Missouri
Department
of Transportation

MoDOT

105 West Capitol Avenue
P.O. Box 270
Jefferson City, MO 65102
(573) 751-2551
Fax (573) 751-6555
www.modot.org

Pete K. Rahn, Director

January 28, 2010

Addendum No. 1
9-100205

To: Plans and Specifications Holders List for:

Missouri Department of Transportation – DISTRICT-2, Marshall Project Office & Maintenance Building – Marshall, MO

SOILS REPORT: Attached.

PAD FOR TRANSFORMER: Attached. Provide and installed by Contractor.

CLAIRIFICATION: The contractor will not be responsible for providing supplementary engineering design or shop drawings for the steel wall studs, headers, lintels, shear walls, connections or any other related components.

PREVAILING WAGE NOTICE OF EXCESSIVE UNEMPLOYMENT

***** NOW IN EFFECT *****

Only Missouri laborers and laborers from nonrestrictive states are allowed by law to be employed on Missouri's public works projects when the unemployment rate exceeds 5% for two consecutive months. (See Sections 290.550 through 290.580 RSMo.) The unemployment rate has exceeded 5% for the past two months. Therefore, this statute is in effect and will remain in effect as long as this notice is posted. For questions call (573) 751-3403. View the Frequently Asked Questions at **http://www.labor.mo.gov/ls/faq/faq_PublicWorksEmployment.asp** or view the statute 290.550 – 290.580 RSMo, at **http://www.moga.mo.gov/statutes/C290.HTM**.
Restrictive states are as follows: Alaska, Arizona, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Idaho, Illinois, Iowa, Maine, Massachusetts, Mississippi, Montana, Nevada, New Jersey, North Dakota, Oklahoma, South Dakota, U.S. Virgin Islands, West Virginia and Wyoming.

IN THE DRAWINGS

Sheet 1 of 18: Add to Grading Notes: Contractor to discard all debris off-site as required.

Sheet 14 of 18: Add to Plumbing Notes as #18 : Contractor to provide cast iron vent piping in plenum as required by code. Secure as required.

Sheet 8 of 30: Project Office Plans, DOOR TYPES, Change Door Type F to be: 10'-0" x 10'-0" x 2" insulated metal sectional door, with one section containing insulated glass.
Sheet 23 of 30: Project Office Plans. Contractor to provide cast iron vent piping in plenum as required by code. Secure as required.

Continued on Page-2

Sheet 28 of 30: Project Office Plans, Change Room 101 to 102.
IN THE SPECIFICATIONS

Delete Pages 19 & 20 in the Specification (orange) Book and Pages 19 & 20 in the Bid (blue) Book.

Page 111, Change Section 06112, FRAMING AND SHEATHING, Part 2, PRODUCTS, SHEATHING LOCATIONS, Paragraph 2.2.A to read: Sloped roof sheathing 5/8" thick, 48 x 96 inch sized sheets, square edges.

Page 192, Section 11452, RESIDINTIAL APPLIANCES, Part 1, GENERAL, SECTION INCLUDES, Paragraph 1.1.D to be deleted. MoDOT to provide upright freezer.

MEMORANDUM

Missouri Department of Transportation
Construction - Materials
Central Laboratory

TO: Dan Niec-2ao

CC/ATT: Dan Niec-2ao
Bret Davidson-2ma

FROM: Ricardo N. Todd RNT
Intermediate Geotechnical Specialist

DATE: July 8, 2009

SUBJECT: Materials
Geotechnical Section
Foundation Investigation for
New Maintenance Building
Marshall Maintenance Lot
Route 65, Saline County

As requested in an email date May 14, 2009, from District Geologist, Bret Davidson, a special foundation investigation has been conducted for a proposed new maintenance building and project office. The proposed are located in the parking area of the existing maintenance building at the Marshall Maintenance Lot, see Figure 1.

Existing Conditions

Based on borings taken in the vicinity of the subject structure, up to 15′ of unsuitable foundation material was encountered. A previous special foundation investigation also encountered 15′ of unsuitable material, a copy is attached. For a more detailed description of subsurface conditions, refer to the attached preliminary boring logs. Settlement has been calculated and will be available upon your request.

Recommendations

If the unsuitable foundation material is removed to a depth of 15′ dried out and compacted, we can recommend an allowable bearing of 1.5 tsf.

An alternate recommendation would be to use a foundation system such as piles or geopiers to a depth of 15′. We recommend an allowable bearing of 1.25 tsf for the Maintenance Building and 1.75 tsf for the Project Office.

It is recommended that strip footings be a minimum of 18 inches wide, and isolated footings be a minimum of 30 inches wide to accommodate minor variations in subsurface conditions. Footings should bear at least 2.0 feet below finished grade for frost protection.

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Attachments

Form T-737-1RMO
Rev. 05/01

MISSOURI DEPARTMENT OF TRANSPORTATION
Construction and Materials

BORING DATA (CORE & SPT)

Job No.:	--				
County:	Saline	**Route:**	65	**Design:**	D-201
Over:	--			**Skew:**	--
Logged by:	T. Craig			**Operator:**	Mathews
Equipment:	Failing 1500			**Drillers Hole No.:**	A-09-10
Hole Stab. by:	Rotary Mud			**Date of Work:**	5/26/2009
Automatic Hammer Efficiency:	80 %			**Drill No.:**	G-7887

Bent	Station	Location	Surface Elevation
	NW Corner	R.E. Building	100.3

TEST DATA

Depth, ft.	SPT Blows/6"	N_{60}	P.P., tsf	Tv., tsf	Wn%
6.0			2.00	0.50	30.1
7.5	W.O.H.-W.O.H.-1	1	0.50		
11.0			2.50	0.45	27.8
12.5	2-2-4	8	0.25		
16.0			1.75	0.20	25.2
17.5	1-4-7	15	2.25		
21.0			2.25	0.30	

W.O.H. = Weight of Hammer

SOIL CLASSIFICATION TEST DATA

Depth, ft.	LL	PI	ASTM Class.
10.0	38	19	CL
15.0	45	29	CL

CORING LOG (NX Double Tube Barrel)

From	To	Run	Rec	Loss	% RQD	Notes

WATER TABLE OBSERVATIONS

Date	Time Change	Depth Hole Open	Depth To Water
5/26/2009	0	20.1'	0

LOG OF MATERIALS*

0.0-0.8'	Fine gravel and sand.
0.8-9.5'	Gray with orange mottling sandy lean clay, moist, soft.
9.5-17.5'	Gray lean clay, moist, soft to hard.
17.5-22.5'	Gray with orange and black mottling lean clay, moist, hard.

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri Central 2402
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet **Coordinate Projection Factor:** Undetermined

N_{60} - Corrected N value for standard 60% SPT efficiency.

$N_{60} = (Em/60)Nm$ Em - Measured transfer efficiency in percent.

Nm - Observed N-value.

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgment of the operator.
THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.

Form T-737-1RMO
Rev. 05/01

MISSOURI DEPARTMENT OF TRANSPORTATION
Construction and Materials

BORING DATA (CORE & SPT)

Job No.:	--				
County:	Saline	**Route:**	65	**Design:**	D-201
Over:	--			**Skew:**	---
Logged by:	T. Craig			**Operator:**	Mathews
Equipment:	Failing 1500			**Drillers Hole No.:**	A-09-12
Hole Stab. by:	Rotary Mud			**Date of Work:**	5/2/2009
Automatic Hammer Efficiency:		80 %		**Drill No.:**	G-7887

Bent	Station	Location	Surface Elevation
	NE Corner 50925.8E	R.E. Building 50900.4N	99.9

LOG OF MATERIALS*

0.0-14.5' Gray with orange and black mottling lean to fat clay, moist, medium soft to stiff.

