ACDC AREA RD SOIL TESTS

Arizona Canal Diversion Channel
Northwest Phoenix, Arizona
for
Kiewit Western Company
Area RD

2235J013

WESTERN TECHNOLOGIES INC.
The Quality People

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Arizona Canal Diversion Channel
Northwest Phoenix, Arizona
for
Kiewit Western Company
Area RD

2235J013

WESTERN TECHNOLOGIES INC.
The Quality People

ARIZONA

Phoenix
3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 437-3737

Mesa
Gateway Plaza
663 West Second Avenue, No. 10
Mesa, Arizona 85202
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17200 North Dysart Road, No. 13
P.O. Box 2431
Sun City, Arizona 85372
(602) 975-2154

Flagstaff
2400 East Huntington Drive
Flagstaff, Arizona 86001
(602) 774-8708

Pinetop
H C 62, Box 19981
Pinetop, Arizona 85935
(602) 367-3011

Tucson
423 South Olsen Avenue
Tucson, Arizona 85719
(602) 624-8896

Sierra Vista
1827 South Paseo San Luis
Sierra Vista, Arizona 85635
(602) 458-0364

Laughlin/Bullhead City
460 Main Street
P.O. Box 2779
Bullhead City, Arizona 86430
(602) 754-2271

NEW MEXICO

Albuquerque
8305 Washington Place, N.E.
Albuquerque, New Mexico 87113
(505) 823-4488

Farmington
400 South Lorena Avenue
Farmington, New Mexico 87401
(505) 327-4966

NEVADA

Las Vegas
3611 West Tompkins Avenue
Las Vegas, Nevada 89103
(702) 798-8050

WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 437-3737

Kiewit Western Company
P. O. Box 5969
Glendale, Arizona 85312

January 13, 1987

Attn: Mr. Hank George

Re: Area RD
Arizona Canal Diversion Channel
Northwest Phoenix, Arizona

Job No. 2235J013

In accordance with your request, Western Technologies Inc. has performed earthwork testing and observation on the above referenced project. The observation and testing was performed in order to obtain data for evaluation of compliance with the project requirements. This report covers observation and testing performed from December 4, 1985 to September 8, 1986.

The following items have been completed on this project and are covered in this report:

1. Stripping native surface soils from fill area.
2. Subgrade preparation in the fill area.
3. Construction of subbase fill in the fill area.

Our evaluation of the observation and test data is based on conformance to recommendations contained in the contract specifications No. DACW09-85-C-0048.

Our observations and test data for work performed on area RD indicate that subgrade preparation, material composition, material placement and material compaction are in general compliance with the project requirements.

The attached field density test results, expansion test results, and plan and profile which show the locations at which the expansion potential test samples were obtained are made a part of this report.

Sincerely,
WESTERN TECHNOLOGIES INC.

Edward Elnicky, P.E.
Project Engineer

Reviewed by: Tom Brennan
Dept. Director
W. Valley Branch

am

Copies to: Addressee (5)

Kiewit Western Company
Arizona Canal Diversion Channel
Job No. 2235J013

APPENDIX "A"

Services provided by this firm consist of observation and testing, and the rendering of professional opinions and recommendations made in accordance with generally accepted soil, foundation and materials engineering practice. Under no circumstances is it the intent of representatives of this firm to directly control the physical activities of the Contractor or the Contractor's workmen to accomplish the work of the project. The presence at the site of field representatives of the Professional Engineers of this firm is to provide our client with a continuing source of information relative to the compliance of earthwork with specifications, and does not include any superintending, supervision, direction, or responsibility for the safety of the actual work of the Contractor or the Contractor's workmen.

The location of the fill area was surveyed by others. Our work did not include checking or verifying dimensions other than checking the general configuration of the fill area.

Daily reports of observations are on file in our project files and will be supplied if requested.

WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 437-3737

SOIL/AGGREGATE FIELD DENSITY TEST

CLIENT : Kiewit Western Company
Proj: Az. Canal - ACDC Job #4118
P O Box 5969
Glendale, AZ 85312

JOB NO. 2235J013
LAB/INV NO. 22350394
REPORT DATE 01-07-87
REVIEWED BY Ed Elnicky
PAGE 1 of 13

PROJECT : Arizona Canal Diversion Channel Area RD
LOCATION : Northwest Phoenix
AUTHORIZED BY : Hank George, P.E. DATE : 01-05-87
TEST LOCATIONS DESIGNATED BY : Hank George, P.E.

TEST NO.	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	IN-PLACE COMPACTION (%)	MAXIMUM DENSITY (pcf)	REQUIRED COMPACTION (%)	REQUIRED MOISTURE (%)	WITHIN SPECS?
326	12.1	115.3	99	116.7	95	10.1 to 16.1	YES
327	15.5	115.5	99	116.7	95	10.1 to 16.1	YES
328	13.8	116.7	100	116.7	95	10.1 to 16.1	YES
329	14.5	112.7	97	116.7	95	10.1 to 16.1	YES
330	15.7	112.5	96	116.7	95	10.1 to 16.1	YES
331	16.5	112.9	100+	111.0	95	13.6 to 19.6	YES

TEST NO.	TEST DATE	TEST LOCATION	ELEV. DATUM+
326	12-04	80'E 600'N of SW corner	1207.0
327	12-04	25'E 800'N of SW corner	1207.0
328	12-04	30'E 900'N of SW corner	1206.0
329	12-04	110'E 700'N of SW corner	1207.0
330	12-04	210'E 60'N of SW corner	1206.0
331	12-04	75'E 25'N of SW corner	1206.0

+DATUM Mean Sea Level

TEST NO.	COMMENTS	FIELD DENSITY TEST METHOD
326	Subgrade	ASTM D-1556/AASHTO T-217
327	Subgrade	ASTM D-1556/AASHTO T-217
328	Subgrade	ASTM D-1556/AASHTO T-217
329	Subgrade	ASTM D-1556/AASHTO T-217
330	Subgrade	ASTM D-1556/AASHTO T-217
331	Subgrade	ASTM D-1556/AASHTO T-217

MOISTURE/DENSITY RELATIONSHIP

MATERIAL DESCRIPTION	SOURCE	OPTIMUM MOISTURE (%)	MAXIMUM DRY DENSITY (pcf)	TESTED PER ASTM
Clayey Silt	Sta 210+00	16.6	111.0	D-698-A
Sandy Silt	Sta 155+00	13.7	114.7	D-698-A
Sandy Silt	Sta 130+00	12.8	112.6	D-698-A
Sandy Silt	Sta 210+00	13.8	116.7	D-698-A
		13.1	116.7	D-698-A
Silty Sand with Gravel	Sta 138+00	11.4	118.3	D-698-A

Copies to: Addressee - (3)

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SOIL/AGGREGATE FIELD DENSITY TEST

CLIENT : Kiewit Western Company
Proj: Az. Canal - ACDC Job #4118
P O Box 5969
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JOB NO. 2235J013
LAB/INV NO. 22350394
REPORT DATE 01-07-87
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AUTHORIZED BY : Hank George, P.E. DATE : 01-05-87
TEST LOCATIONS DESIGNATED BY : Hank George, P.E.

