

***Preliminary Engineering Report
of
Diesel Mechanics Training Center
1001 E. Chestnut Expressway
Springfield, Missouri***

September 2, 2016

Prepared for:

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1. Description of Project Components

OTC plans to create a Diesel Mechanics Training Center by expanding an already existing building to create additional classroom space and learning labs for the diesel mechanic program. The expansion will allow room for state-of-the-art, industry-specific equipment and more training space, to better prepare students for the jobs they will have upon graduation.

The project includes an 80' x 155' (12,400 square feet) addition of trucking bay facilities and additional classroom space. The addition will occur at the east end of the existing OTC Industry & Transportation Technology Center. The addition will include four trucking bay training areas. Two of the four bays will have drive-through capabilities, and all four bays will be serviced by an overhead rail system crane. The addition will also allow training space for a trailer repair and diagnostic facility. Classroom space will also be expanded to allow for an increase from 15 to 18 students per classroom for all four diesel mechanics classrooms.

The proposed structure will be constructed with a reinforced concrete foundation, concrete slab on grade, with a steel frame structure, tapered board insulation, a 60-mil TPO single-ply roof, metal roof deck, and exterior wall finishes to include stucco, brick and metal panel. The new addition will include a new entry drive at the north end of the site and a new exit drive at the south end of the site and will reuse an existing drive located on the east side of the site. The new entry and exit drives will be approximately 11,100 sf and will include two automated gates. The new addition will include five bay doors and two exterior doors. A site plan, floor plan, building section, and building elevations have been attached to this application.

2. Budget Narrative

OTC will secure services through four separate contracts under the following categories, administrative and legal expenses, architectural and engineering, project inspection fees, and construction.

1. Administrative and Legal Expenses - \$8,000
 - Expenses to cover reviewing and drafting contractual documents for architecture and engineering agreement, owner's third-party inspector agreements, and agreement between owner and contractor. Costs based on hourly fee range of \$350-\$500. Anticipation of legal review time at 22 hours for all contracts described.
2. Land, structures, rights-of-way, appraisals, etc. - \$0
3. Relocation expenses and payments - \$0
4. Architectural and Engineering Fees - \$117,900
 - Expenses to cover all associated architecture and engineering consultant fees as basic services, which includes feasibility, preliminary design, schematic design development, construction documents, bidding, and construction observation phases of the project. Of which, approximately \$5,000 of architectural and engineering fees include additional services such as detailed costs estimates, coordination of owner furnished equipment and furniture, and security and access control systems coordination.
5. Other Architectural and Engineering Fees - \$0
6. Project Inspection Fees - \$40,000
 - Expenses to cover owner third-party inspections as part of quality control requirements, which includes due diligent activities such as surveying, topography mapping, storm water drainage study, asphalt and paving inspections, concrete testing and lab analysis, and steel structure special inspections to comply with local municipal codes and requirements. Final project closeout inspections and commissioning also included in expenses.
7. Site Work - \$0 – All costs are included in Line 9
8. Demolition and Removal - \$0 – All costs are included in Line 9
9. Construction \$1,867,489
 - Expenses to cover the construction costs, site work, demolition and removal, and all required equipment for the creation of a Diesel Mechanics Training Center. Project will expand an already existing building to create additional classroom space and learning labs for the diesel mechanic program. The expansion will allow room for state-of-the-art, industry-specific equipment and more training space. The project includes an 80' x 155' (12,400 square feet) addition of trucking bay facilities and additional classroom space. The addition will occur at the east end of the existing OTC Industry & Transportation Technology Center. The addition will include four trucking bay training areas. Two of the four bays will have drive-through capabilities, and all four bays will be serviced by an overhead crane rail system. The addition will also allow training space for a trailer repair and diagnostic facility. Classroom space will also be expanded to allow for an increase from 15 to 18 students per classroom for all four diesel mechanics classrooms. The proposed structure will be constructed with a reinforced

concrete foundation, concrete slab on grade, with a steel frame structure, metal roof deck, tapered board insulation, a 60-mil TPO single-ply roof with exterior wall finishes to include stucco, brick and metal panel. The new addition will include a new entry drive at the north end of the site and a new exit drive at the south end of the site and will reuse an existing drive located on the east side of the site. The new entry and exit drives will be approximately 11,100 sf and will include two automated gates. The new addition will include five bay doors and two exterior doors. A site plan, floor plan, building section, and building elevations have been attached to this application. Expenses for demolition and removal for this project will include, removing fences, perimeter landscaping walls, existing drives and aprons, and milling of existing asphalt and paving areas. Expenses for site work include, trenching, excavation, building pad prep, striping and paving for sidewalks, new fencing, plantings and lawns, masonry landscape walls, and site utilities. Expenses for affixed equipment will include overhead crane, dynamometer, and security monitoring system. Refer to detailed project cost estimate for specific categories of cost breakouts.

10. Equipment - \$0
11. Miscellaneous - \$0
12. Subtotal (sum of lines 1-11) - \$2,114,039
13. Contingencies - \$80,650
 - Expenses based on industry standard percentage of construction costs, calculated for this project at approximately 4%.
14. SUBTOTAL - \$2,114,039
15. Project (program) Income - \$0
16. TOTAL PROJECT COSTS - \$2,114,039

Federal assistance requested, calculate as follows: Enter eligible costs from line 16c Multiply x 50% = \$1,057,019.50

3. Statement Verifying Project Components

The project description described above in **Section 1. – Description of Project Components** are consistent with the EDA investment project description that is provided in Section A.2 of Form ED-900.

