

State of Mississippi
Surface Mining and Reclamation
PERMIT

TO CONDUCT SURFACE MINING OPERATIONS
IN ACCORDANCE WITH THE
MISSISSIPPI SURFACE MINING AND RECLAMATION LAW
MISS. CODE ANN. § 53-7-1 ET SEQ.

THIS CERTIFIES THAT


Tronox, LLC

has been granted permission to
conduct surface mining operations in accordance with the requirements and conditions
set forth herein in the operation of the

Tronox SW Borrow Area
Monroe County, Mississippi

This permit is issued in accordance with the provisions of the Mississippi Surface Mining and
Reclamation Law, Miss. Code Ann. § 53-7-1 et seq., and the regulations and standards adopted
and promulgated thereunder.

MISSISSIPPI ENVIRONMENTAL QUALITY PERMIT BOARD



AUTHORIZED SIGNATURE

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

Issued: June 20, 2019
Expires: Five years from date of issuance

Permit No. P19-011
Application No. A2030
AI No. 75272

A. General Provisions

1. The definitions and provisions contained in the Mississippi Surface Mining and Reclamation Act ("the Act") and the Mississippi Surface Mining and Reclamation Rules and Regulations ("the Regulations") shall be applied in interpreting any provision of this permit.
2. The permittee shall conduct all surface mining and reclamation operations as described in the complete application and any additional operational or reclamation plans submitted to and approved by the Mississippi Department of Environmental Quality ("MDEQ"), while complying with the Act and the Regulations, unless otherwise provided as a variance in the following provisions. The complete application and any additional operational or reclamation plans submitted to and approved by MDEQ currently or in the future are incorporated herein by reference. The provisions and conditions of this permit enforce the provisions of the Act and the Regulations, and no provision of this permit is intended to exempt the permittee from, or to modify, any provision of the Act, the Regulations, or any other Mississippi or federal law or regulation unless the provision is listed in section E of this permit regarding Variances.
3. The permittee shall allow any authorized representatives of MDEQ, without advance notice or a search warrant, and without delay, to have the rights of entry provided in the Regulations.
4. The permittee shall conduct surface mining and reclamation operations:
 - A. Only on those lands specifically designated on the maps submitted and approved in the complete application;
 - B. Only within the effective dates of the permit; and
 - C. Only on those lands which are subject to the performance bonds or other equivalent guarantee in effect at the time of mining pursuant to the Regulations.
5. The provisions of this permit are severable. If any provision of this permit is held invalid, or if any statutory or regulatory provision upon which such permit provision is based is held invalid or suspended, repealed or amended, such permit provision shall be null, void and ineffective for all purposes, but the remainder of this permit shall not be affected thereby.
6. This permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.
7. The permittee shall comply with all conditions of this permit.

8. The filing of a request by MDEQ or the permittee for a permit modification, revocation and reissuance, transfer, or termination or the notification of planned changes or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition.
9. This permit is not transferable to any person except after notice to and by approval of the Permit Board.
10. The term of this permit is five (5) years from the date issued. Upon expiration, this permit grants no further authority to the permittee to conduct surface mining operations at this site.
11. No officer, agent, employee or other person in any way associated with the permittee shall, except as permitted by law, willfully resist, prevent, impede, or interfere with MDEQ or any of its employees in the performance of duties pursuant to the Act or the Regulations.
12. No blasting operations are approved for this permit.
13. The permittee shall obtain, prior to commencing mining operations, all other required permits from all other local, state and federal agencies.

B. Duties and Requirements

1. Duty to Comply. The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and the Regulations and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application.
2. The permittee shall comply with the permittee's surface mining plan, reclamation plan and the standards specified in Miss. Code Ann. § 53-7-37 (Rev. 2003).
3. Duty to reapply. If the permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the permittee must submit a complete application for renewal of the permit at least 60 days before this permit expires.
4. Duty to mitigate. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.
5. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all equipment and systems which are installed or used by the permittee to achieve compliance with the conditions of this permit and the application as submitted to MDEQ and approved by the Mississippi Environmental Quality Permit Board.

6. Duty to provide information. The permittee shall furnish to MDEQ, within a reasonable time, any relevant information which MDEQ may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit.

