



**Memorandum from  
Department of Community Services – Planning Branch  
to the Land Development Code Subcommittee  
of the Planning Commission**

**Land Development Code Subcommittee Meeting February 9, 2021**

**RE: Analysis of Placing Replacement Seawalls Waterward of Existing Concrete Seawalls**

The *Sanibel Plan* under the Future Land Use Element (Objective B8 and Policy B8.1) clearly indicates that nonconforming uses will not be expanded and permits will not be issued for the expansion of nonconforming land uses. Therefore, this report is limited to analyzing whether the placing of replacement seawalls waterward of existing concrete seawalls within Shell Harbor Subdivision, Sanibel Harbors Subdivision, Sanibel Isles Subdivision, Water Shadows Subdivision, Sanibel Estates Subdivision (Unit No. 4 only) and between Periwinkle Way and San Carlos Bay adjoining Mariner Point, Yacht Haven, Tennis Place and Harbor Cottages where seawalls are an allowed conditional use is consistent with the *Sanibel Plan*.

An analysis of placing replacement seawalls waterward of existing concrete seawalls within the limited areas where seawalls are an allowed use was conducted using ArcGIS software. Parcel boundaries and 2020 aerial photographs were obtained from Lee County GIS for the analysis. The measurements in this report are approximate based upon aerial interpretation and parcel boundaries. Field verification has not been conducted.

Canal width in the subdivisions where seawalls are an allowed use range from approximately 68-feet wide to 155-feet wide. There are a few basins within these human-made waterways which are wider.

The total distance of shoreline where seawalls are an allowed use is approximately 49,181 linear feet. Currently, there are seawalls installed along approximately 42,006 linear feet of shoreline within the area of allowed use.

If over time all canal frontage where seawalls are an allowed use would be developed with replacement seawalls placed 12-inches waterward of the existing seawall alignment, approximately 1.13 acres of canal would be filled. If the waterward extension is 18-inches, then approximately 1.69 acres of canal would be filled (Table 1).

A GIS analysis of six existing lots within neighborhoods where seawalls are an allowed use was conducted to demonstrate the amount of “added” land to a lot and how this may be perceived over time as an increase in lot area with associated development area and impervious cover (Attachment 1). Lots ranged in size from 0.30-acres to 0.54-acres. Linear footage of canal frontage ranged from 179-linear feet to 371-linear feet. Canal width ranged from 78-feet to 130-feet. If a replacement seawall is allowed to extend 12-inches waterward, the “additional” developed area created ranged from 63-square feet to 130-square feet including “additional” impervious cover ranging from 54-square feet to 111-square feet. If a replacement seawall is allowed to extend 18-inches waterward, the “additional” developed area created ranged from 94-square feet to 195-square feet including “additional” impervious cover ranging from 81-square feet to 167-square feet.

**Table 1. Evaluation of Waterward Placement on Filling Canals**

Location of Seawall as Allowed Use	Section Length (Feet)	12-inch Waterward (Acres)	18-inch Waterward (Acres)
Shell Harbour South of Periwinkle	19,890	0.46	0.68
Shell Harbour North of Periwinkle	6,749	0.15	0.23
Sanibel Estates Unit 4	4,694	0.11	0.16
Mariner Point, Tennisplace and Harbor Cottages	2,908	0.07	0.10
Sanibel Isles	7,588	0.17	0.26
Water Shadows	4,156	0.10	0.14
Sanibel Harbors	3,196	0.07	0.11
Total	49,181	1.13	1.69

Although a waterward extension would appear to have a minimal impact on the waterway width, the lots at the end of canals often have unusual shapes to provide water access to all lots in the subdivision (Figure 1). The reduction in length of waterway frontage for these lots may have a larger impact on their dock and boat mooring configurations as well as waterway access.