4. Sketches of Schematics

Drawings are attached, please see Appendix A.

- Overall Building Plan
- Site Plan
- Floor Plan
- Elevations
- Building Section

5. Feasibility Analysis for the Constructability of the Project

Alternative considerations for site and project location were not formulated due to the project being an expansion and addition to an existing program and facility. These considerations were made due to existing development and infrastructure available. No physical space on the college's campus is available to support the construction of an additional facility. Therefore construction of a new, independent remote project proposal immediate and logically did not present a viable and economic solution within the OTC's institutional mission. The cost estimate for a new building was \$2,241,661 plus the cost of existing classrooms, other building areas that would need to be added, and the cost of land acquisition. The cost estimate for an addition to the building was \$1,867,489. Therefore the cost of expansion is more feasible. The proposed design of the addition is governed by the imposed restrictions of the OTC site and proposed site such as existing right of way and utility easements to the east and existing building to the west and south. Proposed configuration follows function of activities to be housed in the addition. The proposed project solution is obvious and direct in response to existing constraints warranting no further alternative considerations.

6. Proposed Method of Construction

Construction procurement shall be through open competitive bidding with best qualified bid. The bidding process will take approximately one month with contract negotiation and construction to follow. No portion of this project will be done by design/build and will use a traditional design/bid/building process.

The construction services procurement plan will be as follows: production of drawings and specifications to be submitted to bidders for review. Bidders will have access to the following forms:

- Bid form
- The most recent prevailing wage determination
- E-Verify affidavit
- Non-collusion affidavit.

Once bids are submitted, a Contractor will be selected. Construction will start once all contracts and building permits are in place.

7. Number of Construction Contracts Anticipated

Multiple contracts are not being proposed as part of the project nor is project phasing being proposed. One complete construction contract will be used for this project.

8. Current Detailed Construction Cost Estimate for each of the Project Components

Cost estimate is attached, please see Appendix B.

- Cost estimate for expansion of existing building
- Cost estimate for a new construction
- Cost comparison between expansion of existing building and new construction

9. Current Fair Market Value Appraisal

A fair market appraisal is not needed as the budget does not include a cost for real property acquisition. The project includes an addition to an existing building and site owned by OTC.

10. All Permits Required for the Proposed Project and their Current Status

Based on information provided by the City of Springfield, Missouri, the following permits are required to be issued for the construction of this building. The city requires a building permit, electrical permit, mechanical permit, plumbing permit and a sprinkler permit. As part of building permit review process, the city will review the zoning ordinance and the site plan to verify that the design meets the requirements of the zone that the building is being constructed in.

