

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

**PROPOSED
 HIGHWAY PLANS**

VARIOUS ROUTES (MISSOURI AVE. PUMP STATION)
 DIST. 8 DEEP WELLS 2009-2

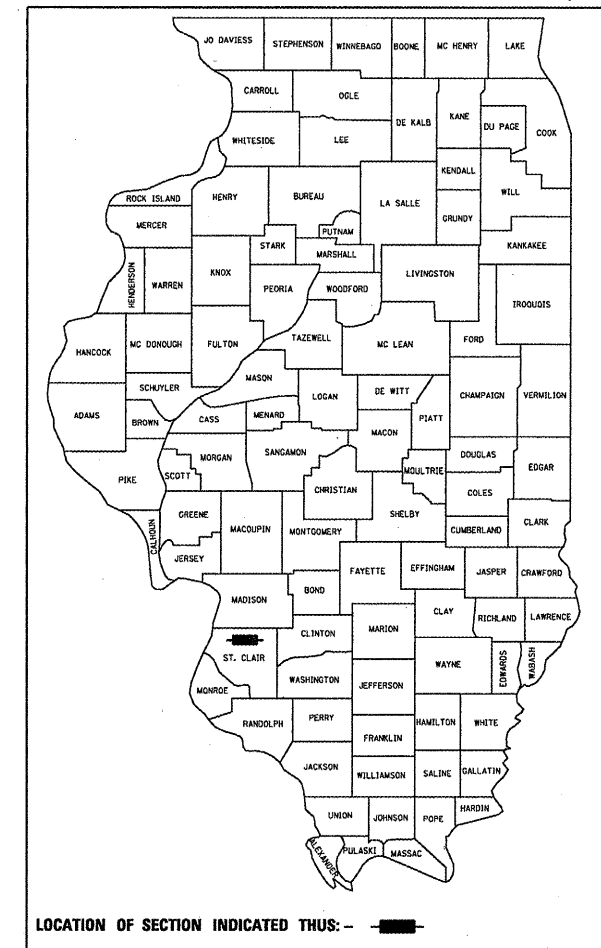
ST. CLAIR COUNTY
 INSTALLATION OF DEEP WELL TO REPLACE COLLAPSED
 WELL AT MISSOURI AVE. PUMP STATION

C-98-012-09

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	**	ST. CLAIR	7	1
FED. ROAD DIST. NO.	ILLINOIS	CONTRACT NO.	76C71	

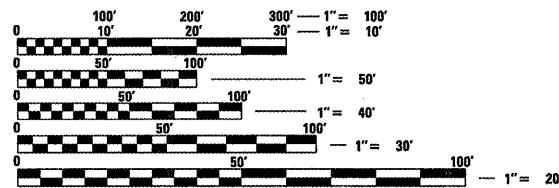
* VARIOUS ROUTES
 ** DISTRICT 8 DEEP WELLS 2009-2

D-98-017-09 7+12=19



INDEX OF SHEETS

- 1 COVER SHEET
- 2 GENERAL NOTES, COMMITMENTS, HIGHWAY STANDARDS & BENCHMARK
- 3 SUMMARY OF QUANTITIES
- 4 PLAN VIEW
- 5-6 MISSOURI AVE. TYPICAL WELL DETAILS
- 7 NOT USED
- 7A.-7M. FIELD BORING LOGS



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

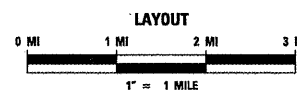
J.U.L.I.E.
 JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
 1-800-892-0123
 OR 811

PROJECT ENGINEER: PATTI LEBEAU (618) 346-3179
 PROJECT MANAGER: CHERYL KEPLAR (618) 346-3186

CONTRACT NO. 76C71



MISSOURI AVE.
 PUMP STATION



STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

SUBMITTED December 11, 20 08
Mary C Jamie
 DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

 20 _____
 ENGINEER OF DESIGN AND ENVIRONMENT

 20 _____
 DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

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 OF THE STATE OF ILLINOIS**

GENERAL NOTES

1. THE RESIDENT ENGINEER SHALL LOCATE AND MARK THE EXACT LOCATIONS FOR ALL PROPOSED ITEMS PRIOR TO INSTALLATION BY THE CONTRACTOR.
2. FLUORESCENT ORANGE "ROAD CONSTRUCTION AHEAD" SIGNS SHALL BE PLACED AT THE BEGINNING AND END OF THE PROJECT PLUS THE INTERSECTING SIDE ROADS AS DIRECTED BY THE ENGINEER. THESE SIGNS SHALL NOT BE MEASURED FOR PAYMENT.
3. ILLINOIS STATE LAW REQUIRES A 48-HOUR NOTICE BE GIVEN TO ALL UTILITIES BEFORE DIGGING. FIELD MARKING OF FACILITIES MAY BE OBTAINED BY CONTACTING J.U.L.I.E. OR FOR NON-MEMBERS, THE UTILITY COMPANY DIRECTLY. AGENCIES KNOWN TO HAVE FACILITIES WITHIN THE PROJECT AREA ARE AS FOLLOWS:

Ameren - UE (Aerial & Buried)*
 Charter Communications (Buried)*
 Illinois American Water Co. (Buried)*
Ameren IP - (Buried)*
 McLeod USA Telecommunications, Inc. (Buried)
 Qwest communications (Buried)*
 SBC (Aerial & Buried)*

J.U.L.I.E. MEMBERS MUST BE NOTIFIED INDIVIDUALLY.

4. EXCEPT WHERE DESIGNATED OTHERWISE, THE LOCATIONS AND/OR DEPTHS OF UNDERGROUND UTILITIES SHOWN HAVE BEEN TAKEN FROM OFFICE RECORD INFORMATION FURNISHED BY THE UTILITY OWNERS AND MUST BE CONSIDERED APPROXIMATE.
5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS.
6. NO LANE CLOSURES WILL BE ALLOWED EXCEPT FOR SHORT TIME OPERATIONS AS SHOWN IN STANDARD 701301 AND SHALL BE PAID FOR AS PER SECTION 701.019(b) OF THE STANDARDS SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION.

HIGHWAY STANDARDS

000001-05
 001001-02
 001006
 701301-03
 701901-01
 814001-02

COMMITMENTS

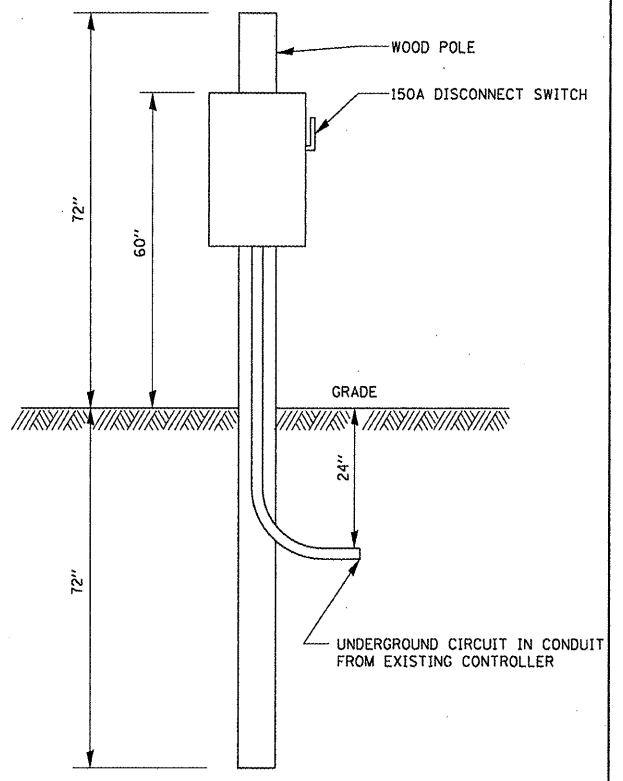
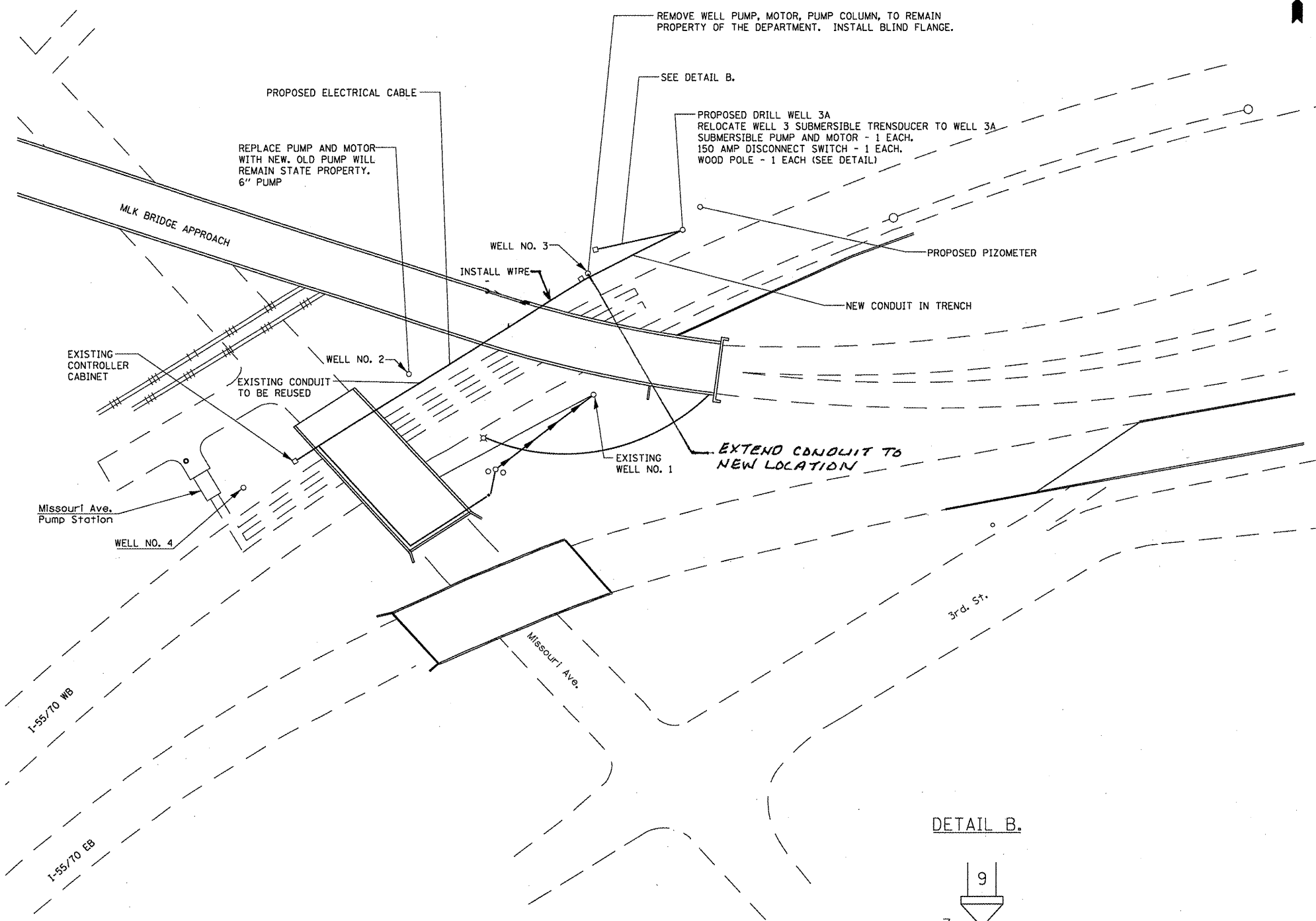
NONE

