



Empire Laboratories, Inc.
A Division of The Terracon Companies, Inc.

301 N. Howes Street
Ft. Collins, Colorado 80521
Phone (303) 484-0359
Fax (303) 484-0454

CONCRETE TEST RESULTS

Project Name & Location: Silver Oaks				The following tests have been performed by Empire in accordance with ASTM procedures.	
Contractor: Tri Trend - CG & S				Sampling ASTM C172-82	X
Engineer/Architect: City of Fort Collins Engineering				Making ASTM C31-85	X
Location of Placement: Cross pan at the corner of Silver Oak Dr. & Stone St.				Curing C192-81	
Empire Job No.: 2093-1030	Concrete No.: 3061	Sample No.: 7	Date: 7/27/93	Capping C617-85b	X
Reviewed by: Gary M. Martinson		Mix I.D. No.: 240		Compressive Strength C39-86	X

CONCRETE MIX DESIGN DATA

Supplier: WMN	Batch Time: 11:41	Specifications		Measured		Water Added (gal): 5
Ticket No.: 35278	Sample Time: 12:20	Air (%): 4-7	Air (%): 7.5	Unit Weight (#/Ft ³): 139.5		
Truck No.: 610	Concrete Temperature °F: 78	Slump (in): 2-4	Slump (in): 3.25	Specimen Size: 6x12		
Batch Size: 10	Ambient Temperature °F: 80	Strength (psi): 3500	(7): 3130	(28):	No. of Cylinders: 4	
Fine Agg. (lbs): 1200	Medium Agg. (lbs): 350	Coarse Agg. (lbs): 1450	Cement (lbs): 580	Fly Ash (lbs): 50		
Water (gal): 35.5	WRA (oz/100#): 3.0	Air Ent (oz/sack): 1.30	Other: ϕ	Yield (Ft ³ /Yd ³): 28.14		

CYLINDER TEST DATA

Cylinder No.	Date Made	Days Cured		Date Tested	Sample Age (Days)	Diameter (inches)	Cross Section Area, in. ²	Length (inches)	Test Load (pounds)	Measured Strength (psi)	Type of Fracture	Tested By
		Field	Lab									
1	7/27/93	ϕ	7	8/3/93	7	6.0	28.3	12.0	88,500	3130	Conical	CM
2	7/27/93	ϕ	7	8/3/93	7	6.0	28.3	12.0	88,500	3130	Conical	CM
3	7/27/93	ϕ	28	8/24/93	28	6.0	28.3	12.0				
4	7/27/93	ϕ	28	8/24/93	28	6.0	28.3	12.0				

Distribution: (1) Tri Trend; (1) City; (1) WMN



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Empire Job No.: 2093-1030	Concrete No.: 3061	Sample No.: 7	Date: 7/27/93	Capping C617-85b	X
Reviewed by: Gary M. Martinson		Mix I.D. No.: 240		Compressive Strength C39-86	X

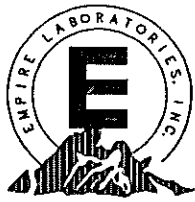
CONCRETE MIX DESIGN DATA

Supplier: WMN	Batch Time: 11:41	Specifications	Measured	Water Added (gal): 5
Ticket No.: 35278	Sample Time: 12:20	Air (%): 4-7	Air (%): 7.5	Unit Weight (#/Ft ³): 139.5
Truck No.: 610	Concrete Temperature °F: 78	Slump (in): 2-4	Slump (in): 3.25	Specimen Size: 6x12
Batch Size: 10	Ambient Temperature °F: 80	Strength (psi): 3500	(7): 3130 (28): 3710	No. of Cylinders: 4
Fine Agg. (lbs): 1200	Medium Agg. (lbs): 350	Coarse Agg. (lbs): 1450	Cement (lbs): 580	Fly Ash (lbs): 50
Water (gal): 35.5	WRA (oz/100#): 3.0	Air Ent (oz/sack): 1.30	Other: ϕ	Yield (Ft ³ /Yd ³): 28.14

CYLINDER TEST DATA

Cylinder No.	Date Made	Days Cured		Date Tested	Sample Age (Days)	Diameter (inches)	Cross Section Area, in. ²	Length (inches)	Test Load (pounds)	Measured Strength (psi)	Type of Fracture	Tested By
		Field	Lab									
1	7/27/93	ϕ	7	8/3/93	7	6.0	28.3	12.0	88,500	3130	Conical	CM
2	7/27/93	ϕ	7	8/3/93	7	6.0	28.3	12.0	88,500	3130	Conical	CM
3	7/27/93	ϕ	28	8/24/93	28	6.0	28.3	12.0	104,000	3680	Conical	KA
4	7/27/93	ϕ	28	8/24/93	28	6.0	28.3	12.0	105,500	3730	Conical	KA