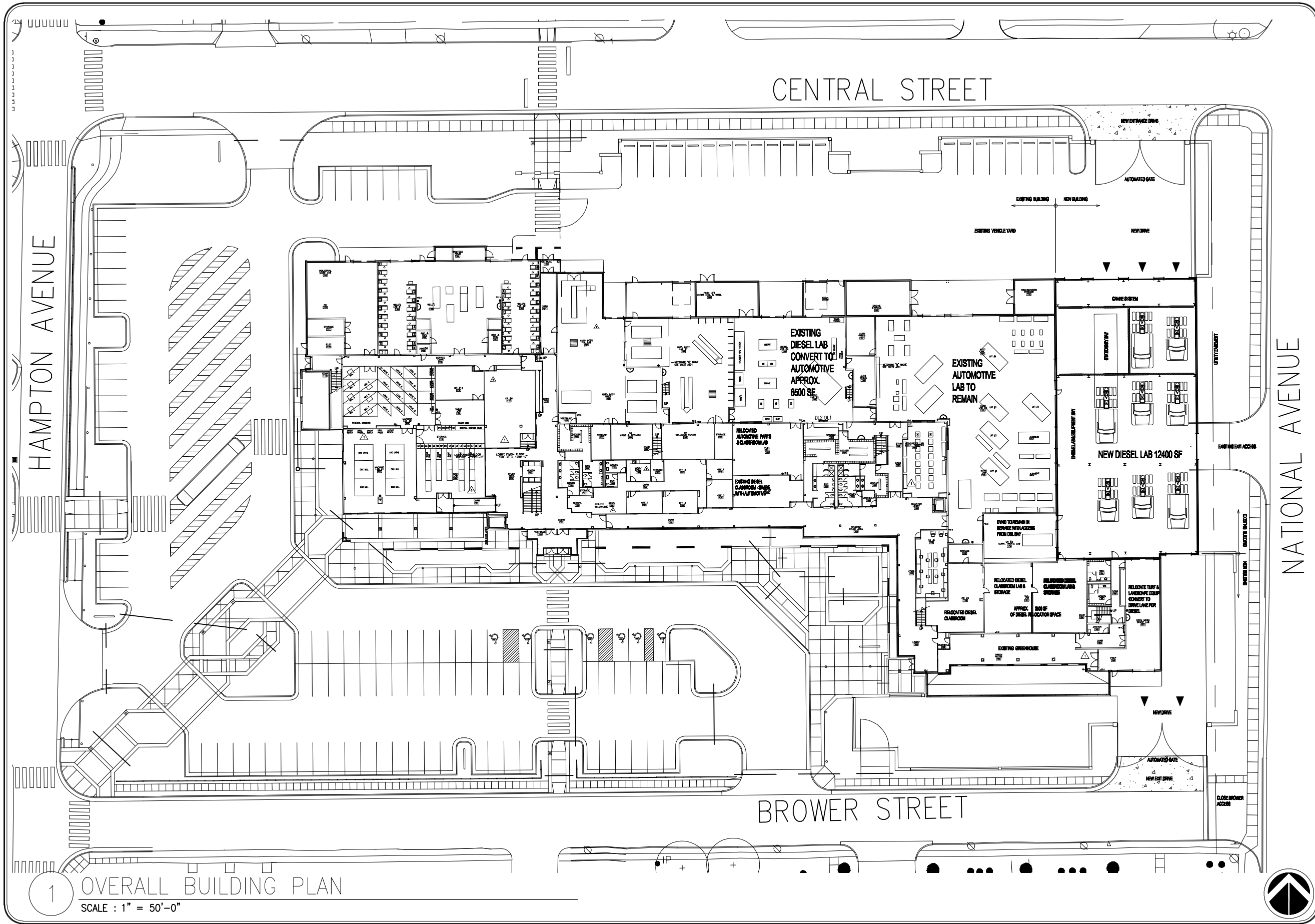
11. Overall Estimated Project Schedule

The overall project schedule from the design period to the end of construction is estimated at 18-24 months. Below is a breakdown of the schedule.

- i. Receive Grant Application
- ii. Notice to Proceed given to Architect to prepare Construction Documents – 2.5 months
- iii. Submit Construction Documents for approval and apply for Building Permit – .75 months
- iv. Advertise for bid, submit for Building Permit review – 1.5 months
- v. Submit Contractor's bids for review and approval and award construction contract – 1 month
- vi. Construct new facility – 12 months
- vii. Project completion, closeout, and move-in – 1.5 months
- viii. Total Project Time 19.25 months**

12. Appendix A

See attached drawings



1 OVERALL BUILDING PLAN
SCALE : 1" = 50'-0"



J P S & ASSOCIATES, INC.
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**OZARKS TECHNICAL COMMUNITY COLLEGE
DIESEL MECHANICS TRAINING CENTER**

