

### **DEPARTMENT OF THE ARMY**

JACKSONVILLE DISTRICT CORPS OF ENGINEERS 701 SAN MARCO BOULEVARD JACKSONVILLE, FLORIDA 32207-8915

**January 28, 2020** 

Regulatory Division West Branch Mining Team

# **PUBLIC NOTICE**

Permit Application No. SAJ-2019-00480 (SP-JPF)

TO WHOM IT MAY CONCERN: The Jacksonville District of the U.S. Army Corps of Engineers (Corps) has received an application for a Department of the Army permit pursuant to Section 404 of the Clean Water Act (33 U.S.C. §1344) as described below:

APPLICANT: The Chemours Company FC LLC

P.O. Box 753 Starke, FL 32091

WATERWAY AND LOCATION: The project would affect waters of the United States associated with headwater wetlands of the Santa Fe River (HUC 03110206), a tributary of the Suwannee River (HUC 031102). The project site is located south of State Road 230 and east of State Road 100, approximately four miles southeast of downtown Starke, in Sections 12, 13, and 24, Township 7 South, Range 22 East, Bradford County, and Sections 6, 7, 18, and 19, Township 7 South, Range 23 East, Clay County, Florida.

Directions to the site are as follows: From US 301 in Starke, take SR 230 east approximately 5.5 miles to Kingsley Road; take Kingsley approximately 0.4 mile east to the first right; take that road approximately 2.3 miles to the applicant's facility to gain access to the project site.

APPROXIMATE CENTRAL COORDINATES: Latitude 29.883858

Longitude -82.051777

## PROJECT PURPOSE:

Basic: To mine mineral sands

Overall: To mine mineral sands from identified deposits in the vicinity of the applicant's existing Trail Ridge processing facilities

EXISTING CONDITIONS: The proposed mine site totals approximately 2884.4 acres. The majority of the proposed project area has historically been managed for silviculture and as such is in various stages of pine growth. Unpaved, graded roads cross the proposed project area to provide access for silviculture operations. Wetlands and ditches occur throughout the proposed project area, and portions of the wetlands have been subject to timber harvesting and replanted with pine for silviculture.

More specifically, the predominant existing land use is coniferous plantations (FLUCCS 441), covering 1216.91 acres. Additional upland land uses include 44.94 acres of dirt roads (8146), 117.06 acres of formerly mined lands/extractive (117.06), and xeric oak (28.16). and 27.10 acres of CR 228 (8144). Onsite wetlands and surface waters include 480.76 acres of wetland pine plantation (441W), 816.37 acres of various forested wetlands (611, 613, 621, and 630), 121.61 acres of shrub and herbaceous wetlands (631 and 641), and 47.67 acre of ditches and lakes (510d, 523, and 534).

The area surrounding the project area consists of the applicant's mining and processing facilities to the north, additional pine plantations to the west and south, and Camp Blanding Joint Training Center to the east. Keystone Heights Airport is located one mile south of the project's southern limit.

The project site also overlaps or is in the vicinity of several public and private parcels of conservation lands, as shown in the attached drawings.

PROPOSED WORK: The applicant seeks authorization to impact 740.45 acres of aquatic resources, including 710.59 acres of wetland impacts and 29.86 acres of impacts to ditches and other surface waters. The wetland impacts include 227.53 acres of impacts to wetland pine plantation areas. The attached site plans show the work as currently proposed.

AVOIDANCE AND MINIMIZATION INFORMATION – The applicant has provided the following information in support of efforts to avoid and/or minimize impacts to the aquatic environment:

The applicant states that there are no alternative sites that have the necessary mineral deposits that are not already active mines themselves. Onsite, the applicant states that the proposed mining area is necessary to provide an economically viable project.

The applicant states that the proposed mine plan avoids higher-quality onsite wetlands, and preserves flow ways that drain offsite to the Santa Fe River. The applicant proposes to implement best management practices to minimize impacts to avoided and offsite wetlands, including a perimeter berm around the active mining areas and use of existing culverted wetland crossings.

COMPENSATORY MITIGATION – The applicant has offered the following compensatory mitigation plan to offset unavoidable functional loss to the aquatic environment:

The applicant states that the proposed impacts will result in a loss of 347.58 wetland functional units (using UMAM). To offset this loss the applicant proposes permitteeresponsible onsite and offsite mitigation, specifically, the re-establishment of 710.59 acres of wetlands onsite in conjunction with reclamation as required by the state of Florida, the enhancement of 136.49 acres of onsite, avoided wetlands, and 65.54 acres

of re-establishment of offsite wetlands at the applicant's Florida Mine/Trail Ridge Mine, in conjunction with reclamation as required by the state of Florida. The offsite wetlands are not part of the mitigation for any Corps permits. The applicant states that the proposed mitigation provides 348.14 units of functional gain. A summary of the applicant's compensatory mitigation plan, including the 12 components required by the 2008 Compensatory Mitigation Rule, is attached.

# **CULTURAL RESOURCES:**

The applicant provided a copy of a June 26, 2019 letter from the State Historic Preservation Officer (SHPO) (DHR File No. 2018-0132-B), stating that the SHPO concurred with a determination that the proposed project will have no effect on cultural resources listed, or eligible for listing in the National Register of Historic Places, or otherwise of archaeological, historical, or architectural significance within the study area. The Corps notes that the referenced review did not constitute a review under Section 106 of the National Historic Preservation Act.

Therefore, by copy of this public notice, the Corps is providing information for review. Our final determination relative to historic resource impacts is subject to review by and coordination with the State Historic Preservation Officer and those federally recognized tribes with concerns in Florida and the Permit Area.

## **ENDANGERED SPECIES:**

The project area has suitable habitat for the wood stork (*Mycteria americana*), Florida scrub jay, and the eastern indigo snake (*Drymarchon corais couperi*). Camp Blanding, to the east, has documented occurrences of scrub jays, and multiple populations of redcockaded woodpeckers (*Picoides borealis*) (RCW). The Santa Fe River downstream of the project area supports populations of the Suwannee moccasinshell (*Medionidus walker*) and oval pigtoe (*Pleurobema pyriforme*) freshwater mussels, and critical habitat for the oval pigtoe.

The furthest upstream extent of the oval pigtoe critical habitat, which overlaps with a unit of the proposed critical habitat for the Suwannee moccasinshell, is greater than eight miles downstream of the project site. The Corps notes that the primary headwaters for the Santa Fe River are Lake Santa Fe and the Santa Fe Swamp, and that the applicant's proposed mine plan avoids the larger wetland flow ways on the project site. Based on available information, the Corps has determined that the proposed project would have no effect on the oval pigtoe and its critical habitat, or on the Suwannee moccasinshell.

The project is outside of the core foraging area of any wood stork colonies, and the applicant states that no wood storks have been observed foraging onsite. Using the September 2008 effect determination key for the wood stork in central and north peninsular Florida (A-B-C-D), the Corps has determined the proposed project may

affect but is not likely to adversely affect the wood stork; no further coordination is necessary.

The applicant conducted informal scrub jay surveys in October 2012, and documented no individual birds or calls. The applicant states that the onsite habitat is not optimal. Based on the information provided, the Corps has determined that the project may affect but is not likely to adversely affect the scrub jay.

The project area does not have suitable nesting habitat for RCWs. The applicant conducted informal foraging area surveys in November 2012 and documented no birds or calls. Based on the information provided, the Corps has determined that the project may affect but is not likely to adversely affect the RCW.

Based on ground surveys, the applicant estimates that the site has approximately 122 gopher tortoise burrows, as well as areas of xeric habitat (scrub, sandhill or scrubby flatwoods). The applicant has agreed to the use of the standard protection measures for the eastern indigo snake. Using the January 25, 2010 effect determination key for the eastern indigo snake, as updated August 13, 2013 (A-B-C-D), the Corps has determined that the proposal may affect the eastern indigo snake.

By separate letter, the Corps will request U.S. Fish and Wildlife (USFWS) concurrence with the determinations for the scrub jay and RCW, and request initiation of formal consultation for the eastern indigo snake, pursuant to Section 7 of the Endangered Species Act by separate letter.

ESSENTIAL FISH HABITAT (EFH): This notice initiates consultation with the National Marine Fisheries Service on EFH as required by the Magnuson-Stevens Fishery Conservation and Management Act 1996. The proposal would impact inland freshwater wetlands. Our initial determination is that the proposed action would not have a substantial adverse impact on EFH or Federally managed fisheries. Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the National Marine Fisheries Service.

NOTE: This public notice is being issued based on information furnished by the applicant. This information has not been verified or evaluated to ensure compliance with laws and regulation governing the regulatory program. Corps personnel verified the jurisdictional line with a Preliminary Jurisdictional Determination dated May 17, 2019.

AUTHORIZATION FROM OTHER AGENCIES: Water Quality Certification may be required from the Florida Department of Environmental Protection and/or one of the state Water Management Districts.

COMMENTS regarding the potential authorization of the work proposed should be submitted in writing to the attention of the District Engineer through the Mining Team,

10117 Princess Palm Avenue, Suite 120, Tampa, FL 33610 within 21 days from the date of this notice.

The decision whether to issue or deny this permit application will be based on the information received from this public notice and the evaluation of the probable impact to the associated wetlands. This is based on an analysis of the applicant's avoidance and minimization efforts for the project, as well as the compensatory mitigation proposed.

QUESTIONS concerning this application should be directed to the project manager, John Fellows, in writing at the Mining Team, 10117 Princess Palm Avenue, Suite 120, Tampa, FL 33610; by electronic mail at johnp.fellows@usace.army.mil; by facsimile transmission at (813)769-7061; or, by telephone at (813)769-7070.

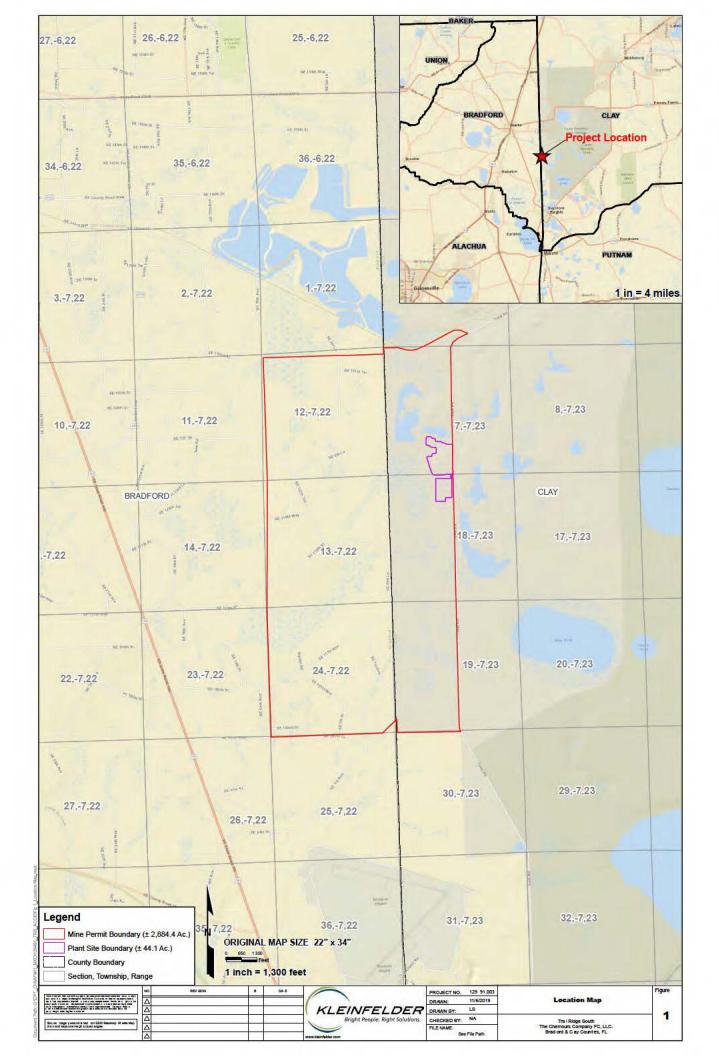
IMPACT ON NATURAL RESOURCES: Coordination with U.S. Fish and Wildlife Service, Environmental Protection Agency (EPA), the National Marine Fisheries Services, and other Federal, State, and local agencies, environmental groups, and concerned citizens generally yields pertinent environmental information that is instrumental in determining the impact the proposed action will have on the natural resources of the area.