FILE NAME = #FILEL*	USER NAME = #USER*	DESIGNED - ___	REVISED - ___	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL NOTES, INDEX OF SHEETS, HIGHWAY STANDARDS	F.A. RTE:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PLOT SCALE = #SCALE*	CHECKED - ___	REVISED - ___	REVISED - ___			*	**	ST. CLAIR	I	2
PLOT DATE = #DATE*	DATE - _____	REVISED - ___	REVISED - ___			SCALE: _____ SHEET NO. ___ OF ___ SHEETS STA. _____ TO STA. _____		FED. ROAD DIST. NO. _ ILLINOIS FED. AID PROJECT		

Rev.

* VARIOUS ROUTES
 ** DISTRICT 8 DEEP WELLS 2009-2

CONTRACT NO. 76071



WOOD POLE DETAIL

NOTES

ALL STAINLESS STEEL IS 304.L
 THE ENGINEER SHALL IDENTIFY SOURCE OF EXISTING ELECTRICAL CIRCUIT FOR SHUT OFF PRIOR TO THE CONNECTION OF THE PROPOSED CIRCUIT.

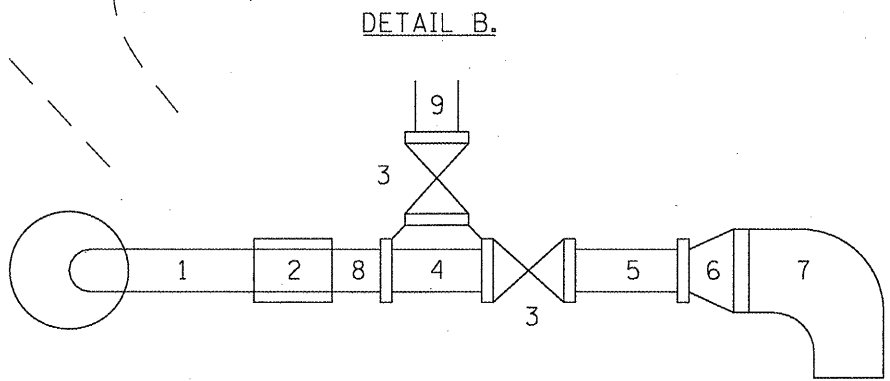
THE PROPOSED CONNECTION THE EXISTING CONTROLLER CABINET AND PROPOSED STAINLESS STEEL WELL HEAD SHALL BE APPROVED BY THE ENGINEER AND INCLUDED IN THE PRICE OF ELECTRICAL CABLE IN CONDUIT.

EXISTING GRADE: 397.90

VERIFY PHASE ROTATION AND MATCH EXIST. CONNECTION

LEGEND

1. REUSE EXISTING 8" S.S PIPE.
2. NEW 8" S.S. COUPLING
3. NEW 8" S.S. KNIFE VALVE
4. NEW 8" S.S. TEE, FLANGE
5. NEW 8" S.S. PIPE
6. REUSE EXISTING REDUCER
7. REUSE EXISTING S.S. 90° ELBOW
8. NEW 8" S.S. PIPE
9. NEW 8" HDPE PIPE



FILE NAME =	USER NAME = #USERS	DESIGNED -	REVISED -
#FILEL#		DRAWN -	REVISED -
	PLOT SCALE = #SCALE#	CHECKED -	REVISED -
	PLOT DATE = #DATE#	DATE -	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

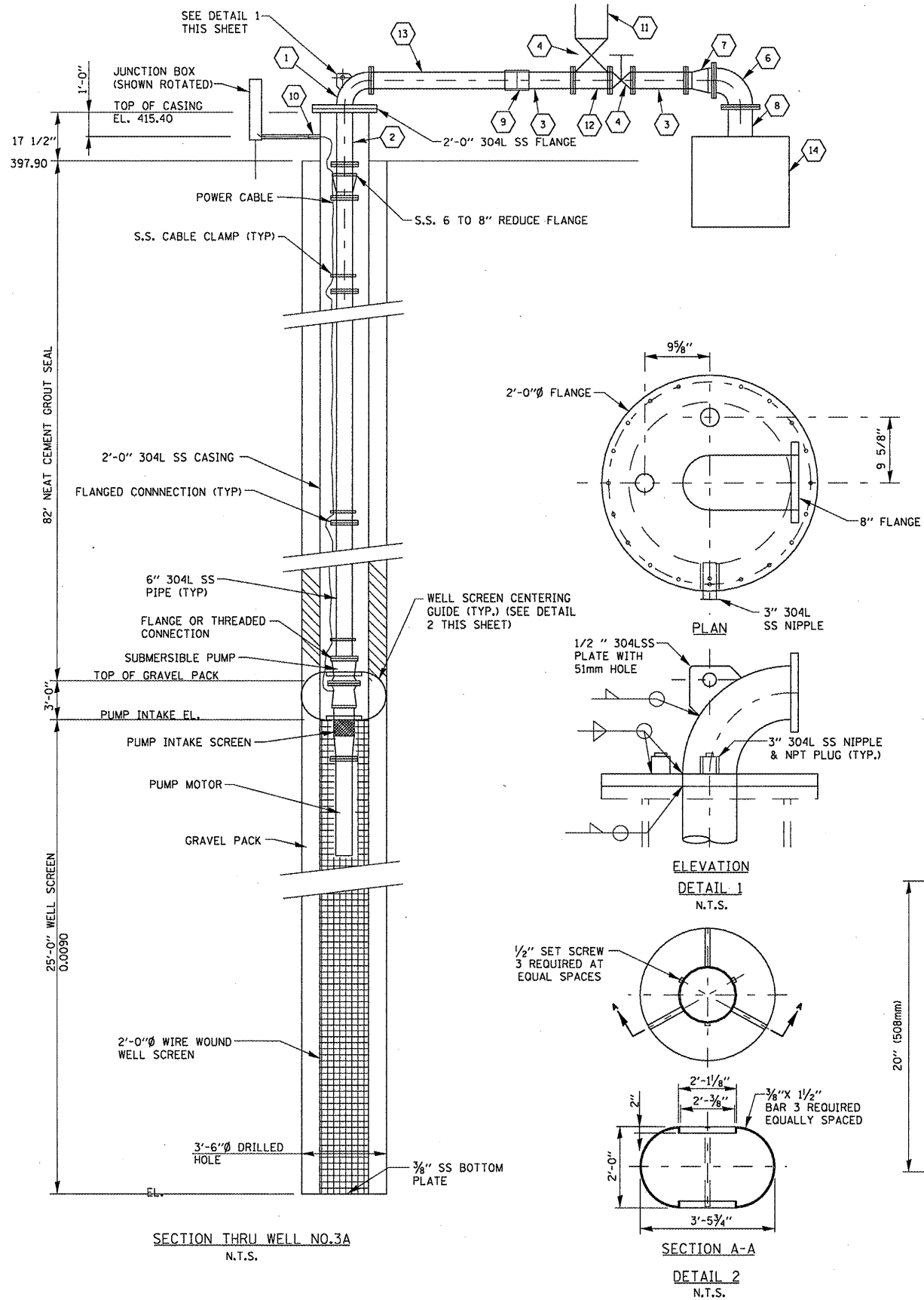
SITE PLAN MISSOURI WELLS

SCALE: _____ SHEET NO. ____ OF _____ SHEETS STA. _____ TO STA. _____

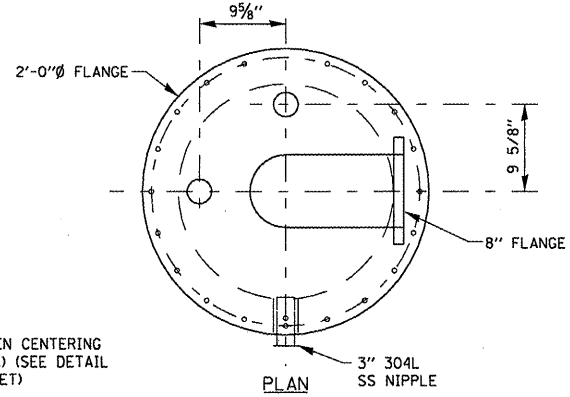
Rev.