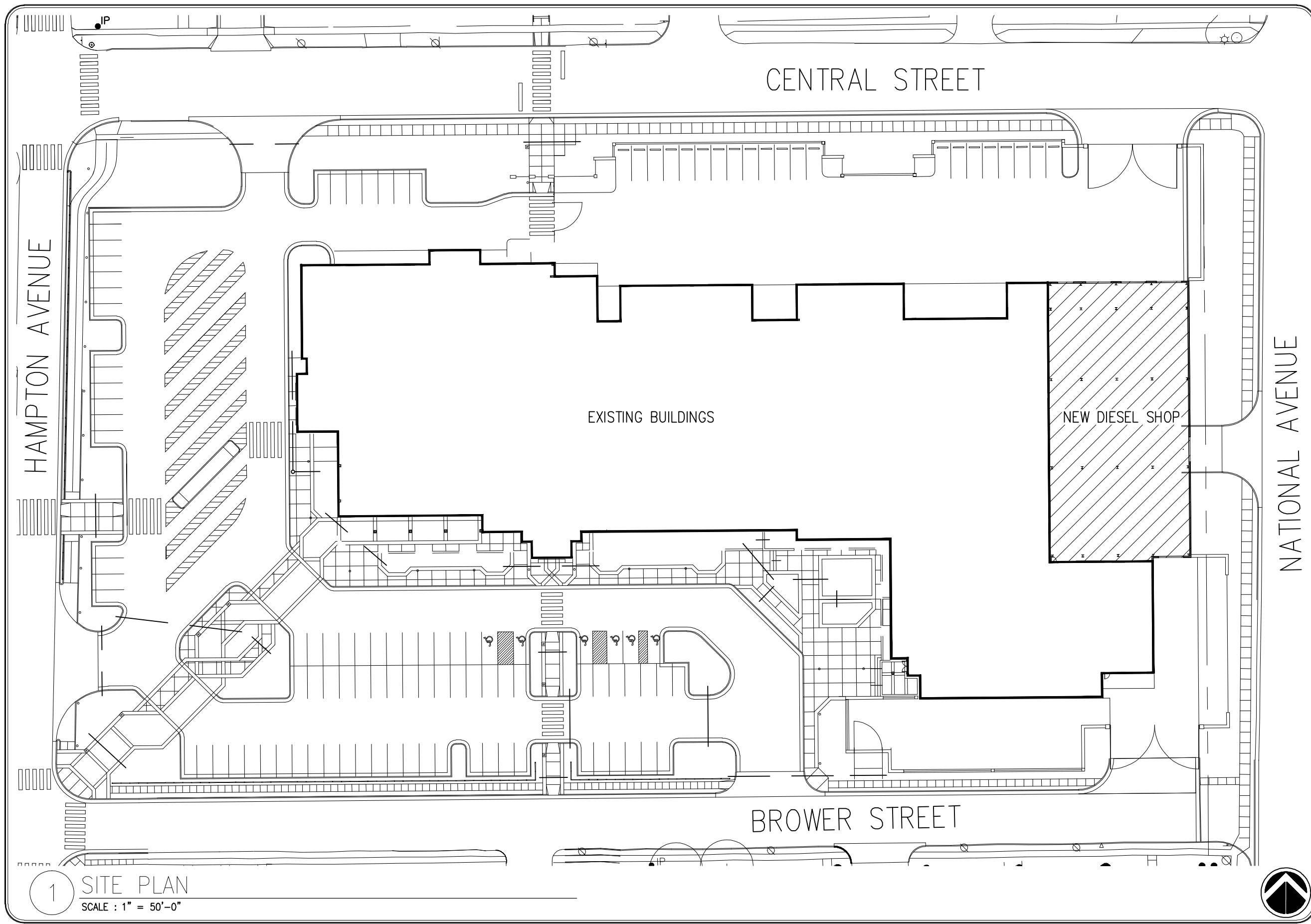
1001 EAST CHESTNUT EXPRESSWAY
SPRINGFIELD, MISSOURI

DATE:	7/28/2016
DRAWN BY:	JWE

**OVERALL
BUILDING PLAN**

C1.0





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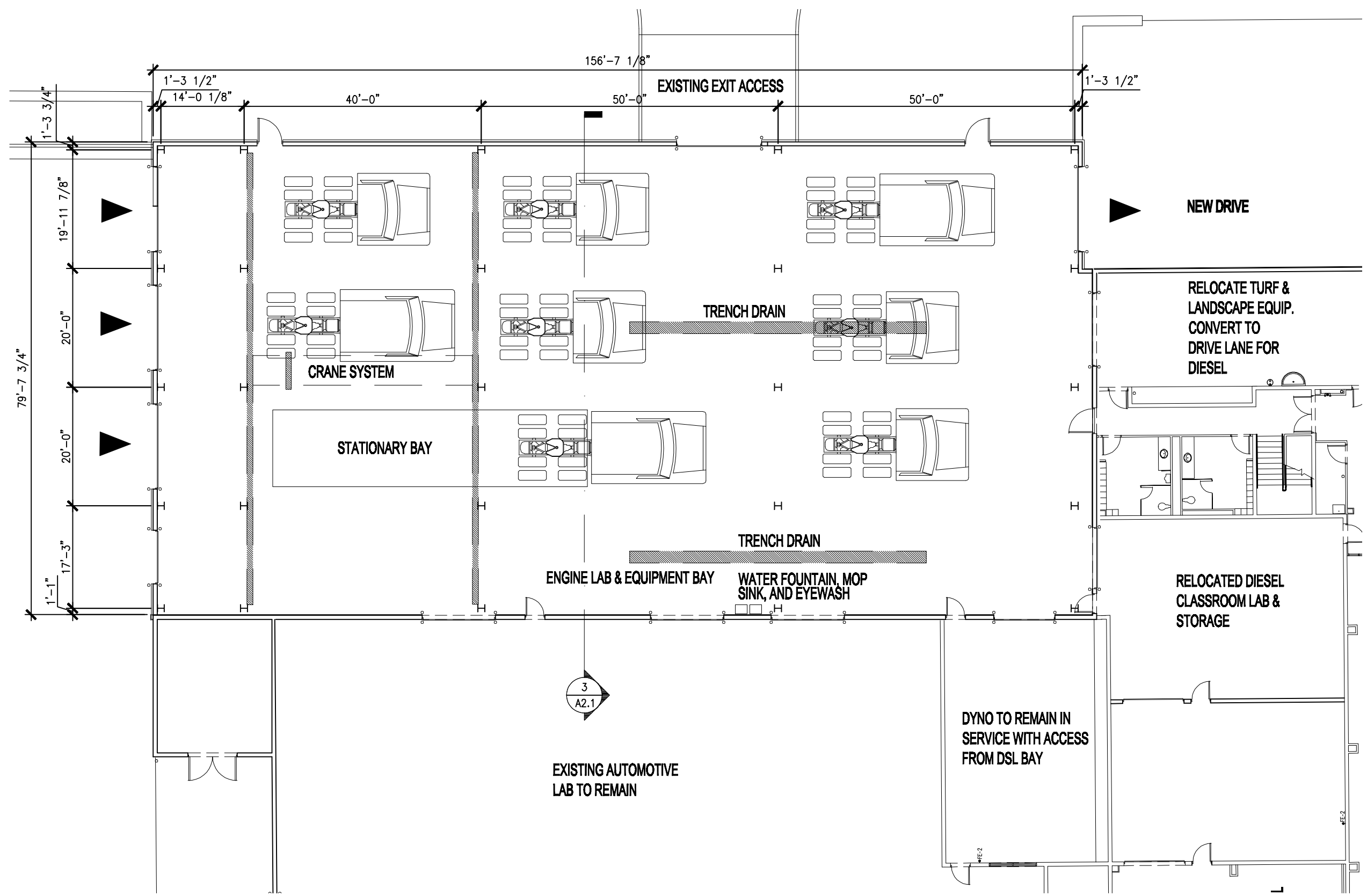
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SITE PLAN

