

# CLOSURE PLAN

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## AP-2 – EXISTING SURFACE IMPOUNDMENT

### PLANT HAMMOND FLOYD COUNTY, GEORGIA

FOR



# Georgia Power

MAY 2020



Stantec Consulting Services Inc.  
1110 Market Street, Suite 214A, Chattanooga, TN 37402  
Phone (423) 800-5350, Fax (423) 800-5351

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### APPENDIX

#### A. PERMIT BOUNDARY LEGAL DESCRIPTION



## 1. INTRODUCTION

The Georgia Environmental Protection Division (EPD) adopted a new Solid Waste Regulation entitled “Rule 391-3-4-.10 Coal Combustion Residuals” (State CCR Rule). This rule, effective November 22, 2016, applies to owners and operators of new and existing coal combustion residuals (CCR) disposal facilities that dispose or otherwise engage in solid waste management of CCR generated from the combustion of coal at electric utilities and independent power producers. The State CCR Rule incorporates by reference the provisions contained in the United States Environmental Protection Agency (USEPA) Title 40 of the Code of Federal Regulations (CFR) §257 (40 CFR §257) (Federal CCR Rule). Per State CCR Rule 391-3-4.10(2)(a), which incorporates the definitions of the different CCR units under the Federal CCR Rule (40 CFR § 257.53), Plant Hammond Ash Pond 2 (AP-2) meets the definition of an existing CCR surface impoundment.

Georgia Power Company (GPC) plans to perform closure-by-removal of CCR from AP-2. All CCR within AP-2 will be removed from the site. Upon removal of the CCR, the final sitework restoration will promote positive stormwater drainage.

This Closure Plan was prepared to describe the activities and requirements for closure-by-removal of AP-2 in accordance with State CCR Rule 391-3-4-.10(9)(c)5.(v).

## 2. NOTIFICATION

Georgia Power will cease placing CCR and non-CCR waste streams into the Plant Hammond AP-2 CCR Unit by no later than August 31, 2020 and, as required by Rule 391-3-4-.10(8), will place a Notice of Intent to initiate closure of AP-2 into the Plant Hammond AP-2 Operating Record. Closure activities will commence according to the closure schedule presented in Section 23 of this Closure Plan. Depending on the actual CCR excavation rate achieved during closure construction activities, complete CCR removal and final restoration of the pond in accordance with this Closure Plan will be accomplished within approximately 5 years following the beginning of closure construction activities.

## 3. SURVEY CONTROL

A survey of the Permitted Site Boundary is included in the Closure Drawings.

## 4. LEGAL DESCRIPTION

The legal description of the permit boundary can be found in Appendix A.

## 5. PERMANENT IDENTIFICATION MARKER

A permanent identification marker was installed at AP-2 on August 6, 2015.

## 6. ESTIMATE OF CCR IN UNIT

AP-2 contains approximately 870,000 cubic yards of CCR.



## **7. AREA OF UNIT REQUIRING FINAL COVER**

AP-2 consists of approximately 21 acres. The unit is being closed by removal of CCR and a final cover is not required for the facility.

## **8. DEWATERING**

Dewatering will include removing water using a variety of methods, including but not limited to passive, gravity-based methods (e.g. rim ditches) and/or active dewatering methods (e.g. pumps and well points) as needed to allow for CCR excavation and transportation. CCR contact water and legacy wastewater from AP-1 will be further treated by an on-site wastewater treatment system (WWTS). Water will be managed and discharged in accordance with the site's approved NPDES Wastewater Discharge Permit. Consistent with the NPDES Industrial Wastewater Discharge Permit requirements, GPC will develop a written Ash Pond Dewatering Plan ("Dewatering Plan") to describe treatment processes, monitoring and best management practices necessary to comply with the NPDES Industrial Wastewater Discharge Permit requirements. The Dewatering Plan will be submitted to the EPD Watershed Protection Branch for review and approval prior to commencing dewatering activities.