C. Site-Specific Operating Conditions

1. The permittee is authorized to open pit mine 159 acres for borrow dirt in Northwest 1/4 of Section 31, Township 15 South, Range 18 West and North 1/2 of Section 36, Township 15 South, Range 19 West, Monroe County.
2. This is the initial permit for this site.
3. Buffer Zones. Also see Part E, Variances and Waivers

The Regulations prohibit mining within 100 feet of the outside right-of-way of any public road, except where mine access roads or haul roads join such right-of-way line; within 300 feet of any occupied dwelling, public building, school, church, community or institutional building; within 100 feet of a cemetery; or, when a highwall will be created and the excavation exceeds thirty feet in depth, within twenty-five feet plus one and one half times the depth of the excavation from a permit boundary. If the excavation is less than thirty feet in depth and a highwall will be created, the distance from the permit boundary shall follow the distance chart in the Regulations at Title 11 Miss. Admin. Code Part 8, Ch.1, Rule 1.4.1 D(4). The Permit Board may modify these buffer zones, and allow mining within them, upon receipt of written permission from the governmental entity having authority over the subject road, or the owner or occupant of the subject dwelling.

- A. Mining shall not take place within 100 feet of the outside right-of-way of a public road.
 - B. Mining shall not take place within 100 feet of a cemetery.
 - C. Mining shall not take place within 300 feet of an occupied dwelling.
 - D. Mining shall not take place within 40 feet of the permit boundary, where a highwall will be created. Where a highwall will not be created and the operator is able to maintain a 3 horizontal to 1 vertical or flatter slope the operator shall be allowed to mine to the permit boundary.
4. Permit boundaries shall be marked and durable posts shall be placed at the corners of the permit area. The posts shall be painted or flagged to be readily visible during the life of the operation.

5. This permit may be mined to a maximum depth of 10 feet.
6. Dust shall be controlled by water sprayed on the haul roads.
7. Terraced slopes, brush barriers, silt fence, and any other Best Management Practices required will be used for sediment control.
8. Reclamation Schedule. Concurrent reclamation is required by the Act and the Regulations.
 - A. Begin clearing: after June 20, 2019, and upon permit issuance
 - B. Begin mining: after June 20, 2019, and upon permit issuance
 - C. Complete mining: June 2023
 - D. Reclamation shall be concurrent with completion of mining of any segment of the permit.
 - E. Complete reclamation: June 2025
9. Explosives will not be used.
10. The permittee must obtain any necessary permits through the MDEQ Office of Pollution Control to discharge impacted stormwater or processed water into a specific Water(s) of the State and must do so in accordance with effluent limitations, monitoring requirements, and other conditions set forth in a State of Mississippi Waste Pollution Control Permit to Discharge Wastewater in Accordance with the National Pollutant Discharge Elimination System.
11. Reclamation Plan
 - A. The topsoil shall be segregated and stored in stockpiles which will be protected with grass cover adequate to prevent erosion. The use of the topsoil during reclamation will be to respread it over areas requiring vegetative cover.
 - B. The site shall be reclaimed with grass cover to prevent erosion.
 - C. All highwalls shall be eliminated and all areas of the permit shall be graded to a slope no steeper than three horizontal feet to one vertical foot.
 - D. The permit area shall be graded and planted to grass cover to prevent erosion. The grass cover shall be Common Bermuda, Love grass, Bahia grass, and Sericea

lespedeza and is to be planted by broadcast seeding at the rates of 15, 15, 40, and 25 pounds per acre during the Spring and Summer planting seasons.