C1.1



1 NEW ADDITION FLOOR PLAN
 SCALE : 1/16" = 1'-0"



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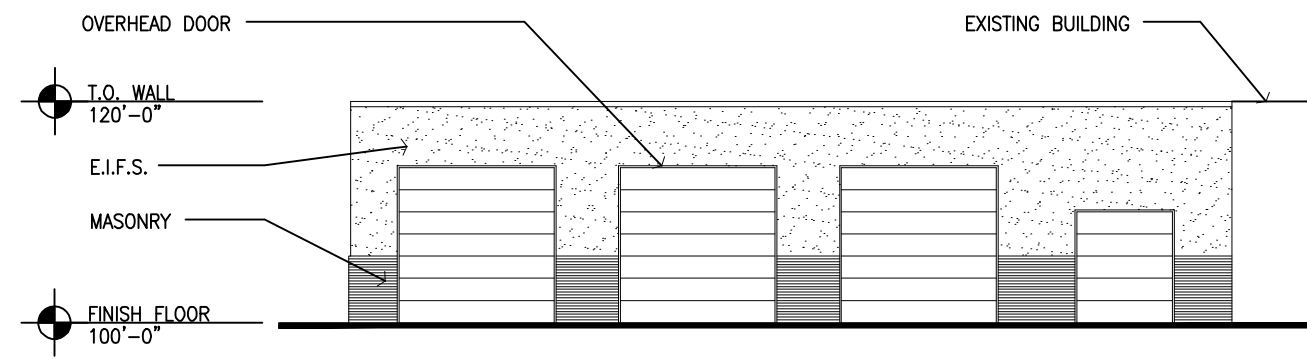
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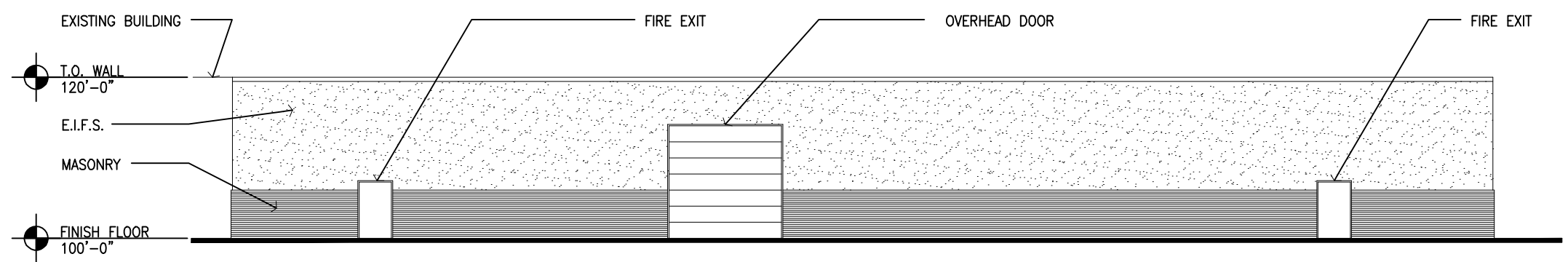
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FLOOR PLAN

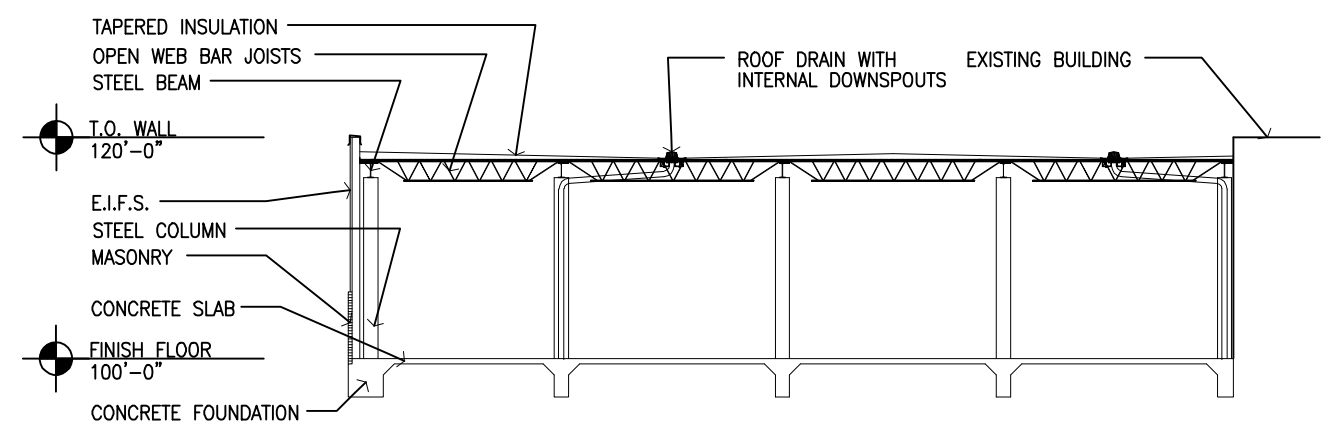
A1.1



1 NORTH ELEVATION
SCALE : 1/16" = 1'-0"



2 EAST ELEVATION
SCALE : 1/16" = 1'-0"



3 TYPICAL BUILDING SECTION
SCALE : 1/16" = 1'-0"



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**ELEVATIONS AND
TYPICAL SECTION**

