



FLEET MAINTENANCE FACILITY

PROGRAMMING EVALUATION STUDY

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EXECUTIVE SUMMARY

01

EXECUTIVE SUMMARY



History

Durham County is located in North Carolina's Research Triangle Region and at the time of the 2020 Census, was home to 324,833 people. It has since grown 1.7% to 342,008 people. The County has 286.4 square miles and it borders Wake County.

Durham County is the home of Duke University, North Carolina Central University, and Durham Technical Community College. The 2020 Census listed the County's largest industries as educational services, health care and social assistance, as well as professional scientific, management & administrative, and waste management services.

Framework

O'Brien Atkins Associates conducted a feasibility study for a consolidated Durham County Fleet Maintenance and Vehicle Storage Warehouse.

The County intends to create a new fleet maintenance program operated by General Services. Currently, Durham County's fleet is overseen by two General Services staff, who contract with third party companies to maintain the fleet. Each department is responsible for identifying maintenance activities and transporting their assigned vehicles to maintenance providers.

The County's goal is to consolidate the fleet oversight and to better manage these resources.

The EMS Department currently services their vehicles at 122 Stone Park Ct, which they need to vacate by mid 2025.

This new facility will be located on an undeveloped site at 1117 Junction Road already owned by Durham County. The site is 60 acres total, with 50 buildable acres. The fleet facility will share the site with the proposed Animal Shelter, while also preserving the balance of the acreage for future opportunities.

The first component of this study is the Fleet Maintenance Facility, which will provide preventive maintenance services, including fluids, tire maintenance, battery maintenance, brakes, and state inspections to County-owned vehicles. Potentially, these services could expand to include engine and drive train repair in the future. However, body work services will not be provided by the County.

The second component of this study is the Vehicle Storage Warehouse. In 2022, Durham County entered into an 8-year lease, and upfit the Presidential Park West (PPW) facility. This location currently provides temporary housing for the assets assigned to the Office of Emergency Services and the Sheriff's Office, along with staff and supplies under EMS Logistics. The program in this study replicates the PPW location, and adds space for large vehicles operated by Public Health, the Library, and County Manager's Office.

EXECUTIVE SUMMARY

Design Team's Scope:

- Document the current Durham County vehicle fleet by department.
- Identify the 5-year fleet growth anticipated by each department.
- Program a fleet maintenance facility including 20-year growth.
- Program a vehicle storage warehouse with 20-year growth.
- Create concept diagrams describing the function and layout of each facility.
- Locate the fleet maintenance and warehouse on the Junction Road site along with the proposed Animal Shelter.
- Develop a conceptual cost estimate.

This study identified 719 vehicles and towable trailers in the County fleet, including the 5-year growth estimates provided by the departments. A 10% growth is anticipated in that 5-year span, or approximately 72 vehicles.

PROGRAM SUMMARY AND GROWTH CAPACITY	
Fleet Maintenance Facility	22,215 GSF
Fleet Growth Capacity	21.1% or 150 vehicles
Vehicle Storage Warehouse	34,800 GSF
Growth Capacity	10% or 5 large vehicles
Site Acreage	18-22 Acres
Remaining Buildable Area	38-42 Acres

PROGRAM
















02

VEHICLE COUNT BY DEPARTMENT

Department	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Trailers	Boats	Total by Department
BOARD OF ELECTIONS		1					1		2
CISS		6							6
COOPERATIVE EXTENSION		2					3		5
COUNTY MANAGER OFFICE				1					1
JUSTICE SERVICE DEPARTMENT		4							4
OFFICE OF EMERGENCY SERVICES		35	59	1	1	0	12		108
EMERGENCY MANAGEMENT		9	1	1	1		11		23
EMS		13	54				1		68
EMS BUSINESS SERVICES		5	3						8
FIRE MARSHALL		8	1						9
ENGINEERING / OPEN SPACE / REAL ESTATE		3					2		5
FINANCE		2							2
GENERAL SERVICES		86			6	4	14		110
HUMAN RESOURCES		2							2
LIBRARY		5		2					7
PUBLIC HEALTH		24	1	2			2		29
SHERIFF'S OFFICE	5	323	9	2			4	2	345
SOCIAL SERVICES		44							44
SOIL & WATER		3							3
STORM WATER		8							8
TAX		14							14
UTILITIES		18			3				21
YOUTH HOME		3							3
Total by Class	5	583	69	8	10	4	38	2	719

Using the fleet information provided by each department in the Spring of 2023, the design team determined the total quantities and class of the entire fleet. Vehicle class is defined by the Federal Highway Administration and assigns vehicles by size and numbers of axles. Trailers and boats are not defined by the FHWA, and listed separately here. These numbers include the anticipated 5-year growth, representing a 10% increase in the fleet size.

VEHICLE CLASSIFICATION BY FHWA

<p>1. Motorcycles 2 axles, 2 or 3 tires</p> 	<p>2. Passenger Cars 2 axles, can have 1- or 2-axle trailers</p> 	<p>3. Pickups, Panels, Vans 2 axles, 4-tire single units Can have 1 or 2 axle trailers</p> 	<p>4. Buses 2 or 3 axles, full length</p> 
<p>5. Single Unit 2-Axle Trucks 2 axles, 6 tires (dual rear tires), single-unit</p> 	<p>6. Single Unit 3-Axle Trucks 3 axles, single unit</p> 	<p>7. Single Unit 4 or More-Axle Trucks 4 or more axles, single unit</p> 	<p>8. Single Trailer 3- or 4-Axle Trucks 3 or 4 axles, single trailer</p> 
<p>9. Single Trailer 5-Axle Trucks 5 axles, single trailer</p> 	<p>10. Single Trailer 6 or More-Axle Trucks 6 or more axles, single trailer</p> 	<p>8. Single Trailer 3- or 4-Axle Trucks 3 or 4 axles, single trailer</p> 	
<p>11. Multi-Trailer 5 or Less-Axle Trucks 5 or less axles, multiple trailers</p> 		<p>12. Multi-Trailer 6-Axle Trucks 6 axles, multiple trailers</p> 	
<p>13. Multi-Trailer 7 or More-Axle Trucks 7 or more axles, multiple trailers</p> 		<p>12. Multi-Trailer 6-Axle Trucks 6 axles, multiple trailers</p> 	

Vehicle classification provided by FHWA. Currently, Durham County has vehicles from Class 1-6

Image from Federal Highway Administration website:
https://www.fhwa.dot.gov/policyinformation/tmguid/tmg_2013/vehicle-types.cfm

MAINTENANCE BUILDING

Maintenance

Maintenance Bays	Count	Area Assignment	GF	Area
Class 2 PM Bays	3	560	1.25	2,100
Class 2 DCSO Bays	2	560	1.25	1,400
Class 3 EMS Bays	4	560	1.25	2,800
Class 4/5 Maintenance Bays	2	1100	1.25	2,750
Common Work Area	3	500	1.25	1,875
Tire Shop	1	200	1.25	250
Brake Shop	1	200	1.25	250
TOTAL				11,425

250 vehicles per bay

4 EMS,

Adjacent to bays

Adjacent to bays

Storage	Count	Area Assignment	GF	Area
Part Storage	1	1438	1.25	1,798
Tire Storage	1	300	1.25	375
Battery Storage	1	160	1.25	200
Bulk Fluids Room	2	400	1.25	1,000
Portable Equipment Storage	2	500	1.25	1,250
Tool Storage	1	100	1.25	125
TOTAL	8			4,748

2 SF per vehicle

with ventilation piped to the bays

Secured

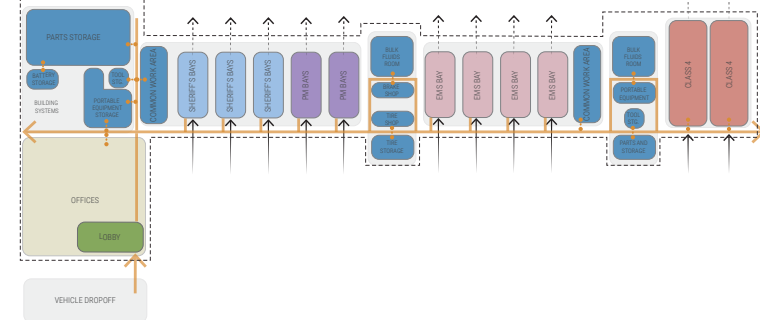
Office Space	Count	Area Assignment	GF	Area
Lobby	1	120	1.5	180
Service Tech	2	120	1.5	360
Tech Workstations	11	36	2	792
Private Office	5	160	1.3	1,040
Conference Room	1	240	1.3	312
Break Room	1	120	1.3	156
Work Room	1	120	1.3	156
IT Closet	1	80	1.3	104
Toilets	2	80	1.3	208
Shower	2	150	1.3	390
Lockers	1	150	1.3	195
Janitor Closet	1	100	1.3	130
Uniform Distribution	1	100	1.3	130
TOTAL				4,153

1 Bays per tech

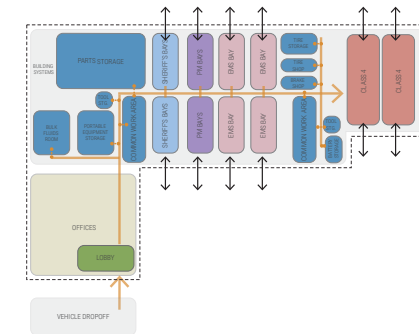
Maintenance SUBTOTAL				20,326
	Building Gross	10%		2,033
TOTAL				22,359

circulation, building system

LAYOUT OPTION A (PREFERRED)



LAYOUT OPTION B

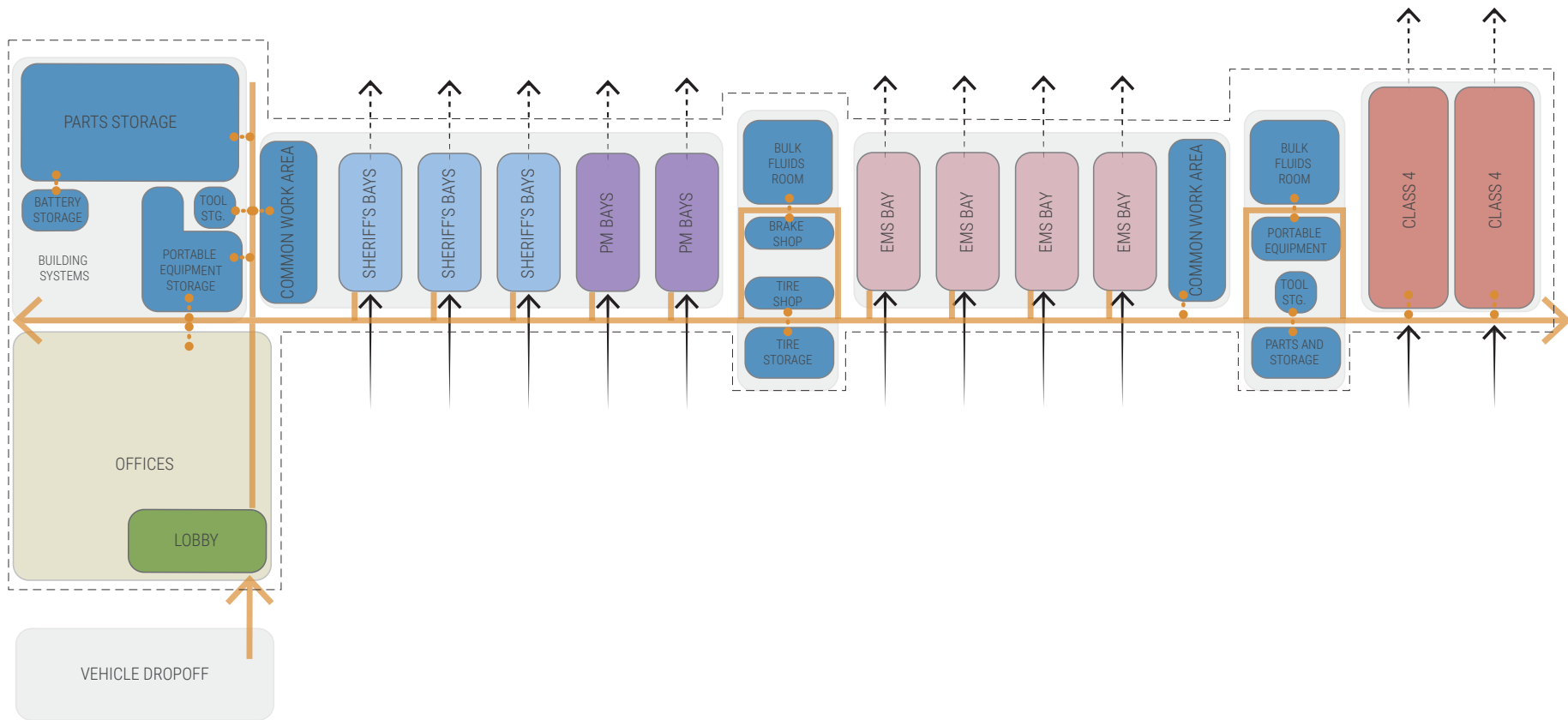


The Fleet Maintenance program uses the number of vehicles in each class as the baseline that informs the quantity and space of each individual space. The design team used ratios from industry best practices to determine number of bays, amount of storage, staff size, and supporting areas.

Two layout options were presented. Option A elongates the building creating all drive-through bays. Option B stacks the bays and has a more compact footprint. Both options have the office area on one end of the building with a common vehicle drop-off location and support spaces distributed evenly within the maintenance bays.