Distribution: (1) Tri Trend; (1) City; (1) WMN



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Empire Job No.: 2093-1030	Concrete No.: 3061	Sample No.: 7	Date: 7/27/93	Capping C617-85b	X
Reviewed by: Gary M. Martinson		Mix I.D. No.: 240		Compressive Strength C39-86	X

CONCRETE MIX DESIGN DATA

Supplier: WMN	Batch Time: 11:41	Specifications	Measured	Water Added (gal): 5
Ticket No.: 35278	Sample Time: 12:20	Air (%): 4-7	Air (%): 7.5	Unit Weight (#/Ft ³): 139.5
Truck No.: 610	Concrete Temperature °F: 78	Slump (in): 2-4	Slump (in): 3.25	Specimen Size: 6x12
Batch Size: 10	Ambient Temperature °F: 80	Strength (psi): 3500	(7): 3130 (28): 3710	No. of Cylinders: 4
Fine Agg. (lbs): 1200	Medium Agg. (lbs): 350	Coarse Agg. (lbs): 1450	Cement (lbs): 580	Fly Ash (lbs): 50
Water (gal): 35.5	WRA (oz/100#): 3.0	Air Ent (oz/sack): 1.30	Other: ϕ	Yield (Ft ³ /Yd ³): 28.14

CYLINDER TEST DATA

Cylinder No.	Date Made	Days Cured		Date Tested	Sample Age (Days)	Diameter (inches)	Cross Section Area, in. ²	Length (inches)	Test Load (pounds)	Measured Strength (psi)	Type of Fracture	Tested By
		Field	Lab									
1	7/27/93	ϕ	7	8/3/93	7	6.0	28.3	12.0	88,500	3130	Conical	CM
2	7/27/93	ϕ	7	8/3/93	7	6.0	28.3	12.0	88,500	3130	Conical	CM
3	7/27/93	ϕ	28	8/24/93	28	6.0	28.3	12.0	104,000	3680	Conical	KA
4	7/27/93	ϕ	28	8/24/93	28	6.0	28.3	12.0	105,500	3730	Conical	KA

Distribution: (1) Tri Trend; (1) City; (1) WMN



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 Longmont, Colorado Springs, Colorado
 and Cheyenne, Wyoming

CONCRETE TEST RESULTS

Tests checked below have been performed by Empire Laboratories, Inc., in accordance with ASTM procedures

SAMPLING
 ASTM C172

MAKING & CURING TEST SPECIMENS
 ASTM C31 ASTM C192

CAPPING
 ASTM C617

COMPRESSIVE STRENGTH
 ASTM C39

NAME OF PROJECT Silver Oaks

CONTRACTOR Tri-Trend Construction

ENGINEER OR ARCHITECT City of Fort Collins

LOCATION OF PLACEMENT Curb & Gutter Sidewalk, Silver Trail Drive S. Side 19+00

EMPIRE JOB NO. 3061 MIX NO. 240/Batch 60200M REPORT NO. 3

FINE 1560 Lbs. MEDIUM 200 Lbs. COARSE AGG. 1415 Lbs. CEMENT 476 Lbs. FLY ASH 84 Lbs. WATER 31.0 Gals.

REQUIRED STRENGTH 3500 SLUMP 2.0 In. AIR 7.4 % UNIT WEIGHT 139.65 #/Ft.³ YIELD 28.59 Ft.³/Yd.³

TEMP. (CONCRETE) 70 °F (AMBIENT) 75 °F WRA φ oz/100# AIR ENTRAINMENT 1.54 oz/bag

TRUCK NO. 605 TIME 11:30 CUBIC YARDS 10.0 CALCIUM CHLORIDE φ ACCELERATOR φ

CYLINDER NO.	DATE MADE	DATE BROKEN	BREAK DAYS	BREAK POUNDS	BREAK PSI	AVERAGE DIA. IN	CROSS SECTIONAL AREA IN ²	LENGTH INCHES	TYPE OF FRACTURE	CURE DAY/LAB	CURE DAY/FIELD
1	6/10/93	6/17/93	7	85,000	3010	6.0	28.3	12.0	Conical	7	φ
2	6/10	6/17	7	86,500	3060	6.0	28.3	12.0	Conical	7	φ
3	6/10	7/8/93	28	103,000	3640	6.0	28.3	12.0	Conical	28	φ
4	6/10	7/8	28	104,000	3680	6.0	28.3	12.0	Conical	28	φ