EVALUATION: The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including cumulative impacts thereof; among these are conservation, economics, esthetics, general environmental concerns, wetlands, historical properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food, and fiber production, mineral needs, considerations of property ownership, and in general, the needs and welfare of the people. Evaluation of the impact of the activity on the public interest will also include application of the guidelines promulgated by the Administrator, EPA, under authority of Section 404(b) of the Clean Water Act or the criteria established under authority of Section 102(a) of the Marine Protection Research and Sanctuaries Act of 1972. A permit will be granted unless its issuance is found to be contrary to the public interest.

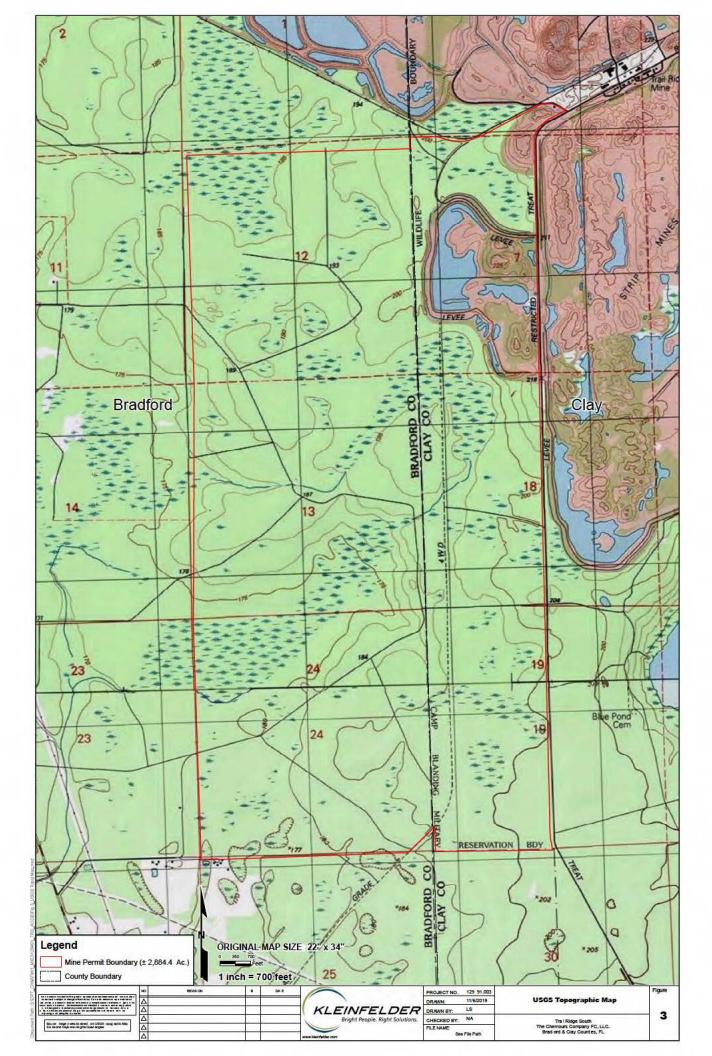
The US Army Corps of Engineers (Corps) is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other Interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition, or deny a permit for this proposal. To make this determination, comments are used to assess impacts to endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

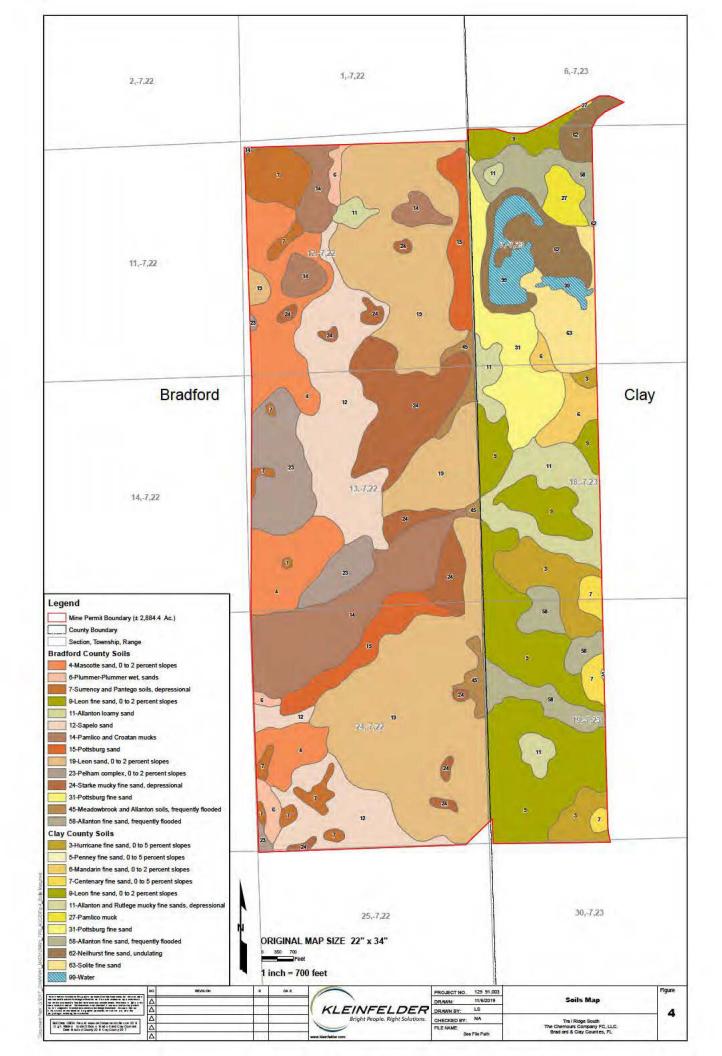
COASTAL ZONE MANAGEMENT CONSISTENCY: In Florida, the State approval constitutes compliance with the approved Coastal Zone Management Plan. In Puerto Rico, a Coastal Zone Management Consistency Concurrence is required from the Puerto Rico Planning Board. In the Virgin Islands, the Department of Planning and Natural Resources permit constitutes compliance with the Coastal Zone Management Plan.

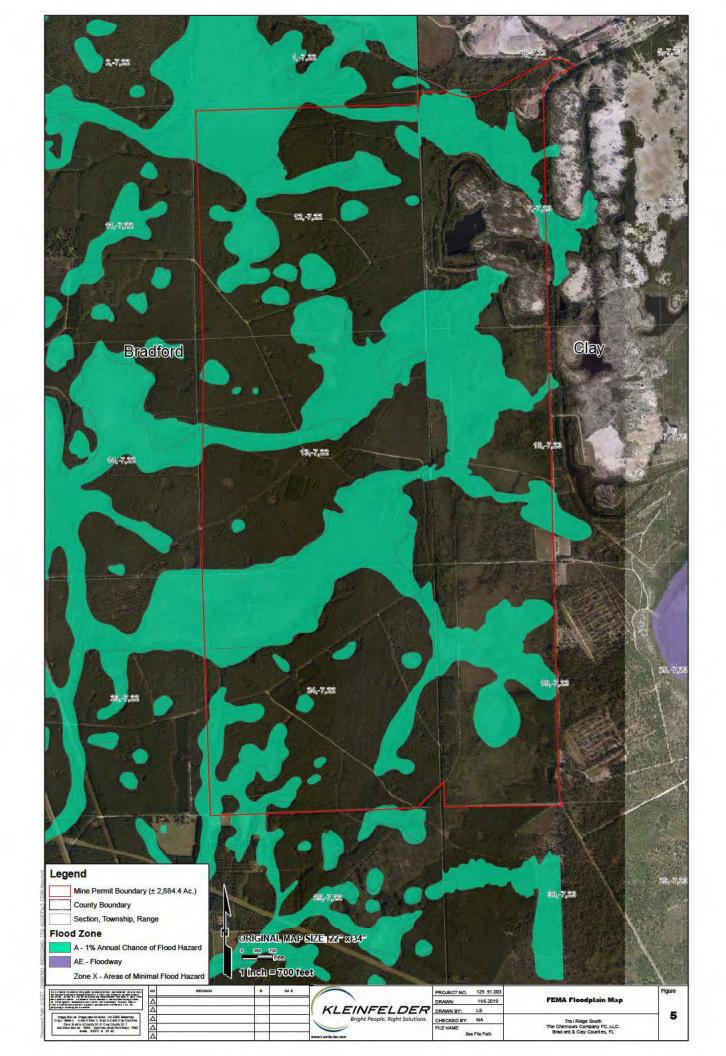
REQUEST FOR PUBLIC HEARING: Any person may request a public hearing. The request must be submitted in writing to the District Engineer within the designated comment period of the notice and must state the specific reasons for requesting the public hearing.

