

# TOWN OF PALM BEACH UTILITY UNDERGROUNDING ASSESSMENT METHODOLOGY

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# Executive Summary

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Willdan Financial Services has been retained by the Town of Palm Beach (the Town), in accordance with Resolution No. 25-09, to develop a methodology that reflects the special and peculiar benefit received by properties within the Town from the proposed undergrounding of overhead utilities.

The methodology described herein will be the basis for establishing non ad-valorem assessments for undergrounding overhead facilities within specific neighborhoods and areas throughout the Town. Since it is currently unknown which specific areas or neighborhoods will have their overhead utilities undergrounded and when those projects might occur, the method of assessment presented in this Report assumes the entire Town will be undergrounded at the same time. This assumption allows for the development of a benefit nexus methodology that differentiates the special benefits received by various properties in the Town. The developed methodology can be used throughout the Town and at various times and for various Districts specially created for the purposes of funding the undergrounding of utilities.

As part of the creation of this benefit methodology, Willdan Financial conducted fieldwork and surveyed the entire Town to accurately incorporate the characteristics of the Town and the relationship between properties within the Town and the overhead utilities proposed to be undergrounded. Fieldwork is an essential component in the development of an utility undergrounding assessment program to account for the fact that some areas of the Town may already have a portion of their utilities undergrounded; and, therefore, do not benefit to the same degree as properties whose utilities are currently transmitted through overhead facilities. In addition to the fieldwork conducted, Willdan Financial also created a parcel database of all properties within the Town, categorized those properties based on their land use codes (DOR codes), and utilized our GIS capabilities to differentiate neighborhoods with overhead utilities versus neighborhoods that have already been undergrounded.

Once a certain area is identified for the undergrounding of its overhead utilities, an assessment program will be created to finance the cost and the methodology described herein will be the basis for determining each parcel's non ad valorem assessment. The methodology presented in this Report will be applied to each specific project area. Because each undergrounding project will have different costs and will benefit a particular set of properties, the resulting assessment program and rates will vary for each project area. It is anticipated that the methodology will need to be augmented through the incorporation of the cost estimate for the utility undergrounding and specific boundaries of the assessment program to calculate each benefiting parcel's assessment.

# Proposed Public Facilities

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Utilities, as used in this report, include power lines, phone lines, cable television and fiber optic lines. The undergrounding of overhead utility lines within the Town includes the costs associated with, but not limited to, trenching, horizontal directional drilling, installing new utility vaults, conduits and transformers, laying conduit lines into trenches, re-paving streets, switching services to underground systems and removing existing overhead poles and wires.

The benefit methodology presented in this Report focuses on the facilities located in public rights-of-way and the costs associated with installation of such facilities. The Town also anticipates developing assessments or other financing mechanisms related to costs of connecting private property to the undergrounded utilities. As these on-site costs can be highly variable depending upon site specific conditions, it is recommended that a cost allocation approach for on-site costs be developed when each project area has been identified and detailed on-site requirements can be determined.

# Benefit Analysis

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Florida law requires non ad-valorem assessments be based on the special and peculiar benefit properties receive from the improvements. “Special Benefit” is a particular and distinct benefit over and above general benefits conferred to the public at large. Florida law does not specify the methodology or formula that may be used in calculating assessments; however, the assessment methodology must be reasonable and not arbitrary.

It is necessary to identify the special benefit provided to properties within the Town as a result of undergrounding overhead utilities. The distribution of electricity and other utilities are generally available to all properties in the Town. However, placing overhead electrical lines and other utilities underground will provide direct and special benefit to properties and such special benefit supports funding the undergrounding projects through assessment programs.

There are several distinct direct and special benefits that will be provided to properties within the Town as a result of undergrounding the Town’s overhead utilities: improved safety, improved reliability and improved neighborhood aesthetics. Each of these benefits is discussed below.

