REPORT

Closure Plan

CCR Surface Impoundment System

Erickson Power Station

3725 S. Canal Road
Lansing, Michigan

NTH Project No. 73-180055
August 16, 2019

NTH Consultants, Ltd.
41780 Six Mile Road, Suite 200
Northville, MI 48168

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INTRODUCTION

The Lansing Board of Water and Light (LBWL) owns and operates the Erickson Power Station (Facility) located in Delta Township, Eaton County, Michigan, as shown on **Figure 1 – Site Plan**. The Erickson Power Station was completed in 1973 and consists of a single coal-fired generator capable of producing 165 megawatts of electricity. Quench water from two ash silos flows to a floor sump where it combines with seal-trough water from the silos and is pumped to the ash impoundment system. Bottom ash is mixed with water and pumped to a set of hydrobins that separate the ash and divert the resulting water to the ash impoundment system. The dewatered bottom ash is loaded into open trucks and transported for off-site disposal.

The 9.5-acre ash impoundment system consisting of a forebay, retention basin, and Clear Water Pond, receives ash water from the bottom ash hydrobins, coal pile run-off, and the silo sump pump. The first part of the impoundment system is divided into a forebay and a retention basin, and was constructed inside of an old ash impoundment that was closed by removing all ash before October 14, 2015 (see **Figure 2**). This portion of the impoundment system is constructed of clay-rich engineered fill, lined with a geosynthetic clay liner (GCL), overlain with a 40 mil-thick polyvinylchloride flexible membrane liner (FML). Process water is discharged into the forebay for solids settling and flows by gravity into the retention basin and then into the Clear Water Pond. The Clear Water Pond was constructed in 1970 according to historical drawings, and based on reported information from LBWL's representatives, is lined with compacted clay to limit infiltration. Water from the Clear Water Pond is pumped back to the plant for use in non-potable process water systems. The Clear Water Pond has an emergency overflow structure to Carrier Creek and is also hydraulically connected to Lake Delta by an additional overflow transfer structure.

Regulatory Basis

The impoundment system is considered a CCR unit under the rules regulating ash disposal from coal-fired power plants (40 CFR Part §257). LBWL plans to replace the Erickson Power Station with a natural gas-fired power plant capable of generating 250 MW by 2022 and close the Erickson Station by 2025. LBWL will close the CCR unit in general conformance with

recognized, generally accepted good engineering practices and criteria specified in 40 CFR §257.102(b)(1).

Per 40 CFR §257.102(a), closure of CCR units must be completed either by leaving the CCR in-place and installing a final cover system, or through removal of the CCR and decontamination of the CCR units. LBWL plans to implement a clean closure strategy. LBWL will ensure that the closure of the CCR impoundment system meets the performance standards established in 40 CFR §257.102(c) and is consistent with recognized and generally accepted good engineering practices.

This Closure Plan (Plan) has been prepared for the facility consistent with 40 CFR §257.102(b)(1), which details the contents of a written closure plan; however, the Plan does not meet the criteria established in 40 CFR §257.102(b)(2) as it pertains to the timeframe for developing an initial closure plan.

The objectives of this Plan are to describe the methods and procedures for closure and provide a schedule for completion of closure activities for the CCR impoundment system at the Erickson Power Station. The Plan also provides methods LBWL will employ in determining whether the CCR impoundment system closure goals have been achieved.

CLOSURE PROCEDURES

LBWL intends to close the impoundment system by removing and decontaminating areas affected by releases from CCR (clean closure). CCR removal and decontamination of the impoundment system will be considered complete when constituent concentrations throughout the impoundment system and areas that may have been affected by releases from the impoundment system, if any, have been removed. As discussed in the preamble of the final rule (FR, Vol. 80 No 74, pp 21412), removal means “contaminants left in the subsoils (i.e., contaminated groundwater left in soils below the former landfill or impoundment) will not impact any environmental media including groundwater, surface water, or the atmosphere in excess of Agency-recommended limits or factors. Typically, any metals in these ‘subsoils’ in excess of background levels are allowed to either naturally attenuate, or are removed by flushing. Once the monitoring constituents listed in Appendix IV have been removed to background levels or MCLs, the groundwater is considered to

be ‘clean’ and closure is complete.” In other words, removal of contaminated media until groundwater monitoring concentrations do not exceed the groundwater protection standard established pursuant to 40 CFR §257.95(h) for constituents listed in Appendix IV, or statistically developed background concentrations. The procedures described below have been developed to achieve the performance standards specified in 40 CFR §257.102(c) and to ensure that the CCR impoundment system closure goals are attained.

CCR materials will be removed from the impoundment system following recognized and generally accepted good engineering practices. In general, closure of the impoundment system will proceed with the following major steps:

1. Drainage and stabilization
2. Excavation and removal
3. Slope stability and erosion control provisions
4. Fugitive dust control
5. Erosion and storm water control
6. Confirmation of clean closure
7. Groundwater evaluation, decontamination, and analysis

Drainage and Stabilization

The facility will eliminate free liquids by removing liquid waste through agitating and pumping to the extent that conventional pumping equipment will allow, or solidifying the remaining wastes not affected by a release from the impoundment system. Should groundwater be encountered in sufficient quantities, the contractor will remove the groundwater or surface water for proper disposal and take necessary measures to minimize groundwater from coming in contact with the CCR material. The remaining wastes will be sufficiently stabilized to support construction activities and for the long-term, final configuration. The closure construction documentation will stipulate appropriate methods to dewater areas of the impoundment system, including the installation of pumps or well points to control surface water and groundwater flow into the impoundment system, or other means. The water removed from the impoundment system during drainage and stabilization will be discharged under an authorized permit from the appropriate authority having jurisdiction, and meet the applicable contaminant loading limits set forth in the

permit and 40 CFR §257.95(h), Appendix IV, or statistically-defined background levels by pre-treatment, if necessary.