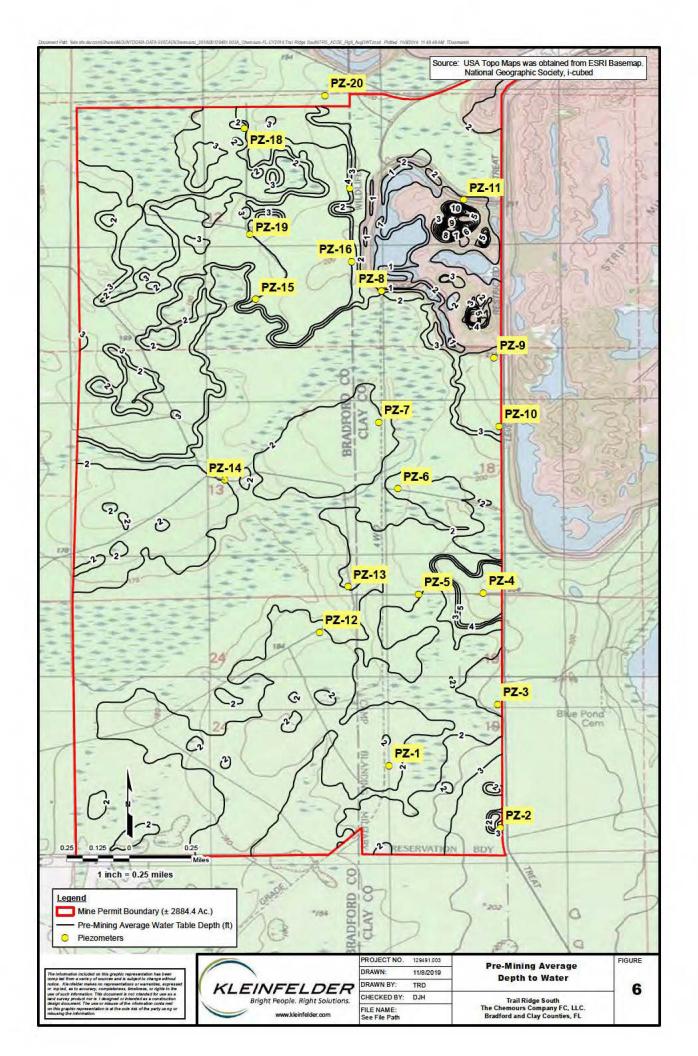


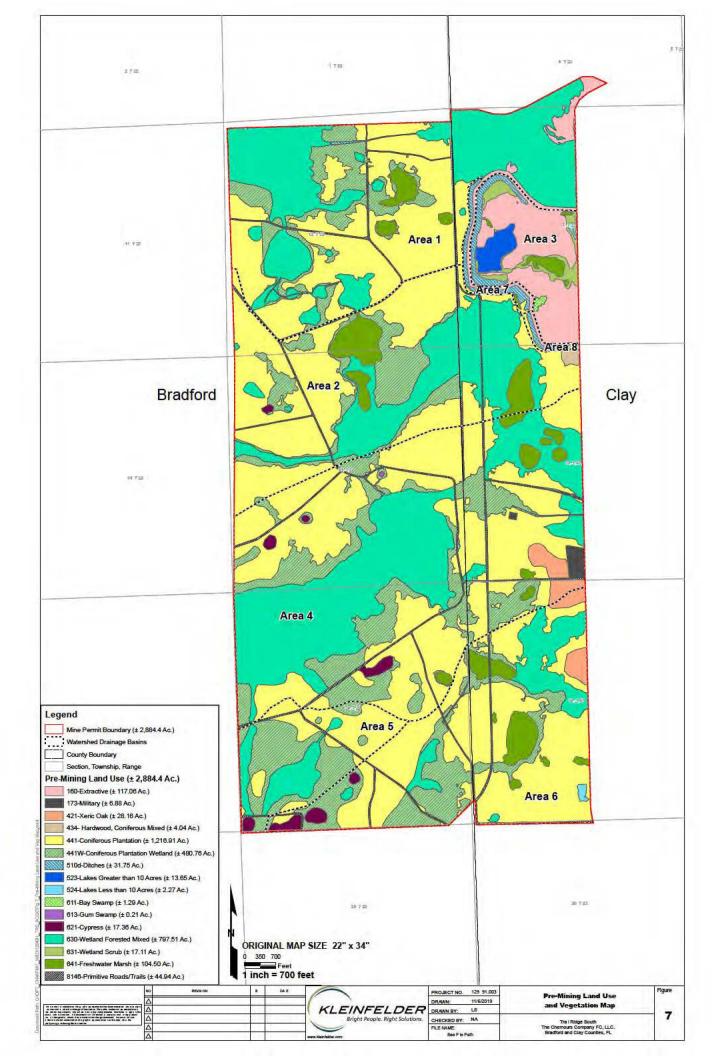


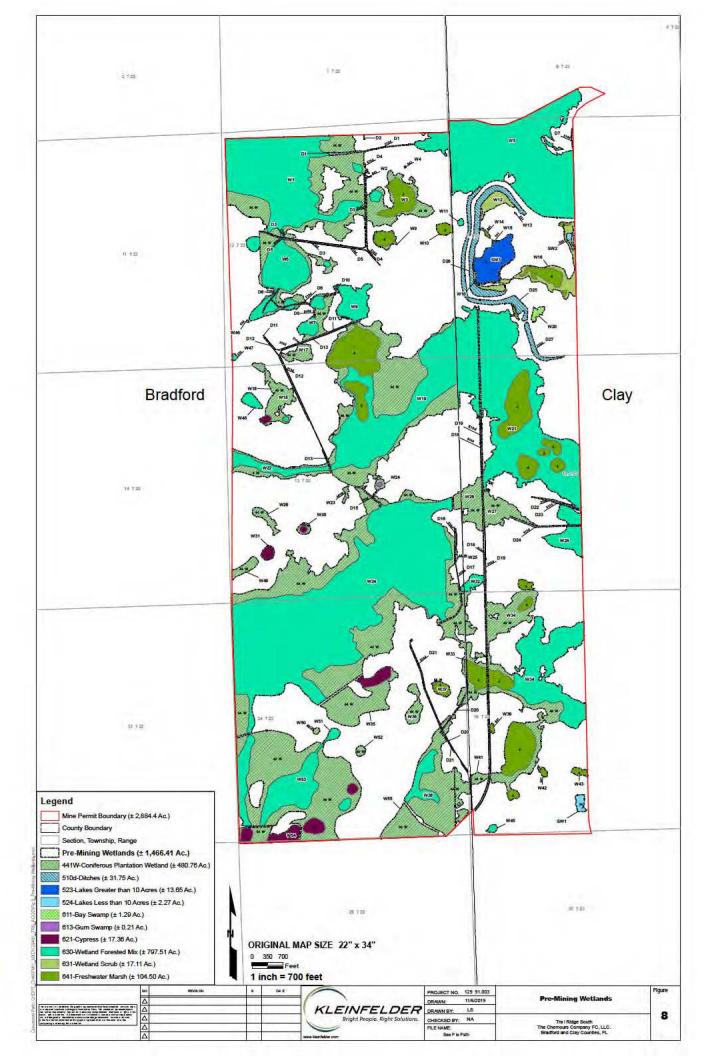


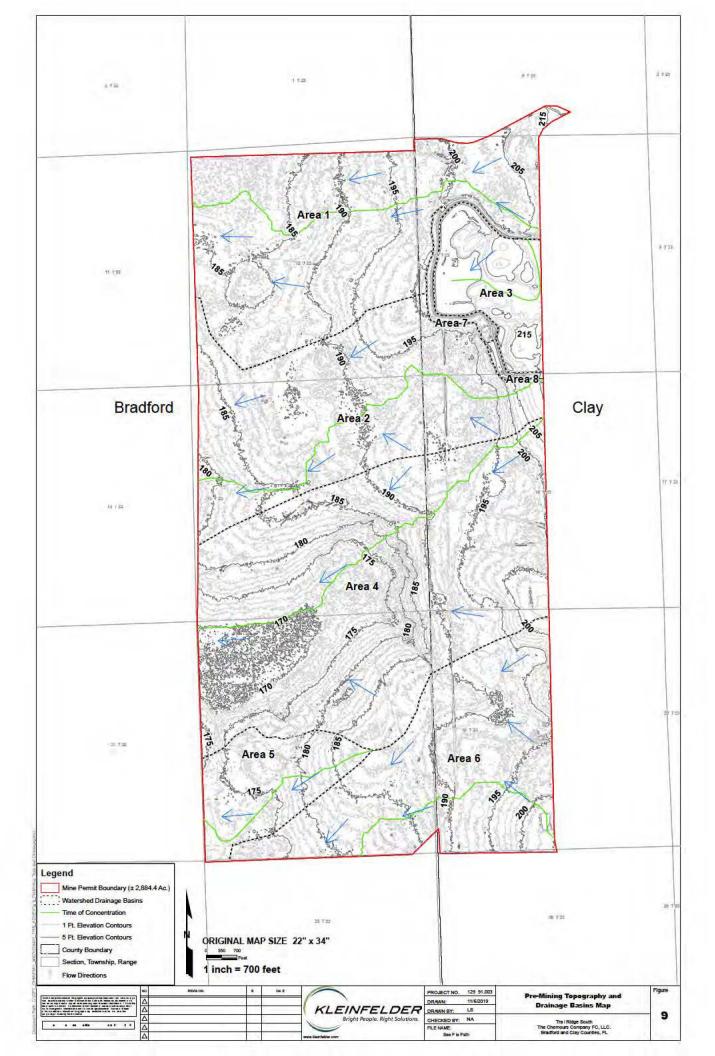


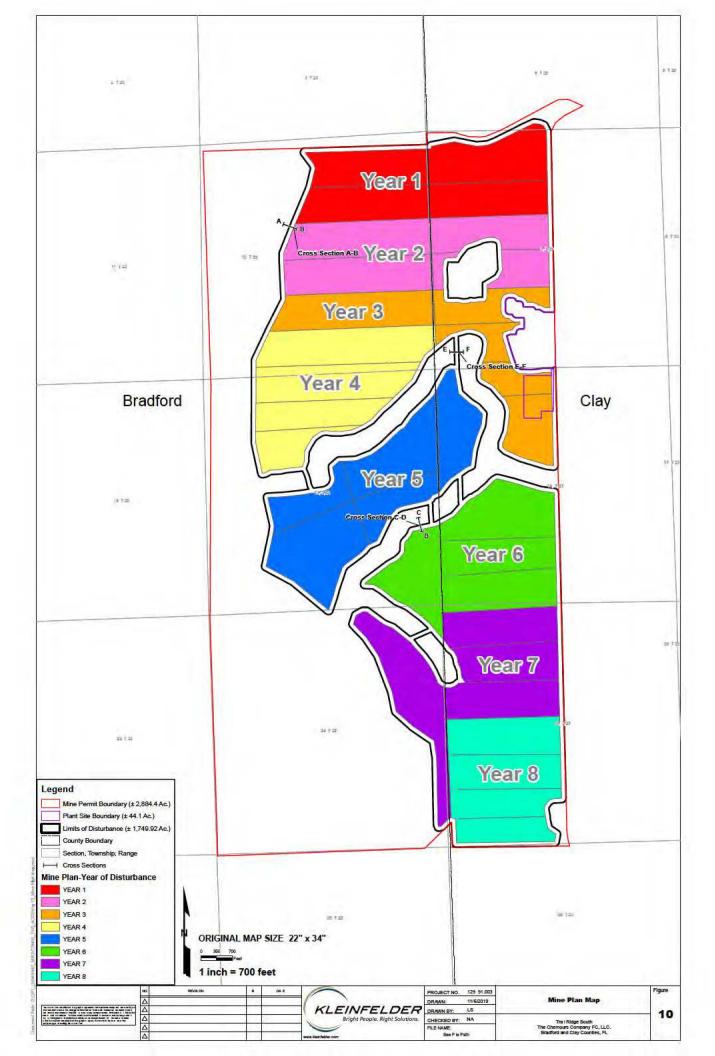


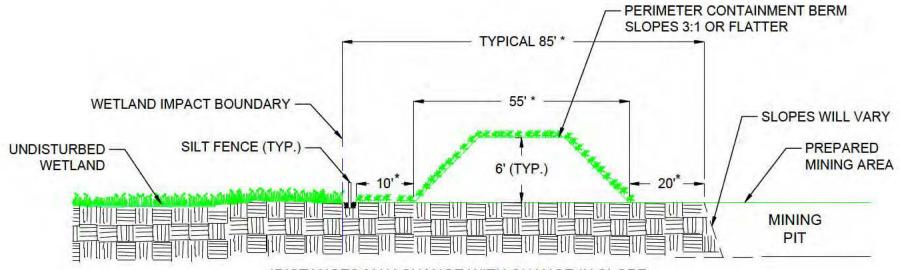












\*DISTANCES MAY CHANGE WITH CHANGE IN SLOPE CROSS SECTION A-B - WETLAND IMPACT BOUNDARY NOT TO SCALE

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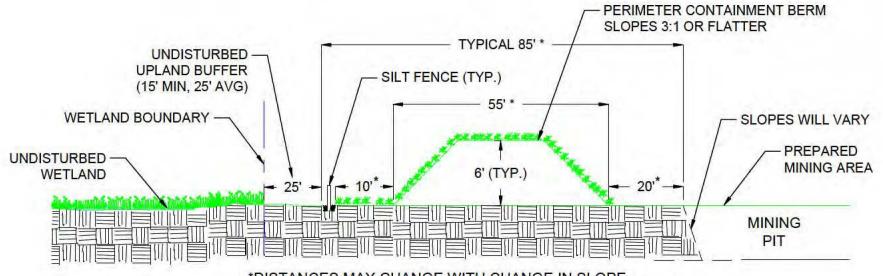
PROJECT NO	0. 129491.003
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DATE	11-08-2019
FILENAME:	See file path

CROSS SECTION A - B

TRAIL RIDGE SOUTH
THE CHEMOURS COMPANY FC, LLC.
BRADFORD AND CLAY COUNTIES, FL

FIGURE

10A



\*DISTANCES MAY CHANGE WITH CHANGE IN SLOPE

CROSS SECTION C-D - UNDISTURBED WETLAND BOUNDARY

NOT TO SCALE

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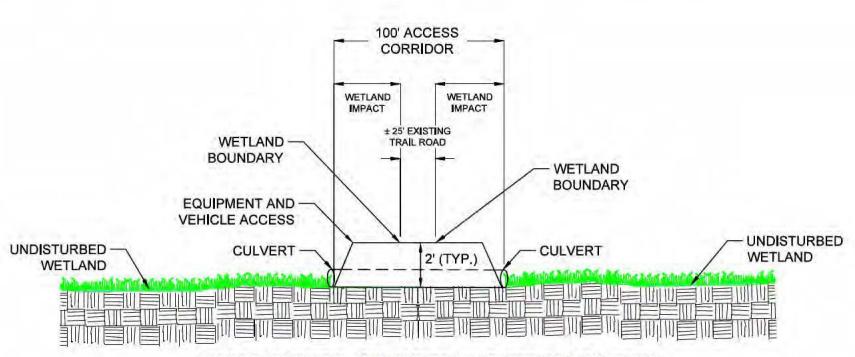
CROSS SECTION C - D

TRAIL RIDGE SOUTH
THE CHEMOURS COMPANY FC, LLC.

BRADFORD AND CLAY COUNTIES, FL

FIGURE

10B



CROSS SECTION E-F - CULVERTED ROAD WETLAND CROSSING
NOT TO SCALE

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	DATE	11-08-2019
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CROSS SECTION E - F

FIGURE

TRAIL RIDGE SOUTH
THE CHEMOURS COMPANY FC, LLC.
BRADFORD AND CLAY COUNTIES, FL

10C

# **Typical Mining Footprint**

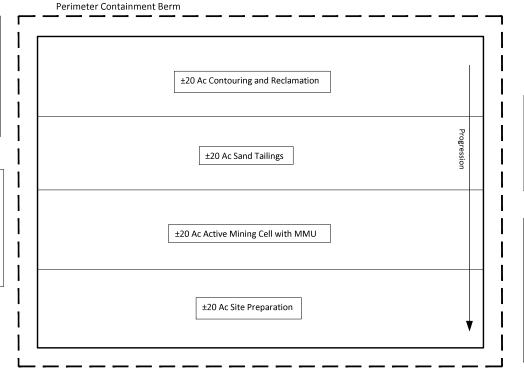
±80 acres per Mobile Mining Unit (MMU)

### Contouring and Reclamation

Once the tailings are sufficiently dewatered, reclamation activities, including recontouring of the site (mined area) so the topography is similar to pre-mining conditions, topsoil placement, and revegetation will be conducted. Native herbaceous vegetation will be reestablished from the replaced topsoil. Temporary groundcover may be seeded/planted (millet or rye) to assist with erosion control, if needed.

