



**SANITARY SEWER PROJECT**  
**REVIEW CHECKLIST**

Applicant/Project Name \_\_\_\_\_

Date received \_\_\_\_\_

Reviewed by \_\_\_\_\_

Reviewers to verify minimum requirements stated below as applicable prior to approval

**GENERAL REQUIREMENTS**

**1. General Plan**

- show north arrow on plans and maps
- show project number, developer's name, address and phone number
- each sheet shall show seal and signature of California Registered Civil Engineer
- list of utility agencies and contact persons
- provide a general location map, scale = 1":100', showing project limits, adjacent streets, major streets and highway within one mile of project
- provide an index of sheets
- plan shall be ANSI D size = 24" x 36"
- provide signature/initial block for City of Oakland Engineers
- show location of benchmark data including City of Oakland datum
- show City of Oakland monuments
- show legend for symbols and linetypes used
- each plan sheet to have a revision block, including number, description, drawn by, checked by, approved by and date
- show and number manholes and other structures (request form for MH #s)
- show street names, lot #'s, building #'s, parcel #'s, addresses
- show house/building sewer connections
- show existing and proposed utility mains, vaults and boxes, utility poles, electroliers
- show underground service alert and phone number to call
- trench excavation safety protection notes shall be shown on each plan sheet
- trenching shall conform to Standard Detail D-22 & D-22.1
- include General Notes in conformance with City of Oakland requirements
- show details used if different than the City Standard
- plans should indicate Matchline from one sheet to the next sheet, indicating stationing and Sheet No
- indicate if permits are required from other agencies
- indicate whether the improvements require other permits such as encroachment permit, building permit, tree removal permit, etc.



- provide tributary areas that will contribute flow to the sewer system, including flows from the developed area to the point of connection to main line
- provide an estimate of population for the proposed development
- describe land use or type of development which defines the densities of population and type of users contributing to the flow within the tributary areas
- determine the per capita flow of the new improvement
- contact homeowner's association, merchant association as necessary for the planned improvement

**2. Sewer Plan & Profile**

- show plan over profile, scale = 1":40' horizontal, 1":4' vertical; or 1":20', 1":5'; or 1":50, 1":5. Any other scale will not be accepted
- show property lines, right-of-way lines, creeks, sanitary sewer easements with bearings and distances, easement width, wherever applicable
- show adequate horizontal control, tie new lines to the horizontal control
- show pipe length, type, class, slope, inside diameter, and direction of flow
- sanitary sewer plans and profiles are drawn from left to right, low point to high point
- show stationing of manholes and house/building sewer lateral connections at mainline sewer, stationing to be from downstream to upstream, include match lines where appropriate, and where sheet continuation can be found
- stationing shall be shown at each manhole and at every 50 feet intervals along the main line
- show manhole rim and invert elevations in plan & profile
- inverts are shown at each manhole with In and Out flow elevations in the profile view
- existing and proposed sanitary sewer, storm drain, and all utilities are shown on plan and profile views
- whenever sewer and water intersect each other, provide a table with invert elevation of each; clearance and pipe construction to comply with Health Department guidelines
- show all intersecting utilities in plan & profile
- show both existing and finished grades
- show existing and proposed with different line types and line weights
- show groundwater level, if present
- sanitary sewer shall be laid in straight alignment with uniform grade between manholes or structures
- all sanitary sewer main and service lateral slopes shall meet the City of Oakland sanitary sewer design guidelines
- on any sewer main aligned parallel to a proposed or existing storm pipes, the Designer must assure that all lateral services have a minimum of 2% slope and do not conflict with the existing/proposed storm structures
- Designer is to field verify the existing sanitary sewer invert elevations
- saw cut and replace existing asphalt or sidewalk

**SPECIFIC REQUIREMENTS**

**1. Manholes**

- lampholes, cleanouts, and drop connections shall conform to Standard Detail D-2
- manholes shall conform to Standard Details D-11 & D-12



- verify that distance between manholes does not exceed 300 feet
- manhole is required when a 8" and larger sewer lateral is connected into a sewer main
- cleanouts shall be installed at the end of all sewer lines

**2. Pipe**

- sewer main and service laterals shall have a minimum cover of 3.0' from top of pipe to finish grade
- all pipes shall be designed to withstand an H-20 highway loading and existing sub-surface conditions
- minimum inside diameter mainline sewer = 8"
- minimum inside diameter house/building connection = 4"
- Designer shall indicate on plans the point of connections(s), size and the direction flow of existing sewer main in which the proposed line will be connected to
- sewer crossings shall conform to Standard Detail D-23, D-32 and D-33
- provide pipe testing requirements
- provide requirement that pipes shall be closed circuit televised in accordance with the current City standard
- are the sanitary sewer pipes designed for a minimum velocity of 2 feet per second
- minimum easement for sewer within private properties shall be 10 feet wide, unobstructed and without encroachment of any improvement
- pipe materials shall be:
  - vitrified clay pipe,
  - ductile iron pipe, class 52 with approved lining/coating,
  - high density polyethylene pipe, SDR 17 (or better) with smooth interior, light and plain colored pipe,
  - reinforced concrete pipe with an approved lining/coating, or
  - cast iron pipe with an approved lining/coating
- sanitary sewer main shall be located in the street centerline
- sanitary sewer main shall not be located under the sidewalk or curb & gutter area
- pipes shall run in straight alignment between structures
- main sewer lines connected to a manhole more than 18" above the flowline will require a drop connection
- if flexible pipes are used, provide detailed load calculations for pipe design

**3. House/Building Connection**

- one connection for each individually owned unit
- show locations of 2-way cleanouts
- locations of cleanouts shall be accessible at all times
- minimum size of the 2-way cleanout shall be 4"
- house connection cleanout shall conform to Standard Detail D-24
- the last two laterals shall be connected to the main line with a wye connection

**4. Force Main, if necessary**

- force main shall be reviewed and approved by Building Department
- provide maintenance procedures
- provide a monthly or weekly inspection reports



- provide homeowners association agreement, CC&R and other related information
- minimum inside diameter is 4" (IPS)
- minimum cover is 4.0'
- minimum class is DR-13.5 (128 psi)
- provide a cleanout assembly at 300' max. intervals and at > 45-degree change in line
- provide drain manhole at low points
- provide air relief chamber at high points
- provide pipe, fittings and valves in class sufficient to accommodate testing requirements

**5. Pump Station, if necessary**

- proposed mechanical equipments shall be reviewed and approved by the City maintenance division
- electrical details shall be reviewed and approved by the City Electrical Department
- provide positive site drainage
- provide thrust blocks at all angle points
- provide pre-fabricated or structurally designed concrete control vault
- all areas within the pump station fence line must be paved
- provide maintenance procedures
- provide weekly or monthly inspection reports
- provide pump manuals
- provide for emergency plan for any of the equipment failures
- provide for emergency flashing lights and related features when pump station is down
- provide for emergency contacts

**6. Geotechnical Requirements, if applicable**

- provide soils report as part of the contract document
- any type of backfill and relative compactions shall conform to the recommendations of the Geotechnical Engineer
- show soil boring/test hole location and groundwater elevation
- provide boring logs

**7. Specifications**

- show and describe all bid items used
- include specifications and special provisions for each bid item used
- show the number of days to complete the construction of project
- provide traffic control requirements during construction
- provide shoring methodology

**NOTE:**

- 1) All Sanitary Sewer Design shall conform to the City of Oakland Sanitary Sewer Design Guidelines and the Standard Details for Public Works Construction.**