Chapter 3

SELECTING DISPOSAL SITE

The characteristics of the south Palos Verdes shore appeared so favorable for the location of an ocean outfall that, coupled with the fact that all others were inaccessible without consent of Long Beach or Los Angeles, intention was soon crystalized to reach the shore and discharge primary treatment plant effluent in the offshore waters there. Other plans were investigated and compared with ocean disposal but none held out the promise of security inherent in the ocean disposal plan. It was concluded early in the investigation that not only would every effort be made to promote joint action among the larger Districts in the construction of all facilities that were readily susceptible to joint ownership and operation but that all sewage of Districts, not otherwise excluded for good cause, would be brought together at one location in the southerly reaches of the Districts, treated there and disposed via jointly owned structures to some accessible location along the Palos Verdes coast.

To get the sewage of all of the larger Districts together it was necessary that the Los Angeles City annexation known as the "Shoestring" be crossed, first, by the sewers of District 5 to flow sewage of that District from west to east, and then to convey from east to west, all of the sewage of the Districts tributary to a mutual treatment plant, to a line leading to final disposal in
the ocean. Recognizing that this might encounter sufficient opposition in the City Council of Los Angeles to prevent or seriously delay procedure, negotiations were first opened by suggesting to the City that the long narrow shoestring strip would some day need sewerage facilities and, since it was not in any District, would probably have to look for service to the Sanitation Districts, which bordered it on both sides. The City readily agreed to grant authority to cross with District 5 sewage in return for which the Districts tendered a contract for service to the shoestring when needed.

While the law provided that to cross one city with the sewer line of another might be prohibited, the prohibition applied only if the sewer in question crossed public property, such as a street, etc. The shoestring annexation to Los Angeles, while many miles in length averages only a half mile in width and a study of the situation disclosed that at about the most appropriate place to cross it with a line leading from the tentatively selected site for a mutual plant, there was a location where it could be crossed without interfering with, or crossing under, any publicly owned
property of any kind. In this area the Districts purchased an adequate right-of-way for sewerage purposes and had it duly recorded. Later, when it was discovered that the Districts had a crossing right which could be used for constructing the required line to convey sewage to the west, Los Angeles requested that the shoestring territory be annexed to the adjacent District 5, which, of course was done, and by virtue of which no further prohibitions to crossing existed, since a Sanitation District is given the right to use most public streets and highways in the District as right-of-way for sewers and appurtenant structures.

Completely confident that an outfall sewer to the south Palos Verdes coast could now be attained the engineering staff proceeded to base plans and estimates of Districts 1, 2, 3, 5, and 8 on a jointly owned sewage treatment plant, conveyed thereto in jointly owned and operated trunk sewers and flowing thence, after treatment, to the ocean to be discharged, well offshore, at some selected point along the coast bordering the Palos Verdes Hills.

At the head of Bixby Slough, near the settlement of Lomita and just north of the north boundary of Wilmington, (a part of Los Angeles City) is a low lying area which, in the 1920's was customarily flooded in winter. This land afforded an ideal place for a sewage treatment plant with access to a future outlet leading to the Palos Verdes south shore. Because of its strategic location and elevation (about plus 20 feet, USGS datum) it presented the desirable factors that made it an admirable choice for a jointly operated sewage treatment works. Warren commenced negotiations for purchase of some twenty-four acres of it. Nothing could be lost even if the plan to go to the ocean south of Palos Verdes failed to materialize, since the site was well located to serve any type or kind of system which might be proposed.

It is worth commenting, at this point, on a plan of sewerage presented by the then County Engineer, John Rockhold. Economics ruled it out, but the value of water compelled its careful consideration. The Rockhold Plan subtracted nothing from the joint ownership and operation idea but proposed pumping all, or the major part of the area sewage to the Antelope Valley for treatment and ultimate use in agriculture. It had strong appeal but appeared impractical at the time. Its rejection was fortunate in the
light of subsequent industrial development of the District area with attendant industrial wastes, and the overwhelming influx of population. Difficulty in disposing of even small quantities of well purified sewage effluent, developed and treated in the Antelope Valley, years later, indicate the soundness of the decision against the plan.

