



# Agenda Report

2725 Judge Fran Jamieson  
Way  
Viera, FL 32940

## Consent

F.1.

11/21/2023

### Subject:

Board Approval, Re: Waiver to Brevard County Stormwater Pond Design Criteria for U.S. 192 Solid Waste Management Facility. (23WV00019) (23SP00036) (District 5)

### Fiscal Impact:

Approximately \$25,405,000 cost saving for current construction.  
Approximately \$81,130,000 cost saving for future construction.

### Dept/Office:

Planning and Development

### Requested Action:

It is requested that the Board of County Commissioners approve a waiver to the requirements for stormwater pond design found in Brevard County Code of Ordinances Section 62, Article X, Division 6, Exhibit A, 4.4(h) to allow 3:1 slopes and depths exceeding 12 feet for the current and all future phases of construction at the U.S. 192 Solid Waste Management Facility.

### Summary Explanation and Background:

The Brevard County Solid Waste Management Department (SWMD) has submitted an application for Site Plan Approval (23SP00036) for the U.S. 192 Solid Waste Management Facility (U.S. 192 Site). As part of the application, SWMD has submitted a Waiver application (23WV00019) requesting a waiver to the requirements of Brevard County Code of Ordinances Chapter 62 (Land Development Regulations), Article X (Environmental Protection and Conservation), Division 6 (Stormwater Management Criteria), Exhibit A, 4.4(h) to allow the current design to exceed the Code's maximum slopes and depths of stormwater management basins. Exhibit A 4.4(h) requires that wet ponds have slopes no steeper than 5:1 to two feet below normal water surface and 2:1 to a maximum 12-foot depth. The design for current and future ponds at the U.S. 192 Site utilizes 3:1 slopes and a depth of 20 feet for stormwater management ponds. The site design also utilizes 3:1 slopes to a depth of 35 feet for borrow ponds which are not regulated under this Article.

The stormwater control and borrow ponds at the U.S. 192 Site have been designed to maximize the amount of on-site fill material to be used in construction and operations, minimizing the costs of importing off-site soil. The ponds have been designed in conformance with all applicable regulatory requirements as set forth in the St. John's River Water Management District (SJRWMD) Applicant's Handbook: Regulation of Stormwater Management Systems, Chapter 40C-42, F.A.C. While Section 2.6.1 of the SJRWMD Applicant's Handbook requires side slopes no steeper than 4:1 to two feet below normal water surface, an alternative design can be used if the basins are fenced or otherwise restricted from public access. The U.S. 192 Site is a secured (fenced) site, the public are restricted to waste unloading areas, and minors are not allowed to exit vehicles. The proposed stormwater improvements to the U.S. 192 Site have been reviewed by the Florida Department

of Environmental Protection (FDEP) and have been found to be in accordance with all applicable FDEP/SJRWMD regulatory criteria as evidenced by the issuance of Environmental Resource Permit ERP No. 0301799-005-EI.

Exhibit A states that the Board can approve a waiver to the requirements if the waiver serves the public interest. The attached Technical Memorandum prepared by S2Li, Inc., the Engineer of Record for the U.S. 192 Site design, details the cost savings that will be realized through the current pond design. Based on a cost of \$3.10 per cubic yard of off-site soil (current contracted price for Solid Waste), use of on-site soils excavated during construction of the stormwater ponds will save approximately \$25,405,000 in construction costs for the current phase of construction and \$81,130,000 in future construction costs.

### **Clerk to the Board Instructions:**



Kimberly Powell, Clerk to the Board, 400 South Street • P.O. Box 999, Titusville, Florida 32781-0999

Telephone: (321) 637-2001  
Fax: (321) 264-6972  
Kimberly.Powell@brevardclerk.us

November 22, 2023

MEMORANDUM

TO: Tad Calkins, Planning and Development Director

RE: Item F.1., Approval of Waiver to Brevard County Stormwater Pond Design Criteria for U.S. 192 Solid Waste Management Facility (23WV00019) (23SP00036)

The Board of County Commissioners, in regular session on November 21, 2023, approved a waiver to the requirements for stormwater pond design found in Brevard County Code of Ordinances Section 62, Article X, Division 6, Exhibit A, 4.4(h) to allow 3:1 slopes and depths exceeding 12 feet for the current and all future phases of construction at the U.S. 192 Solid Waste Management Facility.

Your continued cooperation is greatly appreciated.