A2.1

13. Appendix B

See attached cost estimate

Project Cost

Project Name **Diesel Program Expansion to Existing Building** Project No **2016-A001**
 Location **Springfield, Missouri** Date **7/28/2016**

Building Desc.	Diesel Repair Lab	Structural System	Steel Frame
Structure Type	Pre-Engineered Mtl. Bld	HVAC System	Infra-red Heaters, Air Conditioning, Make Up Air & Truck Snorkels
No. Buildings	1	EX. Finish	Face Brick Veneer, EFIS & Metal Panel
No. Floors	1	Roof System	60 mil TPO Single Ply System
No. Classroom	Existing	Floor System	6" Reinforced Concrete
Gross Floor Area	12,562	Gross Land Area	1 Acre
Net Leasable	12,400		
Accessory Struct.	None		

Div. #	Trade Items	JPS Est. Cost	Quantity	Unit Cost	Est. Sq. Ft.	JPS Comment
1	Concrete	\$163,942	396.27 cy reinf concrete	413.71/cy	13.22	Reinf conc. grade beam, column Footing & Piers & 6" Reing Slab w/ epoxy coating
2	Masonry	\$34,466	1,200 sf brick veneer + 70 sf CMU	27.12/sf	2.78	Brick Veneer Wainscot & CMU Wash Basin Wall
3	Metals	\$316,528	12,562 sf metal deck, 3,3380 metal wall panels & girts and 160 lf crane rail	25.53/sf	25.53	Steel Structural Fram, bar Joists, metal deck & crane rails
4	Rough Carpentry	\$43,153	2,560 sf plywood liner panel \$8.00/sf misc framing& blocking @ \$23,673	lump sum	3.48	Plywd wall liner & misc blocking & framing
5	Finish Carpentry	\$0			na	
6	Waterproofing	\$0			na	
7	Insulation	\$30,979	6" tapered bd insul, 9063 sf scrim faced insul & 960 sf perimeter found bd insul	2.50/sf	2.50	6" bd roof insul, scrim faced wall insul & found insul
8	Roofing	\$51,369	12,562 sf 60 mil TPO single-ply roof, 180 lf roof drains	4.14/sf	4.14	60 mil EPDM single ply roofing
9	Sheet Metal	\$29,680	320 lf parapet & cap flashing + 160 lf expansion joint + equip flashing	lump sum	2.39	6" bd tapered roof insul, scim faced wall insul & found insulation
10	Doors	\$46,782	3 14' x 14' OH doors, 1 10' x 14' OH door, 1 8' x 10' OH door & 5 metal walk doors	lump sum	3.77	6 OH doors & 5 walk doors
11	Windows	\$0			na	
12	Glass	\$0			na	
13	Ext EFIS Finish System	\$61,936	4,080 sf insulated EFIS System	14.2/sf	4.99	EFIS System Exterior 3 walls
14	Drywall	\$10,320	3,520 sf	2.93/sf	0.83	Int Drywall above liner panel
15	Tilework	\$0			na	
16	Acoustical	\$0			na	
17	Wood Flooring	\$0			na	
18	Resilient Flooring	\$0			na	
19	Painting & Decoration	\$38,759	EFIS, Liner Panels Steel Frame & Walk Doors	3.13/sf	3.13	
20	Specialties	\$0			na	
21	Special Equipment	\$155,230	Crane, hoists & misc equipment	lump sum	12.52	Crane, hoists & misc equipment
22	Cabinets	\$0			na	
23	Appliances	\$0			na	
24	Blinds & Shades, Artwork	\$0			na	
25	Carpets	\$0			na	
26	Fire Sprinkler	\$40,295	Fire Sprinkler System & Riser	3.25/sf	3.25	Fire Sprinkler System & Riser
27	Elevators	\$0			na	
28	Plumbing & Hot Water	\$49,580	Trench Drain, wash basin, eye wash, mop sink & drink fountain	4.00/sf	4.00	Trench Drain, wash basin, eye wash, mop sink & drink fountain
29	Heat & Ventilation	\$176,300	Radiant Heat, Air Cond, Make up Air & Truck Exhaust System	14.22/sf	14.22	Radiant Heat, Air Cond, Make up Air & Truck Exhaust System
30	Air Conditioning	\$0			na	In Line 29
31	Electrical	\$171,155	Light, Power, Equip & Rework Exist Elec Service	13.80/sf	13.80	Light, Power, Equip & Rework Exist Elec Service
32	Subtotal - Structures	\$1,420,474			114.55	
33	Accessory Structures	\$0			na	
34	Total Structures	\$1,420,474			114.55	