Excavation and Removal

The CCR material will be mechanically excavated from the impoundment system to the level of the underlying existing native soils. The existing synthetic liner in the forebay and pond will also be removed and disposed at a licensed disposal facility. Excavation and removal of contaminated media will be completed such that groundwater left in soils below the impoundment system will not impact environmental media in excess of Agency recommended limits or factors. The closure construction documentation will stipulate the appropriate procedures for excavation and removal. Material removed from the impoundments will be dewatered before disposal at a licensed disposal facility.

Slope Stability and Erosion Control Provisions

Given the site topographical characteristics and the nature of the impoundment system, major slope stability and/or erosion or sloughing concerns are not warranted for the forebay and retention basin. Since these impoundments were designed and constructed in 2014, in an engineered, controlled, and documented fashion, the final configuration of the basins is not anticipated to be significantly altered after removal of CCR is complete. Final topographical configuration of the forebay and retention basin will consist of slopes not exceeding 15 feet in height and an inclination of 3H:1V, which should not create concern for significant slope stability or sloughing. Additionally, the final site configuration will have a vegetative cover consisting of grass that should preclude major erosion concerns.

The Clear Water Pond is also not anticipated to exhibit concerns for slope stability. Since it was constructed in the 1970s, it has not exhibited past issues with major sloughing or erosion concerns. Based on historical drawings, the Clear Water Pond consists of slopes not exceeding 15 feet in height and an inclination of 3H:1V, which should not create concern for significant slope stability or sloughing. Additionally, the final site configuration will have a vegetative cover consisting of grass that should preclude major erosion concerns. See **Figure 3** and **4**, for additional information.

During final construction documentation preparation for excavation and removal, LBWL will conduct a review of the slope stability and erosion potential for the final configuration of the remaining basins to determine if additional engineering controls or detailed construction procedures are required to ensure safe construction completion and long-term stability of the basins.

Fugitive Dust Control

If airborne dust/particulates are observed during removal of the CCR, the areas of non-vegetative ground surface, open excavations, or stockpiled material will be sprayed with water or an approved dust suppressant agent, as necessary, to prevent airborne dispersion and off-site migration of particulates.

Fugitive dust on site roads will be minimized through the use and enforcement of a speed limit of 10 miles per hour on site. On-site dust generation may also be reduced by temporarily paving or placing gravel on the primary construction roads.

Measures will also be taken to prevent "track-out" of soil from the site onto nearby streets. Possible methods may include avoiding over-watering unpaved areas (which creates mud and promotes more track-out), installing a gravel access road, using paved aprons or wheel washers to remove materials from vehicles before they leave the site, and cleaning any track-out with vacuum sweepers.

Erosion and Storm Water Control

The removal of the CCR material will be conducted in a manner consistent with a Soil Erosion and Sedimentation Control (SESC) Plan prepared in accordance with local and state requirements. The SESC measures may include:

- A gravel tracking mat constructed at the Site exit to provide a zone through which loose material can dislodge from truck tires;
- Procedures to ensure that the area immediately outside the Site is periodically swept and scraped to prevent tracking of material and dispersion of dust from the Site (and that materials are swept back onto the Site);

- Installation of a silt fence around the perimeter of the construction zone to minimize the loss of soil to surrounding areas;
- Erosion control measures such as rip-rap at the ponds' inlet and outlet structures;
- Procedures to seed, fertilize, and mulch the excavated area to provide permanent soil erosion control per project specifications and
- Additional measures, if needed, to minimize erosion and help control the migration of sediments into surface water runoff.

LBWL will use the seed mixture in Table 1, or its equivalent to sustain vigorous and healthy growth, for seeding the excavated area to establish permanent erosion control:

Table 1: Seed Mixture

Seed Type	Percent of Seed
Perennial Rye Grass	50%
Kentucky Blue Grass	15%
Creeping Red Fescue Grass	35%

After excavation and removal, the impoundment system will remain in-place as potential process water reservoirs. Existing storm water diversion channels and conveyance ditches/structures will be left in-place to ensure appropriate site drainage. Additional features necessary for erosion control, storm/process water management, or other miscellaneous construction activities, will be completed concurrent with the closure construction to ensure a complete system is installed and functional at the conclusion of site activities.

Documentation of construction activities for conformance with project specifications will be completed by LBWL or their representative, and certified by a professional engineer in the State of Michigan to have been completed in substantial conformance with the project specifications, construction documentation, and 40 CFR Part §257, as applicable.

Confirmation of Clean Closure

In accordance with 40 CFR §257.102(c), any areas that may have been affected by releases from the impoundment system will be decontaminated. Because the forebay and retention pond portions of the impoundment system were designed with an engineered synthetic liner using best-available technology, we do not anticipate the need for additional investigative activities in these areas once the synthetic liner systems are removed during clean closure construction.

For the Clear Water Pond, the facility will make a determination regarding potential releases from the impoundment system after a review of the results of the investigative activities is completed. If merited, LBWL will decontaminate the underlying and surrounding soils by additional soil excavation, flushing, pumping and/or treating of the aquifer. After removal of material is complete, (i.e., when visible evidence of CCR is removed), LBWL will conduct an evaluation to determine if potential impacts from CCR remain in the area of the Clear Water Pond. Sample design will be consistent with applicable agency documents such as the Verification of Remediation procedures as described in the Michigan Department of Energy, Great Lakes, and Environment's (EGLE) 2002 Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria (S3TM document).