Land Development Code Section 126-875 limits the maximum waterward extension of docks, boat davits and boat lifts to no more than 30 feet or 20 percent of the width of the waterway, whichever is less. If mangroves are present, then these accessory marine structures may extend 15 feet waterward of the mangrove prop roots while still being limited to a maximum 20 percent of the canal width. Typically, applicants maximize the waterward extension of marine accessory structures. Staff anticipates that allowing the replacement seawalls to be installed waterward of an existing seawall will result in the creation of nonconforming structures across the canal, unless specific conditions are applied. Additionally, once a replacement seawall is installed waterward of the existing alignment of seawalls in a canal, future docks and/or boat lifts may extend twelve to eighteen inches further into the canal from the replacement seawall unless limitations are recorded in the public record.

There has been discussion about utilizing a legal means to overcome the addition of developed area, impervious cover, and alteration of waterward extension while preventing the alteration of permitted docks and boatlifts into nonconforming structures if replacement seawalls are allowed to be installed waterward of existing seawalls. The use of a recorded easement combined with revisions to the Land Development Code standards may avoid an inadvertent increase in lot area with associated increase in developed area and impervious cover, as well as limit waterward extension from a parcel boundary. However, this type of land development tool may result in unintended consequences. For instance, the area encompassed by the placement of a new seawall waterward of an existing seawall will be impervious cover based upon example specifications for this type of construction (Figure 2). Although an easement would not effectively increase developed area or impervious cover on the abutting lot, the unintended consequence is converting a portion of the waterway to impervious cover that is not based upon development standards set forth in either the Sanibel Plan or the Land Development Code.

There has also been discussion at previous Land Development Code subcommittee meetings pertaining to the effects of removing of an existing seawall including possible impacts to vegetation, soil to falling into the canal from the abutting lot, and increasing turbidity by the lifting of the buried portion of the seawall out. A video of a seawall replacement conducted by the City of Punta Gorda demonstrates that although vegetation may be impacted in the area directly adjacent to the seawall the soils from the lot and turbidity can be contained. All

these impacts are temporary in nature and may be managed during construction and mitigated upon completion. Placing a new seawall waterward of an existing seawall may reduce turbidity generated during construction and reduce impacts to existing vegetation but does not eliminate these temporary impacts. For example, the new seawall will have tiebacks and anchors which extend landward into the lot and may result in impacts to existing vegetation. Furthermore, allowing the waterward placement of seawalls could potentially impact vital marine resources (e.g. mangroves, seagrasses) that are located waterward of an existing seawall. Impacts to these marine resources are not easily mitigated and, in some cases, cannot be mitigated given the dynamic and stressful environment they grow in (i.e. wave action, turbidity, poor water quality, etc.). Generally, it is much easier to replace vegetation landward of a seawall than marine sources waterward of a seawall. The inability to mitigate impacted marine resources results in a loss of ecosystem services including, but not limited to, finfish and shellfish habitat, water quality improvement, wave attenuation, and sediment stabilization. These ecosystem services cannot be replicated by vegetation landward of the seawall.

## Summary

The following table summarizes benefits and detriments of allowing replacement seawalls to be placed waterward of existing seawalls:

**Table 2. Benefits and Detriments of allowing Replacement Seawalls Waterward of Existing Seawalls**

<b>Benefits</b>	<b>Detriments</b>
Ease of installation when using PVC or Composite sheet piles	Loss of public right-of-way
Potential reduction in cost when using PVC or Composite sheet piles	Perception of increased lot area resulting in increasing impervious cover and developed area
Delays removal of existing concrete seawall a projected 50 years	Existing seawall will eventually need to be removed when replacement seawall needs to be replaced
Potential reduction in impacts to existing vegetation landward of the seawall during installation	Impact on adjacent property's linear footage of waterway frontage at ends of canals
Potential reduction in sediment disturbance and turbidity during installation	Loss of epifauna and marine habitat when using PVC sheet piles
	Filling of waterway converting open body of water to impervious cover
	Potential to change existing conforming structures on the opposite side of a canal into nonconforming structures (i.e. maximum waterward extension) by altering the profile of the canal
	May complicate long term tracking of property boundaries and canal widths
	Addition of legal agreement between property owner and City of Sanibel or HOA for use of waterway
	Potential increased height of seawall resulting in additional fill to the parcel
	Potential adverse impact on existing mangrove shorelines on adjacent properties