TEST NO.	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	IN-PLACE COMPACTION (%)	MAXIMUM DENSITY (pcf)	REQUIRED COMPACTION (%)	REQUIRED MOISTURE (%)	WITHIN SPECS?
332	15.6	108.6	98	111.0	95	13.6 to 19.6	YES
333	15.0	111.1	100	111.0	95	13.6 to 19.6	YES
334	15.2	114.0	100+	111.0	95	13.6 to 19.6	YES
335	15.6	111.2	100	111.0	95	13.6 to 19.6	YES
336	14.4	116.1	99	116.7	95	10.1 to 16.1	YES
337	15.9	117.3	100+	116.7	95	10.1 to 16.1	YES

TEST NO.	TEST DATE	TEST LOCATION	ELEV. DATUM+
332	12-04	60'E 105'N of SW corner	1206.0
333	12-04	40'E 240'N of SW corner	1206.0
334	12-04	30'E 440'N of SW corner	1207.0
335	12-04	75'E 655'N of SW corner	1207.0
336	12-04	130'E 800'N of SW corner	1206.5
337	12-04	200'N 25'E of SW corner	1206.0

+DATUM Mean Sea Level

TEST NO.	COMMENTS	FIELD DENSITY TEST METHOD
332	Subgrade	ASTM D-1556/AASHTO T-217
333	Subgrade	ASTM D-1556/AASHTO T-217
334	Subgrade	ASTM D-1556/AASHTO T-217
335	Subgrade	ASTM D-1556/AASHTO T-217
336	Subgrade	ASTM D-1556/AASHTO T-217
337	Subgrade	ASTM D-1556/AASHTO T-217

MOISTURE/DENSITY RELATIONSHIP

MATERIAL DESCRIPTION	SOURCE	OPTIMUM MOISTURE (%)	MAXIMUM DRY DENSITY (pcf)	TESTED PER ASTM
River Run	Sta 138+00	9.0	130.6	D-698-D
Clayey Silt	R-E Subgrade	15.0	114.6	D-698-A
Silty Clay	R-E Subgrade	18.7	106.0	D-698-A
Silty Clay	Sta 164+00	14.3	104.2	D-698-A

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SOIL/AGGREGATE FIELD DENSITY TEST

CLIENT : Kiewit Western Company
Proj: Az. Canal - ACDC Job #4118
P O Box 5969
Glendale, AZ 85312

JOB NO. 2235J013
LAB/INV NO. 22350394
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REVIEWED BY Ed Elnicky
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PROJECT : Arizona Canal Diversion Channel Area RD
LOCATION : Northwest Phoenix
AUTHORIZED BY : Hank George, P.E. DATE : 01-05-87
TEST LOCATIONS DESIGNATED BY : Hank George, P.E.

TEST NO.	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	IN-PLACE COMPACTION (%)	MAXIMUM DENSITY (pcf)	REQUIRED COMPACTION (%)	REQUIRED MOISTURE (%)	WITHIN SPECS?
338	17.8	109.5	99	111.0	95	13.6 to 19.6	YES
339	15.5	113.6	97	116.7	95	10.1 to 16.1	YES
340	15.3	113.9	98	116.7	95	10.1 to 16.1	YES
341	15.2	109.5	99	111.0	95	13.6 to 19.6	YES
342	15.4	114.4	100+	111.0	95	13.6 to 19.6	YES
343	16.2	113.6	100+	111.0	95	13.6 to 19.6	YES
344	14.9	112.7	97	116.7	95	10.1 to 16.1	YES
345	14.4	115.3	99	116.7	95	10.1 to 16.1	YES
346	13.0	119.2	100	119.6	95	10.1 to 16.1	YES
347	18.3	110.6	100	111.0	95	13.6 to 19.6	YES
348	13.8	111.4	95	116.7	95	10.1 to 16.1	YES

TEST NO.	TEST DATE	TEST LOCATION	ELEV. DATUM+
338	12-04	800'N 100'E of SW corner	1206.0
339	12-04	200'E 750'N of SW corner	1207.0
340	12-04	50'N 120'E of SW corner	1206.0
341	12-04	150'N 110'E of SW corner	1206.0
342	12-04	250'N 130'E of SW corner	1206.0
343	12-04	350'N 150'E of SW corner	1206.0
344	12-04	450'N 160'E of SW corner	1207.0
345	12-05	260'E 150'N of SW corner	1206.0
346	12-05	350'N 280'E of SW corner	1206.0
347	12-05	550'N 270'E of SW corner	1207.0
348	12-05	200'N 140'E of SW corner	1207.0

+DATUM Mean Sea Level

TEST NO.	COMMENTS	FIELD DENSITY TEST METHOD
338	Subgrade	ASTM D-1556/AASHTO T-217
339	Subgrade	ASTM D-1556/AASHTO T-217
340	Subgrade	ASTM D-1556/AASHTO T-217
341	Subgrade	ASTM D-1556/AASHTO T-217
342	Subgrade	ASTM D-1556/AASHTO T-217
343	Subgrade	ASTM D-1556/AASHTO T-217
344	Subgrade	ASTM D-1556/AASHTO T-217
345	Subgrade	ASTM D-1556/AASHTO T-217
346	Subgrade	ASTM D-1556/AASHTO T-217, T-224
347	Subgrade	ASTM D-1556/AASHTO T-217
348	Subgrade	ASTM D-1556/AASHTO T-217

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P.O. Box 21387
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SOIL/AGGREGATE FIELD DENSITY TEST

CLIENT : Kiewit Western Company
Proj: Az. Canal - ACDC Job #4118
P O Box 5969
Glendale, AZ 85312

JOB NO. 2235J013
LAB/INV NO. 22350394
REPORT DATE 01-07-87
REVIEWED BY Ed Elnicky

PROJECT : Arizona Canal Diversion Channel Area RD
LOCATION : Northwest Phoenix
AUTHORIZED BY : Hank George, P.E. DATE : 01-05-87
TEST LOCATIONS DESIGNATED BY : Hank George, P.E.

TEST NO.	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	IN-PLACE COMPACTION (%)	MAXIMUM DENSITY (pcf)	REQUIRED COMPACTION (%)	REQUIRED MOISTURE (%)	WITHIN SPECS?
349	13.1	123.9	100+	121.8	95	10.1 to 16.1	YES
350	12.6	120.4	99	121.1	95	10.1 to 16.1	YES
351	16.7	120.1	100+	115.2	95	13.6 to 19.6	YES
352	16.4	110.6	100	111.0	95	13.6 to 19.6	YES
353	14.3	111.7	96	116.7	95	10.1 to 16.1	YES
354	13.0	112.2	96	116.7	95	10.1 to 16.1	YES
355	16.8	109.4	99	111.0	95	13.6 to 19.6	YES
356	15.6	114.0	100+	111.0	95	13.6 to 19.6	YES
357	15.4	111.7	100+	111.0	95	13.6 to 19.6	YES
358	14.6	116.1	99	116.7	95	10.1 to 16.1	YES
359	15.2	107.5	93	115.0	95	13.6 to 19.6	NO

TEST NO.	TEST DATE	TEST LOCATION	ELEV. DATUM+
349	12-05	500'N 130'E of SW corner	1207.0
350	12-05	170'N 540'E of SW corner	1207.0
351	12-05	400'N 450'E of SW corner	1208.0
352	12-05	690'E 90'N of SW corner	1208.0
353	12-05	200'E 175'N of SW corner	1206.0
354	12-05	190'E 310'N of SW corner	1206.0
355	12-05	210'E 495'N of SW corner	1207.0
356	12-05	195'E 550'N of SW corner	1207.0
357	12-05	175'E 875'N of SW corner	1207.0
358	12-05	750'E 75'N of SW corner	1206.0
359	12-05	245'E 195'N of SW corner	1206.0

+DATUM Mean Sea Level

TEST NO.	COMMENTS	FIELD DENSITY TEST METHOD
349	Subgrade	ASTM D-1556/AASHTO T-217, T-224
350	Subgrade	ASTM D-1556/AASHTO T-217, T-224
351	Subgrade	ASTM D-1556/AASHTO T-217, T-224
352	Subgrade	ASTM D-1556/AASHTO T-217
353	Subgrade	ASTM D-1556/AASHTO T-217
354	Subgrade	ASTM D-1556/AASHTO T-217
355	Subgrade	ASTM D-1556/AASHTO T-217
356	Subgrade	ASTM D-1556/AASHTO T-217
357	Subgrade	ASTM D-1556/AASHTO T-217
358	Subgrade	ASTM D-1556/AASHTO T-217
359	Subgrade, Field Accepted	ASTM D-1556/AASHTO T-217

