

Appendix A

General Conditions Estimate

General Conditions				
Labor	Quantity	Units	Unit Price	Amount
Superintendent	58	Wks	\$6,596.98	\$382,625.00
Layout Engineer	58	Wks	\$1,289.12	\$74,769.00
DAVIS Safety Personnel	58	Wks	\$344.83	\$20,000.00
DAVIS Carpentry	58	Wks	\$1,379.31	\$80,000.00
Project Manager	58	Wks	\$2,718.10	\$157,650.00
Assistant Project Manager	58	Wks	\$3,739.21	\$216,874.00
Project Administrator	58	Wks	\$524.93	\$30,446.00
DAVIS Courier	58	Wks	\$43.21	\$2,506.00
DAVIS Yard Delivery	58	Wks	\$149.57	\$8,675.00
DAVIS Carpentry - Mock	58	Wks	\$344.83	\$20,000.00
DAVIS Labor - Clean Up	58	Wks	\$1,196.55	\$69,400.00
Punchlist	1	LS	\$9,060.00	\$9,060.00
DAVIS Carpentry	58	Wks	\$607.05	\$35,209.00
Labor Total =				\$1,107,214.00

Material	Quantity	Units	Unit Price	Amount
Permits and Expediting	1	LS	\$500.00	\$500.00
Document Reproduction	58	Wks	\$301.72	\$17,500.00
Progress Photos	58	Wks	\$56.03	\$3,250.00
Travel and Road	58	Wks	\$86.21	\$5,000.00
Overnight & Hand	58	Wks	\$117.79	\$6,832.00
Davis Courier Vehicle	58	Wks	\$22.12	\$1,283.00
Field Office Equipment	58	Wks	\$183.84	\$10,663.00
Main Office Equipment	58	Wks	\$51.02	\$2,959.00
Temporary Site Office	58	Wks	\$86.21	\$5,000.00
Field Office Trailers	58	Wks	\$347.84	\$20,175.00
Field Telephone	58	Wks	\$135.12	\$7,837.00
Mobile Phones	58	Wks	\$216.97	\$12,584.00
Construction Signage	58	Wks	\$129.31	\$7,500.00
Construction Fence	58	Wks	\$488.28	\$28,320.00
Material Hoist	58	Wks	\$258.62	\$15,000.00
Temporary Power	58	Wks	\$1,262.48	\$73,224.00
Security Services	58	Wks	\$86.21	\$5,000.00
Vehicle Allowance	58	Wks	\$202.95	\$11,771.00
Final Cleaning	1	LS	\$37,950.00	\$37,950.00
Dumpsters	58	Wks	\$1,560.29	\$90,497.00
Trash Chute	58	Wks	\$199.57	\$11,575.00
Temporary Protection	58	Wks	\$88.14	\$5,112.00
Safety Incentives	58	Wks	\$86.21	\$5,000.00

First Aid Kit and Refill	1	LS	\$2,000.00	\$2,000.00
Temporary Fire	58	Wks	\$43.10	\$2,500.00
Temporary Toilets	58	Wks	\$280.17	\$16,250.00
Water Cooler for Trailer	58	Wks	\$56.03	\$3,250.00
Personal Protective	1	LS	\$10,250.00	\$10,250.00
Gross Receipts Tax	58	Wks	\$525.71	\$30,491.00
Punchlist	1	LS	\$5,000.00	\$5,000.00
General Liability	1	LS	\$110,699.00	\$110,699.00
Site Furnishings	58	Wks	\$155.17	\$9,000.00
Site Development	58	Wks	\$2,037.59	\$118,180.00
Material Total =				\$692,152.00

Equipment	Quantity	Units	Unit Price	Amount
DAVIS Tools and	58	Wks	\$144.36	\$8,373.00
Computer/LAN/Misc.	58	Wks	\$389.17	\$22,572.00
Field Staff Vehicle	58	Wks	\$292.91	\$16,989.00
Office Staff Vehicle	58	Wks	\$366.14	\$21,236.00
Survey/Layout	1	LS	\$2,500.00	\$2,500.00
Equipment Total =				\$71,670.00