Combined, storm water and sanitary waste, sewers were dismissed from serious consideration for good reasons. The most compelling was probably the general pattern of rainfall in the Southern California coastal area. Precipitation usually comes in bursts; more often than not it is light at first and much heavier near the close of the storm, after the ground has been pretty well soaked and the natural channels are flowing quite heavily. It was wisely concluded that only complete separation of storm water and sewage would, or could, preserve cleanliness of the south harbor, or the beaches near where flood control and storm water discharges occurred. There were many other considerations current in most any choice between the two concepts. Fortunately there were a great many examples to illustrate the matter and most, if not quite all, of them pointed to the plan of separation. It is rather doubtful if there is any sewerage system south of San Francisco, California designed, originally or otherwise, on the combining basis.

Analysis of the possible outlets for sewage to the ocean along the south shore of the county disclosed that in addition to being the safest and most appropriate, the plan leading to disposal along the south shore of the Palos Verdes Hills was probably the least expensive. Certainly conditions along the shore presented many of the features promoting safe construction, excellent dispersion of sewage, largely unusable shores and little opportunity for any water sports except fishing. The ocean floor, as judged by the areas where kelp found anchorage on rock, was such as to adequately support and protect a large diameter pipe through the breaker zone and on to a depth of about fifty feet a half mile or so from shore. Currents along shore were such as to prevent sand deposition, indicating ability to diffuse, widely, the discharged sewage. The shore was narrow, strewn with rocks above high water and similarly rough and broken between high and low water. Backing
up the narrow shore were high precipitous cliffs. Access to the
beach was almost totally lacking, except at two or three partially
developed recreational coves.

Dissemination of information was not as easily accomplished
in 1923 and 1924 as it is in 1960, plus or minus a few years. There
were not too many radios, no television, no talking pictures and a
rather widely scattered population to acquaint with what was
going on in the Districts and why, and what the citizen’s role was
in the proceedings. In addition to addressing meetings throughout
the Districts’ area, short reels of motion pictures were prepared
and shown in local theaters, accompanied, at times, by a three or
four minute talk from the stage. The picture came on between
reels or pictures, depending on the status of the theater. Local
papers, not so abundant as now, carried stories for, and at times
against, District endeavors. At times, dodgers were printed and
distributed at meetings of service clubs, lodges and the like. Few of
the limited opportunities offered to give publicity to the District
effort were neglected. In particular Warren wanted a spokesman
from the staff at every meeting or group which he, or his associates
could induce to listen to the District story. Warren attended all of
the meetings which he could find time for and turned the remain-
der over to his principal assistant at the time, the author of this
story. It was not unusual for each to address a luncheon meeting,
an afternoon gathering, a dinner meeting and a later evening
appointment.

It is undoubtedly true that the early staff employed by
Warren was not such as to inspire great confidence in the minds of
California State Department of Public Health engineers. Precise
sewerage practice in America was not well developed at that time.
Complete treatment, other than as supplied by rock filters, was
largely experimental in 1920. Actually, there was but one employ-
ee on the District staff whom the State engineers and their advisors
would classify as a sanitary engineer. This feeling resulted in
somewhat strained relations between the two agencies, a feeling
that was only partially allayed by the employment of Xanthus
Goodnough, State Sanitary Engineer of Massachusetts, and the
Chicago firm of Pierce, Greeley, and Hanson to act as District
Consultants after the plan of the Districts had been set in motion.
Representations by the State Health Department engineers to the State Board of Health were not particularly favorable to the Districts at any time, but in the 1920's they had little effect upon the actions of that Board whose chairman supported Warren consistently as one who had a good solution to a perplexing problem and was doing something about it.

In defense of the State Health Department Engineers' attitude, it must be remembered that in 1924 sewage disposal conditions along the California coast were deplorable, to say the least. San Francisco Bay shores were grossly polluted throughout large areas and from San Luis Obispo to San Diego there was no place where ocean disposal of sewage was being practiced so as to satisfactorily control contamination of shore waters. This condition was particularly bad in Santa Monica Bay where the outfall of Los Angeles emptied sewage plant effluent off the end of a 2000-foot trestle at Hyperion, and Santa Monica did likewise, close by. Had the Districts intended to perpetuate such practice, skepticism of its outcome would have been justified. The District staff recognized the pitfalls in a careless approach to the matter and not only selected a location for construction of an outfall to sea waters quite isolated and lacking in recreational advantages, but also proposed further to explore the phenomenon of diffusion of sewage in sea water to the end that properly clarified, sewage plant effluent would be discharged in such a manner as to utilize all natural forces present in combating contamination of adjacent shores.