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360	14.8	116.5	100	116.7	95	10.1 to 16.1	YES
361	13.5	117.3	100+	116.7	95	10.1 to 16.1	YES
362	13.5	113.5	97	116.7	95	10.1 to 16.1	YES
363	12.9	117.0	99	117.8	95	10.1 to 16.1	YES
364	13.1	118.8	100+	117.0	95	10.1 to 16.1	YES
365	14.3	116.8	100	117.2	95	10.1 to 16.1	YES
366	17.1	113.7	100+	112.7	95	13.6 to 19.6	YES
367	19.5	112.2	97	116.0	95	13.6 to 19.6	YES
368	14.0	117.4	100	117.7	95	10.1 to 16.1	YES
369	14.1	115.9	99	117.3	95	10.1 to 16.1	YES
370	13.9	116.1	98	118.0	95	10.1 to 16.1	YES

TEST NO.	TEST DATE	TEST LOCATION	ELEV. DATUM+
360	12-05	270'E 285'N of SW corner	1206.5
361	12-05	285'E 400'N of SW corner	1206.5
362	12-05	305'E 480'N of SW corner	1207.0
363	12-05	85'E 100'N of SW corner	1207.0
364	12-05	90'E 295'N of SW corner	1207.0
365	12-05	100'E 395'N of SW corner	1207.0
366	12-05	105'E 595'N of SW corner	1207.0
367	12-05	160'E 620'N of SW corner	1208.0
368	12-05	490'E 50'N of SW corner	1208.0
369	12-05	500'E 230'N of SW corner	1208.0
370	12-05	570'E 90'N of SW corner	1208.0

+DATUM Mean Sea Level

TEST NO.	COMMENTS	FIELD DENSITY TEST METHOD
360	Subgrade	ASTM D-1556/AASHTO T-217
361	Subgrade	ASTM D-1556/AASHTO T-217
362	Subgrade	ASTM D-1556/AASHTO T-217
363	Subgrade	ASTM D-1556/AASHTO T-217
364	Subgrade	ASTM D-1556/AASHTO T-217
365	Subgrade	ASTM D-1556/AASHTO T-217
366	Subgrade	ASTM D-1556/AASHTO T-217
367	Subgrade	ASTM D-1556/AASHTO T-217, T-224
368	Subgrade	ASTM D-1556/AASHTO T-217
369	Subgrade	ASTM D-1556/AASHTO T-217
370	Subgrade	ASTM D-1556/AASHTO T-217

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371	13.5	117.5	99	118.6	95	10.1 to 16.1	YES
372	15.1	112.4	95	118.1	95	10.1 to 16.1	YES
373	15.2	110.2	99	111.0	95	13.6 to 19.6	YES
374	13.7	115.8	99	116.7	95	10.1 to 16.1	YES
375	15.8	108.2	97	111.0	95	13.6 to 19.6	YES
376	16.0	105.2	95	111.0	95	13.6 to 19.6	YES
377	13.3	117.0	100	116.7	95	10.1 to 16.1	YES
378	13.0	108.0	93	116.7	95	10.1 to 16.1	NO
379	12.1	109.6	94	116.7	95	10.1 to 16.1	NO
380	13.5	119.1	97	122.5	95	10.1 to 16.1	YES
381	15.8	109.6	99	111.0	95	13.6 to 19.6	YES

TEST NO.	TEST DATE	TEST LOCATION	ELEV. DATUM+
371	12-05	585'E 230'N of SW corner	1208.0
372	12-05	745'E 15'N of SW corner	1208.0
373	12-05	190'E 135'N of SW corner	1206.0
374	12-05	200'E 255'N of SW corner	1206.0
375	12-05	220'E 410'N of SW corner	1206.0
376	12-05	215'E 605'N of SW corner	1206.0
377	12-05	185'E 800'N of SW corner	1207.0
378	12-05	135'N 65'E of SW corner	1207.0
379	12-05	340'N 55'E of SW corner	1207.0
380	12-05	560'N 75'E of SW corner	1207.0
381	12-05	75'N 220'E of SW corner	1207.0

+DATUM Mean Sea Level

TEST NO.	COMMENTS	FIELD DENSITY TEST METHOD
371	Subgrade	ASTM D-1556/AASHTO T-217
372	Subgrade	ASTM D-1556/AASHTO T-217
373	Subgrade	ASTM D-1556/AASHTO T-217
374	Subgrade	ASTM D-1556/AASHTO T-217
375	Subgrade	ASTM D-1556/AASHTO T-217
376	Subgrade	ASTM D-1556/AASHTO T-217
377	Subgrade	ASTM D-1556/AASHTO T-217
378	Subgrade, Field Accepted	ASTM D-1556/AASHTO T-217
379	Subgrade, Field Accepted	ASTM D-1556/AASHTO T-217
380	Subgrade	ASTM D-1556/AASHTO T-217, T-224
381	Subgrade	ASTM D-1556/AASHTO T-217

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382	13.8	115.5	99	116.7	95	10.1 to 16.1	YES
383	17.0	105.7	95	111.0	95	13.6 to 19.6	YES
384	15.4	111.7	100+	111.0	95	13.6 to 19.6	YES
385	15.3	110.8	100	111.0	95	13.6 to 19.6	YES
386	12.0	114.4	98	116.7	95	10.1 to 16.1	YES
387	15.3	116.3	99	117.9	95	13.6 to 19.6	YES
388	14.6	113.9	98	116.7	95	10.1 to 16.1	YES
389	13.4	112.9	97	116.7	95	10.1 to 16.1	YES
390	15.2	115.3	100+	111.0	95	13.6 to 19.6	YES
391	16.6	111.0	100	111.0	95	13.6 to 19.6	YES
392	16.2	114.7	100+	111.0	95	13.6 to 19.6	YES

TEST NO.	TEST DATE	TEST LOCATION	ELEV. DATUM+
382	12-05	210'N 225'E of SW corner	1207.0
383	12-05	385'E 55'N of SW corner	1208.0
384	12-05	390'E 240'N of SW corner	1207.0
385	12-05	450'E 175'N of SW corner	1207.0
386	12-05	460'E 340'N of SW corner	1207.0
387	12-05	630'E 160'N of SW corner	1207.0
388	12-05	290'E 50'N of SW corner	1206.0
389	12-05	300'E 250'N of SW corner	1206.0
390	12-05	310'E 500'N of SW corner	1206.0
391	12-05	300'E 700'N of SW corner	1207.0
392	12-05	830'N 290'E of SW corner	1207.0

+DATUM Mean Sea Level

TEST NO.	COMMENTS	FIELD DENSITY TEST METHOD
382	Subgrade	ASTM D-1556/AASHTO T-217
383	Subgrade	ASTM D-1556/AASHTO T-217
384	Subgrade	ASTM D-1556/AASHTO T-217
385	Subgrade	ASTM D-1556/AASHTO T-217
386	Subgrade	ASTM D-1556/AASHTO T-217
387	Subgrade	ASTM D-1556/AASHTO T-217, T-224
388	Subgrade	ASTM D-1556/AASHTO T-217
389	Subgrade	ASTM D-1556/AASHTO T-217
390	Subgrade	ASTM D-1556/AASHTO T-217
391	Subgrade	ASTM D-1556/AASHTO T-217
392	Subgrade	ASTM D-1556/AASHTO T-217

WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 437-3737

SOIL/AGGREGATE FIELD DENSITY TEST

CLIENT : Kiewit Western Company
Proj: Az. Canal - ACDC Job #4118
P O Box 5969
Glendale, AZ 85312

JOB NO. 2235J013
LAB/INV NO. 22350394
REPORT DATE 01-07-87
REVIEWED BY Ed Elnicky
PAGE 8 of 13

PROJECT : Arizona Canal Diversion Channel Area RD
LOCATION : Northwest Phoenix
AUTHORIZED BY : Hank George, P.E. DATE : 01-05-87
TEST LOCATIONS DESIGNATED BY : Hank George, P.E.

