APPENDIX I-5

Final Backfill Report

ERRG
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August 6, 2007

Ref.: 26-150

Mr. Todd Miller, P.G., C.H.G.
Project Manager
Malcolm Pirnie, Inc.
2000 Powell Street, Suite 1180
Emeryville, California 94608

Final
Backfill Report
Large Excavation Site- Leasehold Property
Former General Mills Facility
Vallejo, California

Dear Mr. Miller:

Engineering/Remediation Resources Group, Inc. (ERRG) is pleased to submit this letter report summarizing the earthfill placement and construction quality assurance activities for the above referenced project. The large excavation site is located at the western edge of the former General Mills Facility, 800 Derr Street, Vallejo, California as shown in Figure 1. The approximate excavation boundary is shown in Figure 2.

November/December 2006 Excavation – Main Area

ERRG mobilized and began excavation of the impacted soil, excluding the eastern tip and southwestern tip areas, at the reference project site in November and December of 2006. The area of the irregular shape excavation site is about 30,000 square feet (sf). The top 5 feet of overburden soil was excavated and was stockpiled on site for future backfilling. Five representative bulk soil samples were collected from the overburden soil and delivered to Construction Materials Testing, Inc. (CMT) of Concord, California for laboratory compaction testing (Modified Proctor density test per American Society for Testing and Materials [ASTM] D1557). The laboratory test results are summarized in Table 1 and shown in Attachment A. The soil below the overburden soil was excavated to a maximum depth of approximately 18 feet below ground surface (bgs). The excavated soil was chemically-treated outside the excavation.

Due to high groundwater level and tidal influence, sheet piles were installed around the excavation site, except for the eastern tip, to serve as the cut off wall for reducing seepage and providing a drier work environment to facilitate excavation and backfilling operations. John's Excavating (John's) of Santa

Rosa, California was responsible for the sheet pile installation. The average driven depth of the sheet piles was about 25 feet bgs.

January 2007 Excavation – Eastern Tip

In January 2007, the soil located at the eastern tip of the excavation was removed. Because of the buried fire line and sewer located in the excavation area, mass excavation was prohibited at deeper depths in this area. The top 5 feet of overburden soil was removed and stockpiled for backfilling. The soil beneath the top 5 feet to a depth of about 6 to 8 feet was surgically removed in small sections. The excavated soil was chemically-treated outside of the excavation area.

February 2007 Excavation – Southwestern Tip

In February 2007, the soil located at the southwestern tip of the excavation was removed. Similar to the rest of the excavation, the top 5 feet of overburden soil was removed and stockpiled for backfilling. The soil beneath the top 5 feet was excavated to a depth of about 15 feet bgs and chemically-treated outside of the excavation area. Before the excavation commenced, sheet piles were installed around the area by John's.

Excavation Volumes

Approximately 5,050 cubic yards of overburden soil was removed from the vadose zone and stockpiled for backfilling. A total of about 9,050 cubic yards (cy) of soil was removed from the excavation and treated on site.

Backfilling

As a standard of care, some debris was also removed from the excavated soil before performing the backfilling operation. Rocks larger than 12 inches were mostly removed from the backfill soil to be used in the bottom of the excavation (10 feet bgs and deeper) and rocks larger than 6 inches were mostly removed from the backfill soil to be used to backfill the upper 10 feet of the excavation. Smaller rubble, inorganic- and organic-debris (debris), however, was not able to be separated from the soil. From a geotechnical standpoint, the excavation was backfilled and compacted in accordance with April 2006 Backfill and Compaction Plan for the project. The soils used as backfill material consisted of on-site materials cleared of some larger pre-existing rubble and debris. We understand that future land uses for this area of the site are being considered, and it is recommended that site-specific geotechnical studies be performed to assess the fill and surrounding soil conditions and provide conclusions and recommendations, with the consideration of the remaining rubble and debris, to future development requirements for this area.

The backfilling operation for the eastern tip was conducted and completed in January 2007. A portable compactor was used to compact the soil due to limited access in the vicinity of buried utilities in the area. The excavation was backfilled with the stockpiled overburden soil. Twelve compaction tests (test numbers U1 through U12) were conducted on the compacted overburden soil. The field compaction test results are summarized in Table 2 and the test locations are shown in Figure 2. Due to random nature of

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the backfill materials, ERRG's field engineer selected a compaction curve of similar soil type to evaluate the relative compaction (percentage of in-place dry density divided by maximum dry density as determined by ASTM D1557). The relative compaction was equal to or above the required 90 percent relative compaction.

The backfilling operation of the rest of the excavation site was conducted and completed in May 2007. Sheepsfoot vibratory compactors were used to compact the soil for all areas other than the eastern tip. Prior to the backfilling, minor grading was conducted to level out the irregularity in the bottom of the excavation. Chemically-treated soil was used to backfill the deeper portion of the excavation and overburden soil was then placed on top.

Due to the treatment process and numerous rain events during the winter of 2006 and 2007, the treated soil had a high moisture content (approximately 30 percent). To reduce the moisture content, quick lime was added to the treated soil to bring it closer to the optimum moisture content. Western Stabilization (Western) of Dixon, California was responsible for adding and mixing quick lime in the treated soil. In general, 2 to 4 percent (by weight) of quick lime was used depending on the wetness of the treated soil. One representative bulk sample was collected, admixed with 4 percent of quick lime, and submitted to CMT for a compaction analysis prior to the admixing operation. Subsequently, four representative bulk soil samples were collected during the quick lime mixing operation and delivered to CMT for laboratory compaction testing per ASTM D1557. The test results are summarized in the attached Table 1.

ERRG was responsible for conducting field compaction tests for the chemically-treated soil admixed with quick lime to determine the in-place dry density and moisture content. A nuclear density gauge (CPN Model MC3) was used to conduct the tests. The in-place dry density was determined according to ASTM D2922 and the moisture content was determined according to ASTM D3017.

Ninety five compaction tests (test numbers 001 through 095) were conducted on the quick lime mixed chemically-treated soil. The field compaction test results are summarized in Table 3 and the test locations are shown in Figures 3 to 5. In general the relative compaction was equal to or above the required 90 percent relative compaction except for the tests (test numbers 001 and 002) conducted in the first lift of compacted soil around the south-western tip. Due to the softness and wetness of the excavated subgrade, the compaction energy became less effective in that area. The relative compaction for those tests ranged from 84 to 89 percent. The subsequent lifts of soil, however, were placed and compacted on a more stable subgrade. Consequently, the relative compaction for the subsequent lifts was equal to or above 90%.

The placement of the chemically-treated soil was completed on May 11, 2007 and the compacted soil level was about 3 to 5 feet bgs. Overburden soil stockpiled outside the excavation site was then used to backfill the excavation. Because the moisture content in some of the overburden soils was high, quick lime was also added to reduce the moisture content. Approximately 2 percent (by weight) of quick lime was added to those overburden soil. ERRG self-performed this phase of admixing because the volume of overburden soil to be treated was comparatively small.

The backfilling operation using overburden soil began on May 14, 2007. Thirty five compaction tests (test numbers 096 through 130) were conducted on the compacted overburden soil from 2 to 3 feet bgs. The field compaction test results are summarized in Table 3 and the test locations are shown in Figures 5 to 6. The relative compaction was equal to or above 90 percent (as required). Eighteen compaction tests (test numbers 131 through 148) were conducted on the compacted overburden soil from 1 to 2 feet bgs. The field compaction test results are summarized in Table 3 and the test locations are shown in Figure 7. The relative compaction was equal to or above 95 percent (as required). Sheet piles were completely removed by John's from May 10 through May 13, 2007.

Additional import fill was required to backfill the excavation from 1 bgs to grade. About 1,300 cy of 3-inch minus fill were imported from Syar Industries Lake Herman Quarry in Vallejo, California and were placed on top of the compacted overburden soil. A representative bulk sample of the imported fill was delivered to CMT for laboratory testing. The laboratory test results are summarized in Table 1. Fifteen field compaction tests (test numbers 149 through 163) were performed on the compacted 3-inch minus import fill. The test results are presented in Table 3 and the test locations are shown in Figure 8. The relative compaction for the compaction tests was equal to or above 95 percent (as required) with the exception of the two tests (test numbers 160 and 161) conducted on top or in close proximity to the restored fire line. About 2 feet of import material was placed on top of the fire line to backfill the trench. The vibrator on the sheepsfoot compactor was shut off while the materials were being compacted to avoid pipe damage. The relative compaction for both tests was between 93 and 94 percent; slightly lower than 95 percent but above 90 percent.

In conclusion, the performance of the earthfill construction meets the project intent, and the field compaction test results are generally accepted by geotechnical engineering principles and practices. If you have any questions, please call me at (925) 969-0750.

Sincerely,

REGISTERED PROFESSIONAL ENGINEER
KOOK-NIN DAVID TANG
No. 2505
Exp. 12/31/08
GEOTECHNICAL
STATE OF CALIFORNIA

David Tang, P.E., G.E.
Principal Engineer
Geotechnical Engineer, No. 2505 (exp. 12/31/08)

Copies: L. Sanderson, Engineering/Remediation Resources Group, Inc.

Attachments:	Table 1	Laboratory Test Results
	Table 2	Compaction Test Results – Eastern Tip
	Table 3	Compaction Test Results – Main Area and South-western Tip
	Figure 1	Site Location Map
	Figures 2 through 8	Compaction Test Locations
	Attachment A	Laboratory Test Results

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Figures

☆ Site Location

Approximate Facility Boundary

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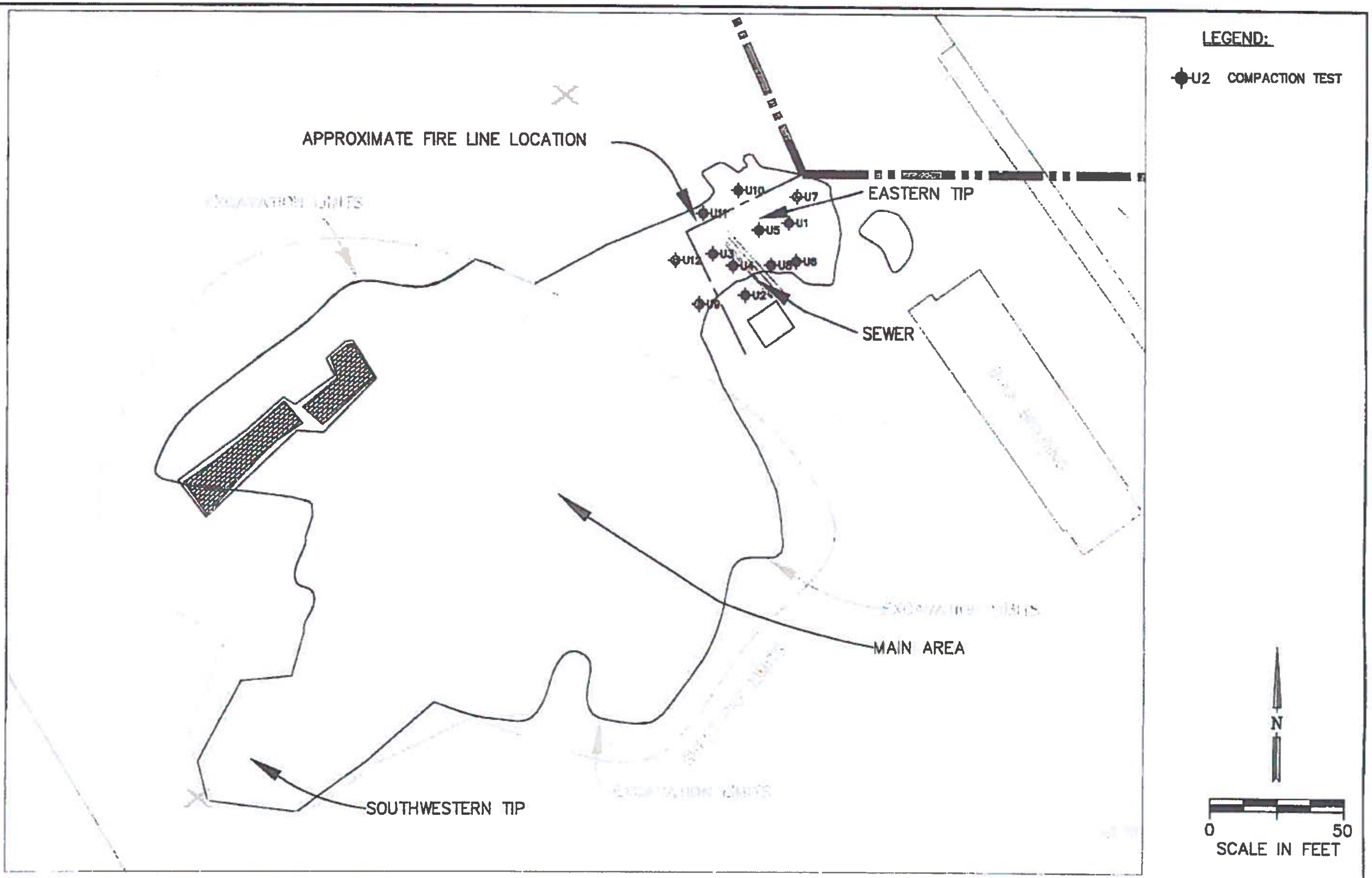
ENGINEERING/REMEDIATION RESOURCES GROUP, INC.
185 Mason Circle, Suite A
Concord, CA 94520
(925) 969-0750

CLIENT: FORMER GENERAL MILLS FACILITY	DRAWN BY: J.M. 1/18/06	SITE LOCATION MAP			
LOCATION: 800 DERR STREET VALLEJO, CA	DESIGNED BY: R.K. 1/18/06				
	CHECKED BY: x.x. 1/18/06	ERRG PROJECT NO. 26-001	SHEET: 1	OF: 1	FIGURE NO. 1

8-06 P:\2006_Projects\26-001_Malcolm_Pirnie_Vallejo_Excavation\Drawings\For... eneral Mills Facility.mxd ERRG-Concord Jeremy Miller



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CHECKED BY: DT 06/08/07		LOCATION: Former General Mills Facility Vallejo, CA — ERRG PROJECT NO. 26-150
P.E./P.G.:		CLIENT: Malcolm Pirnie, Inc. — FIG NO. 2
REVISION DATE:		

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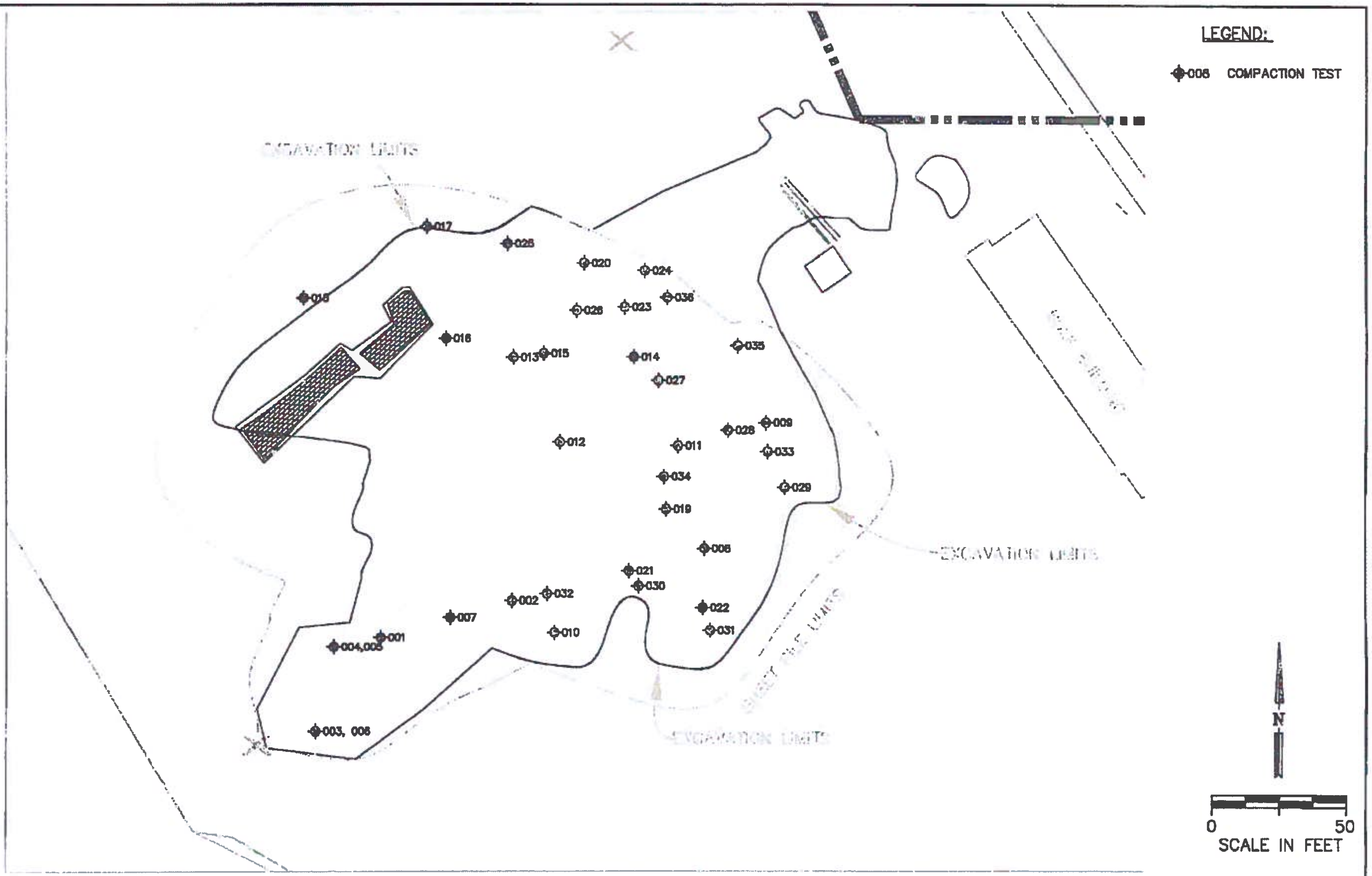