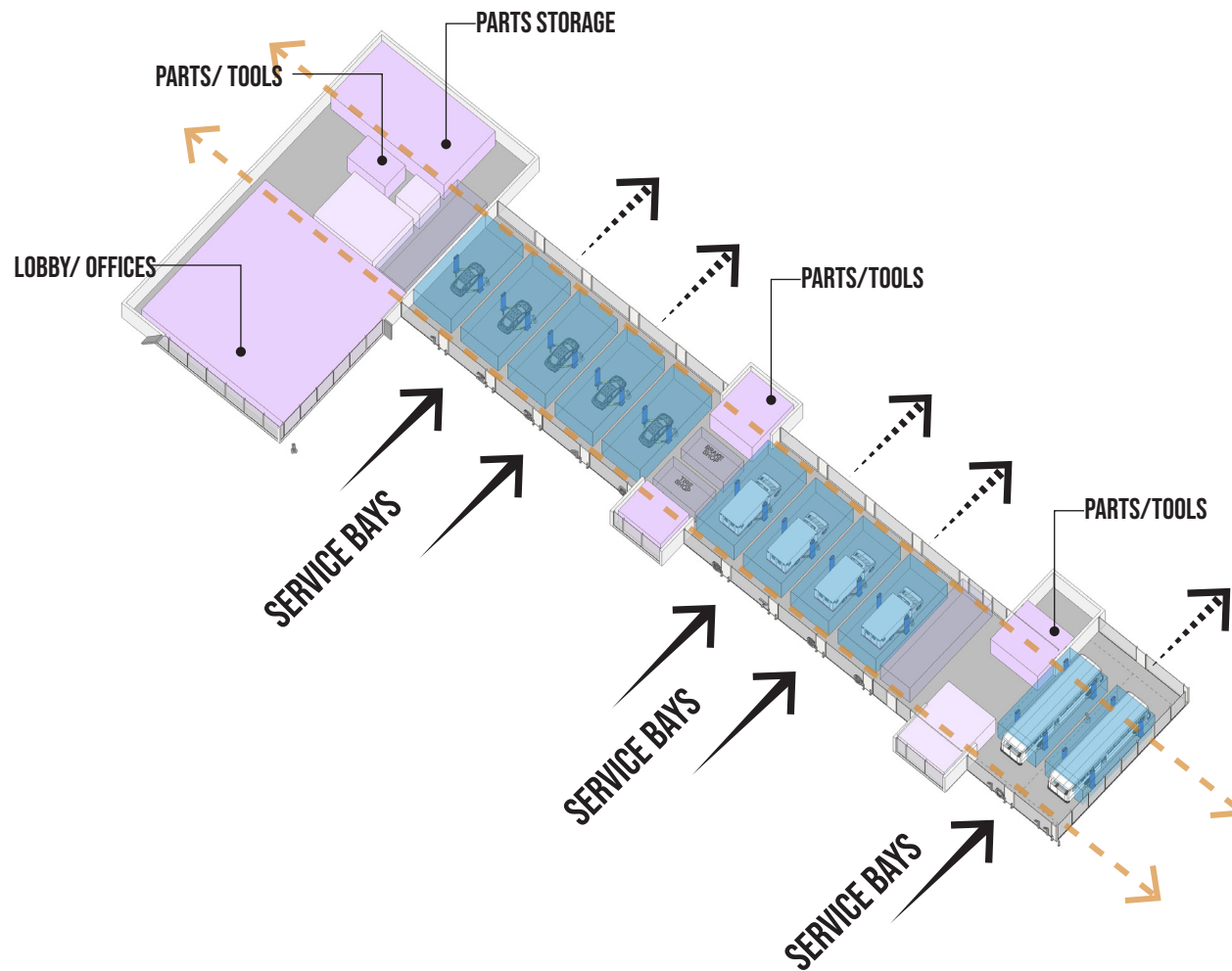
Durham County preferred Option A because it offers unincumbered access to each bay and reduces the need to back vehicles to improve facility safety.

PROGRAM DIAGRAM- FLEET MAINTENANCE FACILITY-OPTION A



This enlarged diagram of the Fleet Maintenance Facility represents the relationship of the different program elements, circulation paths, and the layout of the service bays, which allows the vehicles to drive-thru. This layout was the preferred option of the County for the facility.

PROGRAM DIAGRAM-FLEET MAINTENANCE AXON VIEW



This diagram shows the different building components and circulation paths for both vehicles and staff. To accommodate the program elements, the building footprint is about 23,000 SF

WAREHOUSE

Vehicle Storage	Count	Area Assignment	GF	Area
Class 1 Vehicle	5	50	1.1	275
Class 2 Vehicle	1	250	1.1	275
Class 3 Vehicle	1	250	1.1	275
Class 4 Vehicle	7	540	1.1	4,158
Class 5 Vehicle	1	360	1.1	396
Enclosed Trailers	16	475	1.1	8,360
Internal Circulation				4,122

3 EM, 4 PH,

30% of vehicle storage area

TOTAL	31			17,861
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Storage	Count	Area Assignment	GF	Area
EM Supply Storage	1	6000	1.1	6,600
EMS Logistics Storage	1	350	1.1	385
Loading Dock	1	2500	1.1	2,750

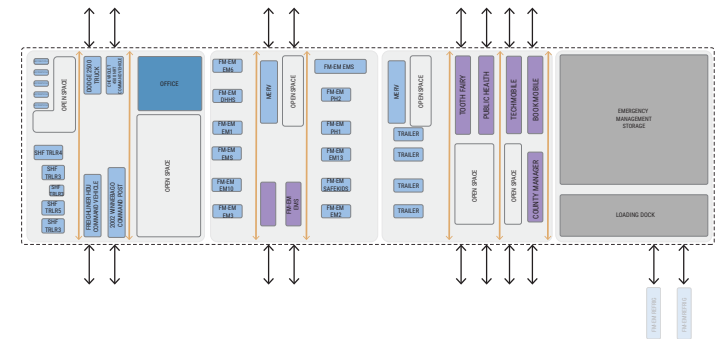
TOTAL	3			9,735
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Office Space	Count	Area Assignment	GF	Area
EMS Private Office	4	120	1.3	624
Sheriff's Private Office	1	120	1.3	156
Break Room	1	120	1.3	156
Work Room	1	120	1.3	156
IT Closet	1	80	1.3	104
Toilets	2	80	1.3	208

TOTAL	10			1,404
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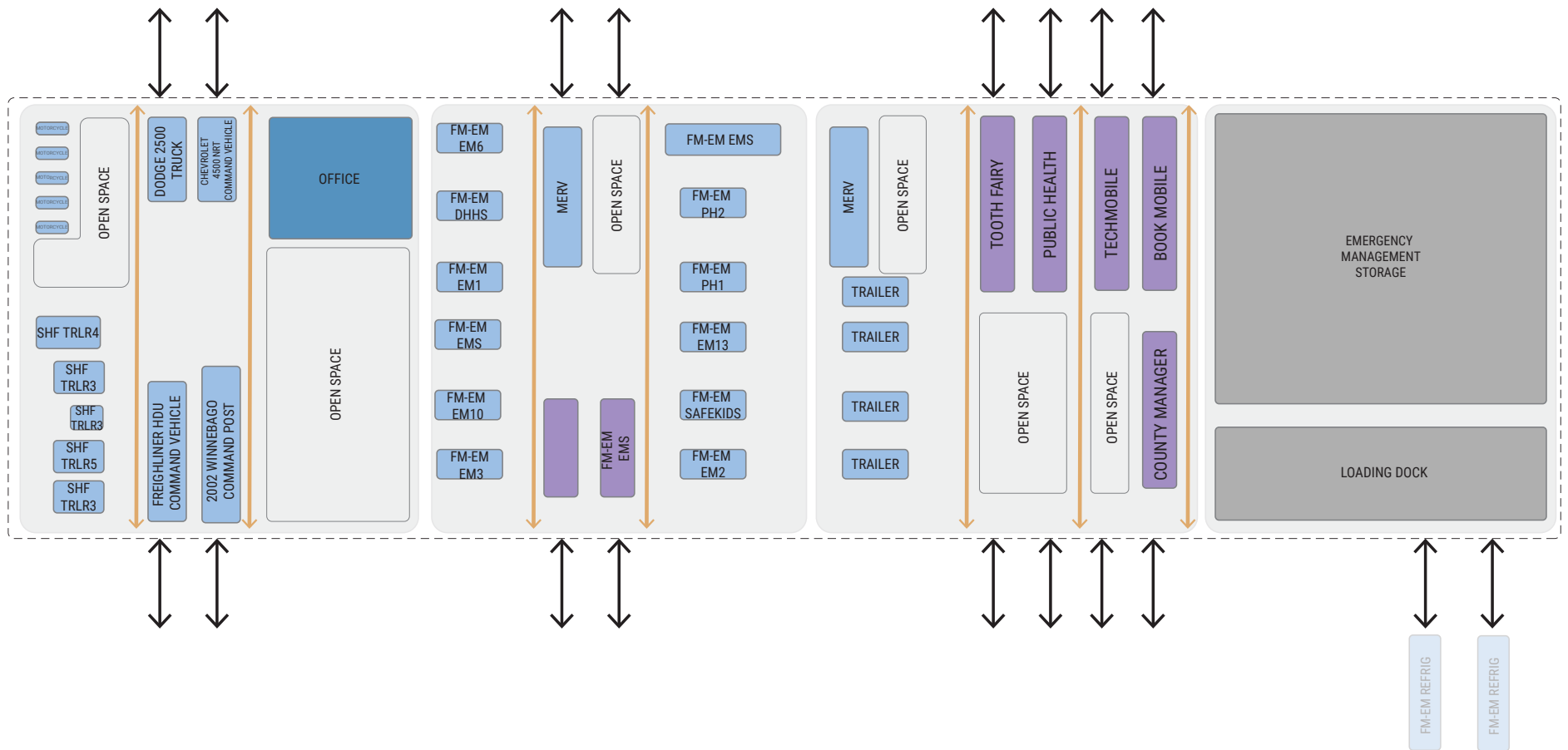
Warehouse SUBTOTAL				29,000
		Building Gross	10%	2,900
		Growth Contingency	10%	2,900
TOTAL				34,800

LAYOUT



The Vehicle Storage Warehouse is based on the actual vehicle and trailer counts provided by Durham County. Departments with assets included are: Office of Emergency Management (OES), Sheriff's Office, Public Health, Library, and County Manager's Office. Additionally, supply storage and staff space for EMS Logistics and OES are included as well. A 10% Grow Contingency provides expansion area within the program.

PROGRAM DIAGRAM- WAREHOUSE



This Warehouse diagram represents the layout of the Warehouse facility, which has drive-thru bays, flanked by circulation paths. This layout takes into account the area for future facility growth and the building footprint will be about 35,000 SF.

SPECIALTY VEHICLES BY DEPARTMENT

BOARD OF ELECTIONS

Trailer 1 Cargo Trailer

COOPERATIVE EXTENSION

Trailer 1 Chicken processing
2 Agricultural Trailers

COUNTY MANAGER OFFICE

Class 4 1 DCo on the Go

EMERGENCY MANAGEMENT

Class 3 1 F350*

Class 5 1 Freight liner*

Trailer 12 Trailers*

EMS

Class 3 34 Ambulances

Class 4 1 MERV*

Trailer 1 Trailers*

EMS BUSINESS SERVICES

Class 3 1 15' Box Truck
1 Fleet Truck
1 Retired Ambulance

OPEN SPACE/REAL ESTATE

Trailer 1 10' Trailer
1 Box Trailer

FIRE MARSHALL

Class 3 1 Fire Investigation Truck

UTILITIES

Class 5 1 Ford F450 with Crane
2 F-550 Diesel Dump truck

GENERAL SERVICES

Trailer 14 Trailers

Class 5 4 1-1/2 Ton Truck

Class 6 1 Mack Roll-Off
1 Freightliner Grappler
1 Kenworth Box Truck
1 Chevy C7500

LIBRARY

Class4 1 Library Technology Mobile-Thomas*
1 Library Bookmobile Sprinter Hauler*

PUBLIC HEALTH

Class 3 1 Van- Ford Transit Connect

Class4 1 Thoothfairy
1 Future Public Health Vehicle

Trailer 2 Trailers*

SHERIFF'S OFFICE

Class 3 2 Transportation Vans
2 Detention Vans
2 Drug Unit Vans
1 Emergency response Vans
1 Converted Ambulance*
1 E350 Van- Armored

Class 4 1 Commando Post*
1 Freight Liner*
1 Winnebago *

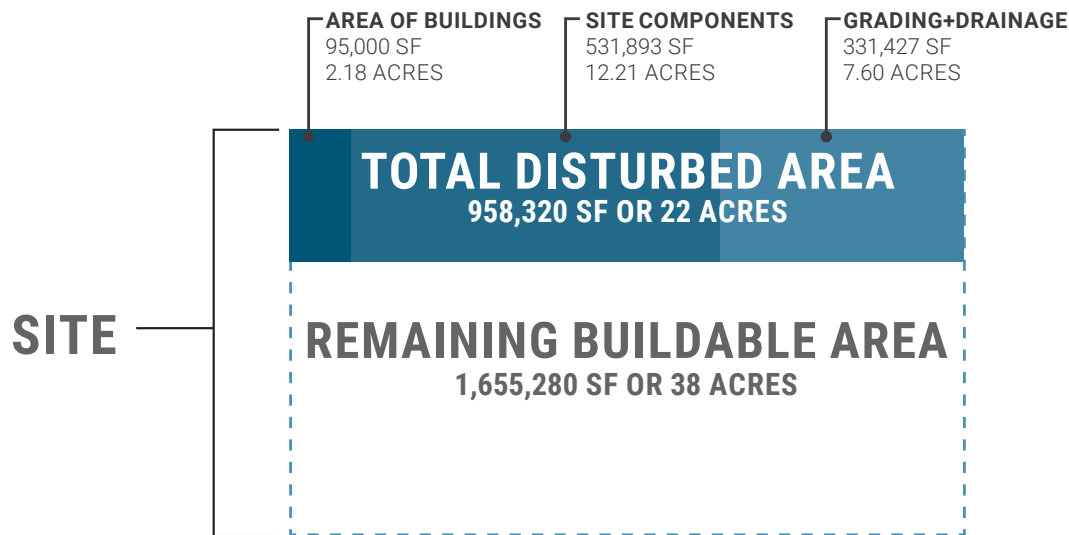
Trailer 1 Total Containment Vessel*
3 Trailers*

Boats 1 Large Boat
1 Small Boat

Note: These numbers reflect current fleet counts without growth. *: Stored at Warehouse

SITE COMPONENTS

	Count	Area Assignment	GF	Area	
Gasoline Fuel Station	1	1800		1,800	2 pumps
Diesel Fuel Station	1	1800		1,800	2 pumps
EV Charging Station	3	240		720	
Tank Farm	1	0		0	(2) 12,000 Gallon
Automatic Car Wash	1	720		720	
Salt / Sand Barns		500		500	
Salt / Sand Spreader Sheds	12	240		3,000	
Brine		500		500	
Dump Station		700		700	
Surplus Vehicle Storage	50	300		15,000	
Site SUBTOTAL				24,740	



*Note: Numbers shown on diagram above are approximate and for estimate purposes only.

SITE ANALYSIS

03

SITE EVALUATION



OVERALL PROPERTY DESCRIPTION

The property is owned by Durham County and it is located at 1117 Junction Road in Durham NC.

The property is currently a vacant lot and the site is primarily wooded with predominantly White Store Sandy Loam Soils and has slopes that range from mild (2-6 percent) to moderate (10-25 percent) There is an intermittent stream on the site running from the Eastern portion all the way to the Western boundary, which partially divides the site into separate portions.

Additionally, there is an utility easement and wetland on the northern portion of the site that connects with the western portion of the stream.

The site is adjacent to Residential Zoning on the North, East, and West. The south portion of the site is adjacent to Light industrial Zoning.

The proposed facilities will include an Animal Shelter, a Fleet Maintenance Facility, and a Warehouse.