TEST NO.	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	IN-PLACE COMPACTION (%)	MAXIMUM DENSITY (pcf)	REQUIRED COMPACTION (%)	REQUIRED MOISTURE (%)	WITHIN SPECS?
393	15.9	109.4	99	111.0	95	13.6 to 19.6	YES
394	14.4	111.7	96	116.7	95	10.1 to 16.1	YES
395	14.3	113.1	97	116.7	95	10.1 to 16.1	YES
396	17.5	108.3	98	111.0	95	13.6 to 19.6	YES
397	13.6	112.6	96	116.7	95	10.1 to 16.1	YES
398	13.5	115.0	99	116.7	95	10.1 to 16.1	YES
399	15.3	109.5	99	111.0	95	13.6 to 19.6	YES
400	15.8	111.8	100+	111.0	95	13.6 to 19.6	YES
401	13.4	113.7	97	116.7	95	10.1 to 16.1	YES
402	15.3	113.9	100+	111.0	95	13.6 to 19.6	YES
403	16.3	109.8	99	111.0	95	13.6 to 19.6	YES

TEST NO.	TEST DATE	TEST LOCATION	ELEV. DATUM+
393	12-05	300'E 80'N of SW corner	1208.0
394	12-05	40'E 245'N of SW corner	1208.0
395	12-05	10'E 430'N of SW corner	1208.0
396	12-05	20'E 650'N of SW corner	1207.0
397	12-05	195'E 230'N of SW corner	1207.0
398	12-05	280'E 330'N of SW corner	1207.0
399	12-05	200'E 580'N of SW corner	1207.0
400	12-05	340'E 155'N of SW corner	1207.0
401	12-05	350'E 340'N of SW corner	1207.0
402	12-05	340'E 510'N of SW corner	1208.0
403	12-05	410'E 75'N of SW corner	1208.0

+DATUM Mean Sea Level

TEST NO.	COMMENTS	FIELD DENSITY TEST METHOD
393	Subgrade	ASTM D-1556/AASHTO T-217
394	Subgrade	ASTM D-1556/AASHTO T-217
395	Subgrade	ASTM D-1556/AASHTO T-217
396	Subgrade	ASTM D-1556/AASHTO T-217
397	Subgrade	ASTM D-1556/AASHTO T-217
398	Subgrade	ASTM D-1556/AASHTO T-217
399	Subgrade	ASTM D-1556/AASHTO T-217
400	Subgrade	ASTM D-1556/AASHTO T-217
401	Subgrade	ASTM D-1556/AASHTO T-217
402	Subgrade	ASTM D-1556/AASHTO T-217
403	Subgrade	ASTM D-1556/AASHTO T-217

WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
P.O. Box 21387
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SOIL/AGGREGATE FIELD DENSITY TEST

CLIENT : Kiewit Western Company
Proj: Az. Canal - ACDC Job #4118
P O Box 5969
Glendale, AZ 85312

JOB NO. 2235J013
LAB/INV NO. 22350394
REPORT DATE 01-07-87
REVIEWED BY Ed Elnicky

PROJECT : Arizona Canal Diversion Channel Area RD
LOCATION : Northwest Phoenix
AUTHORIZED BY : Hank George, P.E. DATE : 01-05-87
TEST LOCATIONS DESIGNATED BY : Hank George, P.E.

TEST NO.	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	IN-PLACE COMPACTION (%)	MAXIMUM DENSITY (pcf)	REQUIRED COMPACTION (%)	REQUIRED MOISTURE (%)	WITHIN SPECS?
404	14.3	115.4	99	116.7	95	10.1 to 16.1	YES
405	12.0	114.4	98	116.7	95	10.1 to 16.1	YES
406	14.3	114.4	98	116.7	95	10.1 to 16.1	YES
407	14.0	111.4	95	116.7	95	10.1 to 16.1	YES
2071	12.9	119.1	94	127.2	95	8.4 to 14.4	NO
2073	13.5	124.9	100+	122.8	95	8.4 to 14.4	YES
2074	9.6	124.8	99	126.7	95	10.7 to 16.7	NO
2075	18.7	117.3	96	122.1	95	15.7 to 21.7	YES
2081	17.1	107.8	97	111.0	95	13.6 to 19.6	YES
2082	16.9	109.7	99	111.0	95	13.6 to 19.6	YES
2083	18.0	101.3	96	106.0	95	15.7 to 21.7	YES

TEST NO.	TEST DATE	TEST LOCATION	ELEV. DATUM+
404	12-05	430'E 240'N of SW corner	1207.0
405	12-05	400'E 420'N of SW corner	1208.0
406	12-05	690'E 180'N of SW corner	1208.0
407	12-05	730'E 115'N of SW corner	1208.0
2071	01-30	0+50N and 3+50E of SW corner	1210.0
2073	01-30	5+50N and 5+50E of SW corner	1210.0
2074	01-30	380'N 350'E of SW corner	1208.0
2075	01-30	180'N 475'E of SW corner	1208.0
2081	01-30	105'W 40'N of SE corner	1208.0
2082	01-30	200'N 620'W of SE corner	1210.0
2083	01-30	1+00E and 7+20N of SW corner	1208.0

+DATUM Mean Sea Level

TEST NO.	COMMENTS	FIELD DENSITY TEST METHOD
404	Subgrade	ASTM D-1556/AASHTO T-217
405	Subgrade	ASTM D-1556/AASHTO T-217
406	Subgrade	ASTM D-1556/AASHTO T-217
407	Subgrade	ASTM D-1556/AASHTO T-217
2071	Subbase Fill, Field Accepted	ASTM D-1556/AASHTO T-217, T-224
2073	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2074	Subbase Fill, Field Accepted Water Added	ASTM D-1556/AASHTO T-217, T-224
2075	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2081	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2082	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2083	Subbase Fill	ASTM D-1556/AASHTO T-217

WESTERN TECHNOLOGIES INC.

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SOIL/AGGREGATE FIELD DENSITY TEST

CLIENT : Kiewit Western Company
Proj: Az. Canal - ACDC Job #4118
P O Box 5969
Glendale, AZ 85312

JOB NO. 2235J013
LAB/INV NO. 22350394
REPORT DATE 01-07-87
REVIEWED BY Ed Elnicky
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PROJECT : Arizona Canal Diversion Channel Area RD
LOCATION : Northwest Phoenix
AUTHORIZED BY : Hank George, P.E. DATE : 01-05-87
TEST LOCATIONS DESIGNATED BY : Hank George, P.E.

TEST NO.	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	IN-PLACE COMPACTION (%)	MAXIMUM DENSITY (pcf)	REQUIRED COMPACTION (%)	REQUIRED MOISTURE (%)	WITHIN SPECS?
2084	18.1	100.6	95	106.0	95	15.7 to 21.7	YES
2085	17.7	101.7	96	106.0	95	15.7 to 21.7	YES
2091	16.2	112.6	95	118.4	95	13.6 to 19.6	YES
2092	23.8	105.2	94	112.0	95	15.7 to 21.7	NO
2105	14.1	120.3	96	125.4	95	10.7 to 16.7	YES
2106	19.9	106.4	95	112.1	95	15.7 to 21.7	YES
2107	14.2	113.9	94	120.7	95	10.7 to 16.7	NO
2108	13.6	99.5	95	104.2	95	11.3 to 17.3	YES
2109	14.1	122.5	97	126.3	95	10.7 to 16.7	YES
2107A	11.2	115.4	95	121.3	95	8.4 to 14.4	YES
2110	13.9	119.0	96	123.4	95	10.7 to 16.7	YES

TEST NO.	TEST DATE	TEST LOCATION	ELEV. DATUM+
2084	01-30	4+20N and 4+80E of SW corner	1208.0
2085	01-30	0+85N and 5+60E of SW corner	1208.5
2091	01-30	4+65N and 2+30E of SW corner	1210.0
2092	01-30	0+60N and 2+30E of SW corner	1210.0
2105	01-31	200'N 100'E of SW corner	1209.0
2106	01-31	130'N 250'E of SW corner	1209.0
2107	01-31	190'N 450'E of SW corner	1211.0
2108	01-31	380'N 200'E of SW corner	1210.0
2109	01-31	100'E 70'N of SW corner	1209.0
2107A	02-03	1+90N and 4+50E of SW corner	1211.0
2110	01-31	75th Ave, 850'S of overpass and 6'E of Centerline	1209.0

+DATUM Mean Sea Level

TEST NO.	COMMENTS	FIELD DENSITY TEST METHOD
2084	Subbase Fill	ASTM D-1556/AASHTO T-217
2085	Subbase Fill	ASTM D-1556/AASHTO T-217
2091	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2092	Subbase Fill, Area Reworked	ASTM D-1556/AASHTO T-217, T-224
2105	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2106	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2107	Subbase Fill, See Retest No.2107A	ASTM D-1556/AASHTO T-217
2108	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2109	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2107A	Subbase Fill	ASTM D-1556/AASHTO T-217
2110	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224

WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
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SOIL/AGGREGATE FIELD DENSITY TEST

CLIENT : Kiewit Western Company
Proj: Az. Canal - ACDC Job #4118
P O Box 5969
Glendale, AZ 85312

JOB NO. 2235J013
LAB/INV NO. 22350394
REPORT DATE 01-07-87
REVIEWED BY Ed Elnicky
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PROJECT : Arizona Canal Diversion Channel Area RD
LOCATION : Northwest Phoenix
AUTHORIZED BY : Hank George, P.E. DATE : 01-05-87
TEST LOCATIONS DESIGNATED BY : Hank George, P.E.