CAST BY Empire Labs BROKEN BY: 24 HOUR _____ 48 HOUR _____ 3 DAY _____ 7 DAY CM 14 DAY _____ 28 DAY BB 45 DAY _____

CONCRETE SUPPLIER WMN DISTRIBUTION Tri (1); City (1); WMN (1)



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CONCRETE TEST RESULTS

Tests checked below have been performed by Empire Laboratories, Inc., in accordance with ASTM procedures

SAMPLING ASTM C172 <input checked="" type="checkbox"/>	MAKING & CURING TEST SPECIMENS ASTM C31 <input checked="" type="checkbox"/>	ASTM C192 <input type="checkbox"/>	CAPPING ASTM C617 <input checked="" type="checkbox"/>	COMPRESSIVE STRENGTH ASTM C39 <input checked="" type="checkbox"/>
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NAME OF PROJECT Silver Oaks

CONTRACTOR Tri-Trend Construction

ENGINEER OR ARCHITECT City of Fort Collins

LOCATION OF PLACEMENT Curb & Gutter S. Side, Station 10+50, Silver Trail Drive

EMPIRE JOB NO. 3061 MIX NO. 240/Batch 60200M REPORT NO. 4

FINE 1560 Lbs. MEDIUM 200 Lbs. COARSE AGG. 1415 Lbs. CEMENT 476 Lbs. FLY ASH 84 Lbs. WATER 31.0 Gals.

REQUIRED STRENGTH 3500 SLUMP 2.25 In. AIR 6.2 % UNIT WEIGHT 141.55 #/Ft.³ YIELD 28.23 Ft.³/Yd.³

TEMP. (CONCRETE) 71 °F (AMBIENT) 70 °F WRA φ oz/100# AIR ENTRAINMENT 1.54 oz/sack

TRUCK NO. 660 TIME 1:15 CUBIC YARDS 10.0/176 of 250 CALCIUM CHLORIDE φ ACCELERATOR φ

CYLINDER NO.	DATE MADE	DATE BROKEN	BREAK DAYS	BREAK POUNDS	BREAK PSI	AVERAGE DIA. IN	CROSS SECTIONAL AREA IN ²	LENGTH INCHES	TYPE OF FRACTURE	CURE	CURE
										DAY/LAB	DAY/FIELD
1	6/10/93	6/17/93	7	87,000	3080	6.0	28.3	12.0	Conical	7	φ
2	6/10	6/17	7	87,000	3080	6.0	28.3	12.0	Conical	7	φ
3	6/10	7/8/93	28	106,500	3770	6.0	28.3	12.0	Conical	28	φ
4	6/10	7/8	28	107,000	3780	6.0	28.3	12.0	Conical	28	φ

CAST BY Empire Labs BROKEN BY: 24 HOUR _____ 48 HOUR _____ 3 DAY _____ 7 DAY CM 14 DAY _____ 28 DAY BB 45 DAY _____

CONCRETE SUPPLIER WMN DISTRIBUTION Tri (1); City (1); WMN (1)



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CONCRETE TEST RESULTS

REC'D 7:00 PM 6/14/93

Tests checked below have been performed by Empire Laboratories, Inc., in accordance with ASTM procedures

SAMPLING
ASTM C172

MAKING & CURING TEST SPECIMENS
ASTM C31 ASTM C192

CAPPING
ASTM C617

COMPRESSIVE STRENGTH
ASTM C39

NAME OF PROJECT Silver Oaks

CONTRACTOR Tri-Trend Construction

ENGINEER OR ARCHITECT City of Fort Collins

LOCATION OF PLACEMENT Curb & Gutter N. Side, Station 1+75, Silver Oaks Drive

EMPIRE JOB NO. 3061 MIX NO. 240/Batch 60200M REPORT NO. 5

FINE 1560 Lbs. MEDIUM 200 Lbs. COARSE AGG. 1415 Lbs. CEMENT 476 Lbs. FLY ASH 84 Lbs. WATER 31.0 Gals.