REGULATORY OVERVIEW

- **Area:** 59.64 Acres
- **Owner:** County of Durham
- **Parcel ID:** 220438
 - **PIN #** 0842-85-01-8763
- **Use:** Vacant
- **Zoning:** IL-Industrial Light
 - Tier: Suburban Development Tier
- **Setbacks:**
 - Street Yard: 40' Min.
 - Side Yard: 30' Min.
 - Rear Yard: 25' Min.
- **Restrictions:**
 - Height restriction: 50'
 - Max site coverage: 60%
- **Utilities:**
 - Sanitary sewer :On site.
 - Domestic water: Needs to be extended to the site

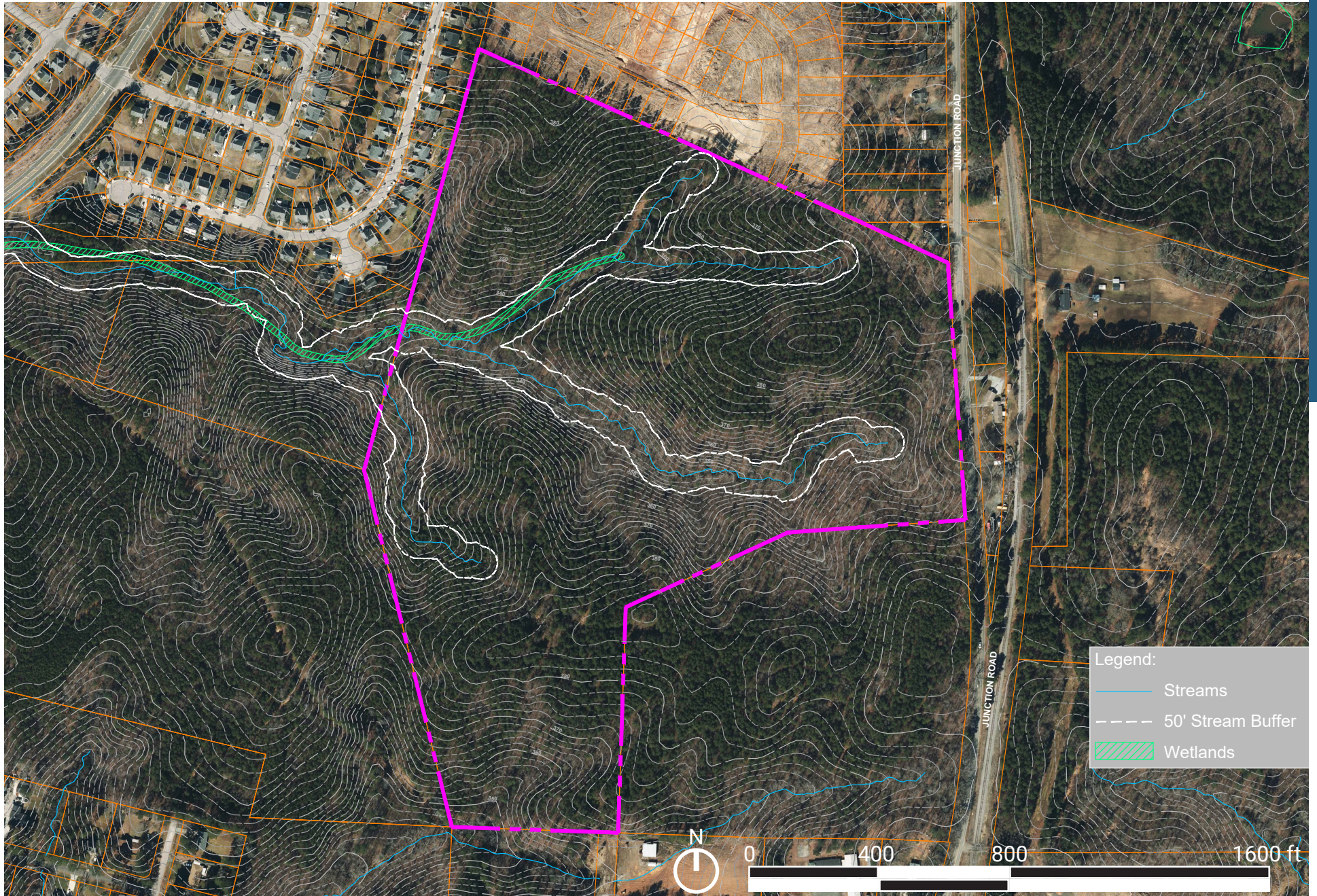
- **Parking requirement:**

Maintenance Bays:	33
Office Space:	23
Wash Bay	2
<u>Warehouse/Storage:</u>	<u>8</u>
Total:	66

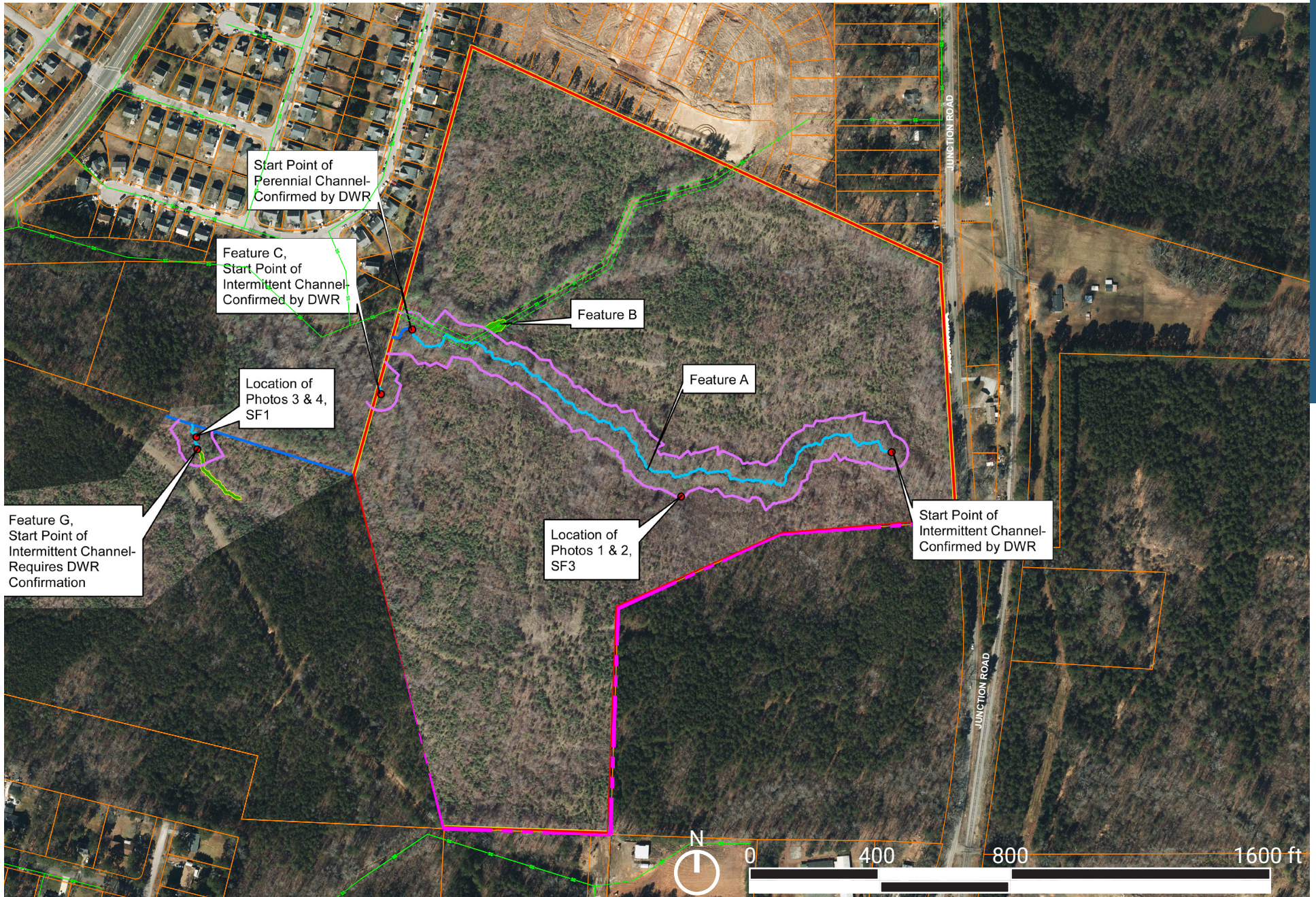
SITE ANALYSIS -- EXISTING CONDITIONS



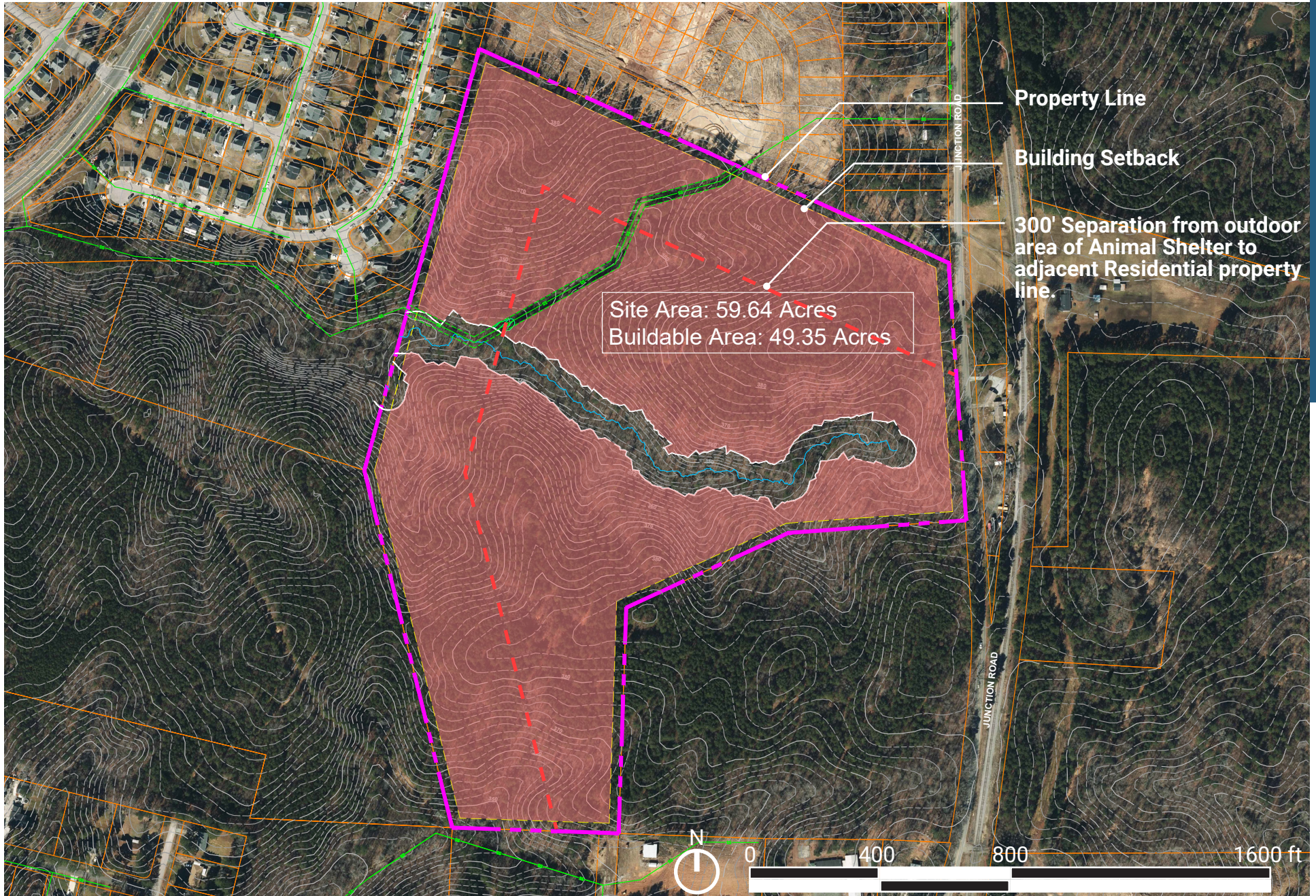
SITE ANALYSIS -- HYDROLOGY-DURHAM CO. GIS



SITE ANALYSIS -- FEATURE EXHIBIT FROM S&ME - 12.21.2015



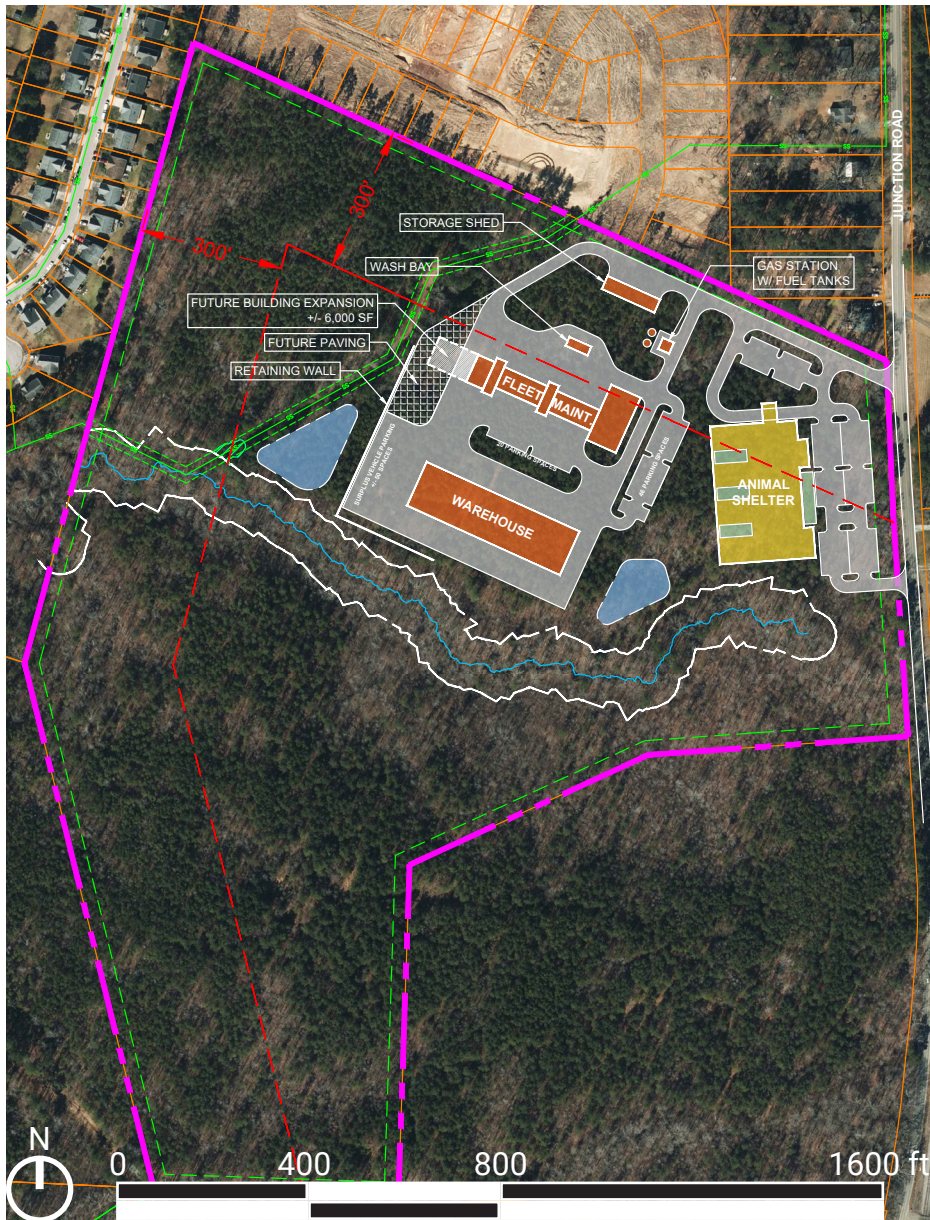
SITE ANALYSIS -- BUILDABLE AREA



CONCEPTUAL PLANNING

04

SITE CONCEPT - OPTION 1



This site concept option places the Fleet Maintenance Facility, the Warehouse, and the Animal Shelter on the Northern portion of the site. The approximate disturbed area for this concept is 18 Acres.