F.A. -		SECTION		COUNTY	TOTAL SHEETS	SHEET NO.
RTE.	ST. CLAIR	7	1
CONTRACT NO. 76C71						
FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT						

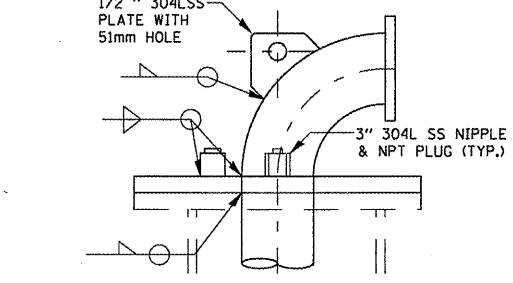
VARIOUS ROUTES
 DISTRICT # DEEP WELLS 2009-2



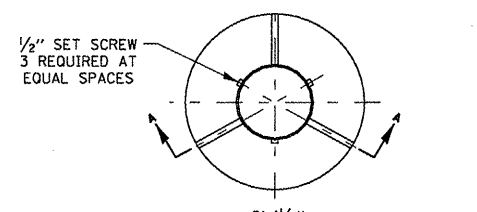
SECTION THRU WELL NO.3A
N.T.S.



PLAN



ELEVATION
DETAIL 1
N.T.S.

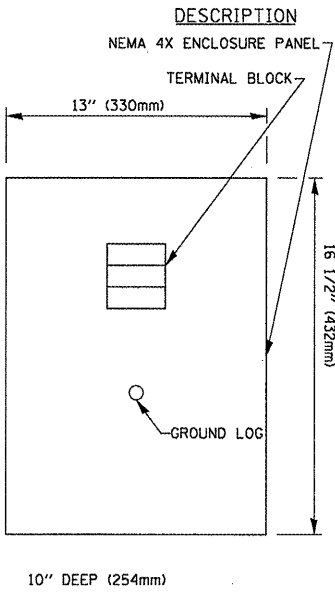
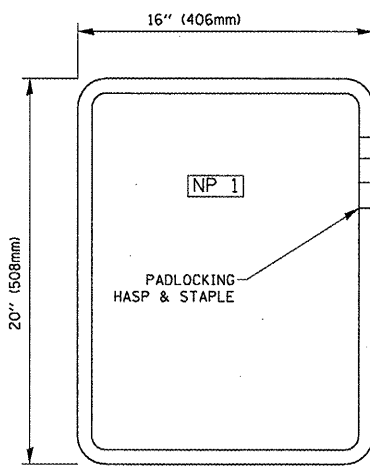


SECTION A-A
DETAIL 2
N.T.S.

WELL SCREEN CENTERING GUIDE

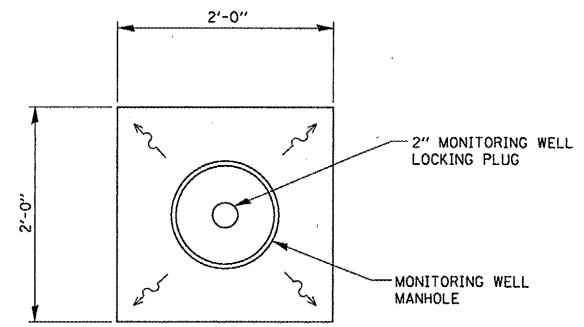
- LEGEND**
- 1 NEW 8" 304 L SS 90° ELBOW W/2'-0" FLANGE AND 8" FLANGE
 - 2 NEW 8" 304 L SS PIPE FLANGE
 - 3 NEW 8" 304 L SS PIPE, FLANGE x PE
 - 4 NEW 8" KNIFE GATE VALVE
 - 5 EXISTING 8" 304 L SS TEE, FLANGE
 - 6 EXISTING 1'-0" 304 L SS 90° ELBOW FLANGED.
 - 7 EXISTING 8"x1'-0" 304 L SS REDUCER, FLANGED
 - 8 EXISTING 1'-0" 304 L SS PIPE, FLANGED
 - 9 NEW S.S COUPLING, 8"x1'-0 1/2"
 - 10 NEW 3" 304 L SS NIPPLE, WELD TO CASING (SHOWN ROTATED) ORIENT PER ELECTRICAL DRAWINGS.
 - 11 NEW 8" HDPE
 - 12 NEW 8" 304 L S.S. T REUSE
 - 13 EXISTING 8" S.S. PIPE
 - 14 EXISTING CONCRETE THRUST BLOCK

NOTE:
ALL NUTS, BOLTS & WASHERS SHALL BE 304 STAINLESS STEEL.
ALSO PIPES TO BE ALL STAINLESS STEEL
NOTE PUMP INTAKE IS AT 84"
ALL BOLTS & NUTS TO BE ALL STAINLESS STEEL
CONTRACTOR WILL VERIFY ALL DIMENSIONS ON ALL PIPES

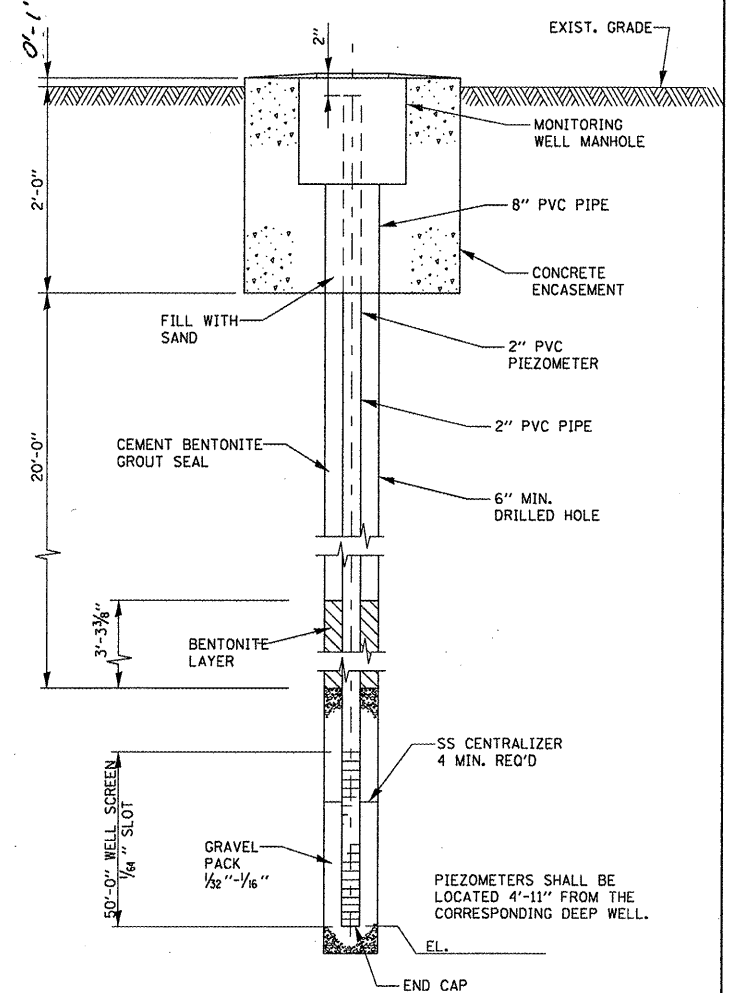


- NAME PLATES**
- NP1 PUMP #2
 - NP2 PUMP #3
 - NP3 PUMP #4

NEW JUNCTION BOX DETAIL



PLAN



PROFILE
DETAIL OF NEW PIEZOMETER
N.T.S.

FILE NAME #	USER NAME # USER#	DESIGNED -	REVISED -
#FILE#		DRAWN -	REVISED -
	PLOT SCALE # SCALE#	CHECKED -	REVISED -
	PLOT DATE # DATE#	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