REQUIRED STRENGTH 3500 SLUMP 1.5 In. AIR 6.2 % UNIT WEIGHT 141.83 #/Ft.³ YIELD 28.17 Ft.³/Yd.³

TEMP. (CONCRETE) 75 °F (AMBIENT) 82 °F WRA φ oz/100# AIR ENTRAINMENT 1.54 oz/sack

TRUCK NO. 633 TIME 4:40 CUBIC YARDS 8.0/256 of 350 CALCIUM CHLORIDE φ ACCELERATOR φ

CYLINDER NO.	DATE MADE	DATE BROKEN	BREAK DAYS	BREAK POUNDS	BREAK PSI	AVERAGE DIA. IN	CROSS SECTIONAL AREA IN ²	LENGTH INCHES	TYPE OF FRACTURE	CURE	CURE
										DAY/LAB	DAY/FIELD
1	6/10/93	6/17/93	7	88,000	3110	6.0	28.3	12.0	Conical	7	φ
2	6/10	6/17	7	90,000	3180	6.0	28.3	12.0	Conical	7	φ
3	6/10	7/8/93	28	113,000	4000	6.0	28.3	12.0	Conical	28	φ
4	6/10	7/8	28	113,000	4000	6.0	28.3	12.0	Conical	28	φ

CAST BY Empire Labs BROKEN BY: 24 HOUR 48 HOUR 3 DAY 7 DAY CM 14 DAY 28 DAY BB 45 DAY

CONCRETE SUPPLIER WMN DISTRIBUTION Tri (1); City (1); WMN (1)



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CONCRETE TEST RESULTS

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SAMPLING
ASTM C172



MAKING & CURING TEST SPECIMENS
ASTM C31 ASTM C192



CAPPING
ASTM C617



COMPRESSIVE STRENGTH
ASTM C39



NAME OF PROJECT Silver Oaks

CONTRACTOR Tri-Trend Construction

ENGINEER OR ARCHITECT City of Fort Collins

LOCATION OF PLACEMENT Curb & Gutter S. Side, Station 3+75, Silver Oaks Drive

EMPIRE JOB NO. 3061 MIX NO. 240/Batch 60200M REPORT NO. 6

FINE 1560 Lbs. MEDIUM 200 Lbs. COARSE AGG. 1415 Lbs. CEMENT 476 Lbs. FLY ASH 84 Lbs. WATER 31.0 Gals.

REQUIRED STRENGTH 3500 SLUMP 2.25 In. AIR 6.9 % UNIT WEIGHT 139.9 #/Ft.³ YIELD 28.59 Ft.³/Yd.³

TEMP. (CONCRETE) 73 °F (AMBIENT) 79 °F WRA φ oz/100# AIR ENTRAINMENT 1.54 oz/sack

TRUCK NO. 643 TIME 5:15 CUBIC YARDS 8.0/300 of 375 CALCIUM CHLORIDE φ ACCELERATOR φ

CYLINDER NO.	DATE MADE	DATE BROKEN	BREAK DAYS	BREAK POUNDS	BREAK PSI	AVERAGE DIA. IN	CROSS SECTIONAL AREA IN ²	LENGTH INCHES	TYPE OF FRACTURE	CURE DAY/LAB	CURE DAY/FIELD
1	6/10/93	6/17/93	7	88,000	3110	6.0	28.3	12.0	Conical	7	φ
2	6/10	6/17	7	87,000	3080	6.0	28.3	12.0	Conical	7	φ
3	6/10	7/8/93	28	114,500	4050	6.0	28.3	12.0	Conical	28	φ
4	6/10	7/8	28	113,000	4000	6.0	28.3	12.0	Conical	28	φ

CAST BY Empire Labs BROKEN BY: 24 HOUR _____ 48 HOUR _____ 3 DAY _____ 7 DAY CM 14 DAY _____ 28 DAY BB 45 DAY _____

CONCRETE SUPPLIER WMN DISTRIBUTION Tri (1); City (1); WMN (1)



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CONCRETE TEST RESULTS

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SAMPLING ASTM C172 <input checked="" type="checkbox"/>	MAKING & CURING TEST SPECIMENS ASTM C31 <input checked="" type="checkbox"/> ASTM C192 <input type="checkbox"/>	CAPPING ASTM C617 <input checked="" type="checkbox"/>	COMPRESSIVE STRENGTH ASTM C39 <input checked="" type="checkbox"/>
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NAME OF PROJECT Silver Oaks

CONTRACTOR Tri-Trend Construction

ENGINEER OR ARCHITECT City of Fort Collins

LOCATION OF PLACEMENT Curb & Gutter Bronson Street, Station 15+00, N. Side

EMPIRE JOB NO. 3061 MIX NO. 240/Batch 60200M REPORT NO. 1

FINE 1560 Lbs. MEDIUM 200 Lbs. COARSE AGG. 1415 Lbs. CEMENT 476 Lbs. FLY ASH 84 Lbs. WATER 31.0 Gals.