#### **Active Mining**

The removal of the ore will be in 7- to 10-foot lifts or benches. The excavation will progress through the cells using multiple excavators to feed an MMU. This unit will process the feed and slurry the ore to the near-by MC. The mine cells will be dewatered as excavation progresses and the water incorporated into the process water for reuse. Mining depth will average approximately 22 feet with a maximum depth of 40 feet.



#### Sand Tailings Return

Once the ore has been separated from the quartz at the MC, the lighter SG quartz sands (approximately 98% by volume) will become tailings and will be pumped to mined-out cells via HDPE pipeline where they are dewatered and utilized for reclamation activities.

#### **Site Preparation**

All merchantable timber is harvested in a manner consistent with silviculture best management practices (BMPs) and area is "root raked" with all wooden material burned per appropriate State/County regulations. Silt fencing and other applicable erosion control measures will be installed around the proposed mine cells. The top 12 inches of topsoil will be removed and used to form the perimeter or containment berms around the mining area for control of storm water runoff.

The Trail Ridge South mining footprint will consist of two (2) MMUs and a land-based separation plant site, Mobile Concentrator (MC). The MMUs move as mining progresses. The MMUs consist of a feed hopper and shredder to break apart oversize (roots, rocks and hardpan) from the excavated material prior to being slurried and pumped via High-density polyethylene (HDPE) pipeline to a single deck vibrating screen which also moves around the ore body as mining progresses to remove oversize. The oversize material from the screen will be used as backfill in the mined-out cells.

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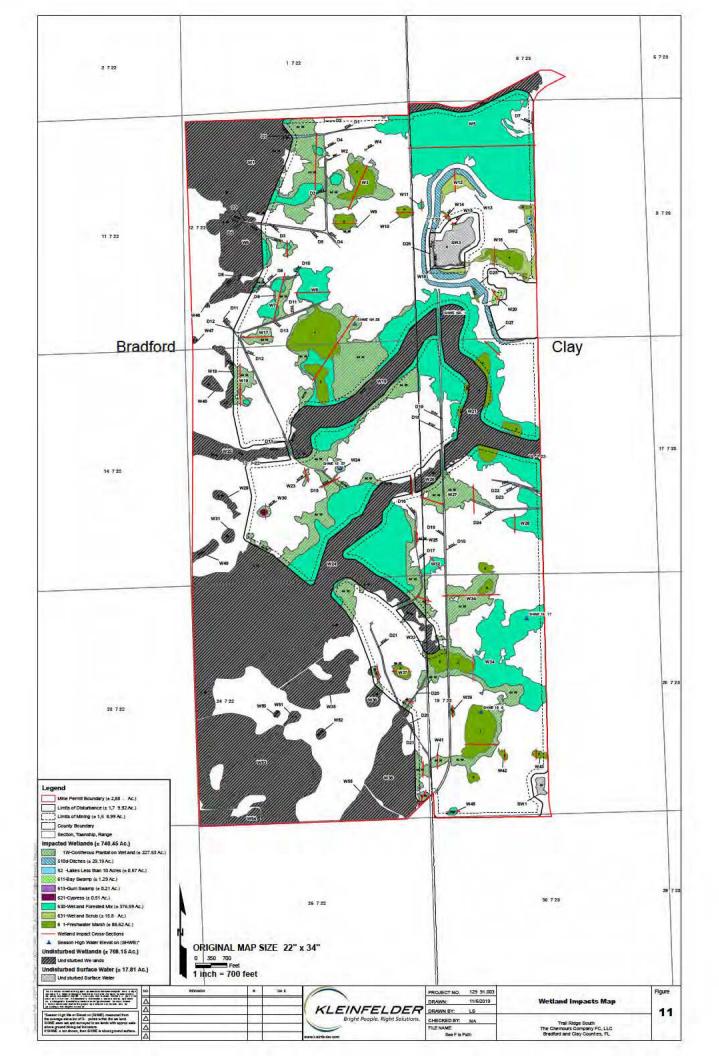
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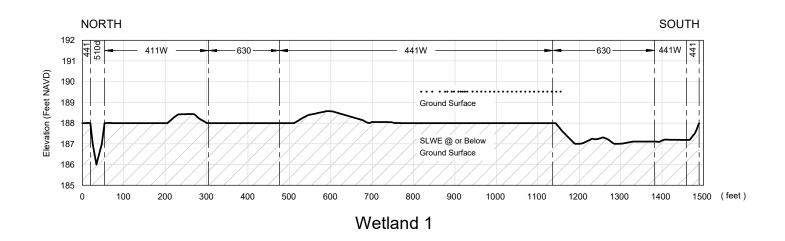
TYPICAL MINING FOOTPRINT

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

FIGURE

10D





ZZZ IMPACT

UNDISTURBED

EXISTING GROUND

---- LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

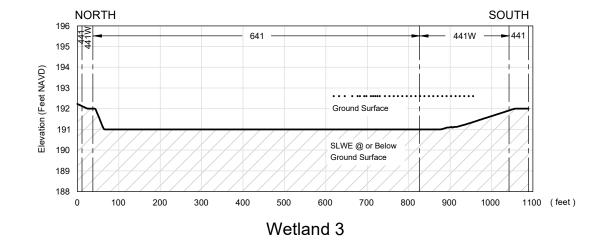
611 - Bay Swamps

630 - Wetland Forested Mixed

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails



Source: Topography - Southern Resources Mapping, Inc. 2012.

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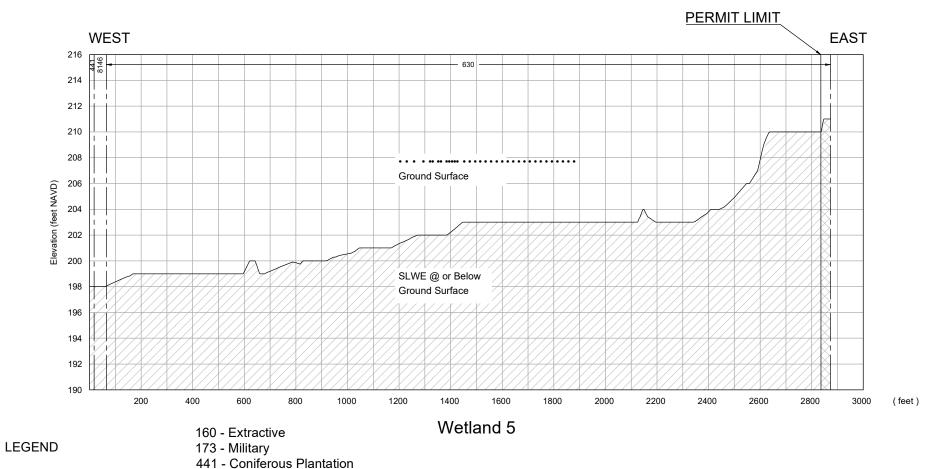
WETLAND IMPACT CROSS-SECTION
WETLAND 1 & 3
Trail Ridge South

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

11A

**FIGURE** 

PAGE 1 c



**IMPACT** 441W- Coniferous Plantation Wetland

510d - Ditch/Canal

UNDISTURBED 611 - Bay Swamps

630 - Wetland Forested Mixed

EXISTING GROUND 631 - Wetland Scrub

641 - Freshwater Marsh

LAND USE CODE 8146- Primitive Roads/Trails



	PROJECT NO	00129 91.003A	
	DRAWN BY	YQ	
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	DATE:	11-08-2019	
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WETLAND IMPACT CROSS-SECTION WETLAND 5 Trail Ridge South

> The Chemours Company FC LLC Bradford and Clay Counties, FL

11B

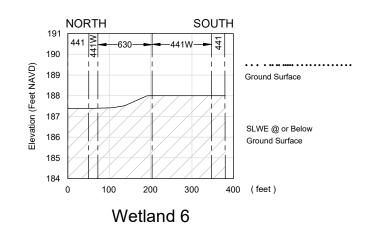
**FIGURE** 

PAGE 2 of 21

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Source: Topography - Southern Resources Mapping, Inc. 2012.

SCALE: HORIZ. 1"= 100' VERT. 1"=5'



IMPACT

UNDISTURBED

**EXISTING GROUND** 

LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

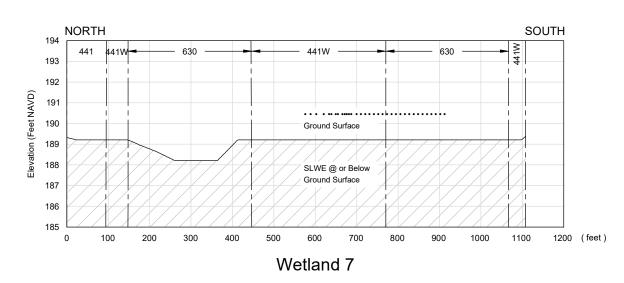
611 - Bay Swamps

630 - Wetland Forested Mixed

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails



Source: Topography - Southern Resources Mapping, Inc. 2012.

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SCALE: HORIZ. 1"= 150' VERT. 1"=3'



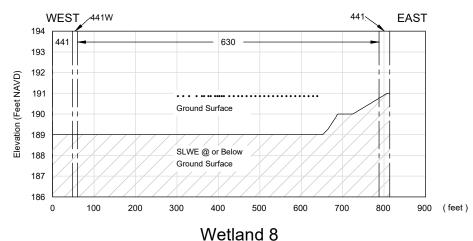
PROJECT NO	00129 91.003A	WETLAND IMPACT CROSS-SECTION
DRAWN BY	YQ	WETLAND 6 & 7
CHECKED BY	' TRD	Trail Ridge South
DATE:	11-08-2019	The Chemours Company FC LLC

Trail Ridge South The Chemours Company FC LLC 11-08-2019 Bradford and Clay Counties, FL

**FIGURE** 

11C

PAGE 3 of 21



/// IMPACT

UNDISTURBED

—— EXISTING GROUND

----- LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

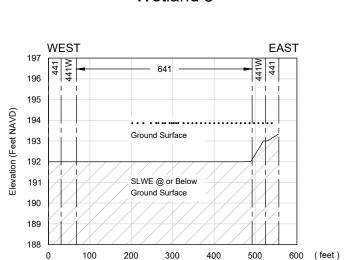
611 - Bay Swamps

630 - Wetland Forested Mixed

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails



Wetland 9

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SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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,	DATE:	11-08-2019	
	REVISED:		

WETLAND IMPACT CROSS-SECTION
WETLAND 8 & 9
Trail Ridge South

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

FIGURE

11D

PAGE 4 of 21

8146 -**—441** EAST WEST 202 641 201 200 Elevation (Feet NAVD) 199 Ground Surface 198 196 SLWE @ or Below ŧή Ground Surface 195 194 0 100 200 300 400 500 (feet)

Wetland 10

# **LEGEND**

/// IMPACT

UNDISTURBED

—— EXISTING GROUND

----- LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

611 - Bay Swamps

630 - Wetland Forested Mixed

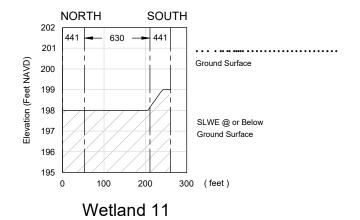
631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails

Source: Topography - Southern Resources Mapping, Inc. 2012.

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SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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DRAWN BY	YQ	
CHECKED BY	TRD	

DATE: 11-08-2019 REVISED: WETLAND IMPACT CROSS-SECTION WETLAND 10 & 11

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

FIGURE

11E

PAGE 5 of 21

**NORTH** SOUTH 209 160 631 208 207 Elevation (Feet NAVD) 206 **Ground Surface** 205 204 SLWE @ or Below 203 Ground Surface 202 201 200 100 600 (feet

Wetland 12

UNDISTURBED

EXISTING GROUND

----- LAND USE CODE

160 - Extractive

IMPACT

173 - Military

**LEGEND** 

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

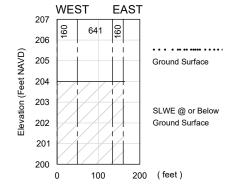
611 - Bay Swamps

630 - Wetland Forested Mixed

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails



Wetland 14

Source: Topography - Southern Resources Mapping, Inc. 2012.