Insurance and Taxes = \$165,514.00
 Bonds = \$175,141.00
 General Contractor
 Fee = \$1,053,947.00
Total = \$3,265,638.00

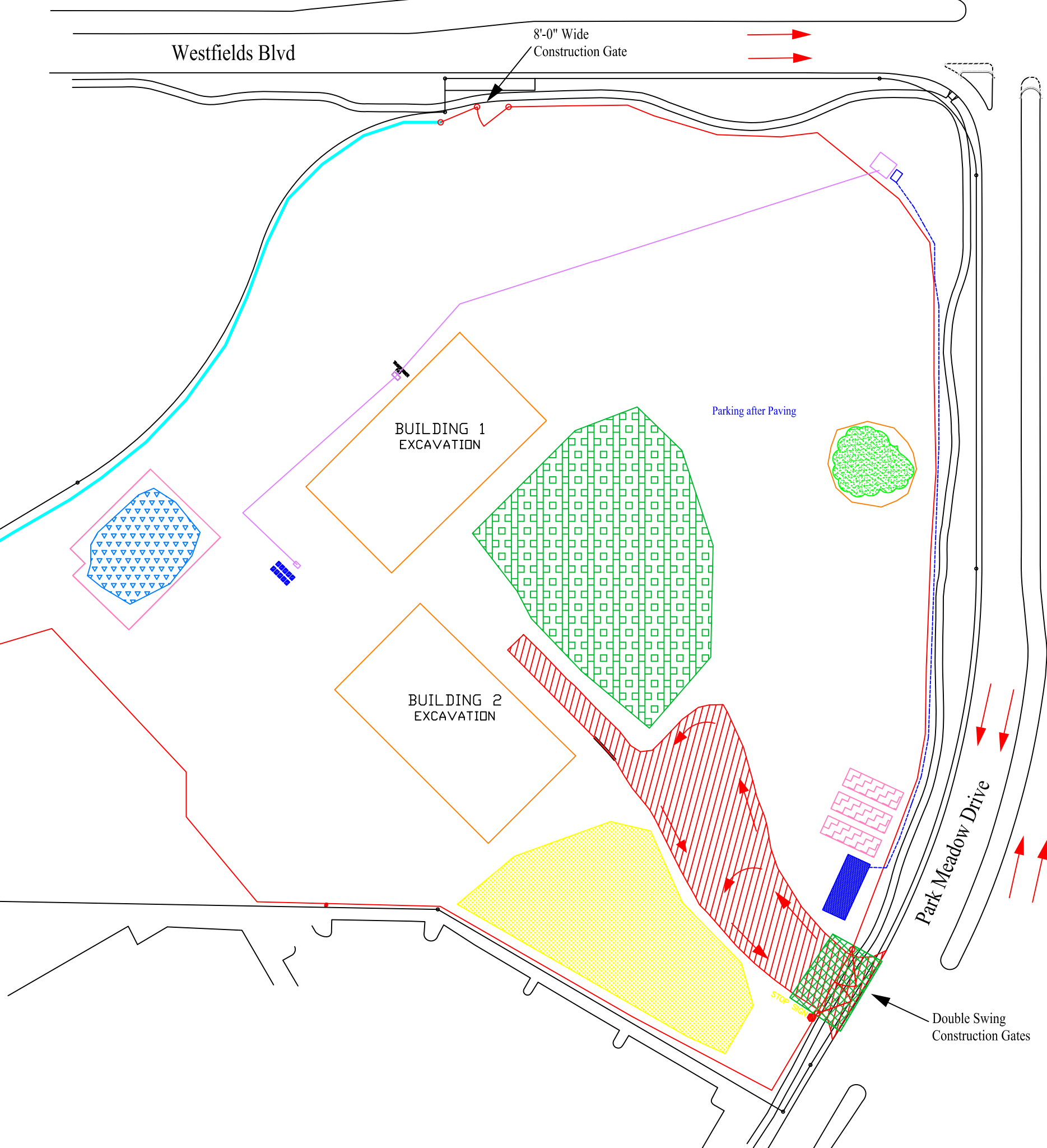
Appendix B

Detailed Project Schedule

Appendix C.1 & C.2

Site Layout Plan Phase 1 & 2

LEGEND	
	Temporary Internet
	Temporary Power Supply
	6' High Construction Fence
	6' High Existing VDOT Fence
	DAVIS Jobsite Trailer
	Sub Jobsite Trailers & Laydown Areas
	Stabilized Construction Entrance
	Sub & Temporary Parking Areas
	Material Laydown Area
	Retention Pond
	Spoils & Topsoil Stockpiles With Erosion Control
	Construction Traffic / Loading & Unloading Zone
	Temporary Toilets



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Technical Assignment 2 - Site Plan