- E. Fertilizer (13-13-13 type), for initial planting, shall be applied at the rate of 1000 pounds per acre and lime shall be applied at the rate of 2 tons per acre and be applied by broadcasting. Fertilizer (13-13-13 type) shall be applied at the rate of 600 pounds per acre, in May or as soon afterwards as weather permits, each successive year prior to final bond release.
 - F. Vegetation will be maintained until final bond release by mowing twice each year in June and September. Eroded areas shall be re-graded and re-planted as needed, but in no case less frequently than annually.
 - G. Gullies shall be repaired as necessary to prevent erosion and shall follow all applicable National Pollutant Discharge Elimination System (NPDES) permit requirements.
 - H. Debris shall be disposed of by hauling away as permitted by state and local ordinances.
- 12. The performance bond instrument submitted is Bond No. 015206990 from Liberty Mutual Insurance Company, Boston, Massachusetts, as Surety, executed by Tronox, LLC as Principal, in the amount of \$159,000.00, on June 6, 2019, which is \$1,000.00 per acre.
 - 13. The facility shall be constructed, operated, and monitored in such a manner as to ensure Mississippi Groundwater Quality Standards are not exceeded by any activity of this facility.
 - 14. The facility shall be constructed, operated, and monitored in such a manner as to prevent a discharge of pollutants into waters of the State, including wetlands, that violates any requirements of the Clean Water Act or the Mississippi Air And Water Pollution Control Act, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements.
 - 15. Based on the Wastewater Regulations for National Pollutant Discharge Elimination System (NPDES) Permits, Underground Injection Control (UIC) Permits, State Permits, Water Quality Based Effluent Limitations and Water Quality Certification Regulations at Title 11 Miss. Admin. Code Part 6, Ch.1 Rule 1.3.4 C(3), the following buffer zones shall be established between all mining activity and any existing stream, and maintained for the life of the permit:
 - A. 50-foot buffer zone for intermittent streams (generally shown as a broken blue line on the latest version of the U. S. Geological Survey topographic quadrangle map)

- B. 150-foot buffer zone for perennial streams (generally shown as a solid blue line on the latest version of the U. S. Geological Survey topographic quadrangle map)
 - C. 300-foot buffer zone for navigable waterways (as defined by the U. S. Army Corps of Engineers)
16. No dam may be constructed on the permitted site without first obtaining prior written authorization for the dam in accordance with Dam Safety Regulation at Title 11 Miss. Admin. Code Part 7, Chapter 3.

D. Wildlife, Threatened and Endangered Species and Unique Biological Communities

- 1. The permittee shall promptly report to the Mississippi Department of Wildlife, Fisheries, and Parks and MDEQ any State of Mississippi or federally listed endangered or threatened species within the permit area of which the permittee becomes aware.
- 2. The permittee shall promptly report to the Mississippi Department of Wildlife, Fisheries, and Parks and MDEQ any unique biological communities within the permit area of which the permittee becomes aware.

E. Variances, Waivers and Special Conditions

- 1. The operator shall not conduct any land clearing or any other land disturbing activity east of the western edge of the eastern most field of the project site until the US Army COE of Engineers, Mobile District, has completed their review of the applicant's submitted 404 Jurisdictional Determination (see attached map, Existing Conditions Map, Figure 2) .
- 2. Once the COE, Mobile District, has completed their review, the operator shall submit the COE's determination to this office so a decision can be made to allow work or not east of the previous limit of work (see E.1, previous condition).
- 3. Operator shall follow the Mississippi Department of Archives and History recommendation regarding all archaeological sites.

END OF PERMIT



Legend

Approximate Review Area Location - Proposed Borrow Pit Areas - 277 +/-

Approximate Offsite Perennial Stream Location

Approximate Offsite Intermittent Stream Location

Approximate Onsite Intermittent Location - 55 +/-

Approximate Onsite Ephemeral Location - 400 +/-

Approximate Onsite Ditch Location - 1,980 +/-

Potential Jurisdictional Waters - 15.0 Ac. +/-

Approximate Data Point Identification

Source: MARIS NAD 2011 Field Data

LEGEND

Approximate Review Area Location - Proposed Borrow Pit Areas - 277 +/-

Approximate Offsite Perennial Stream Location

Approximate Offsite Intermittent Stream Location

Approximate Onsite Intermittent Location - 55 +/-

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Potential Jurisdictional Waters - 15.0 Ac. +/-

Approximate Data Point Identification

Source: MARIS NAD 2011 Field Data

TRONOX, LLC
HAMILTON, MISSISSIPPI

ALLEN ENGINEERING AND SCIENCE

SCALE: 1"=1,500'	DRAWN BY: PML	DATE: 08-25-2016
PROJECT NO: 16079	CHKD BY: CT	DATE: 08-25-2016
FILE: 16079 082516 FIG02 R00 D Exist. Con.		FIGURE 2