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WETLAND IMPACT CROSS-SECTION
WETLAND 12 & 14
Trail Ridge South

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

PAGE 6 of 21

**FIGURE** 

11F

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WEST **EAST** 207 160 Elevation (Feet NAVD) 206 Ground Surface 205 204 SLWE @ or Below Ground Surface 203 202 100 200 (feet) 0 Wetland 15

**LEGEND** 

IMPACT

UNDISTURBED

**EXISTING GROUND** 

--- LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

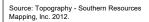
611 - Bay Swamps

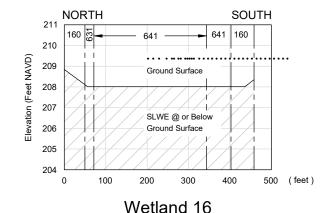
630 - Wetland Forested Mixed

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails





SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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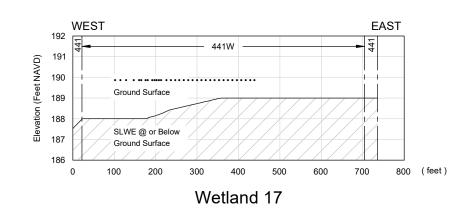
WETLAND IMPACT CROSS-SECTION WETLAND 15 & 16 11-08-2019

Trail Ridge South The Chemours Company FC LLC Bradford and Clay Counties, FL

**FIGURE** 

11G

PAGE 7 of 21



**IMPACT** 

UNDISTURBED

—— EXISTING GROUND

----- LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

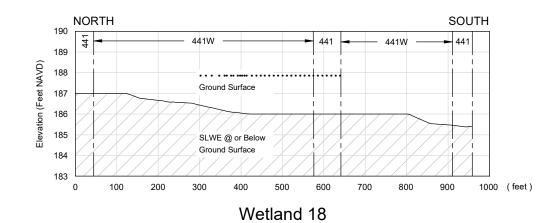
611 - Bay Swamps

630 - Wetland Forested Mixed

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails



Source: Topography - Southern Resources Mapping, Inc. 2012.

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WETLAND IMPACT CROSS-SECTION
WETLAND 17 & 18

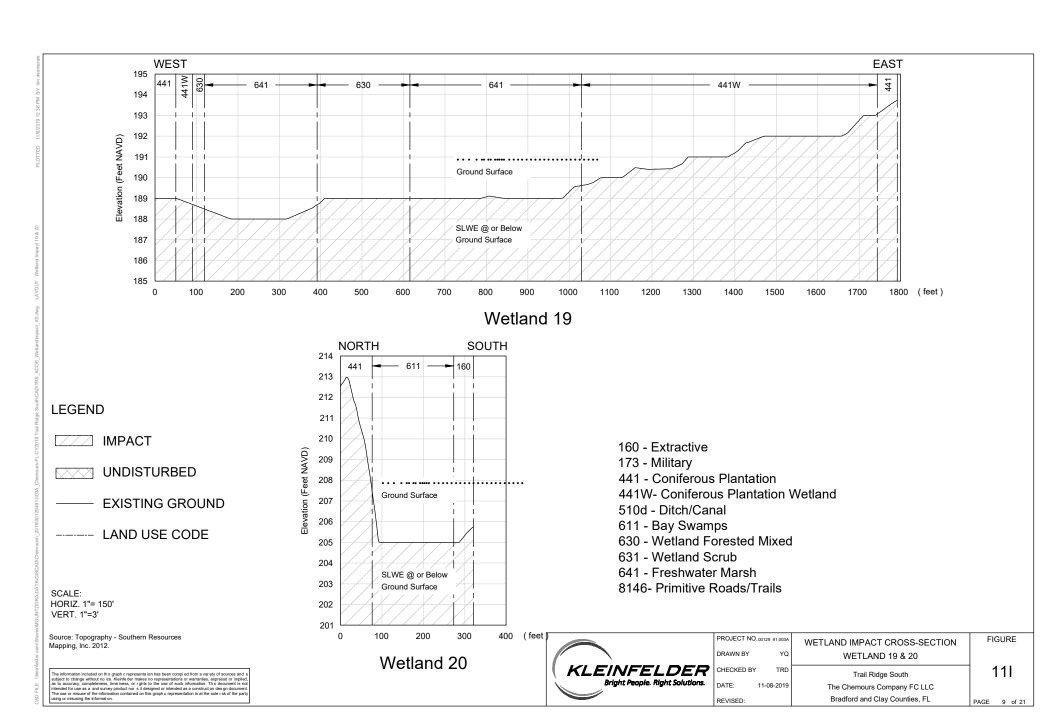
Trail Ridge South

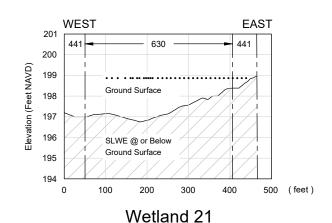
Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

FIGURE

11H

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IMPACT

UNDISTURBED

—— EXISTING GROUND

----- LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

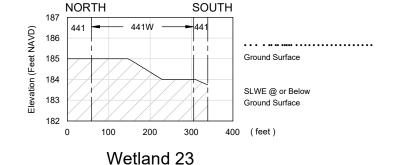
611 - Bay Swamps

630 - Wetland Forested Mixed

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails



Source: Topography - Southern Resources Mapping, Inc. 2012.

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SCALE: HORIZ. 1"= 150' VERT. 1"=3'

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DATE: 11-08-2019
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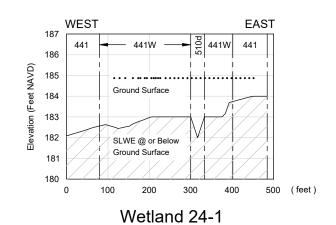
WETLAND IMPACT CROSS-SECTION WETLAND 21 & 23

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

FIGURE

11J

PAGE 10 of 21



/// IMPACT

UNDISTURBED

—— EXISTING GROUND

----- LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

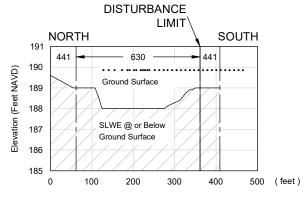
611 - Bay Swamps

630 - Wetland Forested Mixed

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails



Wetland 24-2

Source: Topography - Southern Resources Mapping, Inc. 2012.

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	DATE:	11-08-2019	

WETLAND IMPACT CROSS-SECTION
WETLAND 24
Trail Ridge South

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

FIGURE

11K

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SOUTH NORTH 191 441W Elevation (Feet NAVD) 190 189 **Ground Surface** SLWE @ or Below Ground Surface 187 186 300 (feet) 100 Wetland 25

**LEGEND** 

IMPACT

UNDISTURBED

**EXISTING GROUND** 

LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

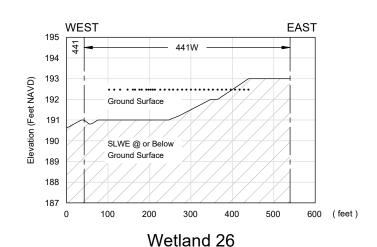
611 - Bay Swamps

630 - Wetland Forested Mixed

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails



SCALE: HORIZ. 1"= 150' VERT. 1"=3'



PROJECT NO.00129 91.003A		WETLAND IMPACT CROSS-SECTION
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CHECKED BY	TRD	Trail Ridge South

DATE:

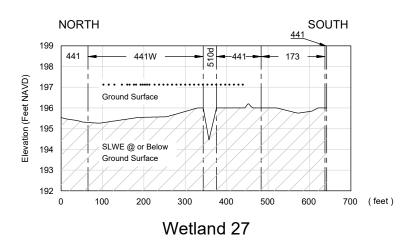
Trail Ridge South 11-08-2019 The Chemours Company FC LLC Bradford and Clay Counties, FL

**FIGURE** 

11L

PAGE 12 of 21

Source: Topography - Southern Resources Mapping, Inc. 2012.



/// IMPACT

UNDISTURBED

—— EXISTING GROUND

----- LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

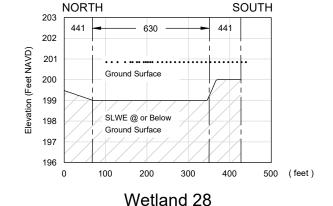
611 - Bay Swamps

630 - Wetland Forested Mixed

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails



SCALE: HORIZ. 1"= 150' VERT. 1"=3'



PROJECT NO.00129 91.003A		WETLAND IMPACT CROSS-SECTION
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HECKED BY	TRD	Troil Didgo South

DATE: 11-08-2019 The Chemours Company FC LLC
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FIGURE

11M

PAGE 13 of 21

Source: Topography - Southern Resources Mapping, Inc. 2012.

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**NORTH** SOUTH 186 441 441 185 Elevation (Feet NAVD) 184 183 Ground Surface 182 181 SLWE @ or Below 180 Ground Surface 179 0 100 200 300 400 (feet) Wetland 30

**LEGEND** 

IMPACT

UNDISTURBED

**EXISTING GROUND** 

--- LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

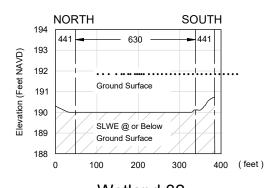
611 - Bay Swamps

630 - Wetland Forested Mixed

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails



Wetland 32

Source: Topography - Southern Resources Mapping, Inc. 2012.





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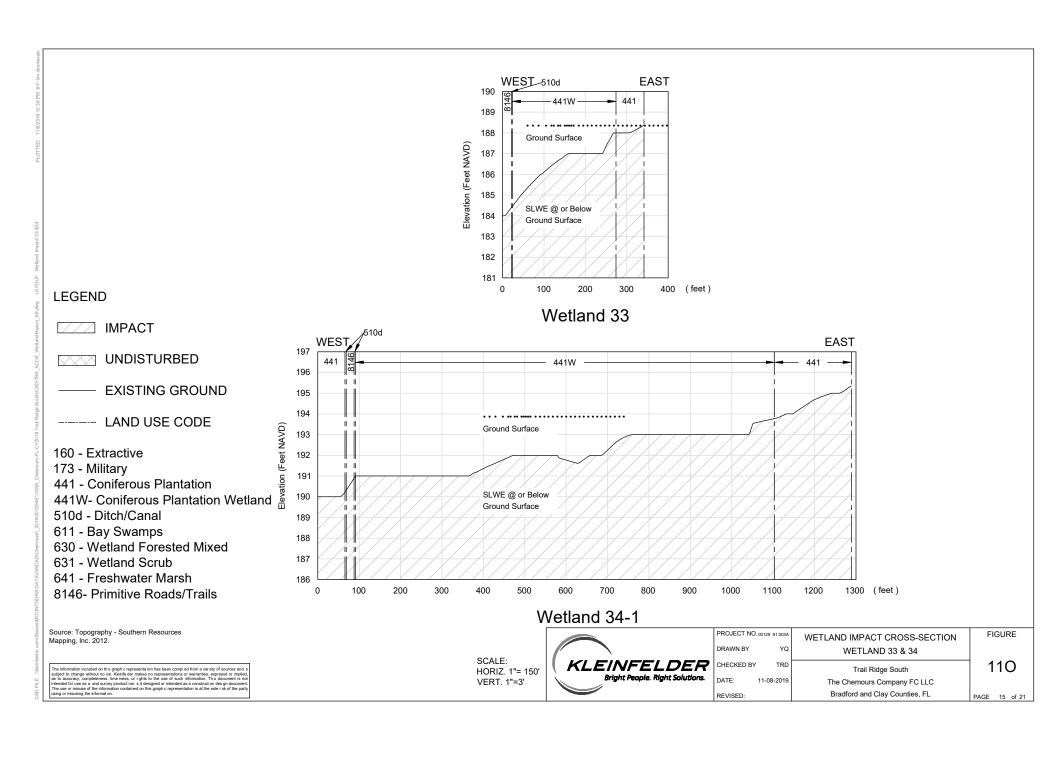
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	Trail Ridge South
11-08-2019	The Chemours Company FC LLC
	Bradford and Clay Counties, FL

WETLAND IMPACT CROSS-SECTION WETLAND 30 & 32

11N

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NORTH . SOUTH 192 191 Elevation (Feet NAVD) 190 **Ground Surface** 189 188 SLWE @ or Below 187 **Ground Surface** 186 185 100 200 300 400 500 600 700 (feet) 0 Wetland 34-2

641

Ground Surface

SLWE @ or Below

**Ground Surface** 

**LEGEND** 

IMPACT

UNDISTURBED

**EXISTING GROUND** 

LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

630 - Wetland Forested Mixed



**WEST** 

195

194

193

192

191

189

188

100

200

VERT. 1"=3'

Elevation (Feet NAVD)

KLEINFELDEF HORIZ. 1"= 150' Bright People. Right Solution:

Wetland-34-3

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800 (feet)

**EAST** 

WETLAND IMPACT CROSS-SECTION
WETLAND 34
Trail Ridge South

The Chemours Company FC LLC Bradford and Clay Counties, FL

11P

**FIGURE** 

PAGE 16 of 21

Source: Topography - Southern Resources Mapping, Inc. 2012.