Plaza East Site Work/Excavation

1/31/06 - 3/27/06















Steven M. Miller
Construction Management
Dr. Riley

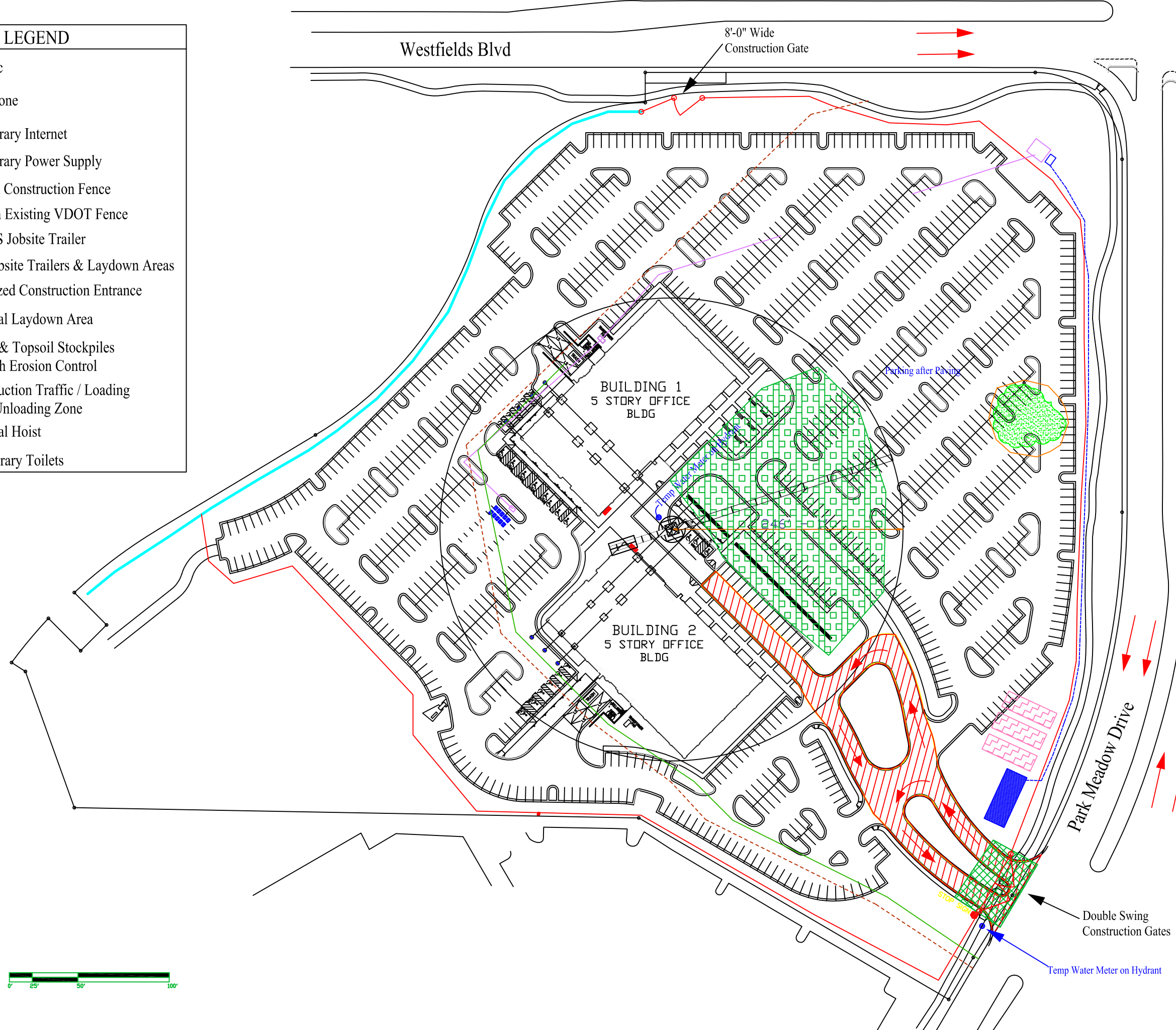
$\frac{1}{32}'' = 1' - 0''$

Technical Assignment 2 - Site Plan
Plaza East Superstructure
2/21/06 - 7/13/06

Steven M. Miller
Construction Management
Dr. Riley

1/32" = 1' - 0"

LEGEND	
	Electric
	Telephone
	Temporary Internet
	Temporary Power Supply
	6' High Construction Fence
	6' High Existing VDOT Fence
	DAVIS Jobsite Trailer
	Sub Jobsite Trailers & Laydown Areas
	Stabilized Construction Entrance
	Material Laydown Area
	Spoils & Topsoil Stockpiles With Erosion Control
