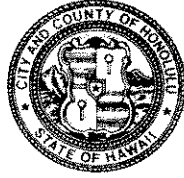


DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4564 • Fax: (808) 523-4567
Web site: www.honolulu.gov



MUFI HANNEMANN
MAYOR

WAYNE M. HASHIRO, P.E.
ACTING DIRECTOR

EUGENE C. LEE, P.E.
DEPUTY DIRECTOR

WW.P 05-0110

March 28, 2005

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson,

Subject: Draft Environmental Assessment (DEA) for
Kalihi Valley Reconstructed Sewer,
TMK: 1-3-29, 1-3-33, 1-3-37 to 38, 1-4-01 to 06,
1-4-08 to 14, 1-4-17, 1-4-19 to 21, 1-4-23 to 25 Kalihi, Oahu

RECEIVED
MAR 29 11:20
OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

The City and County of Honolulu Department of Design and Construction has reviewed the comments received during the 30-day public comment period which began on December 8, 2004. The agency has determined that this project will not have significant environmental effects and has issued a FONSI. Please publish this notice in the next available OEQC Environmental Notice.

The City's consultant, ParEn, will be sending the completed OEQC Publication Form and four copies of the final EA. Please call Mr. Richard Leong at 527-5863 if you have any questions.

Very truly your,

Handwritten signature of Wayne M. Hashiro in black ink.

Wayne M. Hashiro, P.E.
Acting Director

FINAL ENVIRONMENTAL ASSESSMENT

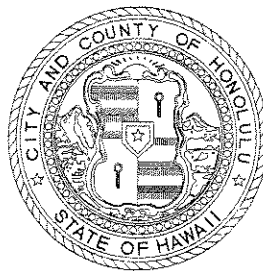
FOR

KALIHI VALLEY RECONSTRUCTED SEWER

Oahu, Hawaii

Proposing Agency:

CITY AND COUNTY OF HONOLULU
DEPARTMENT OF DESIGN AND CONSTRUCTION



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CITY OF ENVIRONMENT/
QUALITY CONTROL

This environmental document prepared pursuant to Chapter 343, HRS

Responsible Official: *Wayne M. Hashiro*
Wayne M. Hashiro, P.E., Acting Director

Date: 3/22/05

Prepared by:
ParEn inc., dba Park Engineering
Suite 1500, Pacific Park Plaza
711 Kapiolani Boulevard, Honolulu, Hawaii 96813

March 2005

FINAL ENVIRONMENTAL ASSESSMENT

FOR

KALIHI VALLEY RECONSTRUCTED SEWER Oahu, Hawaii

Proposing Agency:

CITY AND COUNTY OF HONOLULU
DEPARTMENT OF DESIGN AND CONSTRUCTION

This environmental document prepared pursuant to Chapter 343, HRS

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I. EXECUTIVE SUMMARY

Existing wastewater infrastructure in Kalihi Valley consists of a network of gravity sewer lines emanating from multiple tributary subareas that feed into a primary trunk sewer system. The trunk sewers generally follow Kalihi and Kamaikai Streams through the bottom of the valley. See Figure 1.

The area's wastewater collection system was constructed in the middle of the last century and has experienced substantial deterioration with age. The prevalence of sewer lines in private property easements causes a number of undesirable conditions. Vegetation above the sewer line has the direct impact of root intrusion at pipe joints. An indirect impact is the difficulty of accessing and maintaining the pipelines and manholes.

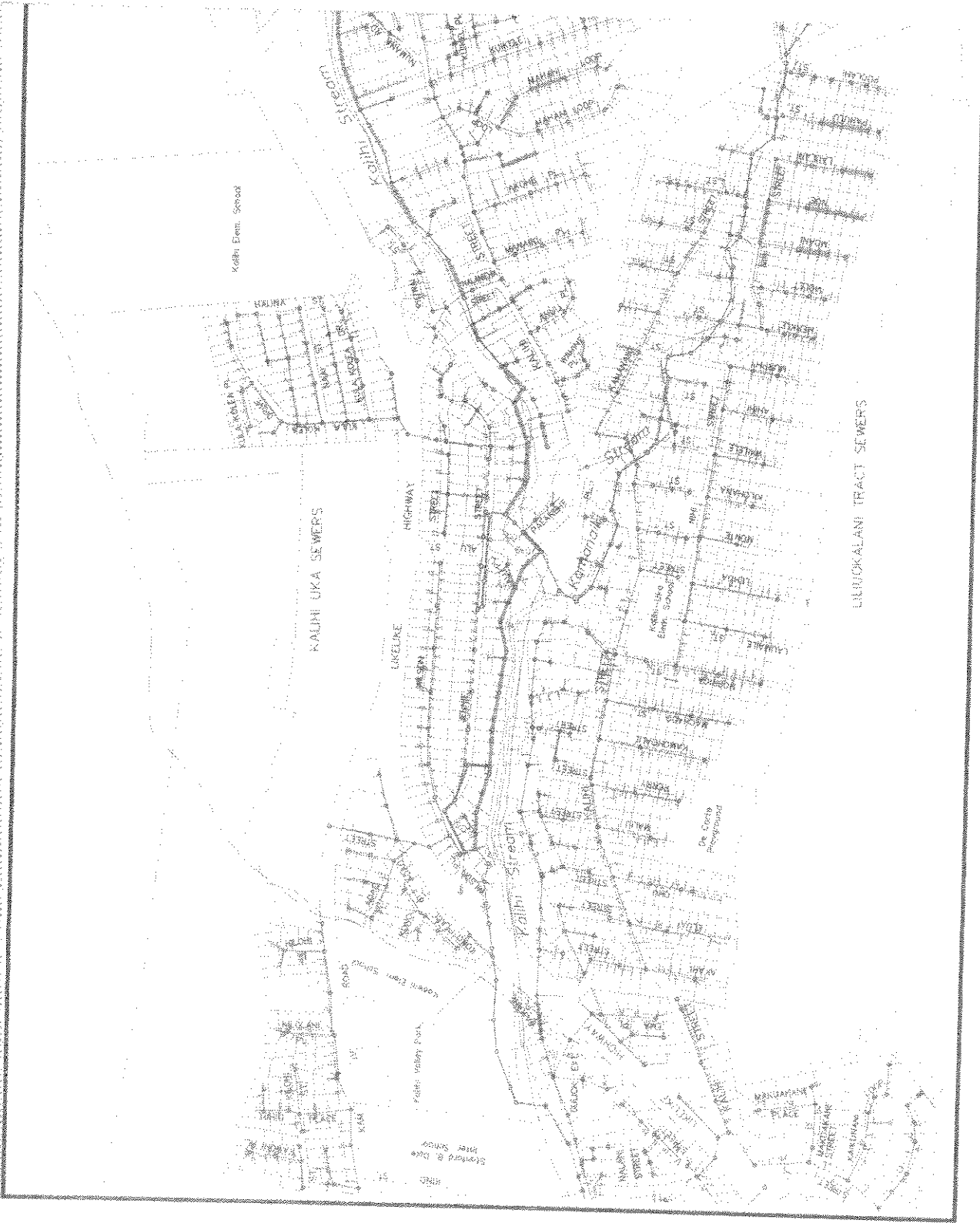
In addition to structural concerns, hydraulic capacity of the wastewater conveyance system has come into question. Flow modeling results of future flow conditions demonstrate that a significant amount of the sewer trunk lines are exceeding their rated capacity, with a higher proportion occurring in the larger diameter trunk sewer.

The structural condition and hydraulic capacity of the collection system are a concern to the City and County of Honolulu's wastewater staff because they directly affect the amount of resources required to maintain and operate the system and because of the elevated risk of sanitary sewer overflows (SSOs). It has been well documented that Kalihi Valley is an area that requires frequent and recurrent maintenance and there have been a number of dry weather SSOs.

The recommended alternative for this project has several components. Cured-In-Place-Pipe (CIPP) rehabilitation of pipe sections in severe condition based on CCTV inspections and condition assessment will be used to correct structural and hydraulic problems. Point repairs on some of these pipes may be required prior to CIPP. In other cases where it has been determined that the existing sewer lines are hydraulically inadequate to convey projected future flows, relief lines installed by a trenchless method such as mini-microtunneling or horizontal directional drilling are proposed. These methods will eliminate or minimize disturbances to the stream channel and banks and negative impacts to residents. The Department of Army has determined that a Section 404 permit will not be required if the proposed relief lines crossing the streams are installed by horizontal drilling methods, as these methods would not likely result in a discharge of dredge or fill material. The State of Hawaii Department of Land and Natural Resources (DLNR) has reviewed preliminary plans of these proposed relief lines and stated that a Stream Channel Alteration Permit (SCAP) may be required. However, if the relief lines can be installed without altering the stream bed and banks the SCAP may not be required. See Appendix A. The recommended alternative also contains provisions for rehabilitation of manholes of the sewer trunk system, where warranted.

Since CIPP alone could not resolve severe hydraulic deficiency problems in the trunk sewer, flow diversions were recommended to redistribute sewer flows. The diversion line will utilize an existing wastewater collection system along Jennie Street, as well as new segments of line and eventually discharge into the Gulick Avenue Relief Sewer. Hydraulic analysis show that these diversions can reduce wastewater flows sufficiently so that no upsizing of the inadequate trunk lines would be required. This is of critical importance due to the proximity of private property improvements adjacent to the trunk sewer, which eliminated all upsizing options. The Gulick system does have adequate excess hydraulic capacity to accommodate this diversion with the exception of two short sections at the end of the line south of the Kapalama Avenue-School Street intersection. This project will correct the existing deficiencies, as well as alleviate some of the surcharging problems of the trunk lines directly downstream of the Kalihi Valley Reconstructed Sewer project. See Figure 2.

After review of the Environmental Assessment by various government agencies and interested organizations following a formal public comment period, the proposing agency has determined that this project will not have significant environmental effects and has issued a Finding of No Significant Impact (FONSI).



Kauai Elem. School

KAUAI UKA SEWERS

LIKELIKE HIGHWAY

LIUOKALANI TRACT SEWERS

Yalini Streets

Stamford & Dale
Water Services

Kauai Middle School

De Corb
Playground

MANUWAI
STREET

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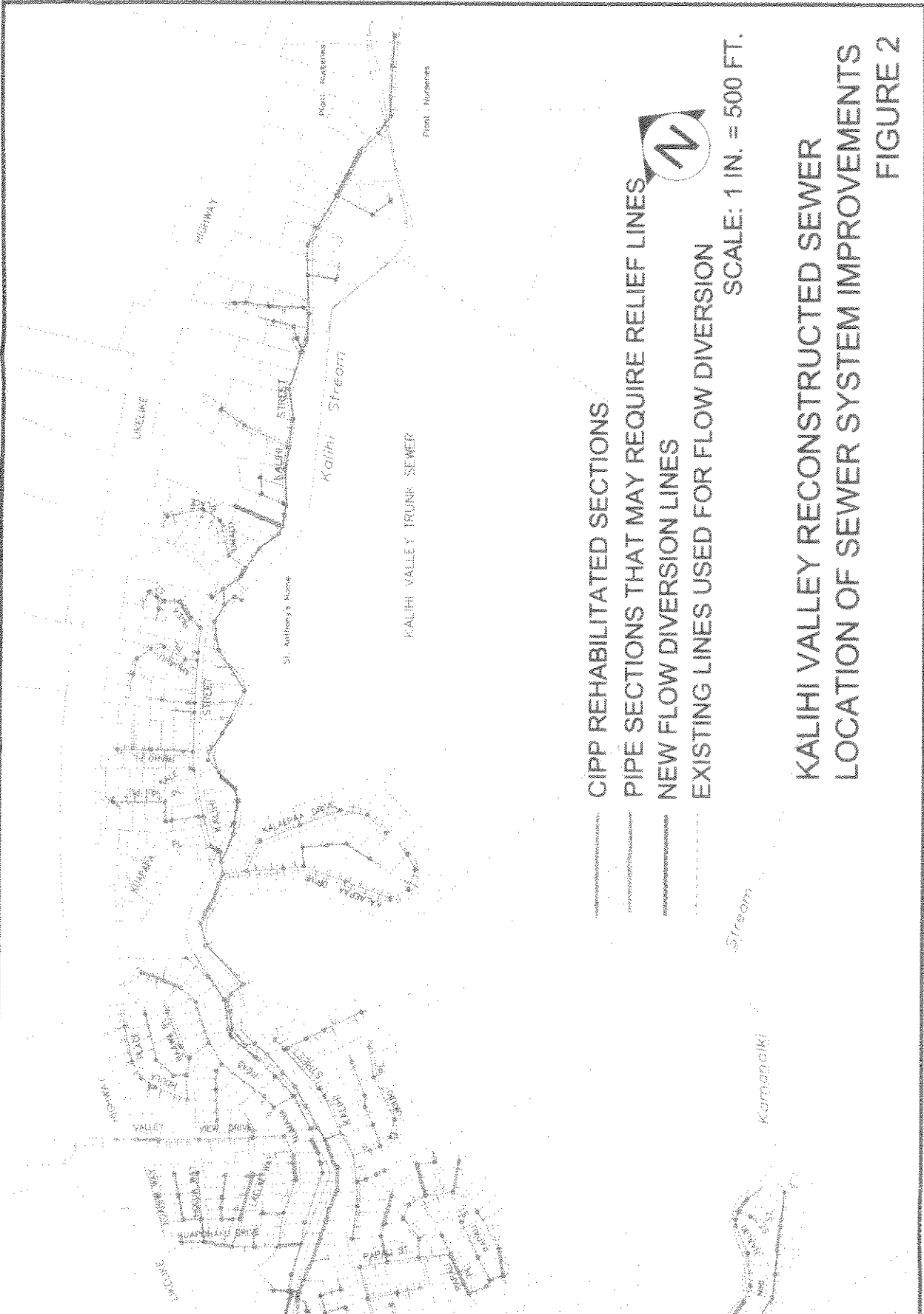
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- CIPP REHABILITATED SECTIONS
- - - PIPE SECTIONS THAT MAY REQUIRE RELIEF LINES
- · · NEW FLOW DIVERSION LINES
- · - · - EXISTING LINES USED FOR FLOW DIVERSION



SCALE: 1 IN. = 500 FT.

**KALIHI VALLEY RECONSTRUCTED SEWER
LOCATION OF SEWER SYSTEM IMPROVEMENTS
FIGURE 2**

II. SUMMARY INFORMATION

CHAPTER 343, HAWAII REVISED STATUTES (HRS) FINAL ENVIRONMENTAL ASSESSMENT (FEA)

Project Name: Kalihi Valley Reconstructed Sewer

Proposing Agency: City and County of Honolulu
Department of Design and Construction

Approving Agency: City and County of Honolulu
Department of Design and Construction

Prepared by: ParEn, Inc. dba Park Engineering
711 Kapiolani Boulevard, Suite 1500
Honolulu, Hawaii 96813

FEA Determination: Finding of No Significant Determination Impact (FONSI)

Project Description: A major part of the project involves Cured in Place Pipe (CIPP) rehabilitation of existing 8-inch through 18-inch sewer lines to eliminate hydraulic and/or structural deficiencies. Some point repairs on these sewer lines may be required on severely damaged or misaligned segments prior to rehabilitation. Relief lines installed by trenchless methods such as horizontal directional drilling are proposed for those lines that are hydraulically inadequate to convey projected future flows. In addition, approximately 1.45 million gallons per day (mgd) of wastewater will be redirected away from hydraulically deficient sections of the Kalihi Valley Trunk Sewer into a diversion line that discharges into the Gulick Avenue Relief Line. Preliminary hydraulic analysis demonstrate that these flow diversions are capable of reducing peak flows such that no upsizing of the lines would be required. The project also includes sewer manhole rehabilitation, reconnection of laterals, temporary sewer bypassing and road and landscape restoration.

Project Location: Kalihi, Oahu, Hawaii
Land Owner / City and County of Honolulu
Tax Map Key: 1-3-29, 1-3-33, 1-3-37, 1-3-38,
1-4-01 to 06, 1-4-08 to 14, 1-4-17,
1-4-19 to 21, 1-4-23 to 25
State Land Use Urban District
Designation:
County Zoning: A-2 Medium Density Apartment,
R-3.5, R-5, R-7.5 and R-10 Residential,
P-2 General Preservation,
B-1 Neighborhood Business,
B-2 Community Business

III. AGENCIES, ORGANIZATIONS & INDIVIDUALS CONSULTED

City and County of Honolulu

Board of Water Supply
Department of Design and Construction
Department of Environmental Services
Department of Facility Maintenance
Department of Parks and Recreation
Department of Planning and Permitting
Department of Transportation Services
Fire Department
Police Department

State of Hawaii

Department of Business, Economic Development and Tourism
Department of Education
Department of Health
 Environmental Planning Office
 Noise, Radiation & Indoor Air Quality
 Wastewater Branch
Department of Land and Natural Resources (DLNR)
 Land Division
 State Historic Preservation Division
Department of Transportation
Office of Environmental Quality Control
Office of Hawaiian Affairs
University of Hawaii Water Resources Research Center

Federal

Department of Army
 Regulatory Branch
 Civil Works Branch
Department of Agriculture
Department of Interior – U.S. Geological Survey

Neighborhood Organizations

Neighborhood Board #15 (Kalihi-Palama)
Neighborhood Board #16 (Kalihi Valley)

Utilities

The Gas Company
Hawaiian Electric
Oceanic Time Warner Cable of Hawaii
Verizon Hawaii

IV. PROJECT DESCRIPTION

A. Background

As part of its effort to eliminate both wet and dry weather sanitary sewer overflows (SSO), the City and County of Honolulu Department of Design and Construction (DDC) is evaluating the structural integrity and hydraulic adequacy of its wastewater collection system in the Kalihi Valley area. These sewer lines, installed in the 1950's, have experienced substantial deterioration over the years as documented in the recently collected closed circuit television (CCTV) data. In addition, the hydraulic capacity of various segments of the sewer line is suspected to be inadequate to meet the needs of projected future flows. Correcting these problems will enable the system to convey current and future peak flows without SSOs and related odor problems, while protecting nearby streams and reducing the need for frequent and extensive maintenance of the sewer system. See Figure 3.