For a while, during early consideration of what sewage treatment process might be appropriate for District use, it was thought that a type of plant similar to that to be incorporated in the new Los Angeles works at Hyperion would adequately serve the purpose. One of the large sewage plant equipment manufacturers had contracted to fashion twelve-foot diameter drum-shaped, fine screens for the City, much larger than any others then in use, at least in America. The City's decision to use such equipment in its proposed treatment process and to then discharge the liquid passing the screens through an outfall which would empty its contents 5000 feet offshore appeared to fit the District picture pretty well. Analysis of the liquid and small solids passing such a screen was discouraging, however, and the final conclusion was to invoke a
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sedimentation process which would not only remove much more solid material from the sewage prior to final disposal, but would fit into the re-use of temporary activated sludge plant structures for, and in, the primary settling tanks to eventually be used.

The Districts' decision in the matter was a wise one. The process adopted initially has prevailed continuously in the District plant and, together with development of a well-designed and adequate submarine outfall has served to dispose of District sewage with a minimum of shore pollution. Experience with sewage screens has been discouraging and such form of sewage treatment has been almost universally abandoned for the more efficient sedimentation process.

Selection of an outfall site on the south Palos Verdes shore was made only after the entire shore had been inspected from land and from the ocean. Not satisfied completely with his own estimate of the security and wisdom of the choice, Warren arranged numerous trips of inspection of the shore from Point Fermin to Portuguese Bend and Point Vicente. Although many such inspections were made by District officials unaccompanied by others, trips along shore were made by as many interested officials as could be persuaded to go. These included the City Engineer of Los Angeles and members of his staff, the Long Beach City Engineer and Directors of District 3, the Los Angeles County Engineer, representatives of the press, both metropolitan and rural, and citizens from many District areas. Except for some individuals who lived along the bluff and others from San Pedro, there seemed pretty unanimous agreement that the general location was well chosen.

It must be remembered, that while the District plan had been set legally in motion in 1924, it was not required that the ocean method of disposal would be invoked until the late 1930's which, it was surmised, would allow ample time for investigation and analysis of a selected site and method of disposal before the Districts were definitely committed.

Some of the highlights influencing the selection of White's Point for ocean discharge of plant effluent are of interest. Although much more work was done and many more investigations made before final determination of suitability of the site, the scope of inquiry is indicated by the following which are in a generally
chronological order.

On June 26, 1924, engineers Bolton and Rawn of Warren's staff submitted to Warren a preliminary plan and estimate of cost for construction of a sewer tunnel under the Palos Verdes Hills. The tunnel was to originate at a possible sewage treatment plant site near the northwest corner of Wilmington at the head of Bixby Slough and terminate at some point along the south Palos Verdes shore between Point Fermin and Portuguese Bend. Any point along the shore between these two locations was about equally distant from the proposed plant site.

Warren reacted to the suggestion with characteristic promptness and on Sunday June 29, 1924, accompanied by the two engineers, inspected the shore from the land side, from Point Fermin to Portuguese Bend. On July 1, 1924, with W. T. Knowlton, Sewerage Engineer for Los Angeles City, and appropriate members of the District staff, he inspected the shore from the ocean side from Point Fermin to Malaga Cove. Both Warren and Knowlton were greatly impressed with the possibilities of the plan, particularly the White's Point Terminus. It seemed obvious that White's Point would lend itself well to the proposal. It was included, with others, for further study and investigation.

In April, 1925, following his appointment as Chief Engineer of the Districts, Warren authorized extensive studies at White's Point to determine the direction and intensity of prevailing ocean currents. Investigation of the ocean bottom conditions was likewise authorized. Work on both of these tasks was commenced by mid-April and carried to completion during the summer. At the same time, investigation of the phenomenon of diffusion of sewage effluent in sea water, about which precise knowledge was unavailable, was commenced. Two years were required to complete the diffusion investigation and report.