Div. #	Trade Items	JPS Est. Cost	Quantity	Unit Cost	Est. Sq. Ft.	JPS Comment
35	Demolition & Earthwork	\$44,725	Demo fences and asphalt paving Earthwork	21,071/lfs	3.61	Remove fences, asphalt paving, trench excavate, prepared slab, backfill & fine grade
36	Site Utilities	\$24,750	Connect to exiting utilities	2.00/sf	2.00	Connect to exiting utilities
37	Roads & Walks	\$28,743	3,125 asphalt paving 80 lf concrete curb	8.30/sf 27.25/lf	2.32	New paving, striping & new walks
38	Site Improvements	\$56,288	New brick & wrought iron fence & new sign	lump sum	4.54	New brick & wrought iron fence & new sign
39	Lawns & Planting	\$7,833	New lawns & planting	lump sum	0.63	New lawns & planting
40	Unusual Site Conditions	\$0			na	
41	Total Land Improvement	\$162,339			13.09	
42	Total Land Imprvnts. & Structures	\$1,582,813			127.65	
43	General Requirements	\$94,369			7.61	6% general requirements
45	General Overhead	\$31,656			2.55	2% overhead
46	Builder's Profit	\$94,369			7.61	6% profit
49	Other Fees	\$15,000			1.21	Special Inspections
50	Bond Premium	\$19,282			1.56	1.% bond premium
51	Building Permit	\$30,000			2.42	Building Permit
52	Total Cost	\$1,867,489			150.60	

Project Cost

Project Name **Diesel Program Expansion - New Site & Building**
 Location **Springfield, Missouri**

Project No **2016-A001**
 Date **7/28/2016**

Building Desc.	Diesel Repair	Structural System	Steel Frame
Structure Type	Pre-Engineered	HVAC System	Infra-red Heaters, Air Conditioning, Make Up Air & Truck Snorkels
No. Buildings	1	EX. Finish	Face Brick Veneer, EFIS & Metal Panel
No. Floors	1	Roof System	60 mil TPO Single Ply System
No. Classroom	Existing	Floor System	6" Reinforced Concrete
Gross Floor Area	12,562	Gross Land Area	1 Acre
Net Leasable	12,400		
Accessory Struct.	None		

Div. #	Trade Items	JPS Est. Cost	Est. Sq. Ft.	JPS Comment
1	Concrete	\$170,000	13.71	Reinf Conc. Grade Beam, column Footing & Piers & 6" Reing Slab w/ epoxy coating
2	Masonry	\$37,220	3.00	Brick Veneer wainscot & CMU Wash Basin wall
3	Metals	\$292,687	23.60	Steel Structural Fram, bar Joists, metal deck & crane rails
4	Rough Carpentry	\$24,804	2.00	Plywd wall liner & misc blocking & framing
5	Finish Carpentry	\$18,652	1.50	
6	Waterproofing	\$0	na	
7	Insulation	\$13,622	1.10	6" bd roof insul, scrim faced wall insul & found insul
8	Roofing	\$91,425	7.37	60 mil EPDM single ply roofing
9	Sheet Metal	\$7,912	0.64	6" bd tapered roof insul, scim faced wall insul & found insulation
10	Doors	\$46,782	3.77	6 OH doors & 5 walk doors
11	Windows	\$20,000	1.61	
12	Glass	\$0	na	
13	Ext EFIS Finish System	\$61,200	4.94	EFIS System Exterior 3 walls
14	Drywall	\$10,320	0.83	Int Drywall above liner panel
15	Tilework	\$0	na	
16	Acoustical	\$0	na	
17	Wood Flooring	\$0	na	
18	Resilient Flooring	\$0	na	
19	Painting & Decoration	\$40,000	3.23	
20	Specialties	\$0	na	
21	Special Equipment	\$255,230	20.58	Crane, hoists & misc equipment
22	Cabinets	\$8,000	0.65	
23	Appliances	\$0	na	
24	Blinds & Shades,Artwork	\$0	na	
25	Carpets	\$0	na	
26	Fire Sprinkler	\$43,400	3.50	Fire Sprinkler System & Riser
27	Elevators	\$0	na	
28	Plumbing & Hot Water	\$129,580	10.45	Trench Drain, wash basin, eye wash, mop sink & drink fountain
29	Heat & Ventilation	\$206,665	16.67	Radiant Heat, Air Cond, Make up Air & Truck Exhaust System
30	Air Conditioning	\$0	na	In Line 29
31	Electrical	\$220,819	17.81	Light, Power, Equip & Rework Exist Elec Service
32	Subtotal - Structures	\$1,698,318	136.96	
33	Accessory Structures	\$0	na	
34	Total Structures	\$1,698,318	136.96	

Div. #	Trade Items	JPS Est. Cost	Est. Sq. Ft.	JPS Comment
35	Demolition & Earthwork	\$54,725	4.41	Remove fences, asphalt paving, trench excavate, prepared slab, backfill & fine grade
36	Site Utilities	\$35,000	2.82	Connect to exiting utilities
37	Roads & Walks	\$43,445	3.50	New paving, striping & new walks
38	Site Improvements	\$66,605	5.37	New brick & wrought iron fence & new sign
39	Lawns & Planting	\$7,500	0.60	New lawns & planting
40	Unusual Site Conditions	\$0	na	
41	Total Land Improvement	\$207,275	16.72	
42	Total Land Imprvnts. & Structures	\$1,905,593	153.68	
43	General Requirements	\$111,771	9.01	6% general requirements
45	General Overhead	\$39,493	3.18	2% overhead
46	Builder's Profit	\$118,478	9.55	6% profit
49	Other Fees	\$15,000	1.21	Special Inspections
50	Bond Premium	\$21,326	1.72	1.% bond premium
51	Building Permit	\$30,000	2.42	Building Permit
52	Total Cost	\$2,241,661	180.78	