For example, if the area to be evaluated is less than approximately one-quarter acre, verification of remediation will follow a biased sampling strategy and the number of samples will be consistent with those indicated in Tables 1.1 and 1.2 in Tab 4 of the S3TM document. Sample locations will be biased towards areas most likely to exceed cleanup criteria, and exclude areas with material designated as inert by the Department. A demonstration will be made that the remaining soil meets the appropriate standard by comparing the laboratory results to the applicable standard on a point-by- point basis, as described in Chapter 1.4 of Tab 4 of the S3TM document. Applicable standards may include the statewide default background level, regional background concentrations (for the appropriate glacial lobe and soil type) as indicated in the Michigan Background Soil Survey (Updated 2015), or to a site-specific background concentration determined in accordance with Chapters 1.2.2 and 4.3 of Tab 4 of the S3TM document.

Alternatively, if the area to be evaluated is greater than one-quarter acre, a selected option for the verification of remediation may follow a statistical sampling strategy and the number of samples will be calculated based on the area of the excavation.

Groundwater Evaluation, Decontamination, and Analysis

LBWL will develop a groundwater monitoring program to comply with the requirements of 40 CFR §257.91. The design of the groundwater monitoring system will be representative of groundwater potentially affected by the impoundment system and provide a determination of the quality of groundwater passing the boundary of the impoundment system. At a minimum, LBWL will install four monitoring wells (one upgradient and three downgradient) at appropriate locations and depths to yield representative groundwater samples from the uppermost aquifer.

Groundwater samples will be collected from the monitoring system and analyzed for constituents listed in Appendix IV of 40 CFR §257.95. Results of the groundwater samples will be compared to groundwater standards for determination of clean closure.

The groundwater protection standards for each constituent in Appendix IV will be established in accordance with 40 CFR §257.95(h). For constituents for which a maximum contaminant level (MCL) has been established under 40 CFR §141.62 and 40 CFR §141.66, the groundwater protection standard will be the MCL for that constituent. Where MCLs have not been established for a constituent, the groundwater protections standard will be the statistically developed background concentration for that constituent in accordance with 40 CFR §257.91, or as previously referenced from the preamble to the rule "in excess of Agency-recommended limits or factors." For those constituents for which the statistically developed background level is higher than the MCL, the groundwater protection standard will be the statistically developed background concentration.

If results of groundwater analysis indicate exceedances of the groundwater protection standards, groundwater decontamination may be completed and monitoring continued on a semi-annual basis until groundwater protection standards are met.

ESTIMATE OF CCR ON-SITE AND AREA OF THE CCR IMPOUNDMENT SYSTEM

In accordance with the requirements of 40 CFR §257.102(b)(iv), NTH completed an estimate of the maximum inventory of CCR on-site based on information obtained during field investigations including an aerial survey of the site, a bathymetric survey of the Clear Water Pond, and preliminary volume calculations using AutoCAD Civil 3D®. Specifically, for the Clear Water Pond, we estimate the maximum volume of CCR that is in-place as of September 26, 2018, the date of the bathymetric survey, is as much as approximately 11,200 cubic yards (cy).

For the forebay and retention pond, we estimate the maximum volume of CCR from the in-service date of April 22, 2015 to September 26, 2018, the date of the aerial survey, is as much as approximately 8,700 cy. We estimated this volume based on the maximum amount of ash water (46,500 gallons) that can be delivered daily to the hydrobins, and estimated removal efficiency of 97 percent. We note that the manufacturer does not have a stated removal efficiency for the hydrobins due to the varying nature of efficiency based on coal blends in-use. When the bins are full of material and ready to be decanted, the valves controlling the incoming material are closed and the decant drain valves are opened slightly such that water flows out slowly, allowing for more efficient removal, greatly reducing the amount of ash that is pulled through the screens. The ash fines that pass through the decanting screens are typically recovered downstream in the settling tanks, resulting in a small percentage of ash in the process water discharged to the forebay and pond.

As required in 40 CFR §257.102(b)(v), NTH estimated the largest area of the impoundment systems addressed by this Plan to be approximately 9.5 acres, using AutoCAD Civil 3D®, based on a review of the historical information and data obtained during the September 2018 survey.

CLOSURE SCHEDULE

LBWL is committed to closing the existing CCR impoundments as quickly as is feasible. LBWL anticipates that closure activities will begin in 2023, and that closure activities will be completed in the Spring of 2025 (excluding groundwater confirmation) but no later than five years from closure commencement, pursuant to 40 CFR §257.102(f)(ii). Completion of closure activities will be dependent on the time of the year when closure occurs, as seasonal variations and other unanticipated issues may delay the estimated schedule. Additional factors that can adversely impact closure schedule include complications resulting from climatic factors that result in a shortened construction season, the amount of time required to dewater due to the volume of CCR or the characteristics of the CCR, geology and terrain surrounding the impoundment system that will affect the amount of material needed to close, and time delays caused by the need to coordinate with, and obtain necessary approval and permits from state and local agencies or construction vendors/ material suppliers. If any of these conditions are encountered during closure activities, the facility will provide a demonstration that completion of closure activities is not feasible due to factors beyond the facility's control and document a two-year time extension in accordance with 40 CFR §257.102(e)(2)(ii). The owner or operator will place the demonstration in the facility's operating record as required in 40 CFR §257.105(i)(5) prior to the end of the two-year period. It is estimated that all closure activities will be completed within a five-year timeframe by 2028. Table 2 includes the estimated closure schedule.

