

## 5.0 UTILITY ASSESSMENT AND RECOMMENDATIONS

### 5.1 Design Criteria

The design of the water lines along Kimberley Lane between Beltway 8 and West Bough Drive is based upon the following criteria:

- City of Houston Department of Public Works and Engineering *Infrastructure Design Manual*, July 2009.
- City of Houston department of Public Works and Engineering *Standard Construction Details for Wastewater Collections Systems, Water Lines, Storm Drainage and Street Paving*.
- City of Houston Department of Public Works and Engineering *Standard Construction Specifications for Wastewater Collections Systems, Water Lines, Storm Drainage and Street Paving*, dated 2009.

### 5.2 Regulatory Agencies

The design of the proposed water lines will comply with the Texas Commission on Environmental Quality criteria. In all cases where the water lines cross sanitary sewer lines, appropriate separation will be maintained with protection in accordance to City of Houston standards. Pertinent correspondences regarding any required variance obtained after submittal of this report will be submitted to City of Houston for approval.

### 5.3 Recommended Public Utility Improvements

Information on existing water and sanitary sewer lines within the Kimberley Lane Project study limits was obtained from survey data, record drawings from the City of Houston, and the City of Houston Geographic Information & Management System (GIMS). See **Exhibit E.1** Existing Public Utilities for additional information.

#### 5.3.1 Recommended Water Line Improvements

The existing water line, located along the north side of Kimberley Lane below the existing roadway pavement, was built in 1960's, exceeding the typical useful service life of 40-years. The line consists of a portion of 6-inch cast iron pipe transitioning to an 8-inch cast iron pipe approximately 760-feet east of the intersection of Kimberley Lane and the Beltway 8 Northbound Frontage Road. Although no information was obtained as to the condition of this line, due to their age, both the 6-inch and 8-inch water lines will be replaced as part of the proposed improvements. The active waterlines that cross Kimberley Lane are also anticipated to require replacement for conflict resolution.

### 5.3.2 Recommended Sanitary Sewer Improvements

The existing 54-inch concrete sanitary sewer pipe, located approximately 3-feet behind the back of curb along the south right-of-way of Kimberley Lane, was installed in 1966. This line also exceeds the typical 40-year useful service life. Conflicts with this sanitary sewer are not anticipated. Due to the high construction cost, full replacement of this line is not a reasonable and feasible alternative; therefore, it is recommended that the line be rehabilitated as part of the proposed improvements. Coordination with the City of Houston Public Works and Engineering Department to determine the best rehabilitation method is currently underway. Active sanitary sewer lines crossing Kimberley Lane will also be replaced or relocated on an as-needed basis for conflict resolution.

## 5.4 Potential Utility Conflicts

At the intersection of Kimberley Lane and the Beltway 8 Northbound Frontage road, several utilities cross near the proposed 5' x 3' box culvert and have been identified as potential conflicts. A 2 – 4-inch PVC AT&T ductbank crosses approximately 2-feet above the existing Kimberley Lane Storm Sewer. It is not anticipated this line will be in conflict, but must be considered as a potential conflict. Approximately 200-feet east of the Kimberley Lane and Beltway 8 Northbound Frontage Road, a 2 – 4-inch GIP AT&T line crosses beneath the existing Kimberley Lane storm sewer with approximately 6-inches of vertical clearance. This utility may need to be relocated in order to provide sufficient bedding of the proposed box culverts.

Additional utility coordination will be conducted in Phase II. Near the intersection of Town and Country Boulevard and Kimberley Lane several utilities cross Kimberley Lane and may be in conflict with the proposed box culvert. Slightly west of the Town and Country Boulevard and Kimberley Lane intersection, a CenterPoint Energy underground street light cable crosses Kimberley Lane. A 4-inch IP steel gas line also crosses beneath Kimberley Lane at the western side of the intersection of Kimberley Lane and Town and Country Boulevard. The vertical location of these lines is unknown and must be considered potential conflicts.

Approximately 810-feet east of the intersection of Kimberley Lane and the Beltway 8 Northbound Frontage Road a 2-inch IP steel gas line crosses beneath Kimberley Lane. This line must be considered a potential conflict as the vertical location of this line is unknown. Located slightly east of the above gas line and east of the intersection of Kimberley Lane and Town and Country Boulevard a 15-inch extra strength sanitary sewer pipe (installed in 1966) crosses below Kimberley Lane. The sanitary sewer crosses below the Kimberley Lane storm sewer with approximately 5-feet of vertical clearance. Conflicts with this sanitary sewer are not anticipated. In the vicinity of the above referenced gas and sanitary lines, an 8 – 4-inch PVC AT&T conduit crosses Kimberley Lane. Located approximately 845-feet east of the intersection of Kimberley Lane and the Beltway 8 Northbound Frontage Road, it is unknown if this conduit passes above or below the existing Kimberley Lane storm sewer. This conduit must be considered a potential conflict. If it is found to be in conflict with the proposed box culvert, it will require adjustment accordingly.



Approximately 310-feet east of the intersection of Kimberley Lane and Town and Country Boulevard an abandoned 8-inch waterline crosses Kimberley Lane. In 1996 this line was cut and plugged approximately 10-feet south of the 8-inch waterline that runs east/west on Kimberley Lane. This line must be considered a potential conflict. If this line is indeed abandoned it may be cut, plugged, and removed as required. East of the above waterline and approximately 340-feet east of the intersection of Kimberley Lane and Town and Country Boulevard an 8-inch PVC sanitary sewer (installed in 2001) crosses beneath Kimberley Lane. Detailed plans were not available, but it is estimated that the sanitary sewer passes beneath the existing Kimberley Lane trunk line by approximately 3.5-feet. This line should have adequate depth to not be in conflict with the proposed box culvert, but is considered a potential conflict. Also in the immediate vicinity of the sanitary line is an 8-inch cast iron waterline with an unknown vertical location. This waterline must be considered a potential conflict and adjusted as required.