between utilities unless otherwise indicated on the plans or approved by the Company. Refer to "Pipeline Crossing Information" shown on the plans for information on water main installations crossing other proposed or existing facilities.

If structures, pipes, manholes, etc., are encountered such that the water main must be relocated horizontally from the planned location, the relocation shall be made as approved by California Water Service Company. If foreign structures are encountered such that the water main must be raised or lowered from the nominal 4 feet of cover, the change in cover shall be made as approved by the Company and the Company's standards may require the installation of a fabricated steel cement mortar lined and

WORKMANSHIP: The pipe shall be installed to a true line and grade except on a curve where the pipe may be installed with joint deflections between adjacent lengths of pipe not to exceed 1 degree for pipe sizes 6" and 8" PVC C-900 and not to exceed 3 degrees for pipe sizes 6", 8", and 12" ductile iron. PVC pipe shall not be deflected or bent for horizontal or vertical deflection. No joint deflection shall be allowed in joints between fittings and pipe. "Certainteed" PVC Deflection Couplings shall be used with PVC C-900 between adjacent lengths of pipe to attain 5 degrees deflection

When assembling a PVC pipe to an iron fitting, valve, or appurtenance (push-on), remove all but 1/4 inch of the factory made bevel from the spigot end of the pipe. Bottom the pipe in the bell of the iron fitting.

Field-cut lengths of PVC and DI pipe may be used for making connections to valves, fittings, appurtenances, and closures where necessary. The cutting and beveling of the pipe for inserting into the bells shall be done by the use of a square cutting tool approved by the Company and manufactured for this purpose and without damage to the pipe. The bevel of the pipe shall be the same as required for the fitting.

TRENCH BOTTOM: The bottom of the trench shall be smooth and free from pieces of rock or other material that would tend to scratch, puncture or break the pipe or damage the polyethylane encasement used on ductile iron pipe. If rocks or stones are encountered, they shall be removed to a depth of six inches below bottom of trench and the holes filled with material carefully tamped to grade. A six inch layer of sand shall be placed in the trench bottom to provide a firm, stable, and uniform support for the full length of the pipe, except at the joints where bell holes shall be dug two inches below the surface so that the pipe will not be supported by the joint. Under no circumstances shall the bell hole undermine the support for the fittings or valves.

Valves and other various fittings may be required to be supported by a concrete cradle if it is determined by the Company that the bedding in the trench bottom can not be properly compacted to provide adequate support.

When an unstable subgrade condition is encountered that could provide inadequate pipe support, the Company shall require additional trench depth to be excavated, refilled and compacted with suitable foundation material.

No PVC or DI pipe or appurtenance shall be laid in water, or when, in the opinion of the Company, the tranch conditions or the weather are unsuitable for construction. Any water main which has been submerged shall be removed from the trench and be relaid. The trench shall be dewatered whenever running or standing water occurs in the trench bottom and the removal shall continue until the pipe has been installed and the backfill has been placed to a sufficient height to prevent the pipe from being submerged in water.

IMPORTANT: All trench excavations shall be in accordance with the Rules and Regulations of the California Occupational Safety and Health Act (CAL OSHA). This includes all necessary shoring determined by either the depth of trench and/or soil

PIPE AND APPURTENANCES HANDLING: All water mains and appurtenances shall be carefully lowered into the trench by means of padded slings, hooks, pipe tongs, or other suitable equipment consistent with safety, in such a manner to prevent damage to the exterior and interior pipe or appurtenance surfaces. Under no circumstances shall any material be dropped or dumped into the trench. Any foreign material inside the pipe shall be removed and the interior of the pipe kept clean during installation. No PVC pipe, ductile iron pipe, or appurtenance with damaged exterior or interior surfaces shall be installed.

During installation the open ends of the pipe shall be covered at night or when no work is in progress at that point to prevent entrance of trench water, animals, or other foreign matter.

On PVC pipe only, a continuous tracer wire (stranded copper wire #12 AWG, insulated) shall be taped to the top exterior surface of the pipe per the latest revision of drawing CW 850. Tracer wire splices using appropriate connectors are required at all locations where the wire is cut and at all plastic service lines.

be constructed per the latest revision of drawing CW 435. closed unless a permit has been obtained from the appropriate authority. EMBEDMENT BACKFILL: The embedment backfill is 6 inches of sand bedding below SPECIFICATIONS AND DRAWINGS: Specifications and drawings shall be taken

the pipe and 12 inches of sand backfill above the pipe. Sand backfill sufficient to cover the pipe to a depth of 12 inches shall be placed over the pipe. Care must be taken to compact the sand backfill material solidly around and under the pipe. Small tampers and vibrators are allowed for compacting near the pipe and over the pipe after a minimum of 6 inches of sand backfill has been placed over the pipe. Flooding, jetting or puddling may be employed for compaction in the first lift although great care must be taken to prevent drainage or flotation of the pipeline. Apply only enough water to give complete saturation. Erosion of support at the pipe sides and bottom by water jetting must be prevented. Placing rocks or hard lumps in the embedment backfill or final backfill is strictly prohibited.

FINAL BACKFILL: In areas where required, the permanent pavement and temporary pavement replacement must comply with specifications of the local governing authorities. All backfill above the sand embedment backfill must meet compaction equirements of the local governing agency. All pavement broken shall be replaced in strict accordance with the requirements of the local authorities, or lacking local requirements, in accordance with the latest revision of drawing CW-238.

OTHER FACILITIES: All existing facilities, such as but not limited to, sewers, gas mains, water mains, telephone conduits, and power or telephone poles which may be located close to trench operations must be located and protected by the Developer's Contractor. If any of these facilities are damaged by the Developer's Contractor. repairs shall be made to the satisfaction of the interested parties at the Developer's

VALVE CASINGS AND COVERS: A valve casing with cover shall be installed for each gate valve, butterfly valve, 2" blowoff assembly or when specified on the plans per the latest revision of drawing CW-439. The valve cover and frame fabrication for valves in paved and unpaved areas shall be per the latest revision of drawing CW-14. The valve cover frame shall be set in a ring of concrete at least a minimum of six inches wide and three inches thick or per local governing agency's standards whichever is greater. All valve casing covers must be placed flush with the finished grade of the surrounding area at the cover.

2" BLOW OFF ASSEMBLIES: A blow off assembly as shown on the latest revision of drawing CW-122 shall be installed for each dead end capped main. The assembly is to include a valve casing and cover.

SERVICES AND METER BOXES: Services and meter boxes shall be installed as shown on the latest revision of drawings CW-555 for 1" services, CW-436 for 2" services, and for larger than 2" services as designated on the plans and/or the latest revision of the CW drawing for that size service. The 1" and 2" service pipe shall be installed at a depth of 30" or more from finished grade above the service pipe and in no event shall the depth be less than 18". The Developer's Contractor must get prior approval from the Company to install service pipe with less than 30" of cover.

The meter box location must be staked by the Developer's project engineer and the boxes must be installed flush with finished grade of the surrounding area at the meter box cover. The meter boxes for 1" and 2" services shall be supported by placing 2"x4" treated lumber or bricks on two sides of the meter box's base.

Saddles and saddle tapping are required for all service connections made on PVC pipe. When making this type of connection, proper equipment must be used which attaches to the corporation stop permitting the cutting tool to be fed through the corporation stop to cut a hole in the pipe. It is important that the cutting tool be a sharp shell type (hole) cutter which will retain the coupon and be designed to accommodate walls as heavy as DR 18 pressure class 150. The shell cutter shall be lubricated on the outside only and not on the inside of the cutter with a recommended lubricant. Do not drill a hole in the PVC pipe with a twist drill or auger bit.

Direct tapping machines for service connections on ductile iron pipe must be approved by California Water Service prior to direct tapping ductile iron mains.

Plastic PE pipe is to be cold flared to match recessed fittings or is to have outside end bevels for Instatite fittings. Forming tool for bevels shall be Mueller's beveling tool number H 10817 or equal.

CONNECTION TO EXISTING SYSTEM: The Developer's Contractor shall furnish to

the Company the necessary fittings, valves and pipe required to connect the new mains to the existing system and the Company will make the connection to the existing system. The Developer's Contractor must adjust from nominal line and grade to match existing facilities and stop piping as shown on the drawings. The Developer's Contractor shall make a CAL OSHA approved excavation for the tis-in. include proper shoring, backfill the excavation after the Company has completed the connection, and replace any pavement that was cut for the excavation. The trench shall be left in a safe condition for the Company to complete the connections. If the trench is considered unsafe for workers, the Company may require the Developer's Contractor to return and adequately excavate for the tie-ins at the Contractor's expense.

the Owner.