14.5-22.5' Gray with orange and black mottling lean to fat clay, moist, very stiff.

TEST DATA

Depth, ft.	SPT Blows/6"	N_{60}	P.P., tsf	Tv., tsf	Wn%
5.0			1.50	0.55	
7.5	1-2-2	5	1.00		
10.0			1.50	0.60	
12.5	1-2-2	5	0.75		
15.0			2.25	0.85	
17.5	3-4-7	15	2.50		
20.0			2.75	0.90+	

SOIL CLASSIFICATION TEST DATA

Depth, ft.	LL	PI	ASTM Class.	

CORING LOG (NX Double Tube Barrel)

From	To	Run	Rec	Loss	% RQD	Notes

WATER TABLE OBSERVATIONS

Date	Time Change	Depth Hole Open	Depth To Water
5/27/2009	0	17.9'	0.1'

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri Central 2402
Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet Coordinate Projection Factor: Undetermined

N_{60} - Corrected N value for standard 60% SPT efficiency.

$N_{60} = (Em/60)Nm$ Em - Measured transfer efficiency in percent.

Nm - Observed N-value.

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Form T-737-IRMO
Rev. 05/01

MISSOURI DEPARTMENT OF TRANSPORTATION
Construction and Materials

BORING DATA (CORE & SPT)

Job No.:	--				
County:	Saline	Route:	65	Design:	D-201
Over:	--			Skew:	--
Logged by:	T. Craig			Operator:	Mathews
Equipment:	Failing 1500			Drillers Hole No.:	A-09-14
Hole Stab. by:	Rotary Mud			Date of Work:	5/27/2009
Automatic Hammer Efficiency:	80 %			Drill No.:	G-7887

Bent	Station	Location	Surface Elevation
	CP 5035.4E	R.E. Building 5019.7N	99.7

TEST DATA

Depth, ft.	SPT Blows/6"	N_{60}	P.P., tsf	Tv., tsf	Wn%
5.0	2-2-2	5	1.00		
10.0	2-5-3	11	1.50		
15.0	2-3-5	11	1.75		
20.0	3-5-9	19	3.25		

SOIL CLASSIFICATION TEST DATA

Depth, ft.	LL	PI	ASTM Class.	

CORING LOG (NX Double Tube Barrel)

From	To	Run	Rec	Loss	% RQD	Notes

WATER TABLE OBSERVATIONS

Date	Time Change	Depth Hole Open	Depth To Water
5/27/2009	0	2.9'	2.3'

LOG OF MATERIALS*

0.0-0.9'	Gray clayey coarse sand and fine gravel.
0.9-7.5'	Olive-gray with orange mottling lean clay, moist, stiff.
7.5-18.0'	Gray fat clay, moist, stiff to very stiff.
18.0-21.5'	Tan with orange mottling lean clay, moist, very stiff.

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri Central 2402
Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet Coordinate Projection Factor: Undetermined

N_{60} - Corrected N value for standard 60% SPT efficiency.

$N_{60} = (Em/60)Nm$ Em - Measured transfer efficiency in percent.

Nm - Observed N-value.

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Form T-737-1RMO
Rev. 05/01

MISSOURI DEPARTMENT OF TRANSPORTATION
Construction and Materials

BORING DATA (CORE & SPT)

Job No.:	--		
County:	Saline	**Route:** 65	**Design:** D-201
Over:	--		**Skew:** --
Logged by:	T. Craig		**Operator:** Mathews
Equipment:	Failing 1500		**Drillers Hole No.:** A-09-16
Hole Stab. by:	Rotary Mud		**Date of Work:** 5/27/2009
Automatic Hammer Efficiency:	80 %		**Drill No.:** G-7887

Bent	Station	Location	Surface Elevation
	SE Corner	Maintenance Building	101.2

TEST DATA

Depth, ft.	SPT Blows/6"	N_{60}	P.P., tsf	Tv., tsf	Wn%
5.0			2.50	0.55	30.1
7.5	2-2-3	7	1.00		
10.0			0.75	0.45	27.4
12.5	1-2-3	7	0.50		
15.0			2.25	0.65	22.2
17.5	4-4-7	15	2.50		
20.0			4.00	0.90+	21.6

SOIL CLASSIFICATION TEST DATA

Depth, ft.	LL	PI	ASTM Class.
5.0	53	33	CH
10.0	36	18	CL
15.0	53	37	CH

CORING LOG (NX Double Tube Barrel)

From	To	Run	Rec	Loss	% RQD	Notes

WATER TABLE OBSERVATIONS

Date	Time Change	Depth Hole Open	Depth To Water
5/28/2009	24 hours	2.1'	1.9'

LOG OF MATERIALS*

0.0-1.0'	Asphalt.
1.0-5.9'	Gray fat clay, moist, very stiff.
5.9-9.5'	Gray with orange mottling lean clay, moist, stiff.
9.5-14.5'	Gray fat clay, moist, stiff.
14.5-22.5'	Gray with orange and black mottling lean clay, moist, very stiff to hard.

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri Central 2402
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet **Coordinate Projection Factor:** Undetermined

N_{60} - Corrected N value for standard 60% SPT efficiency.

$N_{60} = (Em/60)Nm$ Em - Measured transfer efficiency in percent.

Nm - Observed N-value.

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Form T-737-1RMO
Rev. 05/01

MISSOURI DEPARTMENT OF TRANSPORTATION
Construction and Materials

BORING DATA (CORE & SPT)

Job No.:	--				
County:	Saline	**Route:**	65	**Design:**	D-201
Over:	--			**Skew:**	--
Logged by:	T. Craig			**Operator:**	Mathews
Equipment:	Failing 1500			**Drillers Hole No.:**	A-09-18
Hole Stab. by:	Rotary Mud			**Date of Work:**	5/28/2009
Automatic Hammer Efficiency:			80 %	**Drill No.:**	G-7887

Bent	Station	Location	Surface Elevation
	NE Corner	Maintenance Building	101.2

TEST DATA

Depth, ft.	SPT Blows/6"	N_{60}	P.P., tsf	Tv., tsf	Wn%
5.0			2.25	0.60	30.0
7.5	2-1-1	3			
10.0			<0.25	0.55	27.4
12.5	1-2-3	7	1.25		
15.0			1.50	0.90+	27.0
17.5	1-2-5	9	2.25	0.90+	
20.0					

SOIL CLASSIFICATION TEST DATA

Depth, ft.	LL	PI	ASTM Class.	
5.0	47	26	CL	
10.0	37	15	CL	

CORING LOG (NX Double Tube Barrel)

From	To	Run	Rec	Loss	% RQD	Notes

WATER TABLE OBSERVATIONS

Date	Time Change	Depth Hole Open	Depth To Water
5/28/2009	0	20.0'	0.1'

LOG OF MATERIALS*

0.0-0.8'	Gray clayey gravel.
0.8-3.9'	Gray clayey sand.
3.9-7.2'	Gray with orange mottling lean clay, moist, stiff.
7.2-9.5'	Gray sand, loose.
9.5-19.5'	Tannish-gray with orange mottling fat clay, moist, soft to stiff.
19.5-22.5'	Olive gray with orange mottling lean clay, moist, very stiff.

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri Central 2402
Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet Coordinate Projection Factor: Undetermined

N_{60} - Corrected N value for standard 60% SPT efficiency.
$N_{60} = (Em/60)Nm$ Em - Measured transfer efficiency in percent.
Nm - Observed N-value.