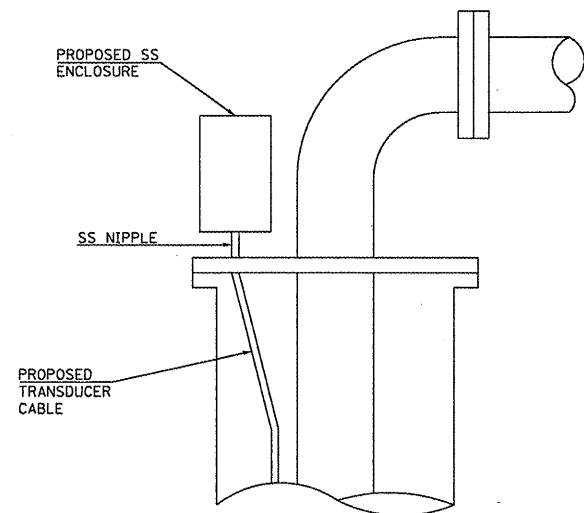
VARIOUS ROUTES TYPICAL WELL DETAILS

SCALE: _____ SHEET NO. ____ OF ____ SHEETS STA. _____ TO STA. _____

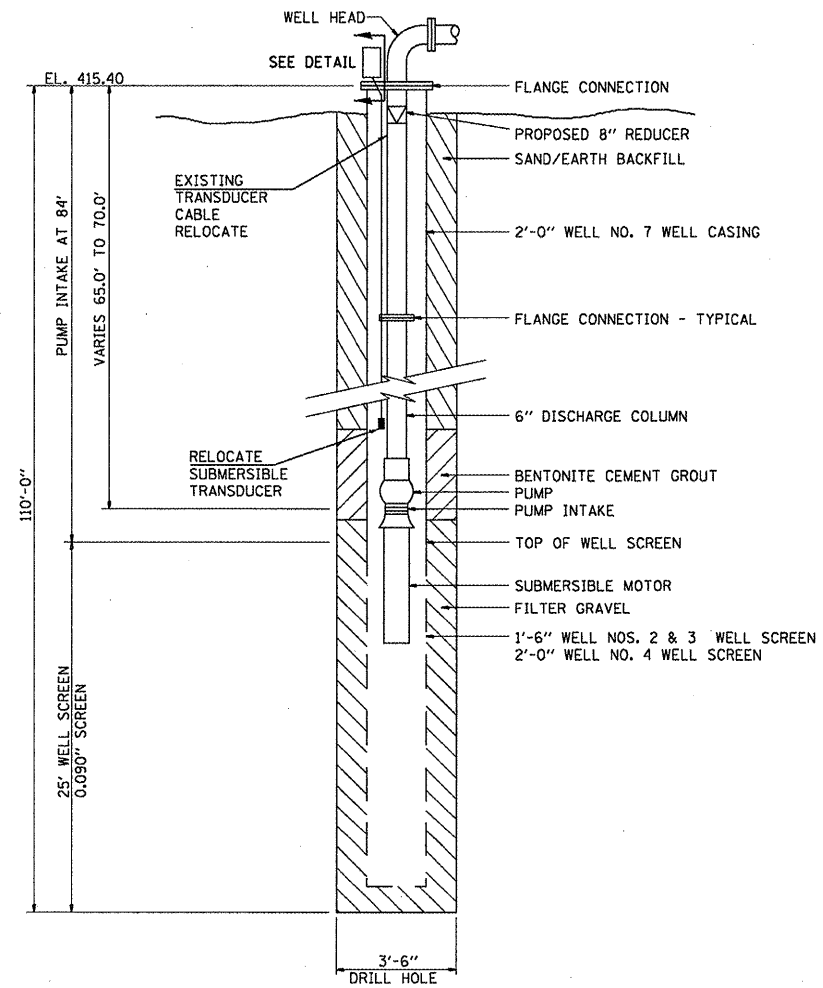
Rev

• VARIOUS ROUTES
•• DISTRICT 8 DEEP WELLS 2009-2

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		ST. CLAIR	7	5
CONTRACT NO. 76C71				
FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				



WELL HEAD DETAIL



PROPOSED

FILE NAME =	USER NAME = #USER#	DESIGNED - ---	REVISED - ---
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	PLOT DATE = #DATE#	DATE - ---	REVISED - ---

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

VARIOUS ROUTES TYPICAL WELL DETAILS

SCALE: _____ SHEET NO. ___ OF ___ SHEETS STA. _____ TO STA. _____

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		ST. CLAIR	7	6
FED. ROAD DIST. NO. _ [ILLINOIS] FED. AID PROJECT			CONTRACT NO. 76C71	

VARIOUS ROUTES
DISTRICT 8 DEEP WELLS 2008-2



Layne-Western Company

A Layne Company
2390 Cassens Drive • Fenton, Missouri 63026

FIELD BORING LOG

Project IDOT
Boring No. TH-1
Missouri Ave. #3

Project IDOT Job No. _____ Date 9-17-07

Location Missouri Ave. East St. Louis Crew & Dale M., Dave J., 75

Drilling Method: HSA CFA Rotary Wash Rock Coring Drilling Fluid

DEPTH, ft.		DESCRIPTION	Sample		SPT Blows N/8"
From	To		Type	Depth, ft.	
0	10'	Fill Rocks, Cinders, Clay, Bricks	S.S.	33-35	90%
10'	20'	Silty clay		38-40	
20'	37'	Dry Silty Fine Sand Brown		43-45	
37'	55'	Wet Brownish Silty Fine to med Sand.		48-50	
				53-55	
55'	75'	med to fine silty wet Grey Sand		58-60	
75'	80'	wet Grey to Brown Silty Sand w/		63-65	
		Black Lignite or Organics.		68-70	
80'	85'	med to coarse sand w/ Heavy Gravel		73-75	
85'	112'	Med to Course Sands & Gravel		78-80	
112'		Boulders then Refusal Some Large		83-85	
		* First Auger to 40' when had trouble Auger to 50' (HCL Pad)	Wash to 50'	83-88	100%
		used 19 bags Bentonite		88-93	
		From - 85' on Sacked Mud		93-98	
		@ 1 Pit Per 5' of Drilling = 2 Bag Pits		98-103	
				103-108	
				108-112	

WATER LEVEL OBSERVATIONS	NOTES	Piezometer Installed: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes - Depth _____ ft.
During Drilling <u>±37</u> ft.	Back filled w/ Thick Bent. Mud chips to top then covered w/ cuttings	
At Completion _____ ft.		
After _____ hrs. _____ ft.		
After _____ hrs. _____ ft.		

Grain Size Analysis

Job # 878237 Date: 09/28/2007
 Boring location: IDOT - MO Ave
 Boring #: TH - 1
 Sample depth: 83' - 85' Container # 2

	Dirty sample	Washed sample
Wt sample + tare	859.3	844.5
Tare wt	415.1	415.1
Wt Sample	444.2	429.4
Wt of sample washed past #200 sieve:		14.8

Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2	422.8	7.7	436.5	98.3
3/8	463.2	40.4	396.1	89.2
4	505.7	42.5	353.6	79.6
6	516.3	10.6	343.0	77.2
8	528.3	12.0	331.0	74.5
16	578.2	49.9	281.1	63.3
30	682.5	104.3	176.8	39.8
50	817.2	134.7	42.1	9.5
100	838.4	21.2	20.9	4.7
200	844.5	6.1	14.8	3.3
PAN	844.5	0.0		

Grain Size Analysis

Job # 878237 Date: 09/28/2007
 Boring location: IDOT - MO Ave
 Boring #: TH - 1
 Sample depth: 83' - 88' Container # 3

	Dirty sample	Washed sample
Wt sample + tare	1117.8	1112.9
Tare wt	413.0	413.0
Wt Sample	704.8	699.9
Wt of sample washed past #200 sieve:		4.9

Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2				
3/8	423.2	10.2	694.6	98.6
4	592.9	169.7	524.9	74.5
6	656.8	63.9	461.0	65.4
8	707.5	50.7	410.3	58.2
16	808.3	100.8	309.5	43.9
30	944.3	136.0	173.5	24.6
50	1089.3	145.0	28.5	4.0
100	1111.7	22.4	6.1	0.9
200	1112.9	1.2	4.9	0.7
PAN	1112.9	0.0		

FILE NAME *	USER NAME * #USER*	DESIGNED -	REVISED -
	#FILE#	DRAWN -	REVISED -
	PLOT SCALE * #SCALE*	CHECKED -	REVISED -
	PLOT DATE * #DATE*	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

GENERAL NOTES, INDEX OF SHEETS, HIGHWAY STANDARDS

SCALE: _____ SHEET NO. ___ OF ___ SHEETS STA. _____ TO STA. _____

* VARIOUS ROUTES ** DISTRICT # DEEP WELLS 2009-2				
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	**	ST. CLAIR	7	7J
			CONTRACT NO. 16CT1	
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT				

Grain Size Analysis

Job # 878237 Date: 09/28/2007
 Boring location: IDOT - MO Ave
 Boring #: TH - 1
 Sample depth: 88' - 93' Container # 13

	Dirty sample	Washed sample
Wt sample + tare	1163.5	1159.6
Tare wt	400.1	400.1
Wt Sample	763.4	759.5
Wt of sample washed past #200 sieve:		3.9

Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2	423.2	23.1	740.3	97.0
3/8	444.6	21.4	718.9	94.2
4	628.1	183.5	535.4	70.1
6	724.8	96.7	438.7	57.5
8	821.7	96.9	341.8	44.8
16	962.3	140.6	201.2	26.4
30	1063.3	101.0	100.2	13.1
50	1146.0	82.7	17.5	2.3
100	1158.8	12.8	4.7	0.6
200	1159.6	0.8	3.9	0.5
PAN	1159.6	0.0		

Grain Size Analysis

Job # 878237 Date: 09/28/2007
 Boring location: IDOT - MO Ave
 Boring #: TH - 1
 Sample depth: 93' - 98' Container # 14

	Dirty sample	Washed sample
Wt sample + tare	1217.4	1214.4
Tare wt	414.3	414.3
Wt Sample	803.1	800.1
Wt of sample washed past #200 sieve:		3.0

Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2				
3/8	432.9	18.6	784.5	97.7
4	531.2	98.3	686.2	85.4
6	594.0	62.8	623.4	77.6
8	666.6	72.6	550.8	68.6
16	828.8	162.2	388.6	48.4
30	1050.6	221.8	166.8	20.8
50	1193.3	142.7	24.1	3.0
100	1213.3	20.0	4.1	0.5
200	1214.2	0.9	3.2	0.4
PAN	1214.4	0.2		

* VARIOUS ROUTES
 ** DISTRICT 8 DEEP WELLS 2009-2

FILE NAME =	USER NAME = *USER*	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL NOTES, INDEX OF SHEETS, HIGHWAY STANDARDS	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
#FILE#		DRAWN -	REVISED -			*	**	ST. CLAIR	7	76	
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	PLOT DATE = *DATE*	DATE -	REVISED -			CONTRACT NO. 76C71					

Grain Size Analysis

Job # 878237 Date: 09/28/2007
 Boring location: IDOT - MO Ave
 Boring #: TH - 1
 Sample depth: 98' - 103' Container # 15

	<u>Dirty sample</u>	<u>Washed sample</u>
Wt sample + tare	1124.0	1121.6
Tare wt	409.2	409.2
Wt Sample	714.8	712.4
Wt of sample washed past #200 sieve:		2.4

Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2				
3/8	438.9	29.7	685.1	95.8
4	576.1	137.2	547.9	76.7
6	657.3	81.2	466.7	65.3
8	740.8	83.5	383.2	53.6
16	874.3	133.5	249.7	34.9
30	1027.1	152.8	96.9	13.6
50	1108.2	81.1	15.8	2.2
100	1121.2	13.0	2.8	0.4
200	1121.6	0.4	2.4	0.3
PAN	1121.6	0.0		

Grain Size Analysis

Job # 878237 Date: 09/28/2007
 Boring location: IDOT - MO Ave
 Boring #: TH - 1
 Sample depth: 103' - 108' Container # 1