B. Project Location

Kalihi Valley, the area served by these sewer lines, is located within the Hart Street collection basin of the Sand Island service area of southern Oahu. Wastewater generated from this area flow to the Hart Street Wastewater Pump Station (WWPS) which pumps directly to the Sand Island Wastewater Treatment Plant (WWTP). The valley is accessible and can be viewed from Likelike Highway, which flanks its western boundary. The communities of Liliha and Kapalama lie to the east. The most upstream sewer manhole is located near the plant nurseries deep in Kalihi Valley, about half a mile north of Umalu Place. From its upstream end, the sewer lines extend about three miles in a southwest direction ending near the Gulick Avenue Extension and Dole Intermediate School. The *Liliuokalani Tract Sewers* collect wastewater from the southeast portion of the valley and connects to the *Kalihi Valley Trunk Sewer* near Palanehe Place. See Figure 1 for a Vicinity and Location Map.

C. Technical Characteristics

Condition assessment data and flow modeling results are used to identify deficient sections of pipe requiring corrective measures. A sewer line segment is considered hydraulically deficient when the future (year 2020) modeled peak design flow exceeds the full flow capacity of the line, resulting in a surcharge condition. Depending on the severity of the problem, various alternative measures can be implemented to mitigate the deficiency.

Pipe rehabilitation using cured-in-place pipe (CIPP) is a good method to correct structural and hydraulic surcharge problems and reduce routine maintenance costs. Tests have shown that the Manning Roughness Coefficient ("n") of an uncleaned, in-service pipe rehabilitated with CIPP is 33% better than uncleaned, in-service pipe of traditional materials ("Results of a Study conducted for Insituform Technologies Inc." by Sverdrup Corporation and Southeast Environmental Services, Inc. 1993). The main benefits of rehabilitating with CIPP include:

1. Increase in the pipe's carrying capacity and flow velocity due to the improved smooth inner surface of the CIPP-lined pipe.
2. The continuous, tight-fitting, jointless CIPP-lined pipe provides gradual transitions at offset joints and other irregularities in the existing pipe.
3. It prevents leaks of wastewater out of the sewer line into the surrounding ground that may negatively affect stream water quality and surrounding environment.
4. It prevents root intrusion, sediment and groundwater from entering the pipe, which allows the sewer system more capacity to carry wastewater.

Rehabilitation is accomplished by dragging or hydraulically pushing flexible pipelines from one existing manhole to another. Hot water is commonly used for curing during the process. The relative speed of CIPP compared to conventional repairs makes this process attractive. See Figure 4. Based on CCTV inspections and hydraulic analysis of the sewer system under future flow conditions, nearly 10,400 lineal feet of trunk and collector sewer lines ranging in size from 6-inches to 18-inches are proposed for rehabilitation.

Severe structural problems or significant hydraulic deficiency typically requires more invasive methods to unearth the pipe and replace or upsize with new pipe. Open trench excavation may be necessary in some cases depending on the site conditions. Consideration must be given to the existence of nearby private property improvements and to construction access with heavy equipment.

Hydraulic analysis indicates about 960 lineal feet of sewer trunk lines 12- to 18-inches in diameter have extreme surcharge problems that may not be corrected by rehabilitation. Many of these lines are located in the back portion of private properties at the bottom of the valley and are not conducive to open trench replacement.

To correct these hydraulic deficiencies, diversion of flows away from the severely surcharging trunk lines at the bottom of the valley is proposed. Three locations were identified for the flow diversions, which would reduce wastewater flows sufficiently to allow the existing trunk lines to carry the flows without SSOs. Flows would be directed to a combination of existing 8-inch lines and new 8-inch and 15-inch diversion lines that discharge into existing sewer lines on Jennie and Wilson Streets. The reserve capacity of these existing sewer lines and the downstream Gulick Avenue Relief Sewer was verified to assure the lines could carry the diverted flows. Excess hydraulic capacity is available within the Gulick system to make this diversion, except at two short sections at the end of the line south of the Kapalama Avenue-School Street intersection. This project will correct these existing deficiencies, as well as reduce the surcharging problems of the trunk lines directly downstream of the Kalihi Valley Reconstructed Sewer project. See Figure 2.

Bypassing of wastewater flows will be required during sewer system rehabilitation and reconnection of new lines to the existing sewer system to assure no interruption of sewage service. The Contractor will provide and operate temporary facilities including plugs, pumps and other equipment necessary to intercept sewage flow before it reaches the work area, carry it past his work area and return it to the existing sewer at a point downstream.

D. Socio-Economic Characteristics

The labor costs associated with this sewer reconstruction project will provide a positive economic impact on the construction industry. The main long-term positive social impact of this project is the correction of inadequacies in the existing wastewater collection system allowing it to carry current and projected future peak wet weather wastewater flows. By correcting the problems of the system, the occurrence of odor problems and future spills will be significantly reduced.

E. Environmental Characteristics

Temporary disruptions to the environment may occur due to construction activity necessary for CIPP, manhole rehabilitation and open trenching required for installing new sewer lines and reconnection of laterals. Environmental impacts caused by these activities will be mitigated to comply with applicable regulations, and will be discussed further in subsequent sections.

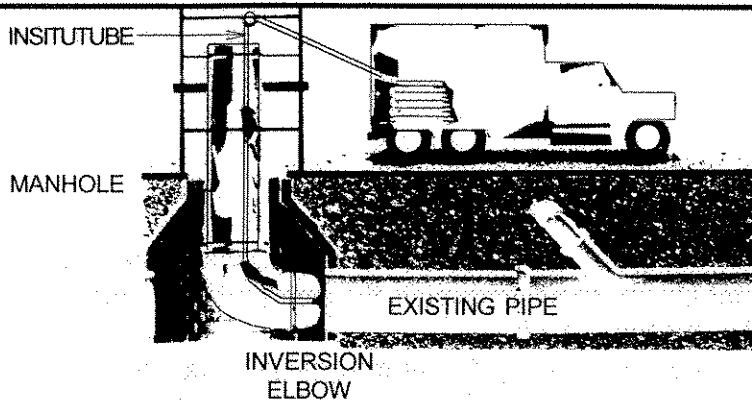
F. Approvals and Permits Required

A pre-assessment consultation to determine impacts of the proposed project was conducted with affected and interested community groups and Federal, State and County agencies. The pre-assessment consultation letters sent to these groups and agencies and responses received are included in Appendix A. Approvals and permits that may be required for this project are identified below.

APPROVALS

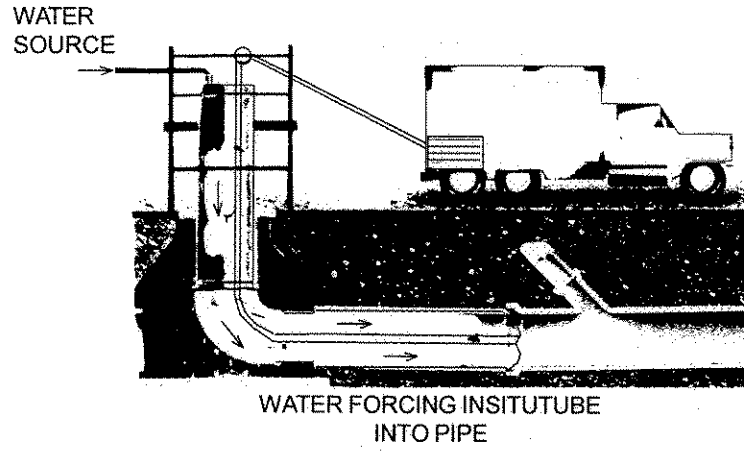
State of Hawaii
Department of Health (DOH)

City and County of Honolulu
Department of Design and Construction (DDC)
Department of Environmental Services (ENV)
Department of Transportation Services (DTS)



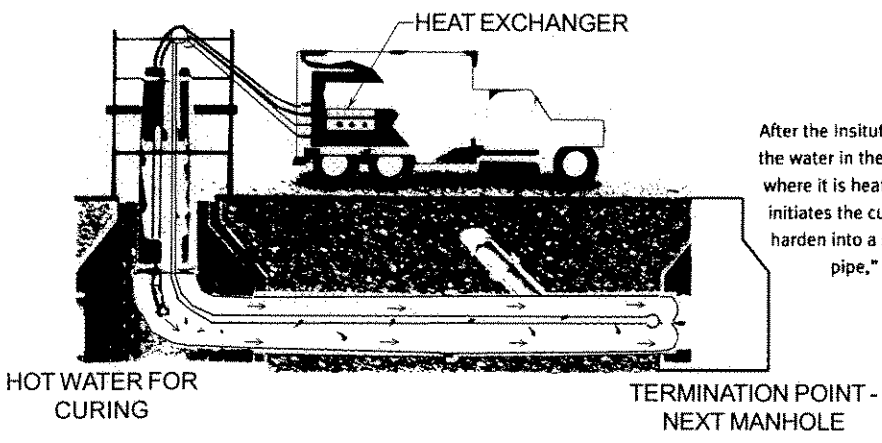
STAGE ONE

Resin-saturated, flexible Insitutube® material is installed in the existing pipe, through either a manhole or other access point. The Insitutube material is then cuffed back and banded to an inversion elbow, creating a closed system that allows the water inversion process to take place.



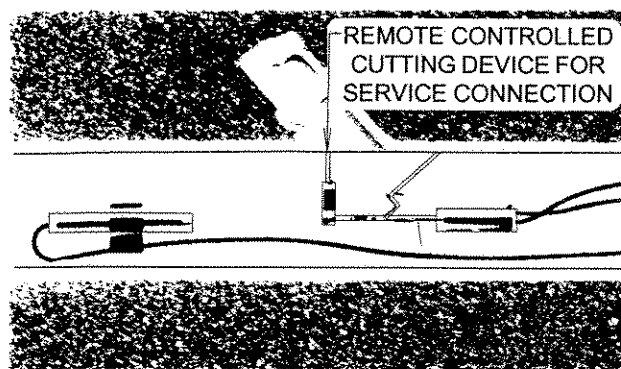
STAGE TWO

Water from nearby hydrants (or other convenient sources) is used to invert the Insitutube material. The force of the water turns the resin-impregnated tube inside out and into the pipe being reconstructed. As the tube travels through the pipe, water is continually added to maintain a constant pressure, keeping the tube pressed tightly against the walls of the old pipe. No dragging, tearing, or abrasion occurs as the tube gently inverts over pipeline irregularities.



STAGE THREE

After the Insitutube material reaches the termination point, the water in the line is circulated through a heat exchanger, where it is heated and returned to the tube. The hot water initiates the cure of the thermosetting resin, causing it to harden into a structurally sound, jointless "pipe within a pipe," an Insitupipe® cured-in-place-pipe.



STAGE FOUR

Once the Insitupipe composite has hardened and cooled, the water pressure is released and the ends are trimmed. Service connections are reinstated internally with a remote-controlled cutting device or by man-entry techniques. The operation is then complete, and the newly installed pipe is ready for immediate use. All this is accomplished with little or no excavation.

KALIHI VALLEY RECONSTRUCTED SEWER CIPP REHABILITATION WATER INVERSION OVERVIEW
FIGURE 4

PERMITS

State of Hawaii

Department of Health

Noise Permit and/or Variance from Noise and Radiation Branch

National Pollutant Discharge Elimination System (NPDES) for

Discharges of hydrotesting water

NPDES for Discharge of Sewage Effluent from Sand Island

Wastewater Treatment Plant (Existing Water Quality Management Action)

Department of Land and Natural Resources

Stream Channel Alteration Permit

City and County of Honolulu

Sidewalk and Driveway Permit

Dumping Charges

Excavation Permit

Street Usage Permit

Fire Hydrant Use Permit

Permit to Discharge Effluent into the Municipal Storm Sewer System

Industrial Wastewater Discharge Permit for

Temporary Discharges into the City's Sewer System

G. Estimated Construction Schedule and Phasing

Although specific anticipated start and end dates for this project are known at this time, the project is tentatively scheduled for construction in 2007. The project will not be phased but will be completed in its entirety. The City will coordinate the schedules of other utility projects in the area to minimize impacts to the community.

V. DESCRIPTION OF THE AFFECTED ENVIRONMENT

A. Topography

Kalihi Valley Trunk Sewer – This sewer and the downstream *Kalihi Uka Sewers* have alignments that roughly parallel Kalihi Stream. The initial 3,368 lineal feet of the trunk line is installed within the Kalihi Street right-of-way, which slopes downward at an average of 3%. The sewer line crosses beneath a number of drainage structures including a 52-inch corrugated metal pipe, two 18-inch pipes and a 36-inch pipe.

Near Saint Anthony's Home the trunk line veers off Kalihi Street into sewer easements located in the lower portion of private properties adjacent to Kalihi Stream. The sewer generally follows the northern banks of Kalihi Stream, crossing under a number of surface improvements built within the easements. The sewer crosses to the southern banks of Kalihi Stream and returns to Kalihi Street north of the Kalaepaa Drive intersection. It crosses over to the northern side of Kalihi Street under several drainage structures along the way. The road slopes downward at grades ranging from 4.5% and 6% as it winds down the valley and gradually flattens to fewer than 2%.

At sewer manhole (SMH) S184AA2031, the sewer line veers west off Kalihi Street, dropping 19 feet from the road elevation to the next downstream manhole installed within Kalihi Stream. The remainder of the trunk sewer alignment and the downstream Kalihi Uka Sewers are installed within sewer easements in the lower elevations of private lots bordering Kalihi Stream. The easements have a variety of surface structures built on them, such as tile and concrete rubble masonry (CRM) walls and house improvements.

Kalihi Uka Sewers – This sewer line continues along the banks of Kalihi Stream with existing ground slopes ranging between 2.5% and 5%. It crosses beneath the Numana Road Bridge and a variety of surface structures built in the easement including CRM and tile walls, concrete slabs and stairs, chicken coops and houses. As the sewer line continues down the valley through private property easements between Kalihi Stream and Jennie Street the existing ground elevations drop another 18 feet to the last SMH at a ground elevation of 162 feet mean sea level (msl).

Liliuokalani Tract Sewers – This sewer starts at the top of Nihi Street within the south side of the road right-of-way, crossing beneath concrete sidewalks and driveways. The top portion of Nihi Street has average slopes of about 8% with some stretches as steep as 21%. The sewer line crosses to the north side of the street, enters sewer easements within private property north of Nihi Street and crosses Kamaikai Stream on its way to Laulani Street.

From Laulani Street the alignment roughly follows Kamaikai Stream down through the valley until it connects to the Kalihi Uka Sewers. Many structures are built on the sewer easements within private property along the alignment, similar to the other sewers in the study area.

Gulick Avenue Relief Sewer – The existing 18-inch sewer line to be relieved is installed along the south side of the North School Street right-of-way. The relief line will start at existing sewer manhole S1830100A among a set of traffic signal detector loops. The existing grade of North School Street is roughly 4% sloping in a southeasterly direction. An existing 18-inch sewer is installed roughly along the center of North School Street, parallel to other utility lines (gas and telephone).

B. Geology/Soils

The soils in Kalihi Valley along on both sides of Likelike Highway and along much of the existing sewer alignment are composed of soils of the Lolekaa Silty Clay (LoB, LoC, LoD, LoE and LoF) and Kaena Clay Series (KanE, KaeD and KaB). Lolekaa Silty Clay soils are well drained and typically found on the Windward side of the island. LoE soils have medium to rapid runoff, moderate to severe erosion hazard potential and have difficult workability characteristics because of the slope. LoF soils have rapid runoff, severe erosion hazard potential and are not recommended for cultivation because of the slope. The flatter sections of the project are composed of soils of the LoB series, which are generally used for pasture, homesites, truck crops, bananas and papayas. They have moderately rapid permeability, slow runoff and a slight potential for erosion hazard. LoC are generally used for pasture, homesites, bananas and papayas and have slow to medium runoff and slight to moderate potential for erosion hazard. LoD soils are generally used for pasture. They have medium runoff, moderate erosion hazard and slightly difficult workability characteristics because of the slope.

Kaena Very Stony Clay (KanE) soils are generally used for pasture and urban development and occur on talus slopes and alluvial fans. There are many stones on the surface and in the profile of these soils. Runoff is medium to rapid, erosion hazard is moderate to severe and workability is difficult because of the steep slopes and stony, sticky and plastic nature of the soil. Kaena Stony Clay (KaeD) occurs on steeper sloped areas generally used for sugarcane, pasture and homesites. They have medium runoff and moderate erosion hazard potential. Kaena Clay (KaB) soils are found on the flatter sloped areas, have few or no stones in the surface layer, slow runoff and slight erosion hazard. This soil is used for sugarcane, truck crops, pasture and urban development.

Beneath the North School Street where the relief sewer line is proposed are soils classified Kawaihapai Stony Clay Loam (K1aB). These soils have moderate permeability, slow runoff, and have slight erosion hazard. The soil is similar to Kawaihapai Clay Loam except it has stones, which hinder cultivation.

From "Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii", United States Department of Agriculture Soil Conservation Service, August 1972. See Figure 5.

C. Climate

Climate in the study area is considered sub-tropical with temperatures ranging between 65 and 85 degrees Fahrenheit. Mean Annual Rainfall is about 40 inches with the heaviest showers during winter storms between the months of October and April. Trade winds coming from the northeastern direction occur year round. From November through March, trade winds are sometimes interrupted by southerly Kona winds.

D. Land Use

The study area is predominately residential and is zoned R-3.5, R-5, R-7.5 and R-10. Other land uses include: plant nurseries near the upper sewer sections, a retreat center known as Saint Anthony's Home, churches and three elementary schools. A few small neighborhood businesses are also served by the Kalihi Valley sewer systems. See Figure 6.

The area proposed for a relief line south of the Kapalama Avenue - North School Street intersection is a mixture of community businesses (B-2), residential (R-5) and a cemetery. See Figure 7.

E. Flora and Fauna

Developed areas are landscaped with plants typically found in urban areas. Natural vegetation in the undeveloped areas of the project site includes kiawe, haole koa, finger grass, and pili grass. The project site is located within developed urbanized areas that typically have mongoose, mice, rats, dogs and cats. No known endangered species of flora or fauna live within the project site. Rehabilitation and installation of the diversion sewer lines will have no impact on wildlife due to the high degree of existing development in the area.

F. Air Quality

Existing air quality in the area is generally good because of prevailing trade winds that occur year round. The existing deteriorated condition of the sewer line and associated leaks and overflows contribute to periodic odor problems in the area.