611 - Bay Swamps

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails

NORTH SOUTH 190 441W 189 (Feet NAVD) 188 Ground Surface 187 Elevation 186 SLWE @ or Below Ground Surface 185 184 400 (feet) 100 200 300 Wetland 36

**EAST** 

**LEGEND** 

IMPACT

UNDISTURBED

**EXISTING GROUND** 

--- LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

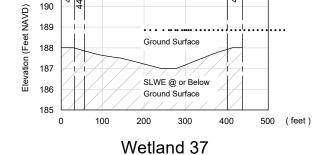
611 - Bay Swamps

630 - Wetland Forested Mixed

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails



SCALE: HORIZ. 1"= 150' VERT. 1"=3'

**WEST** 

191



PROJECT NO.00129 91.003A		WETLAND IMPACT CROSS-SECTION
DRAWN BY	YQ	WETLAND 36 & 37
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Trail Ridge South DATE: 11-08-2019 The Chemours Company FC LLC Bradford and Clay Counties, FL REVISED:

**FIGURE** 

11Q

PAGE 17 of 21

Source: Topography - Southern Resources Mapping, Inc. 2012.

WEST **EAST** ∕510d 192 441 441W A 441 Elevation (Feet NAVD) 190 ---Ground Surface 189 188 SLWE @ or Below 187 Ground Surface 186 100 200 (feet)

Wetland 38 -1

# **LEGEND**

**IMPACT** 

UNDISTURBED

**EXISTING GROUND** 

----- LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

611 - Bay Swamps

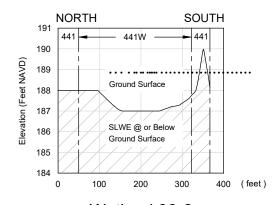
630 - Wetland Forested Mixed

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails





Wetland 38-2

SCALE: HORIZ. 1"= 150' VERT. 1"=3'



	PROJECT NO.00129 91.003A	WETLAND IMPACT CROSS-SECTION
	DRAWN BY YQ	WETLAND 38
•	CHECKED BY TRD	Trail Ridge South

ONEONED DI	1110	Trail Ridge South
DATE:	11-08-2019	The Chemours Company FC LLC
REVISED:		Bradford and Clay Counties, FL

11R

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**DISTURBANCE** LIMIT\ NORTH SOUTH 189 441W 188 Elevation (Feet NAVD) **Ground Surface** 187 186 185 SLWE @ or Below Ground Surface 184 183 0 100 200 300 400 (feet)

Wetland 38-3

# **LEGEND**

**IMPACT** 

UNDISTURBED

**EXISTING GROUND** 

LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

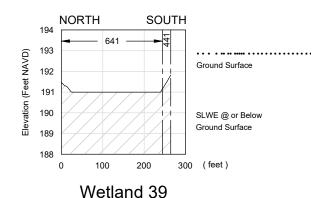
611 - Bay Swamps

630 - Wetland Forested Mixed

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails



SCALE: HORIZ. 1"= 150' VERT. 1"=3'



PROJECT NO.00129 91.003A		129 91.003A	WETLAND IMPACT CROSS-SECTION
	DRAWN BY	YQ	WETLAND 38 & 39
	CHECKED BY	TRD	Trail Ridge South

11-08-2019

DATE:

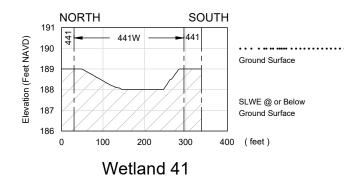
WETLAND 38 & 39 Trail Ridge South

FIGURE **11S** 

The Chemours Company FC LLC Bradford and Clay Counties, FL

PAGE 19 of 21

Source: Topography - Southern Resources Mapping, Inc. 2012.



**IMPACT** 

UNDISTURBED

**EXISTING GROUND** 

--- LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

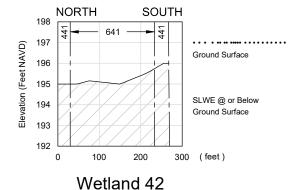
611 - Bay Swamps

630 - Wetland Forested Mixed

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails



SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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WETLAND 41 & 42 11-08-2019

**FIGURE** 

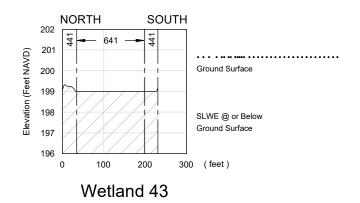
Trail Ridge South The Chemours Company FC LLC Bradford and Clay Counties, FL

WETLAND IMPACT CROSS-SECTION

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11T

Source: Topography - Southern Resources Mapping, Inc. 2012.



**IMPACT** 

UNDISTURBED

**EXISTING GROUND** 

--- LAND USE CODE

160 - Extractive

173 - Military

441 - Coniferous Plantation

441W- Coniferous Plantation Wetland

510d - Ditch/Canal

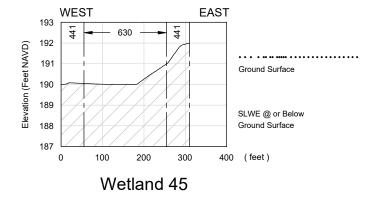
611 - Bay Swamps

630 - Wetland Forested Mixed

631 - Wetland Scrub

641 - Freshwater Marsh

8146- Primitive Roads/Trails



Source: Topography - Southern Resources Mapping, Inc. 2012.

SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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WETLAND 43 & 45 Trail Ridge South

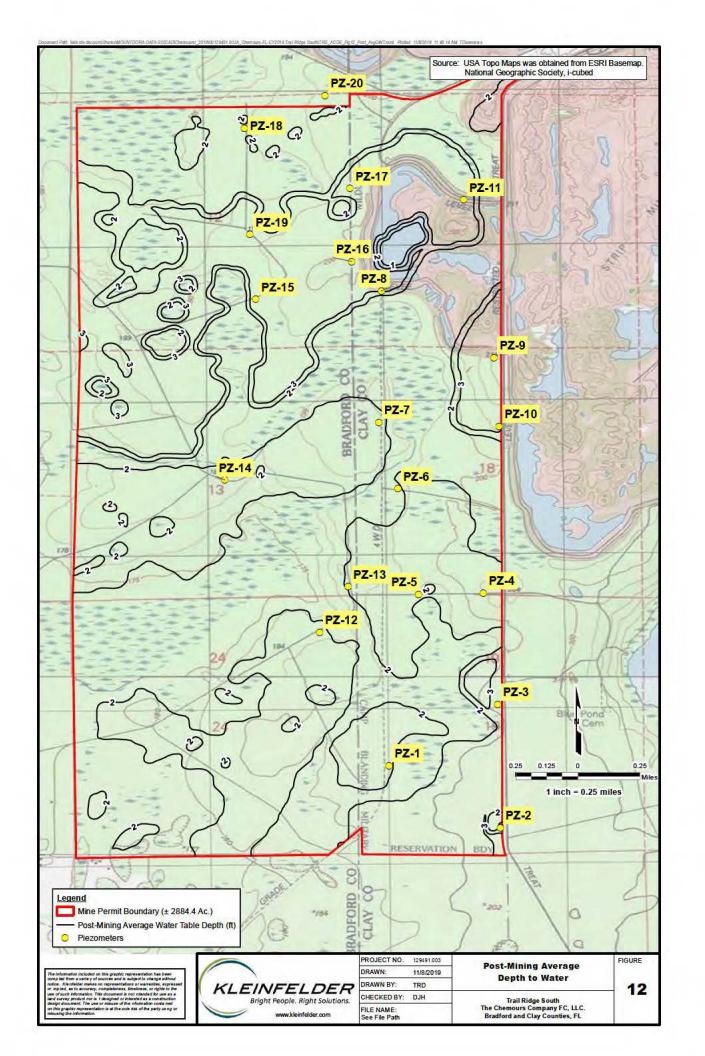
WETLAND IMPACT CROSS-SECTION

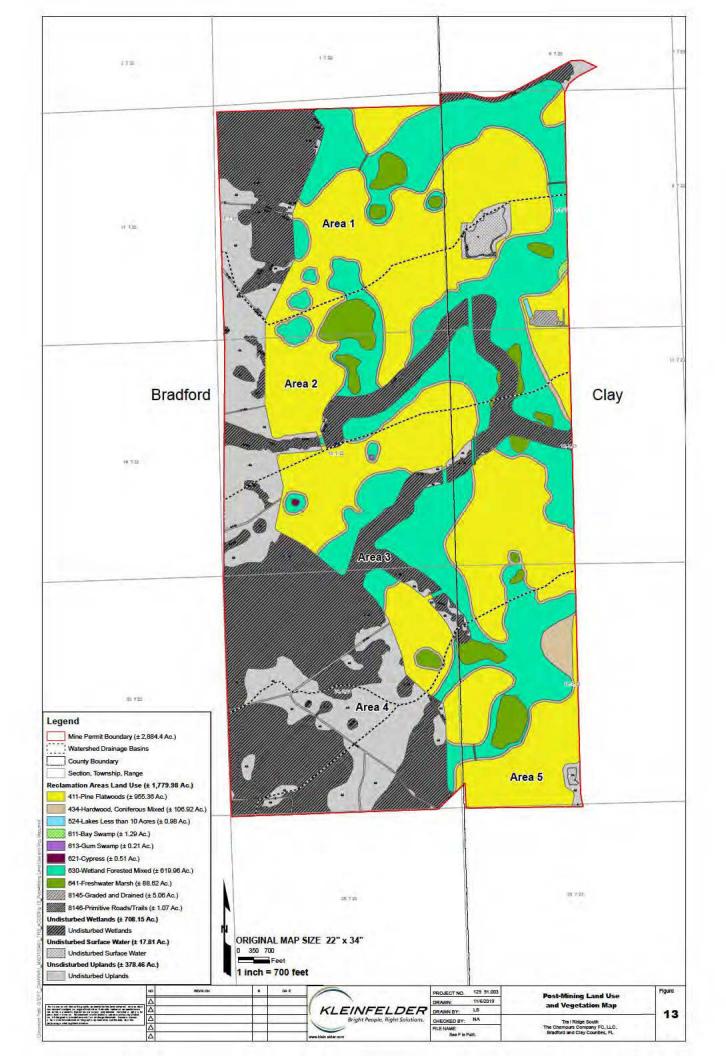
The Chemours Company FC LLC Bradford and Clay Counties, FL