PRESSURE TEST: Prior to any testing, at least seven days should elapse after the last

concrete thrust block was poured if Type I portland cement was used and three days

If high-early-strength Type III portland cement was used. A preliminary pressure test

shall be made by filling the mains with water and allowing them to stand under regular

system pressure for a period of at least twenty-four hours. After completion of the

preliminary test, the Developer's Contractor shall make a hydrostatic test by raising

the pressure in the main to 50 pounds per square inch above the normal static

pressure at the point of observation with a minimum test pressure of 150 pounds per

square inch. This pressure shall be maintained for a minimum of four hours. A

recording pressure gauge and water meter shall be provided by California Water

Service Company. The hydrostatic test shall not be conducted without a Company

representative present. Any leaks, failures or imperfect construction that develops

The leakage shall be measured accurately during the test period to determine that the

leakage rate does not exceed the values shown in Table IA for ductile iron pipe and

Table IB for PVC C-900 pipe. There shall be no leakage, zero gallons per four hours

test period at 150 p.s.i., for the portion of pipeline that is steel pipe CL & C with

An air test may be used as an alternate method on the steel pipe CL & C welded

sections. Test pressure to be 150 p.s.i.g., held for a four hour duration, with no

volumetric loss during test period. A recording pressure gauge will be provided by

California Water Service Company. The necessary taps, connecting pipe, and valve

If the mains fail to meet requirements of the hydrostatic test, the Developer's

Contractor shall, at his expense, make repairs to reduce the leakage. The repair work

CISINFECT'ON OF MAINS: All mains that are installed by the Developer's Contractor

shall be disinfected by the Developer's Contractor in accordance with the

INSPECTION: The Company reserves the right of access to the work at all times for

the purpose of inspecting and the Developer's Contractor shall permit the Company's

representative to make an inspection at any time. The Developer's Contractor shall

notify the Company's local manager at least 48 hours prior to any work being started

et the project site. The Company will normally provide no more than 2 inspections

per day during normal working hours. The trench must be left open until the

Company has inspected the new installation and approved that portion of trench to be

covered. If the trench is covered prior to the Company's inspection, the Developer's

PROTECTION: The Developer's Contractor shall at all times provide suitable and

adequate danger signals and barricades. If necessary, the Developer's Contractor

chall also provide temporary bridges across the trench to permit free ingress and

agress to and from private driveways or traveled roads or streets. No street shall be

together and anything shown on the drawings and not covered by the specifications

or covered by the specifications and not shown on the drawings shall to considered

as though it were covered by both specifications and drawings. Any pcits of

disagreement should be referred to the Company's representative as soon as possible

CLEAN UP: Upon completion of the work, the Developer's Contractor shall remove all

rubbish and waste materials resulting from the Contractor's operations and leave the

ground along the route of the pipeline in a neat and clean condition. The Developer's

Contractor shall be responsible for removal of all excess spoil from the trench

GUARANTEE OF WORKMANSHIP: Notwithstanding Owner's acceptance of the work,

the Developer's Contractor shall quarantee all of his workmanship for a period of one

calendar year from and after completion and acceptance of the work. The Developer

shall be responsible for having his Contractor repair and make good, at his own sole

cost and expense, and forthwith upon notice from the Owner, any defects or

imperfections in the work, such as but not limited to leaks in the pipeline and settling

of trench or pavement due to faulty or imperfect workmanship; or the Developer shall

be responsible for reimbursement to the Owner for making the repairs at the option of

SPECIFICATIONS FOR MATERIALS

Contractor will be required to uncover the trench at the Contractor's expense.

fittings shall be provided by the Developer's Contractor.

shall be continued until a satisfactory test is made.

"Specifications for Disinfection of New Mains."

to resolve any possible misunderstandings.

excavations, the Company shall not accept any responsibility

during the tests shall be repaired by the Developer's Contractor immediately.

DUCTILE IRON (DI) PIPE: All Ductile iron pipe shall comply with the latest revision of AWWA Standard C151 and shall be cement mortar fined in conformance with the latest revision of AWWA Standard C104. All pipe shall have Push-on Joint ends complete with gasket unless specified otherwise on the drawings and shall be Pressure Class 350 in all sizes from 6" to 12" unless specified otherwise on the drawings. Pipe shall be furnished with polyethylene encasement complying with the latest revision of AWWA Standard C105.

POLYVINYL CHLORIDE (PVC) PIPE: All PVC pipe shall be Class 150, D.R. 18, unless otherwise specified on the drawings and shall comply with the latest revision of AWWA Standard C900. The pipe shall have cast-iron-pipe-equivalent outside diameter dimensions. All pipe shall have Push-on Joint ends complete with gasket manufactured by PW pipe, J-M Pipe, CertainTeed, Diamond Plastics Corp, or approved

STEEL (STL) PIPE: All Steel pipe shall be as specified on the drawings.

206 NRS with brass wheel or Miwaukee No. 105 with brass wheel.

PIPE FITTINGS: All fittings shall be as specified on the drawings and shall be Cast Iron or Ductile Iron complying with the latest revision of AWWA Standard C110 including full laying length, radii and metal thickness. All fittings shall be cement mortar lined in conformance with the latest revision of AWWA Standard C104.

GATE VALVES: All gate valves shall comply with the latest revision of AWWA Standard C500, or C509 for Resilient-Seated Gate Valves, and shall be provided with "O-ring" packing, left hand to open, C.I. or D.I., bronze mounted, non-rising stem, nut operated with 2" square operating nuts. The gate valves shall be manufactured by Mueller Company, M & H Valve & Fitting Co., or Stockham Valves & Fittings. Kennedy Valve Co. and Clow Valve Co. are acceptable for Resilient-Seated Gate Valves only. Two inch gate valves shall be standard thread, brass, Red & White No.

PRESSURE REDUCING VALVES: All pressure reducing valves shall be manufactured by Cla-Val Company. Model number, body construction, and flange drilling shall be as specified on the drawings. All valves shall have factory set controls or pilots as specified on the drawings. All control or pilot piping shall be copper tubing or brass pipe. PRV vaults shall be as specified on the drawings.

VALVES FOR TAPPING: All gate valves for tapping purposes shall be Resilient Seat Type and as specified on the drawing. They shall be manufactured by Mueller Co., M. & H. Valve & Fitting Co., Stockham Valve & Fittings, Kennedy Valve Co., or Clow

TAPPING SLEEVES: All tapping sleeves for Asbestos Cement, Plastic, Cast Iron or Ductile Iron Pipe shall be as specified on the drawings.

shown on the latest revision of drawing CW-14 as applicable.

FIRE HYDRANTS: All fire hydrants shall be as specified on the drawing or as approved by C.W.S. Co. district office. For Typical Fire Hydrant details see the latest revision of drawing CW-380.

VALVE CASINGS AND COVERS: All valve casings and covers shall be fabricated as

In addition to the tablets, place 10 ounces of H.T.H. granules at the upstream end of the first length of pipe into which water will flow. This will insure that heavily chlorinated water flows into crevasses caused by couplings and valves. For long runs, this should be repeated about every 500 feet. When using "Dresser" or similar

couplings, place additional H.T.H. granules in the annular space between the coupling

METHOD NO. 2 - LIQUID BLEACH OR H.T.H SOLUTION WITH HAND PUMP: This method is general in scope and must be used when it is necessary to re-chlorinate an existing main. It may also be used on new mains, in which case place 10 ounces of H.T.H. granules at the upstream end of the first length of pipe into which water will flow, and every 500 feet thereafter. This method consists of pumping a strong

the solution container and the pump on a suitable board with a pipe connection from the container to the suction side of the pump.

The strong chlorine solution can be made by mixing liquid Chlorine bleach (sodium hypochlorite) or H.T.H granules (calcium hypochlorite) in a five-gallor or larger

Liquid chlorine bleach is available in grocery stores as laundry bleach (Clorox, Purex,

1. Choose a suitable filling rate and determine the time required to fill the water main

7. continue pumping until a chlorine residual test on a sample taken from the

8. Then close filling valve or blow-off and stop pumping chlorine solution.

TABLE 1A ALLOWABLE LEAKAGE PER 1000 FT. OF DUCTILE IRON PIPELINE NOMINAL PIPE DIAMETERS - INCHES 6 8 10 12 14 16 18

CALLONS PER HOUR (CPH) *

0.64 0.85 1.06 1.28 1.48 1.70 1.91

0.59 0.80 0.99 1.19 1.39 1.59 1.79

0.55 0.74 0.92 1.10 1.29 1.47 1.66

0.50 0.67 0.84 1.01 1.18 1.34 1.51

0.45 0.60 0.75 0.90 1.05 1.20 1.35

GALLONS PER HOUR (GPH) * 0.57 0.76 0.50 0.66 0.41

allowable leakage will be the sum of the computed leakage for each size.

TABLE II						
H.T.H TABLET METHOD NO. 1	OF	MAIN	C	HLO	RINA	TION
A ENOTH OF CECTON	DIAMETER OF P					PIPE
LENGTH OF SECTION	2"	4*	6°	8	10"	12"
	N	JMBER	OF T	ABLET	S REQ	UIRED
13' or less	1	1	2	2	3	5
18'	1	1	2	3	5	6
20'	1 1	1	2	3	5	7
30'	1	2	3	5	7	10
40'	1	2	4	6	9	14
TABLE III						,
STRONG CHLORINE SOLUTION HAND PLIMP	MET	HOD O	F MA	IN CF	II ORIN	ATION

FLOW RATE AT WHICH WATER MAIN IS FILLED IN GALLONS PER	GROCERY STORE LIQUID BLEACH (CLOROX, PUREX, ETC.) 5% CL2	COMMERCIAL LIQUID BLEACH (LAUNDRIES, SWIMMING POOLS) 12% CL2	
MINUTE		AL TO MIX IN 5 CALLONS O	
10 gpm 20 gpm	1 quart 2 quarts	1 pint 2 pints	2 ozs.
35 gpm	3 quarts	3 pints	5 ozs.
50 apm	1 gallon	2 quarts	8 ozs.
75 gpm	1.5 gallons	3 quarts	12 ozs.
100 gpm	2 gallons	1 gallon	1 lb.

	*			DIAMATER	OF PIF	PE BEING	DISINFEC	TED (INCH	INCHES)			
	T	2	4	6	8	10	12	14	16	18	5	
	(GPM)	TIME	REQ	UIRED	TO F	ILL 10	O FEET	OF	PIPE	(MINUT	ES)	
	10	1.6	6.5			40.8	58.8					
	20		3.3	7.3	13.0	20.4	29.4					
į	35		1.9	4,2	7.5	11.7	16.8					
	50			2.9	5.2	8.2	11.8	15.0	20.9			
	75			2.0	3.5	5.5	7.9	10.7	14.0			
	100				2.6	4.1	5.9	8.0	10.4	13.2	16	
	The above table is used to estimate the time required to fill the pipe with chlorinated water. For example: A flow rate of 50 gpm will fill 700 feet of 8 inch pipe in, $7 \times 5.2 = 36.4$ minutes.											
	≯ Flow	rate at	which	water ma	in is fill	led in Gal	lons Per I	Minute.				