## Discussion and Recommendation

Prior to 1988 seawalls were not an allowed use within the City of Sanibel. When seawalls were added as an allowed conditional use, they were limited to those areas which were dredged and filled during lot development of Shell Harbor, Sanibel Harbors, Sanibel Isles, Water Shadows and Sanibel Estates Unit IV. During the Planning Commission and City Council public hearings in 1987 and 1988 City staff noted the following:

- Two distinct community objectives are associated with development of structures along the shoreline of both fresh and tidal, humanmade and natural waterways of Sanibel.
  - Scenic Preservation – the preservation and enhancement of the “natural character” of Sanibel, and
  - Protection of the Natural Environment and Resources
- Seawalls should be discouraged but permitted as Conditional Uses under certain conditions
- Rip-rap revetments should be permitted as a matter of right under limited conditions
- The Council should not do anything to encourage people to fill in waterways, and fill or backfill associated with a rip-rap revetment would require a separate permit

Staff agrees with previous City staff comments that placing fill in waterways as part of seawall or rip-rap revetment construction is not best management practices and does not further the goals and objectives of the Sanibel Plan for the protection of the natural environment and resources.

Additionally, as previously noted example specification drawings indicate the new seawall cap extends over the area between the old seawall and the new seawall creating additional impervious cover (Figure 2). If a 12-inch waterward extension is allowed, an additional 1.13-acres of impervious cover may be created within the humanmade canals where seawalls are an allowed use (Table 1). If an 18-inch waterward extension is allowed, an additional 1.69-acres of impervious cover may be created within the humanmade canals where seawalls are an allowed use (Table 2).

When determining whether public waterways, albeit human made, should be used for private structures that will convert the waterway to impervious cover, the following language in the *Sanibel Plan* must be considered as this comprehensive land use plan establishes the legal foundation for Land Development Code standards and requirements:

- *The City of Sanibel will resist pressures to accommodate increased development and redevelopment that is inconsistent with the Sanibel Plan.*
- *Stewardship: the City of Sanibel affirms a land ethic that recognizes landholding – both public and private – as a form of stewardship, involving responsibilities to the human and natural communities of the Island and its surroundings, and to future generations.*
- *In order for Sanibel to be economically and environmentally sustainable, means must be sought to reduce the demand on the natural infrastructure.*
- *The economic base of Sanibel is the environment.*
- *As redevelopment begins, close attention needs to be paid to how that redevelopment can correct the problems of the present.*

Therefore, staff recommends that replacement seawalls in locations where seawalls are an allowed use, should be required to be placed within the same footprint and not exceed the dimensions of the existing seawall.