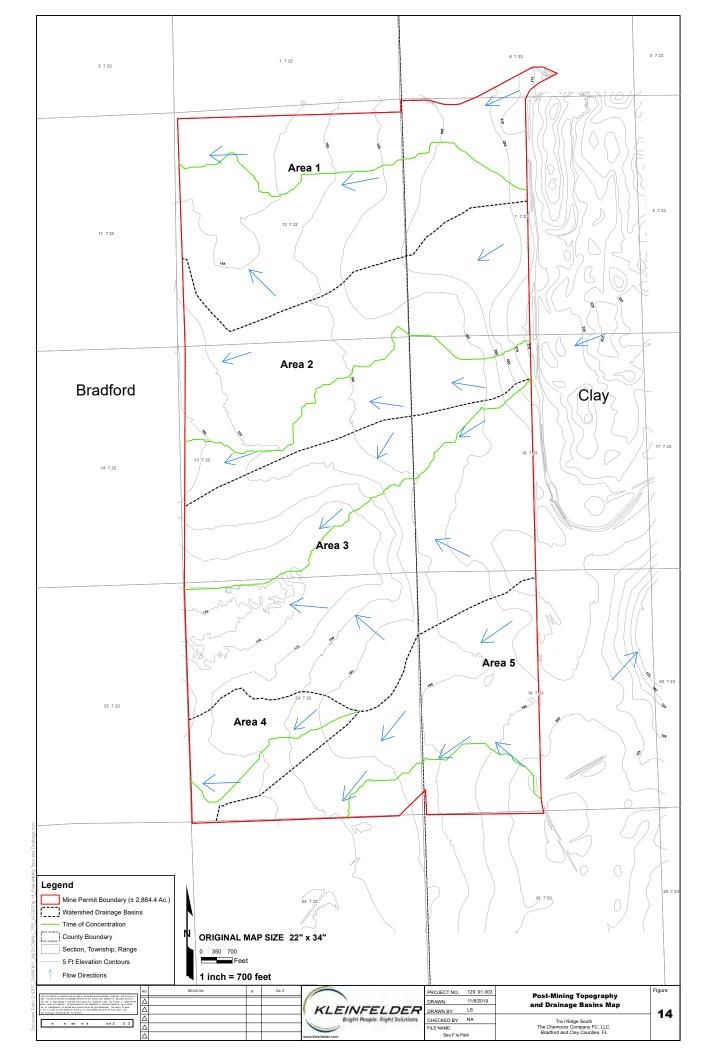
**FIGURE** 

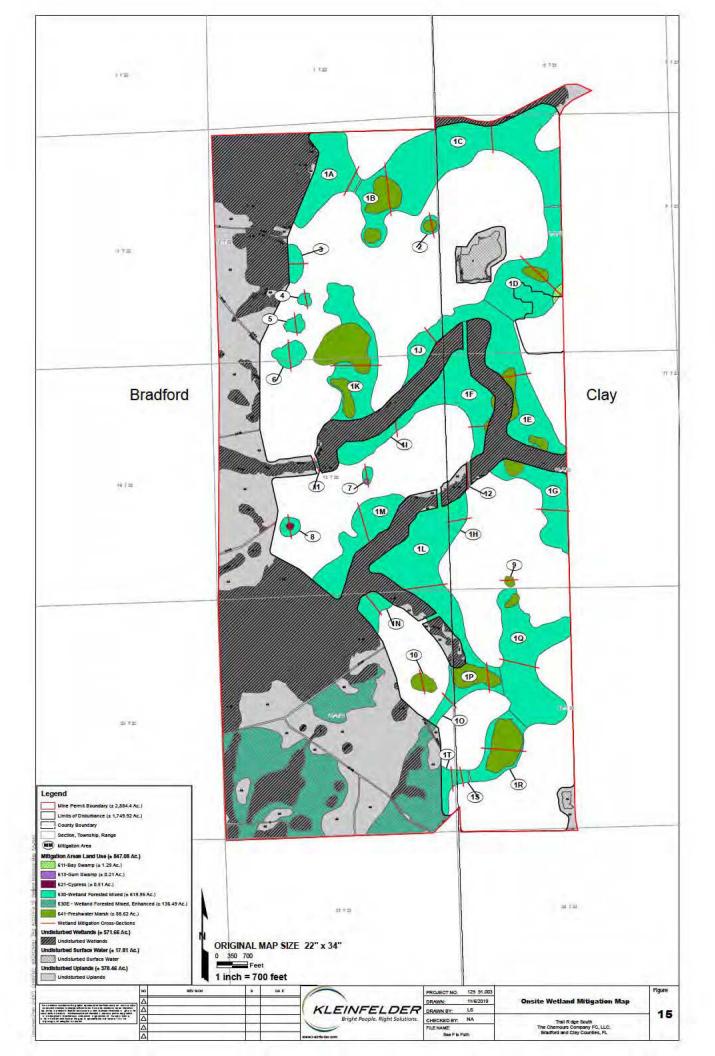
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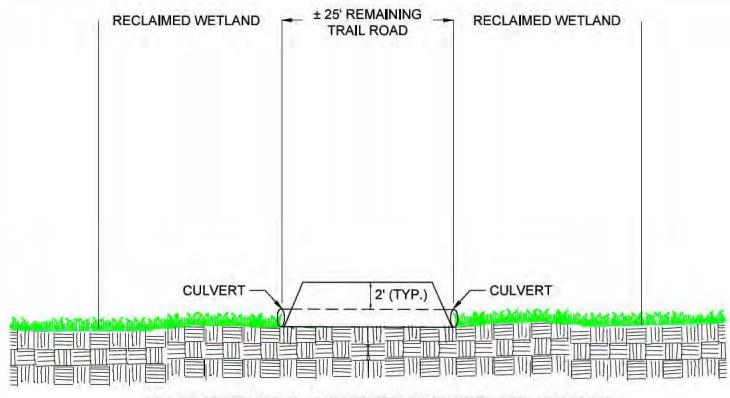
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CROSS SECTION G-H - CULVERTED ROAD WETLAND CROSSING
NOT TO SCALE

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BRADFORD AND CLAY COUNTIES, FL

TRAIL RIDGE SOUTH
THE CHEMOURS COMPANY FC, LLC.

FIGURE

16

Note: ..... NORTH SOUTH 630 434 434 Elevation (Feet NAVD) 190 SLWE @ Or Below Ground Surface 189 188 187 186 100 200 300 400 500 600 800 (feet)

**LEGEND** 

POST-RECLAMATION GROUND ELEVATION

----- LAND USE BOUNDARY

411 - Pine Flatwoods

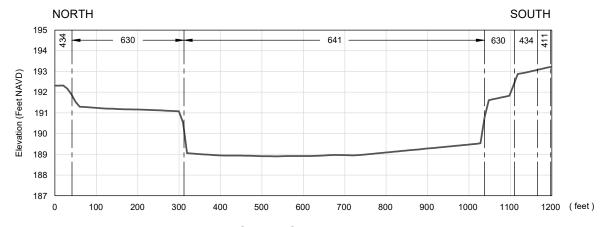
434 - Hardwood-Coniferous Mixed

611 - Bay Swamps

613 - Gum Swamp

621 - Cypress

641 - Freshwater Marsh



Cross-Section 1A

Cross-Section 1B

SCALE: HORIZ. 1"= 150' VERT. 1"=3'



PROJECT NO	-00129 91.003A	
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WETLAND MITIGATION CROSS-SECTION 1A & 1B

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

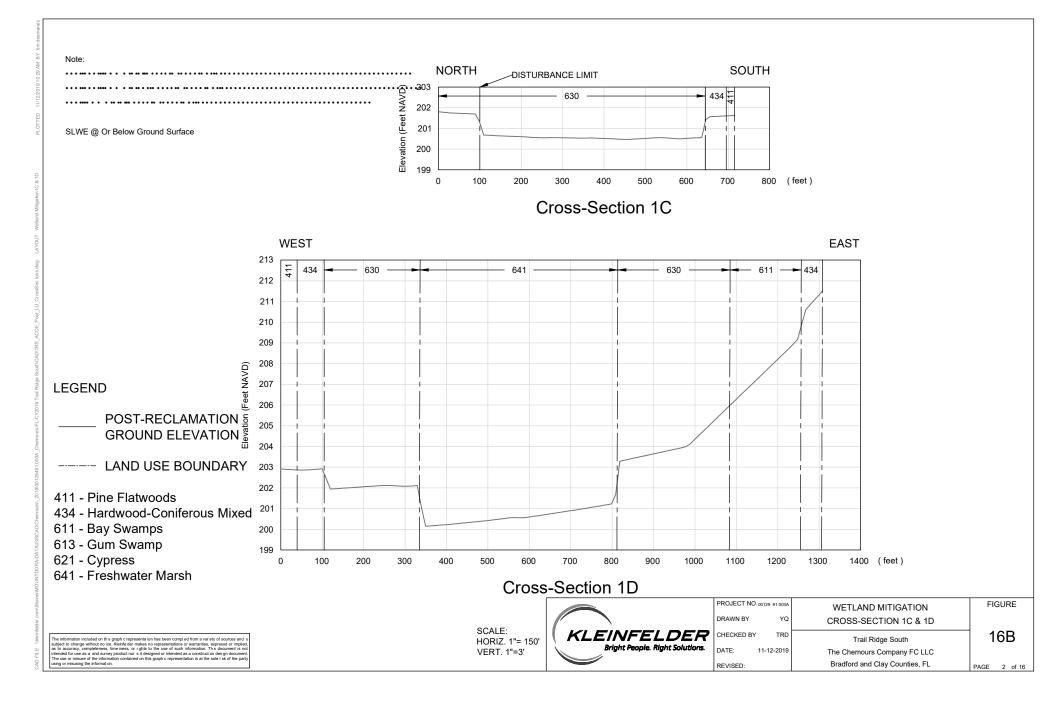
FIGURE

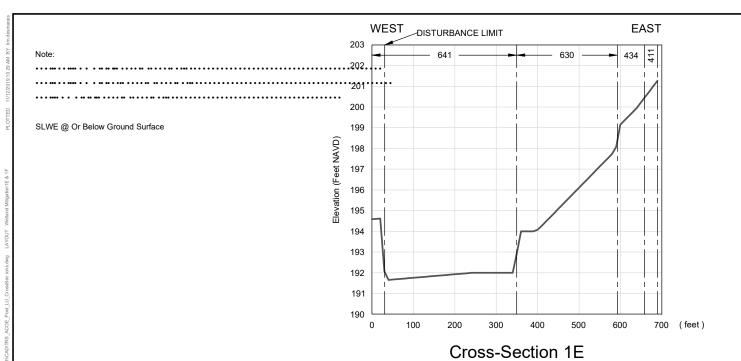
16A

PAGE 1 of

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POST-RECLAMATION GROUND ELEVATION

----- LAND USE BOUNDARY

411 - Pine Flatwoods

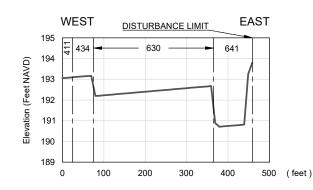
434 - Hardwood-Coniferous Mixed

611 - Bay Swamps

613 - Gum Swamp

621 - Cypress

641 - Freshwater Marsh



Cross-Section 1F

SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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	DATE:	11-12-2019

WETLAND MITIGATION CROSS-SECTION 1E &1F

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

FIGURE

16C

PAGE 3 of 1

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SLWE @ Or Below Ground Surface

WEST **EAST** MINE PERMIT BOUNDARY 201 411 630 Elevation (Feet NAVD) 200 199 198 197 196 100 200 300 400 500 600 700 800 (feet)

Cross-Section 1G

# **LEGEND**

POST-RECLAMATION GROUND ELEVATION

----- LAND USE BOUNDARY

411 - Pine Flatwoods

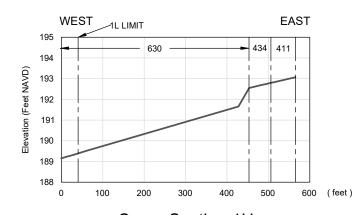
434 - Hardwood-Coniferous Mixed

611 - Bay Swamps

613 - Gum Swamp

621 - Cypress

641 - Freshwater Marsh



Cross-Section 1H

SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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	DATE:	11-12-2019

WETLAND MITIGATION CROSS-SECTION 1G & 1H

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

FIGURE

16D

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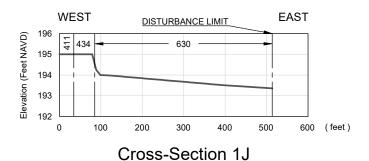
NÖRTH SOUTH

SLWE @ Or Below Ground Surface

NÖRTH DISTURBANCE LIMIT

192
191
188
0 100 200 300 400 (feet)

Cross-Section 11



LEGEND

POST-RECLAMATION GROUND ELEVATION

----- LAND USE BOUNDARY

411 - Pine Flatwoods

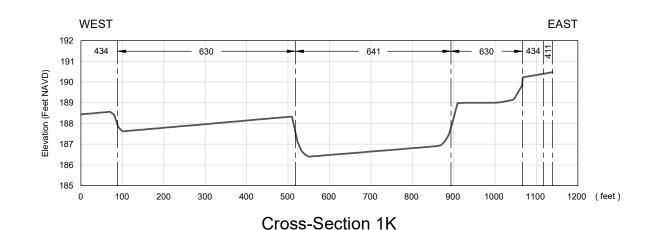
434 - Hardwood-Coniferous Mixed

611 - Bay Swamps

613 - Gum Swamp

621 - Cypress

641 - Freshwater Marsh



SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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	DATE:	11-12-2019	
	REVISED:		