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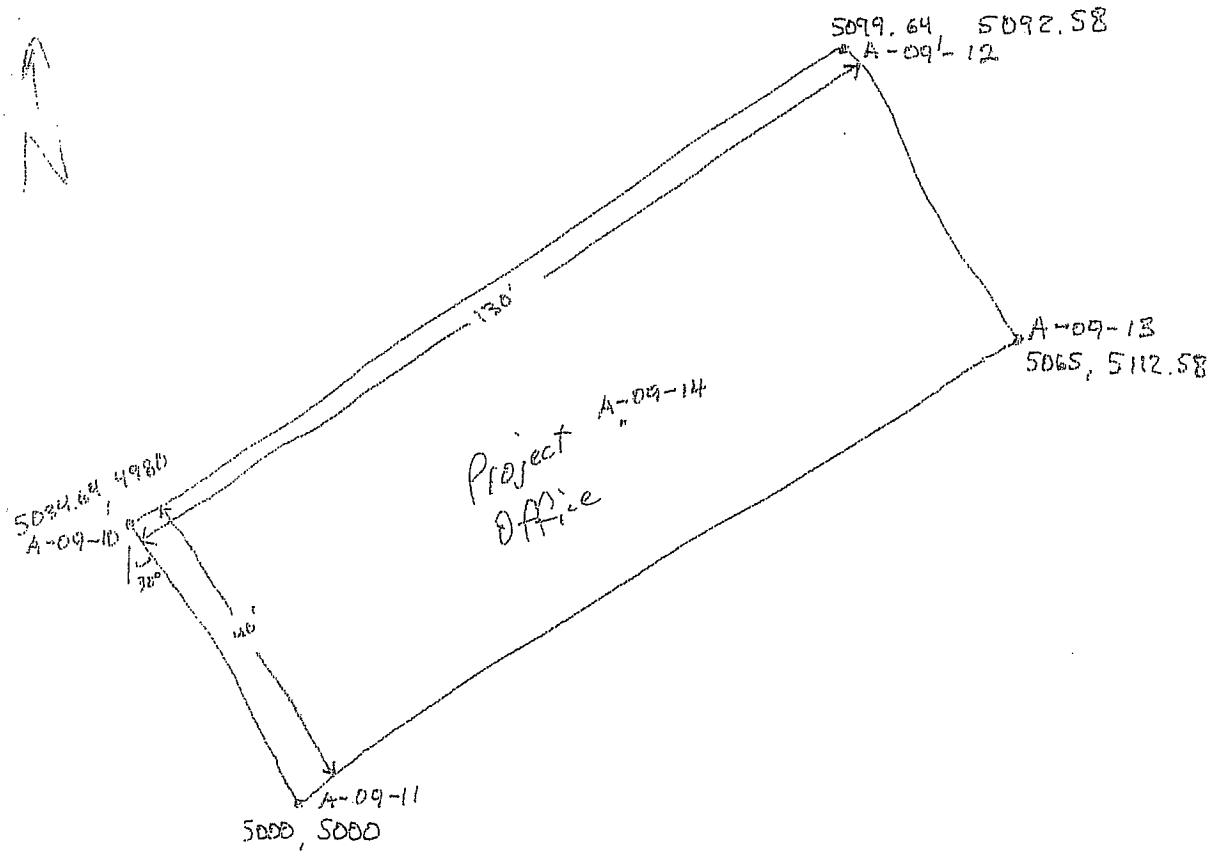
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A-09-12
A-09-13
5065, 5112.58
A-09-14
Project Office
130'
5034.64, 4980
A-09-10
70°
40'
A-09-11
5000, 5000

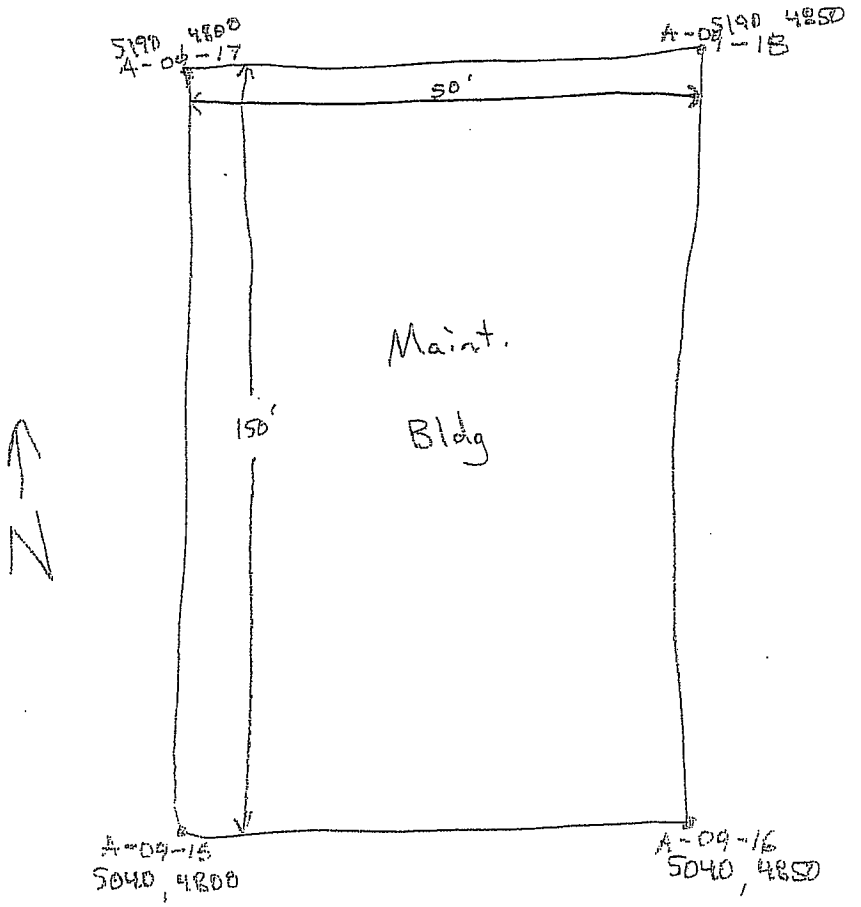
5190 4850
A-09-17
50'
A-09-18
5190 4850
Maint. Bldg
150'
A-09-15
5040, 4800
A-09-16
5040, 4850

Figure 7

MEMORANDUM

Missouri Department of Transportation
Construction - Materials
Central Laboratory

TO: Dan Niec-2ao

CC/ATT: Dan Niec-2ao
Bret Davidson-2ma

FROM: Ricardo N. Todd
Geotechnical Specialist

DATE: September 11, 2008

SUBJECT: Materials
Geotechnical Section
Special Foundation Investigation
Salt Dome
Marshall Maintenance Lot
Route 65, Saline County

As requested in an email dated August 25, 2008, from District Geologist, Bret Davidson, a special foundation investigation has been made for a proposed Salt Dome northeast of the salt mixing area at the Marshall Maintenance Lot.

Existing Conditions

Based on borings taken in the vicinity of the subject structure, up to 15' of unsuitable foundation material was encountered at boring L2 (3152777.3E, 1077540.5N). The material would appear to be uncontrolled backfill placed in the previous salt pond. The material should be removed and compacted. For a more detailed description of subsurface conditions, refer to the attached boring logs.

Recommendations

If the unsuitable foundation material is removed and compacted, an allowable bearing pressure of 1.5 tsf may be used for the design of the proposed Salt Dome.