**Figure 1. Lots at the End of Canals**



Shell Harbor South of Periwinkle



Shell Harbor North of Periwinkle



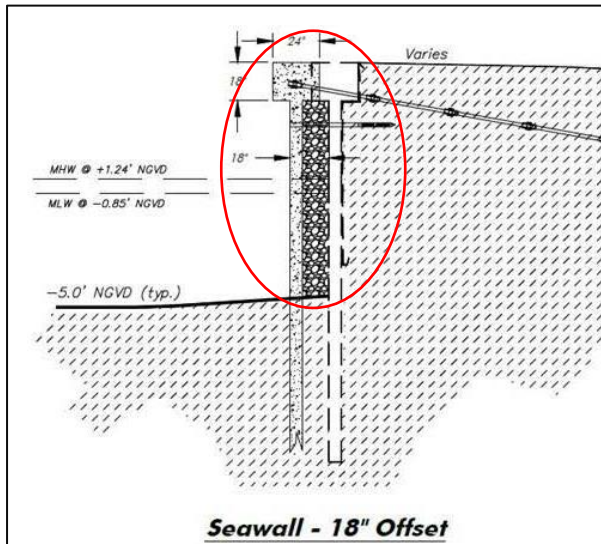
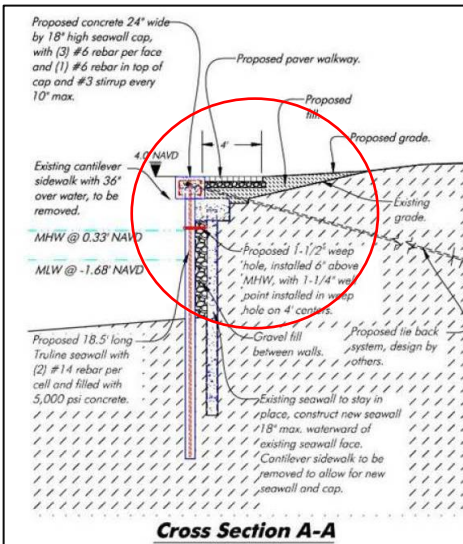
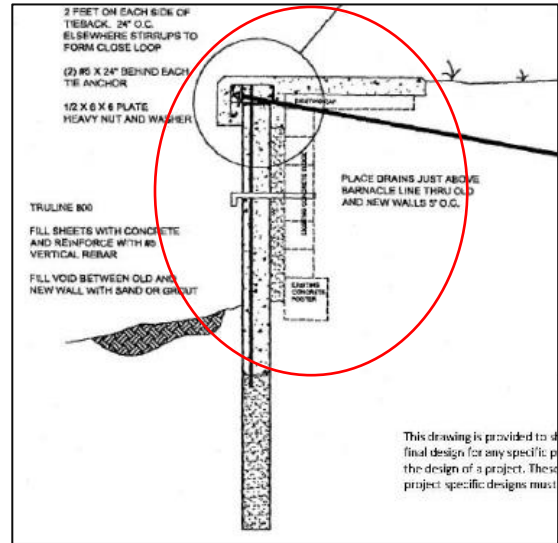
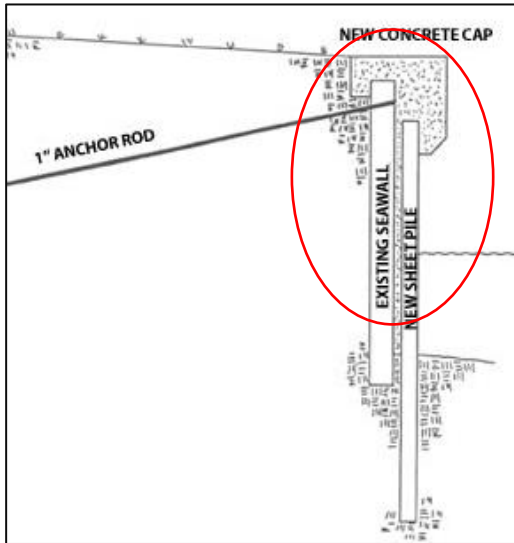
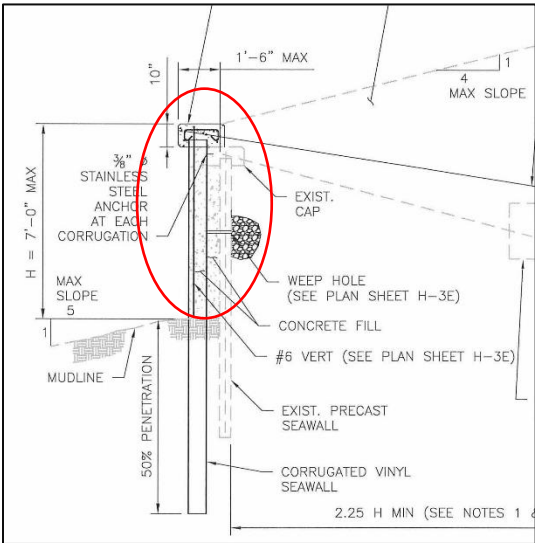
Watershadows