SCHOOLSTIC ... PALFE ____ M BOET ... PLAT MAP NO.: SCALE: NONE DRAW" BY: A. GALINDO

ENGINEERING

DEPARTMENT

REVISIONS:

APPROVED BY:

CHECKED BY:

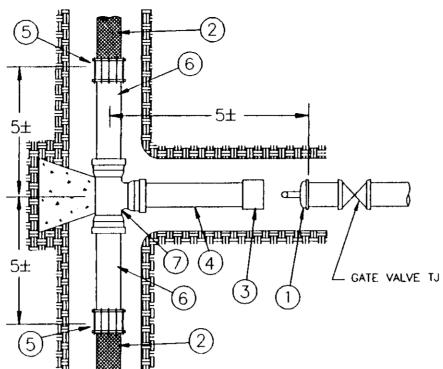
CALIFORNIA WATER SERVICE COMPANY
CIFICATIONS FOR INSTALLATION OF DUCTILE IRON AND POLYY
CHLORIDE PRESSURE PIPE AND APPURTENANCES
SPECIFICATIONS FOR MATERIALS
SPECIFICATIONS FOR DISINFECTION OF NEW MAINS

ALL 6 - 94FOLDER NO.:

ESTIMATE NO.: DRAWING NO.: CW - 832SET 1 OF 1

9

NOTE: IF UNFORESEEN CIRCUMSTANCES OR FIELD CONDITIONS ARISE THAT REQUIRE ALTERNATE OR ADDITIONAL MATERIALS FOR THE TIE-IN TO THE EXISTING SYSTEM, THE DEVELOPER'S CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE THIS MATERIAL TO THE COMPANY TO



1. DEVELOPER'S CONTRACTOR SHALL INSTALL NEW MAIN AND ADJUST FROM NOMINAL LINE AND GRADE TO MATCH EXISTING FACILITIES AT THIS LOCATION. THE DEVELOPER'S CONTRACTOR SHALL INSTALL A TEMPORARY CAP AND

THE DEVELOPER'S CONTRACTOR SHALL PROVIDE CALIFORNIA WATER SERVICE COMPANY WITH THE FOLLOWING MATERIALS FOR THE TIE-IN IT WILL MAKE AT THE INTERSECTION OF MOREING RD & COLLINS COURT.

- 5. 2- 6" ACRBxDI FLEX CPLG, 10" SV IF STL

NOTE: IN ADDITION, THE DEVELOPER'S CONTRACTOR SHALL PROVIDE: MISC. MATERIAL REQUIRED TO COMPLETE THE TIE-IN SUCH AS, BUT NOT LIMITED TO PROTECTION COATING MATERIAL FOR PIPE & FITTINGS, LINEGUARD TAPE, CONCRETE FOR THRUST BLOCKS, EMBEDMENT BACKFILL AROUND AND OVER THE PIPE, FINAL

BILL OF MATERIALS

6" MAIN

390'-6" PVC C-900 PIPE 430'--LINEGUARD TAPE 430'-TRACER WIRE #12 AWG STRANDED COPPER, THWN INSULATED

1-6" CAP TAPT 2" MJ 1-2" BLOWOFF ASSY

1-6" TEE GT×FLG (FOR FH)
1-6" GATE VALVE FLG×TJ (FOR FH) 1-6" ELL 22-1/2' GT 2-6" ACRBxDI FX CPLG(10" SV IF STL) 1-6" TEE GT

10'-6" PVC C-900 PIPE F/TIE-IN 1-6" PVC CLOSURE COUPLING "CERTAINTEED" 1-6" GATE VALVE TJ 2-6" RINGS F/TJ 1-VALVE CASING & COVER ASSY 16-6" "CERTAINTEED" PVC HIGH DEFLECTION CPLGS

NOTE: WHEN ASSEMBLING A PVC C-900 PIPE TO AN IRON FITTING (PUSH-ON OR MECHANICAL JOINT), REMOVE ALL BUT 1/4 INCH OF THE FACTORY MADE BEVEL FROM THE SPIGOT END OF THE PIPE PRIOR TO INSTALLATION.

SERVICES

1-2" SHORT SERVICE (PARCEL 4) 3-2" LONG SERVICES (PARCELS 1-3)

PIPELINE CROSSING INFORMATION

AT WATER MAIN CROSSINGS IN CONFLICT WITH OTHER FACILITIES: When the water main is in conflict with existing facilities or proposed facilities that require more than a 2 foot adjustment from the nominal 4 feet of cover, a fabricated steel cement mortar lined and cement mortar coated offset will be installed at the crossing per CWS Co. standards.

- (1) FINISHED GRADE ELEV. = -.5± 12" SD INVERT $= -5\pm$ INSTALL 6" PVC OVER SD W/2.5' MIN. COVER. USE 6" HIGH DEFLECTION COUPLINGS TO CHANGE GRADE. SEE SECTION A-A.
- $\langle 2 \rangle$ FINISHED GRADE ELEV. = -2.1± 12" SD INVERT = -5.84 INSTALL 6" PVC UNDER SD W/5' COVER
- FINISHED GRADE ELEV. = -.5±
 SIZE AND DEPTH OF EXISTING GAS MAIN IS UNKNOWN. CONTRACTOR SHALL DETERMINE EXACT DEPTH & LOCATION PRIOR TO WATER MAIN INSTALLATION.
- $\langle 4 \rangle$ FINISHED GRADE ELEV. = $-.5\pm$ 21" SD INVERT = $-7\pm$ INSTALL 6" PVC OVER WITH MIN. 2.5' COVER. USE 6" HIGH DEFLECTION COUPLINGS TO CHANGE GRADE. SEE SECTION A-A.

LEGEND:

= ELBOW, 45° **1** = ELBOW, 90° ∞ = BLOWOFF (PROPOSED) ➤ = BLOWOFF (EXISTING) O = GATE VALVE (PROPOSED) • = GATE VALVE (EXISTING) \triangleright = REDUCER (PROPOSED) ▶ = REDUCER (EXISTING) | = SOLID PLUG = PROPOSED WATER MAIN = EXISTING WATER MAIN -ss- = SANITARY SEWER -- sp-- = STORM DRAIN

(i) = FIRE HYDRANT (PROPOSED) • = FIRE HYDRANT (EXISTING)

BACKFILL WITH MATERIALS EQUAL TO OR BETTER THAN THE EXISTING PAVEMENT AND BASE IN QUALITY.

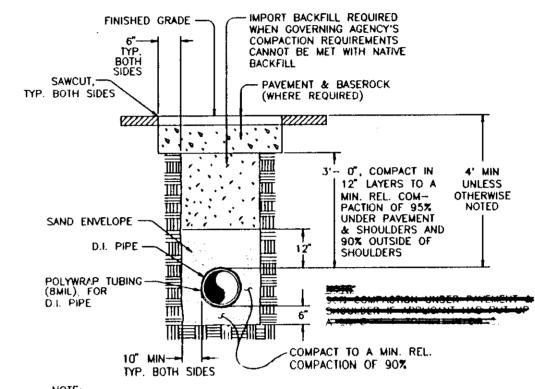
Ø = BUTTERFLY VALVE

Ø = CHECK VALVE

IEMPORARY PAVEMENT: 2" AC

PERMANENT PAVEMENT: SHALL BE 1" THICKER THAN EXISTING PAVEMENT (MIN OF 0.25 FEET AC)

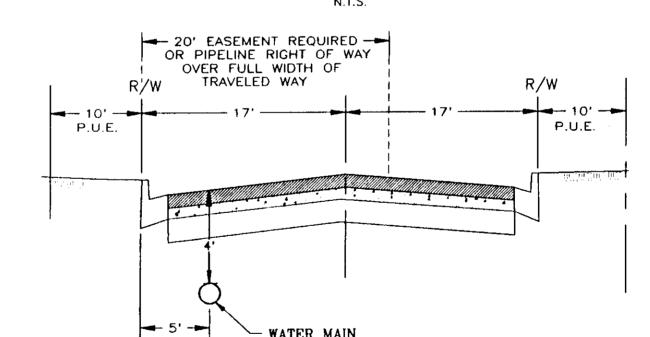
BASE ROCK: SHALL BE 1" THICKER THAN EXISTING BASE (MIN OF 0.5 FEET AC)



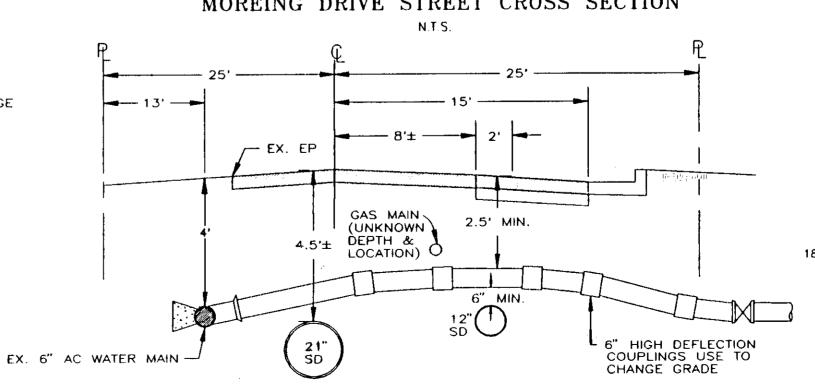
1. ALL EXCESS SPOIL IS TO BE REMOVED. 2. ALL VALVE CASINGS AND COVERS SHALL BE RAISED TO EXISTING GRADE AFTER PERMANENT PAVEMENT HAS BEEN

3. TRENCH REQUIREMENTS MUST BE PER COUNTY OF SAN JOAQUIN'S SPECIFICATIONS.

COLLINS COURT STREET CROSS SECTION PRIVATE ROADWAY



MOREING DRIVE STREET CROSS SECTION



SECTION A-A

- Inspection of all materials and installation for pipeline, hydrants and services must be made by California Water Service Company. Telephone: (209) 466-8971 at least 24 hours before starting work on water facilities.
- 2. Any easements and rights-of-way which may be necessary or reasonably appropriate for the extension will be conveyed or caused
- to be conveyed by the applicant. 3. Contact Underground Service Alert at 800-642-2444 at least 48 hours prior to the
- 4. Place a continuous wire and/or strip of detector tape over all pipe and extend up into all valve boxes. Tracer wire is required on all nonferrous pipe.

commencement of this project.