	Construction Traffic / Loading & Unloading Zone
	Material Hoist
	Temporary Toilets



Appendix D

Structural Hand Calculations

ROOF LOADS

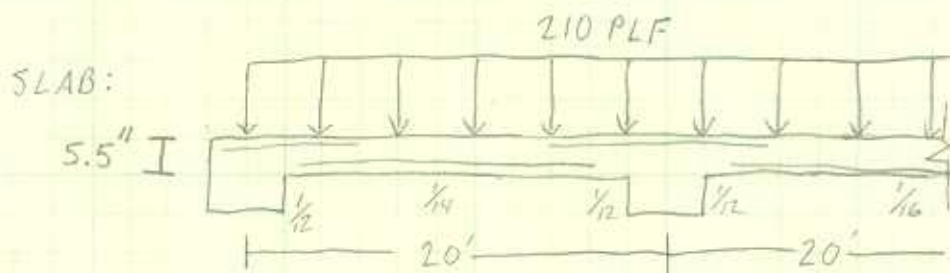
LIVE LOAD - 35 PSF

DEAD LOAD - $150 \text{pcf} \left(5\frac{1}{2}/12\right) = 68.75 \text{ PSF}$
GREEN ROOF = 37 PSF

SNOW LOAD - 27 PSF

$$\text{TOTAL LOAD} = 1.2(68.75 + 37) + 1.4(35) + 27 = 209.9 \approx 210 \text{ PSF}$$

$$210 \text{ PSF} / 1 \text{ ft} = 210 \text{ PLF}$$

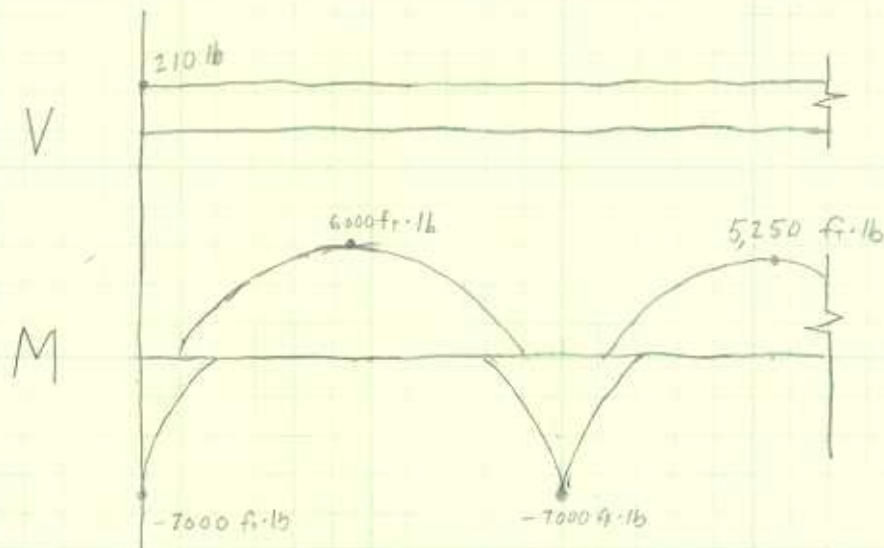


MOMENTS: AT EXTERIOR SUPPORT: $-M \frac{1}{2} \times 210 \times 20^2 = 7,000 \text{ ft}\cdot\text{lb}$