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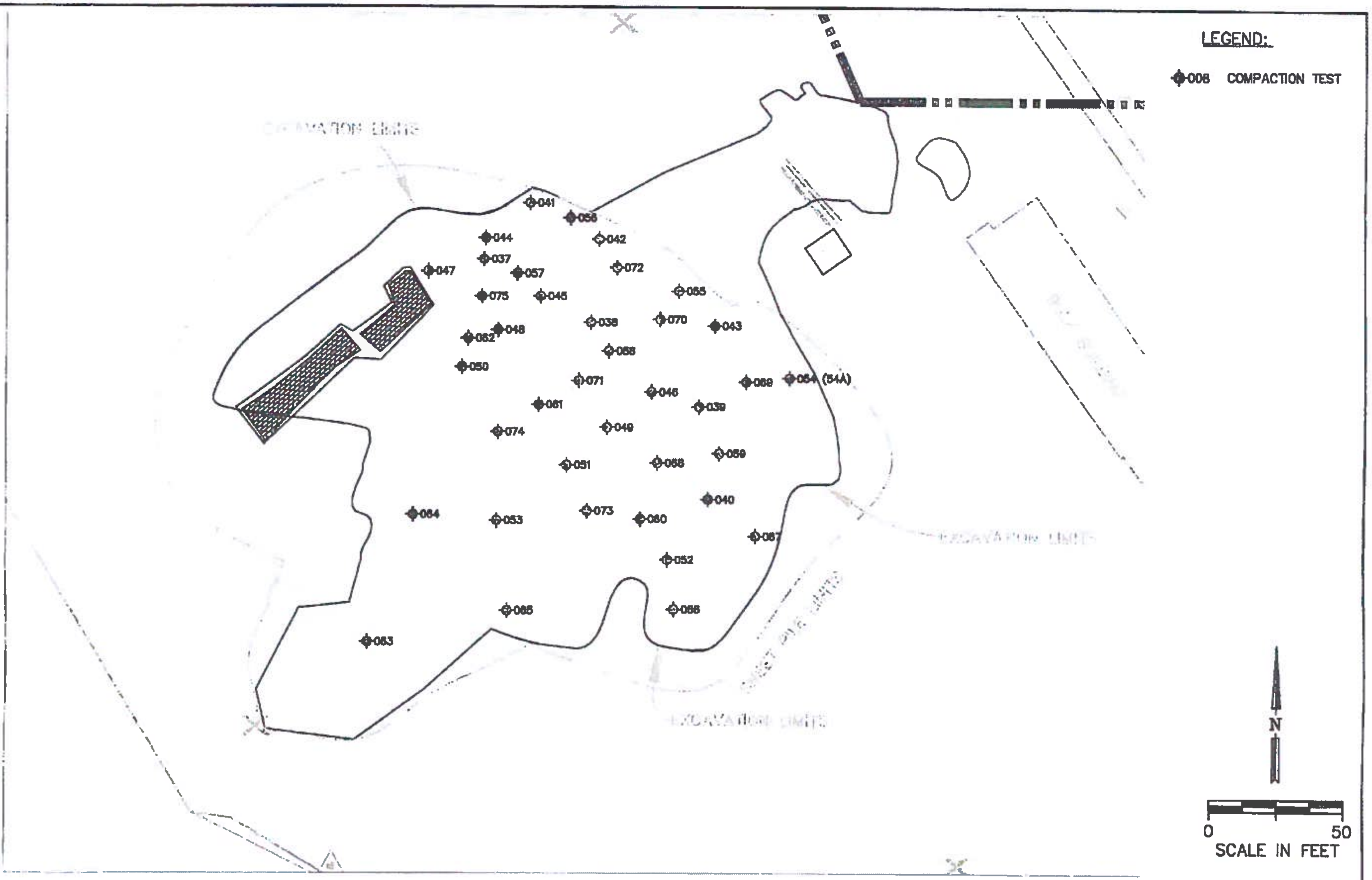
DESIGNED BY: PDL 06/06/07	Engineering/Remediation Resources Group, Inc. 185 Mason Circle, Suite A Concord, California 94520 (925) 969-0750 ERRG	COMPACTION TEST LOCATIONS 05/01/07–05/05/07 (8'–15' below ground surface)
CHECKED BY: DT 06/08/07		LOCATION: Former General Mills Facility Vallejo, CA — ERRG PROJECT NO. 26-150
P.E./P.G.: DT 06/08/07		CLIENT: Malcolm Pirnie, Inc. — FIG NO. 3
REVISION DATE:		



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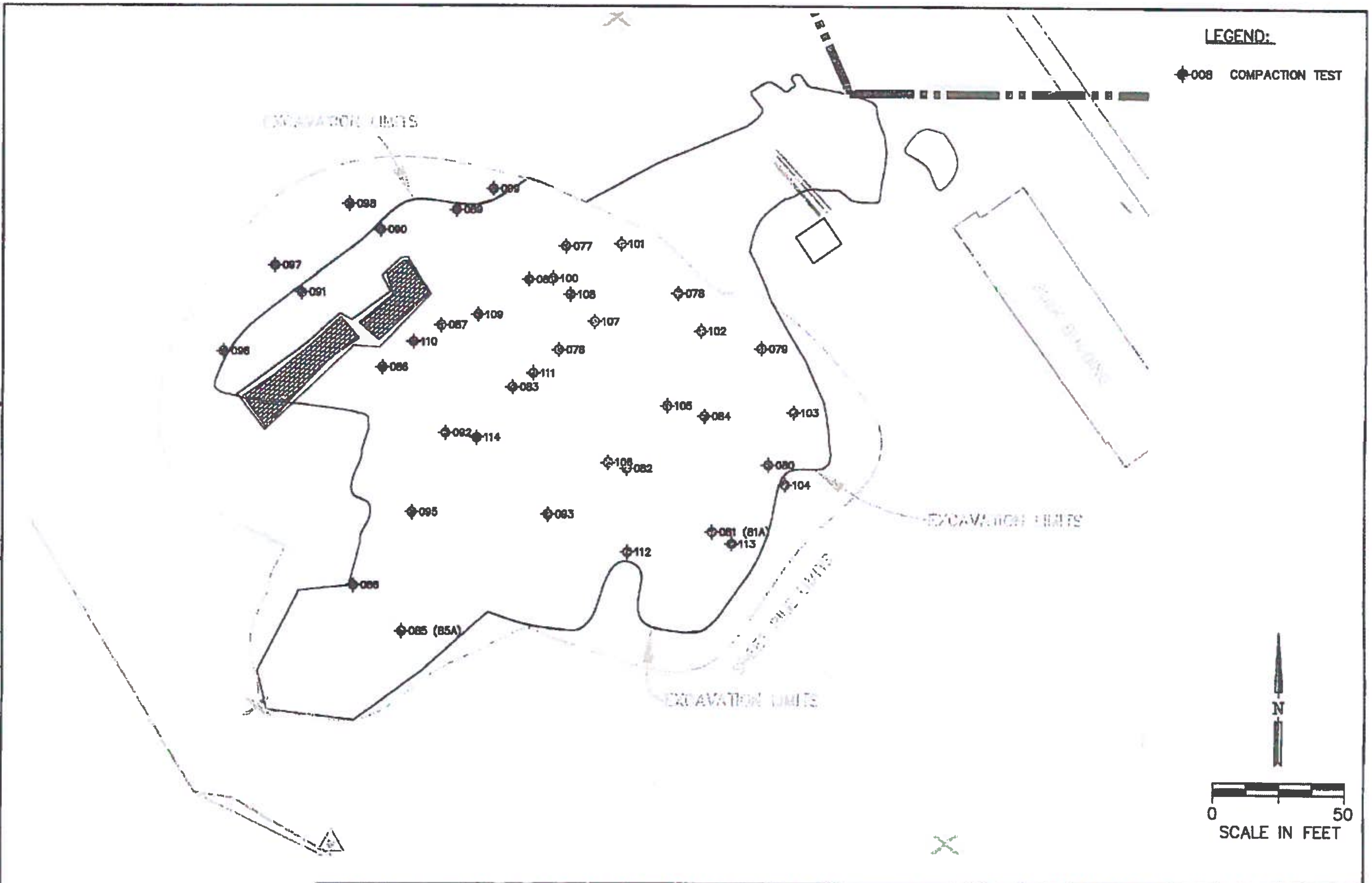
DESIGNED BY: PDL 06/06/07	ERRG Engineering/Remediation Resources Group, Inc. 185 Mason Circle, Suite A Concord, California 94520 (925) 969-0750	COMPACTION TEST LOCATIONS 05/07/07–05/10/07 (5'–8' below ground surface)	
CHECKED BY: DT 06/08/07		LOCATION: Former General Mills Facility Vallejo, CA	ERRG PROJECT NO. 26-150
P.E./P.G.: DT 06/08/07		CLIENT: Malcolm Pirnie, Inc.	FIG NO. 4
REVISION DATE:			



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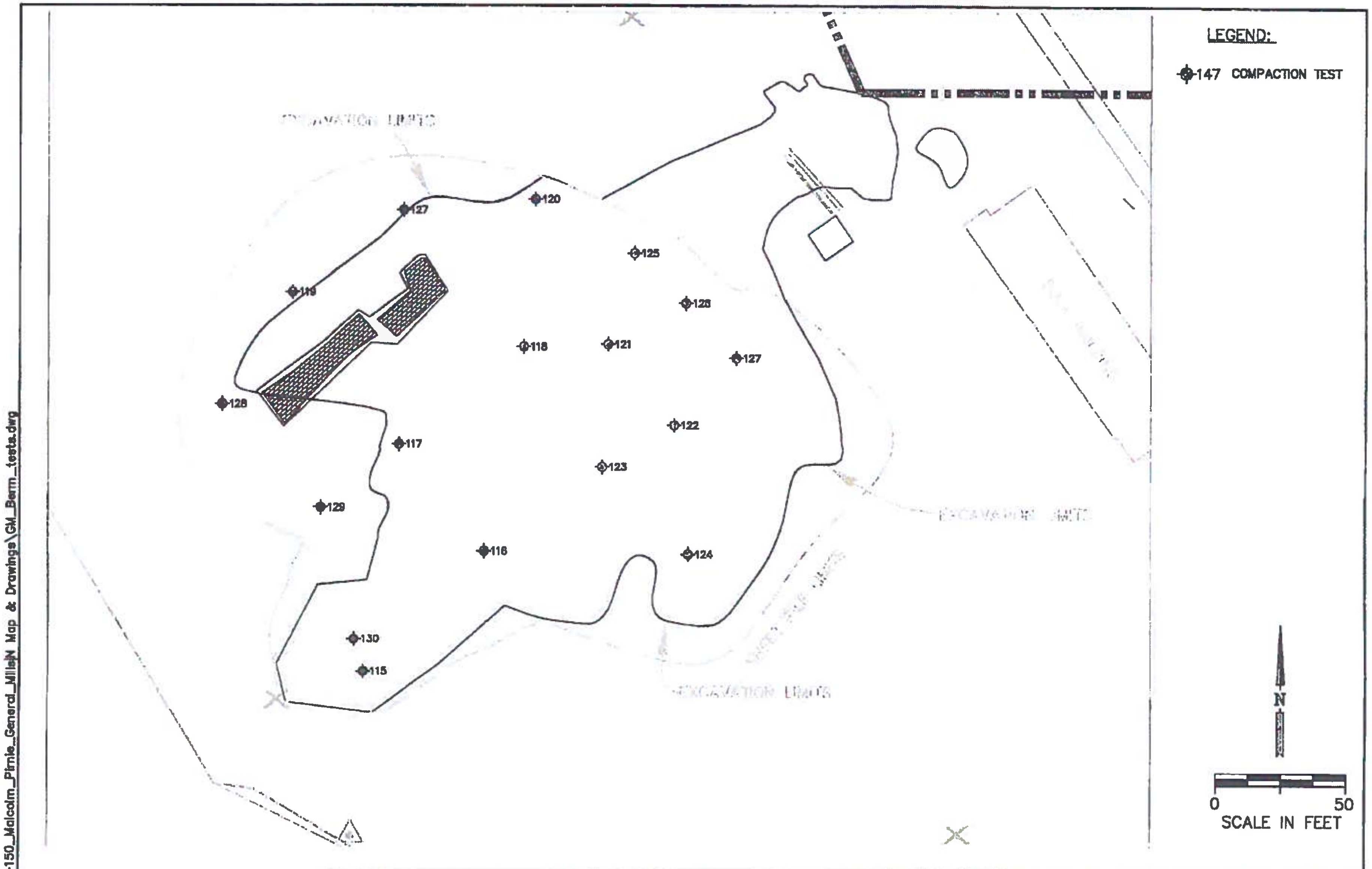
DESIGNED BY: PDL 06/06/07	ERRG Engineering/Remediation Resources Group, Inc. 185 Mason Circle, Suite A Concord, California 94520 (925) 969-0750	COMPACTION TEST LOCATIONS 05/11/07–05/14/07 (3'–5' below ground surface)	
CHECKED BY: DT 06/08/07		LOCATION: Former General Mills Facility Vallejo, CA	ERRG PROJECT NO. 26-150
P.E/P.G.: DT 06/08/07		CLIENT: Malcolm Pirnie, Inc.	FIG NO. 5
REVISION DATE:			



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DESIGNED BY:	PDL 06/06/07
CHECKED BY:	DT 06/08/07
P.E/P.G.:	
REVISION DATE:	

ERRG
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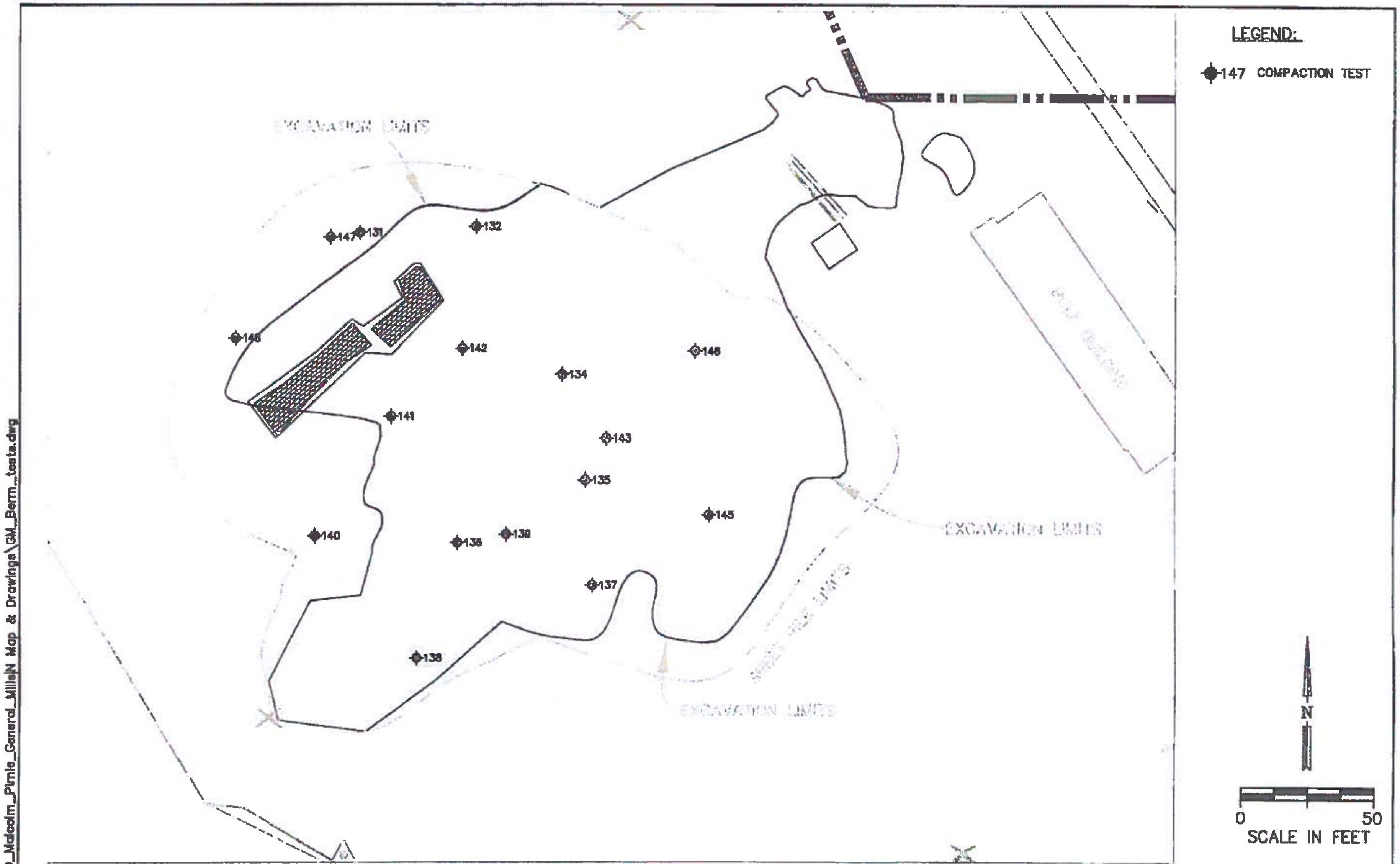
(925) 969-0750

COMPACTION TEST LOCATIONS 05/15/07
(2'–3' below ground surface)

LOCATION:	Former General Mills Facility Vallejo, CA	ERRG PROJECT NO. 26-150
CLIENT:	Malcolm Pirnie, Inc.	FIG NO. 6



DESIGNED BY: PDL 06/06/07		
CHECKED BY: DT 06/08/07		
P.E./P.G.:		
REVISION DATE:		

ERRG
Engineering/Remediation Resources Group, Inc.
185 Mason Circle, Suite A
Concord, California 94520
(925) 969-0750

COMPACTION TEST LOCATIONS 05/16/07–05/17/07
(1'–2' below ground surface)

LOCATION:	ERRG PROJECT NO.
Former General Mills Facility Vallejo, CA	26-150
CLIENT:	**FIG NO.**
Malcolm Pirnie, Inc.	7

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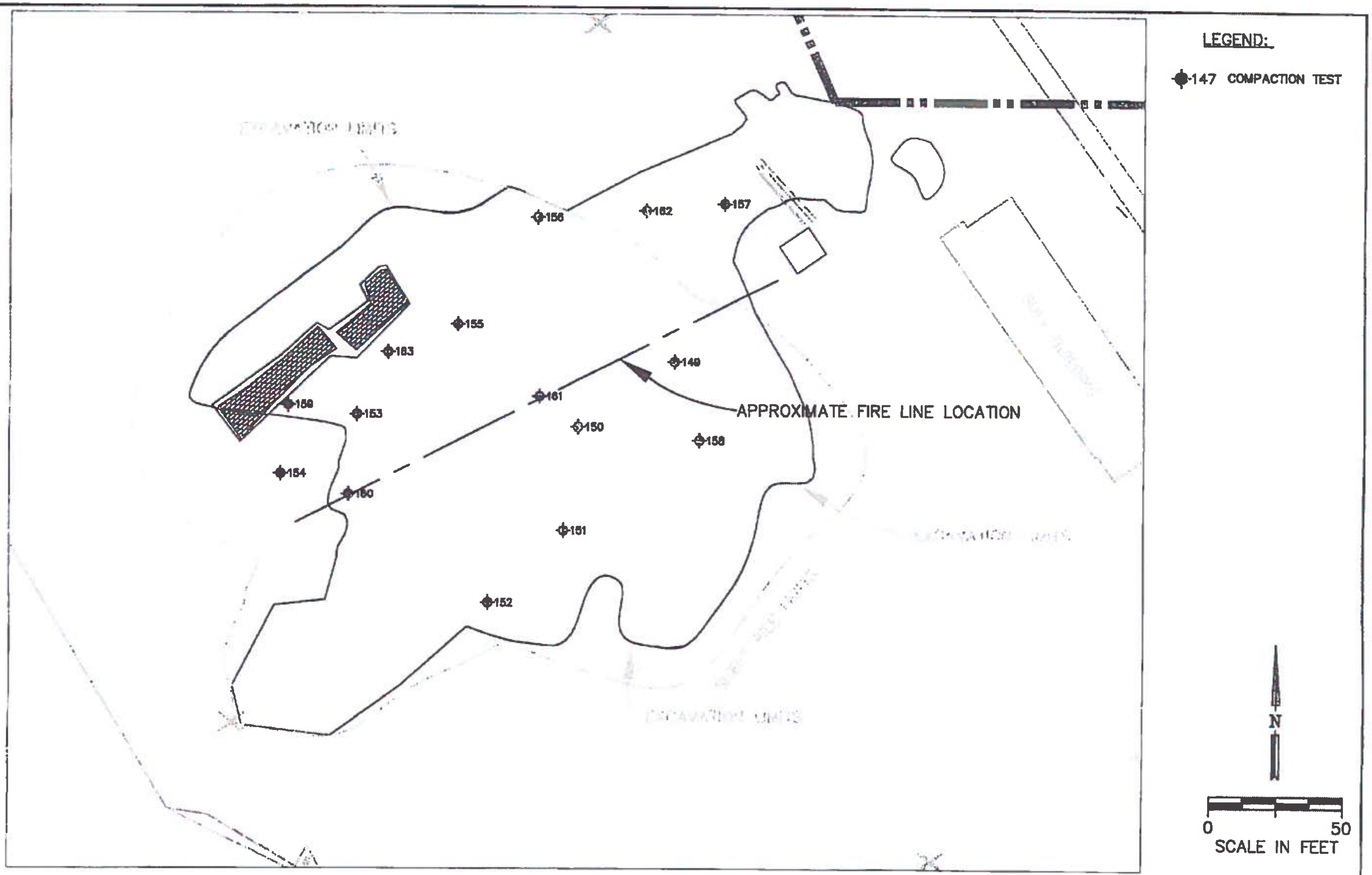

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DESIGNED BY: PDL 06/06/07	ERRG Engineering/Remediation Resources Group, Inc. 185 Mason Circle, Suite A Concord, California 94520 (925) 969-0750	COMPACTION TEST LOCATIONS 05/24/07–05/30/07 (0'–1' below ground surface)	
CHECKED BY: DT 06/08/07		LOCATION: Former General Mills Facility Vallejo, CA	ERRG PROJECT NO. 26-150
P.E./P.G.: DT 06/08/07		CLIENT: Malcolm Pirnie, Inc.	FIG NO. 8
REVISION DATE:			

ERRG
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July 5, 2007 Ref.: 26-150

Mr. Todd Miller, P.G., C.H.G.
Project Manager
Malcolm Pirnie, Inc.
2000 Powell Street, Suite 1180
Emeryville, California 94608

Backfill Report
Large Excavation Site- Leasehold Property
Former General Mills Facility
Vallejo, California

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Rosa, California was responsible for the sheet pile installation. The average driven depth of the sheet piles was about 25 feet bgs.