Sincerely,

BOARD OF COUNTY COMMISSIONERS  
RACHEL M. SADOFF, CLERK

*for: Donna Soff*  
Kimberly Powell, Clerk to the Board

/dm

cc: Finance  
Budget



S2L, INCORPORATED  
531 Versailles Drive, Suite 202  
Maitland, Florida 32751-7301  
407-475-9163 Fax 407-475-9169

## Technical Memorandum

**TO:** Thomas J. Mulligan, P.E.  
Brevard County Solid Waste Department Director

**FROM:** S2L, Incorporated

**DATE:** November 6, 2023

**RE:** **Waiver Request - Stormwater Basin – Analysis for Steeper Sideslopes and Deeper Basins**

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### Introduction

The Brevard County Solid Waste Department has submitted an application for Site Plan Approval for the US192 Solid Waste Management Facility (“Site”). As part of the application, the Solid Waste Department has submitted a waiver application requesting a variance to the requirements of Brevard Code Section 62-3756.4.4(h) to allow the current design to exceed the Code’s maximum slopes and depths of stormwater management basins.

Note that, as part of the Site Master Plan, future borrow pond areas have been designated to meet future Site construction and operational soil needs. These borrow pond areas also exceed the maximum slope and depth required by County Code Section 62-4457(f). Although not requesting a similar waiver on these Borrow Ponds at this time, a much larger economic effect will be incurred if these below-ground excavations for the borrow areas are required to comply with the above-referenced County code restrictions.

This memorandum has been prepared to provide an estimate of the cost impacts of changing the stormwater management basins and future soil borrow pond slope design at the Site to meet Brevard County Codes which limit side slopes to a maximum of 5 horizontal to 1 vertical (5:1) slope to at least 2-feet below Normal Water Elevation (NWL) for the stormwater basins, at least 5-feet below NWL for the borrow ponds, and setting the maximum excavation depth in both cases no deeper than 12 feet.

### Background

In order to maximize the amount of potential borrow soil for Site construction and operational needs, the stormwater management basins and future borrow pond areas are designed with a 3:1 side slope with the stormwater basins designed to a depth of 20 feet with the soil borrow pond areas designed to a depth of 35 feet. These proposed side slopes and depth differ from restrictions within County Code which requires different side slopes and more shallow depth, thus the need for the waiver request. Soil excavated from these on-site stormwater basins and borrow ponds are to be used in the development and operations of the solid waste management facility (e.g., landfills, roads, waste cover, facility embankments) during the life of the facility, reducing the need to import soil from off-site private borrow

pits, helping to reduce County capital and operational expenditures. The stormwater basins and borrow ponds were designed in accordance with St. Johns River Water Management District and Florida Department of Environmental Protection (FDEP) criteria and have been approved by FDEP through the issuance of the County’s Environmental Resource Permit (ERP) Number 0301799-007-EM.

The stormwater basins were designed with excess stormwater capacity. Stormwater treatment volumes were based on a standard 12-foot deep basin in order to provide a conservative estimate of the available treatment. As a result, there will be no impact on stormwater treatment and attenuation capacity due to the proposed variance changes requested by the waiver application. However, if the waiver is denied, the redesign of the side slopes will result in the need for remodeling of the stormwater management system and the preparation of an ERP permit modification application.

Analysis

An analysis was completed to determine the additional cost to the County for importing additional soil to the Site should the waiver not be approved for the stormwater basin design and any future waiver for the borrow pond areas. Soil quantities made available using the current design are compared to those made available by limiting the side slope angle and depth to comply with County Code requirements. These differences are shown in the attached Figure 1.

The additional soil volumes made available by an approved waiver and future waivers were calculated by comparing the designed cross-section of the stormwater basins and borrow pond side slopes with the slope and depth limitations within the County Code. The cross-sectional area was then multiplied by the length of the basin or pond perimeters to determine the difference in the total volume of soil. The difference in soil volume due to limiting the basin or pond depths to 12 feet was calculated in AutoCAD Civil 3D.

The table below shows the volume of additional in-place soils for the designed stormwater basins and borrow pond areas. Once the in-place soil is excavated, it will expand in a loose condition and be placed in on-site soil stockpiles. It is assumed that the volume of the stockpiled soil will exceed the excavated volume by 20%. As seen by the table below, the waiver and future waivers will allow for approximately 8,200,000 additional cubic yards (CY).