REQUIRED STRENGTH 3500 SLUMP 2.25 In. AIR 8.0 % UNIT WEIGHT 140.4 #/Ft.³ YIELD 28.48 Ft.³/Yd.³

TEMP. (CONCRETE) 68 °F (AMBIENT) 65 °F WRA φ oz/100# AIR ENTRAINMENT 1.679 oz/sack

TRUCK NO. 611 TIME 8:50 CUBIC YARDS 8.0 CALCIUM CHLORIDE φ ACCELERATOR φ

CYLINDER NO.	DATE MADE	DATE BROKEN	BREAK DAYS	BREAK POUNDS	BREAK PSI	AVERAGE DIA. IN	CROSS SECTIONAL AREA IN ²	LENGTH INCHES	TYPE OF FRACTURE	CURE	
										DAY/LAB	DAY/FIELD
1	6/9/93	6/16/93	7	85,000	3010	6.0	28.3	12.0	Conical	7	φ
2	6/9	6/16	7	86,000	3040	6.0	28.3	12.0	Conical	7	φ
3	6/9	7/7/93	28	102,500	3630	6.0	28.3	12.0	Conical	28	φ
4	6/9	7/7	28	102,000	3600	6.0	28.3	12.0	Conical	28	φ

CAST BY Empire Labs BROKEN BY: 24 HOUR _____ 48 HOUR _____ 3 DAY _____ 7 DAY BB 14 DAY _____ 28 DAY JC 45 DAY _____

CONCRETE SUPPLIER WMN DISTRIBUTION Tri (1); City (1); WMN (1)



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CONCRETE TEST RESULTS

REC'D 05JUL12AM11:20
 REC'D 07JUL12AM11:00

Tests checked below have been performed by Empire Laboratories, Inc., in accordance with ASTM procedures

SAMPLING
 ASTM C172



MAKING & CURING TEST SPECIMENS
 ASTM C31 ASTM C192



CAPPING
 ASTM C617



COMPRESSIVE STRENGTH
 ASTM C39



NAME OF PROJECT Silver Oaks

CONTRACTOR Tri-Trend Construction

ENGINEER OR ARCHITECT City of Fort Collins

LOCATION OF PLACEMENT Curb & Gutter Bronson Street, Station 7+00, N. Side

EMPIRE JOB NO. 3061 MIX NO. 240/Batch 60200M REPORT NO. 2

FINE 1560 Lbs. MEDIUM 200 Lbs. COARSE AGG. 1415 Lbs. CEMENT 476 Lbs. FLY ASH 84 Lbs. WATER 31.0 Gals.

REQUIRED STRENGTH 3500 SLUMP 2.0 In. AIR 7.4 % UNIT WEIGHT 140.4 #/Ft.³ YIELD 28.44 Ft.³/Yd.³

TEMP. (CONCRETE) 70 °F (AMBIENT) 75 °F WRA φ oz/100# AIR ENTRAINMENT 1.679 oz/sack

TRUCK NO. 643 TIME 1:30 CUBIC YARDS 8.0 CALCIUM CHLORIDE φ ACCELERATOR φ

CYLINDER NO.	DATE MADE	DATE BROKEN	BREAK DAYS	BREAK POUNDS	BREAK PSI	AVERAGE DIA. IN	CROSS SECTIONAL AREA IN ²	LENGTH INCHES	TYPE OF FRACTURE	CURE	CURE
										DAY/LAB	DAY/FIELD
1	6/9/93	6/16/93	7	88,000	3110	6.0	28.3	12.0	Conical	7	φ
2	6/9	6/16	7	88,500	3130	6.0	28.3	12.0	Conical	7	φ
3	6/9	7/7/93	28	109,000	3860	6.0	28.3	12.0	Conical	28	φ
4	6/9	7/7	28	109,000	3860	6.0	28.3	12.0	Conical	28	φ

CAST BY Empire Labs BROKEN BY: 24 HOUR _____ 48 HOUR _____ 3 DAY _____ 7 DAY BB 14 DAY _____ 28 DAY JC 45 DAY _____

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SAMPLING ASTM C172	MAKING & CURING TEST SPECIMENS ASTM C31	ASTM C192	CAPPING ASTM C617	COMPRESSIVE STRENGTH ASTM C39
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

NAME OF PROJECT Silver Oaks

CONTRACTOR Tri-Trend Construction

ENGINEER OR ARCHITECT City of Fort Collins

LOCATION OF PLACEMENT Curb & Gutter Bronson Street, Station 15+00, N. Side

EMPIRE JOB NO. 3061 MIX NO. 240/ Batch 60200M REPORT NO. 1

FINE 1560 Lbs. MEDIUM 200 Lbs. COARSE AGG. 1415 Lbs. CEMENT 476 Lbs. FLY ASH 84 Lbs. WATER 31.0 Gals.