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Excavation Volumes

Approximately 5,050 cubic yards of overburden soil was removed from the vadose zone and stockpiled for backfilling. A total of about 9,050 cubic yards (cy) of soil was removed from the excavation and treated on site.

Backfilling

As a standard of care, some debris was removed from the excavated soil before performing the backfilling operation. Rocks larger than 12 inches were removed from the backfill soil to be used in the bottom of the excavation (10 feet bgs and deeper). Rocks larger than 6 inches were removed from the backfill soil to be used to backfill the upper 10 feet of the excavation. Smaller debris, however, was not able to be separated from the soil. From a geotechnical standpoint, the soil is not considered an engineered and/or structural fill.

The backfilling operation for the eastern tip was conducted and completed in January 2007. A portable compactor was used to compact the soil due to limited access in the vicinity of buried utilities in the area. The excavation was backfilled with the stockpiled overburden soil. Twelve compaction tests (test numbers U1 through U12) were conducted on the compacted overburden soil. The field compaction test results are summarized in Table 2 and the test locations are shown in Figure 2. Due to random nature of the backfill materials, ERRG's field engineer selected a compaction curve of similar soil type to evaluate the relative compaction (percentage of in-place dry density divided by maximum dry density as determined by ASTM D1557). The relative compaction was equal to or above the required 90 percent relative compaction.

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Due to the treatment process and numerous rain events during the winter of 2006 and 2007, the treated soil had a high moisture content (approximately 30 percent). To reduce the moisture content, quick lime was added to the treated soil to bring it closer to the optimum moisture content. Western Stabilization (Western) of Dixon, California was responsible for adding and mixing quick lime in the treated soil. In general, 2 to 4 percent (by weight) of quick lime was used depending on the wetness of the treated soil. One representative bulk sample was collected, admixed with 4 percent of quick lime, and submitted to CMT for a compaction analysis prior to the admixing operation. Subsequently, four representative bulk soil samples were collected during the quick lime mixing operation and delivered to CMT for laboratory compaction testing per ASTM D1557. The test results are summarized in the attached Table 1.

ERRG was responsible for conducting field compaction tests for the chemically-treated soil admixed with quick lime to determine the in-place dry density and moisture content. A nuclear density gauge (CPN Model MC3) was used to conduct the tests. The in-place dry density was determined according to ASTM D2922 and the moisture content was determined according to ASTM D3017.

Ninety five compaction tests (test numbers 001 through 095) were conducted on the quick lime mixed chemically-treated soil. The field compaction test results are summarized in Table 3 and the test locations are shown in Figures 3 to 5. In general the relative compaction was equal to or above the required 90 percent relative compaction except for the tests (test numbers 001 and 002) conducted in the first lift of compacted soil around the south-western tip. Due to the softness and wetness of the excavated subgrade, the compaction energy became less effective in that area. The relative compaction for those tests ranged from 84 to 89 percent. The subsequent lifts of soil, however, were placed and compacted on a more stable subgrade. Consequently, the relative compaction for the subsequent lifts was equal to or above 90%.

The placement of the chemically-treated soil was completed on May 11, 2007 and the compacted soil level was about 3 to 5 feet bgs. Overburden soil stockpiled outside the excavation site was then used to backfill the excavation. Because the moisture content in some of the overburden soils was high, quick lime was also added to reduce the moisture content. Approximately 2 percent (by weight) of quick lime was added to those overburden soil. ERRG self-performed this phase of admixing because the volume of overburden soil to be treated was comparatively small.

The backfilling operation using overburden soil began on May 14, 2007. Thirty five compaction tests (test numbers 096 through 130) were conducted on the compacted overburden soil from 2 to 3 feet bgs. The field compaction test results are summarized in Table 3 and the test locations are shown in Figures 5 to 6. The relative compaction was equal to or above 90 percent (as required). Eighteen compaction tests (test numbers 131 through 148) were conducted on the compacted overburden soil from 1 to 2 feet bgs. The field compaction test results are summarized in Table 3 and the test locations are shown in Figure 7.

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The relative compaction was equal to or above 95 percent (as required). Sheet piles were completely removed by John's from May 10 through May 13, 2007.

Additional import fill was required to backfill the excavation from 1 bgs to grade. About 1,300 cy of 3-inch minus fill were imported from Syar Industries Lake Herman Quarry in Vallejo, California and were placed on top of the compacted overburden soil. A representative bulk sample of the imported fill was delivered to CMT for laboratory testing. The laboratory test results are summarized in Table 1. Fifteen field compaction tests (test numbers 149 through 163) were performed on the compacted 3-inch minus import fill. The test results are presented in Table 3 and the test locations are shown in Figure 8. The relative compaction for the compaction tests was equal to or above 95 percent (as required) with the exception of the two tests (test numbers 160 and 161) conducted on top or in close proximity to the restored fire line. About 2 feet of import material was placed on top of the fire line to backfill the trench. The vibrator on the sheepsfoot compactor was shut off while the materials were being compacted to avoid pipe damage. The relative compaction for both tests was between 93 and 94 percent; slightly lower than 95 percent but above 90 percent.

In conclusion, the performance of the earthfill construction meets the project intent, and the field compaction test results are generally accepted by geotechnical engineering principles and practices. If you have any questions, please call me at (925) 969-0750.

Sincerely,

David Tang, P.E., G.E.
Principal Engineer
Geotechnical Engineer, No. 2505 (exp. 12/31/08)

Copies: L. Sanderson, Engineering/Remediation Resources Group, Inc.

Attachments:		
	Table 1	Laboratory Test Results
	Table 2	Compaction Test Results – Eastern Tip
	Table 3	Compaction Test Results – Main Area and South-western Tip
	Figure 1	Site Location Map
	Figures 2 through 8	Compaction Test Locations
	Attachment A	Laboratory Test Results

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Tables

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Figures

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Attachment A Laboratory Test Results

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Tables

Table 1.
Laboratory Test Results

Sample	Material/Fill Type	Test	Test Designation	Results
1	Overburden soil (Sandy lean clay with gravel)	Modified Proctor Density	ASTM D1557	Maximum dry density = 112.6 pcf; Optimum moisture content = 16.7 %
2	Overburden soil (Claystone)	Modified Proctor Density	ASTM D1557	Maximum dry density = 124.3 pcf; Optimum moisture content = 11.7 %
BC3C0	Overburden soil (Clayey gravel with sand)	Modified Proctor Density	ASTM D1557	Maximum dry density = 118.9 pcf; Optimum moisture content = 14.2 %
BC4C0	Overburden soil (Silty gravel with sand)	Modified Proctor Density	ASTM D1557	Maximum dry density = 127.5 pcf; Optimum moisture content = 10.0 %
BC6C0	Overburden soil (Clayey gravel with sand)	Modified Proctor Density	ASTM D1557	Maximum dry density = 124.8 pcf; Optimum moisture content = 9.2 %
01-03	Treated soil laboratory admixed with 4% quick lime (Silty gravel with sand)	Modified Proctor Density	ASTM D1557	Maximum dry density = 113.2 pcf; Optimum moisture content = 15.3 %
C302C0	Treated soil admixed with 2% quick lime (Silty sand with gravel)	Modified Proctor Density	ASTM D1557	Maximum dry density = 114.9 pcf; Optimum moisture content = 14.4 %
C1/4C0	Treated soil admixed with 2 % quick lime (Gravelly silt with sand)	Modified Proctor Density	ASTM D1557	Maximum dry density = 120.3 pcf; Optimum moisture content = 13.2 %
C5C0	Treated soil admixed with 2% quick lime (Sandy silt with gravel)	Modified Proctor Density	ASTM D1557	Maximum dry density = 112.6 pcf; Optimum moisture content = 15.7 %
C8C0	Treated soil admixed with 2% quick lime (Sandy silt with gravel)	Modified Proctor Density	ASTM D1557	Maximum dry density = 113.6 pcf; Optimum moisture content = 16.3 %
BC2/7/8C0	Overburden soil admixed with 1 % quick lime (Sandy silt with gravel)	Modified Proctor Density	ASTM D1557	Maximum dry density = 122.1 pcf; Optimum moisture content = 12.4 %
3" Minus	Import fill from Syar Quarry (Silty gravel with sand)	Modified Proctor Density	ASTM D1557	Maximum dry density = 142.9 pcf, optimum moisture content = 7.0 %
		Sieve Analysis	ASTM D422	66.4 % gravel, 28.9 % sand, and 4.7 % fines
		Atterberg Limits	ASTM D4318	Liquid Limit (LL) = 32.3; Plastic Limit (PL) = 23.0; Plasticity Index (PI) = 9.2

Notes:
ASTM - American Socierty for Testing and Materials
pcf - pounds per cubic foot

Table 2.
Compaction Test Results — Eastern Tip

Test No.	Date	Location[1]	Earthwork Type/Material[2]	Approx. Depth Below Ground Surface (ft)	Dry Density[3] (pcf)	Moisture Content[4] (%)	Compaction Curve[5] (pcf)	Relative Compaction[6] (%)	Remarks
U1	1/10/2007	See Fig. 2	Fill/Overburden	5	110.6	16.0	1	98	Pass
U2	1/10/2007	See Fig. 2	Fill/Overburden	5	115.4	15.0	2	93	Pass
U3	1/10/2007	See Fig. 2	Fill/Overburden	5	110.8	18.2	1	98	Pass
U4	1/10/2007	See Fig. 2	Fill/Overburden	4	107.7	17.7	1	96	Pass
U5	1/10/2007	See Fig. 2	Fill/Overburden	4	117.0	15.0	2	94	Pass
U6	1/10/2007	See Fig. 2	Fill/Overburden	3	113.7	14.7	2	91	Pass
U7	1/11/2007	See Fig. 2	Fill/Overburden	2	117.1	15.7	2	94	Pass
U8	1/11/2007	See Fig. 2	Fill/Overburden	2	117.8	13.5	2	95	Pass
U9	1/12/2007	See Fig. 2	Fill/Overburden	4	104.2	20.8	1	93	Pass
U10	1/12/2007	See Fig. 2	Fill/Overburden	3	105.6	20.0	1	94	Pass
U11	1/12/2007	See Fig. 2	Fill/Overburden	1.5	113.8	17.9	2	92	Pass
U12	1/12/2007	See Fig. 2	Fill/Overburden	1	114.0	16.6	2	92	Pass

[1] Approximate compaction test locations are shown in Figure 2.
[2] Overburden = Untreated Soil (no lime was added)
[3] Based on nuclear gauge readings, ASTM D2922
[4] Based on nuclear gauge readings, ASTM D3017
[5] See Table 1 for laboratory test data for individual samples
[6] Dry Density as determined by ASTM D2922 divided by maximum dry density as determined by ASTM D1557 in percent

Table 3.
Compaction Test Results — Main Area and South-western Tip

Test No.	Date	Location[1]	Earthwork Type/Material[2]	Approx. Depth Below Ground Surface (ft)	Dry Density[3] (pcf)	Moisture Content[4] (%)	Compaction Curve[5] (pcf)	Relative Compaction[6] (%)	Remarks
001	5/1/2007	See Fig. 3	Fill/Treated	9	95.0	15.5	01-03	84	Fail/Soft Subgrade
002	5/2/2007	See Fig. 3	Fill/Treated	10	100.1	15.7	01-03	88	Fail/Soft Subgrade
003	5/2/2007	See Fig. 3	Fill/Treated	6	102.3	14.2	01-03	90	Pass
004	5/2/2007	See Fig. 3	Fill/Treated	6	101.1	15.0	C5C0	90	Pass
005	5/2/2007	See Fig. 3	Fill/Treated	6	103.2	16.1	01-03	91	Pass
006	5/2/2007	See Fig. 3	Fill/Treated	6	101.1	15.6	C5C0	90	Pass
007	5/2/2007	See Fig. 3	Fill/Treated	6	104.4	15.4	01-03	93	Pass
008	5/3/2007	See Fig. 3	Fill/Treated	11	109.9	14.3	C302C0	96	Pass
009	5/3/2007	See Fig. 3	Fill/Treated	12.5	106.0	17.5	C302C0	92	Pass
010	5/3/2007	See Fig. 3	Fill/Treated	10	103.7	13.2	C302C0	90	Pass
011	5/3/2007	See Fig. 3	Fill/Treated	11.5	102.5	14.3	01-03	91	Pass
012	5/3/2007	See Fig. 3	Fill/Treated	9	101.9	15.4	01-03	90	Pass
013	5/3/2007	See Fig. 3	Fill/Treated	9	104.4	15.5	01-03	92	Pass
014	5/3/2007	See Fig. 3	Fill/Treated	10	105.6	15.5	01-03	93	Pass
015	5/4/2007	See Fig. 3	Fill/Treated	9	106.3	18.4	C302C0	93	Pass
016	5/4/2007	See Fig. 3	Fill/Treated	7	108.6	18.8	C302C0	95	Pass
017	5/4/2007	See Fig. 3	Fill/Treated	6	104.9	17.8	C302C0	91	Pass
018	5/4/2007	See Fig. 3	Fill/Treated	6	107.0	19.3	C302C0	93	Pass
019	5/4/2007	See Fig. 3	Fill/Treated	10	113.2	17.2	C302C0	99	Pass
020	5/4/2007	See Fig. 3	Fill/Treated	9	107.0	17.2	C302C0	93	Pass
021	5/4/2007	See Fig. 3	Fill/Treated	8.5	110.3	17.8	C302C0	96	Pass
022	5/4/2007	See Fig. 3	Fill/Treated	8.5	112.3	17.2	C302C0	98	Pass
023	5/4/2007	See Fig. 3	Fill/Treated	10	106.0	18.1	C302C0	92	Pass
024	5/4/2007	See Fig. 3	Fill/Treated	10.5	104.8	15.6	C302C0	91	Pass
025	5/5/2007	See Fig. 3	Fill/Treated	6.5	104.0	18.3	C302C0	91	Pass
026	5/5/2007	See Fig. 3	Fill/Treated	7	106.0	17.0	C302C0	92	Pass
027	5/5/2007	See Fig. 3	Fill/Treated	8	109.4	19.4	C302C0	95	Pass
028	5/5/2007	See Fig. 3	Fill/Treated	8.5	109.2	18.8	C302C0	95	Pass
029	5/5/2007	See Fig. 3	Fill/Treated	8	104.3	17.5	C302C0	91	Pass
030	5/5/2007	See Fig. 3	Fill/Treated	8	109.2	17.7	C302C0	95	Pass
031	5/5/2007	See Fig. 3	Fill/Treated	8	108.8	19.0	C302C0	95	Pass
032	5/5/2007	See Fig. 3	Fill/Treated	8	105.4	17.8	C302C0	92	Pass
033	5/5/2007	See Fig. 3	Fill/Treated	8	106.7	18.5	C302C0	93	Pass
034	5/5/2007	See Fig. 3	Fill/Treated	8	104.3	16.9	C302C0	91	Pass
035	5/5/2007	See Fig. 3	Fill/Treated	8	107.3	16.4	C302C0	93	Pass
036	5/5/2007	See Fig. 3	Fill/Treated	7	104.2	17.4	C302C0	91	Pass
037	5/7/2007	See Fig. 4	Fill/Treated	7	105.4	16.7	C302C0	92	Pass
038	5/7/2007	See Fig. 4	Fill/Treated	7	109.5	16.2	C1/4C0	91	Pass
039	5/7/2007	See Fig. 4	Fill/Treated	7	106.3	16.5	C302C0	93	Pass
040	5/7/2007	See Fig. 4	Fill/Treated	7	105.1	17.0	C302C0	91	Pass
041	5/7/2007	See Fig. 4	Fill/Treated	6	110.6	17.0	C1/4C0	92	Pass
042	5/7/2007	See Fig. 4	Fill/Treated	6	109.3	18.3	C1/4C0	91	Pass
043	5/7/2007	See Fig. 4	Fill/Treated	6	106.7	16.9	C302C0	93	Pass
044	5/7/2007	See Fig. 4	Fill/Treated	6	106.5	15.1	C302C0	93	Pass
045	5/7/2007	See Fig. 4	Fill/Treated	6	104.4	17.4	C302C0	91	Pass
046	5/7/2007	See Fig. 4	Fill/Treated	6	105.3	18.0	C302C0	92	Pass
047	5/7/2007	See Fig. 4	Fill/Treated	6	110.6	15.1	C1/4C0	92	Pass
048	5/7/2007	See Fig. 4	Fill/Treated	6	108.9	16.8	C1/4C0	91	Pass