TABLE 2
LANSING BOARD OF WATER AND LIGHT
ERICKSON POWER STATION
CLOSURE PLAN SCHEDULE*

Task	Jun. 2019	July. 2019	Aug. 2019	Sept. 2019	Oct. 2019	Nov. 2019	Dec. 2019	Jan. 2020	Feb. 2020	Mar. 2020	Apr. 2020	May. 2020	Jun. 2020	July. 2020	Aug. 2020	Sept. 2020	Oct. 2020	Nov. 2020	Dec. 2020	Jan. 2021	Feb. 2021	Mar. 2021	Apr. 2021	May. 2021	Jun. 2021	July. 2021	Aug. 2021	Sept. 2021	Oct. 2021	Nov. 2021	Dec. 2021	Jan. 2022	Feb. 2022	Mar. 2022	Apr. 2022	May. 2022	Jun. 2022	July. 2022	Aug. 2022	Sept. 2022	Oct. 2022	Nov. 2022	Dec. 2022	Jan. 2023	Feb. 2023	Mar. 2023	Apr. 2023	May. 2023	Jun. 2023	July. 2023	Aug. 2023	Sept. 2023	Oct. 2023	Nov. 2023	Dec. 2023	Jan. 2024	Feb. 2024	Mar. 2024	Apr. 2024	May. 2024	Jun. 2024	July. 2024	Aug. 2024	Sept. 2024	Oct. 2024	Nov. 2024	Dec. 2024	Jan. 2025	Feb. 2025	Mar. 2025
Finalize Closure Plan																																																																													
Groundwater Monitoring System Installation																																																																																			
Groundwater Sampling, Evaluation, and Analysis**																																																																																			
Annual Groundwater and Corrective Action Report																																																																																			
Coordinate with, and obtain necessary approvals and permits from EGLE for construction activities																																																																																		
Prepare Construction Documentation and Issue Request for Proposal for construction activities																																																																																		
Excavation and Removal of CCR material																																																																																			
Construction Certification Report**																																																																																		
Confirmation of Clean Closure**																																																																																		

*Completion of closure activities will be dependent on seasonal variations, climatic factors, the amount of time required to dewater, the geology and terrain surrounding the CCR units that will affect the amount of material needed to close the CCR units, and time delays caused by the need to coordinate with and obtain necessary approval and permit from state and local agencies or construction vendors/material suppliers. This preliminary schedule is subject to modifications based upon these and other factors.

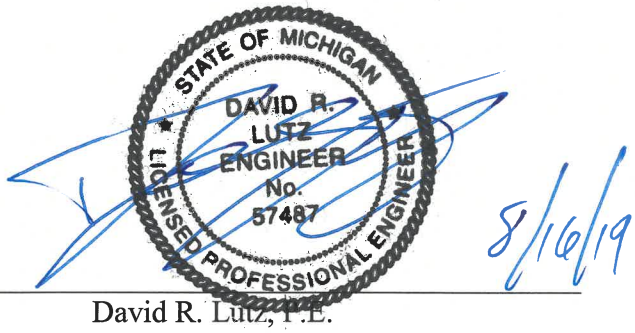
** Groundwater evaluation will be conducted as necessary during the closure period. Closure completion will be dependent on groundwater cleanup/confirmation samples. This schedule does not reflect regulatory requirements that may be included in the December 2018 update to Michigan Part 115 of PA451 regulations to incorporate CCR facilities.

AMENDMENT TO THE CLOSURE PLAN

Amendments to this initial or any subsequent closure plan may be required if there are any substantial changes that will affect the written closure plan in effect. In accordance with 40 CFR §257.102(3)(iii), amendments to the plan will be completed at least 60 days prior to a planned change in the operation of the facility or impoundment system, or no later than 60 days after an unanticipated event requires the need to revise the existing written closure plan. If the closure plan is revised after closure activities have commenced for a impoundment system, the facility will amend the current closure plan no later than 30 days following the triggering event. In accordance with 40 CFR §257.102(b)(4), any amendments to the plan will be certified by a qualified professional engineer.