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TEMP. (CONCRETE) 68 °F (AMBIENT) 65 °F WRA φ oz/100# AIR ENTRAINMENT 1.679 oz/sack

TRUCK NO. 611 TIME 8:50 CUBIC YARDS 8.0 CALCIUM CHLORIDE φ ACCELERATOR φ

CYLINDER NO.	DATE MADE	DATE BROKEN	BREAK DAYS	BREAK POUNDS	BREAK PSI	AVERAGE DIA. IN	CROSS SECTIONAL AREA IN ²	LENGTH INCHES	TYPE OF FRACTURE	CURE	
										DAY/LAB	DAY/FIELD
1	6/9/93	6/16/93	7	85,000	3010	6.0	28.3	12.0	Conical	7	φ
2	6/9	6/16	7	86,000	3040	6.0	28.3	12.0	Conical	7	φ
3	6/9	7/7/93	28								
4	6/9	7/7	28								

CAST BY Empire Labs BROKEN BY: 24 HOUR 48 HOUR 3 DAY 7 DAY BB 14 DAY 28 DAY 45 DAY

CONCRETE SUPPLIER WMN DISTRIBUTION Tri (1); City (1); WMN (1)



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SAMPLING
ASTM C172



MAKING & CURING TEST SPECIMENS
ASTM C31 ASTM C192



CAPPING
ASTM C617



COMPRESSIVE STRENGTH
ASTM C39



NAME OF PROJECT Silver Oaks

CONTRACTOR Tri-Trend Construction

ENGINEER OR ARCHITECT City of Fort Collins

LOCATION OF PLACEMENT Curb & Gutter Bronson Street, Station 7+00, N. Side

EMPIRE JOB NO. 3061 MIX NO. 240/ Batch 60200M REPORT NO. 2

FINE 1560 Lbs. MEDIUM 200 Lbs. COARSE AGG. 1415 Lbs. CEMENT 476 Lbs. FLY ASH 84 Lbs. WATER 31.0 Gals.

REQUIRED STRENGTH 3500 SLUMP 2.0 In. AIR 7.4 % UNIT WEIGHT 140.4 #/Ft.³ YIELD 28.44 Ft.³/Yd.³

TEMP. (CONCRETE) 70 °F (AMBIENT) 75 °F WRA φ oz/100# AIR ENTRAINMENT 1.679 oz/sack

TRUCK NO. 643 TIME 1:30 CUBIC YARDS 8.0 CALCIUM CHLORIDE φ ACCELERATOR φ

CYLINDER NO.	DATE MADE	DATE BROKEN	BREAK DAYS	BREAK POUNDS	BREAK PSI	AVERAGE DIA. IN	CROSS SECTIONAL AREA IN ²	LENGTH INCHES	TYPE OF FRACTURE	CURE	CURE
										DAY/LAB	DAY/FIELD
1	6/9/93	6/16/93	7	88,000	3110	6.0	28.3	12.0	Conical	7	φ
2	6/9	6/16	7	88,500	3130	6.0	28.3	12.0	Conical	7	φ
3	6/9	7/7/93	28								
4	6/9	7/7	28								

CAST BY Empire Labs BROKEN BY: 24 HOUR _____ 48 HOUR _____ 3 DAY _____ 7 DAY BB 14 DAY _____ 28 DAY _____ 45 DAY _____

CONCRETE SUPPLIER WMN DISTRIBUTION Tri (1); City (1); WMN (1)



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and Cheyenne, Wyoming

CONCRETE TEST RESULTS

Tests checked below have been performed by Empire Laboratories, Inc., in accordance with ASTM procedures

SAMPLING
ASTM C172



MAKING & CURING TEST SPECIMENS
ASTM C31



ASTM C192



CAPPING
ASTM C617



COMPRESSIVE STRENGTH
ASTM C39



NAME OF PROJECT Silver Oaks

CONTRACTOR Tri-Trend Construction

ENGINEER OR ARCHITECT City of Fort Collins

LOCATION OF PLACEMENT Curb & Gutter Sidewalk, Silver Trail Drive S. Side 19+00

EMPIRE JOB NO. 3061 MIX NO. 240/Batch 60200M REPORT NO. 3

FINE 1560 Lbs. MEDIUM 200 Lbs. COARSE AGG. 1415 Lbs. CEMENT 476 Lbs. FLY ASH 84 Lbs. WATER 31.0 Gals.