G. Noise

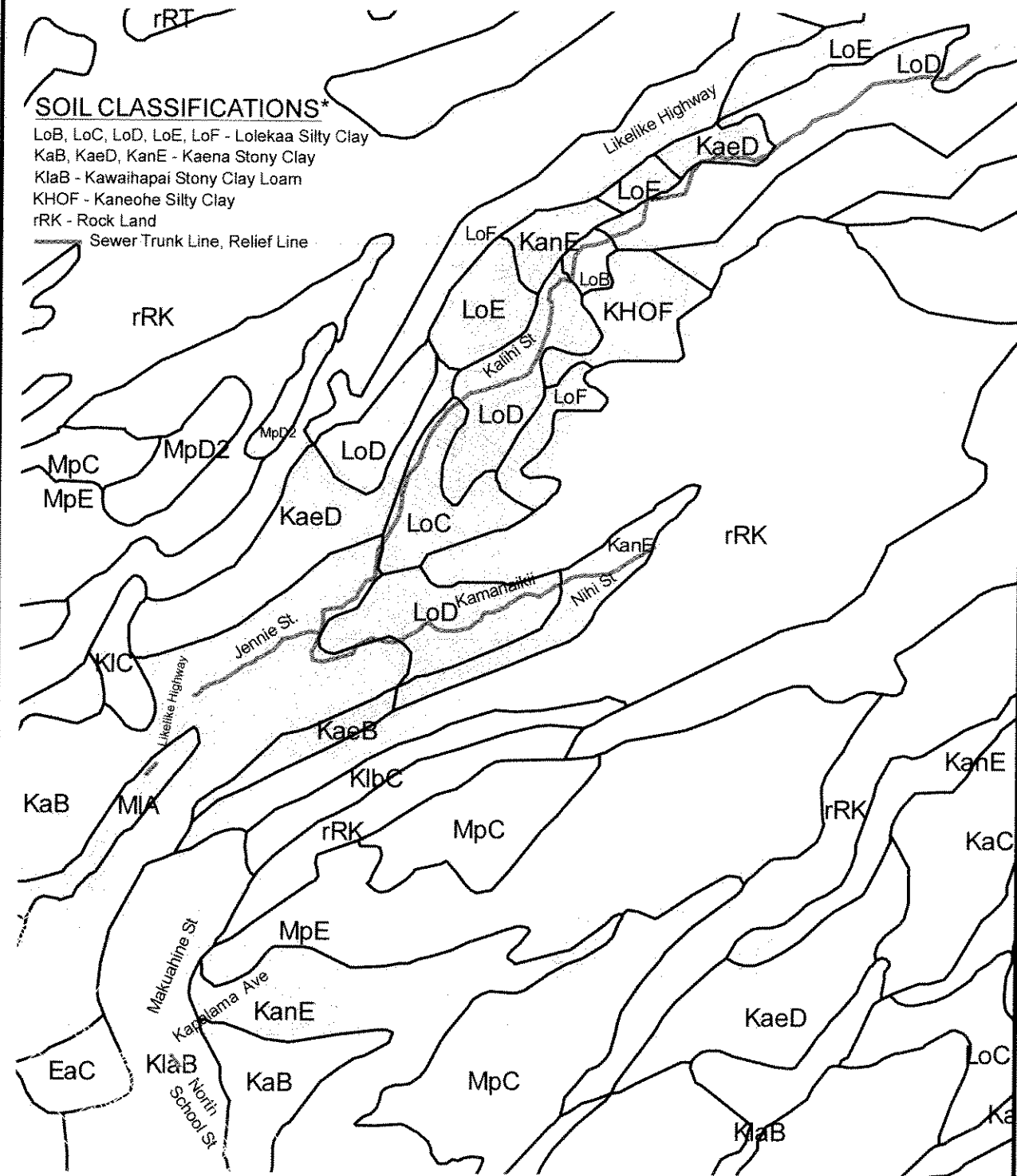
Existing noise in the project area comes mainly from residential activities, urban road traffic and Likelike Highway.

H. Historic Sites and Archaeology Resources

No known archaeological resources or historic sites are expected to be found in the proposed project area. The proposed relief line on North School Street is adjacent to Puea Cemetery.

SOIL CLASSIFICATIONS*

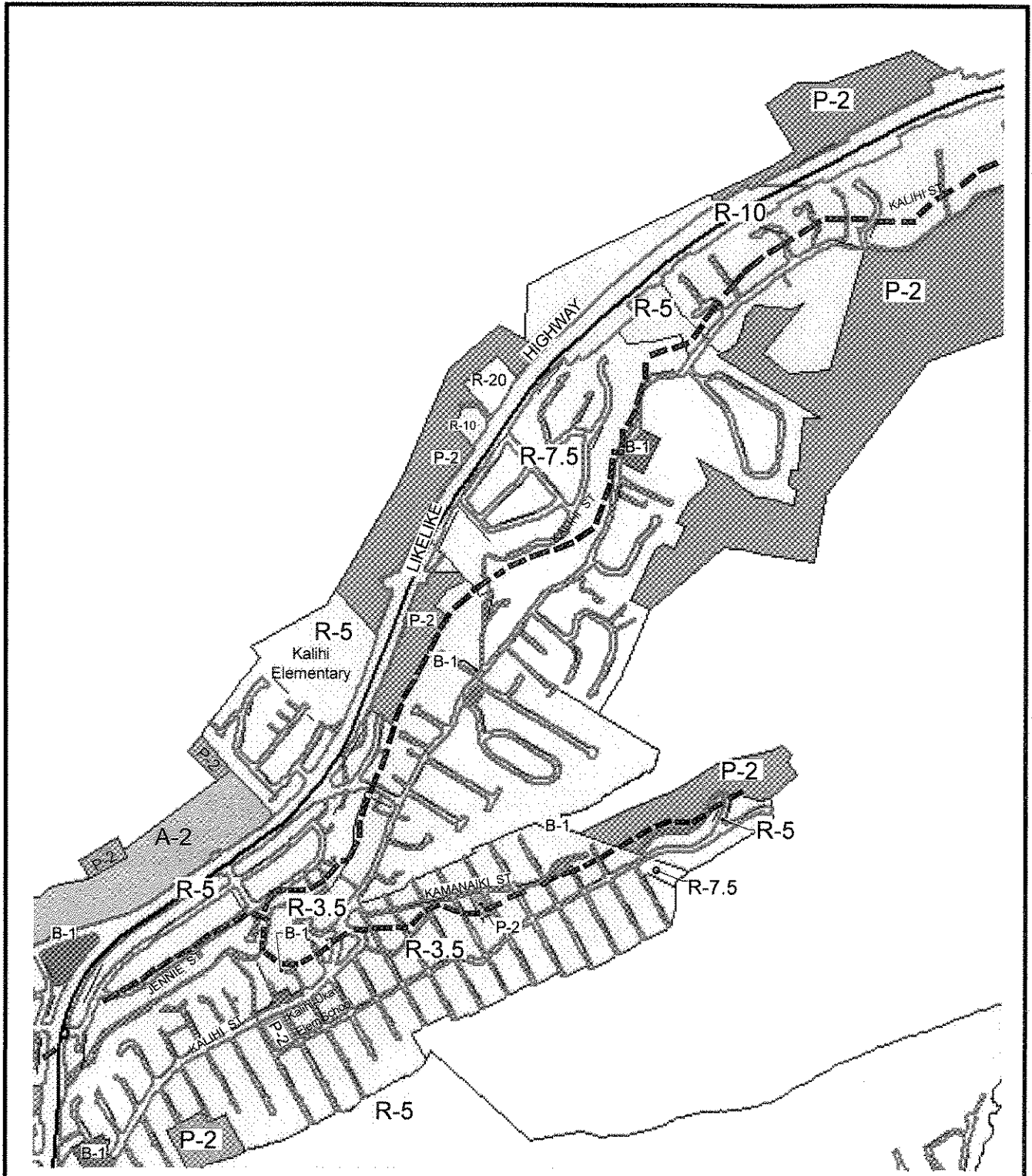
- LoB, LoC, LoD, LoE, LoF - Lolekaa Silty Clay
- KaB, KaeD, KanE - Kaena Stony Clay
- KlaB - Kawaihapai Stony Clay Loam
- KHOF - Kaneohe Silty Clay
- rRK - Rock Land
- Sewer Trunk Line, Relief Line



* Source: "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii", U.S. Soil Conservation Service, August 1972



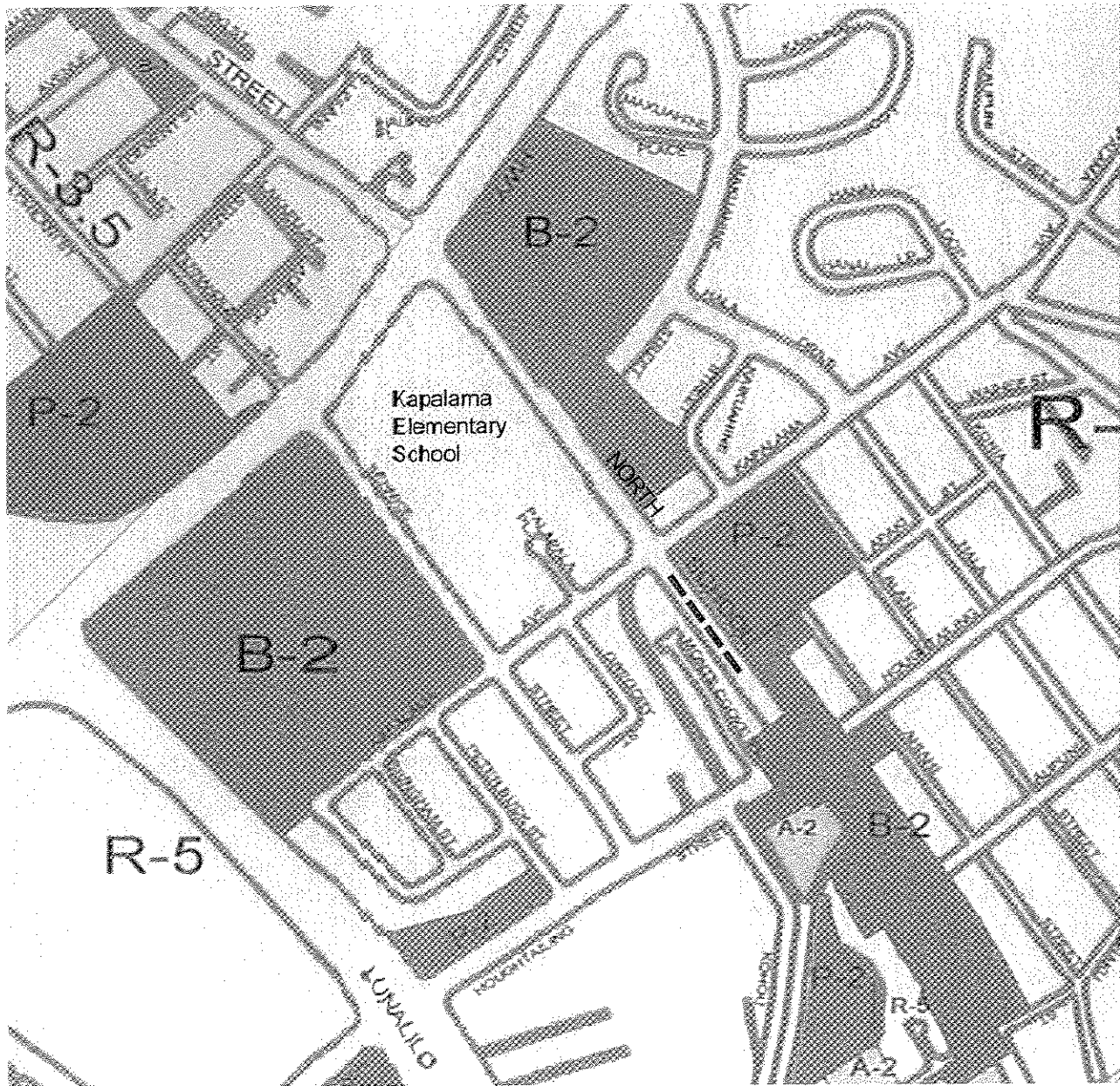
KALIHI VALLEY RECONSTRUCTED SEWER
SOILS MAP
FIGURE 5



R-3.5, R-5, R-7.5, R-10 - Residential
 P-2 General Preservation
 B-1 Neighborhood Business
 B-2 Community Business
 A-2 Medium Density Apartment
 --- Sewer line



KALIHI VALLEY RECONSTRUCTED SEWER
 ZONING MAP - KALIHI VALLEY
 FIGURE 6



- R-3.5, R-5, R-7.5, R-10 - Residential
- P-2 General Preservation
- B-1 Neighborhood Business
- B-2 Community Business
- A-2 Medium Density Apartment
- Sewer line



KALIHI VALLEY RECONSTRUCTED SEWER
 ZONING MAP - NORTH SCHOOL STREET
 FIGURE 7

I. Flood Hazard

The sewer line crosses under or is near land classified as *Special Flood Hazard Areas* that would be inundated by a 1% annual chance flood (or 100-year flood). These areas along Kalihi and Kamaikai Streams are designated Zone AE. The site of the relief line along North School Street is in Zone X, which is outside the 500-year flood plain. Locations of the flood hazard area relative to the sewer line and base flood elevations are shown in Figure 8.

VI. POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES

A. Impacts During Construction

The project involves rehabilitation of existing sewer trunk lines and manholes, installation of new sewer lines, new diversion lines on Jennie and Wilson Streets and a new relief line on North School Street. Potential construction impacts will be noise, dust, traffic and utility service disruption.

1. Noise

Periodic noise from construction equipment such as backhoes, trucks, compactors, pumps, generators and pavers will impact residents near the project site. Noise levels from rehabilitation operations and ground excavation operations will surpass levels from urban road traffic since much of the sewer line to be reconstructed is located within easements in private property adjacent to residences.

Project activities shall comply with the Administrative Rules of the Department of Health, Chapter 11-46 "Community Noise Control". The use of vibratory hammers to install or remove sheet pilings used to fortify open cut excavations is prohibited. Noise generated from bypass pumps operating at night shall be moderated by using an enclosed housing unit. A Community Noise permit will control maximum permissible sound levels generated by the previously mentioned construction activities.

A Community Noise Variance application will be filed with the Department of Health that would allow 24-hour a day, 7 days a week operation of bypass pumps. The variance will govern the permissible sound levels for by-pass pumping of sewer flows during sewer line work. The contractor will be required to follow Best Management Practices in the plans and specifications including housing units, noise barriers and/or insulation to control noise levels at all times.

2. Exhaust Emissions and Odors

The Contractor shall be responsible for proper maintenance of all construction equipment and vehicles to minimize pollutant exhaust emissions. Residents in the area of proposed work will notice odors from sewer cleaning operations, CIPP resin and manhole protective coatings. The Contractor shall take appropriate steps to control odors produced during the sewer line and manhole rehabilitation processes.

3. Dust

A Dust Control Management Plan shall be implemented by the Contractor to control the generation of fugitive dust during construction activities. This plan shall identify and address activities that have a significant potential for fugitive dust and must comply with provisions of Hawaii Administrative Rules 11-60.1-33. As a minimum, the components of this plan shall include:

- a. Planning the different phases of construction in order to minimize the amount of dust-generating materials and activities. This might involve centralizing material transfer points and on-site vehicular traffic routes and locating dusty equipment in the areas of least impact.
- b. Providing an adequate water source at the site for dust control prior to the start of construction.
- c. Controlling of dust from shoulders, project entrances and access roads.
- d. Providing adequate dust control measures during weekends, after hours and prior to daily start-up of construction activities.
- e. Controlling of dust from debris being hauled away from the project site.

4. Traffic and Street Parking

Traffic passing through the project site will be disrupted, as vehicles will be diverted around work areas such as manholes and open trenches for lateral and service connections. Parking will be restricted on both sides of the street where applicable during construction. Traffic Control Plans (TCPs) shall be prepared and reviewed/approved by the City for each segment of work on the sewer line. The TCPs shall specify where off-duty police officers and/or trained flagmen shall be stationed to control and moderate traffic congestion at these work areas. To minimize traffic impacts on the surrounding areas the TCPs and contract documents shall specify that work scheduled to start on a certain day shall be completed on the same day, to the maximum extent possible. In addition, construction work shall be limited to off-peak hours, typically between 8:30 a.m. and 3:30 p.m. Monday through Friday.

The Contractor will be required to provide advance written notice to area Neighborhood Boards, residents, schools, The Bus and the City Department of Transportation Services (DTS) fourteen days in advance, whenever construction affecting traffic flow is anticipated.

A "Notice to Motorists" with a 24-hour project hotline number will be published in advance in the daily paper which clearly indicates to the motoring public the roadway closures and/or detour route(s) to be taken around the work site.

A flyer will be prepared clearly showing road closures/suggested detour route(s) where applicable, and project completion time. The flyer will also include a 24-hour project hotline number so that concerns raised by motorists can be quickly and appropriately addressed by the Contractor. Flyers will be distributed to ALL affected residents surrounding the project sites.

The 24-hour hotline number will also be posted strategically with temporary traffic control signs.

All existing traffic control devices shall within the roadway right-of-way shall be replaced after construction is completed.

Parking will be restricted on portions of Kalihi, Nihi and other streets where CIPP rehabilitation, ground excavation and temporary bypass operations will be conducted.

5. Utility Service Disruption

Water, gas, electric and telephone service may be disrupted during construction activities. The Contractor shall protect all existing utilities within the project area during construction.

6. Public Safety and Convenience

The Contractor shall provide, install and maintain all necessary signs, lights, flares, barricades, markers, cones and other protective facilities and take all necessary precautions for the protection, convenience and safety of the public.

The Contractor shall prepare and disseminate a list of safety measures to area schools for children who will be crossing the construction work areas to and from school.

Temporary bypassing of wastewater flows will be required during the project to provide continuous sewer service. Bypass operations may cause some inconvenience to residents at driveway and street crossings and other road frontage (mail, deliveries, refuse collection). The United States Postal Service (USPS) and the Department of Environmental Services, Refuse Division shall be notified in advance when construction activities that impact the delivery of these services is expected.