The removal of utility poles and overhead lines provides an improved **safety** benefit by reducing the potential of hazardous conditions in the event of natural disasters. Severe tropical storms, hurricanes, and other natural disasters can cause poles and/or overhead lines to fall and impact property, and possibly cause live electric lines to be exposed. Downed electric lines pose a potential threat of fire and potential injury due to electric shock and can restrict ingress and egress of residents and emergency services.

The undergrounding of the overhead facilities will also improve the **reliability** of utility services received by properties within the Town. Based on a report entitled *Out of Sight Out of Mind?*, Edison Electric Institute (2006), the undergrounding of overhead utilities substantially reduces the frequency of power outages, when compared to the frequency of outages occurring with overhead networks. Parcels will also specially benefit from new upgraded utility lines, cables, and appurtenant facilities installed through the proposed utility undergrounding. This will provide a higher level of reliability of utility services, and reduces exposure to the elements that could cause potential damage and speed deterioration to facilities resulting in potential interruptions services.

In addition to the safety and reliability benefits provided by undergrounding utilities, removing the overhead facilities and utility poles will eliminate a heavy visual concentration of electric lines and communication facilities. This will improve the overall **neighborhood aesthetics** for all properties within a project area.

# Method of Assessment

Assessment Methodology is the analysis of a project or service, in this case from the proposed undergrounding of the existing overhead utilities, to determine the special and peculiar benefits (special benefits) received by a property. The method of assessment is determined by an analysis of the benefit a property receives from the proposed undergrounding of existing overhead utilities in comparison to the benefit received by other properties benefited by the project. There are three categories of special benefit that properties within the project areas receive as a result of the undergrounding of overhead utilities. These three categories of benefit include: 1) improved safety, 2) improved reliability, and 3) improved neighborhood aesthetics. To establish an equitable benefit nexus it is necessary to relate each property’s proportional special benefits to the special benefits of all other properties within a project area. This method of apportionment utilizes a weighted method of apportionment known as an Equivalent Benefit Unit (EBU) methodology that uses a single-family residence with overhead utilities as the basic unit of benefit, or 1.0 EBU.

Collectively, the three categories of special benefit listed above reflect the overall proportional special benefits that properties within a project area, which is assumed to be the entire Town for purposes of this Report, will receive from the undergrounding of the overhead utilities. Properties within the Town are assigned Safety EBUs, Reliability EBUs, and Aesthetic EBUs to distinguish the degree of special benefits received by different properties for each of the three categories of special benefit, respectively. The allocation of EBUs to each property not only provides a means to differentiate the level of special benefit received between properties, but also provides a basis to apportion the total cost of the proposed undergrounding between the three categories of special benefit equitably. Therefore, the total sum of EBUs was calculated to determine the percentage of EBUs assigned to each category of special benefit. In the representative case below, we have a total of 26,596 EBU’s consisting of three types, Safety, Reliability and Aesthetics. The Benefit column shows the proportionate percentage of each relative to the whole. Distributing the cost of the project based on the weighted total of equivalent benefit units for each category fairly and reasonably apportions the cost of the proposed utility undergrounding among the benefited property owners. .

Category of Special Benefit	EBUs	Benefit Allocation
Improved Safety	31,697	59.51 %
Improved Reliability	10,368	19.46 %
<u>Improved Aesthetics</u>	<u>11,200</u>	<u>21.03 %</u>
TOTAL	53,265	100.00 %

The benefit allocation numbers presented above are calculated assuming the entire Town will be undergrounded at the same time and are provided as an example of application of the benefit methodology. Utilizing the same benefit methodology discussed herein, the benefit percentage attributable to each of the three special benefit categories will vary based on the number of parcels within the area to be undergrounded and their EBU assignment. As such, the percentage calculated for each category will reflect the unique characteristics of the specific project area to be undergrounded and the special benefits conferred on affected properties within that project area.

For each Category of Benefit, the following discussion identifies parcels that benefit, the assignment of EBUs, and related equations to determine a parcel’s EBUs.