**Additional Soil Volume Potential Based on Waiver Approval and Future Development**

<b>Areas</b>	<b>Normal Water Level (ft. EL. NAVD)</b>	<b>Cross Sectional Area (SY)</b>	<b>Perimeter Length (ft)</b>	<b>Additional Soil Volume from Slope Change (CY)</b>	<b>Additional Soil Volume from Depth Change (CY)</b>
SWM-1 Basin including Future Expansion	19.5	15.58	15,051	78,200	477,000
Future SWM-1A Basin	19.5	15.58	3,428	17,800	34,400
SWM-2 Basin	19.0	16.19	4,237	22,900	213,700
SWM-4 Basin	19	16.19	2,495	13,500	55,200

Areas	Normal Water Level (ft. EL. NAVD)	Cross Sectional Area (SY)	Perimeter Length (ft)	Additional Soil Volume from Slope Change (CY)	Additional Soil Volume from Depth Change (CY)
Future Borrow Pond 1	19.5	15.58	14,050	73,000	3,498,600
Future Borrow Pond 2	19.5	15.58	8,609	44,700	2,341,900
Subtotals =				250,000	6,620,800
Subtotal of Total In-Place Volume (CY) =					6,870,800
Factor for Increase of Soil Volume Place in a Stockpile (20%)					1.2
<b>Total Additional Stockpiled Soil Volume (CY) =</b>					<b>8,195,000</b>

The current estimate to dewater, excavate, haul, and stockpile on-site soil on the US192 Site is \$3.10/CY. If the waiver and future waivers are approved, the current (2023) dollar cost for the County to utilize this additional soil is \$25,405,000 (\$3.10 x 8,195,000 CY).

If the waiver(s) is not approved, the County would need to purchase soil from off-site borrow pits and import the material to the stockpile. The current cost for the County for off-site soil to be imported and stockpiled at the County's Central Disposal Facility (CDF) landfill is \$13/CY. Assuming the same cost for soil imported to the US-192 site, it will cost \$106,535,000 (\$13 x 8,195,000 CY) for the equivalent amount of stockpiled soil.

An approved waiver(s) will result in a saving to the County of \$81,130,000 (\$106,535,000 - \$25,405,000) by keeping the pond slopes and depths as designed.

Conclusion

- An approved waiver(s) will result in a saving to the County of \$81,130,000 by keeping the basin and pond slopes and depths as designed to allow for additional on-site soil borrow instead of purchasing imported soil from off-site sources.
- The saving of \$81,130,000 is based on current (2023) dollars, however, the saving is expected to be greater over time due to the limited availability of off-site borrow pits, limited quantities of off-site soils, and an anticipated increased cost of transportation.
- A disapproval of the waiver will require the current 100% complete construction plans to be changed. The stormwater basins will need to be re-contoured by changing the slopes near the normal water elevation, raising the basin depth, and expanding horizontally to make up for the loss of soil required for the initial construction of the Site.
- A disapproval of the waiver will result in the need for stormwater management system remodeling and the need to prepare and submit an ERP permit modification request.

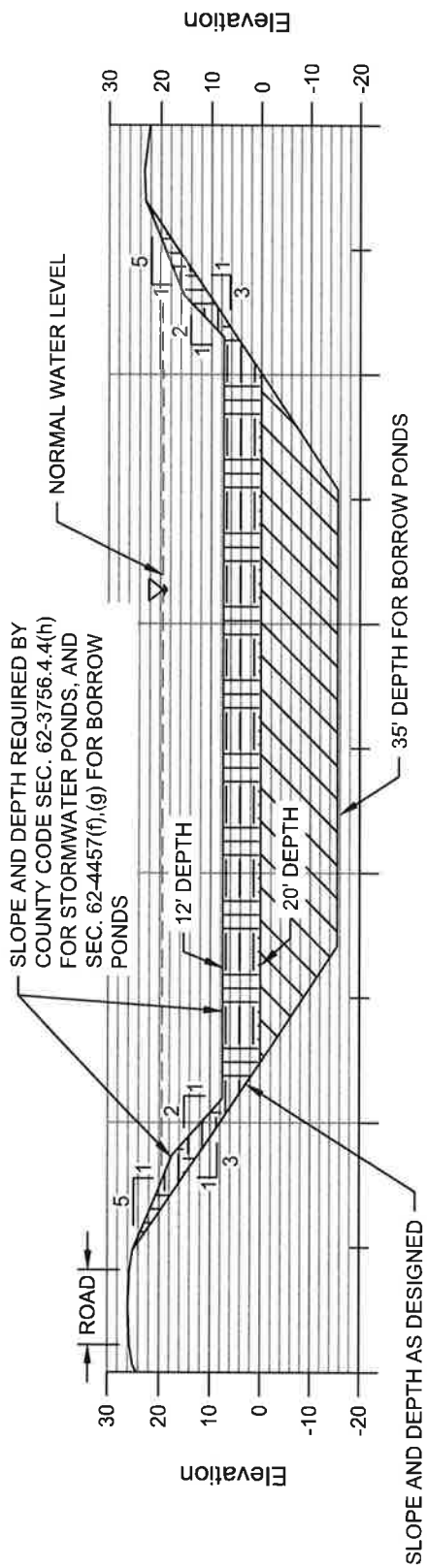


FIGURE 1:  
COMPARISON OF DESIGNED POND SLOPES AND DEPTH TO  
BREVARD COUNTY CODE REQUIREMENTS



BOARD OF COUNTY COMMISSIONERS

Planning and Development
Planning and Zoning
2725 Judge Fran Jamieson Way
Building A, Room 114
Viera, Florida 32940
(321) 633-2070 Phone