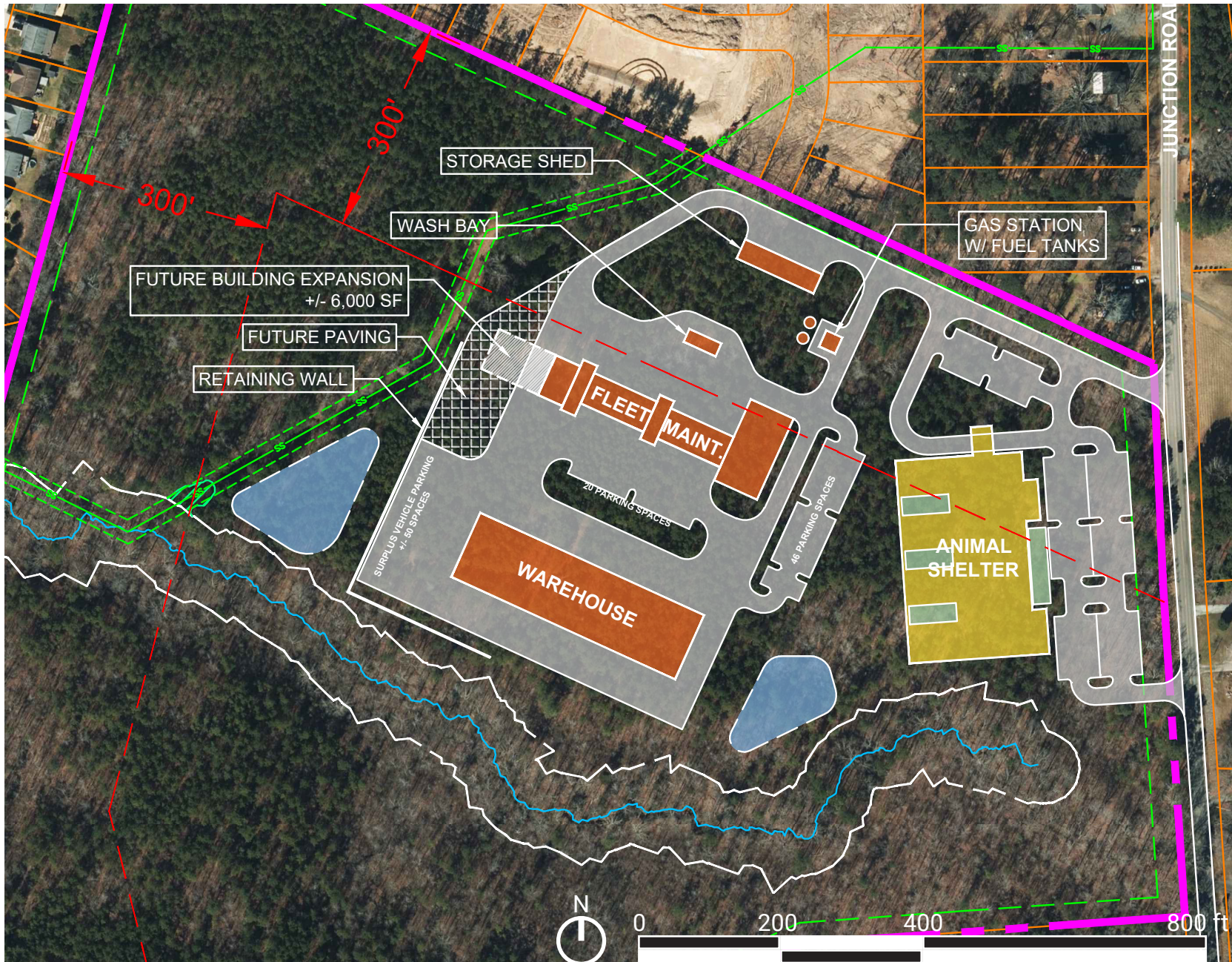
Pros:

- Less utility cost
- Less roadwork cost
- Opportunity to develop additional facilities on the south portion of the site
- Facilities are located on gentler slopes, which reduces the landscaping and grading cost

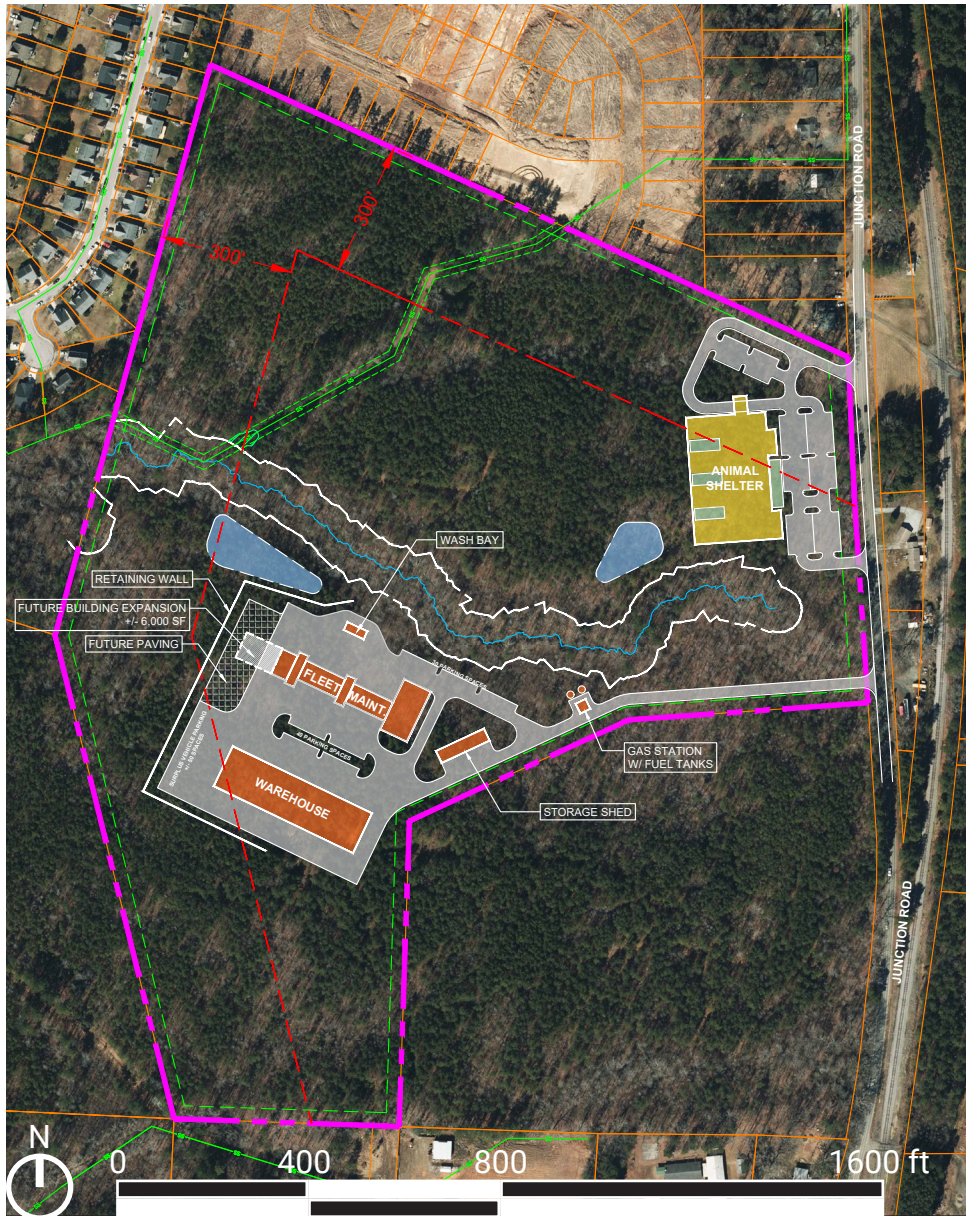
Cons:

- Not much room for expansion of facilities in the long term
- Proximity of Warehouse and Fleet Maintenance building may cause some noise disturbance to the Animal Shelter
- Animal Shelter and Facilities share one of the entryways

SITE CONCEPT - OPTION 1



SITE CONCEPT - OPTION 2



This site concept option places the Fleet Maintenance Facility, and the Warehouse on the Southern portion of the site, and the Animal Shelter on the Northeast portion. The approximate disturbed area for this concept is 22 Acres.

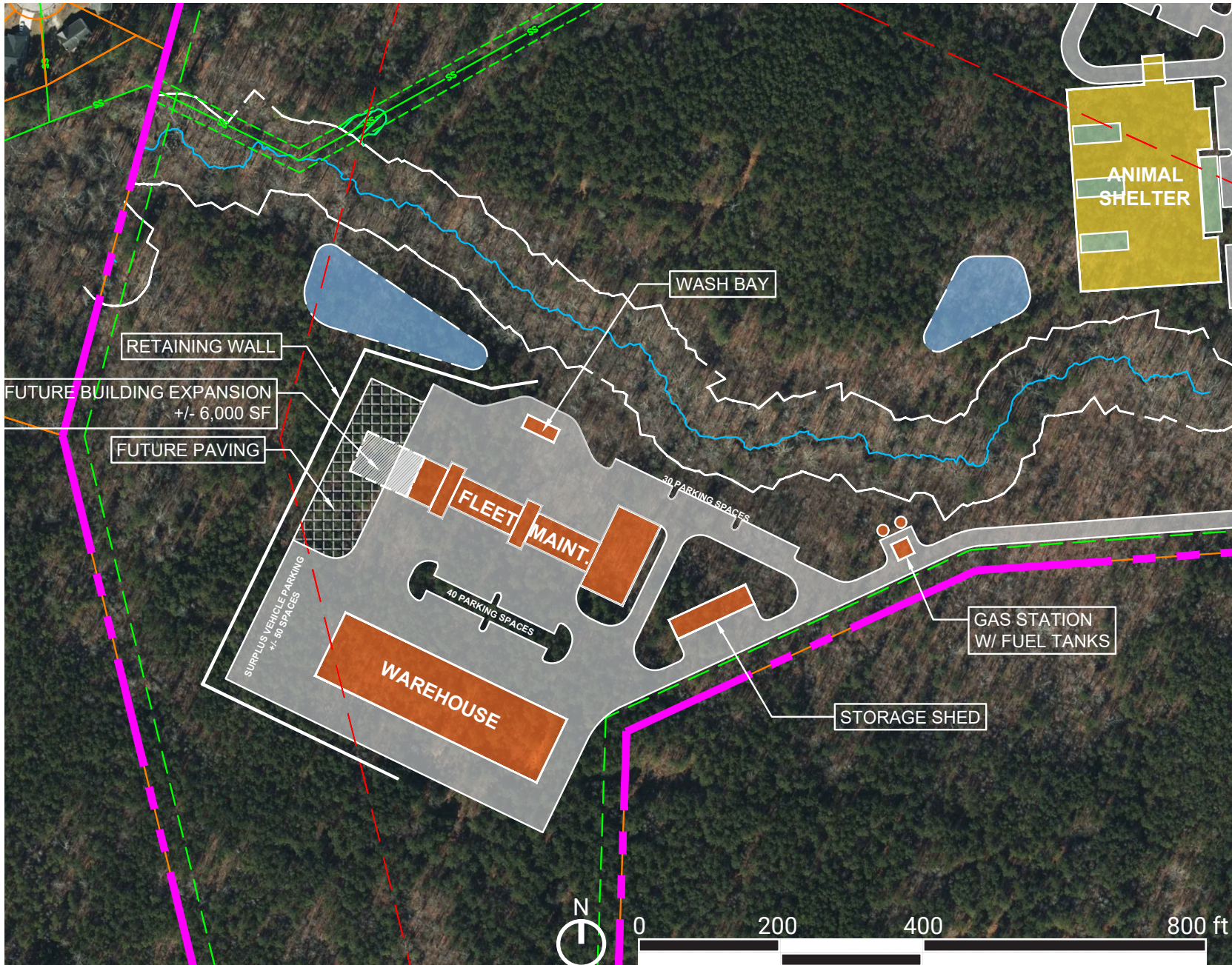
Pros:

- Separation of Animal Shelter from facilities functions.
- More room for facilities expansion in the long term
- Opportunity to develop additional facilities on the Northern portion of the site