AT MID SPAN 1: $+M \frac{1}{4} \times 210 \times 20^2 = 6,000 \text{ ft}\cdot\text{lb}$

AT INTERIOR SUPPORT: $-M \frac{1}{2} \times 210 \times 20^2 = 7,000 \text{ ft}\cdot\text{lb}$

AT MIDSPAN 2: $M \frac{1}{6} \times 210 \times 20^2 = 5,250 \text{ ft}\cdot\text{lb}$



$$d = 5.5'' - 0.75'' = 4.75''$$

$$a = \frac{A_s f_y}{.85 f_c b}$$

AREA OF STEEL (A_s) w/ $a = 1''$

$$A_s = \frac{M_u}{\phi f_y (d - \frac{a}{2})} = \frac{7 \text{ ft} \cdot \text{k} (12)}{.9 (60) (4.75 - .5)} = 0.366 \text{ in}^2$$

CHECK a

$$a = \frac{.366 (60)}{(.85) (3.5) (12)} = 0.615''$$

A_s @ EXT.

$$A_s = \frac{7 (12)}{.9 (60) (4.75 - \frac{0.615}{2})} = \boxed{0.35 \text{ in}^2}$$

A_s @ MIDSPAN 1

$$A_s = \frac{6 (12)}{.9 (60) (4.75 - \frac{0.615}{2})} = \boxed{0.30 \text{ in}^2}$$

A_s @ MIDSPAN 2

$$A_s = \frac{5.25 (12)}{.9 (60) (4.75 - \frac{0.615}{2})} = \boxed{0.26 \text{ in}^2}$$

MINIMAL REINFORCEMENT FOR SHRINKAGE & TEMP. CRACKING

$$A_s = 0.0018 \times 12' \times 5.5'' = 0.12 \text{ in}^2 < 0.35, 0.30, 0.26 \quad \underline{\underline{\text{GOOD}}}$$

PERPENDICULAR SHRINKAGE & TEMP. REINFORCING

$$\text{USE } \#3 @ 10'' = \boxed{0.13 \text{ in}^2} > 0.12 \text{ in}^2 \quad \underline{\underline{\text{GOOD}}}$$

$$10'' < 5 \text{ TIMES SLAB THICKNESS } \hat{=} 18'' \quad \underline{\underline{\text{GOOD}}}$$

EXISTING REINFORCEMENT: #4 @ 15"

$$A_s = \#4 @ 15 = 0.20 \text{ in}^2 \left(\frac{12''}{15''} \right) = 0.16 \text{ in}^2 < 0.35 \text{ in}^2 \text{ NOT GOOD}$$

FOR 0.35 in² USE #4 @ 6" = 0.40 in², #5 @ 10" = 0.37 in²

FOR 0.30 in² USE #4 @ 7½" = 0.31 in², #5 @ 12" = 0.31 in²

FOR 0.26 in² USE #4 @ 9" = 0.26 in², #3 @ 5" = 0.26 in²

FACTORED SHEAR @ d

$$V_u = 1.15 \times \frac{210 \times 20'}{2} - 210 \times \frac{4.75'}{2} = 2,331.88 \text{ lb} \approx 2,332 \text{ lb}$$

$$V_n = V_c = 2\sqrt{f_c} b d = 2\sqrt{3,5000} (12)(4.75') = 6,744.33 \text{ lb}$$

$$\phi V_c = 0.75(6,744.33) = 4,721 \text{ lb} > V_u = 2,332 \text{ lb} \text{ GOOD}$$