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Attachments

MISSOURI DEPARTMENT OF TRANSPORTATION
Construction and Materials

BORING DATA (CORE & SPT)

Sheet 1 of 2

Job No.: --
County: Saline
Over: Marshall Maintenance Lot
Logged by: R. Todd
Equipment: Failing 1500
Hole Stab. by: Rotary Mud
Automatic Hammer Efficiency: 80 %

Route: 65

Design: Salt Dome
Skew: --
Operator: Donahoe
Drillers Hole No.: H-08-41
Date of Work: 8/25/2008
Drill No.: G-7888

Benr	Station	Location	Surface Elevation
L1	3152740.9E	1077621.1N	770.8

TEST DATA

Depth, ft.	SPT Blows/6"	N_{60}	P.P., tsf	Tv., tsf	Wn%
3.0			1.25	0.6	21.6
6.0			1.5	0.7	29.1
8.0			1.5	0.5	30.5
11.0			1.75	0.8	28.9
14.0			2.25	0.9	23.6
16.0			3.0	0.9	25.1
18.0			3.0	0.9	24.0
21.0			4.5	0.9	22.4
24.0			3.5	0.9	22.3
26.0			3.0	0.9	21.6
28.0			4.0	0.9	19.7
31.0			4.0	0.9	21.4
34.0			4.0	0.9	21.5
36.0			4.0	0.9	20.5
38.0			4.0	0.9	21.8

SOIL CLASSIFICATION TEST DATA

Depth, ft.	LL	PI	ASTM Class.
8.0	51	32	CH
16.0	42	26	CL

CORING LOG (NX Double Tube Barrel)

From	To	Run	Rec	Loss	% RQD	Notes

WATER TABLE OBSERVATIONS

Date	Time Change	Depth Hole Open	Depth To Water
8/25/2008		11.0'	2.5'
8/26/2008		9.5'	4.0'

LOG OF MATERIALS*

0.0-2.5'	Asphalt, gravel, and other construction material.
2.5-5.0'	Dark gray fat clay, trace gravel, moist, stiff.
5.0-20.0'	Tannish-gray mottled lean to fat clay, trace shale, stiff to very stiff.
20.0-40.0'	Light gray to gray mottled shaley clay, moist, stiff to very stiff.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Depth, ft.	Qu, tsf	P.P., tsf
8.0	0.9	1.5
16.0	2.1	3.0

UNIT WEIGHTS

Depth, ft.	γsat, pcf	γmoist, pcf	%sat
3.0	128.5		100(1)
6.0	121.0		100(1)
8.0		104.3	93(2)
11.0	121.2		100(1)
14.0	126.3		100(1)
16.0		104.8	94(2)
18.0	125.9		100(1)
21.0	127.6		100(1)
24.0	127.7		100(1)
26.0	128.5		100(1)
28.0	130.7		100(1)
31.0	128.7		100(1)
34.0	128.6		100(1)
36.0	129.8		100(1)
38.0	128.3		100(1)

(1) Assumed
(2) Actual

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri Central 2402
Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet Coordinate Projection Factor:

N_{60} - Corrected N value for standard 60% SPT efficiency.
$N_{60} = (Em/60)Nm$ Em - Measured transfer efficiency in percent.
Nm - Observed N-value.

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MISSOURI DEPARTMENT OF TRANSPORTATION
Construction and Materials

BORING DATA (CORE & SPT)

Job No.: --
County: Saline
Over: Marshall Maintenance Lot
Logged by: R. Todd
Equipment: Failing 1500
Hole Stab. by: Rotary Mud
Automatic Hammer Efficiency: 80 %

Route: 65

Design: Salt Dome
Skew: --
Operator: Donahoe
Drillers Hole No.: H-08-42
Date of Work: 8/26/2008
Drill No.: G-7888

Bent	Station	Location	Surface Elevation
L2	3152777.3E	1077540.5N	771.5

TEST DATA

Depth, ft.	SPT Blows/6"	N_{60}	P.P., tsf	Tv., tsf	Wn%
3.0			1.25	0.4	28.0
6.0			1.5	0.5	28.5
11.0			0.75	0.3	26.5
14.0			0.5	0.3	27.3
16.0			2.5	0.8	24.4
18.0			3.5	0.9	22.4
21.0			4.0	0.9	23.0
24.0			4.0	0.9	21.7
26.0			4.0	0.9	20.8
28.0			4.5	0.9	20.5
31.0			4.0	0.9	21.1
34.0			4.5	0.9	21.9
36.0			4.0	0.9	20.4
38.0			4.0	0.9	21.5

SOIL CLASSIFICATION TEST DATA

Depth, ft.	LL	PI	ASTM Class.
6.0	56	37	CH
14.0	39	23	CL
18.0	53	37	CH
21.0	48	31	CL

CORING LOG (NX Double Tube Barrel)

From	To	Run	Rec	Loss	% RQD	Notes

WATER TABLE OBSERVATIONS

Date	Time Change	Depth Hole Open	Depth To Water
8/26/2008		11.0'	2.0'

LOG OF MATERIALS*

0.0-2.5'	Asphalt and construction material.
2.5-10.0'	Gray mottled fat clay, moist, stiff.
10.0-15.0'	Tannish-brown mottled lean clay, trace shale, moist, medium stiff.
15.0-40.0'	Gray mottled fat to lean shaley clay, very stiff to stiff.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Depth, ft.	Qu, tsf	P.P., tsf
6.0	2.1	1.5
16.0	1.9	2.5

UNIT WEIGHTS

Depth, ft.	γsat, pcf	γmoist, pcf	%sat
3.0	122.0		100(1)
6.0		123.3	94(2)
11.0	123.4		100(1)
14.0	122.7		100(1)
16.0		125.4	97(2)
18.0	127.6		100(1)
21.0	126.9		100(1)
24.0	128.4		100(1)
26.0	129.4		100(1)
28.0	129.8		100(1)
31.0	129.1		100(1)
34.0	128.2		100(1)
36.0	129.4		100(1)
38.0	128.6		100(1)

(1) Assumed
(2) Actual

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri Central 2402
Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet Coordinate Projection Factor: _____

N_{60} - Corrected N value for standard 60% SPT efficiency.
$N_{60} = (Em/60)Nm$ Em - Measured transfer efficiency in percent.
Nm - Observed N-value.

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I. BUILDING CODE/DESIGN LOADS:
   A. IBC 2009