- 5. For details of typical thrust block installation, see drawing CW 435-R1.
- 6. Protect underground flexible couplings, bare steel, MJxMJ sleeves and bolts as follows: 1. The entire area of the fitting should be dry and free of dust, dirt or other foreign matter. Rust or other foreign material should be removed by scraping or wire brushing. Wiping with a dry clean cloth may be necessary to remove particles from brush cleaning. Any oil or grease must be removed using a low residue volatile petroleum solvent before application of grease 2. The exposed area should be coated with a
- heavy coating of Metalguard #301 grease by the glove method to a thickness of at least 1/4 inch. 3. Firmly wrap the entire grease area with at
- least two layers half lapped of a woven glass filament mesh(Res or Bit Wrop, 4" wide) Apply grease between each layer during wrapping, working the grease into the mesh openings. 4. Cover the entire mesh wrapped area of fit-
- ting with at least 1/4 inch thick of Metalguard #301 grease by the glove method. 5. Firmly apply two layers of the polywrap tube over protected area by splitting the tube and taping the polywrap in place with
- 6. Backfilling may follow immediately after the polywrap tube is taped close. Water main shalf be installed at least 10 ft.
- horizontally from and one foot higher than storm and sanitary sewers located parallel to the main if feasible. Center a 20 foot length at all storm and sanitary sewer crossings. Minimum separation between sewer and water main shall be one foot unless otherwise
- 8. No valve covers or meter boxes are to lie in sidewalks, cross gutter, curb or driveways. Each service should also be located to provide protection to the meter box from auto traffic and parking.
- 9. The exact location of each service to be determined at the time of installation to avoid conflicts with other utilities. Therefore, the number of long, short and split services may vary.
- 10. Location of blow-off in new street area will terminate where street improvement ends.
- 11. Services installed across street area will need import backfill when government agency's compaction requirements cannot be met with native backfill.
- 12. It is the responsibility of the contractor to verify the exact location and depth of all existing and proposed facilities prior to water main installation.
- 13. The list of materials for this project is for CWS Co. estimating and reference purposes only and is not intended as a full take-off of material required.
- The water supply for this development is from local underground aquifers. Additional wells for replacement and pressure will be required in the future.
- 15. Developer shall obtain all permits necessary for the installation of the facilities.
- 16. This water plan design is based on incomplete and unapproved improvement plans. Therefore, sewers, storm drains and street grading conflicts may occur.
- 17. O = Indicates fire hydrant (Tuxedo Country Club Fire District) Limits of CWS Co. ownership for each hydrant: 1 - 6x8-3/4x1/16 Inch Ring Gasket W/Cl 8- 3/4x3-1/2 Inch Machine Bolts W/Hex Nuts, 18-8 Stainless Steel
- 1 6 Inch Gate Valve FLGxMJ NRS NO RS 1 — Valve Casing and Cover Assembly 1 — 6 Inch Outlet Tee GTxFLG Cl CL The following items are not a part of the
- refundable extension agreement for each fire hydrant. Others to provide materials & labor: +/- 7 Feet of 6 Inch PVC Pipe CL150 1 - 6 Inch Fire Hydrant Bury FLGxMJ 1 - 6 Inch Fire Hydrant Head Polywrap Tubing, PVC Tape, Line Guard
- and misc, coating mat'l. Hydrant assembly W/Fire District's approval. The CWS Co portion of the installation of the fire hydrant shall be limited to the GTxFLG tee and FLGxMJ gate valve. The gate valve, gasket & bolts shall be supplied by others. The remainder of the fire hydrant materials shall be installed by others with the Fire
- District's approval. (City of Stockton is the Contractor for Tuxedo-Country Club Fire District)
- 18. CWS Co. requires a pipeline right of way over full width of travelled way or a 20 foot easement for proposed facilities.

SUMMARY

390'-6" PVC C-900 PIPE 1-2" SHORT SERVICE 3-2" LONG SERVICES 1-6" FIRE HYDRANT

ENGINEERING



DEPARTMENT

VALVE RECORD AS BUILT PLAT MAP NO .: 95

1''=60'DRAWN BY: PERALTA

CHECKED BY: A.F.G. APPROVED BY:

at62/3/95 alleta Troman Endl No. C 042113 TO 3/31/90

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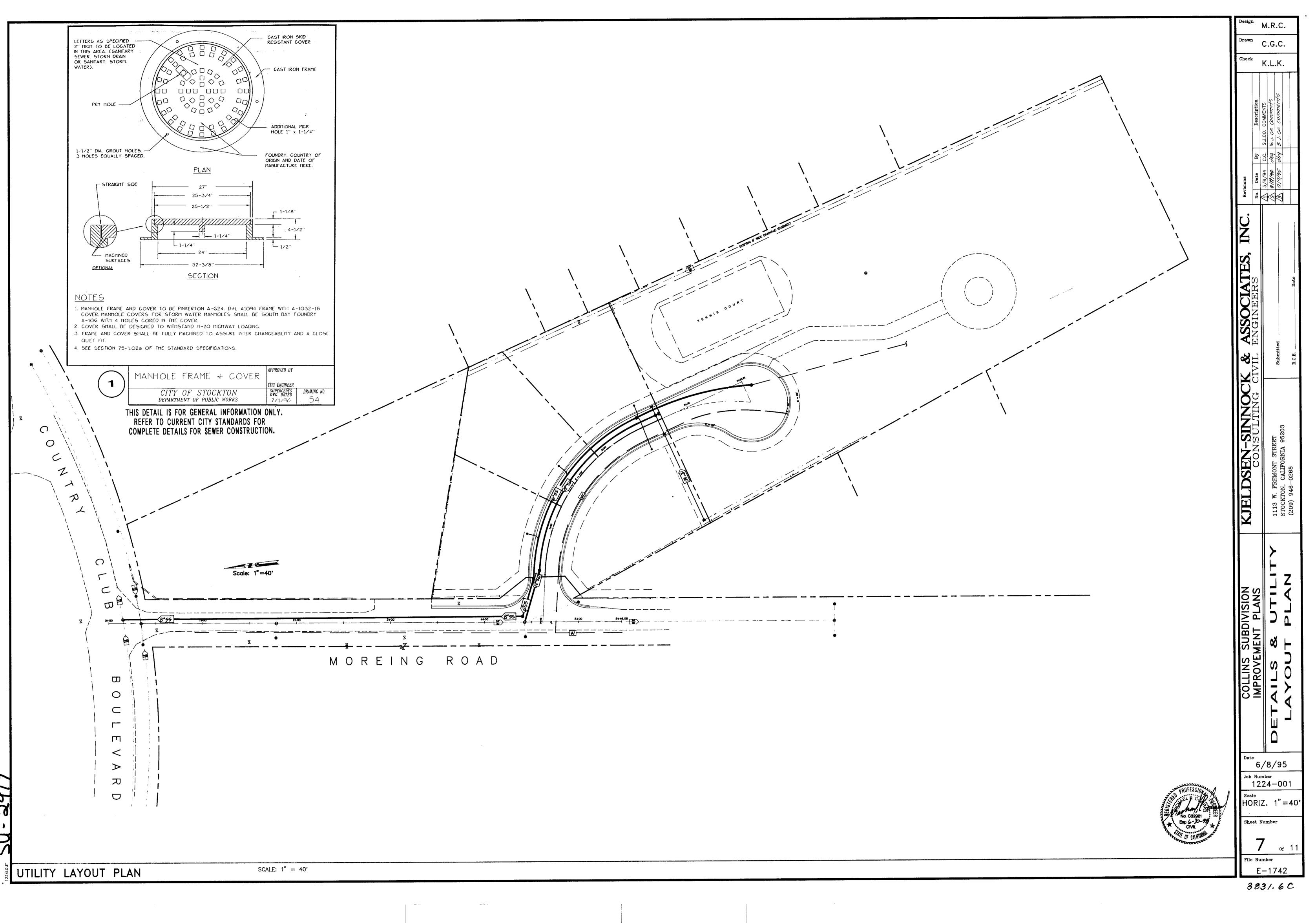
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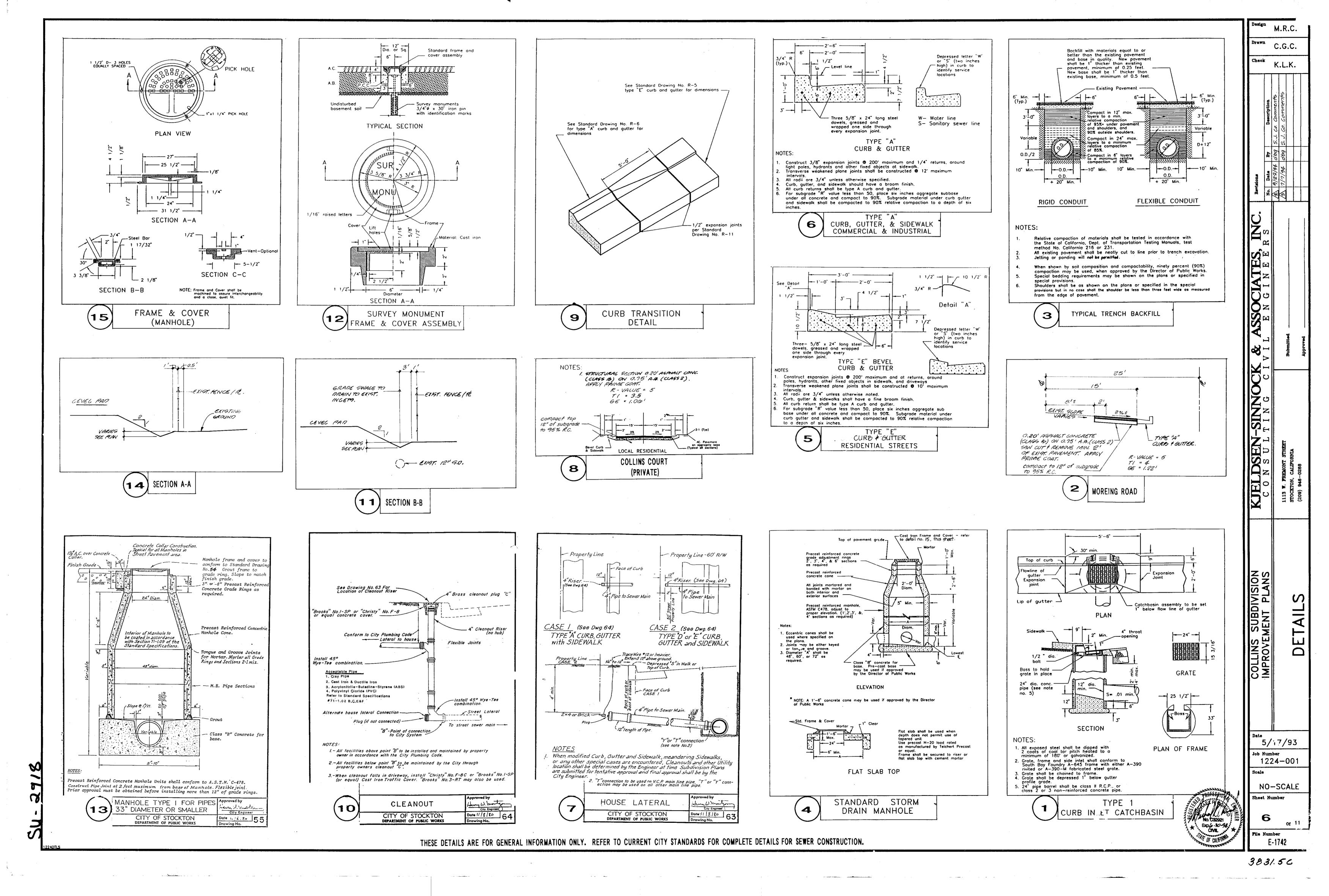
STOCKTON 1/30/95 CADD DWG. FILE:

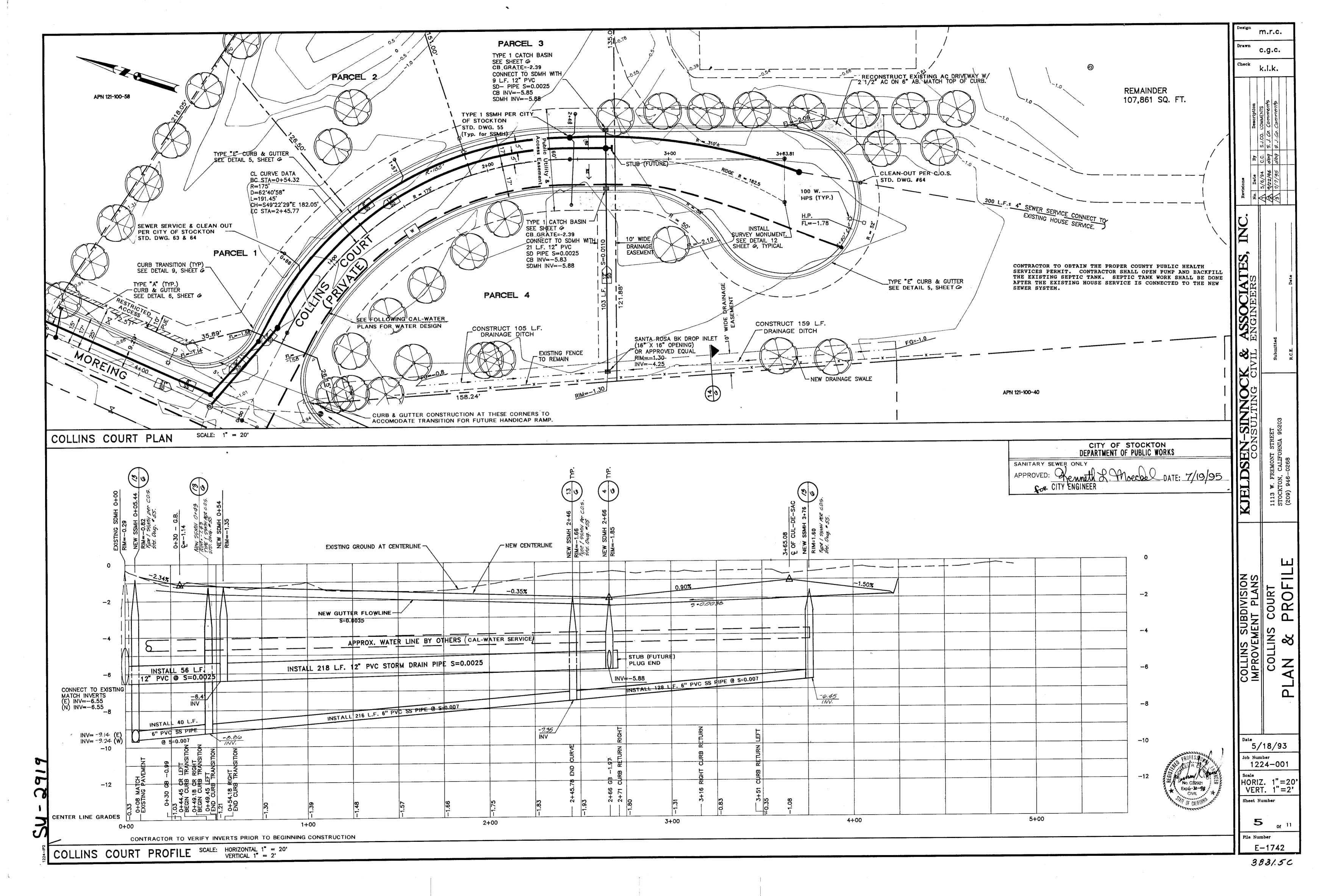
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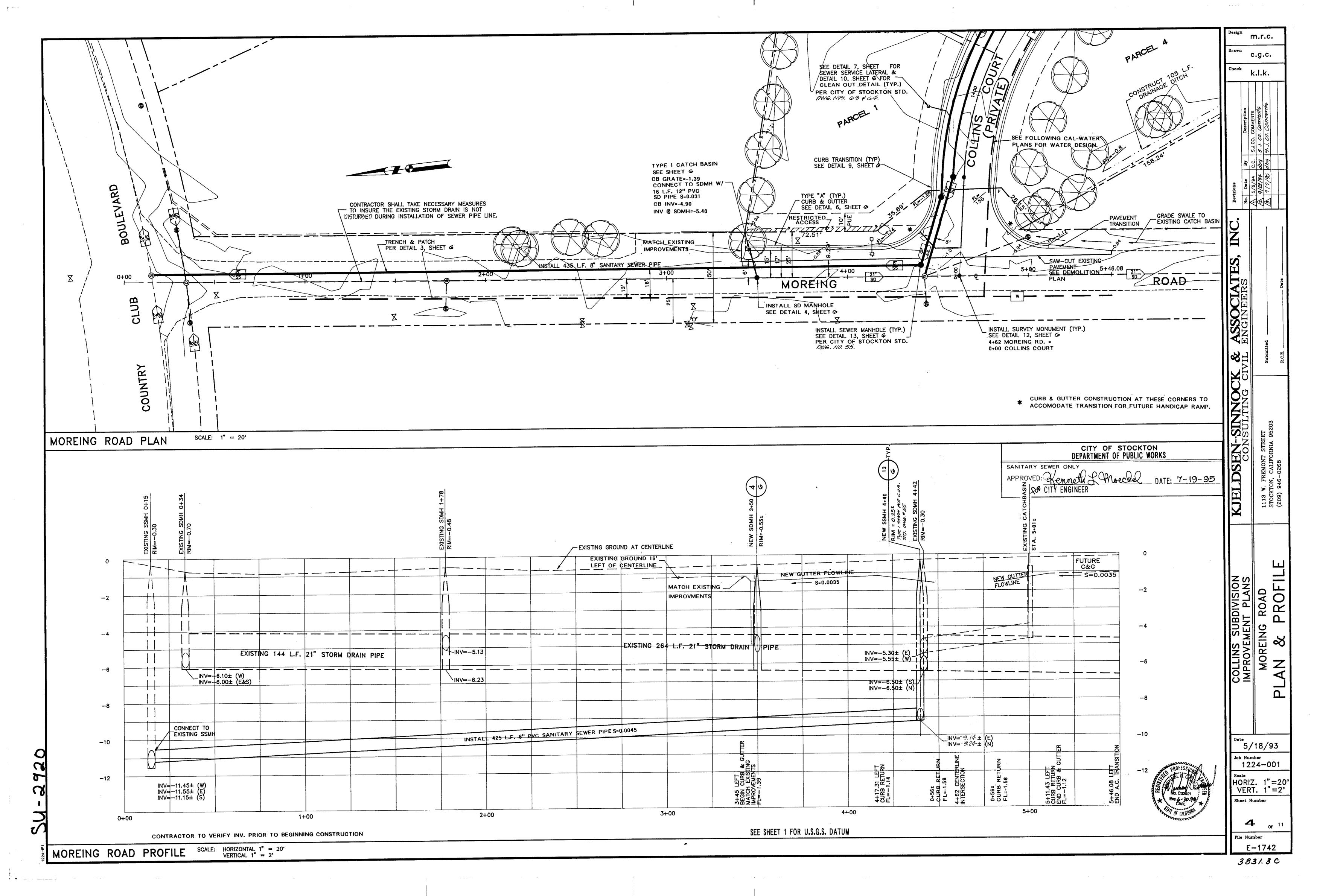
DRAWING NO .: STK-7846 SHT 1 OF 1