## **9. CCR EXCAVATION SEQUENCING PLAN**

The Closure Drawings depict the anticipated excavation limits of the CCR from AP-2. The general steps to excavation and removal of CCR from AP-2 are:

- a. Sufficiently dewater AP-2 to allow equipment to access the interior of the unit.
- b. Stabilize the exposed CCR to create a working platform to excavate the material. This may be achieved by, but not limited to, sufficient dewatering, placement of a stone/aggregate bridge lifts, windrowing, stacking, or polymer injection.
- c. Begin to excavate CCR from limits of the unit.
- d. Excavated CCR will be transported to an off-site permitted landfill or sold to an ash marketer for beneficial re-use.

## **10. CCR REMOVAL VERIFICATION PROTOCOL**

"CCR removal" refers to the process of verifying and documenting that the CCR has been removed from AP-1. AP-1 is known to contain a mixture of fly ash and bottom ash collectively referred to as CCR. The CCR removal verification is based on removing visible CCR and a minimum of six additional inches of soil. The documentation of this procedure is presented in the Construction Quality Assurance Plan included in the permit application. Groundwater monitoring will be implemented as described in Section 19 of this Closure Plan.

## **11. SURFACE WATER DRAINAGE**

During CCR removal, run-on stormwater and run-off contact water (e.g. stormwater that has come into contact with CCR) will be controlled with best management practices such as channels, diversion berms, and pumps and managed in accordance with the NPDES Construction Storm Water, Industrial Storm Water and Industrial Wastewater Discharge permit(s). GPC will

prepare a phased erosion and sediment control plan that will be followed for closure construction activities, as needed.

The area surrounding AP-2 is currently graded to generally divert stormwater around the unit resulting in a low volume of run-on into the unit. As the unit is dewatered and CCR is excavated, sumps will be installed in low areas to collect stormwater and pump to the water treatment system.

## **12. CCR DRAINAGE AND STABILIZATION**

The saturated CCR will require dewatering prior to transport. The CCR will be dewatered by excavating drainage ditches and spreading the CCR within the waste limits of AP-2 to dry. Disking, harrowing, or other methods to work the saturated CCR may be utilized to promote drying.

Should the saturated CCR require stabilization for excavation operations, finger dikes or a bridge lift may be constructed from dry CCR or aggregate. The materials that contact CCR will be disposed offsite. Other alternatives to dewater and stabilize the CCR may include use of pumps or well points. Water that is removed will be pumped into the NPDES treatment system prior to discharge.

## **13. FINAL GRADING**

After CCR excavation and removal of the additional six inches of soil, the intermediate surface will be inspected by EPD. The site will then be backfilled with soil fill and graded to promote positive drainage. Sources of fill may include approved off-site borrow soils or the non CCR contact soil from the existing perimeter dike. The perimeter dike of the unit may be breached as shown on the Closure Drawings to allow stormwater to drain once the site is stabilized.

## **14. INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN**

The Inflow Design Flood Control System Plan for AP-2 is available online at the GPC website under Environmental Compliance.

## **15. INSPECTIONS**

The following inspections are performed in accordance with State CCR Rule 391-3-4-.10(5)(b).

### 7-day Inspections

GPC inspects the CCR disposal facility and discharge of all hydraulic structure outlets at intervals not exceeding seven (7) days. The 7-day inspections are made by a Qualified Person and include observation and documentation of any appearance of actual or potential structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the facility.

### Annual Inspections

A Professional Engineer registered in Georgia inspects the facility on an annual basis. The inspection includes observation and documentation of any appearance of actual or potential

structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the facility. The results of this inspection are presented in a report that is placed in the facility's operating record and as well as on the Georgia Power website under Environmental Compliance.

#### 40 CFR 257.83(b) Annual Reporting

At the completion of each annual inspection per 40 CFR 257.83(b), the Professional Engineer who completed the inspection will prepare an annual report that includes the following:

- i. Any changes in geometry of the impounding structure since the previous annual inspection.
- ii. The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection.
- iii. The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection.
- iv. The storage capacity of the impounding structure at the time of the inspection.
- v. The approximate volume of the impounded water and CCR at the time of the inspection.
- vi. Any appearances of an actual or potential structural weakness of the CCR unit in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures.
- vii. Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.