REQUIRED STRENGTH 3500 SLUMP 2.0 In. AIR 7.4 % UNIT WEIGHT 139.65 #/Ft.³ YIELD 28.59 Ft.³/Yd.³

TEMP. (CONCRETE) 70 °F (AMBIENT) 75 °F WRA φ oz/100# AIR ENTRAINMENT 1.54 oz/sack

TRUCK NO. 605 TIME 11:30 CUBIC YARDS 10.0 CALCIUM CHLORIDE φ ACCELERATOR φ

CYLINDER NO.	DATE MADE	DATE BROKEN	BREAK DAYS	BREAK POUNDS	BREAK PSI	AVERAGE DIA. IN	CROSS SECTIONAL AREA IN ²	LENGTH INCHES	TYPE OF FRACTURE	CURE	
										DAY/LAB	DAY/FIELD
1	6/10/93	6/17/93	7	85,000	3010	6.0	28.3	12.0	Conical	7	φ
2	6/10	6/17	7	86,500	3060	6.0	28.3	12.0	Conical	7	φ
3	6/10	7/8/93	28								
4	6/10	7/8	28								

CAST BY Empire Labs BROKEN BY: 24 HOUR _____ 48 HOUR _____ 3 DAY _____ 7 DAY CM 14 DAY _____ 28 DAY _____ 45 DAY _____

CONCRETE SUPPLIER WMN DISTRIBUTION Tri (1); City (1); WMN (1)



Empire Laboratories, Inc.
 A Division of Terracon Companies
 Materials and Foundation Engineers
 Fort Collins, Denver, Greeley,
 Longmont, Colorado Springs, Colorado
 and Cheyenne, Wyoming

CONCRETE TEST RESULTS

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SAMPLING ASTM C172 <input checked="" type="checkbox"/>	MAKING & CURING TEST SPECIMENS ASTM C31 <input checked="" type="checkbox"/>	ASTM C192 <input type="checkbox"/>	CAPPING ASTM C617 <input checked="" type="checkbox"/>	COMPRESSIVE STRENGTH ASTM C39 <input checked="" type="checkbox"/>
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NAME OF PROJECT Silver Oaks

CONTRACTOR Tri-Trend Construction

ENGINEER OR ARCHITECT City of Fort Collins

LOCATION OF PLACEMENT Curb & Gutter S. Side, Station 10+50, Silver Trail Drive

EMPIRE JOB NO. 3061 MIX NO. 240/ Batch 60200M REPORT NO. 4

FINE 1560 Lbs. MEDIUM 200 Lbs. COARSE AGG. 1415 Lbs. CEMENT 476 Lbs. FLY ASH 84 Lbs. WATER 31.0 Gals.

REQUIRED STRENGTH 3500 SLUMP 2.25 In. AIR 6.2 % UNIT WEIGHT 141.55 #/Ft.³ YIELD 28.23 Ft.³/Yd.³

TEMP. (CONCRETE) 71 °F (AMBIENT) 70 °F WRA φ oz/100# AIR ENTRAINMENT 1.54 oz/sack

TRUCK NO. 660 TIME 1:15 CUBIC YARDS 10.0/176 of 250 CALCIUM CHLORIDE φ ACCELERATOR φ

CYLINDER NO.	DATE MADE	DATE BROKEN	BREAK DAYS	BREAK POUNDS	BREAK PSI	AVERAGE DIA. IN	CROSS SECTIONAL AREA IN ²	LENGTH INCHES	TYPE OF FRACTURE	CURE	
										DAY/LAB	DAY/FIELD
1	6/10/93	6/17/93	7	87,000	3080	6.0	28.3	12.0	Conical	7	φ
2	6/10	6/17	7	87,000	3080	6.0	28.3	12.0	Conical	7	φ
3	6/10	7/8/93	28								
4	6/10	7/8	28								

CAST BY Empire Labs BROKEN BY: 24 HOUR _____ 48 HOUR _____ 3 DAY _____ 7 DAY CM 14 DAY _____ 28 DAY _____ 45 DAY _____

CONCRETE SUPPLIER WMN DISTRIBUTION Tri (1); City (1); WMN (1)



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 and Cheyenne, Wyoming

CONCRETE TEST RESULTS

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SAMPLING
 ASTM C172

MAKING & CURING TEST SPECIMENS
 ASTM C31 ASTM C192

CAPPING
 ASTM C617

COMPRESSIVE STRENGTH
 ASTM C39

NAME OF PROJECT Silver Oaks

CONTRACTOR Tri-Trend Construction

ENGINEER OR ARCHITECT City of Fort Collins

LOCATION OF PLACEMENT Curb & Gutter N. Side, Station 1+75, Silver Oaks Drive

EMPIRE JOB NO. 3061 MIX NO. 240/ Batch 60200M REPORT NO. 5

FINE 1560 Lbs. MEDIUM 200 Lbs. COARSE AGG. 1415 Lbs. CEMENT 476 Lbs. FLYASH 84 Lbs. WATER 31.0 Gals.