EXISTING CONDITIONS MAP



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, MOBILE DISTRICT
218 SUMMIT PARKWAY, SUITE 222
HOMEWOOD, ALABAMA 35209

July 23, 2019

North Branch
Regulatory Division

SUBJECT: Department of the Army Project Number SAM-2019-00276-CMS, Tronox, LLC, Landfill Expansion Borrow Pit Area

Tronox, LLC
c/o Allen Engineering and Science
Attention: Mr. Cragin Knox
6360 I-55 North Suite 330
Jackson, Mississippi 39211

Transmitted electronically to cknox@allenes.com

Dear Mr. Knox:

This is in response to your request for a Department of the Army (DA) jurisdictional determination on a 276.6 acre parcel in Hamilton, Monroe County, Mississippi and centered at latitude 33.718611, longitude -88.477222.

Based on information obtained during our site visits on May 9, 2019 and July 1, 2019, our review of the information and wetland determination data forms you furnished, and other desktop information available to our office, we have determined the boundary of waters of the United States (U.S.) to be accurate as shown on the attached delineation boundary figure. For regulatory purposes, the United States Army Corps of Engineers (USACE) defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Please be advised that this determination reflects current policy and regulation.

Your delineation site was reviewed pursuant to Section 404 of the Clean Water Act. Section 404 of the Clean Water Act requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including streams and wetlands, prior to conducting the work (33 U.S.C. 1344). If future work proposed at this site includes a discharge or placement of dredged and/or fill material into waters of the U.S., a DA permit is required prior to initiating work.

Attached to this letter is a copy of the Preliminary Jurisdictional Determination (PJD) form for the wetlands and/or tributaries identified on the project site. This PJD treats the wetlands and waters of the U.S. on the site as jurisdictional for the purposes of determining impacts and mitigation requirements. The PJD is a non-binding action and shall remain in effect unless new information or a request for an approved jurisdictional determination supporting a revision is provided to this office. Please note that since this

jurisdictional determination is a preliminary, it is subject to change and therefore is not an appealable action under the Corps of Engineers administrative appeal procedures defined at 33 CFR 331.

The statements contained herein do not convey any property rights, or any exclusive privileges and do not authorize any injury to property or obviate the requirements to obtain other local, State or Federal approvals required by law. Nothing in this letter shall be construed as excusing you from compliance with other Federal, State, or local statutes, ordinances, or regulations which may affect this work.

Furthermore, this wetland determination has been conducted to identify the limits of the USACE Clean Water Act jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the FSA of 1985, as amended. If the landowner is a U.S. Department of Agriculture (USDA) program participant or anticipates participation in USDA programs, he/she should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

If you intend to sell property that is part of a project that requires DA authorization, it may be subject to the Interstate Land Sales Full Disclosure Act. The Property Report, required by Housing and Urban Development Regulation, must state whether or not a permit for the development has been applied for, issued or denied by the USACE (Part 320.3(h) of Title 33 of the Code of Federal Regulations).

We appreciate your cooperation with the Corps of Engineers' Regulatory Program. Please refer to file number **SAM-2019-00276-CMS** in all future correspondence regarding this project or if you have any questions concerning this determination.

Please contact me by telephone at 205-290-9096 or by e-mail at courtney.m.shea@usace.army.mil should you have any questions. For additional information about our Regulatory Program, visit our web site at <http://www.sam.usace.army.mil/Missions/Regulatory.aspx>. Please take a moment to complete our customer satisfaction survey located near the bottom of the webpage. Your responses are appreciated and will allow us to improve our services.