7. Emergency Vehicle Access

The Contractor shall be required to provide advance notice to emergency services (fire, police and ambulance) at least 14 calendar days prior to commencement of traffic detours. Some roadways will be blocked during construction periods and will be specified in the construction traffic control plans. During these periods, the

Contractor shall provide adequate clearance in or adjacent to construction zones, to allow emergency vehicles to enter and exit the area during emergency situations. The Fire and Police Departments shall be informed of these areas.

8. Safety and Stability of Open Excavations

Open excavations shall be properly sheeted and braced by the Contractor to make it safe and secure from possible slides, cave-ins and settlement. The majority of sewer lines requiring work will be CIPP rehabilitated which requires no excavation, except for reinstatement of service lateral connections. It is possible that some of these lateral connections may not require excavation and can be done using remote-controlled cutters.

9. Work in Kalihi Stream

Relief lines installed by a trenchless method such as horizontal directional drilling are proposed for those sections of the existing sewer crossing Kalihi Stream that are hydraulically inadequate to convey projected future flows. These methods would eliminate or minimize disturbances to the stream channel and banks and negative impacts to residents. The Department of Army has determined that a Section 404 permit would not be required if these proposed relief lines crossing under the stream are installed by horizontal drilling methods. Any other construction method that may result in a discharge of dredge or fill material would be regulated under Section 404 of the Clean Water Act and the Army Corp of Engineers administrative procedures. The State DLNR has reviewed preliminary plans of these proposed relief lines and stated that a Stream Channel Alteration Permit (SCAP) may be required. However, if the relief lines can be installed without altering the stream bed and banks the SCAP may not be required. See Appendix A.

10. Protection of Adjacent Improvements

Existing improvements and structures adjacent to open excavations shall be properly supported with beams, struts or underpinning to fully protect them from damage.

11. Historic Sites and Archaeology Resources

Open trench excavation is planned for the Gulick Avenue Relief Sewer along School Street adjacent to Puea Cemetery. Because of the potential adverse effect the project may have in this area, the construction plans will require a qualified archaeologist to conduct on-site archaeological monitoring, following an approved archaeological monitoring plan.

12. Disposal of Hot Water for CIPP Curing Process

Proper disposal of hot water used during the CIPP curing process shall be the responsibility of the contractor conducting the rehabilitation operation. The water and any other waste materials generated during the pipe rehabilitation process shall be disposed of in an environmentally safe manner in accordance with applicable State and County requirements. A site shall be designated as a "wet-out" site for the resin vacuum impregnation process. The contract documents for the project shall include provisions for controlling odors produced during the rehabilitation process.

13. Discharge of Hydrotesting Water

If the Contractor conducts a sewer exfiltration leak test for rehabilitated or new sewer lines he must properly dispose of hydrotesting water. Discharging of hydrotesting water into Kalihi or Kamaikai Streams is prohibited. Disposal of hydrotesting water shall be subject to water quality criteria and conditions set forth in an NPDES General Permit reviewed and approved by the Department of Health. In order to discharge hydrotesting effluent into the City Storm drain system the Contractor must obtain a *Permit to Discharge Effluent into the Municipal Storm Sewer System*. To discharge into the City's wastewater collection system, an *Industrial Wastewater Discharge Permit for Temporary Discharges into the City's Sewer System* must be obtained. Both of these permits must be approved by the Department of Environmental Services (ENV).

14. Restoration of Roadway Pavement

Open trench construction on roadway pavements will be required for the diversion lines, the relief line on North School Street and lateral reinstatements. To ensure adequate compaction of the backfill a flowable fill or Controlled Low Strength Material (CLSM) shall be evaluated as a backfill material.

B. Long-term Impacts.

The long-term impact of this project is positive considering the current condition of the sewer system. The project will correct structural and hydraulic problems of the trunk and collector sewers in Kalihi Valley and sewer lines downstream of the valley. These improvements will prevent or minimize sewer leaks and overflows that contribute to excess nitrate/nitrite, total nitrogen, and turbidity in Kalihi and Kamaikai Streams. The project will also correct an existing hydraulic problem with several segments on North School Street. There are no long-term negative impacts associated with the implementation of this project.

VII. ALTERNATIVES TO THE PROPOSED ACTION

A. Replacement of Inadequate or Deficient Sewer Lines

Open trench construction was considered for replacement of sewer lines with inadequate capacity or with structural problems. This conventional construction method involves excavating a trench from the ground surface to below the invert of the existing pipe. For this project the replacement sewerline depth would vary between 5 feet and over 20 feet and require extensive shoring of the open trench. A sewer bypass operation must also be set up during the period when the existing sewer line is demolished and removed, and the replacement line is installed and the laterals are reconnected to the new line. Temporary support of existing utilities crossing the sewer or relocation of the utilities may be required. Open trench construction was discarded as a viable method for installing the sewer line for this project because of the location of lines to be replaced, numerous structures built above the sewer line (i.e; walls, sheds, houses) and the severe impact it would have on the environment and residents.

Pipe bursting was considered as a way to eliminate the hydraulic problems of the sewer system, with much less excavation, trench shoring, surface restoration work and traffic disruption. In this method, a bursting head is inserted in the existing pipe via an entry pit. The head breaks the existing pipe and forces the pipe fragments into the surrounding soil to make way for a new pipe. A steel line is threaded through the bursting head and attached at the downstream exit pit to an adjustable winch, and new fused pipe sections at the upstream entry pit. The winch provides constant tension on the line and pulls the fused sections of the new pipe in the place of the existing pipe. Excavated entry and exit pits are required, but in some cases manholes can be used. Temporary sewer bypasses are required to isolate the pipe being replaced. Service laterals need to be bypassed and disconnected prior to pipe bursting to preclude damage to the laterals. Service laterals typically have to be reconnected in open trenches. However, this method does have the potential of damaging adjacent structures and pipe bursting segments installed at very flat slopes may be problematic, especially if there are sags in the line.

Microtunneling is a trenchless process in which successive pipe sections are jacked behind a remotely controlled excavating unit or cutting disk head. The microtunneled sewer line replaces the old sewer in a new alignment between excavated access pits. Sewer laterals will usually require excavation for reconnection, however it is possible that these connections can be made using remote-controlled cutters. Historically microtunneling was not cost-effective for pipes installed at depths less than 15 feet. This trend may be changing as the technology and construction methods improve. High equipment and mobilization costs for the microtunneling boring head and equipment makes this method most cost-effective for pipes 36-inches and larger. The pipes to be replaced or upsized for this project are 8- to 18-inches.

All of these pipe replacement alternatives would be costly and disruptive to the environment and residents and visitors to the project site.

B. Relief Line on Kalihi Street

Installation of a 12-inch relief line on Kalihi Street was considered as a way to preclude the need to replace or upsize downstream inadequate pipe sections. If done using open trench excavation this alternative would require extensive excavation, trench reinforcement, surface and pavement restoration and traffic control and would not eliminate all of the most severe hydraulic deficiencies in the downstream lines. Construction cost for this alternative would also be high because of costs related to excavation. Even if the relief lines were installed using a trenchless method, in many cases the existing sewer lines would still require rehabilitation due to their poor structural condition.

C. Installing New Trunk Line on Road Right-of-ways

This alternative was considered because it would improve accessibility to the sewer line for maintenance purposes, while reducing the potential for infiltration, root intrusion and pollution of the nearby Kalihi and Kamanaiki Streams. Grinder pumps would be required for each property to lift wastewater from low-lying residences through service lines leading to the trunk line on the roadway. The City is currently studying the use and applicability of grinder pumps in their sewer reconstruction projects.

High construction and land acquisition costs, high social impacts, and the uncertainty of grinder pump use make this alternative unfeasible at this time. Without land acquisition costs factored in this alternative had the highest construction costs of all those considered.

D. Other Trenchless Rehabilitation Methods

A number of trenchless rehabilitation methods were considered but discarded for various reasons. Sliplining is a simple, relatively inexpensive method that involves pulling or pushing of a new, slightly smaller diameter pipe into the deteriorated pipe, resulting in a continuous, watertight pipe. Depending on the pipe loading, the annulus space between the two pipes may be grouted to provide additional strength and support. Lubricated elastomeric gaskets are used to seal the new sliplined pipe at each joint. The main disadvantage is the decrease in inside pipe diameter results in a decrease in the pipe's carrying capacity.

The close-fit pipe method involves insertion of a special coiled deformed new pipe into an existing pipe and expanding the pipe for a close-fit with the host pipe. The new pipe is deformed at the manufacturing plant and reformed after insertion by heat and pressure. One of its advantages is no curing time is required, resulting in faster installation and less time required for bypass operations. The reasons for not recommending this method include difficulties in rehabilitating pipes larger than 12-inches, considerably smaller effective pipe diameter and capacity and the inability of the new pipe to fully conform to the irregularities of the host pipe.

VIII. SIGNIFICANCE CRITERIA

This Final Environmental Assessment is part of the environmental review process that meets the requirements of Chapter 343, HRS. After completing an assessment of the potential environmental effects of the proposed project and consulting with government agencies and interested parties, the proposing agency does not anticipate any significant impacts. Therefore, DDC anticipates a Finding of No Significant Impact (FONSI) will be made, with reasons supporting this determination discussed below:

1. The proposed actions do not involve irrevocable commitments to loss or destruction of any natural or cultural resource. The project will have no effect on traditional Hawaiian rights, cultural practices or resources of the Kalihi Valley and Liliha communities.
2. The proposed action does not curtail the range of beneficial uses of the environment and will barely be perceptible as it is buried under existing roadways and within sewer easements in private property. The proposed project will be compatible with the uses of the surrounding area.
3. The proposed action does not conflict with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions or executive orders. The proposed project is consistent with the State's Land Use Plan, which is in concert with all applicable policies, goals and guidelines. No long-term environmental conflicts are foreseen.

The proposed action is in conformity with objectives and policies of the General Plan of the City and County of Honolulu and the vision for the Primary Urban Center's (PUC's) future. Key examples include: creating adequate sewer infrastructure to support present and future demands, protecting the natural environment from damaging levels of air and water pollution and maintaining the existing sewer system in order to avoid major breakdowns (SSOs). The proposed action will help the project area to continue to be a desirable place to live and visit.

The Kalihi Valley and Gulick wastewater collection systems are a part of the East Mamala Bay service area with outflows processed through the Sand Island Wastewater Treatment Plant. The proposed action will correct deteriorated conditions of the area's aging wastewater collection systems and associated high rates of infiltration and inflow (I/I).

4. The proposed action will not substantially affect the economic or social welfare of the community. Any impact on the economy will result from short-term, construction related activities. Cash infusion during the construction phase will be the primary short-term positive economic impact. Upon completion of the project, the economic situation should return to the existing condition.

5. The proposed actions will not substantially affect public health as construction-related air and noise impacts will be temporary and short-term in nature. Construction activities shall be regulated to minimize noise, dust and exhaust emissions.

6. The proposed action does not involve substantial secondary impacts, such as population changes or effects on public facilities. The proposed project does not directly result in an increase of population in the area.

7. The proposed action does not involve a substantial degradation of environmental quality. The existing physical qualities of the surrounding areas will be preserved.

8. The proposed actions are individually limited and cumulatively do not have a considerable effect upon the environment, nor require a commitment to larger actions.

9. The proposed actions will not affect any rare, threatened or endangered species or their habitats. There are no known, rare, threatened or endangered species or habitat associated with the project site, which has undergone significant disturbance for roadway use.

10. The proposed action does not detrimentally affect the air or water quality or ambient noise levels. Any effect on environmental quality during the construction phase will be limited in area and for a short duration. These short-term impacts will be mitigated by normal construction practices and will be regulated by project plans and specifications.

11. The proposed actions do not affect an environmentally sensitive area, such as a flood plain, tsunami zone, or erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters. The sewer line crosses under or is near land classified as *Special Flood Hazard Areas* that would be inundated by a 1% annual chance flood (or 100-year flood). These areas along Kalihi and Kamaikai Streams are designated Zone AE. The proposed sewer line improvements will be underground and will not have a negative effect on the environment, or any significant adverse impact on fresh or coastal waters.

12. The proposed action does not affect scenic vistas and view planes identified in county or state plans or studies.

13. The proposed action does not require substantial energy consumption. During the construction of jacking and receiving pits and other excavations diesel or gas powered construction equipment such as backhoes, trucks, compactors, and pavers will be used. The completed sewer line will consume no energy.

IX. REFERENCES

- 1) Sewer Rehabilitation and Infiltration & Inflow Minimization Plan, Volume 5 of 9 Sand Island Engineering Report, Fukunaga and Associates, December 1999.
- 2) Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii, Soil Conservation Service, August 1972.
- 3) Kalihi Valley Reconstructed Sewer – Design Alternatives Report - Prefinal ParEn, Inc., January 2004.
- 4) Results of a Study conducted for Insituform Technologies Inc., Sverdrup Corporation and Southeast Environmental Services, Inc. 1993.

APPENDIX A

**Correspondence
To and From
Agencies and Organizations**

We've Moved!



ParEn, Inc. dba park engineering
Suite 1500, Pacific Park Plaza □ 711 Kapiolani Boulevard, Honolulu, Hawaii 96813-5237 □ Telephone (808) 593-1676 □ FAX (808) 593-1607

DEPARTMENT OF FACILITY MAINTENANCE
CITY AND COUNTY OF HONOLULU
1000 ULUOHA STREET, SUITE 215, KAPOLEI, HAWAII 96707
TELEPHONE: (808) 492-5954 FAX: (808) 492-3857



JEREMY HARRIS
MANOR

LARRY J. LEOPARDI, P.E.
DIRECTOR AND CHIEF ENGINEER
JOSEPH MANGALDI
DEPUTY DIRECTOR
KIMBERLY REEFER TO:
DIRM 04 - 1125

December 30, 2004

Mr. Chris T. Takushi
ParEn, Inc. dba Park Engineering
567 South King Street
Suite 300, Kawaiahao Plaza
Honolulu, Hawaii 96813-3036

Dear Mr. Takushi:

Subject: **Kalihi Valley Reconstructed Sewer
Draft Environmental Assessment (DEA)**

Thank you for the opportunity to review and comment on the DEA for the subject project.

We support the cured-in-place pipe (CIPP) lining method for existing pipeline replacement and rehabilitation. To lessen the impact on the project roadway pavements we request that open trench construction be kept to a minimum and utilized only when less destructive methods may not be feasible.

A problem inherent with open trench construction is adequate compaction of the backfill. Therefore we also request that flowable fill or Controlled Low Strength Material be evaluated and/or considered for use as backfill material.

Should you have any questions, please call Charles Pignataro of our Division of Road Maintenance, at 484-7697.

Very truly yours,

Larry Leopardi
LARRY LEOPARDI, P.E.
Director and Chief Engineer

March 2, 2005

Ms. Laverne Higa, P.E.
Acting Director
Department of Facility Maintenance
City and County of Honolulu
1000 Uluoia Street, Suite 215
Kapolei, Hawaii 96707

Attention: Mr. Charles Pignataro

Dear Ms. Higa:

Subject: Kalihi Valley Reconstructed Sewer

Thank you for your comments in your letter dated December 29, 2004 regarding the Draft Environmental Assessment (DEA) for the subject project. The following has been prepared in response to your comments:

Paragraph 14, shown below was added to Section VI. Potential Impacts and Proposed Mitigation Measures During Construction to the Final Environmental Assessment (FEA).

"14. Restoration of Roadway Pavement

Open trench construction on roadway pavements will be required for the diversion lines, the relief line on North School Street and lateral reinstatements. To ensure adequate compaction of the backfill a flowable fill or Controlled Low Strength Material (CLSM) shall be evaluated as a backfill material."

Please call me at 593-1676 if you have any questions or require additional information.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura

Keith S. Uemura, P.E.
Vice President

CTT:mac

c: Richard Leong, Dept. of Design and Construction

We've Moved!



Suite 1500, Pacific Park Plaza □ 711 Kapiolani Boulevard, Honolulu, Hawaii 96813-5237 □ Telephone (808) 593-1676 □ FAX (808) 593-1607

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

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REPLACES HAWAII
STATE

WILLIAM D. BALFOUR, JR.
DIRECTOR
EDWARD J. SKIPPY, DRAFTER
IN FIRST OFFICE FOR

March 2, 2005

Mr. Lester K.C. Chang
Acting Director
Department of Parks and Recreation
City and County of Honolulu
1000 Uluohia Street, Suite 309
Kapolei, Hawaii 96707

Attention: Mr. John Reed

Dear Mr. Chang:

Subject: Kailihi Valley Reconstructed Sewer

Thank you for your comments in your letter dated December 7, 2004 regarding the Draft Environmental Assessment (DEA) for the subject project. Your letter will be included in the Final Environmental Assessment with all the other agency comments received.

Please call me at 593-1676 if you have any questions or require additional information.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura
Keith S. Uemura, P.E.
Vice President

CTT:mac

c: Richard Leong, Dept. of Design and Construction

December 7, 2004

Mr. Chris T. Takushi
ParEn, Inc.
Suite 300, Kawaihāo Plaza
567 South King Street
Honolulu, Hawaii 96813-3036

Dear Mr. Takushi:

Subject: Draft Environmental Assessment
Kailihi Valley Reconstructed Sewer

Thank you for the opportunity to review and comment on the Draft Environmental Assessment relating to the Reconstruction of Kailihi Valley Sewers.

The Department of Parks and Recreation has no comment on this project.

Should you have any questions, please contact Mr. John Reid, Planner, at 692-5454.

Sincerely,

W.D. Balfour, Jr.
WILLIAM D. BALFOUR, JR.
Director

WDB:mk
(85456)

DEPARTMENT OF PLANNING AND PERMITTING
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MUFT HANFEMANN
MAYOR

January 6, 2005

Mr. Chris T. Takushi
ParEn, Inc. dba Park Engineering
Suite 1500, Pacific Park Plaza
711 Kapiolani Boulevard
Honolulu, Hawaii 96813

Dear Mr. Takushi:

**DRAFT ENVIRONMENTAL ASSESSMENT
FOR KALIHI VALLEY RECONSTRUCTED SEWER**

This is in response to your November 26, 2004 letter regarding the Draft Environmental Assessment (DEA) for the Kalihi Valley Reconstructed Sewer Project. We have reviewed the DEA and have the following comments:

1. Section II. Summary Information – County zoning on page 3 and the two zoning maps (Figure 5): Add Medium Density Apartment zoning district after A-2.
2. Section III. Agencies, Organizations and Individuals Consulted on page 4: The Department of Business, Economic Development and Tourism should be listed under the State of Hawaii instead of the City and County of Honolulu (Note: the City has an Office of Economic Development).
3. Section V. Description of the Affected Environment – B. Geology/Soils on page 10: Add the source of the soil types listed, for example, the U.S. Department of Agriculture Soil Conservation Service Soil Survey.