TEST NO.	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	IN-PLACE COMPACTION (%)	MAXIMUM DENSITY (pcf)	REQUIRED COMPACTION (%)	REQUIRED MOISTURE (%)	WITHIN SPECS?
2111	15.4	126.2	100+	125.4	95	10.7 to 16.7	YES
2148	5.3	118.8	100	118.3	95	8.4 to 14.4	NO
2149	6.1	133.6	100	133.0	95	6.0 to 12.0	YES
2150	8.1	113.4	97	116.7	95	9.8 to 15.8	NO
2185	15.0	108.4	95	114.6	95	12.0 to 18.0	YES
2186	15.8	96.0	84	114.6	95	12.0 to 18.0	NO
2208	13.7	113.2	99	114.7	95	10.7 to 16.7	YES
2209	14.2	113.3	99	114.7	95	10.7 to 16.7	YES
2186A	16.3	108.5	98	111.0	95	13.6 to 19.6	YES
2220	11.4	108.3	96	112.6	95	9.8 to 15.8	YES
2221	14.4	107.9	96	112.6	95	9.8 to 15.8	YES

TEST NO.	TEST DATE	TEST LOCATION	ELEV. DATUM+
2111	01-31	75th Ave, 400'S of overpass and 8'E of Centerline	1211.0
2148	02-03	40'E 75'N of SW corner	1209.0
2149	02-03	60'N 110'E of SW corner	1209.0
2150	02-03	70'N 360'E of SW corner	1209.0
2185	02-06	130'E 400'N of SW corner	1209.0
2186	02-06	385'E 600'N of SW corner	1211.0
2208	02-06	1+70N and 8+20E of SW corner	1211.0
2209	02-06	3+10N and 5+80E of SW corner	1211.0
2186A	02-06	600'N 385'E of SW corner	1211.0
2220	02-07	0+70N and 9+00E of SW corner	1210.0
2221	02-07	3+10N and 7+20E of SW corner	1210.0

+DATUM Mean Sea Level

TEST NO.	COMMENTS	FIELD DENSITY TEST METHOD
2111	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2148	Subbase Fill, Field Accepted Water Added	ASTM D-1556/AASHTO T-217
2149	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2150	Subbase Fill, Field Accepted Water Added	ASTM D-1556/AASHTO T-217, T-224
2185	Subbase Fill	ASTM D-1556/AASHTO T-217
2186	Subbase Fill, See Retest 2186A	ASTM D-1556/AASHTO T-217
2208	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2209	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2186A	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2220	Subbase Fill	ASTM D-1556/AASHTO T-217
2221	Subbase Fill	ASTM D-1556/AASHTO T-217

WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
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Phoenix, Arizona 85036
(602) 437-3737

SOIL/AGGREGATE FIELD DENSITY TEST

CLIENT : Kiewit Western Company
Proj: Az. Canal - ACDC Job #4118
P O Box 5969
Glendale, AZ 85312

JOB NO. 2235J013
LAB/INV NO. 22350394
REPORT DATE 01-07-87
REVIEWED BY Ed Elnicky

PROJECT : Arizona Canal Diversion Channel Area RD
LOCATION : Northwest Phoenix
AUTHORIZED BY : Hank George, P.E. DATE : 01-05-87
TEST LOCATIONS DESIGNATED BY : Hank George, P.E.

TEST NO.	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	IN-PLACE COMPACTION (%)	MAXIMUM DENSITY (pcf)	REQUIRED COMPACTION (%)	REQUIRED MOISTURE (%)	WITHIN SPECS?
2222	14.3	107.8	96	112.6	95	9.8 to 15.8	YES
2223	14.3	106.0	94	112.6	95	9.8 to 15.8	NO
2229	14.1	115.9	98	118.0	95	9.8 to 15.8	YES
2230	13.5	111.3	99	112.6	95	9.8 to 15.8	YES
2231	13.0	124.3	95	130.5	95	9.8 to 15.8	YES
2235	19.7	106.3	100	106.0	95	15.7 to 21.7	YES
2236	19.8	106.7	100+	106.0	95	15.7 to 21.7	YES
2254	13.2	114.2	95	120.2	95	10.8 to 16.8	YES
2255	16.0	109.9	98	112.6	95	9.8 to 15.8	NO
2256	13.2	114.7	95	120.8	95	10.8 to 16.8	YES
2557	13.4	115.9	98	118.3	95	8.4 to 14.4	YES

TEST NO.	TEST DATE	TEST LOCATION	ELEV. DATUM+
2222	02-07	6+60N and 2+30E of SW corner	1210.0
2223	02-07	5+80N and 4+20E of SW corner	1210.0
2229	02-10	650'N 300'E of SW corner	1211.0
2230	02-10	490'N 450'E of SW corner	1211.0
2231	02-10	80'N 600'E of SW corner	1211.0
2235	02-11	2+40N and 1+30E of SW corner	1210.0
2236	02-11	8+20N and 0+70E of SW corner	1210.0
2254	03-31	6+80N and 1+20E of SW corner	1209.0
2255	03-31	1+50N and 8+00E of SW corner	1209.0
2256	03-31	4+10N and 4+75E of SW corner	1209.0
2557	04-03	3+40N and 2+10E of SW corner	1209.0

+DATUM Mean Sea Level

TEST NO.	COMMENTS	FIELD DENSITY TEST METHOD
2222	Subbase Fill	ASTM D-1556/AASHTO T-217
2223	Subbase Fill, Field Accepted	ASTM D-1556/AASHTO T-217
2229	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2230	Subbase Fill	ASTM D-1556/AASHTO T-217
2231	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2235	Subbase Fill	ASTM D-1556/AASHTO T-217
2236	Subbase Fill	ASTM D-1556/AASHTO T-217
2254	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2255	Subbase Fill, Field Accepted	ASTM D-1556/AASHTO T-217
2256	Subbase Fill	ASTM D-1556/AASHTO T-217, T-224
2557	Subbase Fill	ASTM D-1556/AASHTO T-217

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Phoenix, Arizona 85036
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SOIL/AGGREGATE FIELD DENSITY TEST

CLIENT : Kiewit Western Company
Proj: Az. Canal - ACDC Job #4118
P O Box 5969
Glendale, AZ 85312

JOB NO. 2235J013
LAB/INV NO. 22350394
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PAGE 13 of 13

PROJECT : Arizona Canal Diversion Channel Area RD
LOCATION : Northwest Phoenix
AUTHORIZED BY : Hank George, P.E. DATE : 01-05-87
TEST LOCATIONS DESIGNATED BY : Hank George, P.E.