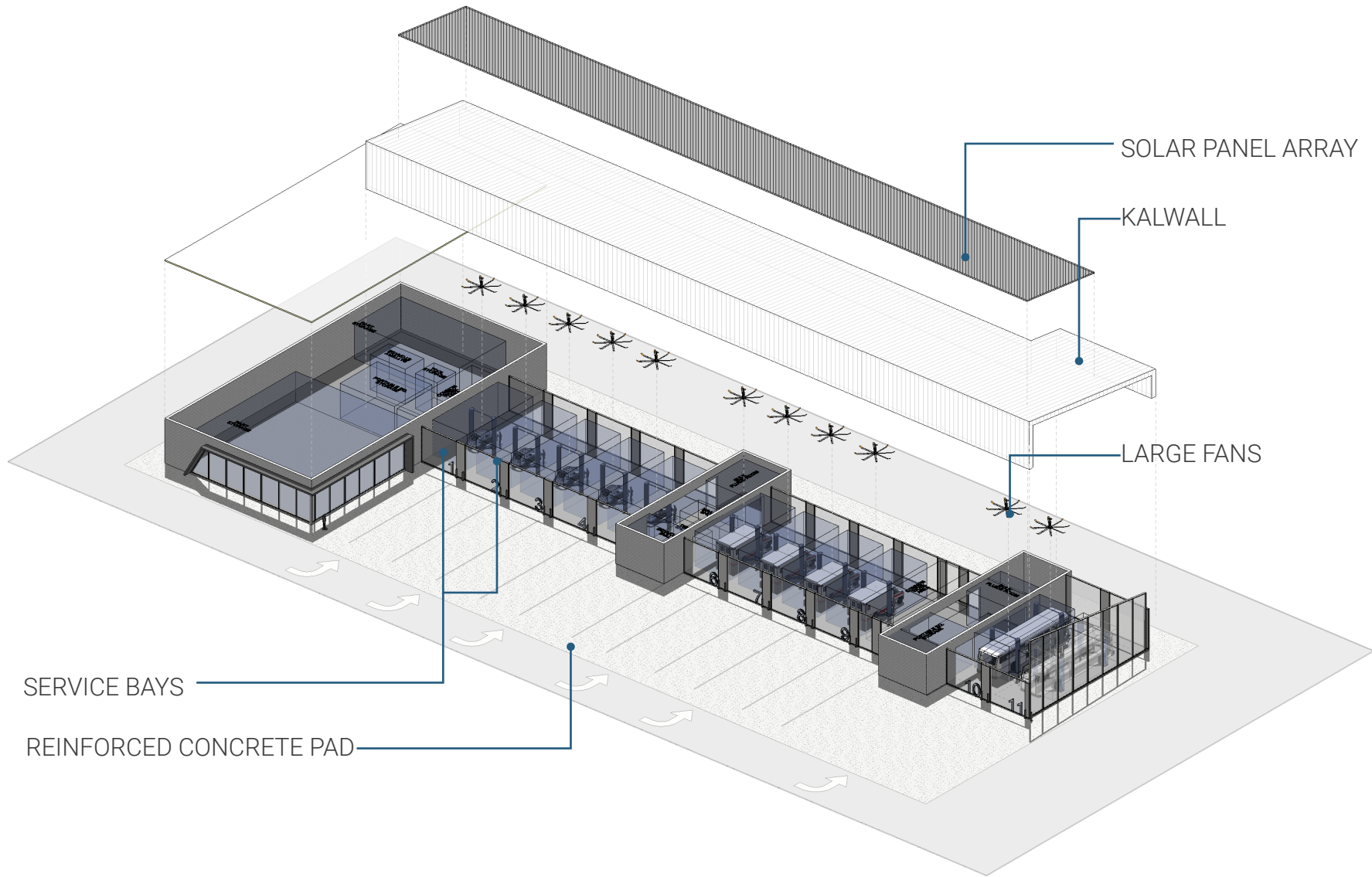
Cons:

- Higher utility cost
- Higher roadway and site cost
- Higher cost for landscaping and grading due to steeper slopes on the Southern portion of site.

SITE CONCEPT - OPTION 2

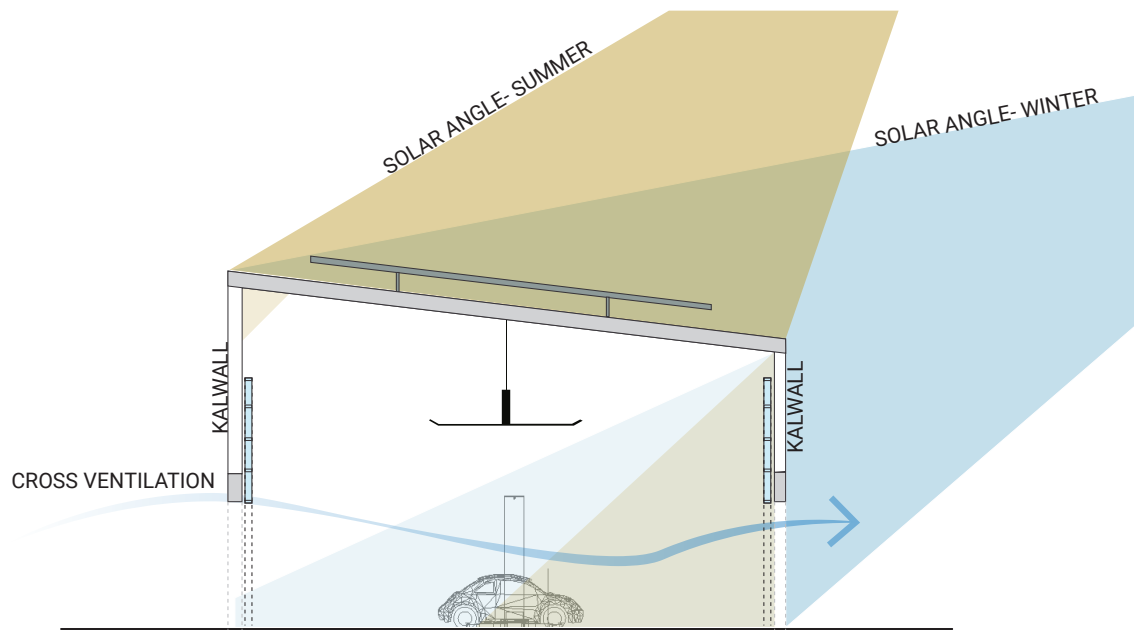


PROGRAM DIAGRAM-FLEET MAINTENANCE AXON VIEW



The Fleet Maintenance Facility will allow vehicles to drive-thru the service bay, which will improve the operations safety by eliminating the need of backing-up and facilitate circulation of vehicles.

SUSTAINABILITY

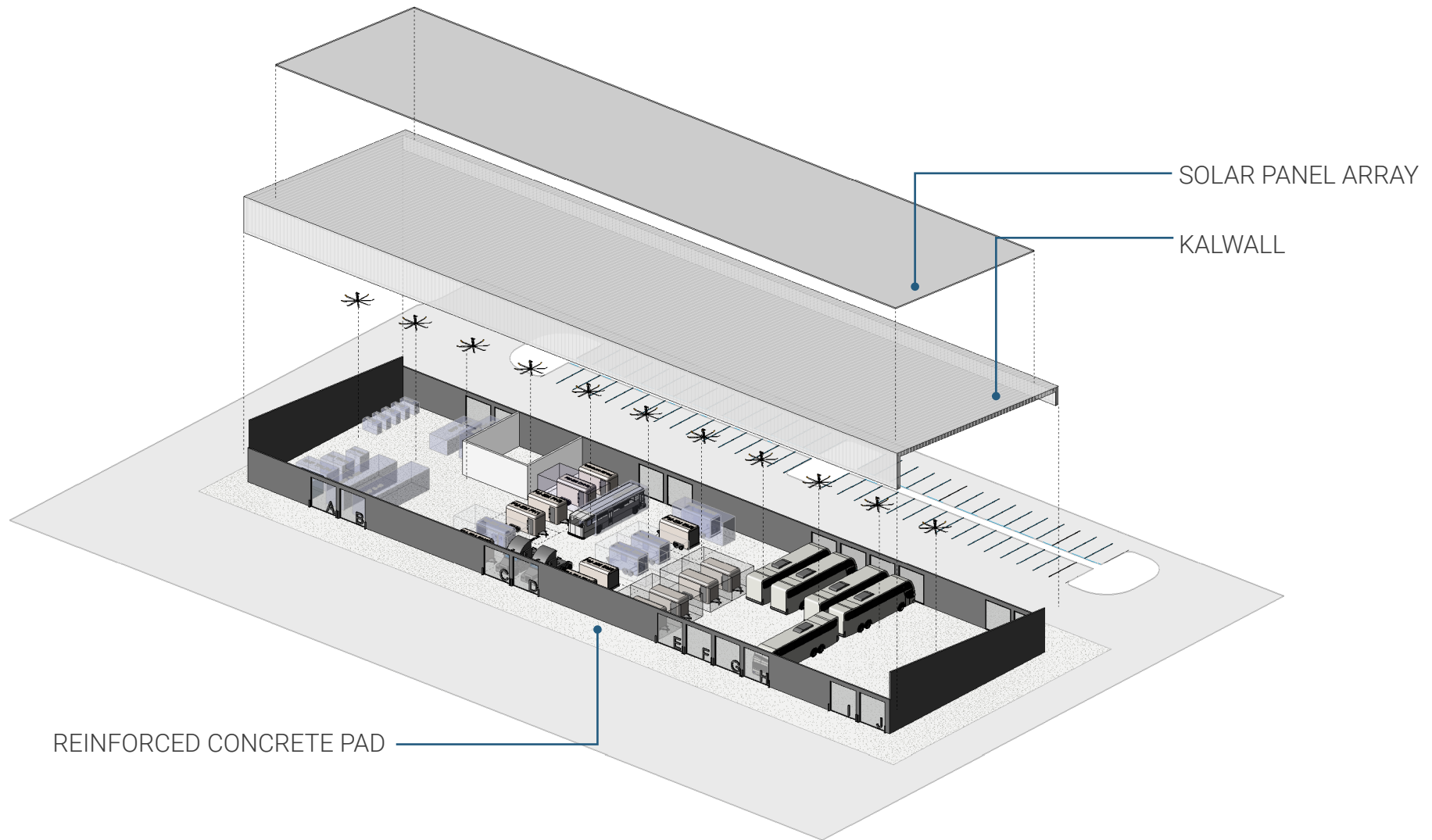


STRATEGIES

This Diagram represents the passive heating and cooling strategies to keep the building comfortable and save on cost of lighting, heating and cooling.

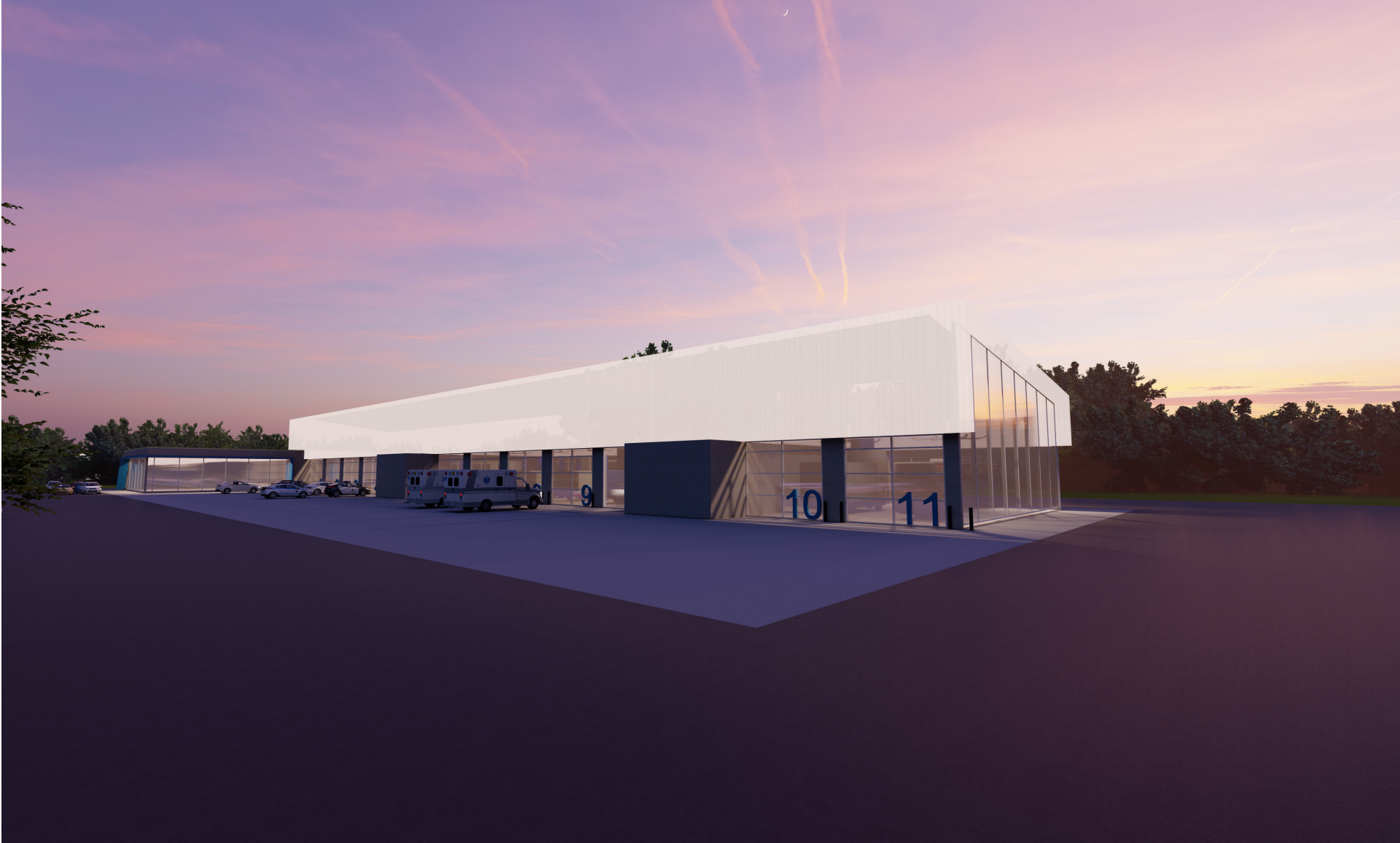
- The Kalwall will filter the daylight to minimize the need of artificial lighting ,and it will reduce the heat gains.
- The building layout allows for cross ventilation, which will cool off the building and reduce the amount of cooling.
- The building orientation and roof form optimize the placement of the solar panels, which will provide a significant amount of energy savings in building operations.

PROGRAM DIAGRAM-WAREHOUSE AXON VIEW



3D DIAGRAM OF BUILDING

FLEET MAINTENANCE FACILITY RENDERING



APPENDIX

05

Project: **Durham County Fleet Maintenance Facility**
Location: **Durham, NC**
Client: **O'Brien Atkins**
Stage: **Rough Order of Magnitude (R2)**
Date: **7/6/2023**

Conceptual Cost Estimate

Contents	Pages
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- Cost Estimate Back-Up (Warehouse)	11 - 15
- Cost Estimate Back-Up (Storage Shelter)	16 - 17
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- Escalation Overview	23
- Scope Responsibility Matrix	24

SKANSKA

Durham County Fleet Maintenance Facility
O'Brien Atkins
Rough Order of Magnitude (R2)

Skanska USA Building Inc.
4309 Emperor Blvd, Suite 200
Durham, NC 27703
7/6/2023

Estimate Introduction

Project Description

The Durham County Fleet Maintenance project comprises a new storage warehouse / office building (34,800 gsf) and a new maintenance facility (22,226 gsf) to accommodate the County's vehicle maintenance program to be located at 1117 Junction Road in Durham, NC. The scope also includes development of an 11 acre site and associated off-site improvements. Construction is anticipated to begin in 2028.

Projection Documentation

The following documents have been used in the preparation of this cost estimate:

Description	Source	Dated
Programming Evaluation Study	OBA	05/18/23
Site Concept 1	OBA	05/18/23
Site Concept 2	OBA	05/18/23
Proposed Generator and Geothermal System	OBA	06/29/23

Estimate Basis

Project Quantities

All project quantities included within this report are derived from quantity analysis of project drawings / sketches / program. Where necessary, additional quantities have been included based on conceptual estimate practices and benchmark analysis from other similar projects.