STATEMENT OF CERTIFICATION

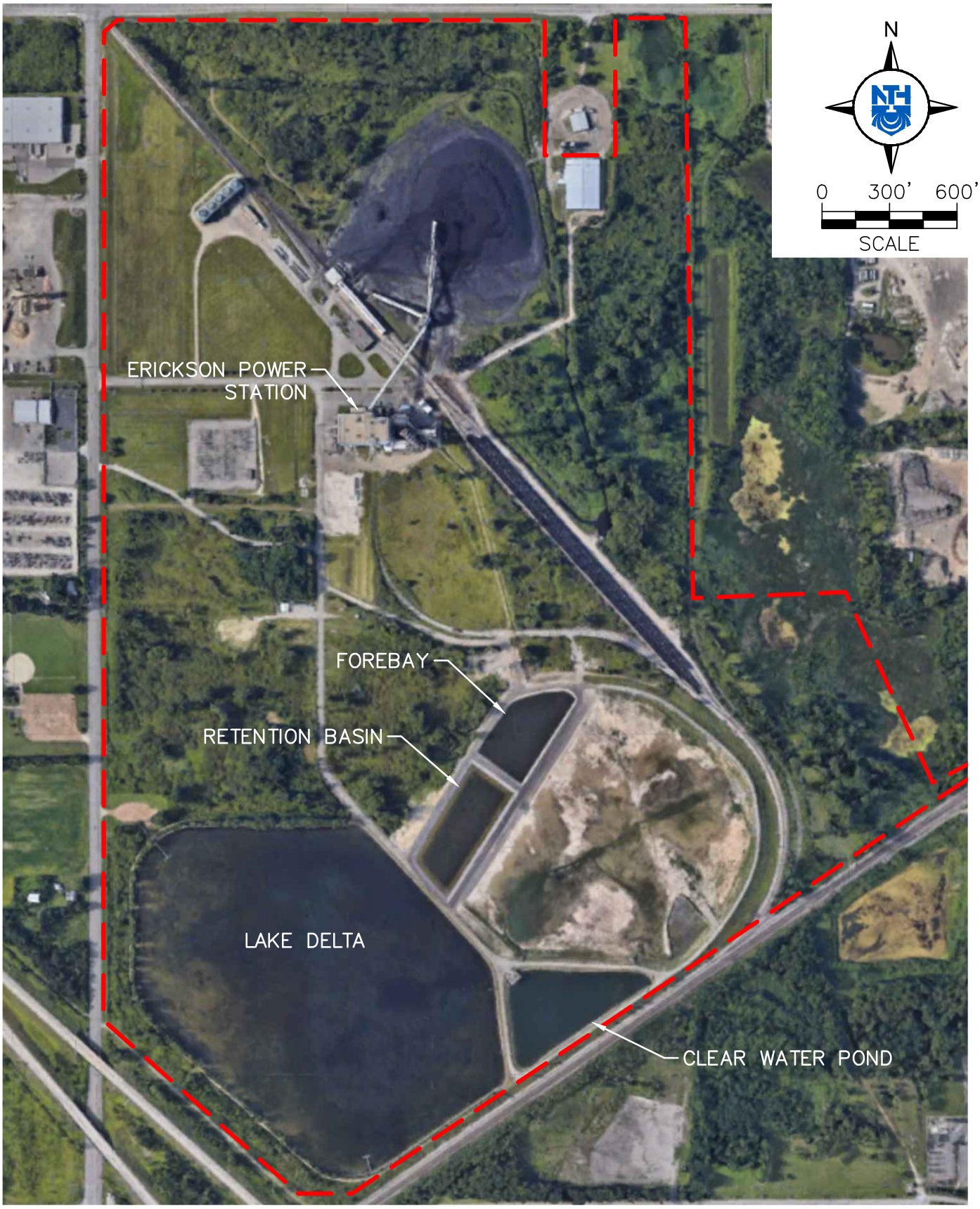
I, David R. Lutz, Professional Engineer licensed in the State of Michigan, certify[1] that, NTH has reviewed the historical information, conducted limited field investigation, and prepared the closure plan for the Lansing Board of Water and Light, Erickson Power Station, in Delta Township, Eaton County, Michigan, CCR impoundment system (Forebay, Retention Basin, and Clear Water Pond), as presented above. Having reviewed the attached documentation and being familiar with the provisions of 40 CFR Part 257.102, I further certify[1] that, to the best of my knowledge and belief, the closure plan presented in this report for the CCR surface impoundment system at the aforementioned facility is consistent with recognized and generally accepted good engineering practices and industry standards and has been prepared in substantial conformance with the requirements established in 40 CFR §257.102 (b)(1). However, the Plan does not meet the criteria established in 40 CFR §257.102(b)(2) as it pertains to the timeframe for developing an initial closure plan.



David R. Lutz, P.E.
State of Michigan Professional Engineer
Registration No. 57487

[1] I am rendering my professional opinion based on the information available to me at the time of this report writing. This certification does not comprise a guarantee or warranty that certain conditions exist, nor does it relieve any other party of their requirements to abide by all applicable local, state, and federal regulations, and to honor all express or customary guarantees and warranties associated with their work.

ATTACHMENTS



NTH PROJECT No.: 73-180055	CAD FILE NAME: 180055-SP	NTH Consultants, Ltd. Infrastructure Engineering and Environmental Services	SITE LOCATION PLAN	FIGURE: 1
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DRAWN BY: SLG	DRAWING SCALE: 1" = 600'			
CHECKED BY: DRL	INCEPTION DATE: 12/18/2018			

N

0 50' 100' 200'
SCALE

LEGEND

- EXISTING CONTOURS
- EXISTING RAILROAD TRACK
- EXISTING FENCE
- EXISTING CONVEYANCE PIPE
- EXISTING EDGE OF WATER
- EXISTING DRIVEWAY
- EXISTING VEGETATION
- EXISTING TREE

NOTE:

1. EXISTING TOPOGRAPHIC SURVEY AND CLEAR WATER POND SOUNDING COMPLETED BY DRONEVIEW ON SEPTEMBER 26, 2018. VERTICAL DATUM IS IN NAVD 88.
2. BOTTOM OF FOREBAY AND RETENTION BASIN AND INVERT INFORMATION FROM SHEET 5 IN THE CONSTRUCTION DOCUMENTATION REPORT FOR THE ASH IMPOUNDMENT RECONFIGURATION BY MAYOTTE DESIGN AND ENGINEERING, P.C., DATED MAY 2015.