Sincerely,

SHEA.COURTNE
Y.M.1387610231

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SHEA.COURTNEY.M.13876102
31
Date: 2019.07.23 15:22:24
-05'00'

Courtney Shea
Senior Project Manager

Enclosures

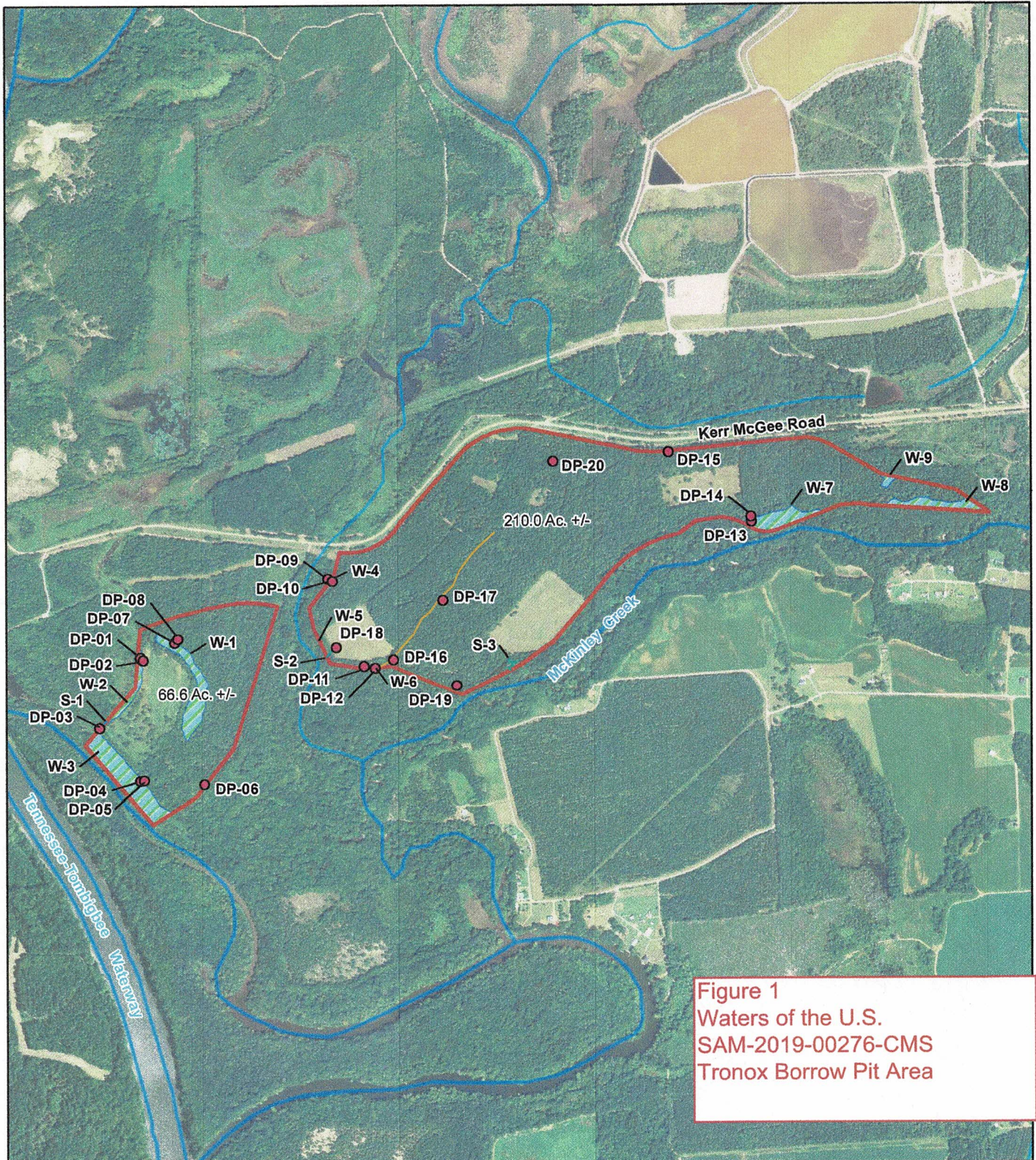


Figure 1
Waters of the U.S.
SAM-2019-00276-CMS
Tronox Borrow Pit Area

Disclaimer:
The information contained in this map was generated from GIS data maintained by different sources and agencies. Some limitations may apply based upon restrictions imposed by other sources or agencies providing data directly to Allen Engineering and Science, Inc. (AllenES) or making data available to download via internet. Areas depicted by these products are approximate and are not necessarily accurate to mapping, surveying, or engineering standards. These digital products are for illustration purposes only and are not suitable for site-specific decision making, are subject to constant changes, and may not be complete, accurate or current. Any specific coordinates may be in error by several hundred feet or more. A data layer may have registration errors and not overlay with other data layers correctly.