REQUIRED STRENGTH 3500 SLUMP 1.5 In. AIR 6.2 % UNIT WEIGHT 141.83 #/Ft.³ YIELD 28.17 Ft.³/Yd.³

TEMP. (CONCRETE) 75 °F (AMBIENT) 82 °F WRA φ oz/100# AIR ENTRAINMENT 1.54 oz/sack

TRUCK NO. 633 TIME 4:40 CUBIC YARDS 8.0/256 of 350 CALCIUM CHLORIDE φ ACCELERATOR φ

CYLINDER NO.	DATE MADE	DATE BROKEN	BREAK DAYS	BREAK POUNDS	BREAK PSI	AVERAGE DIA. IN	CROSS SECTIONAL AREA IN ²	LENGTH INCHES	TYPE OF FRACTURE	CURE DAY/LAB	CURE DAY/FIELD
1	6/10/93	6/17/93	7	88,000	3110	6.0	28.3	12.0	Conical	7	φ
2	6/10	6/17	7	90,000	3180	6.0	28.3	12.0	Conical	7	φ
3	6/10	7/8/93	28								
4	6/10	7/8	28								

CAST BY Empire Labs BROKEN BY: 24 HOUR _____ 48 HOUR _____ 3 DAY _____ 7 DAY CM 14 DAY _____ 28 DAY _____ 45 DAY _____

CONCRETE SUPPLIER WMN DISTRIBUTION Tri (1); City (1); WMN (1)



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CONCRETE TEST RESULTS

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SAMPLING ASTM C172 <input checked="" type="checkbox"/>	MAKING & CURING TEST SPECIMENS ASTM C31 <input checked="" type="checkbox"/>	ASTM C192 <input type="checkbox"/>	CAPPING ASTM C617 <input checked="" type="checkbox"/>	COMPRESSIVE STRENGTH ASTM C39 <input checked="" type="checkbox"/>
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NAME OF PROJECT Silver Oaks

CONTRACTOR Tri-Trend Construction

ENGINEER OR ARCHITECT City of Fort Collins

LOCATION OF PLACEMENT Curb & Gutter S. Side, Station 3+75, Silver Oaks Drive

EMPIRE JOB NO. 3061 MIX NO. 240/Batch 60200M REPORT NO. 6

FINE 1560 Lbs. MEDIUM 200 Lbs. COARSE AGG. 1415 Lbs. CEMENT 476 Lbs. FLY ASH 84 Lbs. WATER 31.0 Gals.

REQUIRED STRENGTH 3500 SLUMP 2.25 In. AIR 6.9 % UNIT WEIGHT 139.9 #/Ft.³ YIELD 28.59 Ft.³/Yd.³

TEMP. (CONCRETE) 73 °F (AMBIENT) 79 °F WRA φ oz/100# AIR ENTRAINMENT 1.54 oz/sack

TRUCK NO. 643 TIME 5:15 CUBIC YARDS 8.0/300 of 375 CALCIUM CHLORIDE φ ACCELERATOR φ

CYLINDER NO.	DATE MADE	DATE BROKEN	BREAK DAYS	BREAK POUNDS	BREAK PSI	AVERAGE DIA. IN	CROSS SECTIONAL AREA IN ²	LENGTH INCHES	TYPE OF FRACTURE	CURE DAY/LAB	CURE DAY/FIELD
1	6/10/93	6/17/93	7	88,000	3110	6.0	28.3	12.0	Conical	7	φ
2	6/10	6/17	7	87,000	3080	6.0	28.3	12.0	Conical	7	φ
3	6/10	7/8/93	28								
4	6/10	7/8	28								

CAST BY Empire Labs BROKEN BY: 24 HOUR 48 HOUR 3 DAY 7 DAY 14 DAY 28 DAY 45 DAY

CONCRETE SUPPLIER WMN DISTRIBUTION Tri (1); City (1); WMN (1)