## IMPROVED SAFETY

Properties specially benefit from the improved safety of undergrounding overhead utilities in two distinct ways: 1) the elimination of the potential for poles or overhead lines adjacent to a property to fall and damage property or expose “live” electrical lines, and 2) the elimination of the potential for poles or overhead lines to be downed within the neighborhood restricting ingress and egress to and from the property. A single-family residence lot that is adjacent to overhead facilities has been assigned a base unit of benefit for improved Safety equal to 1.0 Safety EBU. The base Safety EBU evenly accounts for the two components of improved safety. Therefore, the analysis uses 0.50 equivalent benefit units for the improved safety to the property and 0.50 equivalent benefit units for the improved safety/access to the neighborhood.

The Town’s zoning and land use codes provide standards for development. The Town’s Residential Low Density Zoning requires a minimum lot size equal to 10,000 square feet for the development of a single family residence. Existing developed single family lots that are less than the minimum lot size and original lots that were legally created but do not meet the current zoning standards have been assigned 1.0 Safety EBU since a residence already exists on developed property and the development of existing non-conforming lots is allowed under the Town’s regulations. Condominium complexes, multi-family residences, and non-residential properties, as well as certain estate homes may span a greater area along the streets that have overhead utilities and/or utility poles proposed to be undergrounded. Therefore, an equivalency must be developed to proportionately assign EBUs to these properties, when compared to the baseline 10,000 square feet single family residential lot that has been assigned 1.0 Safety EBU. Based on this equivalency, some properties, including certain single-family residences, have been assigned additional Safety EBUs in recognition of the additional special benefit to those parcels in comparison to the baseline 1.0 EBU single family residential lot. .

In identifying the amount of assigned Safety EBUs for each parcel; overhead facilities, including utility lines and poles, along secondary streets and alleyways are considered to be adjacent to all properties on both sides of the secondary street and alleyway that front the overhead facilities due to the narrow widths of the secondary streets and alleyways. In addition, utility poles are considered a part of the overhead facilities; therefore, properties that only front utility poles are assigned a minimum of 1.0 Safety EBU.

Conversely, some parcels are already adjacent to undergrounded utilities, and, therefore, do not benefit to the same extent when compared to parcels currently adjacent to overhead utilities. Properties that do not have overhead facilities adjacent to their property along the public rights-of-way shall be assigned Safety EBUs equal to one-half (1/2) of the Safety EBU calculation, identified above, to reflect the improved overall safety of the neighborhood that specially benefit these properties as identified herein. This benefit analysis does not specifically address or recognize whether a parcel has an on-site underground lateral line from the right-of-way to a building. On-site costs and issues will need to be addressed in the context of each specific project and project area.

Each condominium complex was assigned Safety EBUs on a complex by complex basis and the total Safety EBU assignment to the condominium complex was then apportioned evenly to each condo within the complex. For single-family residences, multi-family properties, and non-residential properties, the EBUs calculated were assigned to the applicable parcel number. **Table 1** outlines the safety EBU calculations.

**Table 1: Safety EBU Calculation**

Land Use	Overhead Utilities	Lot Size (square feet)
Single Family	Yes	Lot Size / 10,000, rounded down to nearest whole number; minimum of 1.0 EBU
	No	(Lot Size / 10,000, rounded down to nearest whole number) / 2; minimum of 0.5 EBU
Condominium	Yes	0.5 EBU + 0.5 EBU x [(Complex Lot Size / 10,000) / condos in Complex]
	No	0.5 EBU
Multi-Family	Yes	0.5 EBU x units + 0.5 EBU x (Lot Size / 10,000)
	No	0.5 EBU x units
Non-Residential	Yes	1.0 EBU x (Lot Size / 10,000); minimum of 1.0 EBU
	No	0.5 EBU x (Lot Size / 10,000); minimum of 0.5 EBU
Vacant	Yes	1.0 EBU x (Lot Size / 10,000); minimum of 1.0 EBU
	No	0.5 EBU x (Lot Size / 10,000); minimum of 0.5 EBU

**IMPROVED RELIABILITY**

The benefit from the distribution of electricity, other utilities, and the underground wires and cables is essentially equivalent for each single-family residence. Further, since all of the single-family lots have the same ability to use utilities and each single-family parcel benefits from the increased reliability that undergrounding provides, each single-family residential property has been assigned (1.0) Reliability EBU to account for the failure in any one or more of the following systems, resulting in an interruption in services: 1) primary distribution lines; 2) secondary distribution lines, or 3) local distribution lines that provide connections to a property’s utilities.