Test No.	Date	Location[1]	Earthwork Type/Material[2]	Approx. Depth Below Ground Surface (ft)	Dry Density[3] (pcf)	Moisture Content[4] (%)	Compaction Curve[5] (pcf)	Relative Compaction[6] (%)	Remarks
049	5/7/2007	See Fig. 4	Fill/Treated	6	105.4	18.2	C302C0	92	Pass
050	5/7/2007	See Fig. 4	Fill/Treated	6	113.8	17.8	C1/4C0	95	Pass
051	5/7/2007	See Fig. 4	Fill/Treated	6	109.1	16.9	C302C0	95	Pass
052	5/7/2007	See Fig. 4	Fill/Treated	6	102.7	19.0	C5C0	91	Pass
053	5/7/2007	See Fig. 4	Fill/Treated	6	105.1	18.2	C302C0	91	Pass
054	5/9/2007	See Fig. 4	Fill/Treated	5	101.9	17.0	C302C0	89	Fail, See Retest 54A
055	5/9/2007	See Fig. 4	Fill/Treated	5	109.0	17.4	C302C0	95	Pass
056	5/9/2007	See Fig. 4	Fill/Treated	5	107.7	18.0	C302C0	94	Pass
057	5/9/2007	See Fig. 4	Fill/Treated	5	107.1	16.3	C302C0	93	Pass
058	5/9/2007	See Fig. 4	Fill/Treated	5	106.6	18.2	C302C0	93	Pass
059	5/9/2007	See Fig. 4	Fill/Treated	5.5	104.3	16.5	C302C0	91	Pass
060	5/9/2007	See Fig. 4	Fill/Treated	6	107.6	16.6	C302C0	94	Pass
061	5/9/2007	See Fig. 4	Fill/Treated	5	106.9	13.5	C302C0	93	Pass
062	5/9/2007	See Fig. 4	Fill/Treated	5	114.5	16.6	C1/4C0	95	Pass
54A	5/9/2007	See Fig. 4	Fill/Treated	5	107.1	17.2	C302C0	93	Pass
063	5/10/2007	See Fig. 4	Fill/Treated	4.5	106.2	18.5	C302C0	92	Pass
064	5/10/2007	See Fig. 4	Fill/Treated	4.5	112.8	15.8	C1/4C0	94	Pass
065	5/10/2007	See Fig. 4	Fill/Treated	4.5	106.3	17.0	C302C0	93	Pass
066	5/10/2007	See Fig. 4	Fill/Treated	5	108.3	16.4	C302C0	94	Pass
067	5/10/2007	See Fig. 4	Fill/Treated	5	114.2	16.6	C1/4C0	95	Pass
068	5/10/2007	See Fig. 4	Fill/Treated	4.5	109.5	14.9	C302C0	95	Pass
069	5/10/2007	See Fig. 4	Fill/Treated	4.5	109.5	16.1	C302C0	95	Pass
070	5/10/2007	See Fig. 4	Fill/Treated	4.5	112.3	15.8	C1/4C0	93	Pass
071	5/10/2007	See Fig. 4	Fill/Treated	4.5	111.5	15.6	C1/4C0	93	Pass
072	5/10/2007	See Fig. 4	Fill/Treated	4.5	113.1	14.8	C1/4C0	94	Pass
073	5/10/2007	See Fig. 4	Fill/Treated	4.5	108.1	15.6	C302C0	94	Pass
074	5/10/2007	See Fig. 4	Fill/Treated	4.5	109.7	16.1	C302C0	95	Pass
075	5/10/2007	See Fig. 4	Fill/Treated	4.5	108.3	16.9	C302C0	94	Pass
076	5/11/2007	See Fig. 5	Fill/Treated	4	111.4	14.1	C1/4C0	93	Pass
077	5/11/2007	See Fig. 5	Fill/Treated	4	106.3	18.2	C302C0	93	Pass
078	5/11/2007	See Fig. 5	Fill/Treated	4	107.4	17.8	C302C0	93	Pass
079	5/11/2007	See Fig. 5	Fill/Treated	4	105.1	16.3	C302C0	91	Pass
080	5/11/2007	See Fig. 5	Fill/Treated	4	106.1	16.6	C302C0	92	Pass
081	5/11/2007	See Fig. 5	Fill/Treated	4.5	103.8	18.4	C302C0	90	Fail, See Retest 81A
81A	5/11/2007	See Fig. 5	Fill/Treated	4.5	105.0	18.4	C302C0	91	Pass
082	5/11/2007	See Fig. 5	Fill/Treated	4.5	109.4	14.7	C302C0	95	Pass
083	5/11/2007	See Fig. 5	Fill/Treated	4	113.0	15.1	C1/4C0	94	Pass
084	5/11/2007	See Fig. 5	Fill/Treated	4	111.3	15.5	C1/4C0	93	Pass
085	5/11/2007	See Fig. 5	Fill/Treated	4.5	101.1	13.6	C302C0	88	Fail, See Retest 85A
086	5/11/2007	See Fig. 5	Fill/Treated	4	109.1	15.6	C302C0	95	Pass
087	5/11/2007	See Fig. 5	Fill/Treated	4	104.1	15.0	C302C0	91	Pass
088	5/11/2007	See Fig. 5	Fill/Treated	4	106.1	15.9	C302C0	92	Pass
089	5/11/2007	See Fig. 5	Fill/Treated	3.5	105.5	16.1	C302C0	92	Pass
090	5/11/2007	See Fig. 5	Fill/Treated	3.5	106.3	17.5	C302C0	93	Pass
091	5/11/2007	See Fig. 5	Fill/Treated	3.5	104.4	15.1	C302C0	91	Pass
092	5/11/2007	See Fig. 5	Fill/Treated	4	111.9	16.3	C1/4C0	93	Pass
093	5/11/2007	See Fig. 5	Fill/Treated	4	115.6	16.2	C1/4C0	96	Pass
85A	5/11/2007	See Fig. 5	Fill/Treated	5.5	105.2	16.1	C302C0	92	Pass
094	5/11/2007	See Fig. 5	Fill/Treated	4	117.2	17.8	C1/4C0	97	Pass
095	5/11/2007	See Fig. 5	Fill/Treated	4.5	105.1	16.4	C302C0	91	Pass

Test No.	Date	Location[1]	Earthwork Type/Material[2]	Approx. Depth Below Ground Surface (ft)	Dry Density[3] (pcf)	Moisture Content[4] (%)	Compaction Curve[5] (pcf)	Relative Compaction[6] (%)	Remarks
096	5/14/2007	See Fig. 5	Fill/Overburden	3	117.4	16.7	C1/4C0	98	Pass
097	5/14/2007	See Fig. 5	Fill/Overburden	3	110.3	16.8	C302C0	96	Pass
098	5/14/2007	See Fig. 5	Fill/Overburden	3	112.8	16.1	C1/4C0	94	Pass
099	5/14/2007	See Fig. 5	Fill/Overburden	3	106.5	16.3	C302C0	93	Pass
100	5/14/2007	See Fig. 5	Fill/Overburden	3	109.6	16.3	C302C0	95	Pass
101	5/14/2007	See Fig. 5	Fill/Overburden	3	113.9	16.1	C302C0	99	Pass
102	5/14/2007	See Fig. 5	Fill/Overburden	3	109.4	15.7	C302C0	95	Pass
103	5/14/2007	See Fig. 5	Fill/Overburden	3	111.7	16.7	C1/4C0	93	Pass
104	5/14/2007	See Fig. 5	Fill/Overburden	3	112.3	17.3	C1/4C0	93	Pass
105	5/14/2007	See Fig. 5	Fill/Overburden	3	109.0	18.8	C302C0	95	Pass
106	5/14/2007	See Fig. 5	Fill/Overburden	3	107.1	15.2	C302C0	93	Pass
107	5/14/2007	See Fig. 5	Fill/Overburden	3	110.4	15.9	C302C0	96	Pass
108	5/14/2007	See Fig. 5	Fill/Overburden	3	111.4	17.7	C302C0	97	Pass
109	5/14/2007	See Fig. 5	Fill/Overburden	3	104.9	18.5	C302C0	91	Pass
110	5/14/2007	See Fig. 5	Fill/Overburden	3	105.8	17.2	C302C0	92	Pass
111	5/14/2007	See Fig. 5	Fill/Overburden	3	106.3	16.4	C302C0	93	Pass
112	5/14/2007	See Fig. 5	Fill/Overburden	3	113.9	17.9	C1/4C0	95	Pass
113	5/14/2007	See Fig. 5	Fill/Overburden	3	113.1	15.1	C1/4C0	94	Pass
114	5/14/2007	See Fig. 5	Fill/Overburden	3	104.8	17.3	C302C0	91	Pass
115	5/15/2007	See Fig. 6	Fill/Overburden	2	104.9	17.6	C302C0	91	Pass
116	5/15/2007	See Fig. 6	Fill/Overburden	2	113.2	17.1	C1/4C0	94	Pass
117	5/15/2007	See Fig. 6	Fill/Overburden	2	105.9	18.7	C302C0	92	Pass
118	5/15/2007	See Fig. 6	Fill/Overburden	2	108.2	18.0	C302C0	94	Pass
119	5/15/2007	See Fig. 6	Fill/Overburden	2	108.5	16.5	C302C0	94	Pass
120	5/15/2007	See Fig. 6	Fill/Overburden	2	106.6	17.0	C302C0	93	Pass
121	5/15/2007	See Fig. 6	Fill/Overburden	2	114.7	13.8	C1/4C0	95	Pass
122	5/15/2007	See Fig. 6	Fill/Overburden	2	117.6	16.3	C1/4C0	98	Pass
123	5/15/2007	See Fig. 6	Fill/Overburden	2	108.1	14.4	C302C0	94	Pass
124	5/15/2007	See Fig. 6	Fill/Overburden	2	104.0	17.4	C302C0	91	Pass
125	5/15/2007	See Fig. 6	Fill/Overburden	2	106.6	16.3	C302C0	93	Pass
126	5/15/2007	See Fig. 6	Fill/Overburden	2	116.8	14.1	C1/4C0	97	Pass
127	5/15/2007	See Fig. 6	Fill/Overburden	2	116.1	16.5	C1/4C0	97	Pass
128	5/15/2007	See Fig. 6	Fill/Overburden	2	111.4	16.7	C1/4C0	93	Pass
129	5/15/2007	See Fig. 6	Fill/Overburden	2	104.7	13.1	C302C0	91	Pass
130	5/15/2007	See Fig. 6	Fill/Overburden	2	106.8	16.0	C302C0	93	Pass
131	5/16/2007	See Fig. 7	Fill/Overburden	1.5	116.8	11.5	BC2/7/8C0	96	Pass
132	5/16/2007	See Fig. 7	Fill/Overburden	1.5	115.7	13.7	BC2/7/8C0	95	Pass
133	5/16/2007	See Fig. 7	Fill/Overburden	1.5	116.7	13.1	BC2/7/8C0	96	Pass
134	5/16/2007	See Fig. 7	Fill/Overburden	1.5	115.9	11.3	BC2/7/8C0	95	Pass
135	5/16/2007	See Fig. 7	Fill/Overburden	1.5	117.6	13.8	BC2/7/8C0	96	Pass
136	5/16/2007	See Fig. 7	Fill/Overburden	1.5	117.7	13.3	BC2/7/8C0	96	Pass
137	5/16/2007	See Fig. 7	Fill/Overburden	1.5	122.0	12.5	BC6C0	98	Pass
138	5/17/2007	See Fig. 7	Fill/Overburden	1	117.7	13.9	BC2/7/8C0	96	Pass
139	5/17/2007	See Fig. 7	Fill/Overburden	1	121.6	12.6	BC6C0	97	Pass
140	5/17/2007	See Fig. 7	Fill/Overburden	1	118.8	14.2	BC2/7/8C0	97	Pass
141	5/17/2007	See Fig. 7	Fill/Overburden	1	116.6	14.2	BC2/7/8C0	95	Pass
142	5/17/2007	See Fig. 7	Fill/Overburden	1	118.3	14.3	BC2/7/8C0	97	Pass
143	5/17/2007	See Fig. 7	Fill/Overburden	1	117.7	13.1	BC2/7/8C0	96	Pass
144	5/17/2007	See Fig. 7	Fill/Overburden	1	117.7	12.7	BC2/7/8C0	96	Pass
145	5/17/2007	See Fig. 7	Fill/Overburden	1	121.6	12.0	BC6C0	97	Pass
146	5/17/2007	See Fig. 7	Fill/Overburden	1	122.0	12.1	BC6C0	98	Pass
147	5/17/2007	See Fig. 7	Fill/Overburden	1	119.8	12.9	BC2/7/8C0	98	Pass

Test No.	Date	Location[1]	Earthwork Type[2]	Approx. Depth Below Ground Surface (ft)	Dry Density[3] (pcf)	Moisture Content[4] (%)	Compaction Curve[5] (pcf)	Relative Compaction[6] (%)	Remarks
148	5/17/2007	See Fig. 7	Fill/Overburden	1	121.1	11.2	BC2/7/8C0	99	Pass
149	5/24/2007	See Fig. 8	Fill/Import	0	139.0	11.5	3" Minus	97	Pass
150	5/24/2007	See Fig. 8	Fill/Import	0	138.2	10.4	3" Minus	97	Pass
151	5/24/2007	See Fig. 8	Fill/Import	0	136.1	10.9	3" Minus	95	Pass
152	5/24/2007	See Fig. 8	Fill/Import	0	136.7	11.0	3" Minus	96	Pass
153	5/24/2007	See Fig. 8	Fill/Import	0	139.8	10.8	3" Minus	98	Pass
154	5/24/2007	See Fig. 8	Fill/Import	0	136.4	13.2	3" Minus	95	Pass
155	5/24/2007	See Fig. 8	Fill/Import	0	137.7	12.4	3" Minus	96	Pass
156	5/30/2007	See Fig. 8	Fill/Import	0	143.5	10.6	3" Minus	100	Pass
157	5/30/2007	See Fig. 8	Fill/Import	0	135.5	8.1	3" Minus	95	Pass
158	5/30/2007	See Fig. 8	Fill/Import	0	139.4	9.9	3" Minus	98	Pass
159	5/30/2007	See Fig. 8	Fill/Import	0	136.4	10.9	3" Minus	95	Pass
180	5/30/2007	See Fig. 8	Fill/Import	0	133.3	11.7	3" Minus	93	<95% but >90%/Located above fire line
161	5/30/2007	See Fig. 8	Fill/Import	0	134.6	10.3	3" Minus	94	<95% but >90%/Located above fire line
162	5/30/2007	See Fig. 8	Fill/Import	0	146.2	11.8	3" Minus	102	Pass
163	5/30/2007	See Fig. 8	Fill/Import	0	135.0	9.2	3" Minus	94	Pass

[1] Approximate compaction test locations are shown in Figures 3 - 8

[2] Treated = Treated soil admixed with quick lime; Overburden = Untreated Soil admixed with quick lime or no lime; Import = 3" Minus Black imported materials from Syar Industries Lake Herman Quarry

[3] Based on nuclear gauge readings, ASTM D2922

[4] Based on nuclear gauge readings, ASTM D3017

[5] See Table 1 for laboratory test data for individual samples

[6] Dry Density as determined by ASTM D2922 divided by maximum dry density as determined by ASTM D1557 in percent

ERRG

Figures

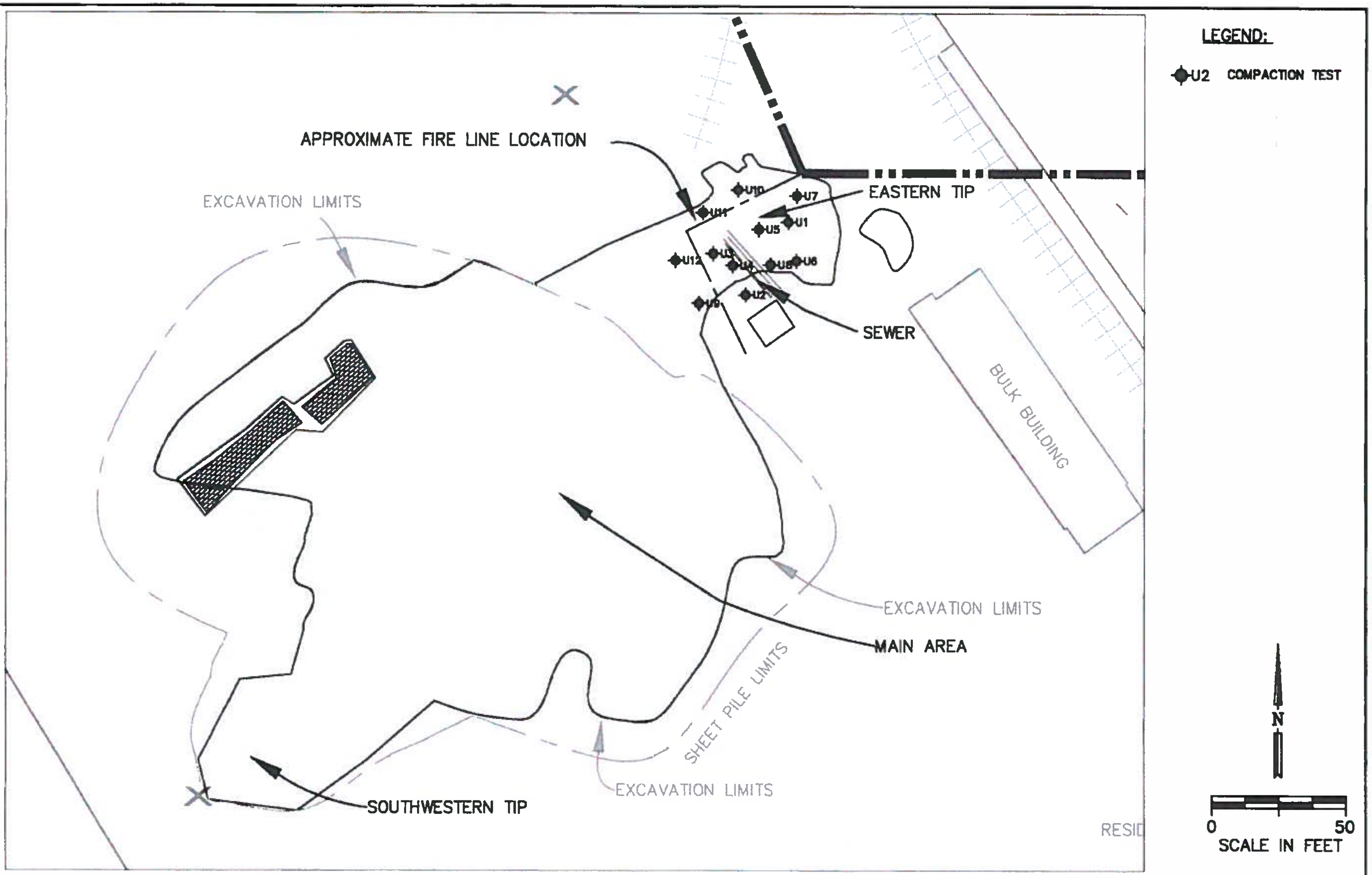
★ Site Location

Approximate Facility Boundary

ERRG
ENGINEERING/REMEDIATION RESOURCES GROUP, INC.
185 Mason Circle, Suite A
Concord, CA 94520
(925) 969-0750