WETLAND MITIGATION CROSS-SECTION 1I ,1J, 1K

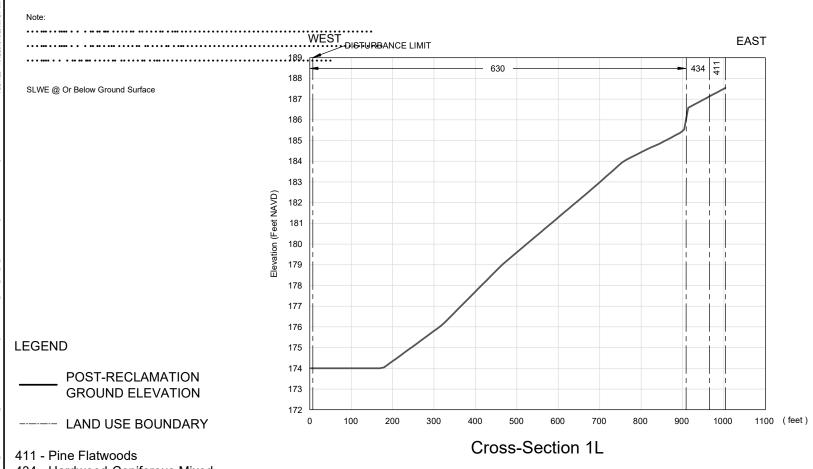
Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

FIGURE 16E

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434 - Hardwood-Coniferous Mixed

611 - Bay Swamps

613 - Gum Swamp

621 - Cypress

641 - Freshwater Marsh

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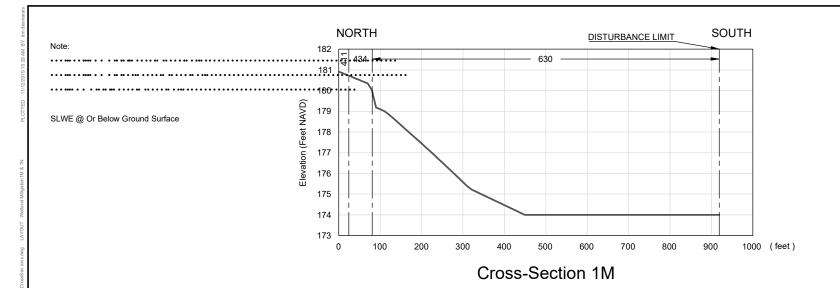
PROJECT NO	.00129 91.003A	Γ
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CHECKED BY	' TRD	r
DATE:	11-12-2019	

WETLAND MITIGATION
CROSS-SECTION 1L

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

FIGURE 16F

PAGE 6 of



POST-RECLAMATION GROUND ELEVATION

----- LAND USE BOUNDARY

411 - Pine Flatwoods

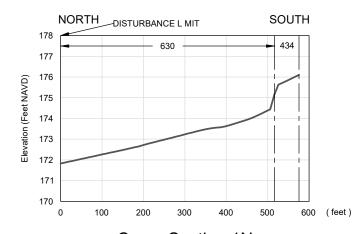
434 - Hardwood-Coniferous Mixed

611 - Bay Swamps

613 - Gum Swamp

621 - Cypress

641 - Freshwater Marsh



Cross-Section 1N

SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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	DATE:	11-12-2019

WETLAND MITIGATION CROSS-SECTION 1M &1N

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

FIGURE

16G

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Note:

SLWE @ Or Below Ground Surface

NORTH SOUTH

191
190
180
180
0 100 200 300 400 500 (feet)

Cross-Section 10

# **LEGEND**

POST-RECLAMATION GROUND ELEVATION

----- LAND USE BOUNDARY

411 - Pine Flatwoods

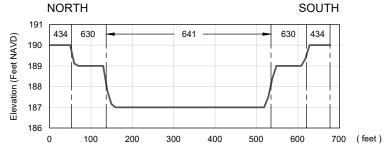
434 - Hardwood-Coniferous Mixed

611 - Bay Swamps

613 - Gum Swamp

621 - Cypress

641 - Freshwater Marsh



Cross-Section 1P

SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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WETLAND MITIGATION CROSS-SECTION 10 & 1P

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

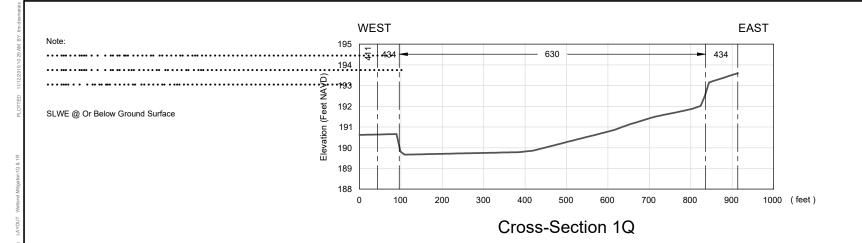
FIGURE

16H

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POST-RECLAMATION GROUND ELEVATION

----- LAND USE BOUNDARY

411 - Pine Flatwoods

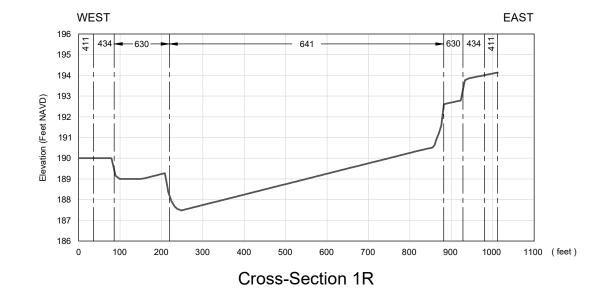
434 - Hardwood-Coniferous Mixed

611 - Bay Swamps

613 - Gum Swamp

621 - Cypress

641 - Freshwater Marsh



SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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CHECKED E	BY TRD	
DATE:	11-12-2019	

WETLAND MITIGATION CROSS-SECTION 1Q & 1R

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

161

**FIGURE** 

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Note:

NORTH

SOUTH

191

434

188

0 100 200 300 400 500 (feet )

Cross-Section 1S

**LEGEND** 

POST-RECLAMATION GROUND ELEVATION

----- LAND USE BOUNDARY

411 - Pine Flatwoods

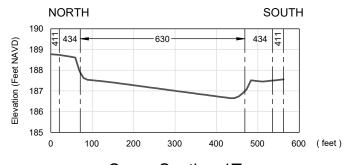
434 - Hardwood-Coniferous Mixed

611 - Bay Swamps

613 - Gum Swamp

621 - Cypress

641 - Freshwater Marsh



Cross-Section 1T

SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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	DATE:	11-12-2019

WETLAND MITIGATION CROSS-SECTION 1S & 1T

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

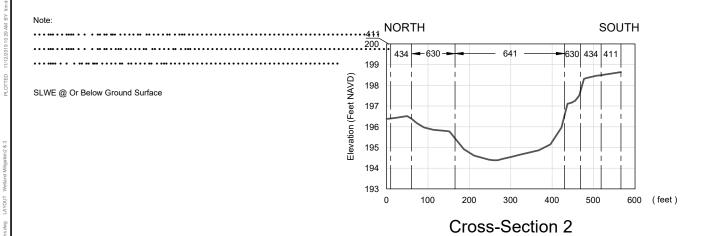
FIGURE

16J

AGE 10 of

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POST-RECLAMATION GROUND ELEVATION

----- LAND USE BOUNDARY

411 - Pine Flatwoods

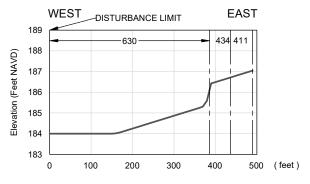
434 - Hardwood-Coniferous Mixed

611 - Bay Swamps

613 - Gum Swamp

621 - Cypress

641 - Freshwater Marsh



Cross-Section 3

SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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R.	DATE:	11-12-2019

WETLAND MITIGATION CROSS-SECTION 2 & 3

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

FIGURE

16K

PAGE 11 of

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Note:

SLWE @ Or Below Ground Surface

NORTH

189
187
188
187
188
188
185
184
0 100 200 300 400 500 (feet )

Cross-Section 4

**LEGEND** 

POST-RECLAMATION GROUND ELEVATION

----- LAND USE BOUNDARY

411 - Pine Flatwoods

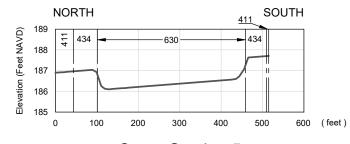
434 - Hardwood-Coniferous Mixed

611 - Bay Swamps

613 - Gum Swamp

621 - Cypress

641 - Freshwater Marsh



Cross-Section 5

SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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	DATE:	11-12-2019	

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WETLAND MITIGATION CROSS-SECTION 4 & 5

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

FIGURE

16L

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Note: 411 SOUTH NORTH 411 434 630 -Elevation (Feet NAVD) 188 SLWE @ Or Below Ground Surface 187 186 185 184 0 100 200 300 400 500 600 700 800 (feet) Cross-Section 6

**LEGEND** 

POST-RECLAMATION GROUND ELEVATION

----- LAND USE BOUNDARY

411 - Pine Flatwoods

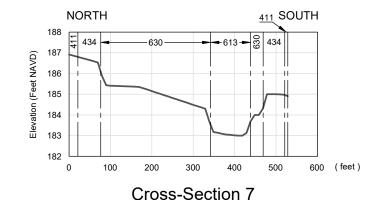
434 - Hardwood-Coniferous Mixed

611 - Bay Swamps

613 - Gum Swamp

621 - Cypress

641 - Freshwater Marsh



SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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WETLAND MITIGATION CROSS-SECTION 6 & 7

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

FIGURE

16M

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**NORTH** SOUTH Note: 434 ← 630 ← −630 <del>−</del>434 Elevation (Feet NAVD) 182 SLWE @ Or Below Ground Surface 180 179 178 100 200 300 400 600 (feet) **Cross-Section 8** 

**LEGEND** 

POST-RECLAMATION GROUND ELEVATION

----- LAND USE BOUNDARY

411 - Pine Flatwoods

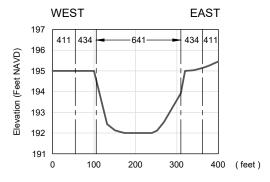
434 - Hardwood-Coniferous Mixed

611 - Bay Swamps

613 - Gum Swamp

621 - Cypress

641 - Freshwater Marsh



Cross-Section 9

SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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WETLAND MITIGATION CROSS-SECTION 8 & 9

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

figure 16N

PAGE 14 of 16

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NORTH SOUTH -641 Elevation (Feet NAVD) 187 SLWE @ Or Below Ground Surface 186 185 184 183 182 0 100 200 300 400 500 600 (feet)

**LEGEND** 

POST-RECLAMATION GROUND ELEVATION

----- LAND USE BOUNDARY

411 - Pine Flatwoods

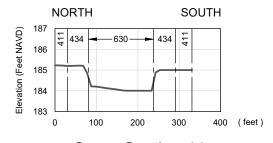
434 - Hardwood-Coniferous Mixed

611 - Bay Swamps

613 - Gum Swamp

621 - Cypress

641 - Freshwater Marsh



Cross-Section 10

Cross-Section 11

SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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WETLAND MITIGATION CROSS-SECTION 10 & 11

Trail Ridge South
The Chemours Company FC LLC
Bradford and Clay Counties, FL

FIGURE

160

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Note:

**NORTH** SOUTH 193 Elevation (Feet NAVD) -630-192 191 190 189 0 100 300 400 700 (feet) Cross-Section 12

# **LEGEND**

POST-RECLAMATION **GROUND ELEVATION** 

SLWE @ Or Below Ground Surface

----- LAND USE BOUNDARY

411 - Pine Flatwoods

434 - Hardwood-Coniferous Mixed

611 - Bay Swamps

613 - Gum Swamp

621 - Cypress

641 - Freshwater Marsh

SCALE: HORIZ. 1"= 150' VERT. 1"=3'



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YQ TRD

DATE: 11-12-2019 REVISED:

WETLAND MITIGATION **CROSS-SECTION 12** 

Trail Ridge South The Chemours Company FC LLC Bradford and Clay Counties, FL

**FIGURE** 

16P

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