## **16. FUGITIVE DUST EMISSIONS**

This fugitive dust control plan identifies and describes the CCR fugitive dust control measures that GPC will use to minimize CCR from becoming airborne at the facility, including CCR fugitive dust originating from ash ponds, roads, and material handling activities. State CCR Rule 391-3-4-.10(2)(a) (incorporating 40 CFR § 257.53 by reference) defines "fugitive dust" as "solid airborne particulate matter that contains or is derived from CCR, emitted from any source other than through a stack, or chimney."

Fugitive dust originating from the ash ponds and ash pond closure activities will be controlled using water suppression or polymer tackifiers.

The fugitive dust control measures identified and described in this plan were adopted and implemented based upon an evaluation of site-specific conditions and are determined to be applicable and appropriate for AP-2 closure. Evaluation included assessing the effectiveness of the fugitive dust control measures for the facility, taking into consideration various factors such as site conditions, weather conditions, and operating conditions.

CCR that is transported via truck to stockpiling prior to loading in rail cars or trucks for shipment off-site will be conditioned to appropriate moisture content to reduce the potential for fugitive dust.

Water suppression or polymer tackifiers will be used as needed to control fugitive dust on facility roads used to transport CCR and other CCR management areas. Speed limits will be utilized to reduce the potential for fugitive dust. Trucks used to transport CCR will be filled to or under capacity to reduce the potential for material spillage.

CCR removal equipment shall be physically cleaned to the extent that is practically possible to remove all visible ash after use. Cleaning activities will take place within the permit boundary of AP-2. All material from the cleaning process will be consolidated and hauled to an appropriately permitted solid waste facility and all liquids will be managed in accordance with the Plant Hammond NPDES Permitted outfall GA 0001457.

GPC and construction personnel will assess the effectiveness of the control measures by performing visual observations of the ash ponds and surrounding areas and implementing appropriate corrective actions for fugitive dust, as necessary. Logs will be used to record the utilization of water-spray equipment.

Any complaint received from a citizen regarding a CCR fugitive dust event at the facility will be documented and investigated. Appropriate steps will be taken, including any corrective action, if needed.

#### **17. VEGETATIVE PLAN**

All disturbed areas will be grassed and maintained in accordance with the schedules shown in Tables 1 and 2. Disturbed areas will be stabilized within two weeks after final grades are achieved. Permanent covers which are slow to establish will receive temporary seeding. Planting dates, fertilizer rates, and seeding rates will meet the requirements in the current edition of the Manual for Erosion and Sediment Control in Georgia.

**Table 1: Vegetation Schedule**

<b>Seeds</b>	<b>lbs/Acre</b>	<b>Date of Planting</b>
Pensacola Bahia Alone or with temporary cover	60	April 1- May 31
Wilmington Bahia With other perennials	30	March 1 – May 31
Tall Fescue Alone	50	August 15 - October 15, March 1 – April 30
Tall Fescue With other perennials	30	September 1 - October 15
Reed Canary Grass Alone	50	August 15 - October 15
Reed Canary Grass With other perennials	30	September 1- October 15
Common Bermuda Unhulled seed w/ temporary cover	10	October 1- February 28
Common Bermuda unhulled seed w/ other perennials	6	November 1- February 28

Notes:

1. All seeding rates are pure live seed rates.
2. All seeding will be mulched with clean dry hay at the rate of 2.5 tons per acre. Mulch will be anchored by pressing the mulch into the soil immediately after the mulch is spread using a packer disk or disk harrow or equivalent piece of equipment.
3. Temporary seeding should also complement permanent seeding to produce a suitable cover while the permanent grasses germinate.
4. Disturbed slopes greater than 3%, including soil stockpiles, are to be mulched immediately.
5. D.O.T. or County Extension seed type, seed rates, fertilizer requirements, etc. may also be used in lieu of the table above.