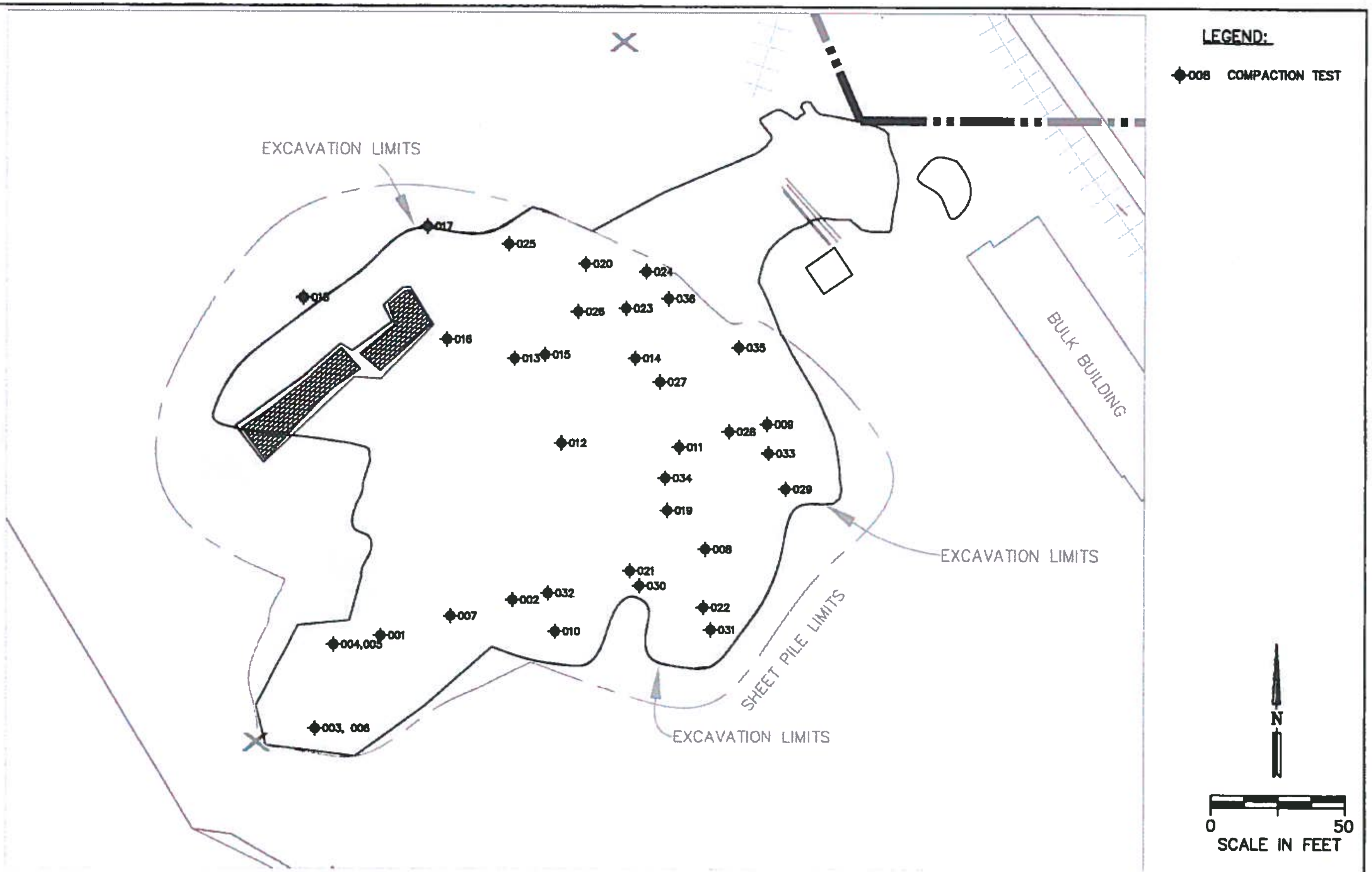
CLIENT: FORMER GENERAL MILLS FACILITY	DRAWN BY: J.M. 1/18/06	SITE LOCATION MAP	
	DESIGNED BY: R.K. 1/18/06		
LOCATION: 800 DERR STREET VALLEJO, CA	CHECKED BY: x.x. 1/18/06	ERRG PROJECT NO.: 26-001	SHEET: 1 OF: 1 FIGURE NO. 1

-06 P:\2006_Projects\26-001_Malcolm_Pirnie_Vallejo_Excavation\Drawings\Forme l Mills Facility.mxd ERRG-Concord Jeremy Miller



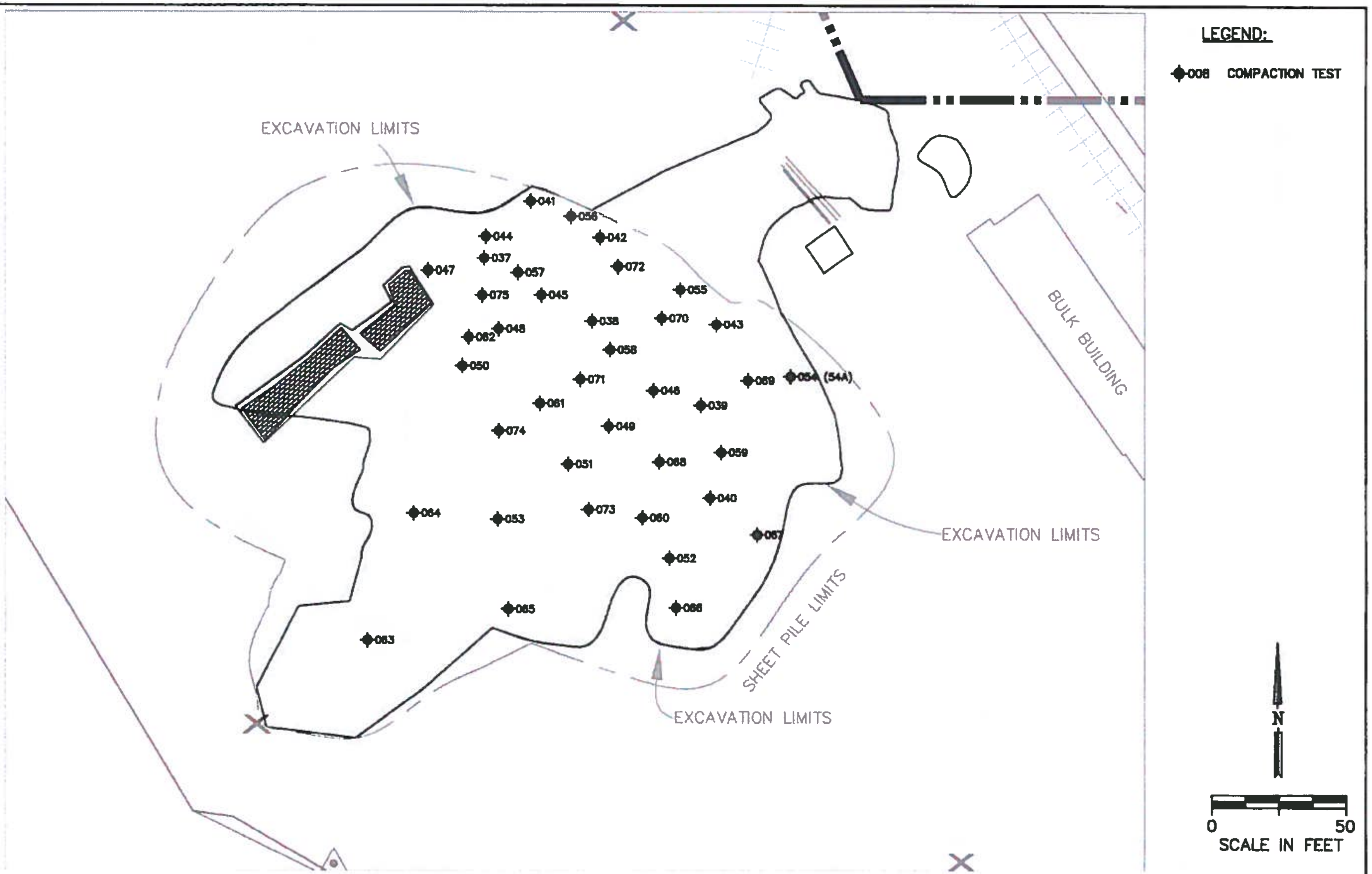
DESIGNED BY: PDL 06/06/07	ERRG Engineering/Remediation Resources Group, Inc. 185 Mason Circle, Suite A Concord, California 94520 (925) 969-0750	COMPACTION TEST LOCATIONS 01/10/07 – 01/12/07
CHECKED BY: DT 06/08/07		LOCATION: Former General Mills Facility Vallejo, CA — ERRG PROJECT NO. 26-150
P.E./P.G.:		CLIENT: Malcolm Pirnie, Inc. — FIG NO. 2
REVISION DATE:		

P:\2006_Projects\26-150_Malcolm_Pirnie_General_Mills\N Map & Drawings\GM_Fireline_tests.dwg



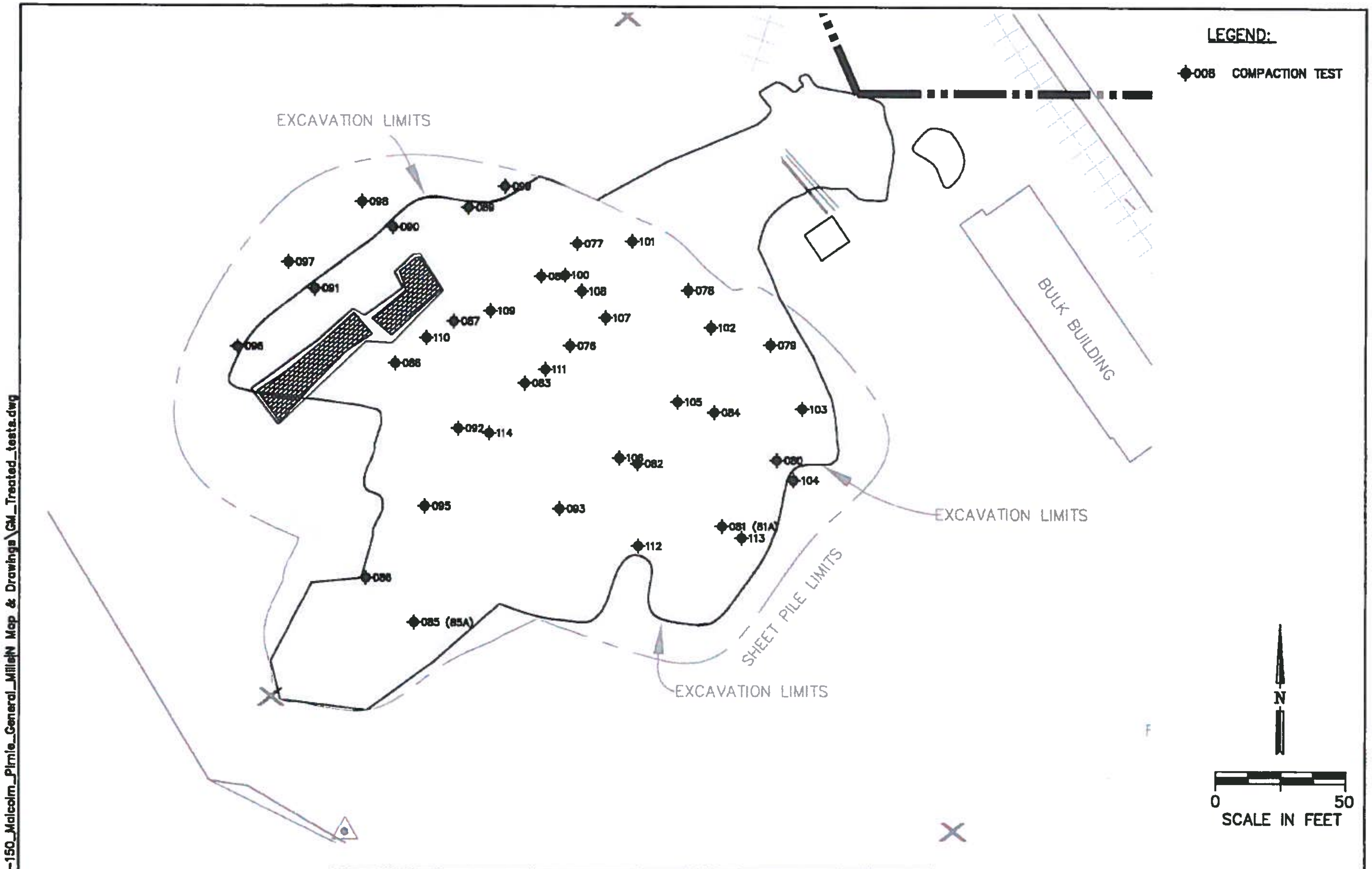
DESIGNED BY: PDL 06/06/07 CHECKED BY: DT 06/08/07 P.E./P.G.: DT 06/08/07 REVISION DATE:	ERRG Engineering/Remediation Resources Group, Inc. 185 Mason Circle, Suite A Concord, California 94520 (925) 969-0750	COMPACTION TEST LOCATIONS 05/01/07–05/05/07 (8'–15' below ground surface) LOCATION: Former General Mills Facility, Vallejo, CA ERRG PROJECT NO. 26-150 CLIENT: Malcolm Pirnie, Inc. FIG NO. 3

P:\2006_Projects\26-150_Malcolm_Pirnie_General_Mills\N Map & Drawings\GM_Treated_tests.dwg



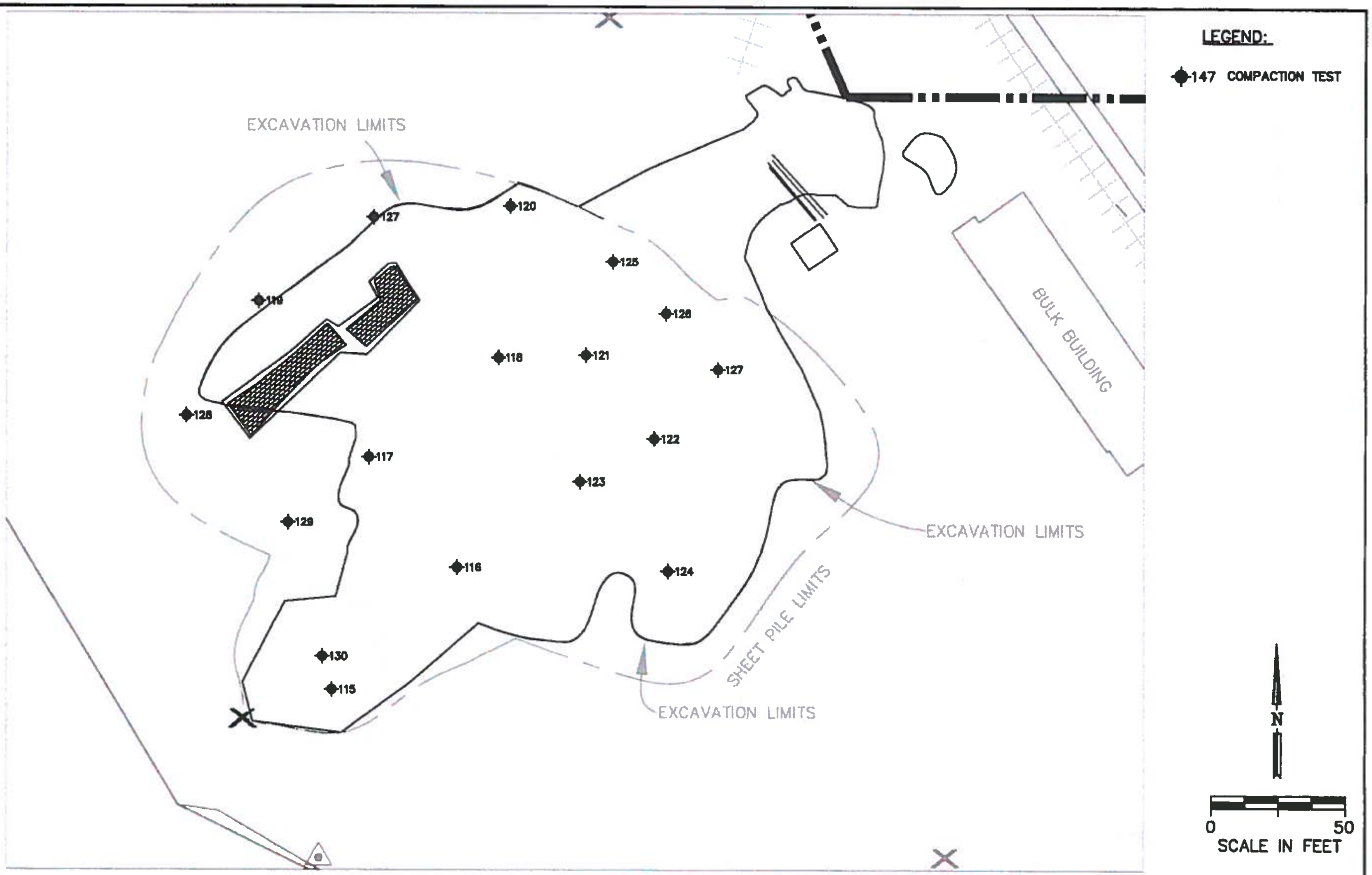
DESIGNED BY: PDL 06/06/07	ERRG Engineering/Remediation Resources Group, Inc. 185 Mason Circle, Suite A Concord, California 94520 (925) 969-0750	COMPACTION TEST LOCATIONS 05/07/07–05/10/07 (5'–8' below ground surface)	
CHECKED BY: DT 06/08/07		LOCATION: Former General Mills Facility Vallejo, CA	ERRG PROJECT NO. 26-150
P.E./P.G.: DT 06/08/07		CLIENT: Malcolm Pirnie, Inc.	FIG NO. 4
REVISION DATE:			

P:\2006_Projects\26-150_Malcolm_Pirnie_General_Mills\N Map & Drawings\GM_Treated_tests.dwg



DESIGNED BY: PDL 06/06/07	**Engineering/Remediation Resources Group, Inc.** 185 Mason Circle, Suite A, Concord, California 94520, (925) 969-0750	COMPACTION TEST LOCATIONS 05/11/07–05/14/07 (3'–5' below ground surface)
CHECKED BY: DT 06/08/07	ERRG	LOCATION: Former General Mills Facility, Vallejo, CA — ERRG PROJECT NO. 26-150
P.E./P.G.: DT 06/08/07		CLIENT: Malcolm Pirnie, Inc. — FIG NO. 5
REVISION DATE:		

P:\2008_Projects\26-150_Malcolm_Pirnie_General_Mills\N Map & Drawings\GM_Treated_tests.dwg