II. GEOTECHNICAL DATA AND FOUNDATION SYSTEM:
   A. THE FOLLOWING DESIGN INFORMATION IS FROM THE GEOTECHNICAL REPORT BY THE MISSOURI DEPARTMENT OF TRANSPORTATION CONSTRUCTION MATERIALS, CENTRAL LABORATORY (INTERMEDIATE GEOTECHNICAL SPECIALIST, RICARDO N. TODD) DATED 7-8-09.
   B. FOOTINGS SHALL BEAR ON THE NATIVE SOIL REINFORCED WITH A "RAMMED AGGREGATE PIER" SYSTEM BY GEOPIER OR EQ.
   C. FOOTINGS BEARING ON REINFORCED NATIVE SOIL ARE DESIGNED FOR A MAXIMUM NET BEARING CAPACITY OF 2,500 PSF FOR ISOLATED AND CONTINUOUS FOOTINGS. THE SOIL STABILIZATION COMPANY SHALL PROVIDE CERTIFICATION IN WRITING TO VERIFY THE BEARING CAPACITY USED FOR DESIGN.
   D. FLOOR SLAB-ON-GRADE SHALL BEAR ON THE NATIVE SOIL REINFORCED WITH A "RAMMED AGGREGATE PIER" SYSTEM BY GEOPIER OR EQ.
   E. FLOOR SLABS-ON-GRADE BEARING ON REINFORCED NATIVE SOIL ARE DESIGNED FOR A MAXIMUM NET BEARING CAPACITY OF 1,000 PSF FOR THE ENTIRE FLOOR SLAB. THE PIERS SHALL BE SPACED AS RECOMMENDED BY THE SOIL STABILIZATION COMPANY AND AT A MAXIMUM OF 10'-0" o.c. IN A GRID PATTERN. THE SOIL STABILIZATION COMPANY SHALL PROVIDE CERTIFICATION IN WRITING TO VERIFY THE BEARING CAPACITY USED FOR DESIGN.
   F. A MINIMUM OF 24" OF COMPACTED STONE BASE OR LOW VOLUME CHANGE SOIL, INCLUDING BASE COURSE (SEE NOTES), SHALL BE PLACED UNDER SLABS-ON GRADE PER GEOTECHNICAL ENGINEERS RECOMMENDATIONS.
   G. A MINIMUM OF 12" OF COMPACTED STONE BASE, INCLUDING BASE COURSE (SEE NOTES), SHALL BE PLACED UNDER SLABS-ON GRADE/FOOTINGS AT CONDITIONS WHERE ROCK IS ENCOUNTERED.
   H. ALL TOPSOIL AND OTHER UNSUITABLE BEARING MATERIAL SHALL BE REMOVED. A GEOTECHNICAL ENGINEER SHALL INSPECT THE EXCAVATED AREA TO ENSURE ALL MATERIALS REQUIRING REMOVAL HAVE BEEN REMOVED, ALL NECESSARY SURFACE COMPACTION IS PERFORMED, AND TO VERIFY THE SOIL BEARING CAPACITY USED FOR DESIGN.
   I. FROST COVER FROM EXTERIOR GRADE TO BOTTOM OF FOOTING SHALL NOT BE LESS THAN 3'-0". FOUNDATION SYSTEMS MAY REQUIRE LOWERING TO PROVIDE FROST DEPTH.
   J. ALL SLABS-ON-GRADE SHALL BE PLACED ABOVE 6" OF COMPACTED CRUSHED STONE BASE (4" OF CLEAN SUBBASE WITH THE UPPER 2" CHOKED OFF WITH FINE-GRADED MATERIAL, ASTM D448 UNWASHED SIZE 10 – NOT CLEAN SAND WITH UNIFORM PARTICLE SIZE) OVER 10 MIL POLYETHYLENE VAPOR BARRIER (ASTM E 1745) TYP.
   K. BACKFILL AGAINST FOOTING STEM WALLS INSIDE THE BUILDING SHALL BE MADE WITH COMPACTED CRUSHED LIMESTONE CONFORMING TO ASTM C33, SIZE 56, OR EQ.
   L. ALL BUILDING WALLS SHALL BE BACKFILLED OUTSIDE THE STRUCTURE/BACKFILL SIDE USING A MINIMUM OF 24" OF CLEAN CRUSHED STONE AGAINST THE WALL WITH A FILTER CLOTH AROUND THE GRAVEL THAT SURROUNDS THE DRAIN TILE AT THE FOUNDATION WALL.
   M. SITE GRADING SHALL BE CONFIGURED TO ALLOW ADEQUATE DRAINAGE AWAY FROM THE STRUCTURE. SEE SITE GRADING PLAN FOR THIS INFORMATION. UNLESS MORE DETAILED INFORMATION IS PROVIDED ON THE PLANS SLOPE EXTERIOR GRADE AWAY FROM THE STRUCTURE A MINIMUM OF 6" IN THE FIRST 10' UNO.

III. REINFORCED CONCRETE:

A. DESIGN CODES: BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318), LATEST ADOPTION.

B. MATERIAL STRENGTHS

1. CONCRETE COMPRESSIVE STRENGTH (f'c) AT 28 DAYS:
   a) FOOTINGS 3000 PSI
   b) FOUNDATION WALLS 4000 PSI
   c) INTERIOR SLABS ON GRADE 4000 PSI (3/4" AGGREGATE, 540 LBS/CU YD OF CEMENTITIOUS CONTENT MIN)
   d) ALL OTHER CONCRETE 4000 PSI
2. SLUMP
   a) FOUNDATION WALLS 4"
   b) SLABS-ON-GRADE 5"
   c) ALL OTHER CONCRETE 5"
3. REINFORCING STEEL
   a) BARS AND TIES ASTM A615, GRADE 60

C. GROUT OR NON-SHRINK GROUT (FOR SETTING PLATES OR ANCHORS, FILLING BEARING POCKETS, ETC) SHOWN ON PLANS SHALL BE SIKAGROUT 212 BY SIKA (ASTM C1107) OR EQ.

D. NOTES:

1. PLACEMENT OF CONCRETE AND REINFORCEMENT SHALL BE IN ACCORDANCE WITH ACI AND CRSI STANDARDS. LAP OR DOWEL CONTINUOUS BARS 48 BAR DIAMETERS TYPICAL UNLESS NOTED. NO WELDING OF REINFORCING IS PERMITTED.
2. PROVIDE 3/4" CHAMFER AT ALL EXPOSED CORNERS.
3. EXPOSED CONC SURFACES SHALL BE FINISHED TO A UNIFORM APPEARANCE PER ACI 301, UNLESS NOTED OTHERWISE ON THE PLANS.
4. REINF SHOWN ON DETAILS IS FOR CONCEPT ONLY, FOLLOW CRSI PLACMENT AND COVER REQMTS UNO.
5. FURNISH THE FOLLOWING CONCRETE COVER ON REINFORCING BARS UNLESS SHOWN OTHERWISE ON THE DRAWINGS:
   a) SLABS ON GRADE PLACE REINFORCING IN CENTER OF SLAB
   b) FOOTINGS 3" COVER AT BOTTOM AND SIDES
   c) WALLS 2" COVER WHERE EXPOSED TO SOIL OR WEATHER AND 1" WHERE NOT EXPOSED TO SOIL AND WEATHER
6. MAXIMUM AGGREGATE SIZE SHALL NOT EXCEED 3/4 THE CONCRETE COVER (I.E. 3/4" MAX AGGREGATE FOR 1" COVER)
7. AT CORNERS OF ALL WALLS, FOOTINGS, GRADE BEAMS, ETC., SUPPLY CORNER BARS 4'-0" LONG (2'-0" EACH DIRECTION) MATCHING SIZE AND SPACING OF ALL HORIZONTAL BARS.
8. FLOOR CONTROL JOINTS (SAW JOINTS) UNLESS NOTED, SHALL BE SPACED EQUALLY WITH MAXIMUM SPACING IN FEET FOR INTERIOR SLAB-ON-GRADE OF THICKNESS IN INCHES TIMES 4.0. UNLESS NOTED, MAXIMUM JOINT SPACING IN FEET OF EXTERIOR SLABS SHALL BE SLAB THICKNESS IN INCHES TIMES 3.0. THE RATIO OF SLAB PANEL DIMENSIONS SHALL NOT EXCEED 1.5:1. CONTROL JOINTS SPACING SHALL BE REDUCED AT HOT AND/OR DRY CLIMATE. SAW CUT SLAB (3/16" WIDE TIMES SLAB THICKNESS DIVIDED BY 4) AS SOON AS THE SURFACE IS FIRM ENOUGH SO THAT IT WILL NOT BE DAMAGED BY THE BLADE. THE OPTIMUM TIME TO CUT THE SLAB WILL BE THE CONTRACTOR'S RESPONSIBILITY. GENERALLY, IN MODERATE WEATHER CONDITIONS, THIS TIME WILL BE WITHIN 4 TO 12 HOURS AFTER THE SLAB IS PLACED.
9. SLAB-ON-GRADE REINFORCING SHALL BE SUPPORTED ON WIRE BAR-TYPE SUPPORTS (PROVIDE SAND PLATES IF REQD) OF SUFFICIENT

HEIGHT TO INSURE THAT REINFORCING IS AT THE PROPER LOCATION WITH MAXIMUM SPACING OF 4'-0". REINFORCING PULL-UP METHOD IS NOT PERMITTED.