	<u>Dirty sample</u>	<u>Washed sample</u>
Wt sample + tare	1137.7	1133.4
Tare wt	412.1	412.1
Wt Sample	725.6	721.3
Wt of sample washed past #200 sieve:		4.3

Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2				
3/8	421.2	9.1	716.5	98.7
4	737.9	316.7	399.8	55.1
6	905.9	168.0	231.8	31.9
8	1022.0	116.1	115.7	15.9
16	1100.2	78.2	37.5	5.2
30	1119.8	19.6	17.9	2.5
50	1129.4	9.6	8.3	1.1
100	1131.6	2.2	6.1	0.8
200	1133.4	1.8	4.3	0.6
PAN	1133.4	0.0		

FILE NAME #FILE#	USER NAME * #USER#	DESIGNED - ---	REVISED - ---	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL NOTES, INDEX OF SHEETS, HIGHWAY STANDARDS	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.		
	PLOT SCALE * #SCALE#	CHECKED - ---	REVISED - ---			:	:	SI. CLAIR	7	IL		
	PLOT DATE * #DATE#	DATE - ---	REVISED - ---			SCALE: _____	SHEET NO. ___ OF ___ SHEETS	STA. _____ TO STA. _____	FED. ROAD DIST. NO. _ [ILLINOIS] FED. AID PROJECT			
	* VARIOUS ROUTES ** DISTRICT & DEEP WELLS 2009-2											

Grain Size Analysis

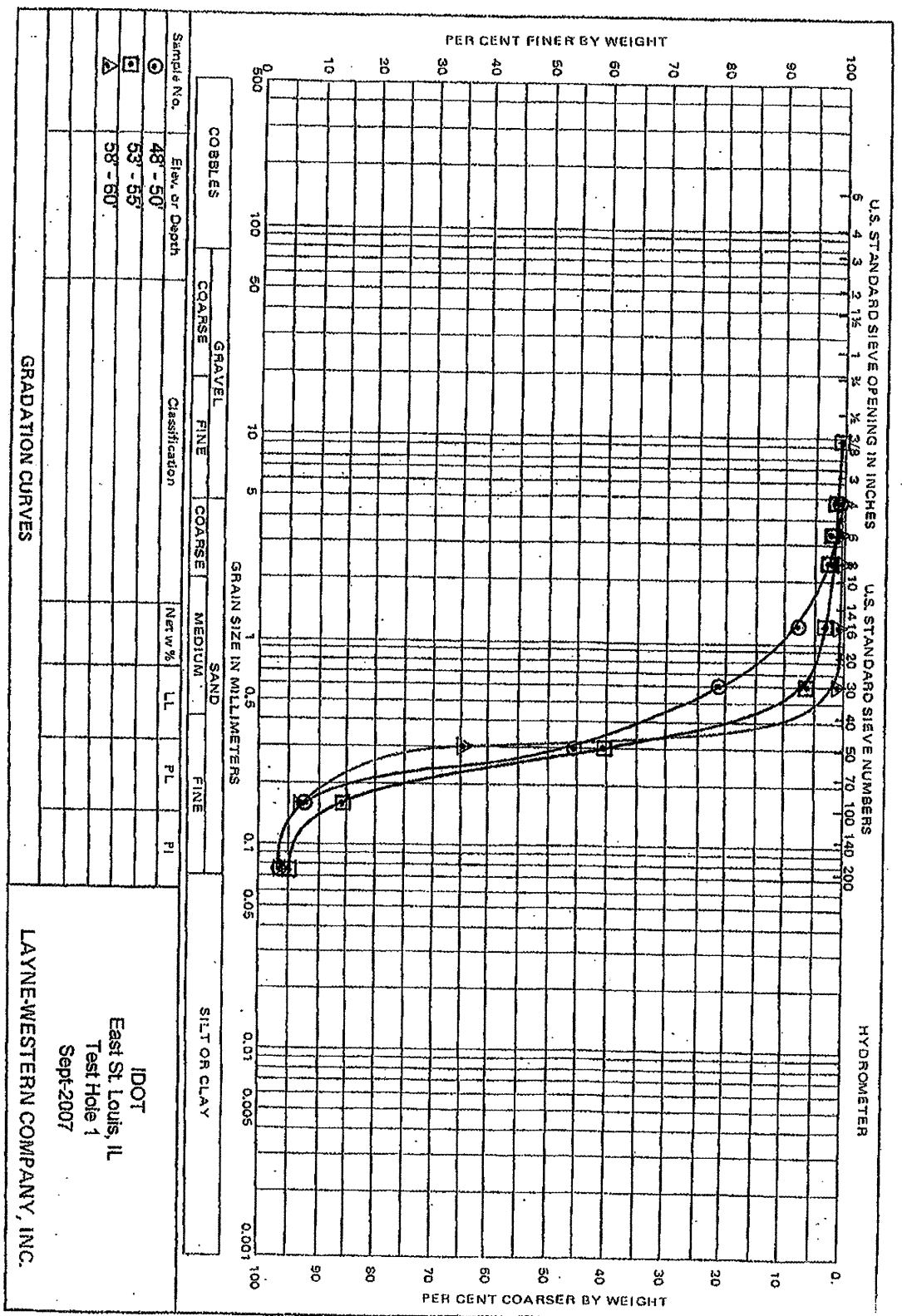
Job # 878237 Date: 09/28/2007
 Boring location: IDOT - MO Ave
 Boring #: TH - 1
 Sample depth: 108' - 112' Container # 2

	Dirty sample	Washed sample
Wt sample + tare	1153.2	1149.4
Tare wt	415.1	415.1
Wt Sample	738.1	734.3
Wt of sample washed past #200 sieve:		3.8

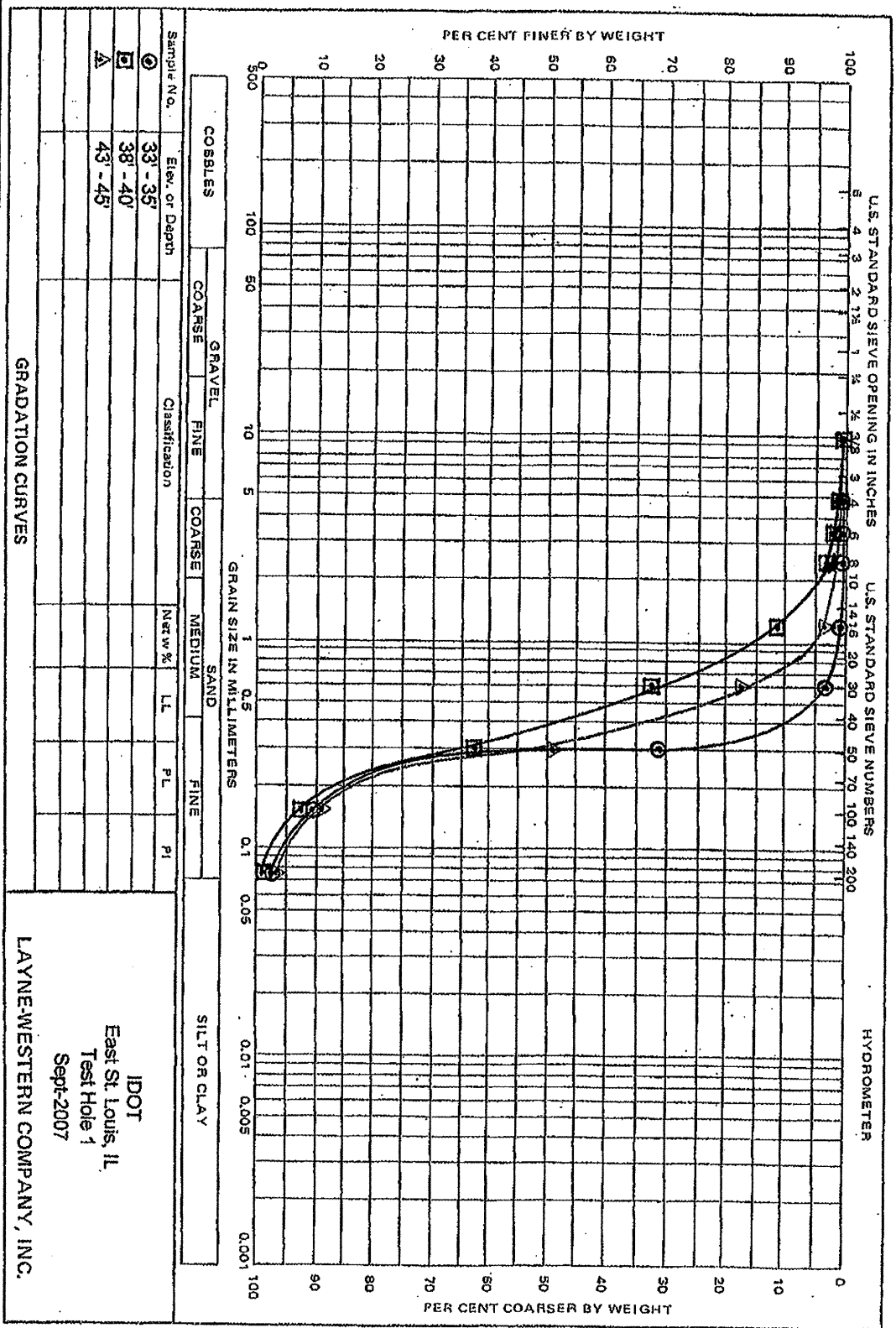
Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2				
3/8	419.9	4.8	733.3	99.3
4	543.3	123.4	609.9	82.6
6	653.5	110.2	499.7	67.7
8	791.2	137.7	362.0	49.0
16	982.6	191.4	170.6	23.1
30	1112.6	130.0	40.6	5.5
50	1145.8	33.2	7.4	1.0
100	1149.1	3.3	4.1	0.6
200	1149.4	0.3	3.8	0.5
PAN	1149.4	0.0		

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		DRAWN - ____	REVISED - ____			#	**	SI., CL&B	7	TM
		CHECKED - ____	REVISED - ____			CONTRACT NO. 76C71				
		DATE - _____	REVISED - ____		SCALE: _____	SHEET NO. ____ OF ____ SHEETS	STA. _____ TO STA. _____	FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT		

* VARIOUS ROUTES
 ** DISTRICT & DEEP WELLS 2009-2



IDOT
 East St. Louis, IL
 Test Hole 1
 Sept-2007
 LAYNE-WESTERN COMPANY, INC.