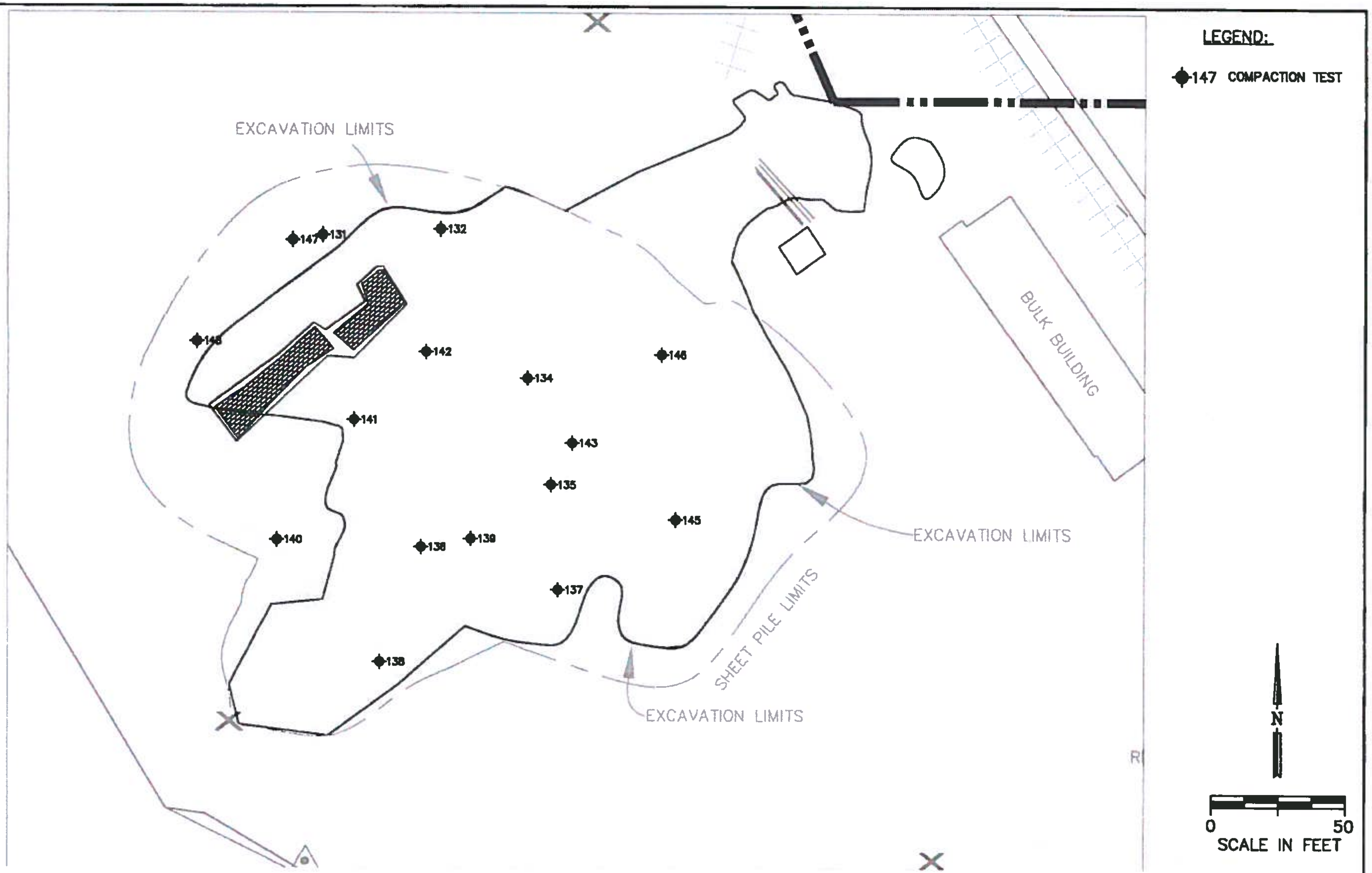
P:\2006_Projects\26-150_Malcolm_Pirnie_General_Mills\N Map & Drawings\GM_Berm_tests.dwg

DESIGNED BY:	PDL 06/06/07
CHECKED BY:	DT 06/08/07
P.E/P.G.:	
REVISION DATE:	

ERRG
Engineering/Remediation Resources Group, Inc.
185 Mason Circle, Suite A
Concord, California 94520
(925) 969-0750

COMPACTION TEST LOCATIONS 05/15/07
(2'–3' below ground surface)

LOCATION:	Former General Mills Facility Vallejo, CA	ERRG PROJECT NO.	26-150
CLIENT:	Malcolm Pirnie, Inc.	FIG NO.	6



P:\2006_Projects\26-150_Malcolm_Pirnie_General_Mills\N Map & Drawings\GM_Berm_tests.dwg

DESIGNED BY: PDL 06/06/07	
CHECKED BY: DT 06/08/07	
P.E./P.G.:	
REVISION DATE:	

ERRG
Engineering/Remediation Resources Group, Inc.
185 Mason Circle, Suite A
Concord, California 94520
(925) 969-0750

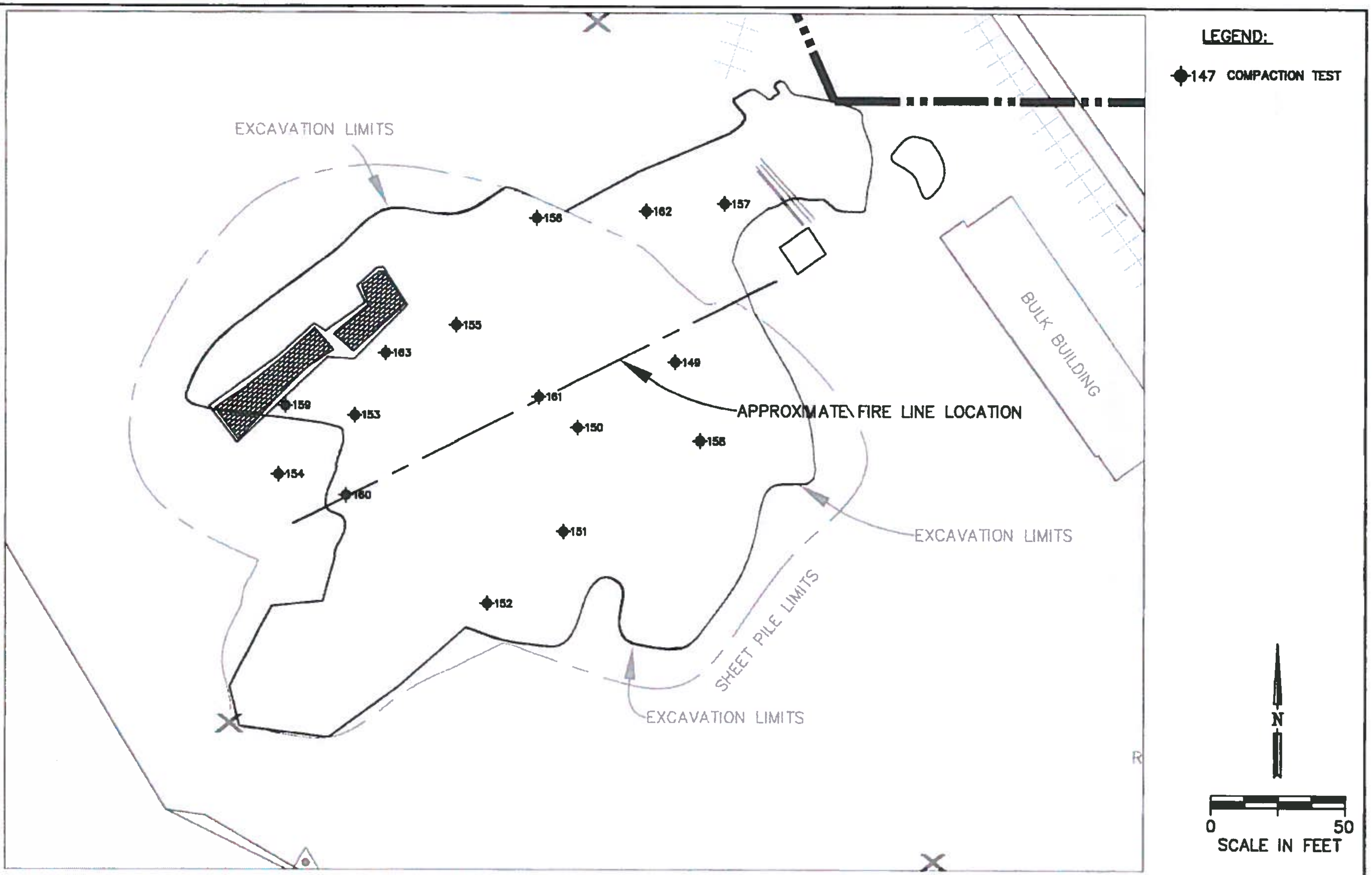
COMPACTION TEST LOCATIONS 05/16/07–05/17/07
(1'–2' below ground surface)

LOCATION: Former General Mills Facility, Vallejo, CA

ERRG PROJECT NO. 26-150

CLIENT: Malcolm Pirnie, Inc.

FIG NO. 7



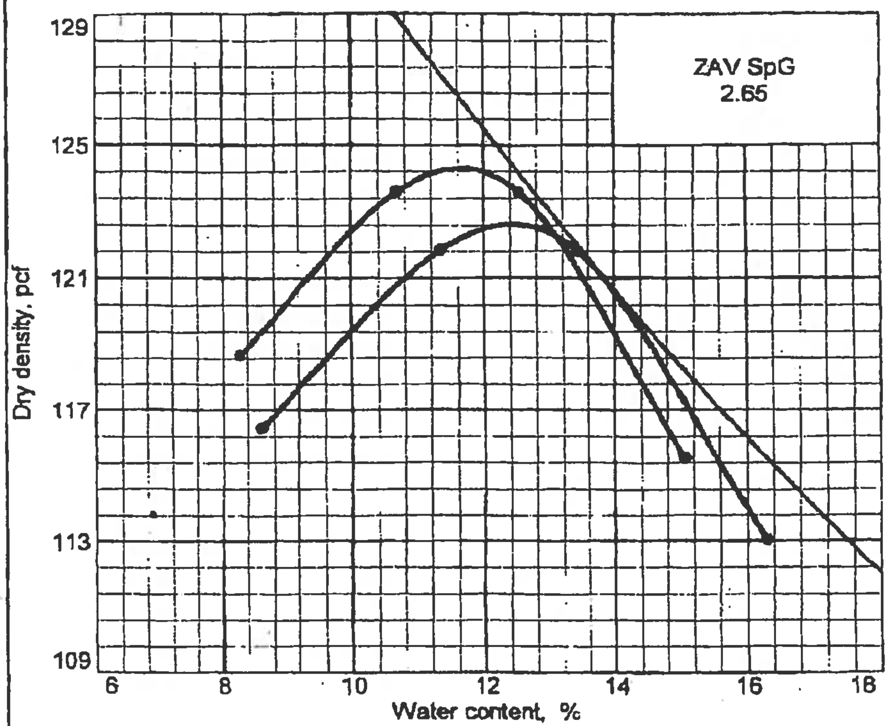
P:\2006_Projects\26-150_Malcolm_Pirnie_General_Mills\N Map & Drawings\GM_Import_tests.dwg

DESIGNED BY: PDL 06/06/07 CHECKED BY: DT 06/08/07 P.E/P.G.: DT 06/08/07 REVISION DATE:	ERRG Engineering/Remediation Resources Group, Inc. 185 Mason Circle, Suite A Concord, California 94520 (925) 969-0750	COMPACTION TEST LOCATIONS 05/24/07–05/30/07 (0'–1' below ground surface) LOCATION: Former General Mills Facility Vallejo, CA CLIENT: Malcolm Pirnie, Inc.	ERRG PROJECT NO. 26-150 FIG NO. 8

ERRG

Attachment A Laboratory Test Results

COMPACTION TEST REPORT



Curve No.
1

Test Specification:
ASTM D 1557-91 Procedure C Modified
Oversize correction applied to each point

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 56
Mold Size: .075 cu.ft.
Test Performed on Material Passing 3/4 in. **Sieve**

Soil Data

NM		Sp.G.	
LL		PI	
%>3/4 in.	11.7	%<#200	
USCS		AASHTO	

TESTING DATA

	1	2	3	4	5	6
WM + WS	4302.0	4615.0	4701.0	4473.0		
WM	0.0	0.0	0.0	0.0		
WW + T #1	4302.00	4615.00	4701.00	4473.00		
WD + T #1	3961.00	4145.00	4144.00	3846.00		
TARE #1	0.00	0.00	0.00	0.00		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	8.3	10.7	12.5	15.1		
DRY DENSITY	118.7	123.6	123.6	115.5		

ROCK CORRECTED TEST RESULTS	UNCORRECTED	Material Description
Maximum dry density = 124.3 pcf	122.6 pcf	OLIVE GRAY SANDY CLAY W/GRAVEL
Optimum moisture = 11.7 %	12.4 %	

Project No. 98566 **Client:** ERRG #26-150
Project: MP VALLEJO

● **Location:** STOCKPILE #1

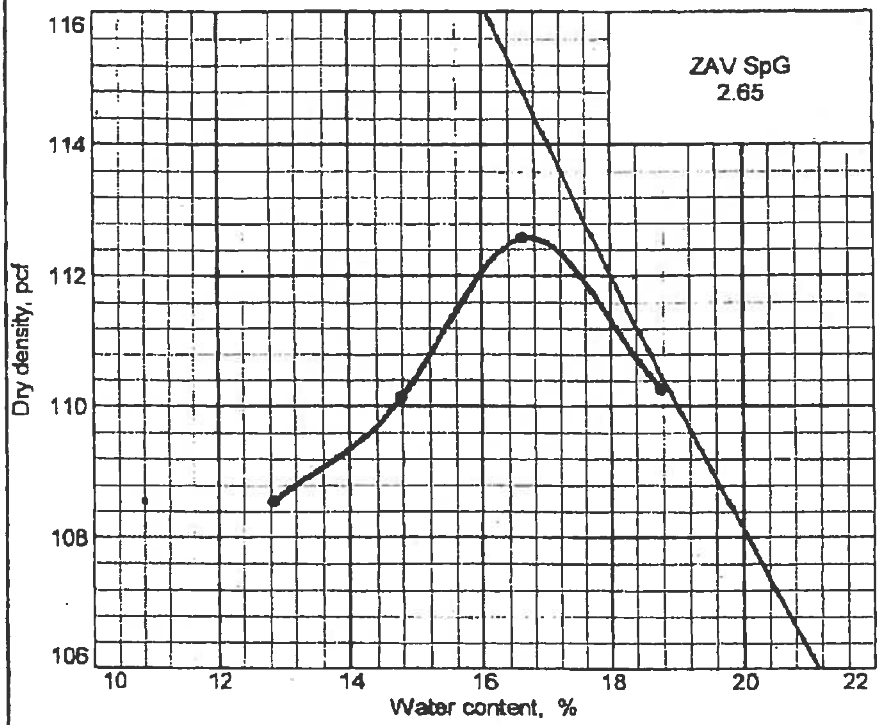
Remarks:
1-5-2007
CLIENT/AMc

COMPACTION TEST REPORT

CONSTRUCTION MATERIALS TESTING INC.

Plate

COMPACTION TEST REPORT



Curve No.
2

Test Specification:
ASTM D 1557-91 Procedure A Modified

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 25
Mold Size: .03333 cu.ft.

Test Performed on Material Passing No.4 **Sieve**

Soil Data

NM		Sp.G.	
LL		PI	
%>No.4		%<#200	
USCS		AASHTO	

TESTING DATA

	1	2	3	4	5	6
WM + WS	1911.0	1985.0	1980.0	1852.0		
WM	0.0	0.0	0.0	0.0		
WW + T #1	1911.00	1985.00	1980.00	1852.00		
WD + T #1	1665.00	1702.00	1667.00	1641.00		
TARE #1	0.00	0.00	0.00	0.00		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	14.8	16.6	18.8	12.9		
DRY DENSITY	110.1	112.6	110.3	108.5		

TEST RESULTS

Maximum dry density = 112.6 pcf

Optimum moisture = 16.7 %

Material Description

OLIVE CRUSHED CLAYSTONE

Project No. 98566 **Client:** ERRG #26-150

Project: MP VALLEJO

• **Location:** HEAD OF EXCAVATION

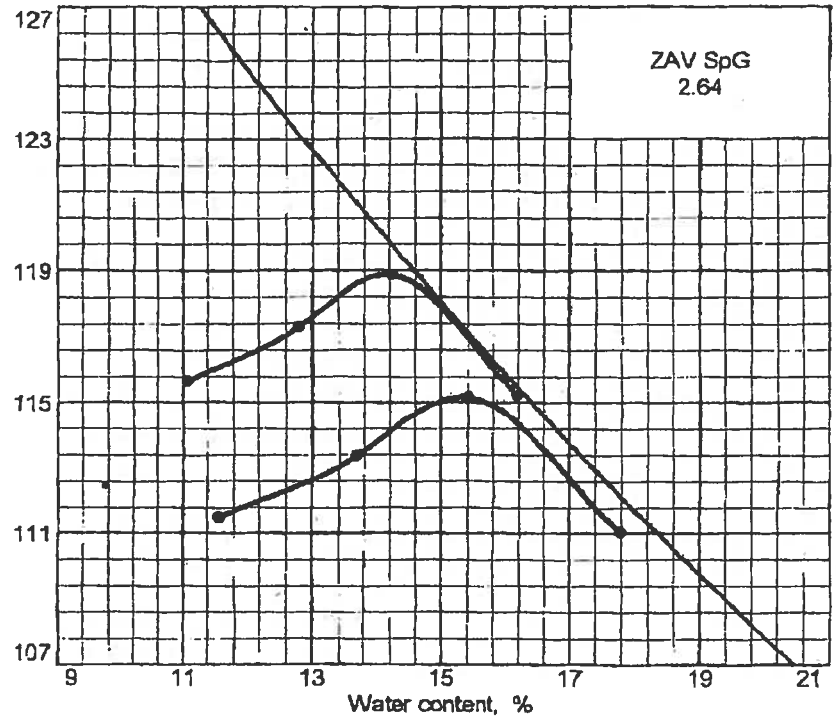
Remarks:
1-5-2007
CLIENT/JPM

COMPACTION TEST REPORT

CONSTRUCTION MATERIALS TESTING INC.

Plate

COMPACTION TEST REPORT



Curve No.
BC3CO

Test Specification:
ASTM D 1557-91 Procedure C Modified
Oversize correction applied to each point

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 56
Mold Size: .075 cu.ft.

Test Performed on Material Passing 3/4 in. **Sieve**

Soil Data

NM	21.9	Sp.G.	
LL		PI	
%>3/4 in.	17.7	%<#200	
USCS		AASHTO	

TESTING DATA

	1	2	3	4	5	6
WM + WS	4232.0	4385.0	4522.0	4449.0		
WM	0.0	0.0	0.0	0.0		
WW + T #1	4232.00	4385.00	4522.00	4449.00		
WD + T #1	3793.00	3857.00	3918.00	3777.00		
TARE #1	0.00	0.00	0.00	0.00		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	11.1	12.8	14.2	16.2		
DRY DENSITY	115.6	117.3	118.9	115.2		

ROCK CORRECTED TEST RESULTS	UNCORRECTED	Material Description
Maximum dry density = 118.9 pcf	115.2 pcf	DARK GRAY BROWN CLAYEY GRAVEL W/SAND
Optimum moisture = 14.2 %	15.3 %	

Project No. 98566 **Client:** ERRG #26-150.02.01
Project: MP VALLEJO

• **Location:** BC3C0

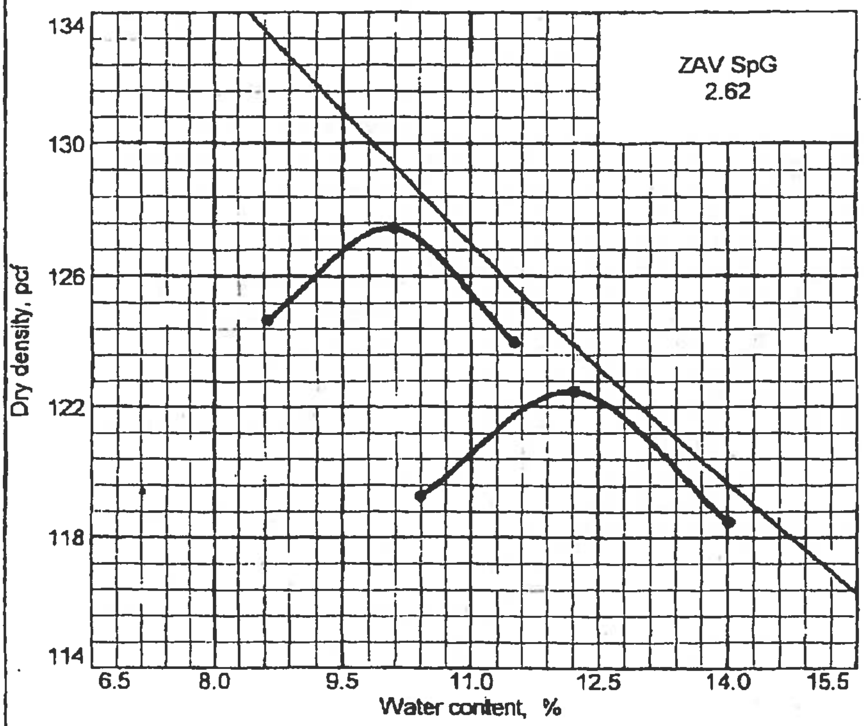
Remarks:
CLIENT/AMc,5-1-07,sampled 4-27-07

COMPACTION TEST REPORT

CONSTRUCTION MATERIALS TESTING INC.