ERICKSON STATION

10" DIA. DIP
INV. 881.5

10" DIA. DIP
INV. 881.5

6" DIA. DIP
INV. 881.5

FOREBAY
WATER ELEVATION=882.3

INV. 882.5

INV. 881.5

(3) 24" DIA. CPP

24" DIA. CPP

INV. 881.5

INV. 880.5

RETENTION POND
WATER ELEVATION=881.8

OLD ASH IMPOUNDMENT
(CLOSED IN 2015)

OUTLET RISER
RIM: 880.5
36"SE INV. OUT: 874.0

36" DIA. CPP
INV. 874.0

OLD ASH IMPOUNDMENT DRAINAGE STRUCTURE
RIM: 886.5
OVERFLOW WEIR INV. 883.96
24"S INV. OUT: 871.0

RETENTION TRANSFER STRUCTURE
RIM: 884.3
36"W INV. IN: 874.0
36"S INV. OUT: 880.3

OLD ASH IMPOUNDMENT TRANSFER STRUCTURE
RIM: 883.3
OVERFLOW WEIR INV. 881.8
36"E INV. OUT 872.0

MH-1
RIM: 886.5
36"NW INV. IN: 874.0
36"E INV. OUT: 874.0

LAKE DELTA
WATER ELEVATION=882.5

LAKE DELTA DRAINAGE STRUCTURE
RIM: 886.5
OVERFLOW WEIR INV. 883.96
24"E INV. OUT: 871.0

EMERGENCY OUTFALL
INV. 883.0

CARRIER CREEK

CLEAR WATER POND
WATER ELEVATION=881.8

LAKE DELTA TRANSFER STRUCTURE
RIM: 883.3
OVERFLOW WEIR INV. 881.8
36"E INV. OUT 872.0

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NTH Consultants, Ltd.
Infrastructure Engineering and Environmental Services

Northville, MI	248.553.6300
Detroit, MI	313.237.3900
Lansing, MI	517.484.6900
Grand Rapids, MI	616.451.6270
Cleveland, OH	216.334.4040

SUBMITTAL

REV	DESCRIPTION	DATE	BY

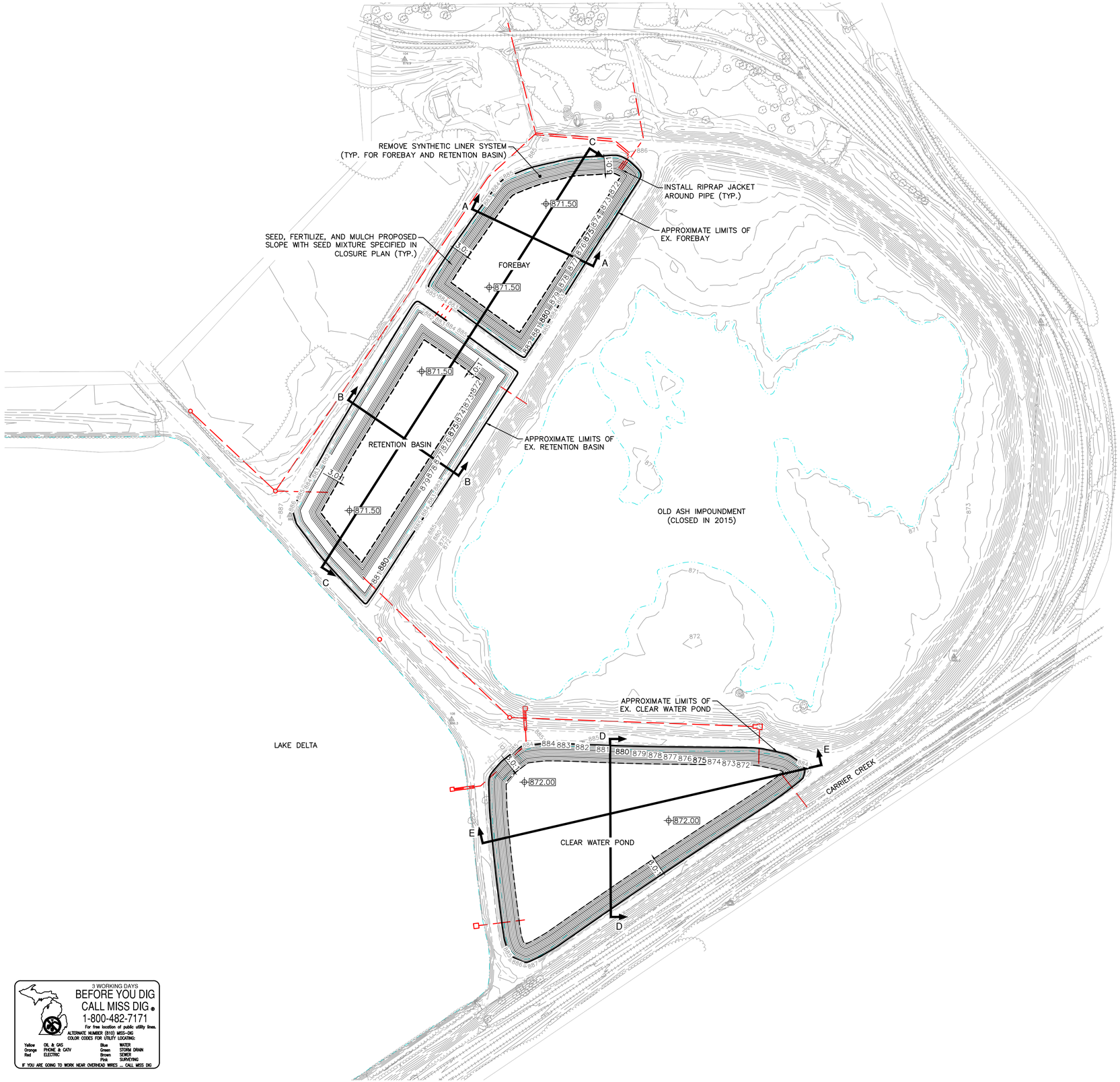
PROJECT NAME:
ERICKSON STATION ASH IMPOUNDMENT CLOSURE

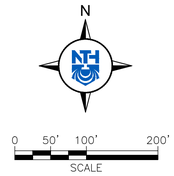
PROJECT LOCATION:
ERICKSON STATION
LANSING, MICHIGAN

NTH PROJECT NO.: 73-180055	CAD FILE NAME: 180055-EX
DESIGNED BY: SLG	INCEP DATE: 12/19/2018
DRAWN BY: SLG	DRAWING SCALE: 1" = 100'
CHECKED BY: DRL	SUBMITTED DATE: 8/15/2019