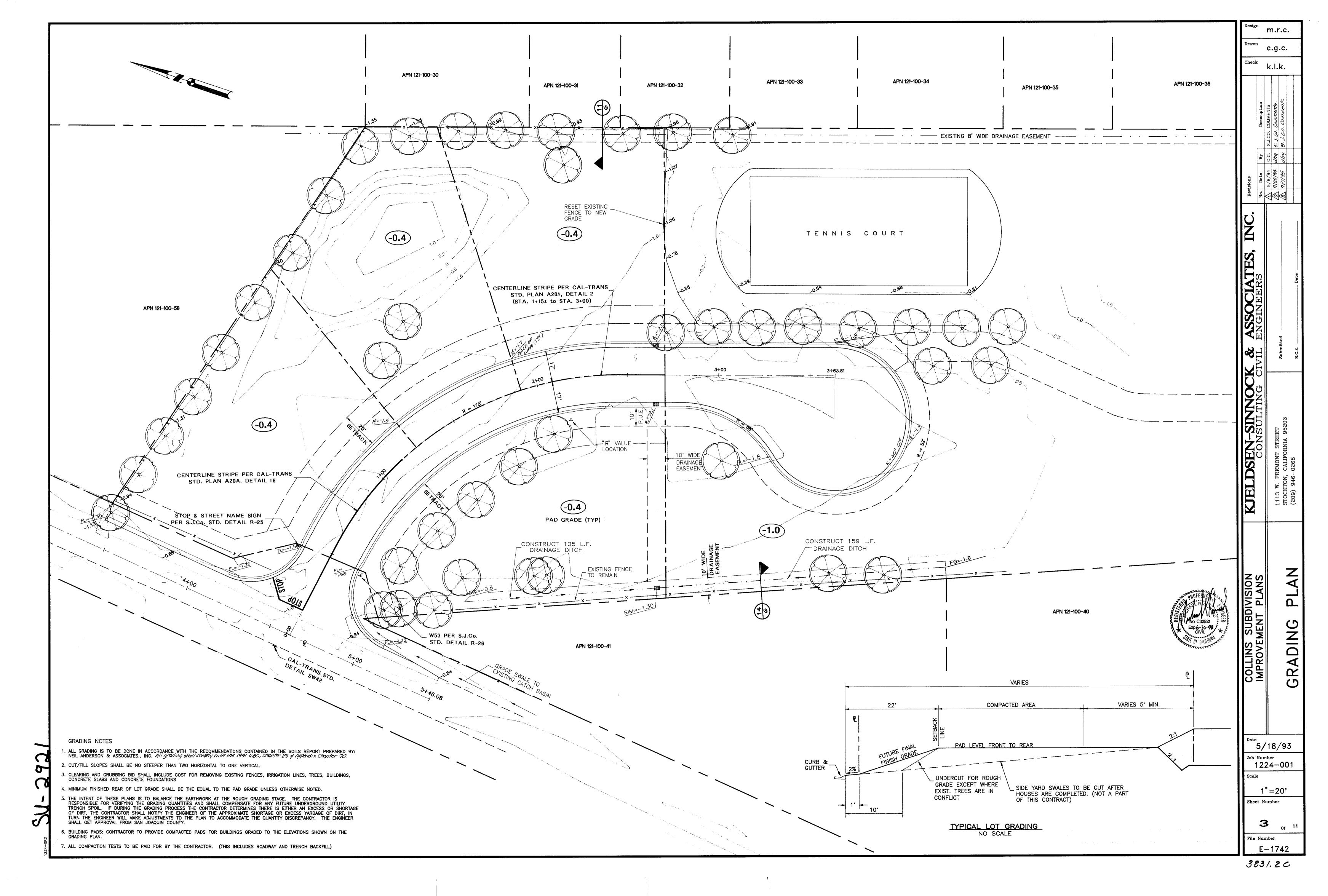
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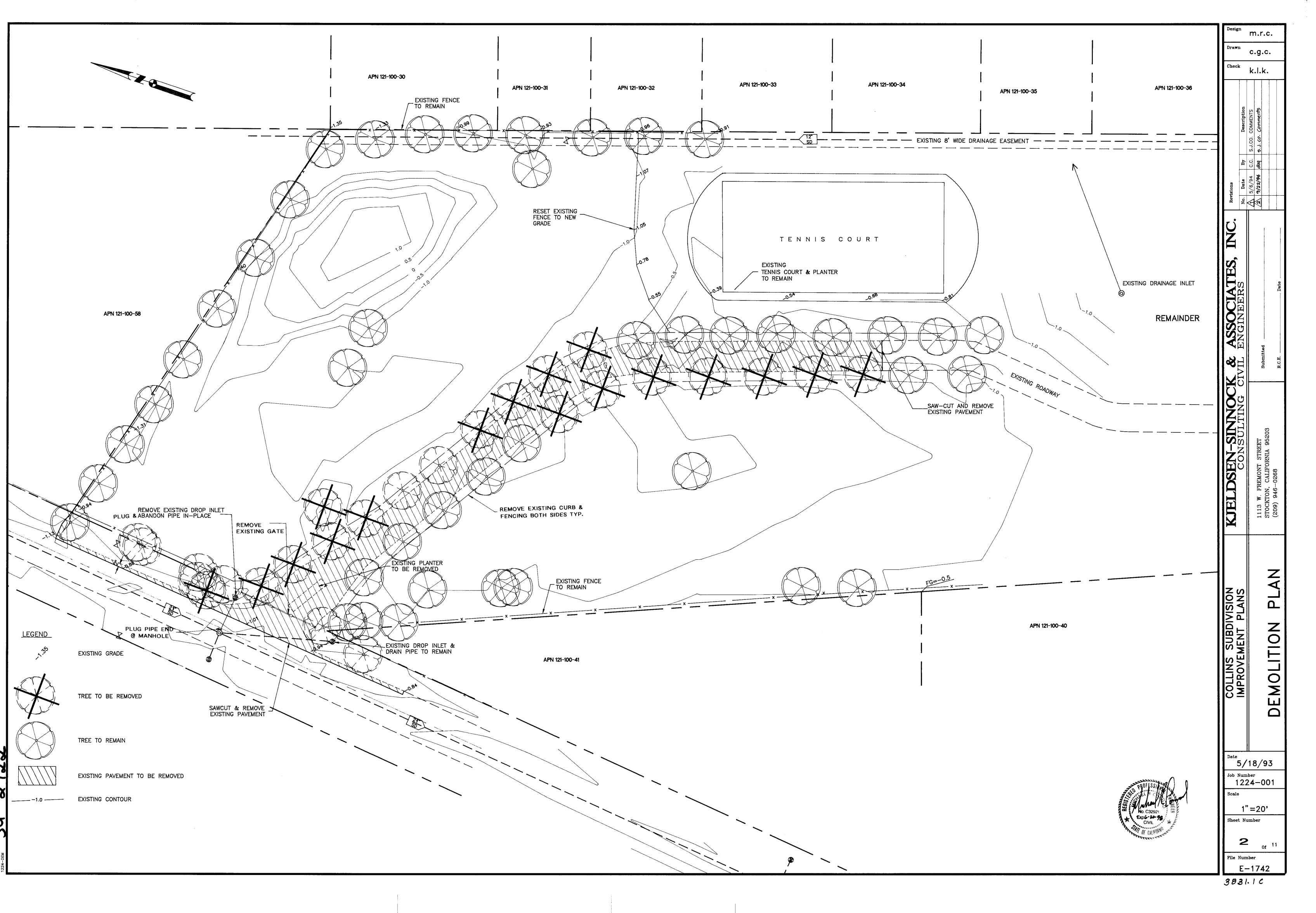












- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS AND LICENSES REQUIRED FOR THE CONSTRUCTION AND COMPLETION OF THIS PROJECT.
- 2. ALL IMPROVEMENTS TO BE DONE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SAN JOAQUIN COUNTY, AND THE LATEST EDITION OF THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS.
- 3. THE INTENT IS THAT THESE PLANS REQUIRE ALL LABOR AND MATERIALS NECESSARY AND PROPER FOR THE WORK CONTEMPLATED AND THAT THE WORK BE COMPLETED IN ACCORDANCE WITH THEIR TRUE INTENT AND PURPOSE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY REGARDING ANY DISCREPANCIES AND AMBIGUITIES WHICH MAY EXIST IN THE PLANS OR SPECIFICATIONS. IF THE PLANS DESCRIBE PORTIONS OF THE WORK IN GENERAL TERMS BUT NOT IN COMPLETE DETAIL, IT IS UNDERSTOOD THAT ONLY THE BEST GENERAL PRACTICE IS TO PREVAIL AND THAT ONLY MATERIALS AND WORKMANSHIP OF THE FIRST QUALITY ARE TO BE USED.
- 4. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UNDERGROUND UTILITIES AND SHALL CONTACT THE RESPECTIVE UTILITY COMPANIES PRIOR TO COMMENCEMENT OF WORK. HE SHALL BE RESPONSIBLE FOR THE LOCATION AND PRESERVATION OF ALL SUCH FACILITIES IN THE AREA OF CONSTRUCTION, AND SHALL NOTIFY UTILITY COMPANIES TWENTY—FOUR HOURS IN ADVANCE OF ANY CONSTRUCTION. (UNDERGROUND SERVICE ALERT (800) 642—2444).
- 5. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF THE REMOVAL AND/OR RELOCATION OF ALL EXISTING UTILITIES WITH RESPECTIVE UTILITY COMPANIES.
- 6. FINAL PAVEMENT WORK SHALL NOT OCCUR WITHIN THE ROAD RIGHT-OF-WAY PRIOR TO COMPLETION OF UTILITY RELOCATION WITHOUT SPECIFIC APPROVAL OF THE DIRECTOR.
- 7. HANDICAPPED RAMPS ARE LOCATED AT ALL CURB RETURNS PER SAN JOAQUIN COUNTY STANDARD DRAWING R-106 UNLESS
- 8. CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENTSHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD THE OWNER & DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL OR OWNER.
- 9. THE CONTRACTOR SHALL PROVIDE SHORING, BRACING, SLOPING OR PROVISIONS TO PROTECT WORKMEN FOR ALL AREAS TO BE EXCAVATED TO A DEPTH OF FIVE FEET OR MORE. SAID PROTECTION TO BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF LOCAL, STATE, AND FEDERAL REGULATIONS (CAL-OSHA, OSHA).
- 10.THE CONTRACTOR IS RESPONSIBLE FOR ACQUIRING ALL NECESSARY ENCROACHMENT PERMITS, THE PERMITS TO BE OBTAINED FROM SAN JOAQUIN COUNTY BEFORE BEGINNING OF WORK.
- 11.ALL TRENCHES AND CROSS TRENCHES ON ALL EXISTING STREETS SHALL BE PAVED WITH TEMPORARY PAVING THE SAME DAY THE TRENCHES ARE EXCAVATED.
- 12.CONSTRUCTION STAKING FOR CURB, GUTTER, SIDEWALK, SANITARY SEWER, STORM DRAIN, AND DOMESTIC WATER, SHALL BE DONE BY KJELDSEN—SINNOCK & ASSOCIATES INC.. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS IN ADVANCE OF
- 13.SHOULD IT APPEAR THAT THE WORK TO BE DONE, OR ANY MATTER RELATIVE THERETO, IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT KJELDSEN—SINNOCK & ASSOCIATES INC. FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.
- 14.ASBESTOS CEMENT MATERIALS SHALL NOT BE USED IN THE CONSTRUCTION OF ANY FACILITIES WITHIN THIS PROJECT.
- 15.THE CONTRACTOR IS RESPONSIBLE, WITH ENGINEER'S APPROVAL, FOR MATCHING EXISTING SURROUNDING LANDSCAPE AND OTHER IMPROVEMENTS WITH A TRANSITION IN PAVING, CURBS, GUTTERS, SIDEWALKS, GRADES, ETC., AND TO AVOID ANY ABRUPT OR APPARENT CHANGES IN CROSS SLOPES, LOW SPOTS OR HAZARDOUS CONDITIONS.
- 16.THE CONTRACTOR SHALL EXPOSE AND CHECK INVERTS ON EXISTING SEWERS, STORM DRAINS, AND CLEARANCES OF KNOWN CROSSINGS WITH OTHER UTILITIES BEFORE CONSTRUCTING NEW PIPELINES. IF CONTRACTOR DETERMINES THE EXISTING INVERTS ARE NOT IN CONFORMANCE WITH THE PLANS, HE SHALL NOTIFY THE ENGINEER BEFORE PERFORMING ANY WORK.
- 17.EXCAVATION TRENCH WIDTH FOR ALL PIPES WITH THE EXCEPTION OF WATER PIPING SHALL BE A MINIMUM OF 20 INCHES GREATER THAN THE OUTSIDE DIAMETER OF THE PIPE. THE SAFETY REQUIREMENTS OF THE OCCUPATION SAFETY AND HEALTH ACT (OSHA & CAL OSHA) SHALL BE COMPLIED WITH FOR TRENCH SHORING AND BRACING.
- 18.WHERE PAVEMENT IS TO BE EXTENDED, EXISTING IMPROVEMENT ENDS MUST BE SAW-CUT. ANY A.C. OR P.C.C. PAVEMENT REMOVED MUST BE SAW-CUT OR REMOVED TO AN EXISTING EXPANSION JOINT.
- 19.ENGINEER ASSUMES NO RESPONSIBILITY FOR FINAL GRADE OF CONCRETE UNLESS FORMS ARE CHECKED BY THE ENGINEER PRIOR TO ANY POURING.
- 20.THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER.
- 21.THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN, OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY IN ACCORDANCE WITH CALTRANS AND CAL-OSHA SPECIFICATIONS.
- 22.THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE SITE AND SURROUNDING AREAS RESULTING FROM OPERATIONS PRIOR TO ACCEPTANCE OF HIS WORK.
- 23.THE TYPES, LOCATION, SIZES AND/OR DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE DRAWINGS WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE TYPES, EXTENT, SIZES, LOCATIONS, AND DEPTHS OF SUCH UNDERGROUND UTILITIES; HOWEVER, KJELDSEN-SINNOCK & ASSOCIATES INC. CAN ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF ITS DELINEATION OF SUCH UNDERGROUND UTILITIES WHICH MAY BE ENCOUNTERED BUT WHICH ARE NOT SHOWN ON THESE DRAWINGS.
- 24.DURING CONSTRUCTION THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF EXISTING FACILITIES. THE CONTRACTOR IS RESPONSIBLE TO REPAIR, TO THE SATISFACTION OF THE COUNTY, ANY FACILIES DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.
- 25. WHERE EXISTING FENCES ARE TO BE REMOVED FOR CONSTRUCTION PURPOSES THE CONTRACTOR SHALL REMOVE AND REPLACE THE FENCING IN KIND. WHERE THE EXISTING FENCE IS USED FOR PROPERTY SECURITY AND/OR CONTAINMENT THE CONTRACTOR SHELL ERECT TEMPORARY FENCING DURING CONSTRUCTION AS SHOWN HEREON OR AS DIRECTED BY THE ENGINEER.
- RECONSTRUCTED TO THEIR ORIGINAL LOCATION AND CONDITION, UNLESS OTHERWISE SHOWN HEREON OR AS DIRECTED BY THE ENGINEER.

 27.ALL TRAFFIC SIGNS AND MARKINGS SHALL CONFORM TO MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CALTRANS TRAFFIC MANUAL AND SAN JOAQUIN COUNTY STANDARDS.

26.ALL LANDSCAPING AND SPRINKLER SYSTEMS DISTURBED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED AND

- SANITARY SEWER NOTES

 1. ALL SANITARY SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF STOCKTON'S STANDARDS SPECIFICATIONS AND PLANS, 1981 EDITION & ALL AMENDMENTS THERE BE TO DATE.
- 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY MARKING INSTALLED LOCATIONS OF SERVICE LATERALS. THE CONTRACTOR SHALL STAMP THE LETTER "S" IN THE CURB FACE DIRECTLY ABOVE THE LOCATION OF THE LATERIAL CENTER.
- 3. ALL SERVICE LATERALS SHALL BE EXTENDED PAST PROPERTY LINE AND PLUGGED & MARKED WITH A 4" X 4" TREATED D.F. POST EXTENDED A MIN. 2' ABOVE FINISH GRADE AS PER CITY OF STOCKTON DWG. NO. 64.
- 4. CONTRACTOR TO BE RESPONSIBLE FOR ALL TESTING OF SEWER FACILITIES INCLUDING CLOSED CIRCUIT T.V. OF ALL LINES AND PRESSURE TESTS. CONTRACTOR TO FURNISH THE CITY OF STOCKTON UTILITY DIVISION WITH VIDEO TAPE.
- 5. ALL VALVES, MANHOLE RIMS, CLEANOUTS, AND FLUSHER BRANCHES TO BE ADJUSTED TO FINISH GRADE AFTER STREET PAVING.
- COST FOR RAISING FACILITIES TO BE INCLUDED IN UNIT PRICES FOR THE COORESPONDING ITEM.

 6. ALL SERVICE LATERALS SHALL BE LOCATED AT THE CENTER OF LOT UNLESS SHOWN OTHERWISE.
- 7. CONTRACTOR SHALL CONTACT WALT NICHOLS (937-8279) OF THE CITY OF STOCKTON FOR A PRE-CONSTRUCTION CONFERENCE.
- 8. CONTRACTOR SHALL OBTAIN AN ENCROACHMENT PERMIT FROM THE CITY OF STOCKTON PUBLIC WOTKS.
 FOR ANY WORK CARRIED OUTSIDE THE CITY RIGHT-OF-WAY AND/OR ON PUBLIC IMPROVEMENTS, THE CITY SHALL BE NOTIFIED
 24 HOURS IN ADVANCE OF ANY WORK STARTING WHICH IS REQUIRED BY THESE PLANS.
- 9. AFTER THE SANITARY SEWER PIPE HAS BEEN LAID AND BACKFILLED, A LOW PRESSURE AIR TEST SHALL BE MADE ON EACH SECTION OF PIPE BETWEN MANHOLES. THE PRESSURE TEST SHALL BE CONDUCTED AS PERSCRIBED BY THE CITY ENGINEER AND SHALL MEET AIR PRESSURE LOSS PER TIME PERIOD IN ACCORDANCE WITH CITY OF STOCKTON STANDARD SPECIFICATIONS. SHOULD ANY TEST ON ANY SECTION OR PIPELINE DISCLOSE AN AIR LOSS GREATER THAN THAT PERMITTED, THE CONTRACTOR SHALL, AT HIS OWN COST, LOCATE AND REPAIR THE DEFECTIVE JOINTS OR PIPE AND RETEST UNTIL THE AIR LOSS IS WITHIN THE SPECIFIED ALLOWANCE. ANY DEFECTS FOUND BY THE CITY OF STOCKTON BY TELEVISION INSPECTION SHALL BE REPAIRED BY THE CONTRACTOR, PRIOR TO CONSTRUCTION OF THE STREET PAVEMENT.