AllenES makes no warranties, expressed or implied as to the accuracy, completeness, currency, reliability, or suitability for any particular purpose of any data or information contained in or generated from this map. AllenES assumes no liability associated with this map. Conclusions drawn from this information are the responsibility of the user. Every effort has been made to ensure the accuracy, correctness and timeliness of the materials presented. AllenES assumes no liability for damages incurred directly or indirectly as a result of incomplete, incorrect or omitted information. The user of this information assumes all liability for their dependence on this information and assumes responsibility for the information.

LEGEND

- Approximate Review Area Location - Proposed Borrow Pit Areas - 277 +/-
- Approximate Offsite Perennial Stream Location
- Approximate Offsite Intermittent Stream Location
- Approximate Onsite Intermittent Location - 55' +/-
- Approximate Onsite Ephemeral Location - 400' +/-
- Approximate Onsite Ditch Location - 1,980' +/-
- Potential Jurisdictional Waters - 16.0 Ac. +/-
- Approximate Data Point Identification and Location

DP-01

Source: MARIS NAIP 2016, Field Data



TRONOX, LLC HAMILTON, MISSISSIPPI		
SCALE:	DRAWN BY: PML	DATE: 07-09-2019
1"=1,500'	CHKD BY: CT	DATE: 07-09-2019
PROJECT NO.	FILE	
16079	16079 070919 FIG02 R00 D Exist. Con.	
EXISTING CONDITIONS MAP		FIGURE 2

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: 7/23/19

B. NAME AND ADDRESS OF PERSON REQUESTING PJD: Cragin Knox, Allen Engineering and Science, Inc. 6360 I-55 North Suite 330, Jackson, MS 39211

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: CESAM-RD-N, Tronox, LLC Landfill Borrow Area, SAM-2019-00276-CMS

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: Mississippi County/parish/borough: Monroe City: Hamilton

Center coordinates of site (lat/long in degree decimal format):

Lat.: 33.718611

Long.: -88.477222

Universal Transverse Mercator:

Name of nearest waterbody: Tennessee-Tombigbee River

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☒ Field Determination. Date(s): May 9, 2019 and July 1, 2019

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
		see	attached	table	

RGL 16-01: TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION					
Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
S1	33.71462	-88.4913	55 FEET	riverine intermittent	Section 404
S2	33.71663	-88.48318	98 FEET	riverine ephemeral	Section 404
S3	33.71619	-88.47668	303 FEET	riverine ephemeral	Section 404
W1	33.71567	-88.48806	3.78 ACRES	palustrine forested	Section 404
W2	33.71597	-88.49005	1.19 ACRES	palustrine forested	Section 404
W3	33.71313	-88.49041	5.98 ACRES	palustrine forested	Section 404
W4	33.71892	-88.48318	0 ACRES	palustrine forested	Section 404
W5	33.71702	-88.48356	.002 ACRES	palustrine forested	Section 404
W6	33.71627	-88.48167	.07 ACRES	palustrine forested	Section 404
W7	33.72064	-88.46696	2.52 ACRES	palustrine forested	Section 404
W8	33.7211	-88.46135	2.11 ACRES	palustrine forested	Section 404
W9	33.72174	-88.46308	.33 ACRES	palustrine forested	Section 404

- 1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
- 2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there "may be" waters of the U.S. and/or that there "may be" navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- ☒ Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:

Map: Figures provided in AES submittal dated March 12, 2019: USGS topo, aerial, soil survey, and NWI map.

- ☒ Data sheets prepared/submitted by or on behalf of the PJD requestor.

☒ Office concurs with data sheets/delineation report.

Office does not concur with data sheets/delineation report. Rationale: _____

☐ Data sheets prepared by the Corps: _____

☐ Corps navigable waters' study: _____

☐ U.S. Geological Survey Hydrologic Atlas: _____

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☐ U.S. Geological Survey map(s). Cite scale & quad name: _____

☒ Natural Resources Conservation Service Soil Survey. Citation: NRCS soil survey.

☒ National wetlands inventory map(s). Cite name: USFWS NWI map.