Plate

COMPACTION TEST REPORT



Curve No.
BC4CO

Test Specification:
ASTM D 1557-91 Procedure C Modified
Oversize correction applied to each point

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 56
Mold Size: .075 cu.ft.
Test Performed on Material Passing 3/4 in. **Sieve**

Soil Data
NM 16.6 Sp.G. ____
LL ____ PI ____
%>3/4 in. 20.3 %<#200 ____
USCS ____ AASHTO ____

TESTING DATA

	1	2	3	4	5	6
WM + WS	4479.0	4675.0	4595.0			
WM	0.0	0.0	0.0			
WW + T #1	4479.00	4675.00	4595.00			
WD + T #1	4057.00	4166.00	4030.00			
TARE #1	0.00	0.00	0.00			
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	8.6	10.1	11.5			
DRY DENSITY	124.7	127.4	124.0			

ROCK CORRECTED TEST RESULTS	UNCORRECTED	Material Description
Maximum dry density = 127.5 pcf	122.5 pcf	DARK GRAY BROWN SILTY GRAVEL W/ SAND
Optimum moisture = 10.0 %	12.2 %	

Project No. 98566 **Client:** ERRG #26-150.02.01
Project: MP VALLEJO

• **Location:** BC4CO

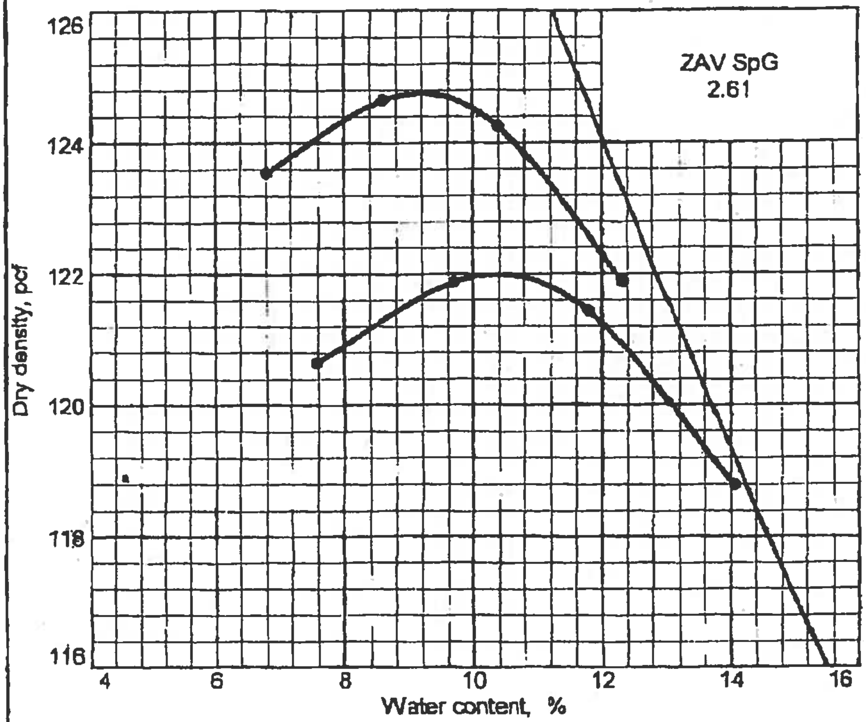
Remarks:
CLIENT/AMc,5-1-07,sampled 4-27-07.NOT ENOUGH MATERIAL FOR 4 POINTS

COMPACTION TEST REPORT

CONSTRUCTION MATERIALS TESTING INC.

Plate

COMPACTION TEST REPORT



Curve No.
Bc6co

Test Specification:
ASTM D 1557-91 Procedure C Modified
Oversize correction applied to each point

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 56
Mold Size: .075 cu.ft.
Test Performed on Material Passing 3/4 in. **Sieve**

Soil Data

NM 14.6 **Sp.G.** ____
LL ____ **PI** ____
%>3/4 in. 14.7 **%<#200** ____
USCS ____ **AASHTO** ____

TESTING DATA

	1	2	3	4	5	6
WM + WS	4415.0	4548.0	4618.0	4609.0		
WM	0.0	0.0	0.0	0.0		
WW + T #1	4415.00	4548.00	4618.00	4609.00		
WD + T #1	4104.00	4146.00	4131.00	4041.00		
TARE #1	0.00	0.00	0.00	0.00		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	6.8	8.6	10.4	12.3		
DRY DENSITY	123.5	124.6	124.2	121.9		

ROCK CORRECTED TEST RESULTS	UNCORRECTED	Material Description
Maximum dry density = 124.8 pcf	122.0 pcf	DARK GRAY BROWN CLAYEY GRAVEL W/SAND
Optimum moisture = 9.2 %	10.4 %	

Project No. 98566 **Client:** ERRG #26-150.02.01
Project: MP VALLEJO

• **Location:** BC6CO

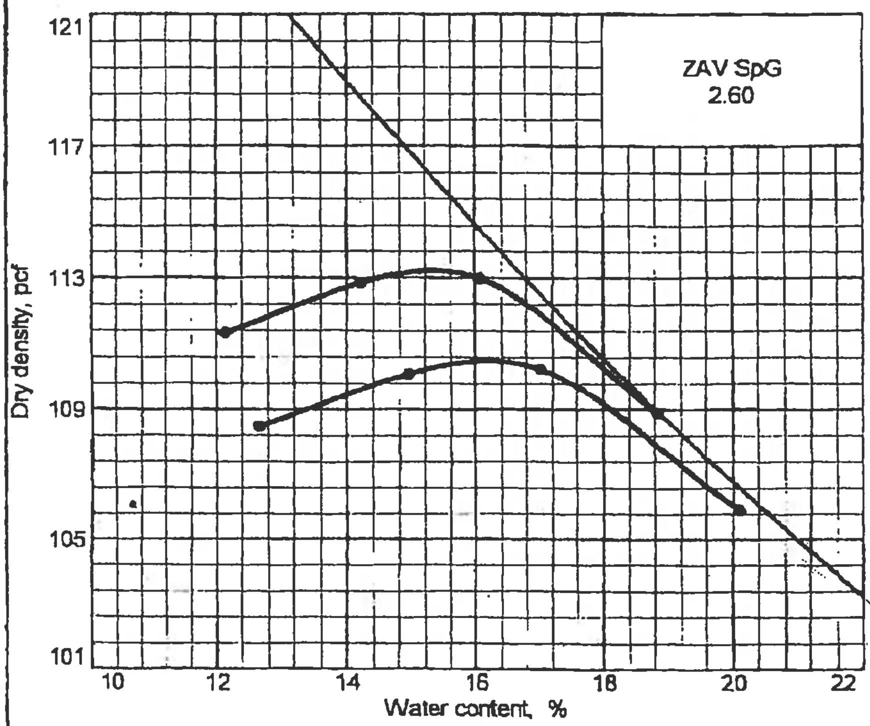
Remarks:
CLIENT/AMc,5-1-07,sampled 4-27-07

COMPACTION TEST REPORT

CONSTRUCTION MATERIALS TESTING INC.

Plate

COMPACTION TEST REPORT



Curve No.
01-03

Test Specification:
ASTM D 1557-91 Procedure C Modified
Oversize correction applied to each point

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 56
Mold Size: .075 cu.ft.
Test Performed on Material Passing 3/4 in. **Sieve**

Soil Data

NM	29.9	Sp.G.	
LL		PI	
%>3/4 in.	9.8	%<#200	
USCS		AASHTO	

TESTING DATA

	1	2	3	4	5	6
WM + WS	4157.0	4305.0	4388.0	4327.0		
WM	0.0	0.0	0.0	0.0		
WW + T #1	4157.00	4305.00	4388.00	4327.00		
WD + T #1	3690.00	3745.00	3750.00	3603.00		
TARE #1	0.00	0.00	0.00	0.00		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	12.1	14.2	16.1	18.9		
DRY DENSITY	111.3	112.8	113.0	108.9		

ROCK CORRECTED TEST RESULTS	UNCORRECTED	Material Description
Maximum dry density = 113.2 pcf	110.5 pcf	OLIVE GRAY SI GRAVEL W/SAND (4% LIME)
Optimum moisture = 15.3 %	16.2 %	

Project No. 98566 **Client:** ERRG #26-150.02.01
Project: MP VALLEJO

● **Location:** CELL 01 LEFT

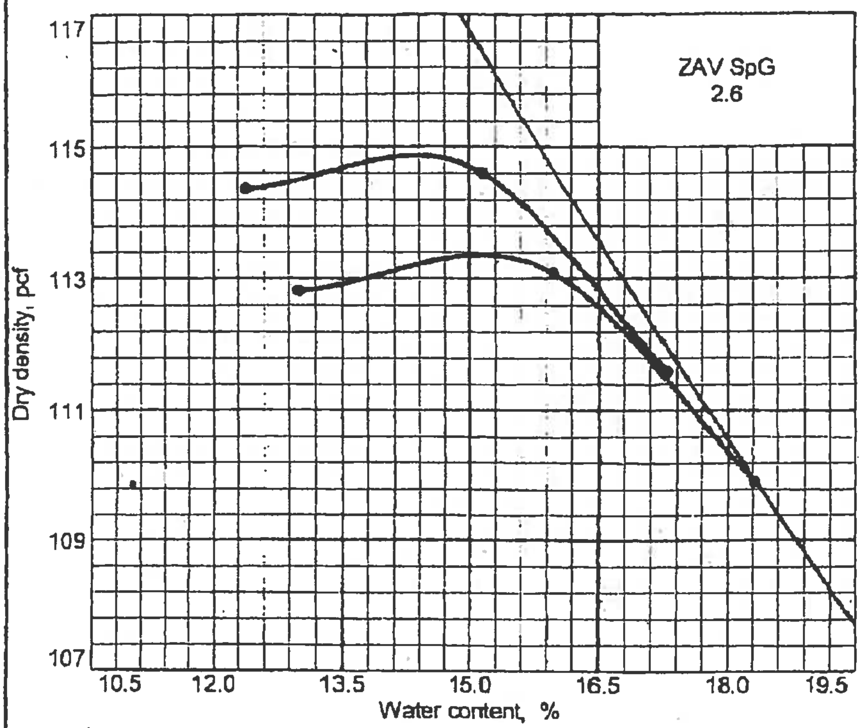
Remarks:
CLIENT/JPM,1-24-07,wet wt.sample 44, 566g.divided by 129.9%=34,308g.4% of 34, 308=1372g lime.MC after 24hr cure is 18.4%

COMPACTION TEST REPORT

CONSTRUCTION MATERIALS TESTING INC.

Plate

COMPACTION TEST REPORT



Curve No.
C302CO

Test Specification:
ASTM D 1557-91 Procedure C Modified
Oversize correction applied to each point

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 56
Mold Size: .075 cu.ft.
Test Performed on Material Passing 3/4 in. **Sieve**

Soil Data

NM ______ **Sp.G.** ______
LL ______ **PI** ______
%>3/4 in. 7.7 **%<#200** ______
USCS ______ **AASHTO** ______

TESTING DATA

	1	2	3	4	5	6
WM + WS	4337.0	4462.0	4424.0			
WM	0.0	0.0	0.0			
WW + T #1	4337.00	4462.00	4424.00			
WD + T #1	3838.00	3847.00	3739.00			
TARE #1	0.00	0.00	0.00			
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	12.4	15.1	17.3			
DRY DENSITY	114.4	114.6	111.6			

ROCK CORRECTED TEST RESULTS	UNCORRECTED	Material Description
Maximum dry density = 114.9 pcf	113.4 pcf	DARK GREY GRAVELLY SANDY SILT, LIME TREATED
Optimum moisture = 14.4 %	15.1 %	

Project No. 98566 **Client:** ERRG #26-150.02.01
Project: MP VALLEJO

• **Location:** C302CO

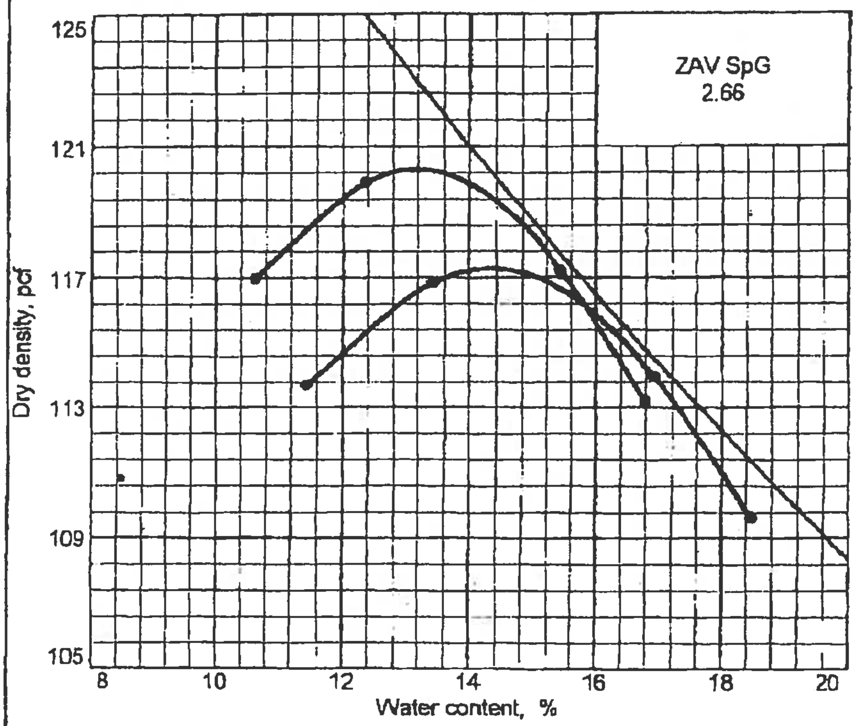
Remarks:
5-1-2007
CLIENT/AMc
2% LIME
NOT ENOUGH MATERIAL FOR 4 POINTS

COMPACTION TEST REPORT

CONSTRUCTION MATERIALS TESTING INC.

Plate

COMPACTION TEST REPORT



Curve No.
C1/4CO

Test Specification:
ASTM D 1557-91 Procedure C Modified
Oversize correction applied to each point

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 56
Mold Size: .075 cu.ft.
Test Performed on Material Passing 3/4 in. **Sieve**

Soil Data
NM 12.7 Sp.G. ____
LL ____ PI ____
%>3/4 in. 12.3 %<#200 ____
USCS ____ AASHTO ____

TESTING DATA

	1	2	3	4	5	6
WM + WS	4310.0	4509.0	4533.0	4419.0		
WM	0.0	0.0	0.0	0.0		
WW + T #1	4310.00	4509.00	4533.00	4419.00		
WD + T #1	3868.00	3975.00	3877.00	3730.00		
TARE #1	0.00	0.00	0.00	0.00		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	10.6	12.4	15.4	16.8		
DRY DENSITY	117.0	119.3	117.2	113.2		

ROCK CORRECTED TEST RESULTS	UNCORRECTED	Material Description
Maximum dry density = 120.3 pcf	117.3 pcf	VERY DARK GRAY BROWN GRAVELLY SILT W/SAND
Optimum moisture = 13.2 %	14.3 %	

Project No. 98566 **Client:** ERRG #26-150.02.01
Project: MP VALLEJO

• **Location:** C1/4CO

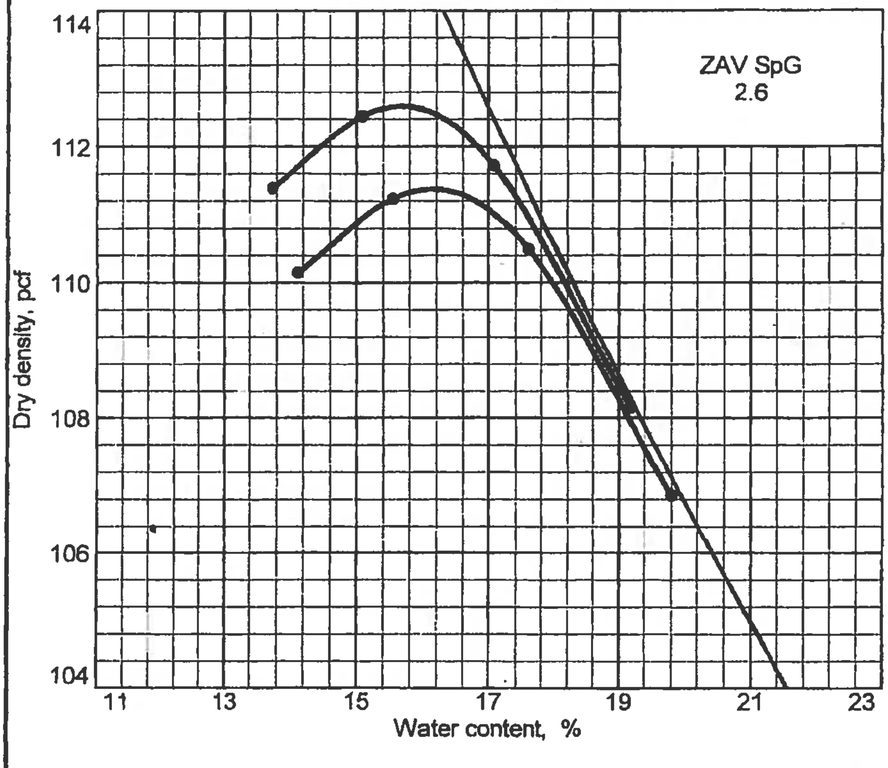
Remarks:
CLIENT/AMc,5-5-07

COMPACTION TEST REPORT

CONSTRUCTION MATERIALS TESTING INC.

Plate

COMPACTION TEST REPORT



Curve No.
C5CO

Test Specification:
ASTM D 1557-91 Procedure C Modified
Oversize correction applied to each point

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 56
Mold Size: .075 cu.ft.