10. ALL CONCRETE EXPOSED TO WEATHER SHALL BE AIR ENTRAINED PER ACI REQUIREMENTS FOR MODERATE EXPOSURE (5% FOR 3/4" MAX AGGREGATE).
11. CONSTRUCTION JOINTS IN WALLS TO BE KEYED AND LOCATED NEAR CENTER OF SPAN, UNO.
12. PROVIDE #4's AT 12"o.c. EA WAY IN ALL WALLS MIN, UNO.
13. TESTING:
    a) ALL FIELD TESTING SHALL BE PERFORMED BY A CERTIFIED ACI FIELD TECHNICIAN.
    b) TAKE NOT LESS THAN THREE CYLINDERS FOR EACH CLASS OF CONCRETE, FOR EACH 150 CUBIC YARDS OR FRACTION THEREOF, FOR EACH DAY CONCRETE IS CAST, OR NOT LESS THAN ONCE FOR EACH 5,000 SQ FT OF SLAB OR WALL AREA.
    c) OF EACH SET OF THREE CYLINDERS, ONE SHALL BE TESTED AT 7 DAYS AND TWO AT 28 DAYS.

IV. GENERAL NOTES:

A. THE NOTES ON THE STRUCTURAL DRAWINGS ARE APPLICABLE TO ALL DRAWINGS IN ADDITION TO THE PROJECT SPECIFICATIONS. THESE NOTES TAKE PRECEDENCE OVER THE SPECIFICATIONS AND ARCHITECTURAL DRAWINGS.

B. DRAWINGS PROVIDE A SYSTEM FOR THE IN-PLACE STRUCTURE. SUPPORTING FLOORS OR SIMILAR CONDITIONS SHALL BE PLACED PRIOR TO BACKFILLING AGAINST FOUNDATION WALLS OR PROVIDE WALL BRACING DESIGNED AND CERTIFIED BY AN INDEPENDENT PROFESSIONAL ENGINEER.

C. DURING ERECTION OF THE BUILDING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY BRACING TO WITHSTAND ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED, INCLUDING LATERAL LOADS, STOCKPILES OF MATERIAL AND EQUIPMENT. SUCH BRACING SHALL BE LEFT IN PLACE AS LONG AS REQUIRED FOR SAFETY AND UNTIL ALL FRAMING, INCLUDING ROOF DECK IS IN PLACE.

D. WHERE "EPOXY" IS CALLED OUT ON DRAWINGS, USE SIMPSON ACRYLIC-TIE ANCHORING SYSTEM OR HILTI HIT HY-150 ANCHORING SYSTEM. USE ACRYLIC-TIE OR HILTI HIT HY-20 ANCHORING SYSTEM WITH SCREEN SLEEVE FOR ANCHORS IN MASONRY. INSTALL ANCHORS WITH STD EMBEDMENT UNLESS NOTED. ALL ANCHORS SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS AND SUPERVISION IN ORDER TO DEVELOP THE PUBLISHED WORKING LOADS.
    1. USE SIMPSON ACRYLIC-TIE ANCHORING SYSTEM WITH EMBEDMENTS YIEDLING THE MAXIMUM LOAD FOR THE EDGE DISTANCES AND CONNECTOR SPECIFIED IN THE T-ANCHORSPEC (LATEST EDITION) FOR HOLD-DOWNS UNO.

E. UNLESS NOTED, SUBMIT SHOP DRAWINGS OF ALL FABRICATED MATERIALS FOR REVIEW. DESIGN DRAWINGS SHALL NOT BE REPRODUCED FOR USE AS SHOP DRAWINGS WITHOUT WRITTEN CONSENT OF ENGINEER. SHOP DRAWINGS WILL NOT BE REVIEWED UNLESS THEY WERE CHECKED, BEAR THE INITIAL OF THE CHECKER AND ARE STAMPED "APPROVED" BY THE GENERAL CONTRACTOR. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR BUT NOT LIMITED TO THE FOLLOWING:
    1. REINFORCING STEEL IN CONCRETE SHOWING WALL ELEVATIONS AND CONTROL JOINTS TYP.

2. MATERIAL CERTIFICATES FOR STRUCTURAL MATERIALS INCLUDING BUT NOT LIMITED TO REINFORCING STEEL AND CONCRETE SHALL BE SUBMITTED.

F. WHERE A DETAIL, TYPICAL DETAIL, SECTION, TYPICAL SECTION, OR A NOTE IS SHOWN FOR ONE CONDITION, IT SHALL APPLY FOR ALL THE LIKE OR SIMILAR CONDITIONS UNLESS NOTED OTHERWISE.

G. ALL DIMENSIONS SHOWN ON THESE DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE APPROVAL OF SHOP DRAWINGS BY THE ENGINEER. ALL OF THE PLANS DEPICTING EXISTING ADJACENT STRUCTURES WERE CREATED FROM ASSUMPTIONS AND APPROXIMATE DIMENSIONS. THEREFORE, CONFIRMATION OF ALL DIMENSIONS IS ESSENTIAL TO THE PROPER FIT OF FABRICATED ITEMS.

V. SPECIAL INSPECTION REQUIREMENTS:

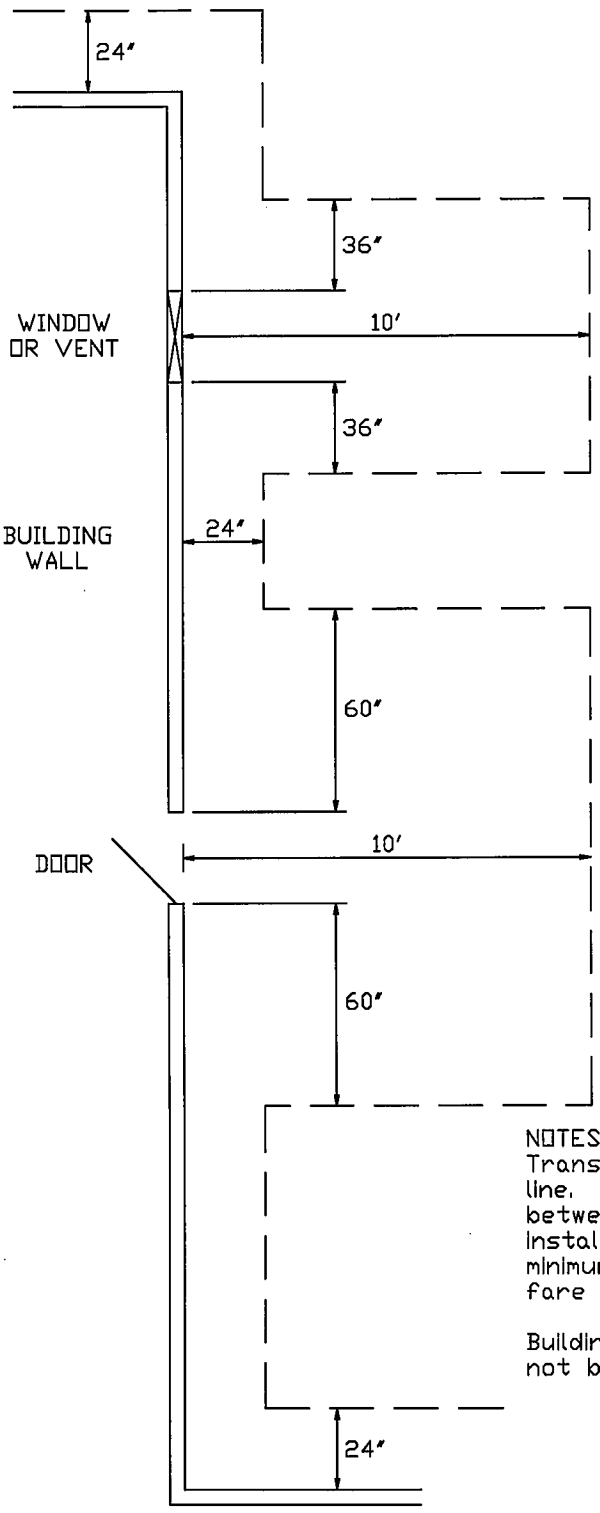
A. APPROVED FABRICATORS
   1. WORK PERFORMED AT A FACILITY/PLANT SHALL BE APPROVED BY A NATIONALLY CERTIFIED ORGANIZATION.
   2. A COPY OF CURRENT CERTIFICATION SHALL BE SUBMITTED.