IDOT
 East St. Louis, IL
 Test Hole 1
 Sept-2007
 LAYNE-WESTERN COMPANY, INC.

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 PLOT SCALE * #SCALE#
 PLOT DATE * #DATE#

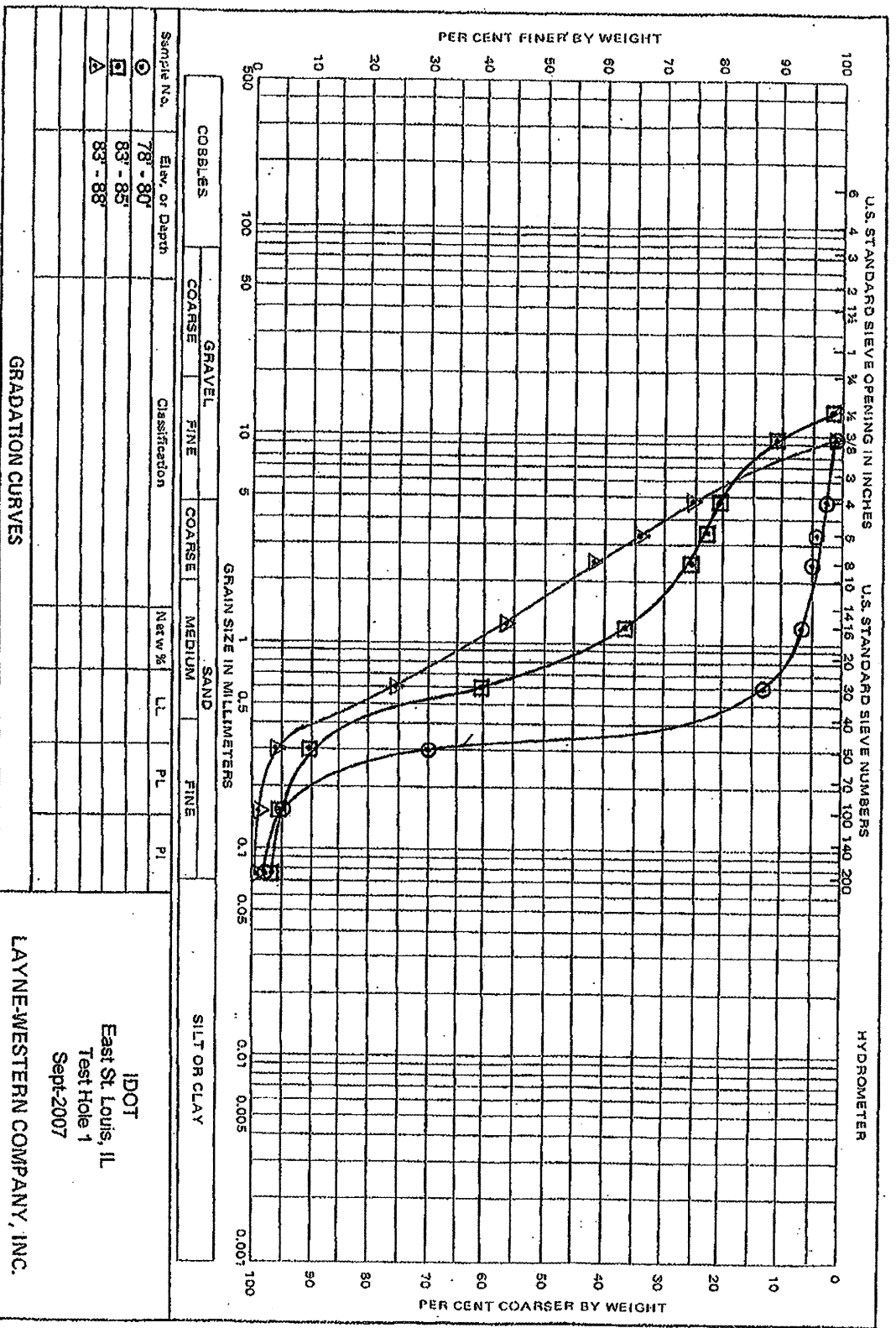
DESIGNED -	REVISD -
DRAWN -	REVISD -
CHECKED -	REVISD -
DATE	REVISD -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

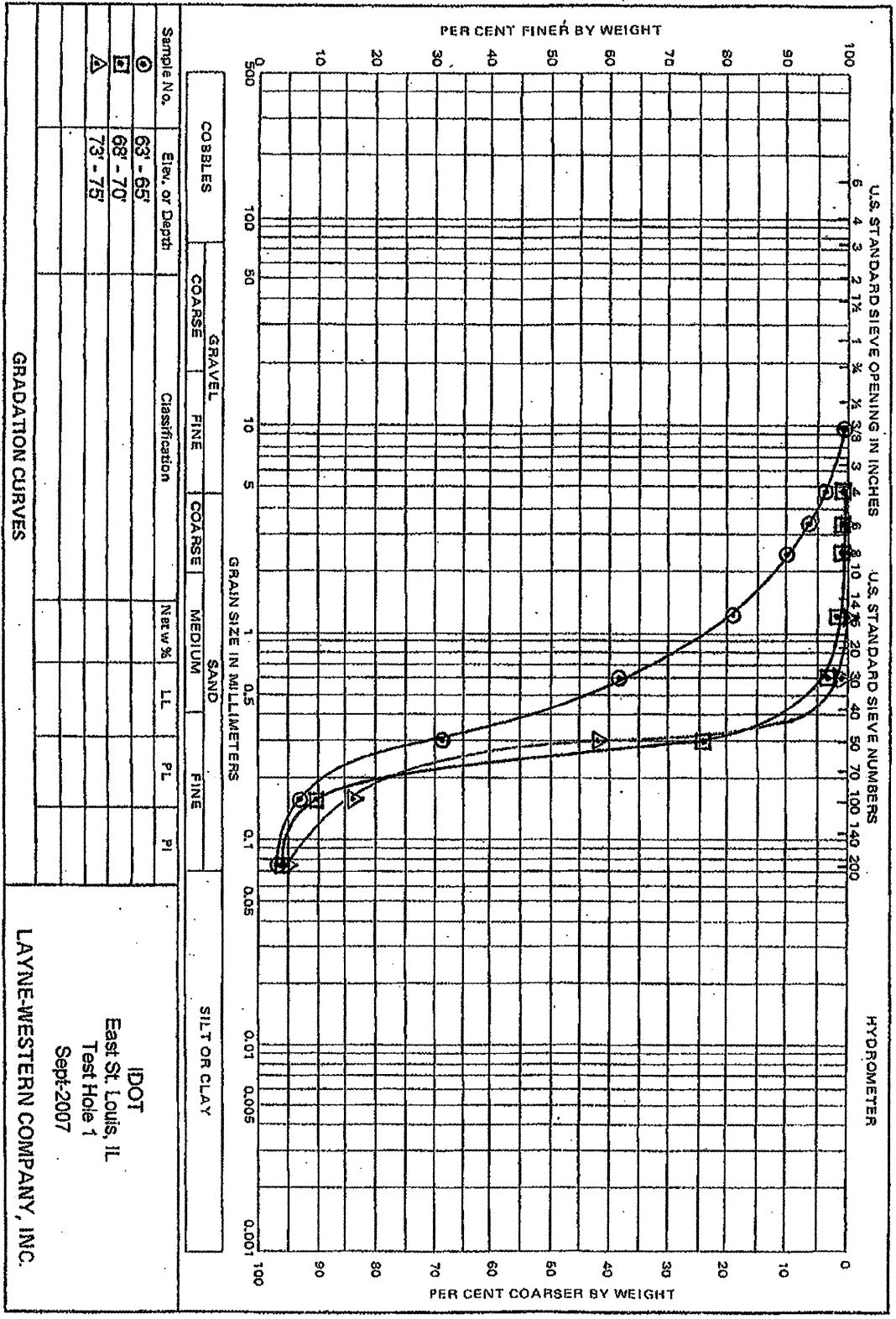
GENERAL NOTES, INDEX OF SHEETS, HIGHWAY STANDARDS
 SCALE: _____ SHEET NO. ___ OF ___ SHEETS STA. _____ TO STA. _____

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	**	ST. CLAIR	7	7B
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT			CONTRACT NO. 16C71	

* VARIOUS ROUTES
 ** DISTRICT # DEEP WELLS 2009-2



IDOT
 East St. Louis, IL
 Test Hole 1
 Sept-2007
 LAYNE-WESTERN COMPANY, INC.