**Table 2: Fertilization Rates**

Fertilizer Requirements				
Type of Species	Year	Analysis or Equivalent N-P-K	Rate	N Top Dressing Rate
1. Cool Season Grasses	First	6-12-12	1500 lbs./ac.	50-100 lbs/ac.(1)(2)
	Second	6-12-12	1000 lbs./ac.	-
	Maintenance	10-10-10	400 lbs./ac.	30
2. Cool Season Grasses and Legumes	First	6-12-12	1500 lbs./ac.	0-50 lbs./ac.(1)
	Second	0-10-10	1000 lbs./ac.	-
	Maintenance	0-10-10	400 lbs./ac.	-
3. Ground Covers	First	10-10-10	1300 lbs./ac.(3)	-
	Second	10-10-10	1300 lbs./ac.(3)	-
	Maintenance	10-10-10	1100 lbs./ac.	-
4. Temporary Cover Crops Seeded Alone	First	10-10-10	500 lbs./ac.	30 lbs./ac.(4)
5. Warm Season grasses	First	6-12-12	1500 lbs./ac.	50-100 lbs./ac.(2)(5)
	Second	6-12-12	800 lbs./ac.	50-100 lbs./ac.(2)
	Maintenance	10-10-10	400 lbs./ac.	30 lbs./ac.
6. Warm Season Grasses and Legumes	First	6-12-12	1500 lbs./ac.	50 lbs./ac.(5)
	Second	0-10-10	1000 lbs./ac.	-
	Maintenance	0-10-10	400 lbs./ac.	-

Notes:

1. Apply in spring following seeding.
2. Apply in split applications when high rates are used.
3. Apply in 3 split applications.
4. Apply to grass species only.
5. Apply when plants grow to height of 2"-4".

**18. SITE EQUIPMENT NEEDED**

GPC will coordinate with the closure contractor to make adequate equipment available to ensure that closure requirements are executed correctly and efficiently.



## 19. GROUNDWATER MONITORING

GPC will monitor groundwater semi-annually pursuant to the requirements defined in the Groundwater Monitoring Plan included in the permit. GPC proposes to monitor groundwater for a period of five (5) years after the CCR has been removed from the AP-2 footprint to confirm that groundwater constituent concentrations are not detected at statistically significant levels above the groundwater protection standards established in State CCR Rule 391-3-4.10(6)(b), which reference the constituents listed in the Federal CCR Rule Subpart D, Appendix III and IV. A demonstration certified by a Qualified Groundwater Scientist will be submitted to EPD for approval documenting that groundwater constituent concentrations are not detected at statistically significant levels above the groundwater protection standards established in Rule 391-3-4.10(6)(b) for constituents listed in Appendix IV. Evaluation criteria may include but are not limited to additional sampling, analysis, calculations, and/or modeling to demonstrate compliance with 391-3-4.10(7)(b) as determined by the Qualified Groundwater Scientist and approved by EPD.

In accordance with the Georgia Water Well Standards Act (O.C.G.A. § 12-5-120), at least once every five years, the owner of the property on which a monitoring well is constructed shall have the monitoring well(s) inspected by a professional engineer or professional geologist, who shall direct appropriate remedial corrective work to be performed if the well does not conform to standards. Well inspection records and records of remedial corrective work are subject to review by EPD. Additionally, as part of the closure plan, the cost estimate based upon current year cost for the well inspections must be provided for as part of the cost calculations for the groundwater monitoring period.

## 20. SEDIMENT REMOVAL

Accumulated sediment will be removed from drainage ditches and structures as required.

## 21. EROSION AND SEDIMENTATION CONTROL

Upon closure, all ditches, diversion berms, riprap, and other drainage structures serving disturbed areas, but not already built, will be constructed and placed according to the Closure Drawings or as required. Erosion control methods include, but are not limited to, silt fence, straw wattles, turf reinforcement matting, and riprap protection. These controls will be used until the site is stabilized. A site-specific stormwater management plan will be followed during construction following the most recent edition of the Manual for Erosion and Sediment Control in Georgia.

## 22. COST OF CLOSURE AND FINANCIAL ASSURANCE

In compliance with applicable securities laws and regulations, cost estimates for closure/construction/CCR removal/post CCR removal groundwater monitoring will be provided to EPD under separate cover. The total construction closure/removal costs include all items necessary for a third party to complete the project in accordance with the Closure Plan included herein. The cost estimates provided to EPD are based on an area of 24-acres and in 2020 dollars. The estimates and will be adjusted annually for inflation.