B. SPECIAL INSPECTION AGENCIES
   1. AGENCIES SHALL BE UNDER DIRECT SUPERVISION OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSOURI.
   2. LABORATORY FACILITIES SHALL MEET APPLICABLE ASTM SPECIFICATIONS.
   3. EXCEPT FOR REGISTERED PROFESSIONAL ENGINEERS, ALL TESTING TECHNICIANS, INSPECTORS, AND ENGINEERS PERFORMING SPECIAL INSPECTIONS SHALL BE CERTIFIED PER BUILDING CODE REQUIREMENTS AS APPLICABLE FOR THE ITEM TESTED.
   4. A FINAL SPECIAL INSPECTION REPORT SHALL BE SUBMITTED.

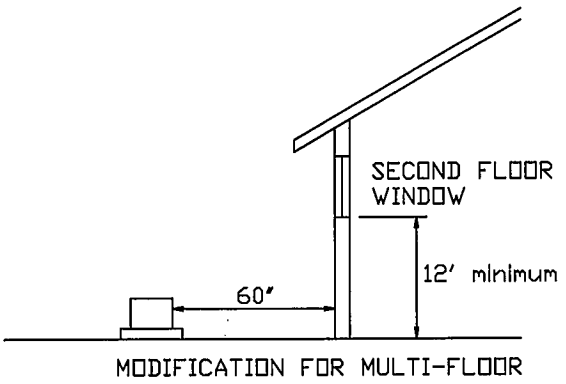
C. REINFORCED CONCRETE
   1. INSPECTION OF PLACEMENT OF CONCRETE. (IBC TABLE 1704.4, ITEMS 6 AND 7; IBC SECTION 1805)
   2. EVALUATION OF CONCRETE STRENGTH IN ACCORDANCE WITH NOTES AND ACI 318. (IBC SECTIONS 1704.4, ITEM 5)
   3. ANCHOR BOLTS, VERIFY ANCHOR BOLT DIAMETER, LOCATION, AND EMBEDMENT LENGTH. (IBC TABLE 1704.4, ITEM 3; SECTION 1912)
   4. VERIFY PLACEMENT OF REINFORCING STEEL FOR PROPER SIZE, GRADE, SPACING, CLEARANCES, SPLICE LENGTHS, AND COVER FOR CONFORMANCE WITH APPROVED PLANS AND SPECIFICATIONS. (IBC TABLE 1704.1, ITEM 1)

D. SOILS, EXCAVATION, FILLING, AND RAMMED AGGREGATE PIERS
   1. VERIFY BEARING MATERIAL. (IBC 1704.7; CHAPTER 18)
   2. VERIFY ENGINEERED FILL IS PLACED IN ACCORDANCE WITH GEOTECHNICAL ENGINEER'S/MANUFACTURER'S REQUIREMENTS. (IBC SECTIONS 1704.7 AND 3304)
   3. VERIFY SIZE AND DEPTH OF FOOTINGS. (IBC SECTIONS 1704.8, 1704.9, 1802.2.4, AND 1802.2.4, AND SECTION 1807 THRU 1811)

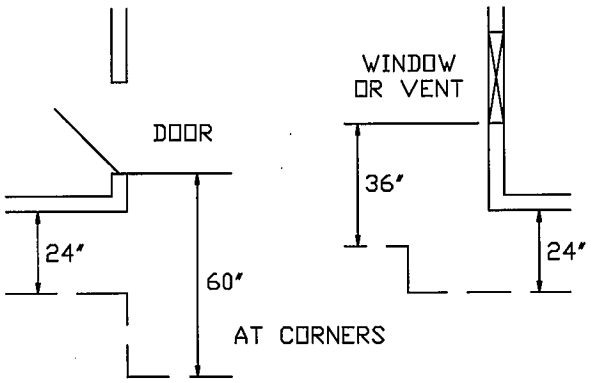
E. MECHANICAL AND ADHESIVE ANCHORS
   1. CONCRETE EXPANSION ANCHORS AND ADHESIVE CONCRETE/MASONRY ANCHORS, VERIFY ANCHOR DIAMETER, DEPTH OF EMBEDMENT, SPACING, EDGE DISTANCES, AND PUBLISHED WORKING TENSION PER NOTES. (IBC SECTION 2104.3)



GROUND FLOORS



MODIFICATION FOR MULTI-FLOOR



AT CORNERS

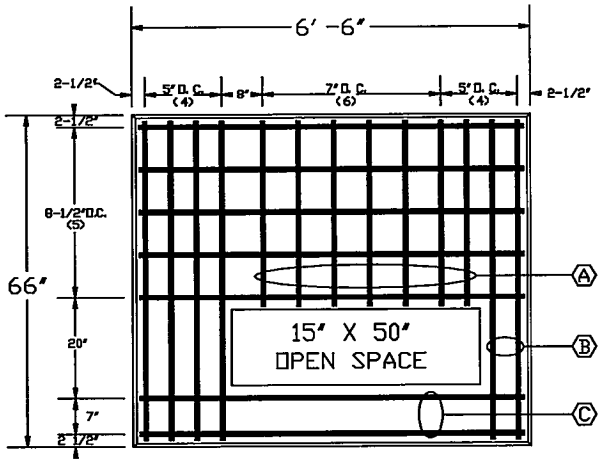
NOTES:
Transformers are to be located outside of the dashed line. A minimum width of 16 feet for working space between structures will be required for transformer installation and maintenance. Truck width access (10′ minimum) must be provided from a public thoroughfare to transformer locations.

Building walls include modular glass panels that cannot be opened for ventilation.

CALL 2 WORKING DAYS
BEFORE YOU DIG
TOLL FREE
1-800-DIG-RITE
(344-7483)
MISSOURI ONE CALL SYSTEM, INC.