Direct Unit Costs

All unit prices included within this report are reflective of current market conditions in the Durham, NC location. Direct unit prices assume a minimum of 3 responsive bids per bid package. Direct / subcontract unit costs include all subcontractor overhead, profit, sales tax, materials, equipment, and labor.

Indirect Costs

Indirect costs are included within the overall estimate summaries and include general conditions, project staffing, mobilization, bonding and insurances, and general contractor's fee.

Contingencies

The following project contingencies have been included:

Design Contingency (10.00%)

To cover actual items of work, not yet fully defined on the documents, that are required to realize the overall design intent of the project.

Construction Contingency (3.00%)

To cover future subcontractor coordination, logistics planning, and scope gaps between bid

SKANSKA

Durham County Fleet Maintenance Facility
O'Brien Atkins
Durham, NC
Rough Order of Magnitude (R2)

Skanska USA Building Inc.
4309 Emperor Blvd, Suite 200
Durham, NC 27703
7/6/2023

EXECUTIVE COST SUMMARY			
Description	SF-age	\$ / SF	\$ Total
Base Scope			
Maintenance Building	22,226 SF	\$918.38	\$20,412,000
Warehouse	34,800 SF	\$351.03	\$12,216,000
Storage Shelter	3,750 SF	\$182.13	\$683,000
Sitework	482,318 SF	\$20.08	\$9,686,000
Sub-Total Construction Cost			\$42,997,000
Additional Costs			
Escalation (thru 2028)		22.00%	\$9,459,000
Total Construction Cost (Escalated)			\$52,457,000

Anticipated Cost Range

Construction Cost Range	Low	\$47,211,000
	High	\$57,703,000

Additional Cost Options

PV Panel / Roof Array (Warehouse)	Net Add	\$900,000
PV Panel / Roof Array (Maintenance)	Net Add	\$500,000
Site Option 2	Net Add	\$1,906,000

PROJECT - Durham County Fleet Maintenance Facility
 CLIENT - O'Brien Atkins
 LOCATION - Durham, NC
 STAGE - Rough Order of Magnitude (R2)

SKANSK

SKANSKA

Durham County Fleet Maintenance Facility
 O'Brien Atkins
 Durham, NC

Skanska USA Building Inc.
 4309 Emperor Blvd, Suite 200
 Durham, NC 27703
 7/6/2023

Total Construction Cost						
Description	Maintenance	Warehouse	Storage Shelter	Sitework	Total	
	22,226 sf	34,800 sf	3,750 sf	482,318 sf	\$	\$ / GSF
A. Substructure	\$777,000	\$699,000	\$111,000		\$1,587,000	\$26.11
A10 Foundations	\$777,000	\$699,000	\$111,000		\$1,587,000	\$26.11
A20 Basement						
B. Shell	\$6,165,000	\$5,528,000	\$345,000		\$12,038,000	\$198.07
B10 Superstructure	\$1,317,000	\$2,066,000	\$221,000		\$3,604,000	\$59.30
B20 Exterior Enclosure	\$3,560,000	\$2,186,000			\$5,746,000	\$94.54
B30 Roofing	\$1,288,000	\$1,276,000	\$124,000		\$2,688,000	\$44.23
C. Interiors	\$816,000	\$573,000			\$1,389,000	\$22.85
C10 Interior Construction	\$554,000	\$351,000			\$905,000	\$14.89
C20 Stairs						
C30 Interior Finishes	\$262,000	\$222,000			\$484,000	\$7.96
D. Services	\$2,501,000	\$2,375,000	\$61,000		\$4,937,000	\$81.23
D10 Conveying						
D20 Plumbing	\$965,000	\$427,000			\$1,392,000	\$22.90
D30 HVAC	\$744,000	\$1,053,000			\$1,797,000	\$29.57
D40 Fire Protection	\$212,000	\$214,000	\$23,000		\$449,000	\$7.39
D50 Electrical	\$580,000	\$681,000	\$38,000		\$1,299,000	\$21.37
E. Equipment / Furnishings	\$5,194,000	\$73,000			\$5,267,000	\$86.66
E10 Equipment	\$5,168,000	\$30,000			\$5,198,000	\$85.53
E20 Furnishings	\$26,000	\$43,000			\$69,000	\$1.14
F. Special Construction						
F10 Special Construction						
F20 Demolition						
G. Sitework				\$7,332,000	\$7,332,000	\$120.64
G10 Site Prep				\$1,205,000	\$1,205,000	\$19.83
G20 Site Improvements				\$4,209,000	\$4,209,000	\$69.25
G30 Site Utilities (Wet)				\$1,660,000	\$1,660,000	\$27.31
G40 Site Utilities (Dry)				\$258,000	\$258,000	\$4.25
Z. General Requirements	\$464,000	\$277,000	\$16,000	\$220,000	\$977,000	\$16.08
Z10 General Requirements	\$464,000	\$277,000	\$16,000	\$220,000	\$977,000	\$16.08
Sub-Total Direct Cost of Work	\$15,917,000	\$9,525,000	\$533,000	\$7,552,000	\$33,527,000	\$551.65
General Conditions 6.00%	\$955,000	\$572,000	\$32,000	\$453,000	\$2,012,000	\$33.11
GC Fee 3.00%	\$506,000	\$303,000	\$17,000	\$240,000	\$1,066,000	\$17.54
Bonds & Insurances 3.50%	\$608,000	\$364,000	\$20,000	\$289,000	\$1,281,000	\$21.08
Construction Contingency 3.00%	\$478,000	\$286,000	\$16,000	\$227,000	\$1,007,000	\$16.57
Phasing / Logistics 0.50%	\$92,000	\$55,000	\$3,000	\$44,000	\$194,000	\$3.19
Design/Estimating Contingency 10.00%	\$1,856,000	\$1,111,000	\$62,000	\$881,000	\$3,910,000	\$64.33
Total Construction Cost (Current \$)	\$20,412,000	\$12,216,000	\$683,000	\$9,686,000	\$42,997,000	\$707.47
Escalation (thru Mid 2028) 22.00%	\$4,491,000	\$2,688,000	\$150,000	\$2,131,000	\$9,460,000	\$155.65
Total Construction Cost (Escalated \$)	\$24,903,000	\$14,904,000	\$833,000	\$11,817,000	\$52,457,000	\$863.12
	\$1,120.44	\$428.28	\$222.13	\$24.50		

Maintenance
 Estimate Back-Up

COST ESTIMATE

FLEET MAINTENANCE FACILITY

SKANSKA

PROJECT - Durham County Fleet Maintenance Facility
 CLIENT - O'Brien Atkins
 LOCATION - Durham, NC
 STAGE - Rough Order of Magnitude (R2)

Skanska USA Building Inc.
 4309 Emperor Blvd, Suite 200
 Durham, NC 27703

Maintenance 22,226 GSF

Description	Quantity	Unit Price	Grand Total
A10 FOUNDATIONS			
Foundations			
Continuous footings - 1,083 lf x 4'w x 24" deep	337	cy \$600.00 /cy	\$202,000
Continuous footings for interior CMU walls - 100 lf x 2'w x 12" deep	8	cy \$600.00 /cy	\$5,000
Spread footings - 30 each x 7' x 7' x 24" deep	114	cy \$600.00 /cy	\$69,000
Perimeter insulation detailing at slab edge	1,083	lf \$10.00 /lf	\$11,000
Slab on Grade			
Reinforced concrete slab on grade, complete	22,226	sf \$10.80 /sf	\$240,000
Slab recesses for lifts	20	ea \$10,000.00 /ea	\$200,000
Loading dock	1	ls \$50,000.00 /ls	\$50,000
TOTAL: A10 FOUNDATIONS			\$34.96 \$/gsf \$777,000
B10 SUPERSTRUCTURE			
Superstructure			
Structural steel - vertical (allow 5.00 LB / SF)	111,075	lb \$2.55 /lb	\$283,000
Structural steel - horizontal (allow 6.00 LB / SF)	133,290	lb \$2.60 /lb	\$347,000
Structural steel - brace frames (allow 2.00 LB / SF)	44,430	lb \$3.00 /lb	\$133,000
Added steel for Risk Category IV (allow 1.50 LB / SF)	33,323	lb \$2.55 /lb	\$85,000
Miscellaneous bolts, plates, connections (10%)	32,212	lb \$2.50 /lb	\$81,000
Metal decking at roof	22,226	sf \$8.00 /sf	\$178,000
Perimeter structural detailing	1,083	lf \$25.00 /lf	\$27,000
Spray fire-proofing, new steel framing	22,226	sf \$3.00 /sf	\$67,000
Spray fire-proofing, underside of deck		sf /sf	Assume N/A
Miscellaneous			
Miscellaneous metals	22,226	gsf \$1.00 /gsf	\$22,000
Blocking / backing	22,226	gsf \$1.00 /gsf	\$22,000
Equipment supports / pads / curbs	1	ls \$25,000.00 /ls	\$25,000
Perimeter safing	1,083	lf \$25.00 /lf	\$27,000
Hoisting / access	1	ls \$20,000.00 /ls	\$20,000
TOTAL: B10 SUPERSTRUCTURE			\$59.25 \$/gsf \$1,317,000
B20 EXTERIOR ENCLOSURE			
Exterior Substrate (1,083lf x 35' + 2'h below grade +1.5'h parapet)			
8" CMU	27,030	sf \$23.00 /sf	\$622,000
Rigid insulation	27,030	sf \$6.00 /sf	\$162,000
Fluid applied air barrier	27,030	sf \$5.25 /sf	\$142,000
Exterior Wall Finishes (Non Glazed)			
Brick veneer	27,030	sf \$33.00 /sf	\$892,000
Metal panel canopies at storefront areas, 160 lf x 5' deep x 12" tall	1,780	sf \$85.00 /sf	\$151,000
Detailing around openings	502	sf \$15.00 /sf	\$8,000
Envelope enhancements, trim, banding, etc.	41,118	sf \$5.00 /sf	\$206,000
Exterior Glazing			
Kalwall (16'h upper exterior wall portion long sides)	8,960	sf \$65.00 /sf	\$582,000
Exterior storefront	1,000	sf \$80.00 /sf	\$80,000
Glazing QAQC	1,000	sf \$1.50 /sf	\$2,000
Glazing cleaning	1,000	sf \$2.00 /sf	\$2,000
Exterior Door Sets (Doors, Frames, Hardware)			
Main entry door sets, glazed / AL	2	leaf \$7,500.00 /leaf	\$15,000
Egress door sets	6	leaf \$2,800.00 /leaf	\$17,000
Premium for specialty hardware	1	ls \$5,000.00 /ls	\$5,000
Card readers (infrastructure in D50)	8	sets \$2,800.00 /sets	\$22,000

SKANSKA

PROJECT - Durham County Fleet Maintenance Facility
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 LOCATION - Durham, NC
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Skanska USA Building Inc.
 4309 Emperor Blvd, Suite 200
 Durham, NC 27703

Maintenance 22,226 GSF

Description	Quantity	Unit Price	Grand Total
Overhead Doors			
Overhead rollup doors, motorized - vehicles, 12'w x 15'h	22	ea \$20,000.00 /ea	\$440,000
Exterior Soffits			
Framing and substrate at exterior soffits	100	sf \$12.00 /sf	\$1,000
Metal panel soffit finishes	100	sf \$45.00 /sf	\$5,000
Miscellaneous eaves detailing	1,083	lf \$30.00 /lf	\$32,000
Miscellaneous Envelope			
Envelope support framing (allow 1.0 LB / SF envelope)	41,118	lb \$2.55 /lb	\$105,000
Blocking / backing	41,118	sf \$0.30 /sf	\$12,000
Exterior caulking	41,118	sf \$0.30 /sf	\$12,000
Envelope testing, QAQC	1	ls \$5,000.00 /ls	\$5,000
Exterior signage	1	ls \$10,000.00 /ls	\$10,000
Generator Enclosure	1	ls \$30,000.00 /ls	\$30,000
TOTAL: B20 EXTERIOR ENCLOSURE			\$160.17 \$/gsf \$3,560,000
B30 ROOFING			
New Roof			
PVC roof, complete with cover board & insulation	35,000	sf \$32.00 /sf	\$1,120,000
PVC parapet, vertical (allow 18" high)	1,625	sf \$28.00 /sf	\$45,000
Associated flashings, walkway pads, etc.	35,000	sf \$2.50 /sf	\$88,000
Miscellaneous Roofing			
Roof hatch / ladder	2	ea \$5,000.00 /ea	\$10,000
Temporary roofing	35,000	sf \$0.70 /sf	\$25,000
TOTAL: B30 ROOFING			\$57.95 \$/gsf \$1,288,000
C10 INTERIOR CONSTRUCTION			
Interior Partitions			
Metal stud partitions - complete	3,833	sf \$12.00 /sf	\$46,000
CMU partitions - separation between maintenance bay and office	2,700	sf \$22.00 /sf	\$59,000
CMU partitions - lubrication, material, equipment, tools - allow 250 lf	3,750	sf \$22.00 /sf	\$83,000
Interior Glazing			
Interior glazing, allowance	914	sf \$55.00 /sf	\$50,000
Interior Door Sets (Doors, Frames, Hardware)			
Interior door sets, typical	25	leaf \$1,700.00 /leaf	\$43,000
Fixed Specialties			
Restroom accessories - staff restrooms	2	rm \$4,500.00 /rm	\$9,000
Restroom accessories - single stall rooms	2	rm \$900.00 /rm	\$2,000
Restroom accessories - shower rooms	2	ea \$1,800.00 /ea	\$4,000
Staff lockers	20	ea \$550.00 /ea	\$11,000
Locker benches	20	lf \$120.00 /lf	\$2,000
Fire extinguishers	20	ea \$345.00 /ea	\$7,000
Miscellaneous fixed specialties	22,226	gsf \$0.30 /gsf	\$7,000
Miscellaneous Specialties			
Signage (code, way finding, branding)	22,226	gsf \$1.00 /gsf	\$22,000
Railing at mezzanine storage area	117	lf \$350.00 /lf	\$41,000
Stairs to mezzanine storage	1	ftt \$15,000.00 /ftt	\$15,000
Interior protection measures (bollards, bumper rails, etc.)	22,226	gsf \$1.00 /gsf	\$22,000
Acoustic protection over office area	4,568	sf \$25.00 /sf	\$114,000

SKANSKA

PROJECT - Durham County Fleet Maintenance Facility
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 LOCATION - Durham, NC
 STAGE - Rough Order of Magnitude (R2)