**Ash Pond 2 Closure by Removal Cost Estimate**

Item Description	Quantity	Unit	Unit Cost	Cost
<b>Program Management</b>				
Misc Permitting & Fees (NPDES, etc.)				
Regulatory Water Management				
Groundwater Monitoring <sup>1</sup>				
<b>Engineering</b>				
Detailed Engineering				
Outsourced - Construction Support				
<b>Procurement</b>				
Fuel Commodity Cost				
Fuel Facility Maintenance/Operations Cost				
<b>Construction Directs</b>				
Water Treatment Equipment Monthly Rental and Labor				
Dewatering Water Treatment Mobilization / Demobilization / Additional BOP				
Dust Control				
Backfill / Restore <sup>2</sup>				
Excavation				
Transport/Haul Offsite				
Water Management				
Site Prep <sup>3</sup>				
Transportation Improvements				
Site Work/Maintenance				
Demolition				
Organics Management				
<b>Construction Indirect</b>				
Construction Management				
Temporary Facilities				
Quality Assurance (CQA)				
<b>Contractor Indirect</b>				
OH&P				
Contractor Construction Management				
Equipment costs				
Mobilization				
Contractor Temp Facilities				
<b>Project Indirect</b>				
Bonds				
			Subtotal Direct Costs	
			Subtotal Indirect Costs	
			Contingency	
			<b>Total Closure Cost Estimate</b>	

Notes:

1. Groundwater monitoring includes costs for conducting routine monitoring of App III & IV during the construction period.
2. Backfill/Restore includes placement & grading of fill materials including topsoil and application of seed and mulch.
3. Site Prep includes erosion control, silt fencing access road stabilization and other related costs.

**Ash Pond 2 Post Removal Cost Estimate**

Item Description	Quantity	Unit	Unit Cost	Cost
<b>Environmental Monitoring</b>				
Groundwater Monitoring Sampling/Analysis				
Groundwater Monitoring Reporting				
Groundwater Well Maintenance <sup>2</sup>				
<b>Site Maintenance/Site Security</b>				
Maintenance <sup>3</sup>				
Dike & Road Maintenance				
			Subtotal	
			Contingency	
			<b>Annual Post Closure Cost Estimate</b>	
			<b>5 Year Post Removal Care Cost Estimate</b>	
			<b>Total Financial Assurance Required (Closure Cost + 5 Year Post Removal Care Cost)</b>	

Notes:

1. No costs for project management are included for closure by removal.
2. Well Maintenance includes cost for abandonment at end of 5-yr Post Removal period.
3. Maintenance includes cost for re-seeding and mowing the site twice per year.



## **23. CLOSURE SCHEDULE**

The schedule milestones and the associated timeframes are initial estimates. Some of the activities associated with the milestones will overlap.

- a. State Agency coordination and permit acquisition – up to 3 years
- b. Dewatering, excavation, and removal – 3 years
- c. Complete earthwork to promote positive drainage – 0.5 years
- d. Stabilize site – 0.5 years
- e. Groundwater Monitoring – 5 years

Following verification of closure-by-removal of all CCR from the unit, the closure period will extend for five (5) additional years. During this closure period, groundwater monitoring will be performed as described in the Groundwater Monitoring section of this plan.

## **24. AMENDMENT TO THE CLOSURE PLAN**

This Closure Plan will be amended within the timeframes established in State CCR Rule 391-3-4-.10(7)(b) if there is a change that would substantially affect the Closure Plan in effect or if there are unanticipated events that necessitate a revision of the Closure Plan.

## **25. CERTIFICATION OF CLOSURE**

Upon completion of CCR removal, a professional engineer registered in Georgia will prepare and GPC will submit a certification report documenting the removal to EPD. Pursuant to State CCR Rule 391-3-4-.10(7)(e), once all CCR removal is complete and groundwater monitoring concentrations at the site have been demonstrated not to exceed the applicable Federal and State groundwater protection standards, GPC will submit a Construction Certification Report to the EPD Director. The Construction Certification Report will be completed on forms provided by EPD.