LAND DEVELOPMENT WAIVER APPLICATION

This form should be used for all waiver requests or appeals associated with the Code of Ordinances, Section 62, as it relates to Subdivisions, Minor Subdivisions, and Site Plans. Fees for Waivers are \$775.00.

Application Type:

Subdivision Waiver Site Plan Waiver Other

If other, please indicate

Tax Account Numbers:

2700029

Tax Account 1

Tax Account 2

Project Information and Site Address:

US192 Solid Waste Management Facility Brevard County Board of County Commissioners

Project Name

Property Owner

109 Clayton Rd.

Melbourne

FL

32935

Street

City

State

Zip Code

Applicant Information:

Thomas J. Mulligan, PE

Brevard County Solid Waste Management Department

Applicant Name

Company

2725 Judge Fran Jamieson Way, Bldg. A, Suite 118

Viera

FL

32940

Street

City

State

Zip Code

321-633-2042 x59173

Thomas.Mulligan@brevardfl.gov

Primary Phone

Secondary Phone

Email Address



**Engineer/Contractor (if different from applicant):**

Omar Smith, P.E.

S2Li

Engineer or Project Manager

Company

531 Versailles Drive, Suite 202

Maitland

FL

32751

Street

City

State

Zip Code

407-475-9163

osmith@s2li.com

Primary Phone

Secondary Phone

Email Address

**Description of Waiver Request and Code Section:**

It is requested that the Board of County Commissioners approve a waiver to the requirements for stormwater pond design found in Brevard County Code of Ordinances Section 62, Article X, Division 6, Exhibit A, 4.4(h) to allow for 3:1 slopes and depths exceeding 12-feet, for the current and all future phases of construction at the US 192 Solid Waste Management Facility.

If you wish to appeal any decision made by County staff on the wavier, you may request that the Board of County Commissioners make a determination. The Board's decision approving or disapproving the waiver or interpretation is final.



Owner/Applicant Signature

Thomas J. Mulligan, Department Director

Print Name

## Land Development Application Document Submittal Requirements

Waivers for Site Plans or Subdivisions require an application, waiver criteria (listed below), an 8 ½-inch x 11 inch vicinity map, and a fee of \$775.00.

### Waiver Criteria for Subdivisions and Site Plans

For a waiver to be considered and approved by staff, your request must comply with all of the following criteria. Please explain, in detail, how your request meets the following conditions.

1. The particular physical conditions, shape, or topography of the specific property involved causes an undue hardship to the applicant if the strict letter of the code is carried out.

The ponds have been designed in conformance with all applicable regulatory requirements as set forth in the SJRWMD Applicant's Handbook: Regulation of Stormwater Management Systems, Chapter 40C-42, F.A.C. Section 2.6.1 of the Applicants Handbook Volume II states "Normally dry basins designed to impound more than two feet of water or permanently wet basins must contain side slopes that are no steeper than 4H:1V out to a depth of two feet below the control elevation. As an alternative, the basins can be fenced or otherwise restricted from public access if the slopes must be steeper due to space or other constraints." A waiver to Brevard County Code of Ordinances Section 62, Article X, Division 6, Exhibit A, 4.4(h) requiring 5:1 side slopes to 2 feet below the pond normal water level will be submitted. A waiver of the 12-foot maximum depth requirement is also requested.

Additionally, the proposed stormwater improvements have been reviewed by FDEP and found to be in accordance with all applicable FDEP/SJRWMD regulatory criteria as demonstrated by the issuance of Environmental Resource Permit ERP No. 0301799-005-EI.

The ponds are located on a secure (fenced) site, and have been designed with 3:1 side slopes and a depth of 20-feet to maximize the amount of fill material available to the County to be used for the construction and operation of the solid waste disposal facility.

2. The granting of the waiver will not be injurious to the other adjacent property.

The stormwater basins are located entirely within the fenced and gated property. There are no impacts to neighboring properties.

3. The conditions, upon which a request for waivers are based, are particular to the property for which the waiver is sought and are not generally applicable to other property and do not result from actions of the applicant.

The landfill facility property is fenced and gated. No public access to the property is allowed. No pedestrians are allowed near the stormwater ponds.