If you have any questions, please contact Mr. Scott Gushi of the Wastewater Branch at 523-4886.

Sincerely yours,

for
Doreen M. Nishimura
HENRY ENG, FAICP
Acting Director of Planning and Permitting

HE:dj
(945034)



We've Moved!

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March 2, 2005

Mr. Henry Eng, FAICP
Acting Director
Department of Planning and Permitting
City and County of Honolulu
650 South King St.
Honolulu, Hawaii 96813

Attention: Mr. Scott Gushi

Dear Mr. Eng:

Subject: Kalihi Valley Reconstructed Sewer

Thank you for your comments in your letter dated January 6, 2005 regarding the Draft Environmental Assessment (DEA) for the subject project. The following has been prepared in response to your comments:

1. Section II and Figure 5. The zoning designation for A-2 was revised to Medium Density Apartment.
2. Section III. The Department of Business, Economic Development and Tourism was moved under the list of State Agencies.
3. Section V and Figure 4. The United States Department of Agriculture Soil Conservation Service was added as the source of the soil types listed. The types of soil was at the proposed site of the relief line on North School Street was also added to Section V and Figure 4.

Please call me at 593-1676 if you have any questions or require additional information.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura

Keith S. Uemura, P.E.
Vice President

CTT:mac

c: Richard Leong, Dept. of Design and Construction

DEPARTMENT OF TRANSPORTATION SERVICES
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MUF/HANNEMANN
MAYOR

EDWARD Y. HIRATA
ACTING DIRECTOR

TPD05-00007
TP11/04-85232R

January 10, 2005

MEMORANDUM

TO: TIMOTHY E. STEINBERGER, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

ATTN: RICHARD LEONG

FROM: EDWARD Y. HIRATA, ACTING DIRECTOR

SUBJECT: KALIHI VALLEY RECONSTRUCTED SEWER

In response to the November 26, 2004 letter from ParEn, Inc., we have reviewed the draft environmental assessment for the subject project. The following comments are the result of this review:

1. Section A.4. Traffic and Street Parking of Chapter VI. POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES (Pages 13 - 14) should be revised to include the following measures:
 - The area neighborhood board will continue to be kept apprised of the proposed project.
 - A "Notice to Motorists" with a 24-hour project hotline number will be published in advance in the daily paper which clearly indicates to the motoring public the roadway closures and/or detour route(s) to be taken around the work site.
 - A flyer will be prepared clearly showing road closures/suggested detour route(s) where applicable, and project completion time. The flyer will also include a 24-hour project hotline number so that concerns raised by motorists can be quickly and appropriately addressed by the contractor. Flyers will be distributed to ALL affected residents surrounding the project sites.
 - The 24-hour project hotline number will also be posted strategically with temporary traffic control signs.
 - All existing traffic control devices within the roadway right-of-way shall be replaced after construction is completed.

Timothy E. Steinberger, P.E., Director
Page 2
January 10, 2005

2. Section A.6. Public Safety and Convenience of Chapter VI. POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES (Page 14) should include notification of the U.S. Postal Service and the City Department of Environmental Services, Refuse Division as to potential property frontage obstructions (that may impact the delivery of service) as a mitigation measure.

Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation Planning Division at Local 6976.

EDWARD Y. HIRATA

cc: Ms. Genevieve Salmonson
Office of Environmental Quality Control

Mr. Keith Uemura
ParEn, Inc., dba Park Engineering



We've Moved!

Suite 650, Pacific Park Plaza ☐ 711 Kapiolani Boulevard, Honolulu, Hawaii 96813-5237 ☐ Telephone (808) 593-1676 ☐ FAX (808) 593-1807

ParEn, Inc. dba park engineering

March 2, 2005

Mr. Edward Y. Hirata, P.E.
Acting Director
Department of Transportation Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

Attention: Ms. Faith Miyamoto

Dear Mr. Hirata:

Subject: Kalihi Valley Reconstructed Sewer

Thank you for your comments in your letter dated January 10, 2005 regarding the Draft Environmental Assessment (DEA) for the subject project. The following has been prepared in response to your comments:

1. Section VI.A.4 Potential Impacts and Proposed Mitigation Measures - Traffic and Street Parking was revised as suggested.
2. Section VI.A.6 Potential Impacts and Proposed Mitigation Measures -- Public Safety and Convenience was revised as suggested.

Please call me at 593-1676 if you have any questions or require additional information.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura
Keith S. Uemura, P.E.
Vice President

CTT:mac

c: Richard Leong, Dept. of Design and Construction

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**POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU**

801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
<http://www.honolulu.gov>



JEREMY HARRIS
MAYOR

REFERENCE CS-KP

December 23, 2004

Mr. Cris T. Takushi
ParEn, Incorporated
Suite 300 Kawaihae Plaza
567 South King Street
Honolulu, Hawaii 96813-3036

Dear Mr. Takushi:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the Kailhi Valley Reconstructed Sewer project.

The Kailhi Valley area is serviced by police officers assigned to District 5, headquartered at 1865 Kamehameha IV Road.

We have noted that Section VI, Potential Impacts and Proposed Mitigation Measures, addresses the subjects of Noise; Exhaust Emissions and Odors; Dust; Traffic and Street Parking; Public Safety and Convenience; and Emergency Vehicle Access, which impact police services. Calls for police service for this type of project are inevitable.

Therefore, we would like to be included in the routing of all notices and any discussions/review of plans to close streets or reroute traffic. Additionally, please send all written documents to Captain Raymond Ancheta of the Kailhi Police Station at the above address. Captain Ancheta can also be reached at 529-3156.

If there are any questions, please call Major Susan Ballard of the Kailhi Police Station at 529-3156 or Ms. Carol Sodeiani of the Support Services Bureau at 529-3658.

Sincerely,

BOISSE P. CORREA
Chief of Police

By *A/AC Maj. Kenneth Sumner*
KARL GODSEY
Assistant Chief of Police
Support Services Bureau

Serving and Protecting with Aloha

March 2, 2005

Mr. Boisse P. Correa
Chief of Police
Police Department
801 South Beretania Street
Honolulu, Hawaii 96813

Attention: Ms. Carol Sodeiani

Dear Mr. Correa:

Subject: Kailhi Valley Reconstructed Sewer

Thank you for your comments in your letter dated December 23, 2004 regarding the Draft Environmental Assessment (DEA) for the subject project. Proposed traffic control plans for this project will be sent to the Support Services Bureau and the Kailhi Police Station for review and comments.

Please call me at 593-1676 if you have any questions or require additional information.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING
Keith S. Uemura

Keith S. Uemura, P.E.
Vice President

CTT:mac

c: Richard Leong, Dept. of Design and Construction

Facsimile Copy
OFFICE MANAGER
RECEIVED
12 14 04



STATE OF HAWAII
DEPARTMENT OF EDUCATION
170 WALKER DRIVE
HONOLULU, HAWAII 96822

December 13, 2004

Mr. Chris T. Takushi
ParEn, Inc., dba Park Engineering
Suite 300 Kawaticho Plaza
567 South King Street
Honolulu, Hawaii 96813-3036

Dear Mr. Takushi:

Subject: Draft Environmental Assessment for the
Kalihii Valley Reconstructed Sewer System

The Department of Education (DOE) has reviewed the Draft Environmental Assessment (DEA) for the improvement of sewer lines in the Kalihii and Lilihia neighborhoods. The DOE is concerned by the lack of specificity about where the sewer work will take place. The DEA describes the affected environment as including an elementary school but does not name the school. It appears that the work could affect three different elementary schools: Kalihii, Kalihii-Uka, and Kapulama.

Kapulama Elementary is never identified in all the maps of the affected area. In the Figure 5 Zoning Map, the school's campus is left completely blank.

It appears that Kapulama Elementary will be the school most affected by the proposed work. The DOE requests that the principal of Kapulama Elementary be contacted and provided with a detailed description of the work being proposed.

The most likely impact of the work on the schools will be the flow of traffic. In the DEA section on potential impacts and proposed mitigation measures, there is a description of all the safety measures the contractor will be required to provide. It is stated that bypassing wastewater flows may cause inconvenience to residents at driveway and street crossings. The DEA should include safety measures for pedestrians, particularly elementary school students who will be making their way through the construction to get to school.

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

Mr. Chris T. Takushi
Page 2
December 13, 2004

Coordination with the principals of all the affected schools could improve traffic flow and pedestrian safety. Advance notification of utility disruptions, emergency vehicle access, noise, and odors will allow the schools to take precautionary measures when possible.

Thank you for the opportunity to comment on the proposed work. If you should have any questions, please call Rae Loui, Assistant Superintendent of the Office of Business Services, at 586-3444 or Heidi Meeker of the Facilities and Support Services Branch at 733-4862.

Very truly yours,

Patricia Homamoto
Superintendent

Print:mp (fmm)

- c: Rae Loui, Asst. Supt., OBS
- Francine Fernandez, CAS, Farrington/Kaiser Complex Area
- Natalie Mun-Tuketa, Principal, Kalihii Elementary
- Calvin Noniyama, Principal, Kalihii-Uka Elementary
- Patricia Dang, Principal, Kapulama Elementary



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ParEn, Inc. dba park engineering

March 2, 2005

Ms. Patricia Hamamoto
Superintendent
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804

Attention: Heidi Meeker

Dear Ms. Hamamoto:

Subject: Kalihi Valley Reconstructed Sewer

Thank you for your comments in your letter dated December 13, 2004 regarding the Draft Environmental Assessment (DEA) for the subject project. The following has been prepared in response to your comments:

Figures 1, 2 and 5 were revised in the Final Environmental Assessment (FEA) to clearly indicate the locations of the three elementary schools that could be affected by the project (Kalihi, Kalihi Uka and Kapalama). Specific mention of these three schools will be included in paragraph V.D Description of the Affected Environment under Land Use. Although no sewer work is proposed immediately adjacent to Kapalama Elementary or the other two schools, traffic in the vicinity of the schools may be affected by construction operations. The Contractor shall coordinate with the principals of these three schools providing advance notification of possible utility disruptions, traffic detours that will affect emergency vehicle access and noise and odors impacts.

Figure 2 is a color coded map showing the locations of all proposed sewer improvement work; sewer line rehabilitation in red, sewer flow diversions in green and a sewer relief line in yellow.

Paragraph VI.A Potential Impacts and Proposed Mitigation Measures - Impacts During Construction contains safety measures the Contractor is required to provide. A requirement for the Contractor to provide and disseminate a list of safety measures for school age children who will be passing through the Contractor's work areas is included in the FEA in paragraph VI.A.6. A suggested list is attached and will be forwarded to the Contractor for his use.

Please call me at 593-1676 if you have any questions or require additional information.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura, P.E.
Vice President

CTT:mac

Attachments

c: Richard Leong, Dept. of Design and Construction

SUGGESTED PEDESTRIAN SAFETY MEASURES

1. Follow all signs leading to and posted at the work site.
2. Stay within designated walkway areas and stay out of all areas barricaded, fenced or marked. Entry into these areas is restricted for the safety and protection of pedestrians.
3. Temporary above-ground pipes will be required during the sewer rehabilitation work. These pipes will be marked for visibility and should not be touched or tampered with.
4. Follow the guidance of police officers or flagmen directing traffic at the work site.
5. Be aware of ongoing work involving heavy equipment such as trucks, excavators, pavers, etc.



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96813-3378

CHYOMEL FUKINO, M.D.
DIRECTION OF HEALTH

In reply, please refer to:

EPO

January 6, 2005

Mr. Keith S. Uemura, P.E.
ParEn, Inc.
Suite 300, Kawaiahao Plaza
567 South King Street
Honolulu, Hawaii 96813-3036

Subject: Kalihii Valley Reconstructed Sewer
Oahu, Hawaii

Dear Mr. Uemura:

Thank you for your letter dated November 12, 2004 and the accompanying Draft Environmental Assessment (DEA). With regard to your response to the Environmental Planning Office standard comments:

1. The 1987 Water Quality Standard Maps are outdated and do not provide a definitive designation of waterbody class. Waterbody class is determined by underlying land use as explained in Hawaii Administrative Rules Title 11 Chapter 54 (Water Quality Standards), §11-54-5.1. We suggest that this section be consulted for determining the classification of Kalihii Stream and Kamaikai Stream within the project area.
2. It is our understanding that the City's NPDES permit for discharge of sewage effluent from the Sand Island WWTP also covers the operation of the collection system. We suggest that this permit be identified as an "Existing Water Quality Management Action."
4. and 5. The suggestion that "The project will have no effect on ... pollutant concentrations and loads in receiving waters" implies that sewer leaks, overflows, and other collection system problems do not contribute to excess nitrate/nitrite, Total Nitrogen, and turbidity in Kalihii Stream and is not consistent with the discussion of long-term impacts in the DEA (p. 15). We suggest that the Final EA further discuss how pre-project sewer conditions may be negatively affecting stream water quality and how the project might reverse these effects. For example, more detail about the location, frequency,

Mr. Keith S. Uemura, P.E.
January 6, 2005
Page 2

duration, and magnitude of the "numerous occasions of dry weather SSOs" (DEA p. 1) as well as of wet weather SSOs and collections system leaks would help our efforts to document and quantify ongoing water quality improvement measures in the Kalihii watershed.

If you have any questions about these comments, please contact David Penn at 586-4337.

Sincerely,

June F. Harrigan - ham

JUNE F. HARRIGAN-LUM, MANAGER
Environmental Planning Office



We've Moved!

Suite 1500, Pacific Park Plaza, 711 Kapunihi Boulevard, Honolulu, Hawaii 96813-5237 ☐ Telephone (808) 593-1676 ☐ FAX (808) 593-1607

www.par-en.com
ParEn, Inc. dba park engineering

March 2, 2005

Ms. June F. Harrington-Lum
Manager
Environmental Planning Office
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Attention: Mr. David Penn

Dear Ms. Harrington-Lum:

Subject: Kailhi Valley Reconstructed Sewer

Thank you for your comments in your letter dated January 6, 2005 addressing our responses to your Environmental Planning Office standard comments. The following has been prepared in response to your comments:

1. Kailhi and Kamaea Streams are classified Inland Water Areas to be Protected as explained in Hawaii Administrative Rules Title 11 Chapter 54 Water Quality Standards. Within the project area, the streams flow entirely through land classified as Urban Districts by State Land Use maps and are therefore designated Class 2.
2. The City's National Pollutant Discharge Elimination Permit (NPDES) for discharge of sewage effluent from the Sand Island Wastewater Treatment Plant (WWTP) was added to the list of permits required as an Existing Water Quality Management Action in the Final Environmental Assessment (EA).
4. & 5. This section will be revised to emphasize that the project will correct existing deteriorated conditions of the sewer line (i.e., cracks, misaligned joints and root intrusion), which will prevent the occurrence of leaks into the sewer and alleviate hydraulic inadequacies, and prevent sanitary sewage spills (SSOs). The Final EA will provide more details on the location, magnitude and frequency of wet and dry weather SSOs reported in the project area to assist your efforts to document water quality improvements in the area.

Please call me at 593-1676 if you have any questions or require additional information.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura
Keith S. Uemura, P.E.
Vice President

CTT:mac

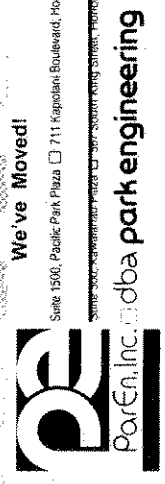
c: Richard Leong, Dept. of Design and Construction



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96813-3378

CHRYME L. KUNINO, M.D.
DIRECTOR OF HEALTH

In reply, please refer to:
File #



We've Moved!

Suite 1500, Pacific Park Plaza □ 711 Kapiolani Boulevard, Honolulu, Hawaii 96813-5237 □ Telephone (808) 593-1676 □ FAX (808) 593-1607

March 2, 2005

December 27, 2004

Mr. Cris T. Takushi
ParEn, Inc. dba Park Engineering
Kawaiahao Plaza, Suite 300
567 South King Street
Honolulu, Hawaii 96813-3036

Mr. Russell S. Takata, Program Manager
Noise, Radiation & Indoor Air Quality Branch
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Takata:

Subject: Kalihii Valley Reconstructed Sewer

Thank you for your comments in your letter dated December 27, 2004 regarding the Draft Environmental Assessment (DEA) for the subject project. Your comments regarding project compliance with Chapter 11-46 Community Noise Control requirements were incorporated in the Final EA in Section VI.A.1.

Please call me at 593-1676 if you have any questions or require additional information

Our comments should be printed as follows:

• Project activities shall comply with the Administrative Rules of the Department of Health:

- Chapter 11-46 Community Noise Control.

Should there be any questions, please contact me at 586-4701.

Sincerely,

Russell S. Takata
Program Manager
Noise, Radiation & IAQ Branch

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura, P.E.
Vice President

CTT:mac

c: Richard Leong, Dept. of Design and Construction



We've Moved!

Suite 1300, Pacific Park Plaza 711 Kapiolani Boulevard, Honolulu, Hawaii 96813-5237 Telephone (808) 593-1676 FAX (808) 593-1607

ENVIRONMENTAL ENGINEERING

March 2, 2005

Mr. Harold K. Yee, P.E., Chief
Wastewater Branch
Department of Health
P.O. Box 33378
Honolulu, Hawaii 96801

Dear Mr. Yee:

Subject: Kailhi Valley Reconstructed Sewer
Oahu, Hawaii

Thank you for your comments of December 17, 2004 regarding the Draft Environmental Assessment (EA) for the subject project. The construction plans for the project will conform to the applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62. The plans will be forwarded to your office for review and conformance to the applicable rules.