## **26. ON-GOING PLANT OPERATIONS AND MAINTENANCE**

Activities needed to construct, maintain, replace, or repair systems for electric power generation or its delivery (such as subsurface piping, electrical appurtenances, transmission structures, etc.) may be conducted at GPC's discretion within the permit boundary after removal activities have been completed.

## **27. RECORDKEEPING**

GPC maintains and will continue to maintain the facility's operating record at all times during the life of the disposal facility including the closure period. These records are maintained by plant personnel and are located at Plant Hammond. All information contained in the facility's operating record will be furnished to EPD or be made available at all reasonable times for inspection by EPD staff. Unless specified otherwise, each file must be retained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, record, or study.

## **28. NOTIFICATION AND INTERNET POSTING REQUIREMENTS**

Unless otherwise specified by the State CCR Rule, GPC will provide notifications to EPD within 30 days of placing documents in the facility's operating record. The notifications will be sent before the close of business on or before the day the notification is required to be completed. Notifications to EPD will be postmarked or sent by electronic mail. Electronic mail sent to a designated EPD recipient will be used only if approved by EPD. If a notification deadline falls on a weekend or federal holiday, the notification deadline will be extended to the next business day. GPC will state in the notification to EPD if the relevant information was placed on the publicly available GPC website under Environmental Compliance.

## APPENDIX

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Phone (423) 800-5350, Fax (423) 800-5351

## **A. PERMIT BOUNDARY LEGAL DESCRIPTION**

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Plant Hammond  
Ash Pond 2  
Permitted Site Boundary  
Legal Description

All that parcel or tract of land lying and being in land lots 182, 183, 214 and 215 of the 4<sup>th</sup> District, 4<sup>th</sup> Section, Floyd County, Georgia and being more particularly described as follows:

To find The Point of Beginning, commence at a railroad iron found on the southeasterly right-of-way of Georgia State Route 20 (having a varied right-of-way), having Georgia State Plane, West Zone, NAD83 coordinates of: N 1551356.38 and E 1941840.87; thence leaving said right-of-way and running South 66 degrees 52 minutes 09 seconds West a distance of 3539.75 feet to a point and The Point of Beginning;

Thence running South 09 degrees 48 minutes 03 seconds East a distance of 907.25 feet to a point; Thence running South 79 degrees 44 minutes 47 seconds West a distance of 63.18 feet to a point; Thence running South 01 degrees 55 minutes 36 seconds West a distance of 92.73 feet to a point; Thence running South 77 degrees 41 minutes 39 seconds West a distance of 113.28 feet to a point; Thence running South 07 degrees 43 minutes 40 seconds East a distance of 72.76 feet to a point; Thence running South 80 degrees 42 minutes 37 seconds West a distance of 878.33 feet to a point; Thence running North 43 degrees 06 minutes 46 seconds West a distance of 127.82 feet to a point; Thence running North 48 degrees 04 minutes 44 seconds West a distance of 300.53 feet to a point; Thence running North 00 degrees 19 minutes 29 seconds West a distance of 728.91 feet to a point; Thence running North 39 degrees 36 minutes 35 seconds East a distance of 53.14 feet to a point; Thence running North 61 degrees 38 minutes 57 seconds East a distance of 134.30 feet to a point; Thence running North 72 degrees 40 minutes 32 seconds East a distance of 156.00 feet to a point; Thence running North 78 degrees 48 minutes 14 seconds East a distance of 294.73 feet to a point; Thence running North 81 degrees 05 minutes 44 seconds East a distance of 229.62 feet to a point; Thence running North 82 degrees 43 minutes 13 seconds East a distance of 268.39 feet to a point; Thence running South 24 degrees 37 minutes 17 seconds East a distance of 15.88 feet to a point; Thence running along a curve to the left an arc distance of 110.70 feet (said arc having a radius of 103.87 feet and being subtended by a chord 105.54 feet in length lying to the northeast of said arc and bearing South 61 degrees 17 minutes 17 seconds East) to a point; Thence running North 89 degrees 10 minutes 33 seconds East a distance of 11.27 feet to a point and The Point of Beginning;

Said tract contains 32.43 acres (1,412,642 square feet).