TEST NO.	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	IN-PLACE COMPACTION (%)	MAXIMUM DENSITY (pcf)	REQUIRED COMPACTION (%)	REQUIRED MOISTURE (%)	WITHIN SPECS?
2558	14.0	116.1	98	118.3	95	8.4 to 14.4	YES

TEST NO.	TEST DATE	TEST LOCATION	ELEV. DATUM+
2558	04-03	1+30N and 7+20E of SW corner	1209.0

+DATUM Mean Sea Level

TEST NO.	COMMENTS	FIELD DENSITY TEST METHOD
2558	Subbase Fill	ASTM D-1556/AASHTO T-217

WESTERN TECHNOLOGIES INC.

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SOIL/AGGREGATE FIELD DENSITY TEST

CLIENT : Kiewit Western Company
Proj: Az. Canal - ACDC Job #4118
P O Box 5969
Glendale, AZ 85312

JOB NO. 2235J013
LAB/INV NO. 22360686-1
REPORT DATE 01-13-87
REVIEWED BY Ed Elnicky
PAGE 1 of 2

PROJECT : Arizona Canal Diversion Channel Area RD
LOCATION : Northwest Phoenix
AUTHORIZED BY : Hank George, P.E. DATE : 01-13-87
TEST LOCATIONS DESIGNATED BY : Hank George, P.E.

TEST NO.	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	IN-PLACE COMPACTION (%)	MAXIMUM DENSITY (pcf)	REQUIRED COMPACTION (%)	REQUIRED MOISTURE (%)	WITHIN SPECS?
3000	21.4	95.6	100+	94.3	95	17.2 to 23.2	YES
3001	18.0	102.7	100+	95.7	95	15.4 to 21.4	YES
3002	17.2	94.0	100	94.3	95	17.2 to 23.2	YES
3003	4.8	130.1	99	131.9	95	8.4 to 14.4	NO
3004	4.7	125.0	96	129.8	95	8.4 to 14.4	NO
3005	7.8	102.0	89	115.0	95	12.2 to 18.2	NO

TEST NO.	TEST DATE	TEST LOCATION	ELEV. DATUM+
3000	09-03	750'S of 75th Ave bridge over channel	1211.0
3001	09-03	N bank, Sta 260+00, over 24" RCP	1211.0
3002	09-08	50'N of lath marked 1+30N and 2+70E	1211.0
3003	09-08	175'NE of lath marked 1+30 and 2+70E	1211.0
3004	09-08	125'N of lath marked 1+30N and 5+00E	1213.0
3005	09-08	200'NE of lath marked 1+30N and 5+00E	1213.0

+DATUM Mean Sea Level

TEST NO.	COMMENTS	FIELD DENSITY TEST METHOD
3000	Subbase Fill	ASTM D-1556/AASHTO T-217
3001	Subbase Fill	ASTM D-1556/AASHTO T-217
3002	Subbase Fill	ASTM D-1556/AASHTO T-217
3003	Subbase Fill, Field Accepted Water Added	ASTM D-1556/AASHTO T-217
3004	Subbase Fill, Field Accepted Water Added	ASTM D-1556/AASHTO T-217
3005	Subbase Fill, Area Reworked	ASTM D-1556/AASHTO T-217

MOISTURE/DENSITY RELATIONSHIP

MATERIAL DESCRIPTION	SOURCE	OPTIMUM MOISTURE (%)	MAXIMUM DRY DENSITY (pcf)	TESTED PER ASTM
Clayey Sand	Sta 158+00	15.2	115.0	D-698-A
Silty Sand	Sta 290+00	11.4	119.0	D-698-A
Silty Sand with Cobbles	Channel at Station	20.2	94.3	D698-A
Silty Sand with Cobbles	Channel at Station	18.4	95.7	D698-A

Copies to: Addressee - (3)

WESTERN TECHNOLOGIES INC.

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SOIL/AGGREGATE FIELD DENSITY TEST

CLIENT : Kiewit Western Company
Proj: Az. Canal - ACDC Job #4118
P O Box 5969
Glendale, AZ 85312

JOB NO. 2235J013
LAB/INV NO. 22360686-1
REPORT DATE 01-13-87
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PAGE 2 of 2

PROJECT : Arizona Canal Diversion Channel Area RD
LOCATION : Northwest Phoenix
AUTHORIZED BY : Hank George, P.E. DATE : 01-13-87
TEST LOCATIONS DESIGNATED BY : Hank George, P.E.

TEST NO.	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	IN-PLACE COMPACTION (%)	MAXIMUM DENSITY (pcf)	REQUIRED COMPACTION (%)	REQUIRED MOISTURE (%)	WITHIN SPECS?
3006	6.2	126.1	98	128.3	95	8.4 to 14.4	NO

TEST NO.	TEST DATE	TEST LOCATION	ELEV. DATUM+
3006	09-08	50'N of lath marked 7+80E and 1+25N	1213.0

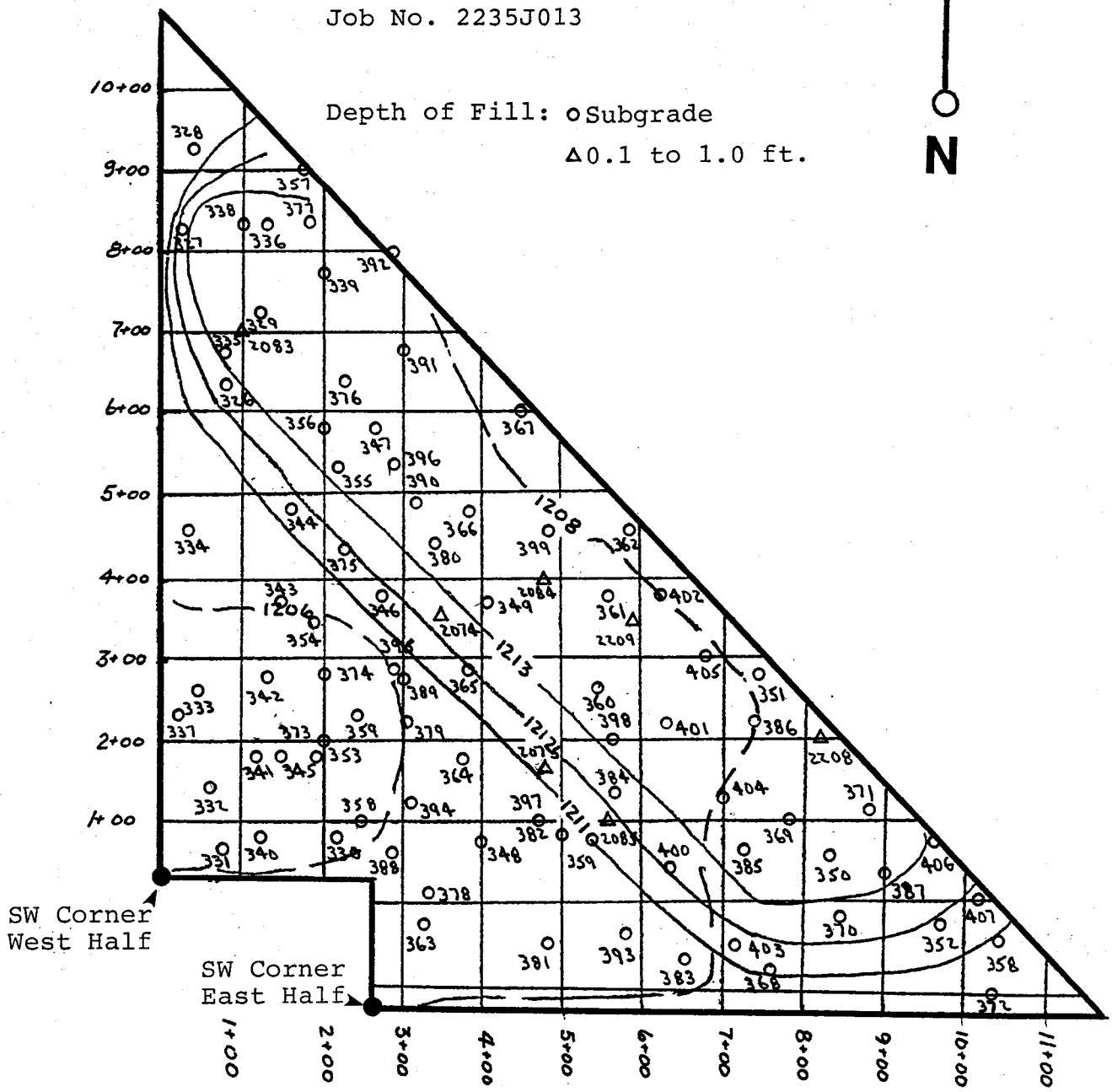
+DATUM Mean Sea Level

TEST NO.	COMMENTS	FIELD DENSITY TEST METHOD
3006	Subbase Fill, Field Accepted Water Added	ASTM D-1556/AASHTO T-217