☐ State/local wetland inventory map(s): _____

☐ FEMA/FIRM maps: _____

☐ 100-year Floodplain Elevation is: _____ (National Geodetic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): Google Earth 10/31/16

or ☒ Other (Name & Date): site photos 8/2016 (agent); 5/9/19 and 7/1/19 (Corps).

☐ Previous determination(s). File no. and date of response letter: _____

☐ Other information (please specify): _____

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

SHEA.COURTNE

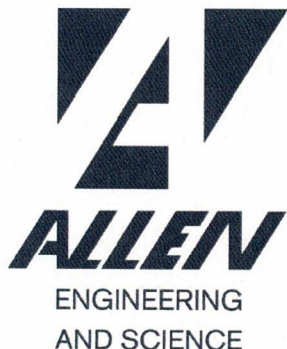
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Date: 2019.07.23 15:21:48 -05'00'

Signature and date of
Regulatory staff member
completing PJD

Signature and date of
person requesting PJD
(REQUIRED, unless obtaining
the signature is impracticable)¹

¹ Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.



6360 I-55 North, Suite 330
Jackson, Mississippi 39211
www.AllenES.com

Phone 601.936.4440
Fax 601.936.4463

March 1, 2019

Mississippi Department of Environmental Quality
Office of Geology/Mining & Reclamation Division
Attn: James Matheny
P. O. Box 2279
Jackson, MS 39225-2279

RECEIVED

MAR 08 2019

OFFICE OF GEOLOGY
DEPT OF ENVIRONMENTAL QUALITY

**RE: Tronox Borrow Pit Mining Application
Hamilton, Mississippi**

Dear Mr. Matheny:

Allen Engineering and Science, Inc. (AllenES) was contracted by Tronox, LLC (Tronox) to assist in construction of Phase 2 of their Industrial Solid Waste Landfill located at their facility at Hamilton, Monroe County, Mississippi. A part of that construction planning included evaluation of on-site areas that were favorable for a borrow pit, and with drafting the required MDEQ Surface Mining Permit Application, and Storm Water Pollution Prevention Plan.

Geotechnical Investigation:

AllenES completed preliminary geotechnical investigations for two potential borrow areas in order to characterize the underlying soil/strata and to determine the suitability of near-surface soils for use as structural fill, clay liner, or final cap material associated with landfill construction. These investigations covered a 66-acre site and a 210-acre site, both located on the southern side of Tronox property.

A literature review of the area identified the near surface geology in Monroe County, Mississippi. The Eutaw formation (Upper Cretaceous – micaceous sand) covers much of Monroe County, except from Aberdeen to Columbus, where the Eutaw formation is entirely covered by alluvial or terrace deposits associated with the Tombigbee River and its tributaries. The more recent Quaternary-aged alluvium material consists of variable deposits of sand, silt, clay, and some gravel. State drilling records that encounter alluvium material near New Hamilton show thicknesses of approximately 35 feet, with a few borings as thick as 60 feet (Mississippi Geological Society's Geologic Study Along Highway 45 from Tennessee Line to Meridian, Mississippi [Donald M. Keady, 1962]). The available geological interpretations of the alluvial and terrace deposits near Hamilton, Mississippi are highly generalized, and little detailed work has been done to unravel the geology due to the lack of good exposures of the subsurface.

AllenES contracted Tuscaloosa Testing Laboratory, Inc. (TTL) to perform ten (10) soil borings at the identified sites in August 2106. TTL conducted laboratory analyses of the sampled soils



including moisture content, Atterberg Limits, sieve analysis, Proctor Density, and hydraulic conductivity. Three, clay soil samples collected from borings B109-03, B109-05, and B109-06 were included in the Proctor Density and hydraulic conductivity (k) analyses. The clay's optimum moisture content ranged from 16.0 to 18.6 percent (%), and the clay's k ranged from 1.0×10^{-6} to 2.5×10^{-8} centimeters per second (cm/sec). To better define potential landfill construction materials, AllenES contracted with TTL to perform sixteen (16) additional soil borings at the sites in January 2019. Based on TTL's boring logs and laboratory analyses, the site's soil composition is best described as sandy clay or clayey sand underlain by poorly-graded, sand or silty sand with variable amounts of gravel. The near-surface soil compositions vary both laterally and vertically. These reports are included in the Tronox Surface Mining Application as **Attachment B**.