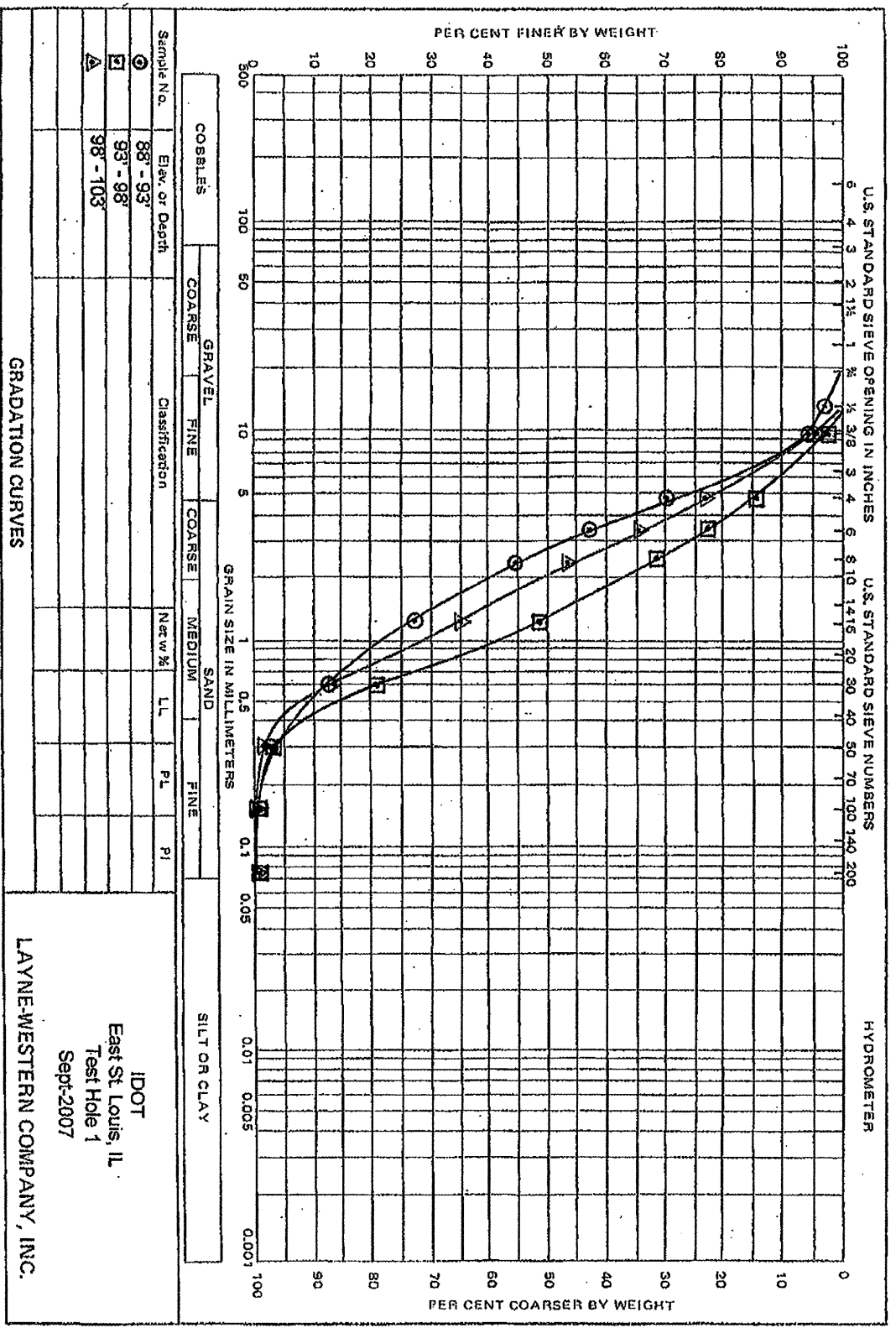
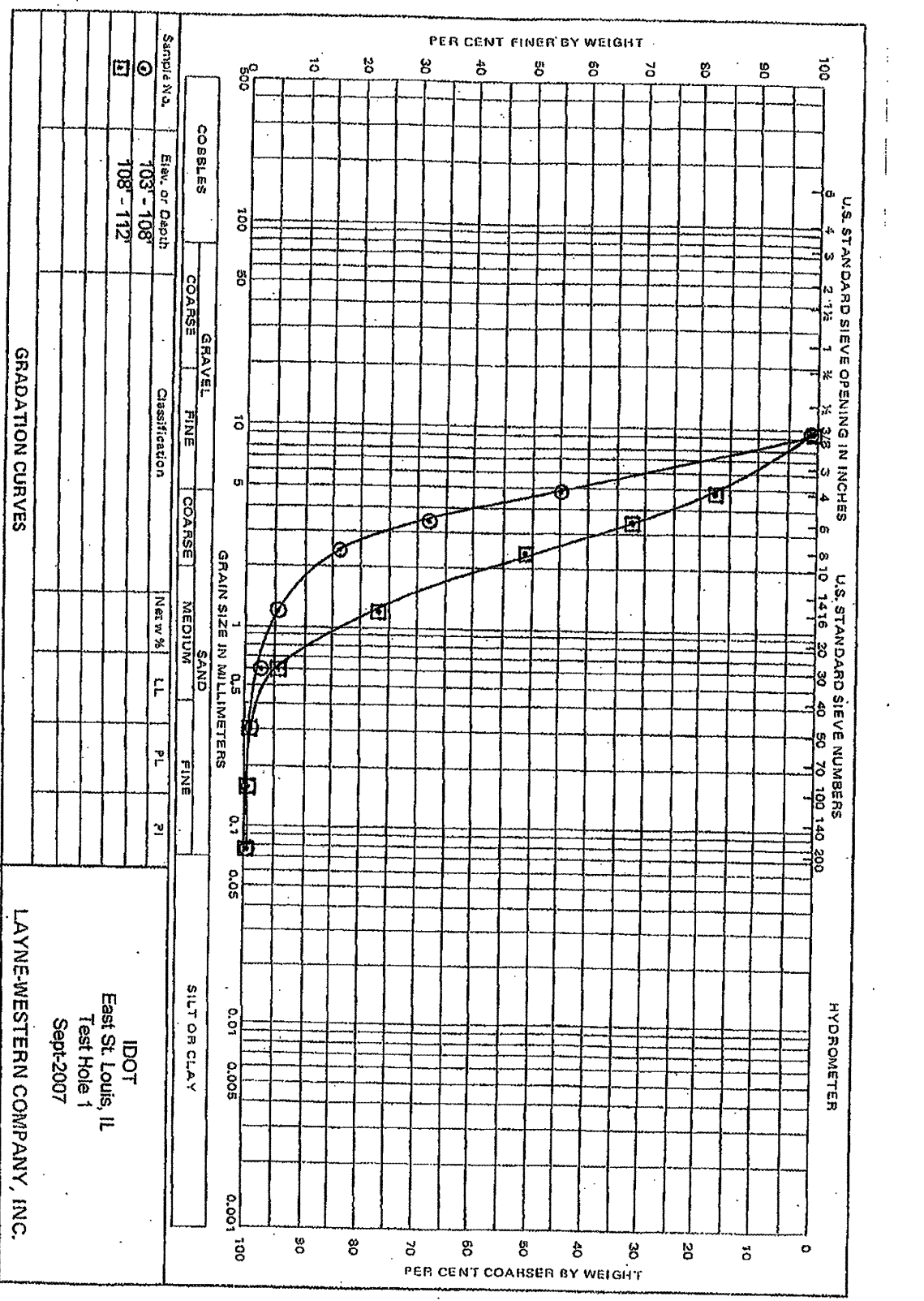
IDOT
 East St. Louis, IL
 Test Hole 1
 Sept-2007
 LAYNE-WESTERN COMPANY, INC.

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	PLOT DATE = #DATE#	DATE -	REVISIONS -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

GENERAL NOTES, INDEX OF SHEETS, HIGHWAY STANDARDS
 SCALE: _____ SHEET NO. ___ OF ___ SHEETS STA. _____ TO STA. _____

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
#	..	ST. CLAIR	I	IC
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				
CONTRACT NO. 76C71				



FILE NAME = #FILE#	USER NAME = #USER#	DESIGNED -	REVISED -
		DRAWN -	REVISED -
		CHECKED -	REVISED -
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	PLOT DATE = #DATE#		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES, INDEX OF SHEETS, HIGHWAY STANDARDS

SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	**	ST. CLAIR	7	70
CONTRACT NO. 16CT1				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

* VARIOUS ROUTES
** DISTRICT & DEEP WELLS 2009-3

Grain Size Analysis

Job # 878237 Date: 09/28/2007
 Boring location: IDOT - MO Ave
 Boring #: TH - 1
 Sample depth: 33' - 35' Container # 12

	Dirty sample	Washed sample
Wt sample + tare	955.0	941.8
Tare wt	400.8	400.8
Wt Sample	554.2	541.0
Wt of sample washed past #200 sieve:		13.2

Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2				
3/8				
4	402.6	1.8	552.4	99.7
6	403.0	0.4	552.0	99.6
8	403.4	0.4	551.6	99.5
16	405.5	2.1	549.5	99.2
30	418.8	13.3	536.2	96.8
50	572.2	153.4	382.8	69.1
100	904.6	332.4	50.4	9.1
200	941.8	37.2	13.2	2.4
PAN	941.8	0.0		

Grain Size Analysis

Job # 878237 Date: 09/28/2007
 Boring location: IDOT - MO Ave
 Boring #: TH - 1
 Sample depth: 38' - 40' Container # 11

	Dirty sample	Washed sample
Wt sample + tare	1134.1	1126.1
Tare wt	411.1	411.1
Wt Sample	723.0	715.0
Wt of sample washed past #200 sieve:		8.0

Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2				
3/8	412.5	1.4	721.6	99.8
4	416.0	3.5	718.1	99.3
6	421.0	5.0	713.1	98.6
8	432.6	11.6	701.5	97.0
16	491.7	59.1	642.4	88.9
30	646.8	155.1	487.3	67.4
50	861.5	214.7	272.6	37.7
100	1078.8	217.3	55.3	7.6
200	1126.1	47.3	8.0	1.1
PAN	1126.1	0.0		

FILE NAME *
#FILE#

USER NAME * #USER#	DESIGNED - ---	REVISED - ---
	DRAWN - ---	REVISED - ---
PLOT SCALE * #SCALE#	CHECKED - ---	REVISED - ---
PLOT DATE * #DATE#	DATE - ---	REVISED - ---

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

GENERAL NOTES, INDEX OF SHEETS, HIGHWAY STANDARDS

SCALE: _____ SHEET NO. ___ OF ___ SHEETS STA. _____ TO STA. _____

* VARIOUS ROUTES ** DISTRICT 8 DEEP WELLS 2009-2		F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	**			ST. CLAIR	7	7E
		CONTRACT NO. 16G71		FED. ROAD DIST. NO. (ILLINOIS) FED. AID PROJECT		