On May 15, 1925, Los Angeles City Engineer, Van Norman, advised his sewerage engineer of his approval of the White's Point location and on June 10, 1925, the tunnel location and outfall site were inspected by engineers from the area and approved as well-suited for the purpose intended. Present at the inspection were: H. A. Van Norman, W. T. Knowlton, Fred A. Batty (Los Angeles City Engineer's office); Schofield, Gardner, and Rice (of Merritt
SEWAGE DIFFUSION STUDIES—Floating barge and equipment at Los Angeles Harbor used in determining formulae for predetermining extent of field of contamination over a sewer outlet into seawater. Dr. H. K. Palmer is shown conducting investigation.

Chapman Scott); the Mayor and City Engineer of Long Beach; Warren, Rawn, and Taylor of the Districts.

During the latter part of 1925, the owner of a resort at White's Point effected some improvements to his recreational facilities at the Point. A swimming pool, in the form of a small boat harbor, was constructed as was a considerable landfill of native soil and rock from adjacent cliffs. It was proposed that eventually a resort hotel would be constructed on the fill, which latter extended seaward a hundred or so feet and was exposed to the open sea. The improvement gesture was possibly intended to indicate the value potential of the property if it were taken for sewerage purposes.

Unfortunately for the owner, early February, 1926, was very stormy with waves quite damaging to White's Point improvements. What had been erected there many years before stood the storm well, but the new fill material was largely washed away by the high waves. When the storms had subsided, the fill for the hotel site was gone, the soil had disappeared, and the rock and boulders which it had contained filled the mouth of the little boat harbor. The
concrete wall of the small harbor was badly damaged. This storm did much to dictate the type of embedment and foundation necessary for the stem end of the proposed outfall.

On February 14, 1926, an important meeting was held at the White's Point site. Luncheon was served to the Los Angeles City Council members who, together with County Supervisors Wright and Cogswell; members of the Sepulveda family (owners of the property), Warren and Rawn, heard the Palos Verdes Hills principal owner, Vanderlip, relate his reasons for purchasing the vast estate and his hopes for its future development. His remarks, as well as his conduct and demeanor, were very impressive. At this meeting, the opposition of the Councilman representing San Pedro on the City Council was made abundantly clear. No official action was taken.

Xanthus Goodnough, Chief Sanitary Engineer of Massachusetts, retained by Warren to advise the Districts upon a course of procedure arrived in Los Angeles January 27, 1926. During the two weeks which he spent in Los Angeles, he reviewed what had
SLIDE AT POINT FERMIN—In late 1926, a landslide with characteristic land settlement, developed at Point Fermin. At White’s Point a reef extends seaward from the base of the cliff giving some assurance that such a land failure will not occur at the selected outfall site in the foreseeable future.

been done, met with interested engineers and public officials, visited local plants including that of Los Angeles City, and gave his wholehearted support and approval to the entire District concept and plan, including particularly, disposal of plant effluent at White’s Point in the manner proposed. In particular Goodhough and Warren met in Warren’s office on February 8, 1926, with Shaw, Knowlton, Hussey, Mathewson, Goudy, Van Alstyne, Bolton and Rawn. At this meeting, it was concluded that but two locations for the outfall deserved further consideration, viz., Point Fermin and White’s Point, and that no further consideration should be given Alamitos Bay or the Long Beach Flood Control channel. Goodhough returned to Massachusetts on the morning of February 10.
On March 12, 1926, Warren, Hugh Gordon (Attorney for the Districts), and Rawn attended a meeting of the Chamber of Commerce at San Pedro. It was apparent that a friendlier feeling prevailed at this meeting than had been evidenced at earlier sessions probably as a result of open discussion of the care with which the Districts were approaching a conclusion regarding the outfall. Later, at a meeting at Long Beach July 8, 1926, the Districts' proposal to discharge at White's Point was warmly endorsed.

On August 25, 1926, Warren arranged an inspection of outfall sites which had been considered from time to time. The inspection was from the ocean side and in the party were Van Norman, C. T. Leeds, Franklin Thomas (Caltech), Van Alstyne, and Williams (Long Beach), Knowlton, Warren, and Rawn. This inspection and the approval of those who were in the party fairly well crystallized the thinking in favor of White's Point, barring unfavorable developments in future investigations.