SHEET TITLE:
EXISTING TOPOGRAPHIC SURVEY

SHEET REFERENCE NUMBER:
2





LEGEND

- EXISTING CONTOURS
- EXISTING RAILROAD TRACK
- EXISTING FENCE
- EXISTING EDGE OF WATER
- EXISTING CONVEYANCE PIPE
- EXISTING DRIVEWAY
- EXISTING VEGETATION
- EXISTING TREE
- PROPOSED CONTOURS
- PROPOSED SPOT ELEVATION
- PROPOSED SLOPE

NOTES:

1. EXISTING TOPOGRAPHIC SURVEY COMPLETED BY DRONEVIEW ON SEPTEMBER 26, 2018. VERTICAL DATUM IS IN NAVD 88.
2. NO POND BOTTOM SOUNDING WAS PERFORMED FOR THE FOREBAY AND RETENTION BASIN. ASH VOLUME ESTIMATED BASED ON REMOVAL EFFICIENCY OF PLANT HYDROBINS.
3. BOTTOM OF ASH LIMITS FOR FOREBAY AND RETENTION BASIN BASED ON INFORMATION PROVIDED IN THE CONSTRUCTION DOCUMENTATION REPORT FOR THE ASH IMPOUNDMENT RECONFIGURATION BY MAYOTTE DESIGN AND ENGINEERING, P.C., DATED MAY 2015.
4. BOTTOM OF ASH LIMITS FOR CLEAR WATER POND BASED ON HISTORICAL PLANT DRAWINGS 4848-183 "ASH POND STRUCTURES SHEET 1" AND 4848-184 "ASH POND STRUCTURES SHEET 2".

NTH Consultants, Ltd.
Infrastructure Engineering and Environmental Services

Northville, MI	248.553.6300
Detroit, MI	313.237.3900
Lansing, MI	517.484.6900
Grand Rapids, MI	616.451.6270
Cleveland, OH	216.334.4040

SUBMITTAL

REV	DESCRIPTION	DATE	BY

PROJECT NAME:
ERICKSON STATION ASH IMPOUNDMENT CLOSURE

PROJECT LOCATION:
ERICKSON STATION
LANSING, MICHIGAN

NTH PROJECT NO.: 73-180055	CAD FILE NAME: 180055-CLS
DESIGNED BY: SLG	INCEP DATE: 12/19/2018
DRAWN BY: SLG	DRAWING SCALE: 1" = 100'
CHECKED BY: DRL	SUBMITTED DATE: 8/15/2019

SHEET TITLE:
PROPOSED GRADING PLAN

SHEET REFERENCE NUMBER:
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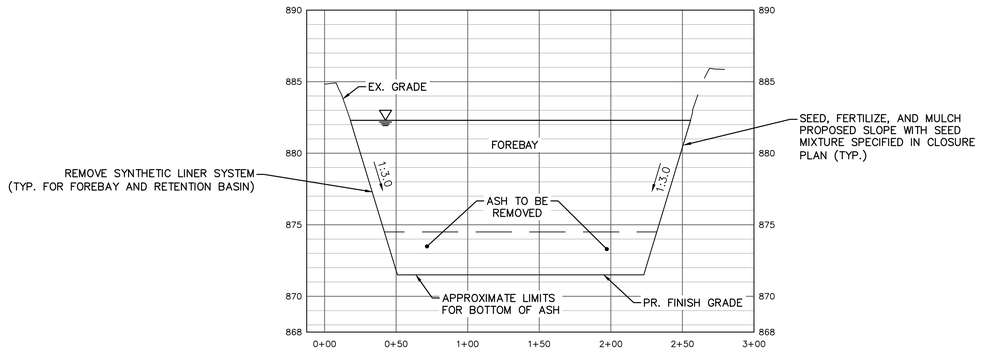
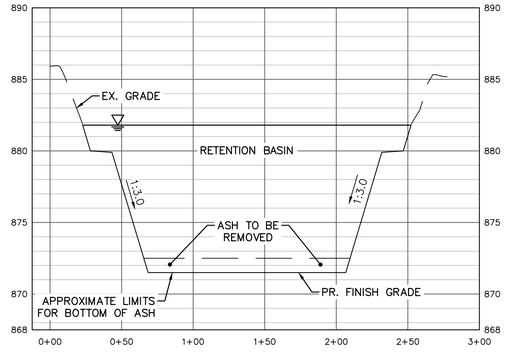


SECTION A-A

HORIZ SCALE: 1" = 50'
VERT SCALE: 1" = 5'