The improved reliability from the undergrounding of utilities will specially benefit each household of a condominium and multi-family complex, and each employee of a non-residential property. Since there are more units and/or occupants within condominium complexes, multi-family properties, and non-residential properties, these properties receive a different level of benefit than a single-family residence from the improved reliability of undergrounded utility services. Not only does the entire property benefit from the improved reliability, but every unit within a condominium complex or multi-family property, and all non-residential property will also benefit from the improved reliability. It is evident that each condominium in a complex, each unit of a multi-family property, and all non-residential property would be impacted by an interruption in services as a result from a power outage. Therefore, for residential properties, a reasonable comparison of benefit can be derived by using population density factors between a single-family residences, and condominiums /multi-family properties within the Town. For non-residential properties, an acreage equivalency was used to assign equivalent benefits units to capture the benefit associated with non-residential parcels when compared to a baseline single-family residential lot.



Using a population density factor approach for residential properties provides a reflection of the level of use of the facilities by each residential land use type, and therefore the special benefit that each property receives. Population density factors for residential properties were calculated using data obtained from the 2000 census. In comparing densities between different residential properties, condominiums are categorized as multifamily residences since the typical size of each property type is similar and, therefore, would generate similar population densities.

For non-residential properties, an acreage equivalency was used to assign equivalent benefits units for the benefit of reliability, which equitably captures the relative benefit associated with non-residential parcels when compared to a baseline single-family residential lot.

Properties already adjacent to undergrounded utilities will have their Reliability EBU discounted by 1/3<sup>rd</sup> to account for the reliability these properties already receive from the undergrounding of their local utilities connections. **Table 2** outlines the reliability EBU calculations.

**Table 2: Reliability EBU Calculation**

Land Use	Overhead Utilities	Density Factor	Lot Size (square feet)
Single-Family	Yes	2.36/2.36 = 1	1.0 EBU x Density Factor
	No		0.67 EBU x Density Factor
Condominium	Yes	1.55/2.36 = 0.65	1.0 EBU x Density Factor
	No		0.67 EBU x Density Factor
Multi-Family	Yes	1.55/2.36 = 0.65	1.0 EBU x Density Factor x units
	No		0.67 EBU x Density Factor x units
Non-Residential	Yes	N/A	1.0 EBU x (Lot Size / 10,000); minimum of 1.0 EBU
	No		0.67 EBU x (Lot Size / 10,000); minimum of 0.67 EBU
Vacant	Yes	N/A	1.0 EBU x (Lot Size / 10,000); minimum of 1.0 EBU
	No		0.67 EBU x (Lot Size / 10,000); minimum of 0.67 EBU

## **IMPROVED NEIGHBORHOOD AESTHETICS**

Removing the overhead utilities will improve the overall aesthetics of an individual property as well as the neighborhood aesthetics for all properties within a defined project area by eliminating a heavy concentration of electric lines and communication facilities. Therefore, a single family residence adjacent to overhead utilities has been assigned 0.5 EBUs for the improved aesthetics of its property and 0.5 EBUs for the improved aesthetics of the property’s neighborhood, for a total assignment of 1.0 Aesthetic EBU.

However, similar to reliability, residential properties in the Town receive different levels of benefit due to the different types of residential land uses within the Town, which result in different population densities. As such, a benefit comparison of population density ratios can be established between the various residential properties within the Town. Therefore, similar to Reliability, EBUs for aesthetics were assigned to residential properties based on the density factors shown previously.

For non-residential properties, an acreage equivalency was used to assign equivalent benefits units for the benefit of neighborhood aesthetics, which equitably captures the benefit associated with non-residential parcels when compared to a baseline single-family residential lot.