Jurisdictional Waters Determination & Threatened/Endangered Species Survey:

AllenES gathered background information, reviewed records, and conducted a site reconnaissance of the two potential borrow areas on August 16-18 and 22-25, 2016 to 1) determine the presence and extent of "waters of the U.S." under the federal jurisdiction of the United States Army Corps of Engineers (USACE), and 2) to survey the site for threatened or endangered (T/E) species or associated habitat.

Based on the available literature and our site reconnaissance, the review area contains approximately 455 linear feet of jurisdictional streams. The jurisdictional streams include 55 linear feet of intermittent streams and 400 linear feet of ephemeral streams. One intermittent stream channel was observed within the western portion of the site. The intermittent stream is approximately 4-6 feet in bank to bank average width. Field observations of the intermittent stream included a continuous, well-defined bed and bank with minimal sinuosity within the reach being evaluated. The intermittent stream flowed into the adjacent channel scar of the Tombigbee River located west of the review area.

The two ephemeral streams ranged from approximately 3-8 feet in bank to bank average width. Field observations of the ephemeral streams included continuous well-defined beds and banks with moderate sinuosity within the reaches being evaluated. The ephemeral streams flowed into a nearby perennial stream (McKinley Creek) located south of the review area.

One historic man-made ditch was observed within the central portion of the *Borrow Area 2*. Historic spoil piles were observed on the top of bank along the southwestern portion of the ditch. Approximately 1,980 linear feet of man-made ditch was observed in this location. AllenES did not observe a defined bed and bank or hydric soils in the bottom of the man-made ditch. Therefore, AllenES does not believe the man-made ditch is jurisdictional.

Additionally, there are approximately 16.0 acres of jurisdictional wetlands identified within the review area. According to the United States Fish & Wildlife Service (USFWS) National Wetlands Inventory (NWI), the majority of forested wetlands onsite are classified as palustrine, forested (broad leaf deciduous), seasonally flooded. The historic channel scars/oxbows are classified as palustrine, forested (broad leaf deciduous), semi-permanently flooded.

Regarding the endangered/threatened species review, suitable habitat was observed (within the identified potentially jurisdictional wetland areas) for Mitchell's satyr butterfly (numerous areas of herbaceous wetland ground cover including various sedge species), the northern long-eared bat

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(mature bottomland hardwood canopy with numerous snags and species with deeply furrowed and flakey bark), and the white fringeless orchid (wet, boggy sloping areas).

A copy Jurisdictional Waters Determination & Threatened/Endangered Species Survey conducted by AllenES has been forwarded to the U. S. Army Corps of Engineers / Regulatory Division with a Request for Corps Jurisdictional Determination and is provided as **Attachment C** of the Tronox Surface Mining Permit Application.

Conclusions:

Based on the geotechnical studies and the Jurisdictional Waters Determination & Threatened/Endangered Species Survey, AllenES narrowed the proposed borrow pit to the 159-acre tract shown in **Figure 1** of the MDEQ Mining Permit Application. This site includes a 100-foot setback from the edge-of-pavement along Tronox Road, as well as a 50-foot setback from wetlands as defined in the Jurisdictional Waters Determination by AllenES. Mining will be conducted simultaneously on the west portion of the proposed borrow pit for clay liner material and on the east portion for structural fill material. Separate entrances will be utilized off Tronox for the two mining operations. All materials will be hauled down a short segment of Tronox Road (a public road) and then on private roads belonging to Tronox to the landfill on the north side of their property. No major public roads will be impacted during borrow pit operations. Reclamation will consist of final shaping of the site, seeding, mulching, and fertilizing of open areas, and sediment retention ponds.

Closing:

AllenES looks forward to working with MDEQ/Office of Geology/Mining & Reclamation Division to develop a low-impact borrow pit that will protect the adjacent stream and allow Tronox to construct Phase 2 of their Industrial Solid Waste Landfill with minimal disruption to local traffic and the surrounding community.

Sincerely,
Allen Engineering and Science, Inc.

Cragin Knox, R.P.G.
Project Scientist

Jeffrey L. Allen, P.E.
President and Senior Principal Engineer

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