AREA 'RD'

Arizona Canal Diversion Channel
Field Density Test Locations
Job No. 2235J013

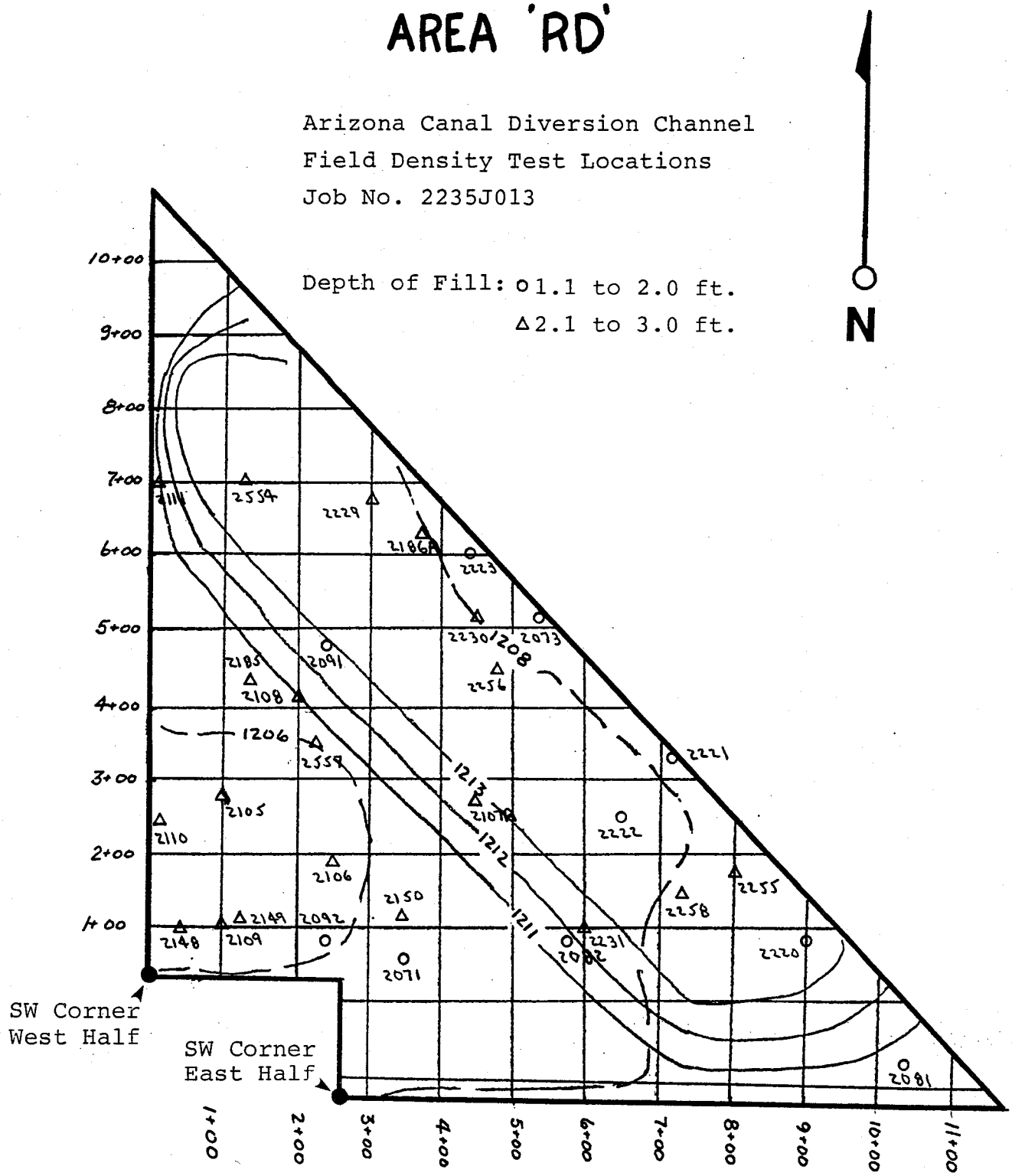
Depth of Fill: o Subgrade
Δ 0.1 to 1.0 ft.



AREA 'RD'

Arizona Canal Diversion Channel
Field Density Test Locations
Job No. 2235J013

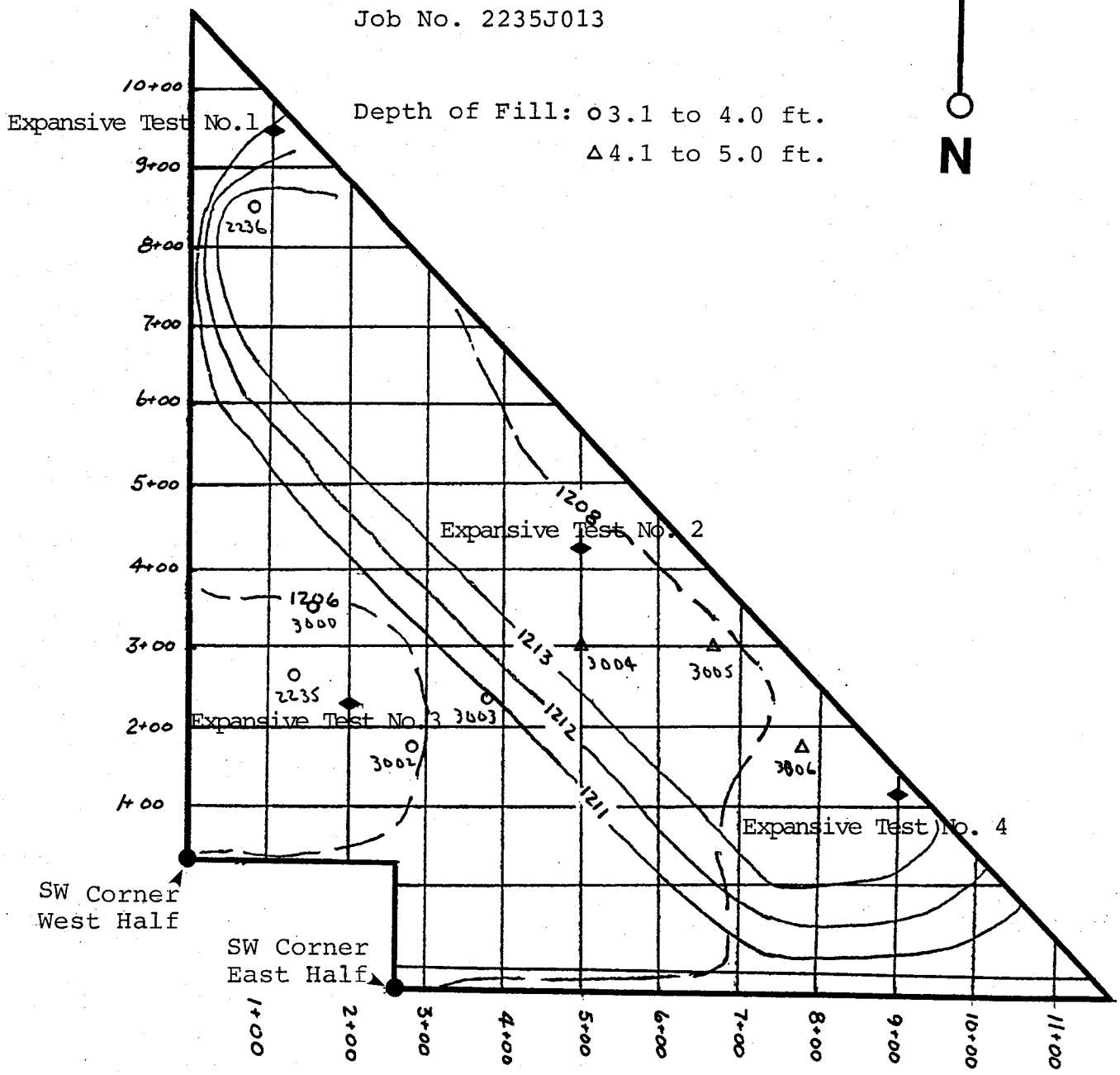
Depth of Fill: o 1.1 to 2.0 ft.
Δ 2.1 to 3.0 ft.