Skanska USA Building Inc.
 4309 Emperor Blvd, Suite 200
 Durham, NC 27703

Maintenance 22,226 GSF

Description	Quantity	Unit Price	Grand Total
Miscellaneous Interiors			
Miscellaneous metals	22,226 gsf	\$0.40 /gsf	\$9,000
Caulking and sealants	22,226 gsf	\$0.35 /gsf	\$8,000
TOTAL: C10 INTERIOR CONSTRUCTION			\$24.93 \$/gsf \$554,000
C30 INTERIOR FINISHES			
Wall finishes, maintenance	17,658 gsf	\$2.00 /gsf	\$35,000
Floor finishes, maintenance	17,658 gsf	\$2.00 /gsf	\$35,000
Enhanced floor finishes, maintenance	4,415 sf	\$20.00 /sf	\$88,000
Ceiling finishes, maintenance	17,658 gsf	\$2.00 /gsf	\$35,000
Wall finishes, office	4,568 gsf	\$5.00 /gsf	\$23,000
Floor finishes, office	4,568 gsf	\$5.00 /gsf	\$23,000
Ceiling finishes, office	4,568 gsf	\$5.00 /gsf	\$23,000
TOTAL: C30 INTERIOR FINISHES			\$11.79 \$/gsf \$262,000
D20 PLUMBING			
Plumbing			
Plumbing, maintenance	17,658 gsf	\$15.00 /gsf	\$265,000
Plumbing, office	4,568 gsf	\$18.00 /gsf	\$82,000
Plumbing, service distribution systems	17,658 gsf	\$35.00 /gsf	\$618,000
TOTAL: D20 PLUMBING			\$43.42 \$/gsf \$965,000
D30 HVAC			
HVAC			
HVAC - maintenance (temporal cooling, H&V, CO monitoring)	17,647 gsf	\$25.00 /gsf	\$441,000
HVAC - maintenance, Big Ass Fans	11 ea	\$5,000.00 /ea	\$55,000
HVAC - office	4,568 gsf	\$30.00 /gsf	\$137,000
HVAC - geothermal (below grade horizontal piping with water source heat pump; not deep wells)	22,215 gsf	\$5.00 /gsf	\$111,000
TOTAL: D30 HVAC			\$33.47 \$/gsf \$744,000
D40 FIRE PROTECTION			
Fire Sprinklers			
Fire sprinklers	22,226 gsf	\$6.15 /gsf	\$137,000
FM-200 clean agent fire sprinkler system	1 allow	\$75,000.00 /allow	\$75,000
TOTAL: D40 FIRE PROTECTION			\$9.54 \$/gsf \$212,000
D50 ELECTRICAL			
Electrical			
Electrical, maintenance	17,658 gsf	\$18.00 /gsf	\$318,000
Electrical, office	4,568 gsf	\$30.00 /gsf	\$137,000
Electrical, generator	1 ls	\$125,000.00 /ls	\$125,000
PV array			see Summary
TOTAL: D50 ELECTRICAL			\$26.10 \$/gsf \$580,000
E10 EQUIPMENT			
Fixed Casework			
Fixed casework - office	4,568 gsf	\$6.00 /gsf	\$27,000
Shelving			
Storage shelving for materials, equipment, tools	1 ls	\$150,000.00 /ls	\$150,000
Service Equipment			
Vertical rise lift - vehicles	18 ea	\$95,000.00 /ea	\$1,710,000
Vertical rise lift - large class IV	2 ea	\$120,000.00 /ea	\$240,000
Wash bay (includes auto wash, wastewater and reclamation systems)	1 ls	\$1,000,000.00 /ls	\$1,000,000
Vehicle exhaust systems	20 ea	\$12,000.00 /ea	\$240,000
Shop equipment and hand tools	10 bays	\$17,500.00 /bays	\$175,000
Compressed air and automatic transmission fluid hose reels	40 ea	\$3,500.00 /ea	\$140,000

SKANSKA

PROJECT - Durham County Fleet Maintenance Facility
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 LOCATION - Durham, NC
 STAGE - Rough Order of Magnitude (R2)

Skanska USA Building Inc.
 4309 Emperor Blvd, Suite 200
 Durham, NC 27703

Maintenance 22,226 GSF

Description	Quantity	Unit Price	Grand Total
Automatic transmission fluid storage tanks and pumps	1 ls	\$50,000.00 /ls	\$50,000
Chassis grease hose reels and pumps	20 ea	\$5,000.00 /ea	\$100,000
Diesel exhaust system (hose reels, pumps, storage tank)	1 ls	\$75,000.00 /ls	\$75,000
Diesel fuel system, including tanks and dispensers	1 ls	\$650,000.00 /ls	\$650,000
Diesel fuel station canopy structure (25' x 25')	625 sf	\$150.00 /sf	\$94,000
Engine coolant system (hose reels, pumps, storage tanks)	1 ls	\$85,000.00 /ls	\$85,000
Engine oil system (hose reels, pumps, storage tanks)	1 ls	\$175,000.00 /ls	\$175,000
Used coolant system	1 ls	\$35,000.00 /ls	\$35,000
Used oil system	1 ls	\$35,000.00 /ls	\$35,000
Windshield washed fluid system	1 ls	\$50,000.00 /ls	\$50,000
Miscellaneous Equipment			
Miscellaneous equipment	1 ls	\$5,000.00 /ls	\$5,000
Loading dock equipment	1 ls	\$20,000.00 /ls	\$20,000
4 ton bridge crane (250' x 28' service area)	1 ls	\$110,000.00 /ls	\$110,000
Break room appliances	1 ls	\$2,000.00 /ls	\$2,000
TOTAL: E10 EQUIPMENT			\$232.52 \$/gsf \$5,168,000
E20 FURNISHINGS			
Window Coverings			
Window shades - manual (exterior glazing)	1,000 sf	\$26.00 /sf	\$26,000
TOTAL: E20 FURNISHINGS			\$1.17 \$/gsf \$26,000
Z10 GENERAL REQUIREMENTS			
General Requirements			
General requirements, allowance as % of direct cost	3.00%	/	\$464,000
TOTAL: Z10 GENERAL REQUIREMENTS			\$20.88 \$/gsf \$464,000
TOTAL DIRECT COSTS - Maintenance			\$15,917,000

SKANSKA

Durham County Fleet Maintenance Facility
 O'Brien Atkins
 Durham, NC

Skanska USA Building Inc.
 4309 Emperor Blvd, Suite 200
 Durham, NC 27703
 7/6/2023

**Warehouse
 Estimate Back-Up**

SKANSKA

PROJECT - Durham County Fleet Maintenance Facility
 CLIENT - O'Brien Atkins
 LOCATION - Durham, NC
 STAGE - Rough Order of Magnitude (R2)

Skanska USA Building Inc.
 4309 Emperor Blvd, Suite 200
 Durham, NC 27703

Warehouse				34,800 GSF
Description	Quantity	Unit Price	Grand Total	
A10 FOUNDATIONS				
Foundations				
Continuous footings - exterior walls - 900 lf x 4'w x 24" deep	280 cy	\$600.00 /cy	\$168,000	
Continuous footings for interior CMU walls - 117 lf x 2'w x 12" deep	9 cy	\$600.00 /cy	\$5,000	
Spread footings - 40 each x 7' x 7' x 24" deep	152 cy	\$600.00 /cy	\$91,000	
Allowance for stepped footings	ls	\$5,000.00 /ls		
Perimeter insulation detailing at slab edge	900 lf	\$10.00 /lf	\$9,000	
Slab on Grade				
Reinforced concrete slab on grade, complete	34,800 sf	\$10.80 /sf	\$376,000	
Perimeter stem wall, allow 12" high	900 lf	\$55.00 /lf	\$50,000	
TOTAL: A10 FOUNDATIONS			\$20.09 /gsf	\$699,000
B10 SUPERSTRUCTURE				
Superstructure				
Structural steel - vertical (allow 5.00 LB / SF)	174,000 lb	\$2.55 /lb	\$444,000	
Structural steel - horizontal roof (allow 6.00 LB / SF)	208,800 lb	\$2.60 /lb	\$543,000	
Structural steel - horizontal mezzanine over office (allow 6.00 LB / SF)	10,110 lb	\$2.60 /lb	\$26,000	
Structural steel - brace frames (allow 2.00 LB / SF)	69,600 lb	\$3.00 /lb	\$209,000	
Added steel for Risk Category IV (allow 1.50 LB / SF)	52,200 lb	\$2.55 /lb	\$133,000	
Miscellaneous bolts, plates, connections (10%)	51,471 lb	\$2.60 /lb	\$134,000	
Slab on metal deck at mezzanine storage area	1,685 sf	\$20.00 /sf	\$34,000	
Metal decking at roof	34,800 sf	\$8.00 /sf	\$278,000	
Perimeter structural detailing	900 lf	\$25.00 /lf	\$23,000	
Spray fire-proofing, new steel framing	34,800 gsf	\$3.00 /gsf	\$104,000	
Spray fire-proofing, underside of deck	sf	/sf	Assume N/A	
Miscellaneous				
Miscellaneous metals	34,800 gsf	\$1.00 /gsf	\$35,000	
Blocking / backing	34,800 gsf	\$1.00 /gsf	\$35,000	
Equipment supports, curbs, pads	1 ls	\$25,000.00 /ls	\$25,000	
Perimeter safing	900 lf	\$25.00 /lf	\$23,000	
Hoisting / access	1 ls	\$20,000.00 /ls	\$20,000	
TOTAL: B10 SUPERSTRUCTURE			\$59.37 /gsf	\$2,066,000
B20 EXTERIOR ENCLOSURE				
Exterior Substrate (900 lf x 25' + 2'h below grade +1.5'h parapet)				
8" CMU	11,973 sf	\$23.00 /sf	\$275,000	
Rigid insulation	11,973 sf	\$6.00 /sf	\$72,000	
Fluid applied air barrier	11,973 sf	\$5.25 /sf	\$63,000	
Exterior Wall Finishes (Non Glazed)				
Brick veneer	11,973 sf	\$33.00 /sf	\$395,000	
Detailing around openings	502 sf	\$15.00 /sf	\$8,000	
Envelope enhancements, trim, banding, etc.	25,650 sf	\$5.00 /sf	\$128,000	
Exterior Glazing				
Kalwall (16'h upper exterior wall portion long sides)	8,960 sf	\$65.00 /sf	\$582,000	
Exterior storefront (allow 10% of lower exterior wall area)	1,669 sf	\$86.00 /sf	\$144,000	
Glazing QAQC	1,669 sf	\$1.50 /sf	\$3,000	
Glazing cleaning	1,669 sf	\$2.00 /sf	\$3,000	
Exterior Door Sets (Doors, Frames, Hardware)				
Main entry door sets, glazed / AL	2 leaf	\$7,500.00 /leaf	\$15,000	
Egress door sets	6 leaf	\$2,800.00 /leaf	\$17,000	
Premium for specialty hardware	1 ls	\$5,000.00 /ls	\$5,000	
Card readers (infrastructure in D50)	8 sets	\$2,800.00 /sets	\$22,000	

SKANSKA

PROJECT - Durham County Fleet Maintenance Facility
 CLIENT - O'Brien Atkins
 LOCATION - Durham, NC
 STAGE - Rough Order of Magnitude (R2)

Skanska USA Building Inc.
 4309 Emperor Blvd, Suite 200
 Durham, NC 27703

Warehouse				34,800 GSF
Description	Quantity	Unit Price	Grand Total	
Overhead Doors				
Overhead rollup doors, motorized - 12'w x 15'h	16 ea	\$20,000.00 /ea		\$320,000
Exterior Soffits				
Framing and substrate at exterior soffits	100 sf	\$12.00 /sf		\$1,000
Metal panel soffit finishes	100 sf	\$45.00 /sf		\$5,000
Miscellaneous eaves detailing	1,083 lf	\$30.00 /lf		\$32,000
Miscellaneous Envelope				
Envelope support framing (allow 1.0 LB / SF envelope)	25,650 lb	\$2.55 /lb		\$65,000
Blocking / backing	25,650 sf	\$0.30 /sf		\$8,000
Exterior caulking	25,650 sf	\$0.30 /sf		\$8,000
Envelope testing, QAQC	1 ls	\$5,000.00 /ls		\$5,000
Exterior signage	1 ls	\$10,000.00 /ls		\$10,000
TOTAL: B20 EXTERIOR ENCLOSURE			\$62.82 \$/gsf	\$2,186,000
B30 ROOFING				
New Roof				
PVC roof, complete with cover board & insulation	34,800 sf	\$32.00 /sf		\$1,114,000
PVC parapet, vertical (allow 18" high)	1,350 sf	\$30.00 /sf		\$41,000
Associated flashings, walkway pads, etc.	34,800 sf	\$2.50 /sf		\$87,000
Miscellaneous Roofing				
Roof hatch / ladder	2 ea	\$5,000.00 /ea		\$10,000
Temporary roofing	34,800 sf	\$0.70 /sf		\$24,000
TOTAL: B30 ROOFING			\$36.67 \$/gsf	\$1,276,000
C10 INTERIOR CONSTRUCTION				
Interior Partitions				
Metal stud partitions	3,539 sf	\$12.00 /sf		\$42,000
CMU partitions	2,700 sf	\$22.00 /sf		\$59,000
Interior Glazing				
Interior glazing, allowance	337 sf	\$55.00 /sf		\$19,000
Interior Door Sets (Doors, Frames, Hardware)				
Interior door sets, typical	10 leaf	\$1,700.00 /leaf		\$17,000
Fixed Specialties				
Restroom accessories - staff restrooms	2 rm	\$4,500.00 /rm		\$9,000
Restroom accessories - single stall rooms	2 rm	\$900.00 /rm		\$2,000
Entry reception	1 ls	\$12,000.00 /ls		\$12,000
Fire extinguishers	14 ea	\$345.00 /ea		\$5,000
Miscellaneous fixed specialties	34,800 gsf	\$0.30 /gsf		\$10,000
Miscellaneous Specialties				
Signage (code, way finding, branding)	34,800 gsf	\$0.50 /gsf		\$17,000
Railing at mezzanine storage area	117 lf	\$350.00 /lf		\$41,000
Stairs to mezzanine storage	1 ft	\$15,000.00 /ft		\$15,000
Interior protection measures (bollards, bumper rails, etc.)	34,800 sf	\$1.00 /sf		\$35,000
Acoustic protection over office area	1,685 sf	\$25.00 /sf		\$42,000

SKANSKA

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 STAGE - Rough Order of Magnitude (R2)