LOCATIONS OF OIL FILLED
PADMOUNT TRANSFORMERS
NEAR BUILDINGS

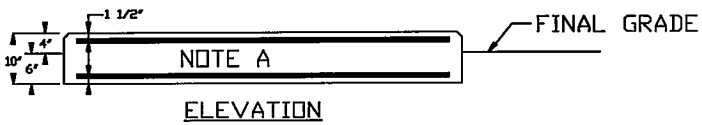
MMU	03-23-07	DWG.	T-Pad 3



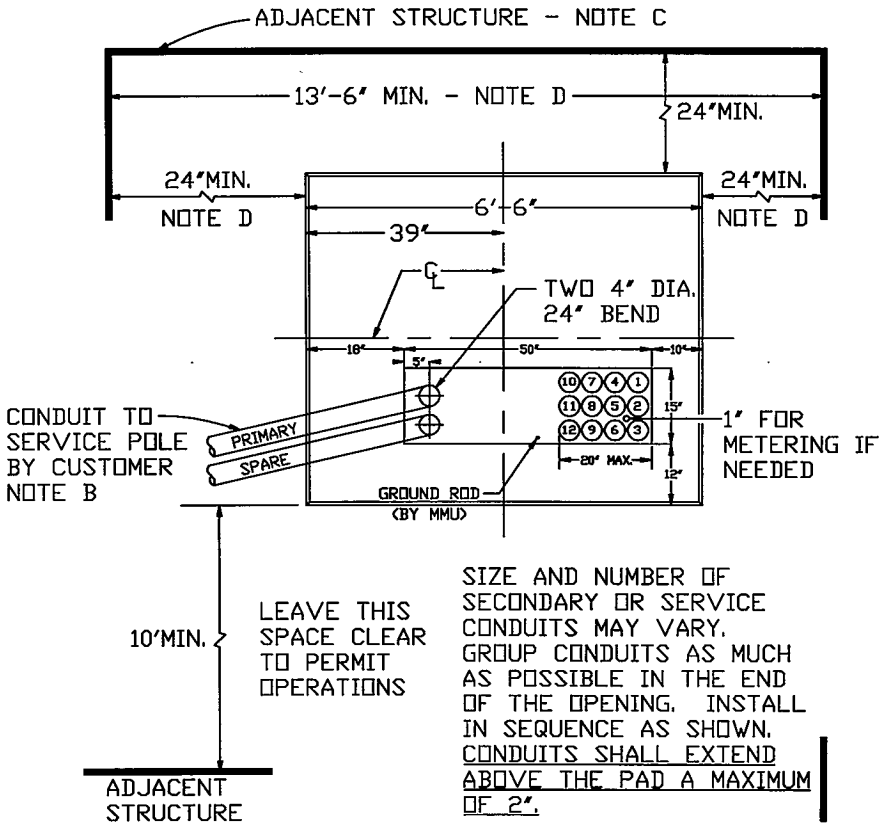
REINFORCING PLAN

RE. BAR LIST		
MK	LENGTH	#
Ⓐ	33"	14
Ⓑ	63"	12
Ⓒ	6'-3"	14

(ALL #4 SIZE)



ELEVATION



PLAN VIEW

CALL 2 WORKING DAYS
BEFORE YOU DIG
TOLL FREE
1-800-DIG-RITE
(344-7483)
MISSOURI ONE CALL SYSTEM, INC.

CAST IN PLACE CONCRETE BASE
FOR
3 PHASE PADMOUNT TRANSFORMER
75 THROUGH 500kVA
13.2kV

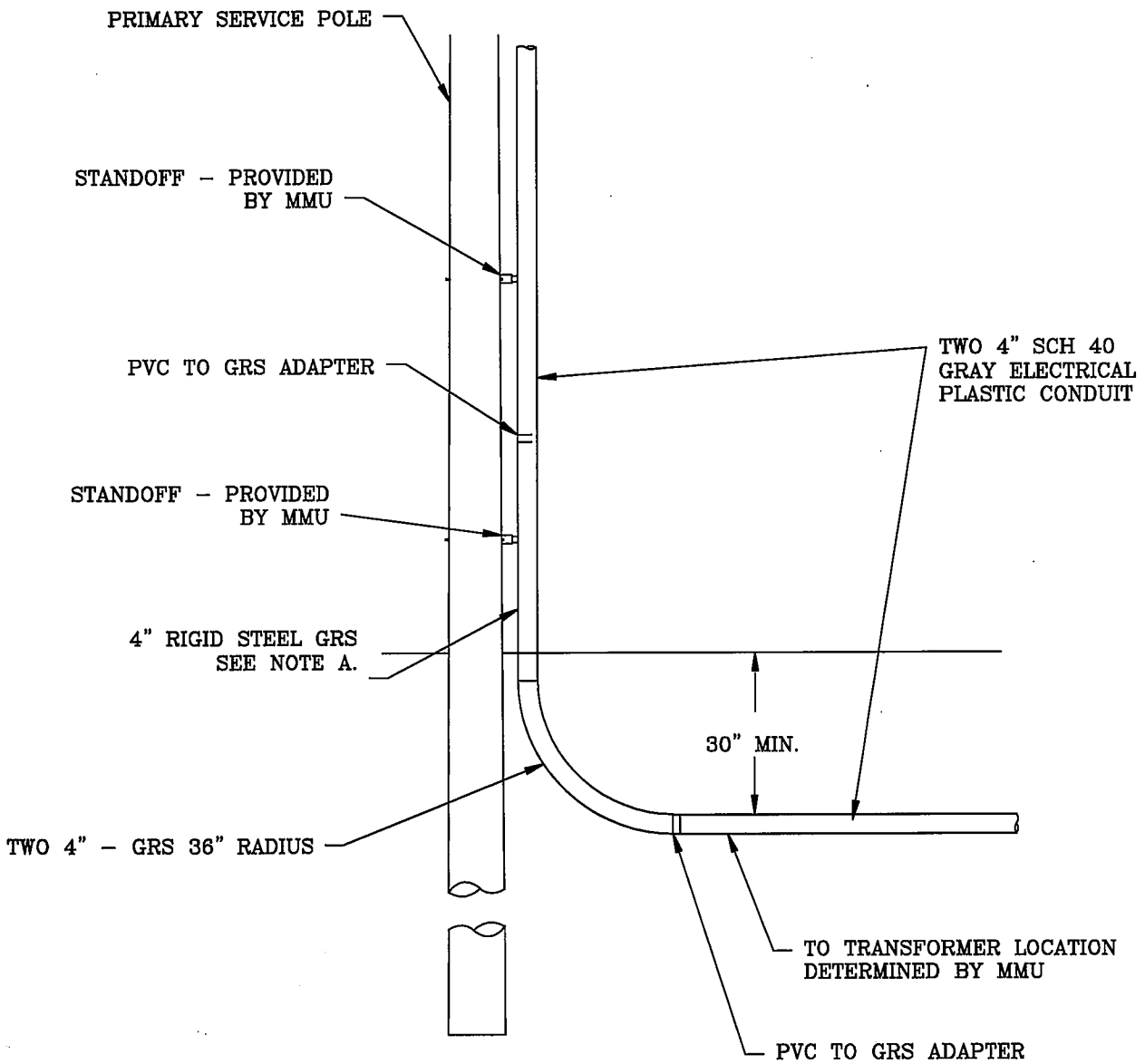
NOTES:

A. ALL CONCRETE SHALL BE 6 SACK MIX AIR ENTRAINED CONCRETE.
B. SERVICE POLE LOCATION TO BE DETERMINED BY MMU. REFER TO POLE RISER DRAWING FOR CONDUIT RISER DETAIL.
C. REFER TO DWG. T-Pad 3 FOR ADDITIONAL RESTRICTIONS OF DISTANCE TO A BUILDING.
D. A MINIMUM WIDTH OF 13'6" WORKING SPACE BETWEEN STRUCTURES WILL BE REQUIRED FOR TRANSFORMER INSTALLATION AND MAINTENANCE. A 24" MINIMUM DIMENSION ON ONE SIDE OF BASE REQUIRES A 60" MINIMUM ON THE OTHER SIDE, BUT EITHER SIDE MAY BE 24".

THIS IS VERY IMPORTANT

E. THE SIZING OF THIS BASE IS BASED UPON AVERAGE UNDISTURBED EARTH. ANY NECESSARY FILL SHALL BE COMPACTED TO THE DENSITY OF THE ORIGINAL EARTH.

MMU	03-20-07	DWG.	T-Pad 2



NOTE:

A. FIRST STICK OF CONDUIT OUT OF GROUND TO BE GALVANIZED RIGID STEEL (GRS). CAP SPARE DUCT & PROVIDED SCH 40 PVC FOR MMU TO INSTALL ABOVE GRS.

MMU	03-28-07	DWG. 4" POLE RISER