Properties, whose utilities are adjacent to utilities already undergrounded, will only be assigned Aesthetic EBUs equal to one-half (1/2) of the Aesthetic EBU calculation, identified above, for the improved aesthetics of the property’s neighborhood. **Table 3** outlines the aesthetics EBU calculations.

**Table 3: Aesthetic EBU Calculation**

Land Use	Overhead Utilities	Density Factor	Lot Size (square feet)
Single-Family	Yes	2.36/2.36 = 1	(Lot Size / 10,000, rounded down to nearest whole number) x Density Factor; minimum of 1.0 EBU
	No		[(Lot Size / 10,000, rounded down to nearest whole number) x Density Factor] / 2; minimum of 0.5 EBU
Condominium	Yes	1.55/2.36 = 0.65	1.0 EBU x Density Factor
	No		0.5 EBU x Density Factor
Multi-Family	Yes	1.55/2.36 = 0.65	1.0 EBU x Density Factor x units
	No		0.5 EBU x Density Factor x units
Non-Residential	Yes	N/A	1.0 EBU x (Lot Size / 10,000); minimum of 1.0 EBU
	No		0.5 EBU x (Lot Size / 10,000); minimum of 0.5 EBU
Vacant	Yes	N/A	1.0 EBU x (Lot Size / 10,000); minimum of 1.0 EBU
	No		0.5 EBU x (Lot Size / 10,000); minimum of 0.5 EBU

## **SPECIAL CASES AND EXCEPTIONS**

### **Parcels over Ten Acres**

While parcels throughout the Town benefit from the undergrounding of nearby utilities, parcels over 10 acres benefit to a lesser degree due to diminished return of benefit. Parcels receive diminished return of benefit because as the parcel’s total acreage increases, the parcel tends to have a lower frontage-to-acreage ratio. This lower ratio directly results in less special benefit than that of the neighboring smaller parcels. In order to account for the difference in total special benefit, the acreage for these larger parcels has been adjusted. To calculate these parcels’ adjusted acreage, the parcel’s total frontage is multiplied by the minimum lot depth pursuant to the Town’s zoning ordinances for Low Density Residential lots (200 feet).

### **The Breaker’s Hotel**

Similar to other large parcels, the parcels associated with the Breaker’s Hotel specially benefit from the undergrounding of overhead facilities, however, since these parcels serve as one property, the adjusted acreage for all parcels associated with the Breaker’s Resort are combined and adjusted as one large parcel.

### **Bifurcated Lots**

Certain parcels within the Town have a portion of their property bifurcated as a result of South Ocean Boulevard. These properties were treated as special cases and were assigned EBUs based on the contiguous acreage associated with these properties.

# Diagram

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A Diagram showing the boundaries of the Town, the dimensions of the subdivisions of land within the Town (as they existed at the time of the creation of this Report), and parcels adjacent to overhead utilities and is illustrated below. Each of the subdivisions of land, parcels, or lots has been given a separate number on the Diagram, which corresponds with the assessment number shown within the parcel database.