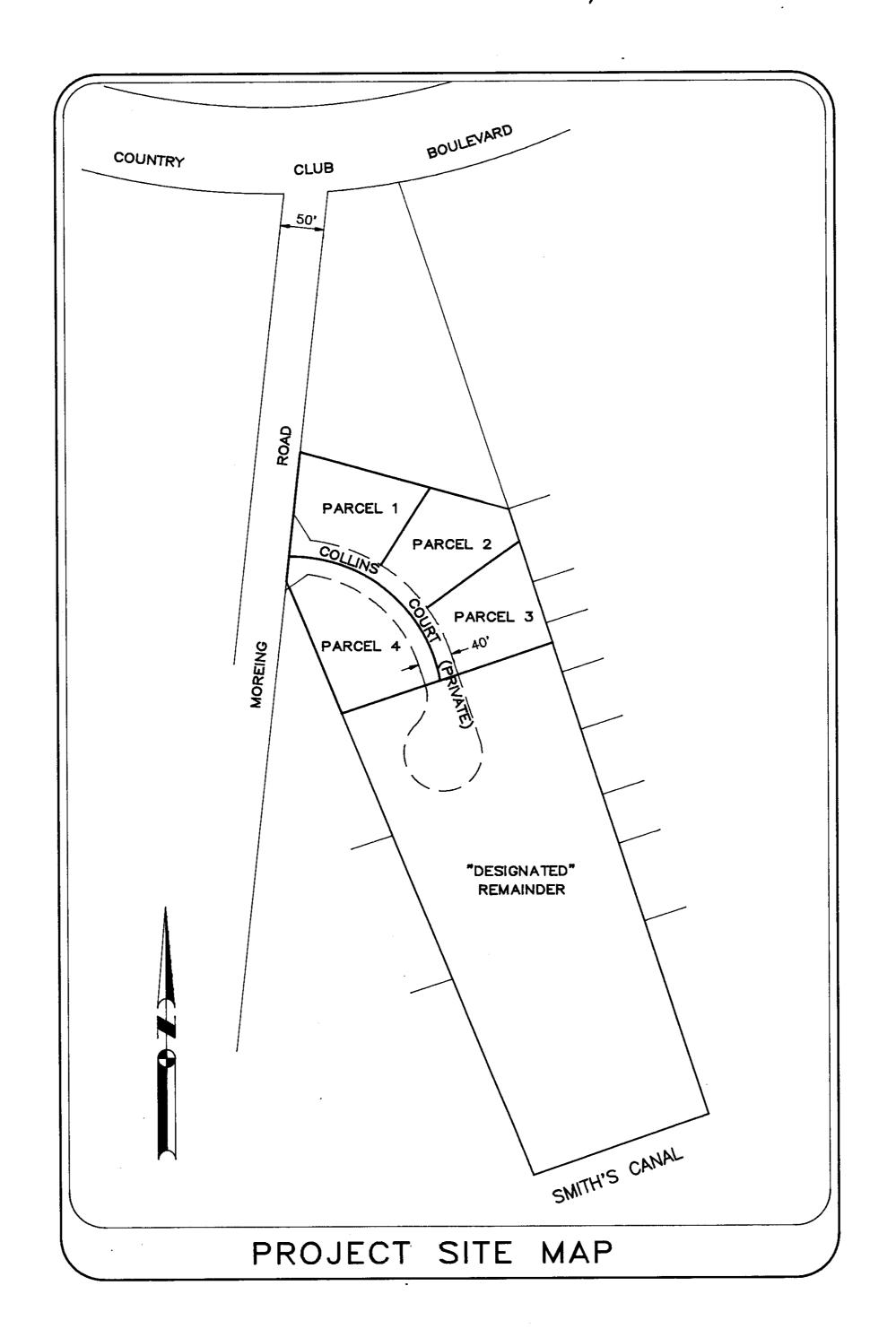
GENERAL NOTES:

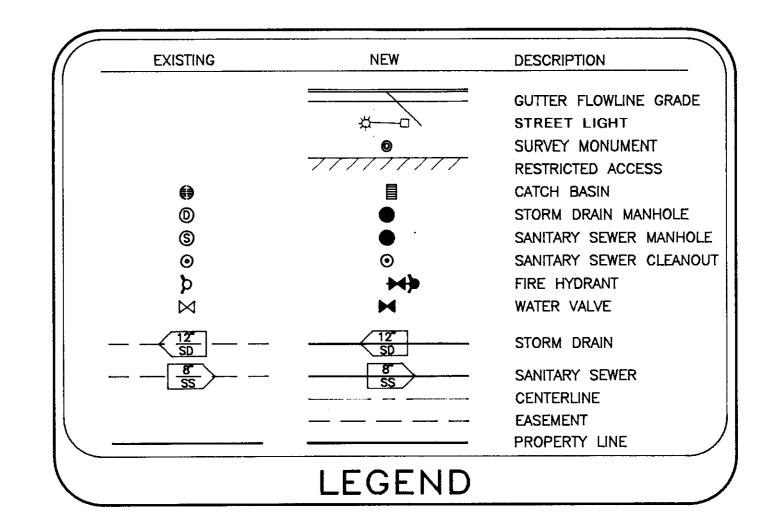
- WATER SYSTEM NOTES
- 1. WATER SYSTEM SHALL BE DESIGNED AND INSTALLED BY CALIFORNIA WATER SERVICE COMPANY. (SEE SHEETS 7 10)

COLLINS SUBDIVISION

IMPROVEMENT PLANS

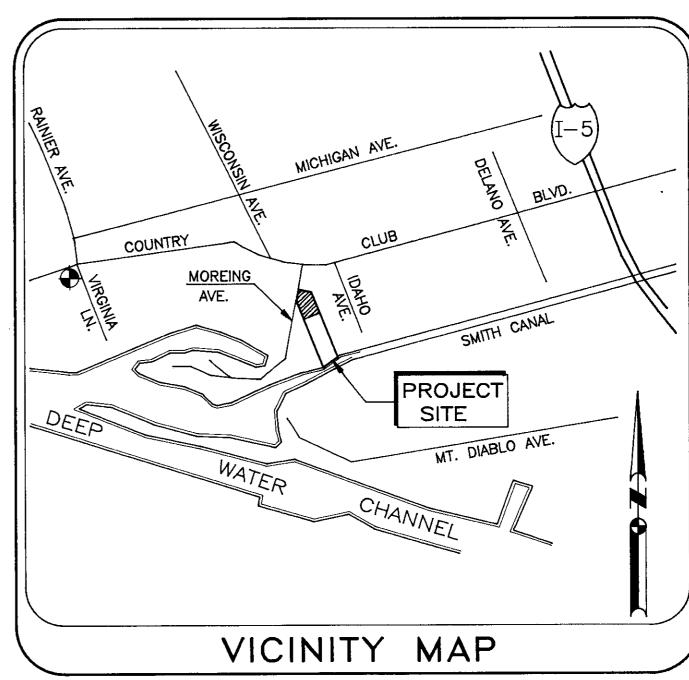
SAN JOAQUIN COUNTY, CALIFORNIA





- 1. TITLE SHEET
- 2. DEMOLITION PLAN
- 3. GRADING PLAN
- 4. PLAN & PROFILE (MOREING ROAD)
- 5. PLAN & PROFILE (COLLINS COURT)
- 6. DETAILS & UTILITY LAYOUT PLAN
- 8-11 CAL-WATER PLANS & SPECS.

INDEX



NOTE: THE CITY OF STOCKTON WILL ACCEPT FOR OWNERSHIP & MAINTENANCE ONLY THE SEWER IMPROVEMENTS.

COUNTY OF SAN JOAQUIN HEALTH DISTRICT	CITY OF STOCKTON DEPARTMENT OF MUNICIPAL UTILITIES	CITY OF STOCKTON DEPARTMENT OF PUBLIC WORKS
APPROVED: Paymond Borges DATE: 6-1695	ACCEPTABLE TO: Small M. Drolge DATE: 7/17/95 ASST. DIRECTOR MUNICIPAL UTILITIES	APPROVED: Herring House DATE: 7-19-95 CITY ENGINEER
FIRE PROTECTION BUREAU	RECLAMATION DISTRICT NO. 1614	COUNTY OF SAN JOAQUIN DEPARTMENT OF PUBLIC WORKS
	STORM DRAINAGE FACILITIES ONLY	, DATE: 8/21/95
APPROVED: Steve Dalton DATE: 10-13-94	APPROVED: Chustopher H. Musleck DATE: 10.10.94	APPROVED: Henry M. Kurata RCE NO: 21258 DIRECTOR OF PUBLIC WORKS EXP DATE: 9/30/97

BENCHMARK:

NE CORNER OF CONCRETE PAD OF P.G.& E. RISER @ SW CORNER @ ENTRACE OF VIRGINA LANE & COUNTRY CLUB BLVD. -1.43 U.S.G.S. DATUM

E-1742

3831C

6/25/93

1224-001

NO-SCALE

Job Number

m.r.c.

c.g.c.

k.l.k.

6/94 (6/94 22/94

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