We hope this adequately addresses your concerns for the project. Please call me at 593-1676 if you have any questions or require additional information.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura
Vice President

CTT:mac

c: Richard Leong, Dept. of Design and Construction



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3374
HONOLULU, HAWAII 96801

December 17, 2004

Mr. Cris Takushi
ParEn, Inc., dba Park Engineering
Suite 300 Kawaiahao Plaza
567 South King Street
Haleiwa, Hawaii 96813-3036

Dear Mr. Takushi:

Subject: Draft Environmental Assessment for
Kailhi Valley Reconstructed Sewer
Kailhi, Oahu, Hawaii

TMK: (1) 1-3-029, 1-3-033, 1-3-037, 1-3-038

TMK: (1) 1-4-001 to 006, 1-4-008 to 014, 1-4-017

TMK: (1) 1-4-009 to 021, 1-4-023 to 025

Thank you for allowing us the opportunity to review the above subject project which involves Cured in Place Pipe (CIPP) rehabilitation of existing 8-inch through 18-inch sewer lines to eliminate hydraulic and/or structural deficiencies. The project also includes sewer manhole rehabilitation, reconnection of laterals, temporary sewer bypassing and road and landscape restoration. We have the following comments to offer:

We are in favor of sewer line reconstruction and improvements which will better service our communities. Therefore we have no objections to the plan and concur with its recommendation.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We do reserve the right to review the detailed wastewater plans for conformance to applicable rules.

Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at 586-4294.

Sincerely,

HAROLD K. YEE, P.E., CHIEF
Wastewater Branch

LNKM:erm

01 3 029 etc.wpd
W12 wb041085

no reply, please refer to
EHD/WW

PETER T. YOUNG
CHAIRMAN
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVENSON
DEPUTY DIRECTOR - LAND
YVONNE Y. ZU
DEPUTY DIRECTOR - WATER

ADULTIC RESOURCES
BOAT AND OCEAN REGULATION
BUREAU OF CONSERVATION
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
MARQUAITE ISLAND RESERVE COMMISSION
STATE PARKS

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRMAN
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

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DEPUTY DIRECTOR - LAND
YVONNE Y. ZU
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MARQUAITE ISLAND RESERVE COMMISSION
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STATE OF HAWAII
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LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

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DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

LINDA LINGLE
GOVERNOR OF HAWAII

LD-NAV
KALIHISEWERPAREN.RCM
ParEn Inc., dba Park Engineering
Cris T. Takushi
567 South King Street
Honolulu, Hawaii 96813
Dear Mr. Takushi:

November 30 2004
KALIHISEWERDEA.CMT
MEMORANDUM:
TO: XXX Division of Aquatic Resources
XXX Engineering Division
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Oahu District Land Office

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment for the Kalihi Valley
Reconstructed Sewer Project, Honolulu, Hawaii
Thank you for the opportunity to review and comment on the subject matter.

The Department of Land and Natural Resources' Land Division transmitted or made available a copy of the document pertaining to the subject matter to the following Department of Land and Natural Resources' Divisions for their review and comment:

- Division of Aquatic Resources
- Commission on Water Resource Management
- Engineering Division Planning
- Office of Conservation and Coastal Lands
- Land-Oahu District Land Office

Enclosed please find a copy of the Commission on Water Resource Management's comment.

The Department of Land and Natural Resources has no other comment to offer at this time.
Should you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at (808) 587-0384. Thank you.

Very truly yours,
Dierdre S. Mamiya
DIERDRE S. MAMIYA
Administrator

Very truly yours,
Cecil Santos
CECIL SANTOS

Very truly yours,
Dierdre S. Mamiya
DIERDRE S. MAMIYA
Administrator

Very truly yours,
Cecil Santos
CECIL SANTOS

November 30 2004
KALIHISEWERDEA.CMT
MEMORANDUM:
TO: XXX Division of Aquatic Resources
XXX Engineering Division
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Oahu District Land Office

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment (DEA)
Kalihi Valley Reconstructed Sewer
ParEn Inc./C&COH DDC

Please review the DEA pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.
Should you have any questions, please contact Nicholas A. Vaccaro at 587-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.
 We have no comments.
 Comments attached.

Signed: *Cecil Santos*
Name: CECIL SANTOS

Date: 12/3/04

1 copy in Room 210.



We've Moved!

Suite 1500, Pacific Park Plaza ☐ 711 Kapiolani Boulevard, Honolulu, Hawaii 96813-5237 ☐ Telephone (808) 593-1676 ☐ FAX (808) 593-1807

ParEn, Inc. dba park engineering

February 10, 2005

Ms. Yvonne Y. Izu, Deputy Director
Commission on Water Resource Management (CWRM)
Land Division
Department of Land and Natural Resources (DLNR)
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Attention: Ms. Lenore Nakama

Dear Ms. Izu:

Subject: Kailihi Valley Reconstructed Sewer

Thank you for your comments in your letter dated December 28, 2004 regarding the Draft Environmental Assessment (DEA) for the subject project. We acknowledge your comment that there may be a need for a stream channel alteration permit in the event that the bed or banks of the stream are disturbed.

The majority of proposed sewer line improvements involve rehabilitation using a trenchless process known as cured-in-place-pipe (CIPP) in which a flexible liner is inserted into the existing sewer lines through manholes. In other cases where it has been determined that the existing lines are hydraulically inadequate to convey projected future flows, we are proposing to install relief lines using a trenchless method such as mini-microtunneling or horizontal directional drilling. Trenchless methods are being proposed to eliminate or minimize disturbances to the stream channel and banks.

In order to comply with the requirements of your office, we respectfully request a determination of the limits of Kailihi and Kamaoiki Streams in the vicinity of the proposed improvements and whether a stream alteration permit will be required for construction of the relief sewer work. An overall plan and preliminary plan and profile information for the proposed relief lines is attached to assist you in your determination.

Please call me at 593-1676 if you have any questions or require additional information.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura
Keith S. Uemura, P.E.
Vice President

CTT.mac

Attachments



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

P.O. BOX 531
HONOLULU, HAWAII 96809

MAR -8 2005

Mr. Keith S. Uemura, P.E.
Vice President
ParEn, Inc.
711 Kapiolani Boulevard
Pacific Park Plaza, Suite 1500
Honolulu, Hawaii 96813-5237

Dear Mr. Uemura:

Thank you for your February 10, 2005 letter requesting a determination of limits of Kalihi and Kamaoiki Streams in the vicinity of the proposed construction of sewer relief work. Based on the plans you submitted with your letter, it appears that portions of the sewer improvements project may require a stream channel alteration permit. Generally, these are areas in which new relief lines and/or new manholes are planned to be installed in the Kalihi Stream channel.

The areas of the project which may require a stream channel alteration permit on Kalihi Stream include:

- Relief line B3
- Relief line C1
- Relief line C2
- Relief Line A3

The work on Kamaoiki Stream does not appear to alter the bed or banks of the stream; therefore, a stream channel alteration permit will not be required unless the plans are changed.

We emphasize that a stream channel alteration permit will only be required if the work alters the bed or banks of streams. If the project avoids altering the bed or banks of Kalihi and Kamaoiki Streams by microtunneling or horizontal directional drilling, the project may not require a stream channel alteration permit.

Please be advised that the project may require other agency approvals regarding water quality, wetlands, grading, grubbing, stockpiling, and roadway and drainage maintenance. This letter does not constitute or imply compliance with other Federal, state or county rules.

Thank you for your inquiry. If you have any questions regarding this letter, please call David Higa at 587-0249.

Sincerely,

DEAN A. NAKANO
Acting Deputy Director

PETER T. YOUNG
Commissioner
MEREDITH J. CHING
CLAYTON W. DELA CRUZ
JAMES A. FRANZER
C. J. HARRIS, III
LAWRENCE H. MIKE, M.D., D.
STEPHANIE A. WHALEN
DEAN A. NAKANO
Acting Deputy Director



Suite 1500 Pacific Park Plaza | 711 Kapiolani Boulevard, Honolulu Hawaii 96813 | Telephone (808) 593-1676 | FAX (808) 593-1607

ParEn, Inc. | **idba park engineering**

March 10, 2005

Mr. Dean A. Nakano, Acting Deputy Director
Commission on Water Resource Management (CWRM)
Land Division
Department of Land and Natural Resources (DLNR)
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Attention: Mr. David Higa

Dear Mr. Nakano:

Subject: Kalihi Valley Reconstructed Sewer

Thank you for your response letter dated March 8, 2005 regarding the need for a Stream Channel Alteration Permit (SCAP) for this project. We acknowledge that a SCAP may be required for relief lines A3, B3, C1 and C2 in the event that the bed or banks of Kalihi Stream are altered.

As stated in our earlier letter of February 10, 2005 we are proposing to install these relief lines under Kalihi Stream using a trenchless method such as mini-microtunneling or horizontal directional drilling. We will work with your office to ensure that the pits associated with this trenchless work and any new sewer manholes are installed outside of the bed and banks of Kalihi Stream. Requirements prohibiting any work that alters the bed and banks of the stream will be reflected in our construction plans and specifications and all agency approvals required for this project will be obtained.

Please call me at 593-1676 if you have any questions or require additional information.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura, P.E.
Vice President

CTT:mac

c: Richard Leong, Dept. of Design and Construction



PETER T. YOUNG
 BOARD OF LAND AND NATURAL RESOURCES
 COMMISSIONER/WATER RESOURCES MANAGEMENT

DAN DAVIDSON
 DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
 DEPUTY DIRECTOR - WATER

ADVISORY SERVICES
 BOATING AND OCEAN RECREATION
 BUREAU OF CONSERVATION
 COMMISSIONER/COASTAL MARINE
 CONSERVATION AND COASTAL LARVAE
 CONSERVATION AND COASTAL LARVAE
 MANAGEMENT

FORESTRY AND WILDLIFE
 COMMISSIONER/STATE RESERVE COMMISSION

KAPOLEI, HAWAII 96706



LINDA LINDLE
 GOVERNOR OF HAWAII

STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 HISTORIC PRESERVATION DIVISION
 KAKUHIHEVA BUILDING, ROOM 555
 601 KAKOPIKA BOULEVARD
 KAPOLEI, HAWAII 96707

December 1, 2004

Cris T. Takushi
 PerEn dba Park Engineering
 Kawatahao Plaza, Suite 300
 567 South King Street
 Honolulu, Hawaii 96813-3036

LOG NO: 2004.3493
 DOC NO: 0412EJ01

Dear Mr. Takushi:

SUBJECT: Chapter 6E-8 Historic Preservation Review- Draft Environmental Assessment (DEA) for the Kalihi Valley Reconstructed Sewer Project
 Kalihi, Kona, O'ahu
 TMK: (1) 1-3-029; 1-3-033, 1-3-037, 1-3-038, 1-4-001 to 006, 1-4-008 to 014, 1-4-017, 1-4-019 to 021, 1-4-023 to 025

Thank you for the opportunity to provide comment on the DEA for the City and County of Honolulu Department of Design and Construction's proposal to rehabilitate and implement corrective measure to improve the aging sewer system in Kalihi Valley. We provided comments on November 22, 2004 during the pre-EA consultation phase of this project (Chinen to Uemura, SHPD Log 2004.3319). Our comments have been incorporated below and a complete copy of our earlier comments is also attached.

Section V.H of the DEA should be corrected to reflect our earlier concerns that we believe that no historic properties would be affected by this project except for the portion along School Street adjacent to Puaa Cemetery. Because of the potential adverse effect the project may have in this area, we recommended that a qualified archaeologist conduct on-site archaeological monitoring, following an approved archaeological monitoring plan, during any open trench excavations that take place within the School Street corridor adjacent to Puaa Cemetery.

Section VI.10 of the DEA should also be corrected to reflect our earlier comments which stated that if open trench excavations are carried out with archaeological monitoring, then we believe that any effect on significant historic sites will be mitigated through the program of precautionary monitoring.

Mr. Chris Takushi
 Page 2

Should you have any questions about archaeology, please feel free to call Sara Collins at 692-8026 or Elaine Jourdan at 692-8027. Should you have any questions about burial matters or cultural matters, please feel free to contact Nathan Napoka at 587-0192.

Aloha,

Melanie A. Chinen

Melanie A. Chinen, Administrator
 State Historic Preservation Division

E.J.jen

c: A. Van Horn Diamond, Chair, O'ahu Island Burial Council
 Nathan Napoka, Branch Chief, History and Culture Branch
 Timothy E. Steinberger, Director, City and County of Honolulu, Department of Design and Construction



We've **re**vised!

Suite 1500, Pacific Park Plaza □ 711 Kapitiwai Boulevard, Honolulu, Hawaii 96813-5237 □ Telephone (808) 593-1676 □ FAX (808) 593-1687

ParEn, Inc. dba park engineering

March 2, 2005

Ms. Melanie A. Chinen
Administrator
State Historic Preservation Division (SHPD)
Department of Land and Natural Resources
State of Hawaii
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Dear Ms. Chinen:

Subject: Kalihī Valley Reconstructed Sewer

Thank you for your comments in your letter dated December 1, 2004 regarding the Draft Environmental Assessment (DEA) for the subject project. The following has been prepared in response to your comments:

Section V.H. This paragraph in the Final Environmental Assessment (FEA) will be revised to state SHPD's position that no historic properties would be affected by this project except for the portion along School Street adjacent to Puea Cemetery.

Section VI.10. This paragraph will be revised as follows:
"Open trench excavation is planned for the Gulick Avenue Relief Sewer along School Street adjacent to Puea Cemetery. Because of the potential adverse effect the project may have in this area, the construction plans will require a qualified archaeologist to conduct on-site archaeological monitoring, following an approved archaeological monitoring plan."

Please call me at 593-1676 if you have any questions or require additional information. The City's Project Manager is Richard Leong of the Department of Design and Construction Wastewater Division at 527-5863.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura, P.E.
Vice President

CTT:mac

c: Richard Leong, Dept. of Design and Construction



March 2, 2005

Ms. Genevieve Salmonson
Director
Office of Environmental Quality Control
State Office Tower
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Attention: Mr. Leslie Segundo

Dear Ms. Salmonson:

Subject: Kalihii Valley Reconstructed Sewer

Thank you for your comments in your letter dated January 6, 2005 regarding the Draft Environmental Assessment (EA) for the subject project. The following has been prepared in response to your comments:

- 1. TRAFFIC IMPACT MITIGATION.** Section VI.A.4 - Potential Impacts and Proposed Mitigation Measures During Construction in the Final EA will be revised to state that the Contractor will be required to provide advance written notice to area Neighborhood Boards, residents, schools, The Bus and the City Department of Transportation Services (DTS) fourteen days in advance, whenever construction affecting traffic flow is anticipated.
- 2. CUSTOMER EDUCATION.** Your suggestion to inform customers not to dispose of grease in their sewer was passed on to the Department of Environmental Services.
- 3. SEGMENTATION AND MASTER PLAN FOR SEWER IMPROVEMENTS.** A number of studies have been conducted for the City in its island-wide effort to correct structural and hydraulic deficiencies in its sewer system and reduce infiltration/inflow (I/I) and the occurrence of sanitary sewer spills. Recommended improvements for Kalihii Valley sewer system came from several regional "master plan" type reports. These reports which evaluated sewer improvement alternatives are: *Sewer Rehabilitation and Infiltration & Inflow Minimization Plan, Volume 5 of 9 Sand Island Engineering Report by Fukunaga and Associates and East Mamala Bay Final Wastewater Facilities Plan by Belt Collins*. An EIS was prepared, subject to Chapter 343 Hawaii Revised Statutes, for the East Mamala Bay Wastewater Facilities Plan.

Please call me at 593-1676 if you have any questions or require additional information.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura, P.E.
Vice President

CTT:mac

c: Richard Leong, Dept. of Design and Construction

ENGINEERS, SURVEYORS, PLANNERS

GENEVIEW SALMONSON
DIRECTOR



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 596-1185
FACSIMILE (808) 596-1186
E-mail: oemp@health.state.hi.us

January 6, 2005

Mr. Timothy Steinberger
Mr. Richard Leong
Department of Design and Construction
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Mr. Keith Uemura
ParEn, Inc., dba Park Engineering
567 South King Street, Suite 300
Honolulu, Hawaii 96813

Dear Messrs. Steinberger, Leong and Ahe:

The Office of Environmental Quality Control has the following comments on the November 2004, draft environmental assessment for the Kalihii Valley Reconstructed Sewer Project, Tax Map Keys 1-3-29, 1-3-33, 1-3-37, 1-3-38, 1-4-01 to 06, 1-4-08 to 14, 1-4-17, 1-4-19 to 21, and 1-4-23 to 25, in the judicial district of Honolulu.

- 1. TRAFFIC IMPACT MITIGATION:** Prior to implementation of the project, please contact the neighborhood boards and to inform them in advance of what areas of the Kalihii Valley Sewer Rehabilitation Project will be affected by road work and construction so that residents may find alternate motor routes.
- 2. CUSTOMER EDUCATION:** As the disposal of grease in the sewer system remains problematic, the Office would like to suggest that the Department work in conjunction with the agency responsible for billing customers to send out a flyer asking customers not to dispose of grease in their sewer.
- 3. SEGMENTATION AND MASTER PLAN FOR SEWER IMPROVEMENTS:** As this project appears to be one of several currently being proposed by the City related to sewer improvements we would like to take this opportunity to note that Section 11-200-7, Hawai'i Administrative Rules mandates that projects not be segmented as such an action precludes a thorough examination of cumulative impacts on a project on the environment. We respectfully recommend that you and your policy makers in the City's administration consider preparing a master plan subject to Chapter 343, Hawai'i Revised Statutes review and comment.

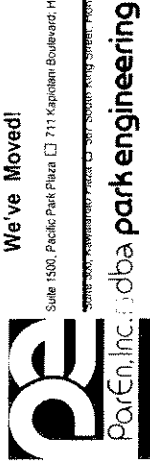
Thank you for the opportunity to comment. Please call Leslie Segundo at 586-4185 if you have any questions.