Skanska USA Building Inc.
 4309 Emperor Blvd, Suite 200
 Durham, NC 27703

Warehouse				34,800 GSF
Description	Quantity	Unit Price	Grand Total	
Miscellaneous Interiors				
Miscellaneous metals	34,800 gsf	\$0.40 /gsf		\$14,000
Caulking and sealants	34,800 gsf	\$0.35 /gsf		\$12,000
TOTAL: C10 INTERIOR CONSTRUCTION			\$10.09 \$/gsf	\$351,000
C30 INTERIOR FINISHES				
Wall finishes, warehouse	33,115 gsf	\$2.00 /gsf		\$66,000
Floor finishes, warehouse	33,115 gsf	\$2.00 /gsf		\$66,000
Ceiling finishes, warehouse	33,115 gsf	\$2.00 /gsf		\$66,000
Wall finishes, office	1,685 gsf	\$5.00 /gsf		\$8,000
Floor finishes, office	1,685 gsf	\$5.00 /gsf		\$8,000
Ceiling finishes, office	1,685 gsf	\$5.00 /gsf		\$8,000
TOTAL: C30 INTERIOR FINISHES			\$6.38 \$/gsf	\$222,000
D20 PLUMBING				
Plumbing				
Plumbing, warehouse	33,115 gsf	\$12.00 /gsf		\$397,000
Plumbing, office	1,685 gsf	\$18.00 /gsf		\$30,000
TOTAL: D20 PLUMBING			\$12.27 \$/gsf	\$427,000
D30 HVAC				
HVAC				
HVAC - warehouse (temporal cooling, H&V, CO monitoring)	33,115 gsf	\$25.00 /gsf		\$828,000
HVAC - office	1,685 gsf	\$30.00 /gsf		\$51,000
HVAC - geothermal (below grade horizontal piping with water source heat pump; not deep wells)	34,800 gsf	\$5.00 /gsf		\$174,000
TOTAL: D30 HVAC			\$30.26 \$/gsf	\$1,053,000
D40 FIRE PROTECTION				
Fire Sprinklers				
Fire sprinklers	34,800 gsf	\$6.15 /gsf		\$214,000
TOTAL: D40 FIRE PROTECTION			\$6.15 \$/gsf	\$214,000
D50 ELECTRICAL				
Electrical				
Electrical - Warehouse	33,115 gsf	\$15.00 /gsf		\$497,000
Electrical - Office	1,685 gsf	\$35.00 /gsf		\$59,000
Electrical - generator	1 ls	\$125,000.00 /ls		\$125,000
PV Array				see Summary
TOTAL: D50 ELECTRICAL			\$19.57 \$/gsf	\$681,000
E10 EQUIPMENT				
Fixed Casework				
Fixed casework - office	1,685 gsf	\$6.00 /gsf		\$10,000
Weapons storage	1 ls	\$5,000.00 /ls		\$5,000
Miscellaneous equipment, shelving, etc.	1 ls	\$15,000.00 /ls		\$15,000
TOTAL: E10 EQUIPMENT			\$0.86 \$/gsf	\$30,000
E20 FURNISHINGS				
Window Coverings				
Window shades - manual (exterior glazing)	1,669 sf	\$26.00 /sf		\$43,000
TOTAL: E20 FURNISHINGS			\$1.24 \$/gsf	\$43,000

SKANSKA

PROJECT - Durham County Fleet Maintenance Facility
 CLIENT - O'Brien Atkins
 LOCATION - Durham, NC
 STAGE - Rough Order of Magnitude (R2)

Skanska USA Building Inc.
 4309 Emperor Blvd, Suite 200
 Durham, NC 27703

Warehouse			34,800 GSF
Description	Quantity	Unit Price	Grand Total
Z10 GENERAL REQUIREMENTS			
General Requirements			
General requirements, allowance as % of direct cost	3.00%	/	\$277,000
TOTAL: Z10 GENERAL REQUIREMENTS			\$277,000
TOTAL DIRECT COSTS - Warehouse			\$9,525,000

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Durham County Fleet Maintenance Facility
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 Durham, NC

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 7/6/2023

Storage Shelter
 Estimate Back-Up

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Storage Shelter 3,750 GSF

Description	Quantity	Unit Price	Grand Total
A10 FOUNDATIONS			
New Foundations			
New continuous footings - material separation walls, 5 each at 20' long	23	cy \$600.00 /cy	\$14,000
Spread footings - 14 each x 5' x 5' x 24" deep	27	cy \$600.00 /cy	\$16,000
Slab on Grade			
Reinforced concrete slab on grade, complete	3,750	sf \$10.80 /sf	\$41,000
Concrete material separation walls, 5 each, 20' long, 10' high	1,000	sf \$40.00 /sf	\$40,000
TOTAL: A10 FOUNDATIONS			\$29.60 \$/gsf
			\$111,000
B10 SUPERSTRUCTURE			
New Expansion			
Structural steel - vertical (allow 5.00 LB / SF)	18,750	lb \$2.55 /lb	\$48,000
Structural steel - horizontal roof (allow 6.00 LB / SF)	22,500	lb \$2.60 /lb	\$59,000
Structural steel - brace frames (allow 2.00 LB / SF)	7,500	lb \$3.00 /lb	\$23,000
Added steel for Risk Category IV (allow 1.50 LB / SF)	5,625	lb \$2.55 /lb	\$14,000
Miscellaneous bolts, plates, connections (10%)	5,438	lb \$2.60 /lb	\$14,000
Metal decking at roof	3,750	sf \$8.00 /sf	\$30,000
Perimeter structural detailing	310	lf \$25.00 /lf	\$8,000
Spray fire-proofing, new steel framing		tn /tn	Assume N/A
Spray fire-proofing, underside of deck		sf /sf	Assume N/A
Miscellaneous			
Equipment supports	1	ls \$5,000.00 /ls	\$5,000
Hoisting / access	1	ls \$20,000.00 /ls	\$20,000
TOTAL: B10 SUPERSTRUCTURE			\$58.93 \$/gsf
			\$221,000
B30 ROOFING			
New Roof			
PVC roof, complete with cover board & insulation	3,750	sf \$28.00 /sf	\$105,000
Roof drainage	3,750	sf \$5.00 /sf	\$19,000
TOTAL: B30 ROOFING			\$33.07 \$/gsf
			\$124,000
D40 FIRE PROTECTION			
Fire Sprinklers			
Fire sprinklers	3,750	gsf \$6.15 /gsf	\$23,000
TOTAL: D40 FIRE PROTECTION			\$6.13 \$/gsf
			\$23,000
D50 ELECTRICAL			
Electrical			
Electrical	3,750	gsf \$10.00 /gsf	\$38,000
TOTAL: D50 ELECTRICAL			\$10.13 \$/gsf
			\$38,000
Z10 GENERAL REQUIREMENTS			
General Requirements			
General requirements, allowance as % of direct cost	3.00%	/	\$16,000
TOTAL: Z10 GENERAL REQUIREMENTS			\$4.27 \$/gsf
			\$16,000
TOTAL DIRECT COSTS - Storage Shelter			\$533,000

Site Work Option 1
 Estimate Back-Up

SKANSKA

PROJECT - Durham County Fleet Maintenance Facility
 CLIENT - O'Brien Atkins
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 STAGE - Rough Order of Magnitude (R2)

Skanska USA Building Inc.
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 Durham, NC 27703

Sitework - Option 1 482,318 GSF

Description	Quantity	Unit Price	Grand Total
G10 SITE PREPARATION			
Site Preparation - Assume Green Field			
Mobilization	1 ls	\$25,000.00 /ls	\$25,000
Temporary roads / parking	10,000 sf	\$1.50 /sf	\$15,000
Temporary fencing / signage at Junction Road site entrance only	1 ls	\$10,000.00 /ls	\$10,000
Clear and grub site (~\$15,000/acre)	482,318 sf	\$0.35 /sf	\$169,000
Cut to fill (assume balanced site; 12" over entire site)	17,864 cy	\$15.00 /cy	\$268,000
Site import / export			Excluded
Rock removal			Excluded
Unsuitable soil removal and replacement			Excluded
Storm retention pond	20,000 sf	\$10.00 /sf	\$200,000
Bioretention measures			Excluded
Miscellaneous rough grading	11 acre	\$5,000.00 /acre	\$55,000
Fine grade net site area around build / lot	421,542 sf	\$0.50 /sf	\$211,000
Pad Preparation			
Fine grade building pad	60,776 sf	\$0.50 /sf	\$30,000
Layout	60,776 sf	\$0.25 /sf	\$15,000
Erosion Control			
Construction entrance	1 ls	\$5,000.00 /ls	\$5,000
Erosion control, general	482,318 sf	\$0.30 /sf	\$145,000
Street cleaning	18 mos	\$1,500.00 /mos	\$27,000
Miscellaneous Site Prep			
Temporary pedestrian control	1 ls	\$5,000.00 /ls	\$5,000
Temporary traffic management	1 ls	\$25,000.00 /ls	\$25,000
TOTAL: G10 SITE PREPARATION		\$2.50 \$/gsf	\$1,205,000
G20 SITE IMPROVEMENTS			
Site Improvements (Main Site)			
Paving - heavy duty vehicular stone/asphalt	21,752 sy	\$75.00 /sy	\$1,631,000
Paving - heavy duty concrete aprons	21,000 sf	\$12.00 /sf	\$252,000
Curb and gutter	6,131 lf	\$45.00 /lf	\$276,000
Landscape improvements - along curb on perimeter of the site	3,380 lf	\$25.00 /lf	\$85,000
Landscape improvements - open areas	20,524 sf	\$5.00 /sf	\$103,000
Curb cut ramps, steps, rails, allowance	1 ls	\$10,000.00 /ls	\$10,000
Striping and signage	1 ls	\$5,000.00 /ls	\$5,000
Retaining Wall (ftgs, concrete, brick veneer, precast cap) - 650 lf:			
Footings (10'w x 3' th)	758 cy	\$500.00 /cy	\$379,000
Concrete wall	6,500 sf	\$40.00 /sf	\$260,000
Waterproofing	6,500 sf	\$8.00 /sf	\$52,000
Brick veneer	6,500 sf	\$33.00 /sf	\$215,000
Precast cap and railings	650 lf	\$300.00 /lf	\$195,000
Security fencing	2,580 lf	\$75.00 /lf	\$194,000
Motor operated entrance gate with security control	1 ea	\$50,000.00 /ea	\$50,000
Miscellaneous site furnishings	1 ls	\$1,500.00 /ls	\$2,000
Site Improvements (Offsite)			
Turn lane improvements, complete	1 ls	\$150,000.00 /ls	\$150,000
Traffic signalization on Junction Road	1 ls	\$150,000.00 /ls	\$150,000
Roadway demo and repair for new utilities	1 ls	\$200,000.00 /ls	\$200,000
TOTAL: G20 SITE IMPROVEMENTS		\$8.73 \$/gsf	\$4,209,000

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Sitework - Option 1 482,318 GSF

Description	Quantity	Unit Price	Grand Total
G30 WET UTILITIES			
Site Utilities (Assume Minimal Tie-In / Reconnections)(Clear Buildable-Bldg)			
Domestic and fire water distribution - from Junction Road	1,000 lf	\$160.00 /lf	\$160,000
Off-site domestic water extension	2,000 lf	\$150.00 /lf	\$300,000
Sanitary sewer distribution, from on-site Easement	400 lf	\$165.00 /lf	\$66,000
Natural gas distribution	1,000 lf	\$30.00 /lf	\$30,000
Storm drainage	216,768 sf	\$5.00 /sf	\$1,084,000
Connect to existing systems	2 ea	\$10,000.00 /ea	\$20,000
TOTAL: G30 WET UTILITIES		\$3.44 \$/gsf	\$1,660,000
G40 DRY UTILITIES			
Site Electrical			
Site pole lights	30 ea	\$5,000.00 /ea	\$150,000
CCTV cameras	20 ea	\$2,500.00 /ea	\$50,000
EV charging stations	1 ea	\$8,000.00 /ea	\$8,000
Site security allowance	1 allow	\$50,000.00 /allow	\$50,000
TOTAL: G40 DRY UTILITIES		\$0.53 \$/gsf	\$258,000
Z10 GENERAL REQUIREMENTS			
General Requirements			
General requirements, allowance as % of direct cost	3.00%	/	\$220,000
TOTAL: Z10 GENERAL REQUIREMENTS		\$0.46 \$/gsf	\$220,000
TOTAL DIRECT COSTS - Sitework - Option 1			\$7,552,000

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Rough Order of Magnitude (R2)

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Scope Assumptions

- Assume continuous and spread footings, deep foundations assumed N/A
- Structural steel framework and brace frames
- Additional structural steel for Building Risk Category IV
- Allowance for steel bolts, plates, connections
- Metal deck at roof (assume no acoustadeck required)
- Exterior envelope comprising brick veneer, Kalwall, metal panel, and storefront
- Maintenance building exterior walls are 2' below grade, 35' to roof deck, 18" parapet height, total 38.5'
- Warehouse building exterior walls are 2' below grade, 25' to roof deck, 18" parapet height, total 28.5'
- PVC flat roof to all new roofing
- Assume no skylights required
- Maintenance floor finish assumed 25% epoxy / 75% sealed concrete
- FM 200 sprinkler system at Maintenance building
- A 4 ton bridge crane has been included in the Maintenance building, with a service area of 250' long x 28' wide
- Diesel fuel station included along with 25' x 25' canopy structure
- Balanced site for earthwork, no net import / export included
- Rock excavation / removal excluded
- Remediation of contaminated soils assume not required
- Retaining walls assumed 10'-0" high
- Tie in of new domestic water service based on 2,000 LF of trenched service
- 18 month construction duration
- Escalation based on a midpoint of construction of Q2 / Q3 2028

Appendices

Scope Assumptions
Escalation Overview
Responsibility Matrix

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Durham County Fleet Maintenance Facility
 O'Brien Atkins
 Rough Order of Magnitude (R2)

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Escalation Overview

Phase	MoC	2022 *	2023	2024	2025	2026	2027	2028
Base Scope	Q2 / 2028	22.0%						
Annual Escalation (to be pro-rated / compounded to MoC)		3.50%	5.50%	5.00%	4.50%	4.50%	4.50%	4.00%

Proposed Construction Start: 2028

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Scope Responsibility

Description	CFCI	OFCI	OFOI	Notes
Low Voltage Systems				
- Fire alarm system				
- Tel data (infrastructure / cabling)				
- Tel data devices and equipment				
- Security system (infrastructure / cabling)				
- Security system (equipment / cameras)				
- Access control (infrastructure / cabling)				
- Access control (equipment)				
- AV system (infrastructure / cabling)				
- AV system (devices)				
Equipment				
- Storage shelving for materials, equipment, tools				
- Vertical rise lift - vehicles				
- Vertical rise lift - large class IV				
- Wash bay (auto wash, wastewater, reclam. systems)				
- Vehicle exhaust systems				
- Shop equipment and hand tools				
- Compressed air & auto transmission fluid hose reels				
- Automatic transmission fluid storage tanks and pumps				
- Chassis grease hose reels and pumps				
- Diesel exhaust system (hose reels, pumps, tanks)				
- Diesel fuel system, including tanks and dispensers				
- Engine coolant system (hose reels, pumps, tanks)				
- Engine oil system (hose reels, pumps, storage tanks)				
- Used coolant system				
- Used oil system				
- Windshield washed fluid system				
- Loading dock equipment				
- 4 ton bridge crane (250' x 28' service area)				
- Break room appliances				
Fittings / Fixtures				
- Signage (Code)				
- Signage (Way Finding)				
- Signage (Graphics / Branding)				
- Restroom Accessories				
- Shower Accessories				
- Lockers / Benches				
- Reception Desks				
- Hand sanitizers				
Furnishings				
- Window Blinds				
- Entry Mats				
- Furniture				