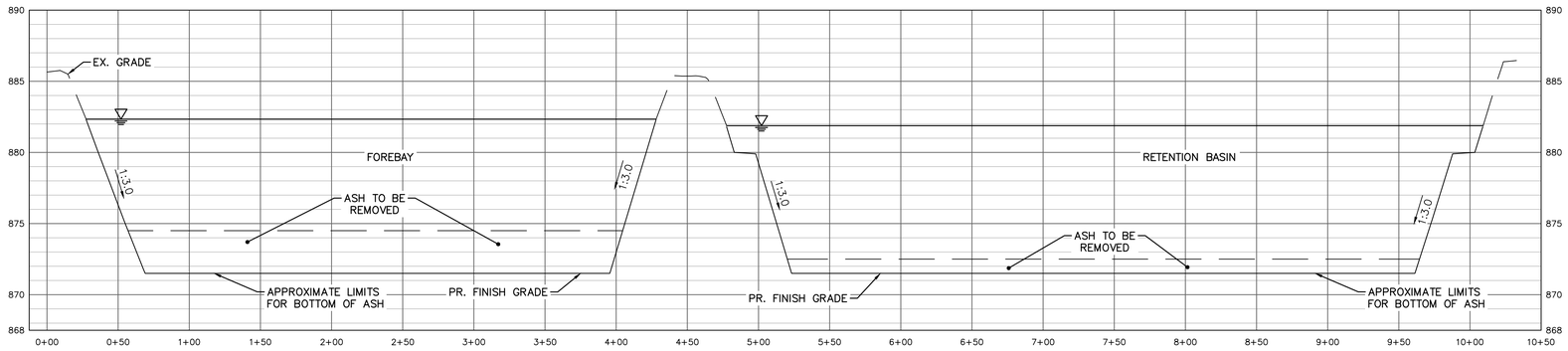


SECTION B-B

HORIZ SCALE: 1" = 50'
VERT SCALE: 1" = 5'

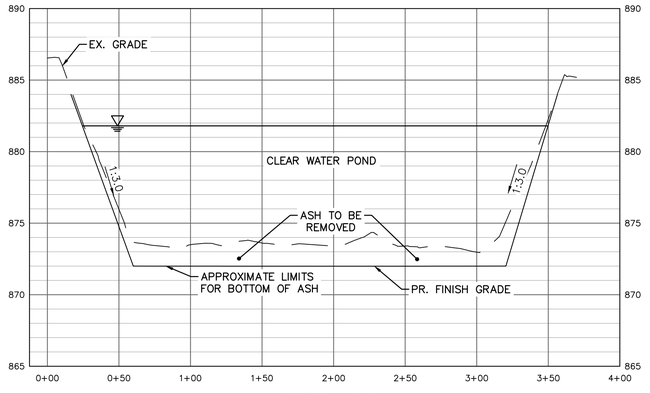
NOTES:

1. EXISTING TOPOGRAPHIC SURVEY COMPLETED BY DRONEVIEW ON SEPTEMBER 26, 2018. VERTICAL DATUM IS IN NAVD 88.
2. NO POND BOTTOM SOUNDING WAS PERFORMED FOR THE FOREBAY AND RETENTION BASIN. ASH VOLUME ESTIMATED BASED ON REMOVAL EFFICIENCY OF PLANT HYDROBINS.
3. BOTTOM OF ASH LIMITS FOR FOREBAY AND RETENTION BASIN BASED ON INFORMATION PROVIDED IN THE CONSTRUCTION DOCUMENTATION REPORT FOR THE ASH IMPOUNDMENT RECONFIGURATION BY MAYOTTE DESIGN AND ENGINEERING, P.C., DATED MAY 2015.
4. BOTTOM OF ASH LIMITS FOR CLEAR WATER POND BASED ON HISTORICAL PLANT DRAWINGS 4848-183 "ASH POND STRUCTURES SHEET 1" AND 4848-184 "ASH POND STRUCTURES SHEET 2".



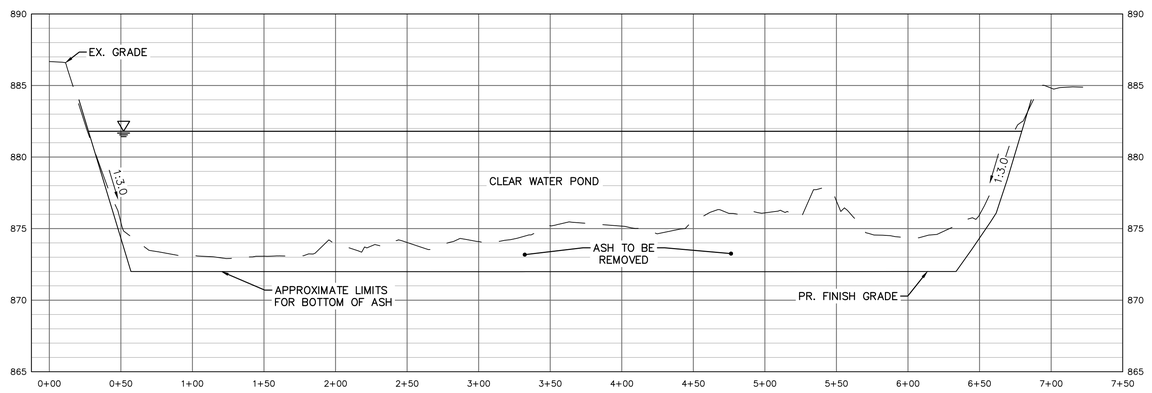
SECTION C-C

HORIZ SCALE: 1" = 50'
VERT SCALE: 1" = 5'



SECTION D-D

HORIZ SCALE: 1" = 50'
VERT SCALE: 1" = 5'



SECTION E-E

HORIZ SCALE: 1" = 50'
VERT SCALE: 1" = 5'

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Cleveland, OH	216.334.4040

SUBMITTAL

REV	DESCRIPTION	DATE	BY

PROJECT NAME:
ERICKSON STATION ASH IMPOUNDMENT CLOSURE

PROJECT LOCATION:
ERICKSON STATION
LANSING, MICHIGAN

NTH PROJECT NO.: 73-180055	CAD FILE NAME: 180055-CLS
DESIGNED BY: SLG	INCEP DATE: 12/19/2018
DRAWN BY: SLG	DRAWING SCALE: 1" = 50'
CHECKED BY: DRL	SUBMITTED DATE: 8/15/2019

SHEET TITLE:
PROPOSED GRADING PROFILES

SHEET REFERENCE NUMBER:
4