AREA 'RD'

Arizona Canal Diversion Channel
Field Density Test Locations
Job No. 2235J013

Depth of Fill: o 3.1 to 4.0 ft.
Δ 4.1 to 5.0 ft.



WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 437-3737

LABORATORY REPORT

PHYSICAL PROPERTIES OF SOILS

Client Kiewit Western Company
P.O. Box 1209
Peoria, AZ 85345

Job No. 2235J013
Lab/Invoice No. 2236W072-6
Date of Report 12-02-86
Reviewed By EJ Chil

Project AC/DC (AZ Canal Diversion Channel) DACW09-85-C-0048

Location 75th Avenue and Bell — Sampled By Tom Brennan — Date 11-16-86

Type of Material Sand W/Gravel 1 — Submitted By Tom Brennan — Date 11-16-86

Source of Material AZ Canal Div. Channel — Authorized By KW/Cylwik — Date 11-14-86

Sieve Analysis, ASTM D422- Area RD 0 to 1' 100'E, 900'N of SW Corner

Sieve Size	% Passing Accumulative	Specification
3"		
2½"		
2"		
1½"		
1"		
¾"		
½"		
⅜"		
¼"		
No. 4		
8		
10		
16		
30		
40		
50		
100		
Finer than 200 ASTM D1140-		

Soil Classification

Liquid Limit and Plasticity of Soils — LL = ____
ASTM D4318- — PI = ____

Moisture - Density Relations — Maximum Dry Density, pcf ____
☐ ASTM D698- ; ☐ ASTM D1557- ; Method ____ — Optimum Moisture, % ____

Specific Gravity of Soils (minus No. 4 material)
ASTM D854- — Specific Gravity ____

Resistance 'R' Value of Compacted Soils
ASTM D2844- — 'R' Value ____

Other:

Expansive Properties of Cohesive Soil

Max. Swell, %	0.0
Surcharge, ksf	0.1
Moisture Content, %	6.4
Remolded Dry Density, pcf	121.2

Copies to: Addressee (3)

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Phoenix, Arizona 85036
(602) 437-3737

LABORATORY REPORT

PHYSICAL PROPERTIES OF SOILS

Client Kiewit Western Company
P.O. Box 1209
Peoria, AZ 85345

Job No. 2235J013
Lab/Invoice No. 2236W072 - 7
Date of Report 12-02-86
Reviewed By [signature]

Project AC/DC (AZ Canal Diversion Channel) DACW09-85-C-0048

Location 75th Avenue and Bell Sampled By Tom Brennan Date 11-16-86

Type of Material Sand W/Gravel 2 Submitted By Tom Brennan Date 11-16-86

Source of Material AZ Canal Div. Channel Authorized By KW/Cylwik Date 11-14-86

Sieve Analysis, ASTM D422- Area RD 0 to 1' 500'E, 400'N of SW Corner

Sieve Size	% Passing Accumulative	Specification
3"		
2½"		
2"		
1½"		
1"		
¾"		
½"		
⅜"		
¼"		
No. 4		
8		
10		
16		
30		
40		
50		
100		
Finer than 200 ASTM D1140-		

Soil Classification

Liquid Limit and Plasticity of Soils — LL = ____
ASTM D4318- — PI = ____

Moisture - Density Relations — Maximum Dry Density, pcf ____
☐ ASTM D698- ; ☐ ASTM D1557- ; Method ____ — Optimum Moisture, % ____

Specific Gravity of Soils (minus No. 4 material)
ASTM D854- — Specific Gravity ____

Resistance 'R' Value of Compacted Soils
ASTM D2844- — 'R' Value ____

Other:

Expansive Properties of Cohesive Soil

Max. Swell, %	0.3
Surcharge, ksf	0.1
Moisture Content, %	6.2
Remolded Dry Density, pcf	121.2

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Phoenix, Arizona 85036
(602) 437-3737

LABORATORY REPORT

PHYSICAL PROPERTIES OF SOILS

Client Kiewit Western Company
P.O. Box 1209
Peoria, AZ 85345

Job No. 2235J013
Lab/Invoice No. 2236W072 - 8
Date of Report 12-02-86
Reviewed By EJ Chi

Project AC/DC (AZ Canal Diversion Channel) DACW09-85-C-0048

Location 75th Avenue and Bell Sampled By Tom Brennan Date 11-16-86

Type of Material Sand W/Gravel 3 Submitted By Tom Brennan Date 11-16-86

Source of Material AZ Canal Div. Channel Authorized By KW/Cylwik Date 11-14-86

Sieve Analysis, ASTM D422- Area RD 1 to 2 ft. 200'E, 200'N of SW Corner

Sieve Size	% Passing Accumulative	Specification
3"		
2½"		
2"		
1½"		
1"		
¾"		
½"		
⅜"		
¼"		
No. 4		
8		
10		
16		
30		
40		
50		
100		
Finer than 200 ASTM D1140-		

Soil Classification

Liquid Limit and Plasticity of Soils — LL = ____
ASTM D4318- — PI = ____

Moisture - Density Relations — Maximum Dry Density, pcf ____
☐ ASTM D698- ; ☐ ASTM D1557- ; Method ____ — Optimum Moisture, % ____

Specific Gravity of Soils (minus No. 4 material)
ASTM D854- — Specific Gravity ____

Resistance 'R' Value of Compacted Soils
ASTM D2844- — 'R' Value ____

Other:

Expansive Properties of Cohesive Soil

Max. Swell, %	0.0
Surcharge, ksf	0.1
Moisture Content, %	8.3
Remolded Dry Density, pcf	116.1

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Phoenix, Arizona 85036
(602) 437-3737

LABORATORY REPORT

PHYSICAL PROPERTIES OF SOILS

Client Kiewit Western Company
P.O. Box 1209
Peoria, AZ 85345

Job No. 2235J013
Lab/Invoice No. 2236W072- 9
Date of Report 12-02-86
Reviewed By [signature]

Project AC/DC (AZ Canal Diversion Channel) DACW09-85-C-0048

Location 75th Avenue and Bell Sampled By Tom Brennan Date 11-16-86

Type of Material Sand W/Gravel 4 Submitted By Tom Brennan Date 11-16-86

Source of Material AZ Canal Div. Channel Authorized By KW/Cylwik Date 11-14-86

Sieve Analysis, ASTM D422- Area RD 1 to 2' 900'E. 100'N of SW Corner

Sieve Size	% Passing Accumulative	Specification
3"		
2½"		
2"		
1½"		
1"		
¾"		
½"		
⅜"		
¼"		
No. 4		
8		
10		
16		
30		
40		
50		
100		
Finer than 200 ASTM D1140-		

Soil Classification

Liquid Limit and Plasticity of Soils — LL = ____
ASTM D4318- — PI = ____

Moisture - Density Relations — Maximum Dry Density, pcf ____
☐ ASTM D698- ; ☐ ASTM D1557- ; Method ____ — Optimum Moisture, % ____

Specific Gravity of Soils (minus No. 4 material)
ASTM D854- — Specific Gravity ____

Resistance 'R' Value of Compacted Soils
ASTM D2844- — 'R' Value ____

Other:

Expansive Properties of Cohesive Soil

Max. Swell, %	0.0
Surcharge, ksf	0.1
Moisture Content, %	8.7
Remolded Dry Density, pcf	115.4

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