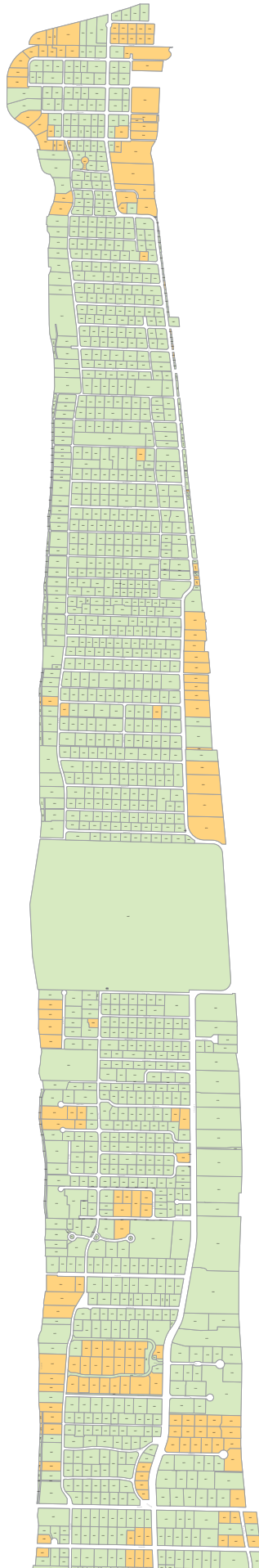
# Parcel Database

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A parcel database identifying each parcel's equivalent benefit unit assignment for each of the three categories of special benefit has been provided to the Town under separate cover and by reference is made part of this Report.

The parcel database references each parcel within the Town by an assessment number. The assessment numbers appearing within the parcel database correspond with the subdivisions and parcels of land and their numbers shown on the Assessment Diagram.

# TOWN OF PALM BEACH UTILITY UNDERGROUNDING





## LEGEND

-  Utility Facilities Already Undergrounded
-  Utility Facilities Not Undergrounded
- 1 Assessment Number



# TOWN OF PALM BEACH UTILITY UNDERGROUNDING



## LEGEND

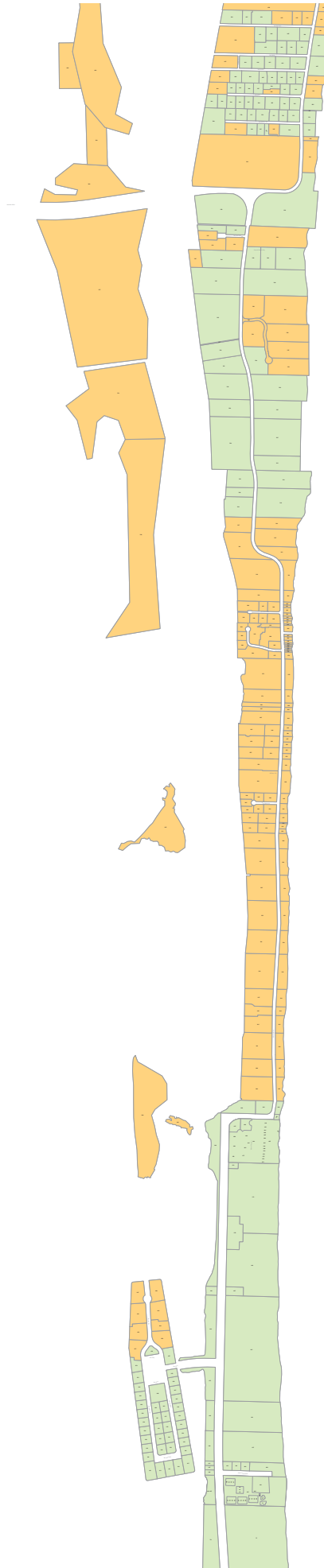
-  Utility Facilities Already Undergrounded
-  Utility Facilities Not Undergrounded
- 1 Assessment Number



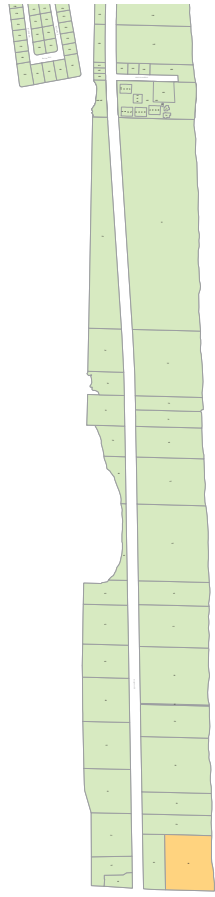
# TOWN OF PALM BEACH UTILITY UNDERGROUNDING

### LEGEND


-  Utility Facilities Already Undergrounded
-  Utility Facilities Not Undergrounded
- 1 Assessment Number



# TOWN OF PALM BEACH UTILITY UNDERGROUNDING



## LEGEND

 Utility Facilities Already Undergrounded

 Utility Facilities Not Undergrounded

1 Assessment Number