Test Performed on Material Passing 3/4 in. **Sieve**

Soil Data

NM 18.7 **Sp.G.** ______
LL ______ **PI** ______
%>3/4 in. 4.3 **%<#200** ______
USCS ______ **AASHTO** ______

TESTING DATA

	1	2	3	4	5	6
WM + WS	4276.0	4372.0	4421.0	4355.0		
WM	0.0	0.0	0.0	0.0		
WW + T #1	4276.00	4372.00	4421.00	4355.00		
WD + T #1	3747.00	3784.00	3759.00	3635.00		
TARE #1	0.00	0.00	0.00	0.00		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	13.7	15.1	17.1	19.2		
DRY DENSITY	111.4	112.4	111.7	108.2		

ROCK CORRECTED TEST RESULTS	UNCORRECTED	Material Description
Maximum dry density = 112.6 pcf	111.4 pcf	GREYISH BROWN SANDY SILT W/ GRAVEL
Optimum moisture = 15.7 %	16.1 %	

Project No. 98566 **Client:** ERRG #26-150.02.01
Project: MP VALLEJO

● **Location:** ON-SITE, C5CO

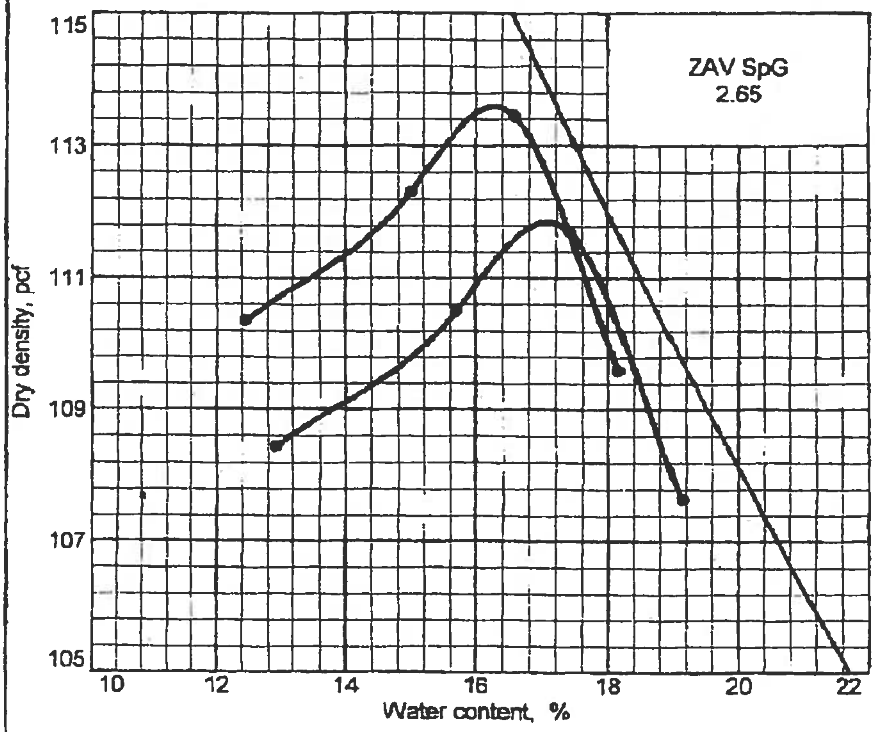
Remarks:
5-7-2007
CLIENT/JPM&AMc

COMPACTION TEST REPORT

CONSTRUCTION MATERIALS TESTING INC.

Plate

COMPACTION TEST REPORT



Curve No. C8CO

Test Specification:
ASTM D 1557-91 Procedure C Modified
Oversize correction applied to each point

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 56
Mold Size: .075 cu.ft.

Test Performed on Material Passing 3/4 in. **Sieve**

Soil Data

NM	15.7	Sp.G.	
LL		PI	
%>3/4 in.	8.1	%<#200	
USCS		AASHTO	

TESTING DATA

	1	2	3	4	5	6
WM + WS	4166.0	4349.0	4462.0	4363.0		
WM	0.0	0.0	0.0	0.0		
WW + T #1	4166.00	4349.00	4462.00	4363.00		
WD + T #1	3689.00	3759.00	3800.00	3662.00		
TARE #1	0.00	0.00	0.00	0.00		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	12.5	15.0	16.6	18.2		
DRY DENSITY	110.4	112.3	113.5	109.6		

ROCK CORRECTED TEST RESULTS	UNCORRECTED	Material Description
Maximum dry density = 113.6 pcf	111.9 pcf	DARK GREYISH BROWN SADNY SILT W/GRAVEL (LIME- TREATED)
Optimum moisture = 16.3 %	17.1 %	

Project No. 98566 **Client:** ERRG #26-150.02.01
Project: MP VALLEJO

• **Location:** C8CO

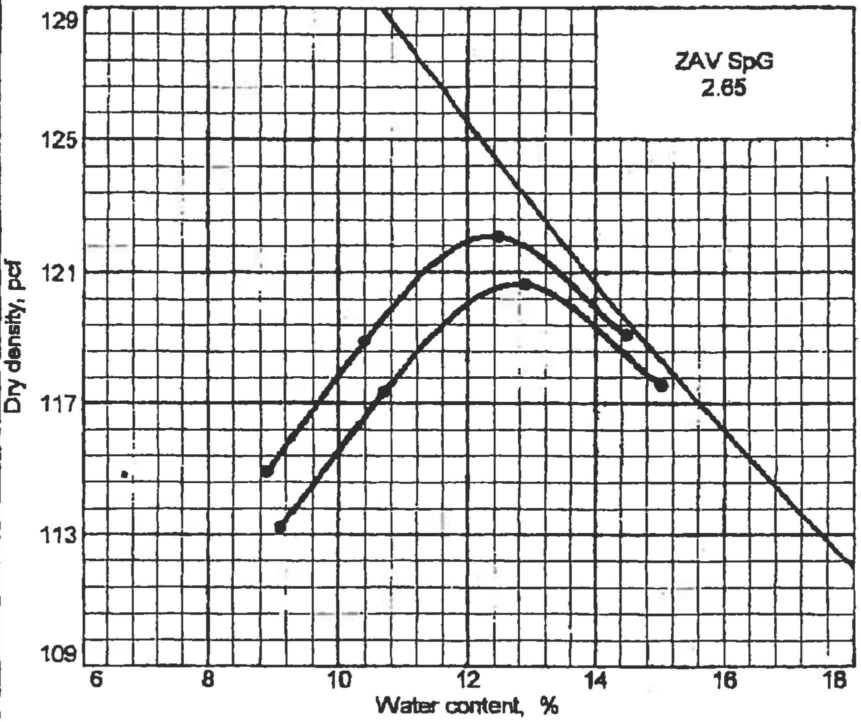
Remarks:
5-10-2007
CLIENT/JPM&AMc

COMPACTION TEST REPORT

CONSTRUCTION MATERIALS TESTING INC.

Plate

COMPACTION TEST REPORT



Curve No.
BC2/7/8/CO

Test Specification:
ASTM D 1557-91 Procedure C Modified
Oversize correction applied to each point

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 56
Mold Size: .075 cu.ft.
Test Performed on Material Passing 3/4 in. **Sieve**

Soil Data

NM 10.5 **Sp.G.**
LL **PI**
%>3/4 in. 5.7 **%<#200**
USCS **AASHTO**

TESTING DATA

	1	2	3	4	5	6
WM + WS	4203.0	4419.0	4633.0	4600.0		
WM	0.0	0.0	0.0	0.0		
WW + T #1	4203.00	4419.00	4633.00	4600.00		
WD + T #1	3852.00	3992.00	4104.00	3999.00		
TARE #1	0.00	0.00	0.00	0.00		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	8.9	10.4	12.5	14.5		
DRY DENSITY	114.9	118.9	122.1	119.1		

ROCK CORRECTED TEST RESULTS	UNCORRECTED	Material Description
Maximum dry density = 122.1 pcf	120.7 pcf	DARK GREYISH BROWN SANDY SILT WITH GRAVEL (LIME-TREATED)
Optimum moisture = 12.4 %	12.8 %	

Project No. 98566 **Client:** ERRG #26-150.02.01
Project: MP VALLEJO

● **Location:** BC2/7/8/CO

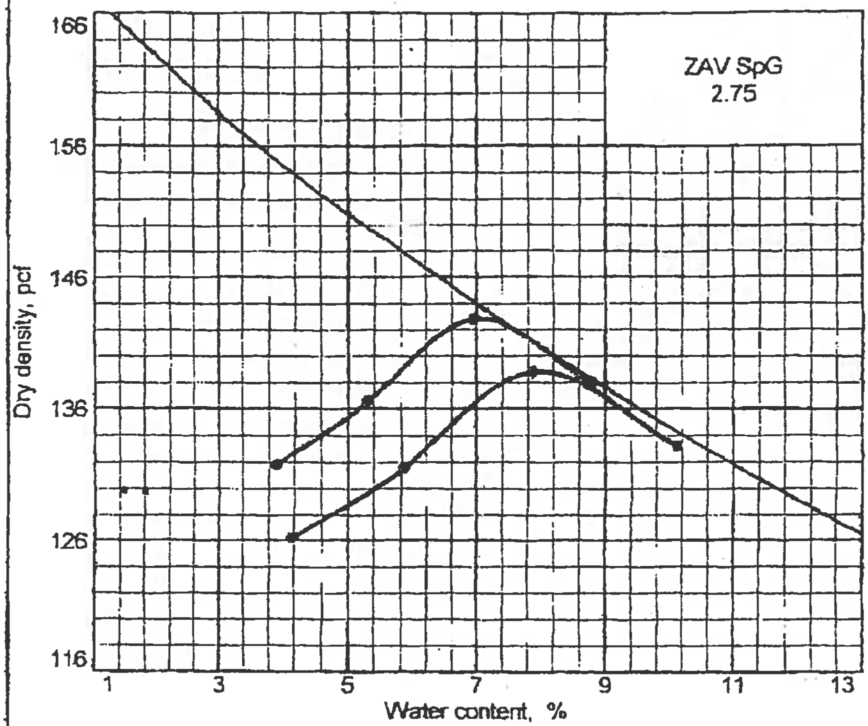
Remarks:
5-15-2006
CLIENT/AMc

COMPACTION TEST REPORT

CONSTRUCTION MATERIALS TESTING INC.

Plate

COMPACTION TEST REPORT



Curve No. 3" MINUS

Test Specification:
ASTM D 1557-91 Procedure C Modified
Oversize correction applied to each point

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 56
Mold Size: .075 cu.ft.

Test Performed on Material Passing 3/4 in. **Sieve**

Soil Data

NM ____ Sp.G. ____
LL ____ PI ____
%>3/4 in. 18.3 %<#200 ____
USCS ____ AASHTO ____

TESTING DATA

	1	2	3	4	5	6
WM + WS	4471.0	4739.0	5093.0	4991.0		
WM	0.0	0.0	0.0	0.0		
WW + T #1	4471.00	4739.00	5093.00	4991.00		
WD + T #1	4293.00	4477.00	4721.00	4532.00		
TARE #1	0.00	0.00	0.00	0.00		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	3.9	5.3	7.0	8.8		
DRY DENSITY	131.8	136.6	142.8	138.0		

ROCK CORRECTED TEST RESULTS	UNCORRECTED	Material Description
Maximum dry density = 142.9 pcf	138.8 pcf	very dark gray - black si gravel w/sd
Optimum moisture = 7.0 %	8.0 %	

Project No. 98566 **Client:** ERRG #26-150.02.01
Project: MP VALLEJO

• **Location:** none given

Remarks:
client/jpm, 5-23-07, sample # 3" minus black

COMPACTION TEST REPORT

CONSTRUCTION MATERIALS TESTING INC.

Plate

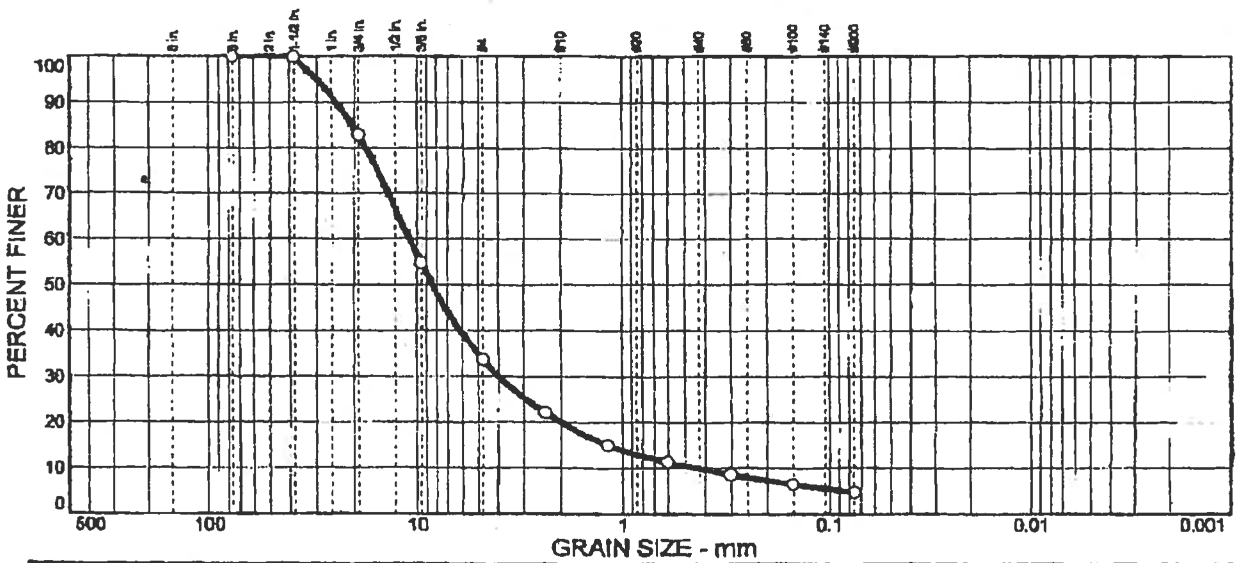
CONSTRUCTION MATERIALS TESTING, INC.

PARTICLE SIZE ANALYSIS - ASTM 422

Project: MP VALLEJO **Project No.:** 98566

Client: ERRG #26-150.02.01

Sample No: 3" minus **Source of Sample:** 3" minus black **Date:** 5-24-07
Location: none given **Elev./Depth:**



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	17.1	49.3	13.5	10.2	5.2	4.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3 in.	100.0		
1.5 in.	100.0		
.75 in.	82.9		
.375 in.	54.7		
#4	33.6		
#8	22.1		
#16	15.0		
#30	11.3		
#50	8.6		
#100	6.5		
#200	4.7		

* (no specification provided)

Soil Description

very dark gray - black Poorly graded gravel with sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 20.3 D_{60}= 10.9 D_{50}= 8.40
D_{30}= 3.98 D_{15}= 1.18 D_{10}= 0.438
C_u= 24.79 C_c= 3.34

Classification

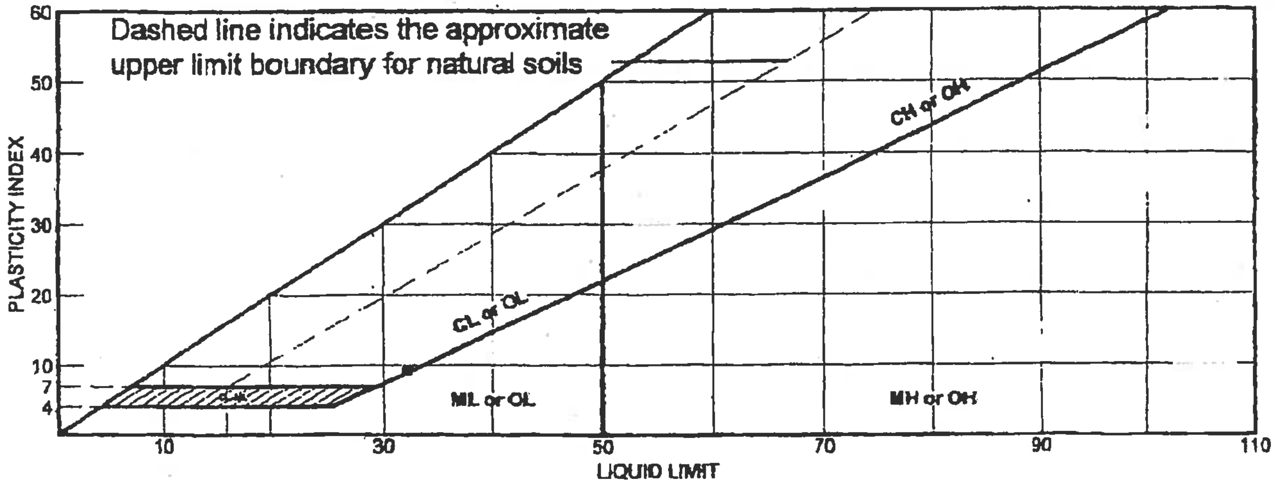
USCS= GP AASHTO=

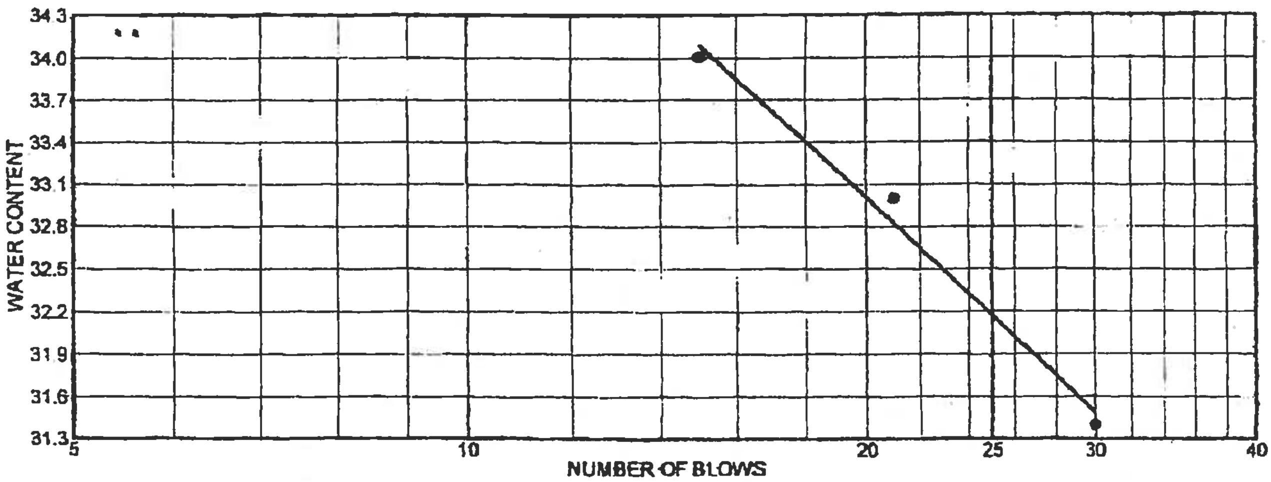
Remarks

CLIENT/JPM

Plate

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	very dark gray - black Poorly graded gravel with sand	32.2	23.0	9.2	9.9	4.7	GP

Project No. 98566 **Client:** ERRG #26-150.02.01

Project: MP VALLEJO

● **Location:** none given

3" MINUS

Remarks:
● 5-24-2007
CLIENT/AMc

LIQUID AND PLASTIC LIMITS TEST REPORT

CONSTRUCTION MATERIALS TESTING INC.

Plate