Sanibel Isles



**Figure 2. Example Specification Drawings for Replacement Seawall Waterward of Existing Seawall**



**ATTACHMENT 1**

**Example Lots Evaluated**



# Analysis of Placing Replacement Seawall Waterward of Existing Concrete Seawall

Sanibel Isles and Water Shadows





# Analysis of Placing Replacement Seawall Waterward of Existing Concrete Seawall

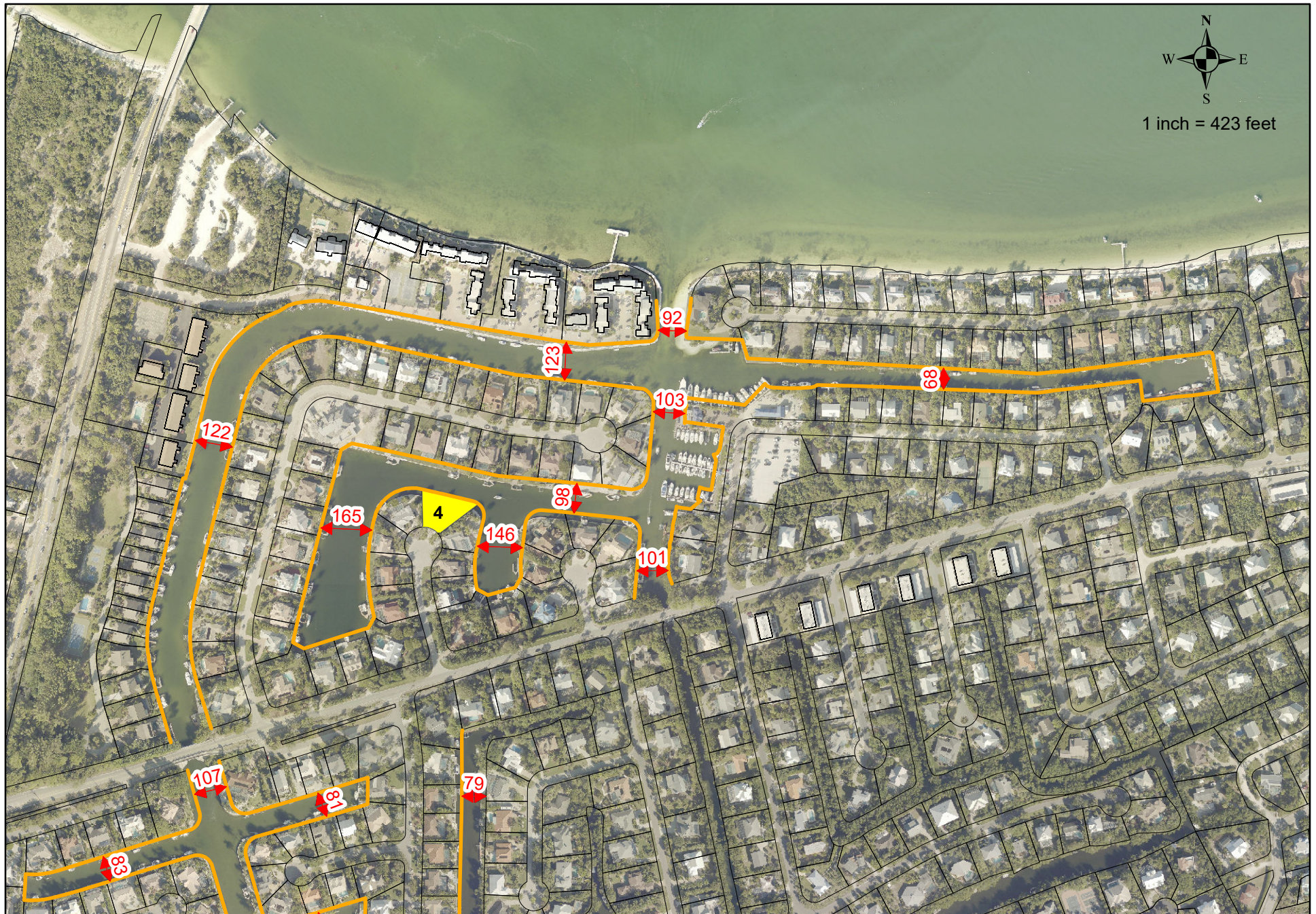
Sanibel Harbors





# Analysis of Placing Replacement Seawall Waterward of Existing Concrete Seawall

Shell Harbor North of Periwinkle, Sanibel Estates Unit 4, Mariner Point, Yacht Have, Tennis Place and Harbor Cottages





# Analysis of Placing Replacement Seawall Waterward of Existing Concrete Seawall

Shell Harbour South of Periwinkle