Comparison of Costs @ New Construction and Expansion

Project Name: Diesel Program Expansion
 Project Number: _____

	Trade item	Column A	Column B	Column C	Column D	JPS Comments
		JC Cost New Construction	JPS Cost Expansion	± Dollar Amount Variance	% Variance	
1	Concrete	\$170,000	\$163,942	(\$6,058)	-3.6%	
2	Masonry	\$37,220	\$34,466	(\$2,754)	-7.4%	
3	Metals	\$292,687	\$316,528	\$23,841	8.1%	
4	Rough Carpentry	\$24,804	\$43,153	\$18,349	74.0%	
5	Finish Carpentry	\$18,652	\$0	(\$18,652)	-100.0%	
6	Waterproofing	\$0	\$0	\$0	na	
7	Insulation	\$13,622	\$30,979	\$17,357	127.4%	
8	Roofing	\$91,425	\$51,369	(\$40,056)	-43.8%	
9	Sheet Metal	\$7,912	\$29,680	\$21,768	275.1%	
10	Doors	\$46,782	\$46,782	\$0	na	
11	Windows	\$20,000	\$0	(\$20,000)	-100.0%	
12	Glass	\$0	\$0	\$0	na	
13	Lath and Plaster	\$61,200	\$61,936	\$736	1.2%	
14	Drywall	\$10,320	\$10,320	\$0	na	
15	Tilework	\$0	\$0	\$0	na	
16	Acoustical	\$0	\$0	\$0	na	
17	Wood Flooring	\$0	\$0	\$0	na	
18	Resilient Flooring	\$0	\$0	\$0	na	
19	Painting and Decoration	\$40,000	\$38,759	(\$1,241)	-3.1%	
20	Specialties	\$0	\$0	\$0	na	
21	Special Equipment	\$255,230	\$155,230	(\$100,000)	-39.2%	
22	Cabinets	\$8,000	\$0	(\$8,000)	-100.0%	
23	Appliances	\$0	\$0	\$0	na	
24	Blinds and Shades, Artwork	\$0	\$0	\$0	na	
25	Carpets	\$0	\$0	\$0	na	
26	Special Const Fire Sprinkler	\$43,400	\$40,295	(\$3,105)	-7.2%	
27	Elevators	\$0	\$0	\$0	na	
28	Plumbing and Hot Water	\$129,580	\$49,580	(\$80,000)	-61.7%	Add new rest rooms
29	Heat and Ventilation	\$206,665	\$176,300	(\$30,365)	-14.7%	
30	Air Conditioning	\$0	\$0	\$0	na	
31	Electrical	\$220,819	\$171,155	(\$49,664)	-22.5%	
32	Subtotal (Structures)	\$1,698,318	\$1,420,474	(\$277,844)	-16.4%	
33	Accessory Structures	\$0	\$0	\$0	na	
34	Total (Lines 32 and 33)	\$1,698,318	\$1,420,474	(\$277,844)	-16.4%	
35	Earthwork	\$54,725	\$44,725	(\$10,000)	-18.3%	
36	Site Utilities	\$35,000	\$24,750	(\$10,250)	-29.3%	
37	Roads and Walks	\$43,445	\$28,743	(\$14,702)	-33.8%	
38	Site Improvements	\$66,605	\$56,288	(\$10,317)	-15.5%	
39	Lawns and Planting	\$7,500	\$7,833	\$333	4.4%	
40	Unusual Site Conditions	\$0	\$0	\$0	na	
41	Total Land Improvements	\$207,275	\$162,339	(\$44,936)	-21.7%	
42	Total Structural and Land Improvements	\$1,905,593	\$1,582,813	(\$322,780)	-16.9%	
43	General Requirements	\$111,771	\$94,369	(\$17,402)	-15.6%	
44	Subtotal (Lines 42 and 43)	\$2,017,364	\$1,677,182	(\$340,182)	-16.9%	
45	Builder's Overhead	\$39,493	\$31,656	(\$7,837)	-19.8%	
46	Builder's Profit	\$118,478	\$94,369	(\$24,109)	-20.3%	
47	Subtotal (Lines 44 thru 46)	\$2,175,335	\$1,803,207	(\$372,128)	-17.1%	
48				\$0	na	
49	Other Fees	\$15,000	\$15,000	\$0	na	

Trade item		Column A	Column B	Column C	Column D	JPS Comments
		JC Cost New Construction	JPS Cost Expansin	± Dollar Amount Variance	% Variance	
50	Bond Premium	\$21,326	\$19,282	(\$2,044)	-9.6%	
	Building Permit	\$30,000	\$30,000	\$0	na	
51	Total for All Improvements	\$2,241,661	\$1,867,489	(\$374,172)	-16.7%	
	Builder's Profit Paid by Means Other than Cash					
52	Total for All Improvements Less Line 52	\$2,241,661	\$1,867,489	(\$374,172)	-16.7%	