Sincerely,

GENEVIEW SALMONSON
Director



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPIOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813



December 28, 2004

HRD004/1598B

Mr. Keith S. Uemura, P.E.
Vice President
Park Engineering
Kawahao Plaza, Suite 300
567 South King Street
Honolulu, Hawaii 96813-3036

Re: Draft Environmental Assessment, Kailhi Valley Reconstructed Sewer, Island of O'ahu, TMK: (Multiple)

Dear Mr. Uemura:

The Office of Hawaiian Affairs (OHA) is in receipt of the draft environmental assessment for the proposed Kailhi Valley Reconstructed Sewer project which seeks to rehabilitate the existing and failing sewerlines throughout Kailhi Valley. Thank you for your patience during our review.

After reviewing the submitted materials, OHA staff have no substantive comments to offer at this time concerning this project or any foreseeable untoward effects on native Hawaiian resources or practices in the area. We do note, however, that such a project is beneficial overall as sewer line breakages often wreak havoc on existing sub-surface cultural deposits, the environment and the health and welfare of the community.

If you have any questions or concerns, please contact Kai Markell, Policy Advocate, at 594-1945 or kaim@oha.org. Once again, thank you for your patience during our review and assessment of this important matter.

'O wau iho na,

Keith S. Uemura
for Clyde W. Nimitz
Administrator

March 2, 2005

Mr. Clyde W. Nimitz
Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Attention: Kai Markell

Dear Mr. Nimitz:

Subject: Kailhi Valley Reconstructed Sewer

Thank you for your comments in your letter dated December 28, 2004 regarding the Draft Environmental Assessment (DEA) for the subject project. Your letter will be included in the Final Environmental Assessment with all the other agency comments received.

Please call me at 593-1676 if you have any questions or require additional information.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura
Keith S. Uemura, P.E.
Vice President

CTT:mac

c: Richard Leong, Dept. of Design and Construction

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☐ 509-339-3333 ☐ 509-339-3333 ☐ 509-339-3333 ☐ 509-339-3333 ☐ 509-339-3333 ☐ 509-339-3333 ☐ 509-339-3333 ☐ 509-339-3333



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

REF: Y TO
ATTENTION OF

February 28, 2005

ParEn, Inc. dba park engineering

February 11, 2005

Regulatory Branch

Mr. George Young, P.E., Chief
Regulatory Branch, CEPOH-EC-R
Department of the Army
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

Mr. Keith S. Uemura, P.E.
Vice President
ParEn, Inc. dba Park Engineering
Pacific Park Plaza, Suite 1500
711 Kapiolani Boulevard
Honolulu, HI 96813-5237

Dear Mr. Young:

Subject: Kalih Valley Reconstructed Sewer

Dear Mr. Uemura:

The City and County of Honolulu is proposing to rehabilitate and implement corrective measures to improve its aging wastewater collection system within Kalih Valley. System deficiencies will be corrected using a number of different approaches. The majority of proposed sewer line improvements involve rehabilitation using a trenchless process known as cured-in-place-pipe (CIPP) in which a flexible liner is inserted into the existing sewer lines through manholes. In other cases where it has been determined that the existing sewer lines are hydraulically inadequate to convey projected future flows, we are proposing to install relief lines using a trenchless method such as mini-microtunneling or horizontal directional drilling. Trenchless methods are being proposed to eliminate or minimize disturbances to the stream channel and banks. We have sent a request for determination of the limits of Kalih and Kamaikai Streams in the vicinity of the proposed improvements and whether a Stream Channel Alteration Permit will be required for construction of the relief sewer work to the State of Hawaii Department of Land and Natural Resources.

This acknowledges receipt of additional information regarding your client's (City and County of Honolulu) proposed activity for the proposed Reconstructed Sewer Project, Kalih Valley, Oahu Island. Based on the information contained in the construction specification drawings titled "Department of Design and Construction Wastewater Division Kalih Valley Reconstructed Sewer Project, Contract No. F72970, undated" the Corps has determined that the proposed sewer line crossings will occur by horizontal drilling methods under Kalih and Kamaikai Streams will not likely result in the discharge of dredged or fill material into the overlying streams. This activity, as proposed is not regulated under Section 404 of the Clean Water Act and the Corps' administrative procedures. Therefore, the Corps will not require a DA permit be authorized before the activity begins. This office should be consulted in the future should alternative construction methods be proposed that may result in the discharge of dredged or fill material into the waters of Kalih or Kamaikai Streams.

In order to comply with the requirements of your office, we respectfully request a determination as to whether a Section 404 permit will be required for this project. An overall plan and preliminary plan and profile information for the proposed relief lines is attached to assist you in your determination.

Thank you for your diligence in ensuring the protection and conservation of Hawaii's water resources. If you require additional information or have further questions, you may call Mr. Farley Watanabe at (808) 438-7701 or by fax at (808) 438-4060. Please refer to File Number POH-2004-1005 in any future correspondence with us.

Please call me at 593-1676 if you have any questions or require additional information.

Sincerely yours,

Sincerely,

ParEn, Inc.
dba PARK ENGINEERING

George P. Young, P.E.
Chief, Regulatory Branch

Keith S. Uemura, P.E.
Vice President

CTT:mac

Attachments

Copy furnished:

Commission on Water Resource Management, DLNR, 1151 Punchbowl St., Honolulu, HI 96850
Office of Planning, Coastal Zone Management Program, P.O. Box 2359, Honolulu, Hawaii 96804
Clean Water Branch, Department of Health, P.O. Box 3378, Honolulu, Hawaii 96801-3386

January 3, 2005

TO: Proposing Agency: Department of Design & Construction
650 S. King Street
Honolulu, Hawaii 96813

ATTN: Richard Leong

FROM: William E. Woods
Chair, Neighborhood Board #16
Personal Statements concerning HRS 343 DEFA Proposal and future
Infrastructure limitations for the Upper Kalihi

These statements and identification of problems are being made by me as an individual. The timing of these notices are not appropriate for routine review by elected neighborhood boards as they require public notice of meetings, committee review processes, etc. Thus Neighborhood Board #16 could not possibly have responded to this notice and make a formal statement because of the procedures used by the proposing agency. In the future, I would hope that such substantive proposals be planned far enough ahead to allow neighborhood boards time to process accordingly.

However, I have reviewed the proposal and discussed aspects of it with a number of people associated with the DPP plan, other consultants and residents.

There are many concerns about the direction of this plan in that it will significantly reduce the volume of water to levels below that which was created when the old pipe system was installed. I was not able to identify when the current pipe system was installed but it was estimated by one office at about 50 years ago.

While I understand that the system has developed problems of cracks, roots, misalignment, etc and needs replacement it does not seem reasonable to decrease the actual volume of flow in the new system to below what was installed perhaps 50 years ago.

Importantly, density of the impacted areas has risen during the past 50 years based upon increased number of persons in each household (average), legal and illegal add-ons, and legitimate residential (primarily) building on properly zoned property.

Looking at maps of our current zoning I see hundreds of residentially zoned parcels that could legally build more units requiring more water and sewers. While I do not support increasing density in general, I do support and recognize the legally situated undeveloped residential properties that should have the complete and full right to build in accordance with code and infrastructure. Following of this plan to insert pipe rather than replacing with larger and more effective system would limit if not deny upper Kalihi residents full utilization of its current acceptable building zones. While the plan might decrease disruption to make the change it would create a long-term hamstringing of a situation for those who have not yet adequately used their land in accordance with current building codes and zones.

Further, this plan does not take into consideration future master plan of passed by the Kalihi #16 Neighborhood Board which formally supports upgrading the entire infrastructure so that we can move our community into the real 21st Century. The proposal would hinder that effort and further harm the future of the Upper Kalihi community.



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ParEn, Inc. dba park engineering

March 2, 2005

Mr. William E. Woods, MPH
Kalihi Valley Neighborhood Board No. 16 (NHB #16)
P.O. Box 37083
Honolulu, Hawaii 96837

Dear Mr. Woods:

Subject: Kalihi Valley Reconstructed Sewer

Thank you for responding to the City's Draft Environmental Assessment (DEA) for the Kalihi Valley Reconstructed Sewer Project. Your comment that the NHB #16 was not given adequate notice to provide comments on the Kalihi Valley Reconstructed Sewer Project is noted. The Kalihi Valley NHB #16 has been and will continue to be kept informed of the project. For your information, a pre-consultation letter was sent to NHB #16 on September 30, 2004 to provide general information including two project maps of the proposed improvements. A copy of the DEA was sent to NHB #16 for comments on November 26, 2004 via the Neighborhood Commission Office. Both the pre-consultation letter and the Draft EA were also sent to the Kalihi-Palama Library for public review. A description of the project was published in the December 8, 2004 issue of the Office of Environmental Quality Control (OEQC) Environmental Notice. The corresponding deadline for the 30-day comment period, established in HRS Chapter 343, Hawaii's Revised Statutes, was January 7, 2005. Please note that the above procedure is generally applicable to all Neighborhood Board reviews of City Wastewater Projects.

Pertaining to the existing sewer system and your comment that the proposed pipe lining will reduce the existing flow capacity, please note that the Reconstructed Sewer Project will be installed based on future flow conditions as dictated by the City's Primary Urban Center Development Plan and the East Mamala Bay Wastewater Facilities Plan. As mentioned to you and NHB #16 at the January 12, 2005 meeting, in addition to improving the structural integrity of the pipes, the lining will improve the pipe flow capacity. Although the pipe's cross-sectional area will be minimally reduced due to the thickness of the liner, the increased smoothness of the liner more than offsets any reduction in area, in terms of the ability of the lines to pass sewer flows. Additionally, the continuous nature of the liner creates an impenetrable barrier that will prevent groundwater runoff from entering the sewer system through cracks and leaking joints. This reduction in infiltration further allows the lined pipe to handle primarily sewer flows as opposed to sewer and ground infiltration flows.

At the January 12, 2005 meeting, you voiced concern about the "high" density of occupants per house lot in Kalihi Valley. We obtained information on the water usage in Kalihi Valley for the years 2002 and 2003 and confirmed that the average water usage per metered service was similar to the Wastewater design standards for sewer flows.

Mr. William E. Woods, MPH
March 2, 2005
Page 2

Your comment about specific master plans created by NHB #16 over the past 12 years is also noted. However, please be aware that this project is being done in accordance with a number of approved Master Plans conducted on behalf of the City and County of Honolulu. These are the City's Primary Urban Center Development Plan (PUC DP), published by the Department of Planning and Permitting, dated June 2004 and the East Mamala Bay Wastewater Facilities Plan. Also, this sewer project is being coordinated with other City Agencies and utility companies. Your letter will be included in the Final Environmental Assessment with all the other agency comments received.

If there are any questions, please contact Keith Uemura of ParEn, Inc. dba Park Engineering at 593-1676 or Richard Leong of the City and County of Honolulu Department of Design and Construction Wastewater Division at 527-5863.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura, P.E.
Vice President

CTT:mac

c: Richard Leong, Dept. of Design and Construction

GAS

February 10, 2005

Park Engineering
Suite 300 Kawalahao Plaza
567 South King Street
Honolulu, Hawaii 96813-3036

Attention: Mr. Cris T. Takushi

Gentlemen:

Subject: Draft Environmental Assessment for
Kalihi Valley Reconstructed Sewer

Please be advised that The Gas Company, LLC maintains underground utility gas mains in the project vicinity, which serves commercial and residential customers in the area and is interconnected with the utility network in Kalihi Valley. We would appreciate your consideration during the project planning and design process to minimize any potential conflicts with the existing gas facilities in the project area.

Thank you for the opportunity to comment on the Draft Environmental Assessment. Should there be any questions, or if additional information is desired, please call Chris Anderson at 594-5564.

Sincerely,



Charles E. Calvet, P.E.
Manager, Engineering

CEC:hrs
05-111

P.O. Box 3000
Honolulu, Hawaii 96802-3000



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ParEn, Inc. dba park engineering

March 2, 2005

Mr. Charles E. Calvet, P.E.
Manager, Engineer
The Gas Company
P.O. Box 3000
Honolulu, Hawaii 96802-3000

Attention: Chris Anderson

Dear Mr. Calvet:

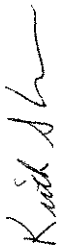
Subject: Kalihi Valley Reconstructed Sewer

Thank you for your comments in your letter dated February 10, 2005 regarding the Draft Environmental Assessment (DEA) for the subject project. Your letter will be included in the Final Environmental Assessment with all the other agency comments received.

Please call me at 593-1676 if you have any questions or require additional information.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

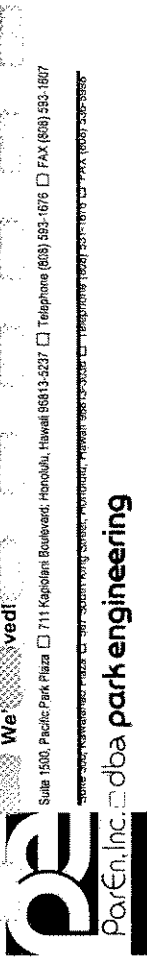


Keith S. Uemura, P.E.
Vice President

CTT:mac

c: Richard Leong, Dept. of Design and Construction

ENGINEERS, SURVEYORS, PLANNERS



Suite 1500, Pacific Park Plaza □ 711 Kapiolani Boulevard, Honolulu, Hawaii 96813-5237 □ Telephone (808) 593-1676 □ FAX (808) 593-1687

January 3, 2005

Mr. Chris Takushi
Park Engineering
Kawaiahao Plaza, Suite 300
567 South King Street
Honolulu, Hawaii 96813-3036

Dear Mr. Takushi

Subject: Kalihi Valley Reconstructed Sewer

Thank you for the opportunity to review the above subject project.

Verizon Hawaii does not have any additional comments to add to the Environmental Assessment for the Kalihi Valley Reconstructed Sewer Project.

If you have any questions, please call Kenwynn Goo at 840-2967.

Sincerely,

Lynette Yoshida
Lynette Yoshida
Section Manager - Network Engineering and Planning

c: File (Kalihi)
K. Goo
C. Tang

March 2, 2005

Ms. Lynette Yoshida
Section Manager – Network Engineering and Planning
Verizon Hawaii Inc.
P.O. Box 2200
Honolulu, Hawaii 96841

Attention: Mr. Kenwynn Goo

Dear Ms. Yoshida:

Subject: Kalihi Valley Reconstructed Sewer

Thank you for your comments in your letter dated December 28, 2004 regarding the Draft Environmental Assessment (DEA) for the subject project. Your letter will be included in the Final Environmental Assessment with all the other agency comments received.

Please call me at 593-1676 if you have any questions or require additional information.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura
Keith S. Uemura, P.E.
Vice President

CTT:mac

c: Richard Leong, Dept. of Design and Construction

ENGINEERS, SURVEYORS, PLANNERS

APPENDIX B

Preliminary Construction Cost Estimate

**KALIHI VALLEY RECONSTRUCTED SEWER
PRELIMINARY CONSTRUCTION COST ESTIMATE**

Description	Quantity	Unit cost	Total Cost <i>(nearest 1,000)</i>	
CIPP Rehabilitation				
Line Cleaning for 6"-12" sewer, L.F.	7,183	\$ 20	\$ 144,000	
Line Cleaning for 15"-18" sewer, L.F.	3,157	\$ 25	\$ 79,000	
Point repairs prior to CIPP	F.A.		\$ 550,000	
CIPP rehabilitation of 6" collector lines, L.F.	1,099	\$ 85	\$ 93,000	
CIPP rehabilitation of 8" trunk lines, L.F.	773	\$ 100	\$ 77,000	
CIPP rehabilitation of 8" collector lines, L.F.	3,386	\$ 100	\$ 339,000	
CIPP rehabilitation of 10" trunk lines, L.F.	209	\$ 125	\$ 26,000	
CIPP rehabilitation of 12" trunk lines, L.F.	1,716	\$ 150	\$ 257,000	
CIPP rehabilitation of 15" trunk lines, L.F.	1,206	\$ 185	\$ 223,000	
CIPP rehabilitation of 18" trunk lines, L.F.	1,951	\$ 225	\$ 439,000	
Follow-up CCTV inspection, L.F.	20,680	\$ 15	\$ 310,000	
Manhole inspection / rehabilitation	L.S.		\$ 500,000	
Reinstate Laterals. & Chimneys, Each	211	\$ 3,000	\$ 633,000	
Road restoration, S.Y.	470	\$ 100	\$ 47,000	
Landscape restoration, S.F.	6,350	\$ 10	\$ 64,000	
Inspection & rehabilitation of 6" - 18" sewer			\$ 1,752,000	CIPP Cost \$ 5,533,000
3 Flow Diversions (using existing Jennie Street sewer lines)				
8" sewer, L.F.	589	40	\$ 24,000	
15" sewer, L.F.	659	55	\$ 36,000	
Sewer Manhole (height: 5' - 10')	3	10,000	\$ 30,000	
Sewer Manhole (height: 18' - 22')	2	20,000	\$ 40,000	
Sewer Manhole (Drop)	1	30,000	\$ 30,000	
Unclassified Trench Excavation, C.Y.	1,747	325	\$ 568,000	
Connect new 15" sewer to existing SMH	2	15,000	\$ 30,000	
Connect new 8" to existing SMH	3	5,000	\$ 15,000	
Demolish existing SMH (8' dp.)	1	5,000	\$ 5,000	
Reconnect laterals, Each	2	3,000	\$ 6,000	
Road restoration, S.Y.	461	100	\$ 46,000	
Landscape restoration, S.F.	581	10	\$ 6,000	Diversions Cost \$ 836,000
Relief Line "A3"				
10" sewer, L.F. (including jacking. & receiving pits)	115	1,350	\$ 155,000	
Sewer Manhole (height: 10' - 12')	2	12,000	\$ 24,000	
Connect new 10" sewer to exist. SMHs	2	10,000	\$ 20,000	
Relief Line "B3"				
10" sewer, L.F. (including jacking. & receiving pits)	436	1,350	\$ 589,000	
Sewer Manhole (height: 9')	1	10,000	\$ 10,000	
Sewer Manhole (height: 16' - 21')	3	20,000	\$ 60,000	
Connect new 10" sewer to exist. SMHs	2	10,000	\$ 20,000	
Relief Line "C1"				
12" sewer, L.F. (including jacking. & receiving pits)	334	1,375	\$ 459,000	
Sewer Manhole (height: 9')	3	10,000	\$ 30,000	
Connect new 12" sewer to exist. SMHs	2	10,000	\$ 20,000	
Relief Line "C2"				
8" sewer, L.F. (including jacking. & receiving pits)	257	1,330	\$ 342,000	
Sewer Manhole (height: 9')	4	10,000	\$ 40,000	
Connect new 8" sewer to exist. SMHs	2	10,000	\$ 20,000	Relief lines Cost \$ 1,789,000
School Street Relief Line				
18" sewer, L.F.	325	60	\$ 20,000	
Unclassified Trench Excavation, C.Y.	300	325	\$ 98,000	
Sewer Manhole (height: 5' - 10')	2	10,000	\$ 20,000	
Connections to exist. Sewer (ht. = 6.5')	2	5,000	\$ 10,000	
Road restoration, S.Y.	130	100	\$ 13,000	School Street Relief Line Cost \$ 161,000
Traffic Control	L.S.		\$ 1,248,000	
Temp Sewer Bypass			\$ 1,913,000	
		Subtotal	\$ 11,475,000	
Mobilization			\$ 689,000	
		Subtotal	\$ 12,164,000	
Contingency			\$ 3,649,000	
		Total Cost	\$ 15,813,000	