Grain Size Analysis

Job # 878237 Date: 09/28/2007
 Boring location: IDOT - MO Ave
 Boring #: TH - 1
 Sample depth: 43' - 45' Container # 10

	Dirty sample	Washed sample
Wt sample + tare	927.1	910.4
Tare wt	396.7	396.7
Wt Sample	530.4	513.7
Wt of sample washed past #200 sieve:		16.7

Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2				
3/8	399.8	3.1	527.3	99.4
4	403.7	3.9	523.4	98.7
6	405.2	1.5	521.9	98.4
8	407.4	2.2	519.7	98.0
16	415.2	7.8	511.9	96.5
30	487.7	72.5	439.4	82.8
50	658.0	170.3	269.1	50.7
100	870.0	212.0	57.1	10.8
200	909.5	39.5	17.6	3.3
PAN	910.4	0.9		

Grain Size Analysis

Job # 878237 Date: 09/28/2007
 Boring location: IDOT - MO Ave
 Boring #: TH - 1
 Sample depth: 48' - 50' Container # 7

	Dirty sample	Washed sample
Wt sample + tare	1009.4	987.5
Tare wt	412.4	412.4
Wt Sample	597.0	575.1
Wt of sample washed past #200 sieve:		21.9

Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2				
3/8				
4	415.9	3.5	593.5	99.4
6	420.7	4.8	588.7	98.6
8	428.3	7.6	581.1	97.3
16	456.2	27.9	553.2	92.7
30	537.5	81.3	471.9	79.0
50	683.4	145.9	326.0	54.6
100	964.2	280.8	45.2	7.6
200	987.3	23.1	22.1	3.7
PAN	987.5	0.2		

FILE NAME *	USER NAME * #USER*	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL NOTES, INDEX OF SHEETS, HIGHWAY STANDARDS	F.A. RTE.:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
#FILE#		DRAWN -	REVISED -			*	**	SI. CL&B	7	7E
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	PLOT DATE = #DATE*	DATE -	REVISED -							

* VARIOUS ROUTES
 ** DISTRICT 8 DEEP WALLS 2009-2
 FED. ROAD DIST. NO. - [ILLINOIS] FED. AID PROJECT
 CONTRACT NO. 76C71

Grain Size Analysis

Job # 878237 Date: 09/28/2007
 Boring location: IDOT - MO Ave
 Boring #: TH - 1
 Sample depth: 53' - 55' Container # 8

	Dirty sample	Washed sample
Wt sample + tare	938.3	913.4
Tare wt	414.4	414.4
Wt Sample	523.9	499.0
Wt of sample washed past #200 sieve:		24.9

Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2				
3/8	416.1	1.7	522.2	99.7
4	421.6	5.5	516.7	98.6
6	424.8	3.2	513.5	98.0
8	426.5	1.7	511.8	97.7
16	430.8	4.3	507.5	96.9
30	446.7	15.9	491.6	93.8
50	625.6	178.9	312.7	59.7
100	862.4	236.8	75.9	14.5
200	912.4	50.0	25.9	4.9
PAN	913.4	1.0		

Grain Size Analysis

Job # 878237 Date: 09/28/2007
 Boring location: IDOT - MO Ave
 Boring #: TH - 1
 Sample depth: 58' - 60' Container # 9

	Dirty sample	Washed sample
Wt sample + tare	973.0	954.8
Tare wt	413.9	413.9
Wt Sample	559.1	540.9
Wt of sample washed past #200 sieve:		18.2

Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2				
3/8				
4	416.5	2.6	556.5	99.5
6	417.1	0.6	555.9	99.4
8	417.4	0.3	555.6	99.4
16	419.7	2.3	553.3	99.0
30	470.5	50.8	502.5	89.9
50	776.0	305.5	197.0	35.2
100	934.6	158.6	38.4	6.9
200	954.0	19.4	19.0	3.4
PAN	954.8	0.8		

FILE NAME = #FILE#	USER NAME = #USER# DESIGNED - ___ DRAWN - ___ CHECKED - ___ PLOT DATE = #DATE#	REVISED - ___ REVISED - ___ REVISED - ___ REVISED - ___	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL NOTES, INDEX OF SHEETS, HIGHWAY STANDARDS SCALE: _____ SHEET NO. ___ OF ___ SHEETS STA. _____ TO STA. _____	<table border="1" style="font-size: small;"> <tr> <td colspan="2" style="text-align: right;">* VARIOUS ROUTES ** DISTRICT 8 DEEP WELLS 2009-3</td> </tr> <tr> <td style="text-align: center;">SECTION</td> <td style="text-align: center;">COUNTY</td> </tr> <tr> <td style="text-align: center;">#</td> <td style="text-align: center;">**</td> </tr> <tr> <td style="text-align: center;">ST. CLAIR</td> <td style="text-align: center;">T</td> </tr> <tr> <td style="text-align: center;">CONTRACT NO. 76C71</td> <td style="text-align: center;">IG</td> </tr> <tr> <td colspan="2" style="text-align: center;">FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT</td> </tr> </table>	* VARIOUS ROUTES ** DISTRICT 8 DEEP WELLS 2009-3		SECTION	COUNTY	#	**	ST. CLAIR	T	CONTRACT NO. 76C71	IG	FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT	
* VARIOUS ROUTES ** DISTRICT 8 DEEP WELLS 2009-3																	
SECTION	COUNTY																
#	**																
ST. CLAIR	T																
CONTRACT NO. 76C71	IG																
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT																	

Grain Size Analysis

Job # 878237 Date: 09/28/2007

Boring location: IDOT - MO Ave

Boring #: TH - 1

Sample depth: 63' - 65' Container # 4

	Dirty sample	Washed sample
Wt sample + tare	986.0	968.2
Tare wt	412.5	412.5
Wt Sample	573.5	555.7

Wt of sample washed past #200 sieve: 17.8

Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2				
3/8	415.0	2.5	571.0	99.6
4	432.0	17.0	554.0	96.6
6	447.6	15.6	538.4	93.9
8	468.7	21.1	517.3	90.2
16	522.6	53.9	463.4	80.8
30	631.1	108.5	354.9	61.9
50	805.9	174.8	180.1	31.4
100	945.7	139.8	40.3	7.0
200	967.9	22.2	18.1	3.2
PAN	968.2	0.3		

Grain Size Analysis

Job # 878237 Date: 09/28/2007

Boring location: IDOT - MO Ave

Boring #: TH - 1

Sample depth: 68' - 70' Container # 5

	Dirty sample	Washed sample
Wt sample + tare	924.0	904.3
Tare wt	415.2	415.2
Wt Sample	508.8	489.1

Wt of sample washed past #200 sieve: 19.7

Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2				
3/8				
4	418.3	3.1	505.7	99.4
6	419.8	1.5	504.2	99.1
8	420.5	0.7	503.5	99.0
16	423.0	2.5	501.0	98.5
30	431.4	8.4	492.6	96.8
50	539.1	107.7	384.9	75.6
100	874.7	335.6	49.3	9.7
200	904.2	29.5	19.8	3.9
PAN	904.3	0.1		

• VARIOUS ROUTES
** DISTRICT 8 DEEP WELLS 2009-2

FILE NAME =	USER NAME = *USER*	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL NOTES, INDEX OF SHEETS, HIGHWAY STANDARDS	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CHECKED -	REVISED -			CONTRACT NO. 16C71			
		DATE	REVISED			FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT			

Grain Size Analysis

Job # 878237 Date: 09/28/2007
 Boring location: IDOT - MO Ave
 Boring #: TH - 1
 Sample depth: 73' - 75' Container # 6

	Dirty sample	Washed sample
Wt sample + tare	939.2	914.7
Tare wt	411.8	411.8
Wt Sample	527.4	502.9
Wt of sample washed past #200 sieve:		24.5

Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2				
3/8				
4				
6	412.2	0.4	527.0	99.9
8	412.4	0.2	526.8	99.9
16	412.9	0.5	526.3	99.8
30	419.9	7.0	519.3	98.5
50	632.8	212.9	306.4	58.1
100	853.6	220.8	85.6	16.2
200	913.9	60.3	25.3	4.8
PAN	914.7	0.8		

Grain Size Analysis

Job # 878237 Date: 09/28/2007
 Boring location: IDOT - MO Ave
 Boring #: TH - 1
 Sample depth: 78' - 80' Container # 1

	Dirty sample	Washed sample
Wt sample + tare	939.7	928.7
Tare wt	412.1	412.1
Wt Sample	527.6	516.6
Wt of sample washed past #200 sieve:		11.0

Sieve #	Sample wt + tare	Wt Retained	Wt Passing	% Passing
1				
3/4				
1/2				
3/8	419.0	6.9	520.7	98.7
4	424.7	5.7	515.0	97.6
6	434.8	10.1	504.9	95.7
8	439.1	4.3	500.6	94.9
16	445.1	6.0	494.6	93.7
30	481.7	36.6	458.0	86.8
50	782.1	300.4	157.6	29.9
100	913.4	131.3	26.3	5.0
200	928.5	15.1	11.2	2.1
PAN	928.7	0.2		

FILE NAME *
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USER NAME * #USER#

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REVISED - ---

PLOT SCALE * #SCALE#

CHECKED - ---

REVISED - ---

PLOT DATE * #DATE#

DATE - ---

REVISED - ---

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

GENERAL NOTES, INDEX OF SHEETS, HIGHWAY STANDARDS

SCALE: _____ SHEET NO. ___ OF ___ SHEETS STA. _____ TO STA. _____

F.A.
RTE.

SECTION

COUNTY

TOTAL SHEET
SHEETS NO.

*

**

ST. CLAIR

7 71

FED. ROAD DIST. NO. _____ (ILLINOIS) FED. AID PROJECT CONTRACT NO. 76C71

* VARIOUS ROUTES

** DISTRICT # DEEP WELLS 2009-2