Glossary of Terms

CCTV	Closed Circuit Television
CIPP	Cured-In-Place-Pipe Rehabilitation
CLSM	Controlled Low Strength Material
CRM	Concrete Rubble Masonry
CSM	Collection System Maintenance Division
DbA	Doing business at
DDC	Department of Design and Construction
DLNR	Department of Land and Natural Resources
DPP	Department of Planning and Permitting
DTS	Department of Transportation Services
EA	Environmental Assessment
ENV	Department of Environmental Services
FONSI	Finding of No Significant Impact
HRS	Hawaii Revised Statutes
I/I	Infiltration and Inflow
MGD	Million Gallons per Day
MSL	Mean Sea Level
NPDES	National Pollutant Discharge Elimination System
P.E.	Professional Engineer
PUC	Primary Urban Center
SCAP	Stream Channel Alteration Permit
SHPD	State Historic Preservation Division
SMH	Sewer Manhole
SSOs	Sanitary Sewer Overflows
St	Street
TMK	Tax Map Key
TCPs	Traffic Control Plans
U.S.	United States
USPS	United States Postal Service

APPENDIX D

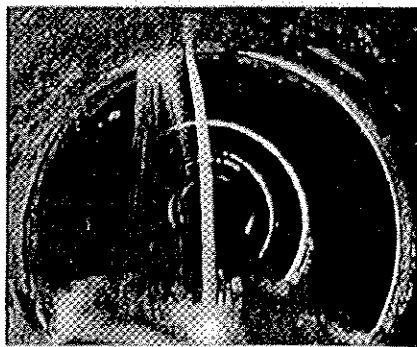
Results of a Study conducted for
Insituform Technologies Inc.,
Sverdrup Corporation and Southeast
Environmental Services, Inc. 1993

Tests Demonstrate
Insituform[®]
Increases
Flow Capacity

RESULTS OF A STUDY CONDUCTED FOR INSITUFORM TECHNOLOGIES INC.
BY SVERDRUP CORPORATION AND SOUTHEAST ENVIRONMENTAL SERVICES, INC.

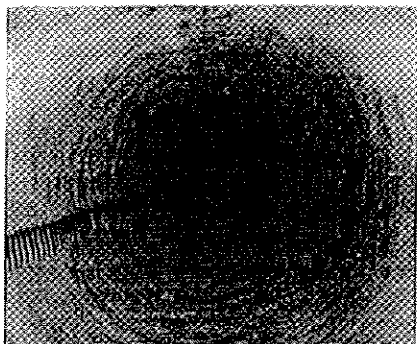
Flow Monitoring Study Of In-Service Sanitary Sewers

Summary of Results



Before Insituform

Benefits of Insituform Flow Enhancement



After Insituform

- * The Manning Roughness Coefficient ("n") of uncleaned, in-service Insitupipe™ was found to be 33% better than uncleaned, in-service pipes of traditional materials.

Insituform ("n") = 0.010 (average)

Clay/Concrete ("n") = 0.015 (average)

- * In-service Insitupipe with a light cleaning had an "n" value of 0.009, supporting Insituform design.
- * Test results do not support the general concept that all sanitary sewers (regardless of pipe material) tend to have similar roughness because of the growth of biological slime on the pipes.
- * The continuous nature and smoothness of Insitupipe helps prevent the accumulation of sediment.

The results of this flow study demonstrate that the Insituform process can be a solution to deficiencies in sewer capacity and at the same time may reduce routine maintenance costs. Since the Insitupipe conforms tightly to the wall of the underlying pipe, there is only a marginal reduction in diameter. The associated small loss in flow area is more than compensated for by the significant decrease in pipe roughness, or flow enhancement, demonstrated by this study. This flow enhancement is the result of: 1) the relatively smooth inner surface of the Insitupipe which reduces roughness and increases velocity; 2) the continuous nature of the Insitupipe installation which provides gradual transitions at offset joints and other irregularities in the underlying pipe as well as prevents roots and sediment from entering the pipe; and, 3) the installation of a tight-fitting, jointless Insitupipe which reduces infiltration into the sewer system providing more pipe capacity for sanitary wastewater.

Flow enhancement can be important to city planning and development. Upstream expansion can occur without having to upsize the downstream sewer systems, and a reduction in infiltration can often relieve overburdened sewage treatment facilities. This can result in the lifting of development moratoriums allowing continued growth and expansion of the tax base.

In an effort to define the flow characteristics of sanitary sewer segments rehabilitated with Insituform under normal in-service conditions, Insituform of North America, Inc. contracted with Sverdrup Corporation and Southeast Environmental Service, Inc. (SESI) to conduct a flow study in the St. Louis metropolitan area that was completed in 1990. The study was designed to evaluate the Manning Roughness Coefficient ("n") of Insitupipe relative to traditional pipe materials in uncleaned, in-service sewers.

Sverdrup Corporation is an international engineering and architectural consulting firm with over 60 years of engineering experience. Project experience relative to this study has included flow analysis, sewer system design (new construction and rehabilitation), wastewater and water treatment plant design and operations assistance.

SESI (currently part of ADS Environmental in Huntsville, Alabama as a result of a 1989 acquisition) is the nations leading sewer system flow monitoring company. With more than 1000 flow monitoring/sewer system evaluation projects to their credit, they are the recognized experts in most aspects of sewer system flow monitoring.

The flow study involved three distinct phases: 1) Identification and selection of appropriate test segments; 2) Collection of flow measurement data; and, 3) Analysis of results.

Selection of Test Segments

Test segments were selected based on the following general criteria: 1) pipes carrying domestic sewage with slime growth and solids deposits typical of in-service sewers¹; 2) no service connections; 3) no major sources of infiltration and inflow; 4) circular cross-sections; 5) typical pipe grades; and, 6) significant flow depths. Thirty-one potential candidates were selected for field survey/evaluation and closed-circuit television inspection. Based on the findings, 7 Insitupipe, 3 concrete pipe and 1 clay pipe candidate ranging from 14 to 54 inches in diameter were chosen for flow monitoring.

1. "The slime growth in a normal gravity sewer tends to build rather quickly, within the first several months... Therefore, the in-service Manning Roughness Coefficients of newer Insitupipes are comparable to that of much older pipeline materials." (from the Sewer Segment Flow Monitoring Study to Establish In-Service Manning Roughness Coefficients prepared by Sverdrup Corporation and SESI, 1990)

Introduction

Procedure



Figure 1



Figure 2

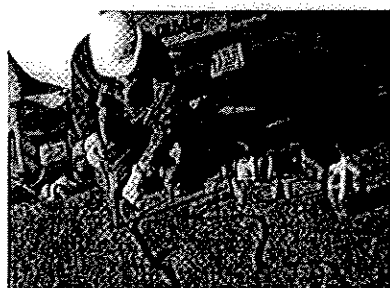


Figure 3



Figure 4



Figure 5

Data Collection

The dye dilution technique was used to measure flow in the 11 test segments. This is an accurate and reliable method of flow measurement that does not require an initial assumption of pipe roughness as with most traditional flow monitoring equipment.

The general field procedures used in this test program for the dye dilution measurement of flowrates were as follows:

- 1) The appropriate dye feed concentration was selected for each test segment by measuring flow depth and velocity at the upstream manhole to estimate the flowrate in the segment. (See Figures 1 and 2.)
- 2) A sample of the segment flow was obtained before dye injection to establish any background interference.
- 3) At the upstream manhole, the selected concentration of rhodamine dye solution was injected at a predetermined selected concentration and premeasured constant rate by means of a special dye injection pump. (See Figure 3.)
- 4) After an appropriate waiting period to allow for proper mixing and transit, three samples of flow were obtained at the downstream manhole. (See Figure 4.) Downstream flow depth and velocity were measured for use in calculating hydraulic slope.
- 5) The dye injection rate at the upstream manhole was remeasured to verify that the rate remained constant, the depth of flow was checked to ensure that flowrate was unchanged, and a sample of the dye solution was obtained.
- 6) Under laboratory conditions, the concentration of dye was measured with a fluorometer in all of the samples obtained. (See Figure 5.)
- 7) Selected test segments were lightly cleaned to remove sediment and retested as described above.
- 8) Additional data collection involved measurement of pipe segment diameters, grades, and lengths.

Analysis of Results

Segment flowrates were determined as follows:

$$Q = Q_i \times C_i / C_d \quad (1)$$

where, Q = flowrate in sewer
 Q_i = dye injection rate (upstream)
 C_i = concentration of dye feed solution (upstream)
 C_d = concentration of dye in sample collected from downstream manhole

Segment hydraulic slopes were calculated from collected field data as follows:

$$S = \frac{Z + Y_1 - Y_2 + (V_1^2/2g) - (V_2^2/2g)}{L} \quad (2)$$

where, S = hydraulic slope (ft/ft)
 Z = invert elevation drop (ft)
 Y_1 = upstream flow depth (ft)
 Y_2 = downstream flow depth (ft)
 V_1 = upstream velocity (ft/sec)
 V_2 = downstream velocity (ft/sec)
 g = acceleration due to gravity = 32.2 ft/sec²
 L = length of segment (ft)

The Manning equation was then used to calculate the Manning Roughness Coefficient, "n", at the average measured segment flow depth as follows:

$$n = \frac{1.49}{Q} A R^{2/3} S^{1/2} \quad (3)$$

where, Q = flowrate in sewer (cfs) from equation 1
 A = flow area (ft²) calculated from average measured segment flow depth
 R = hydraulic radius of flow (ft) = A/P
 P = Wetted perimeter (ft) calculated from average measured segment flow depth
 S = hydraulic slope (ft/ft) from equation 2

The ratios of measured flow depth to actual pipe diameter for all of the test segments ranged from 0.18 to 0.38. To correctly compare the results to one another and to allow comparison with standard textbook pipe roughness information, each coefficient was adjusted to reflect the estimated value if that pipe segment was in fact flowing full. This was accomplished by using the relationship developed by Camp² of the normalized distribution of Manning's "n" versus relative depth in a circular section (see Figure 6).

2. Streeter, V. L., and Wylie, F.B., "Fluid Mechanics." 7th Ed., McGraw-Hill, Inc., New York, N.Y., 201 (1979).

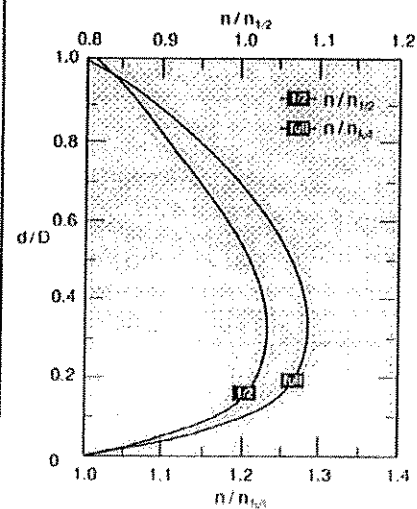


Figure 6

Results & Conclusions

1. Based on the results of this study, the Manning Roughness Coefficient ("n") of uncleaned, in-service Insitupipe was found to be 33% better than that for uncleaned, in-service pipes of traditional materials.

The uncleaned, in-service Insitupipes had an average "n" of 0.010. Uncleaned in-service clay and concrete pipe had an average "n" of 0.015.

2. The relative difference between the "n" values of Insitupipe and clay and concrete pipe would most likely increase if the condition of the original pipelines had been equal.

The clay and concrete pipe test segments had some root intrusion, but no real structural damage. The Insitupipe segments had been rehabilitated for the purpose of extending the service life of the underlying pipes which were in poor shape as evidenced by offset joints and considerable distortion of the cross-sectional area.

3. Test results do not support the general concept that all sanitary sewers (regardless of pipe material) tend to have similar roughness because of the growth of biological slime on the pipe walls.

The resulting 33% improvement in the "n" value of uncleaned, in-service Insitupipe over that of clay and concrete pipe demonstrates a significant difference in roughness between pipe materials where biological slime has accumulated. This is further substantiated by comparing flow study results of adjacent pipe segments of the same concrete sewer where the section without Insituform had an "n" of 0.015 and that with Insituform had an "n" of 0.010.

4. Test results substantiate Insituform design values.

In-service Insitupipe with a light cleaning had an "n" value of 0.009 as stated in the Insituform Engineering Design Guide. Cleaning of concrete pipe yielded an average "n" of 0.014.

5. The continuous nature and smoothness of an Insitupipe prevents the accumulation of debris.

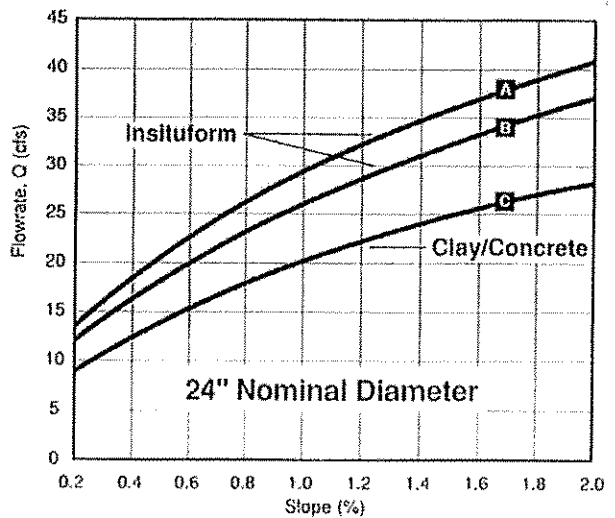
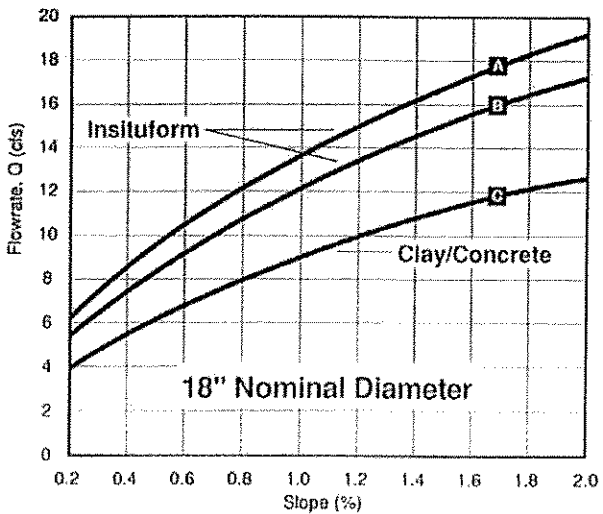
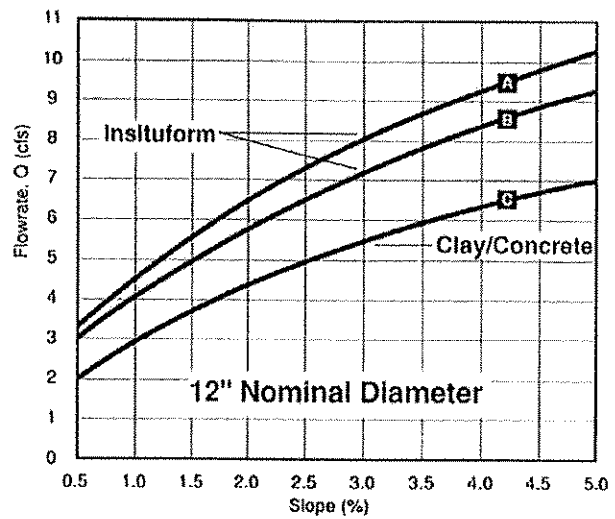
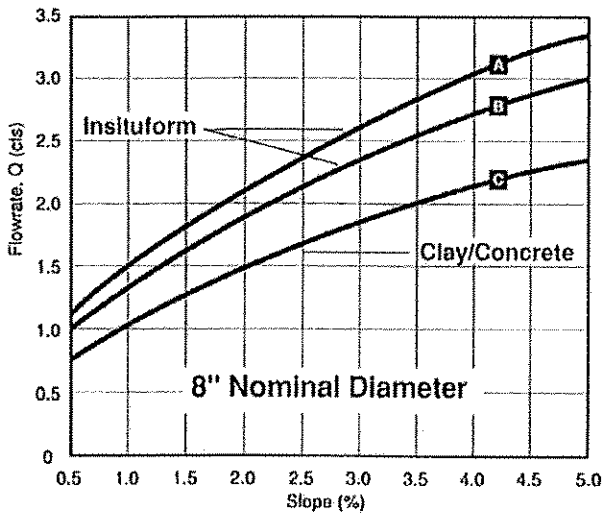
Only 1 of the Insitupipe segments was judged to need cleaning and this was due to a low slope of 0.04% which promotes the settlement of solids. Insitupipe has no joints and provides smooth transitions at irregularities in the original pipe. This results in a smooth interior which prevents the accumulation of sediment and debris and reduces the need for routine cleaning.

Expected Increase in Full Flow Capacity after Insituform Installation³

Flow Comparisons

Insituform "n"	Insituform Dimension Ratio (D/t)			
	DR 30	DR 40	DR 50	DR 60
0.009	139%	145%	149%	152%
0.010	125%	131%	134%	137%

3. Based on an "n" value of 0.015 for existing clay or concrete pipe.
Existing pipe flow equals 100%.



—A— n=0.009 —B— n=0.010 —C— n=0.015

Note: Insituform® flowrates based on typical finished Insituform® thicknesses.