Appendix G – Construction Quality Assurance/Construction Quality Control (CQA/CQC) Documentation

Contents (by pdf page number) – Main title (1)

- Appendix G Contents (2)
- Construction Quality Control Testing title (4)
    - Laboratory Moisture-Density Relationship (Proctor Curves) & Field Density Test Reports title (5)
        - Xcell "Field Density Test Report", "Proctor Worksheet" – embankment, ditch, culvert, road, Dinwoody cover, Dinwoody borrow, chert density (6-31)
    - Grout and Concrete Compressive Strength title (32)
        - Jorgenson "Compressive Strength Data", "Concrete Field Test" – grout (in riprap) (33-36)
- Construction Quality Assurance Testing title (37)
    - Field Reports title (38)
        - Strata "Daily Field Report" – concrete cylinders (grout), concrete slump and compressive strength (39-43)
        - Strata "Daily Field Report"
            - Embankment, culvert, Dinwoody cover field density; Grain Size Analysis (GSA) (44-56)
            - Rock L.A.R. testing (57-60)
    - Laboratory Moisture-Density Relationship (Proctor Curves) title (61)
        - Strata "Moisture Density Relationship Curves"
            - Embankment, pit run, pipe bedding, Dinwoody borrow area (62-73)
    - Field Density Test Reports title (74)
        - Strata "In-Place Field Density Tests"
            - Embankment, culvert pipe bedding, ditch, spillway subgrade, (75-80)
    - Grain Size Sieve Analysis title (81)
        - Strata Sieve Analysis results
            - Embankment, drain rock, pit run, spillway subgrade, pipe bedding/road base, chert, Dinwoody borrow area (82-92)
        - Strata "Gradation Analysis"
            - Dinwoody borrow area (93-95)
    - Laboratory Permeability Tests title (96)
        - Strata "Flexwall Perm…"
            - Dinwoody borrow area (97-99)
    - Atterberg Limits Determination title (100)
        - Strata "Atterberg Limits"
            - Dinwoody borrow area (101-103)
    - Los Angeles Abrasion Test title (104)
        - Strata "Laboratory Report" – Los Angeles Abrasion
            - Riprap (105)
    - Grout and Concrete Compressive Strength title (106)
        - Strata "Concrete Cylinder Test Report"
            - Grout (107-109)
- Borehole Permeameter Testing title (110)
    - Letter, results, map (111-113)

- Contractor Submittals (114-266) – Pre-Cast Concrete Structures Specification Sheets for Cut-Off Walls (115-182), Head-Walls (183-192), Manhole Extensions (193-198); Grout Design Mix (199-204); Grout and Concrete Truck Delivery Tickets (205-239); Polypropylene Turf Reinforcement Mat (240-242); Straw Wattles Material Properties and Specifications (243-246); Erosion Control Blankets (247-248); Bonded Fiber Matrix Materials (249-264); Seed Mix (265-266)

CONSTRUCTION
QUALITY CONTROL TESTING

LABORATORY
MOISTURE – DENSITY RELATIONSHIP
(PROCTOR CURVES)
&
FIELD DENSITY TEST REPORTS

XCELLENGINEERING

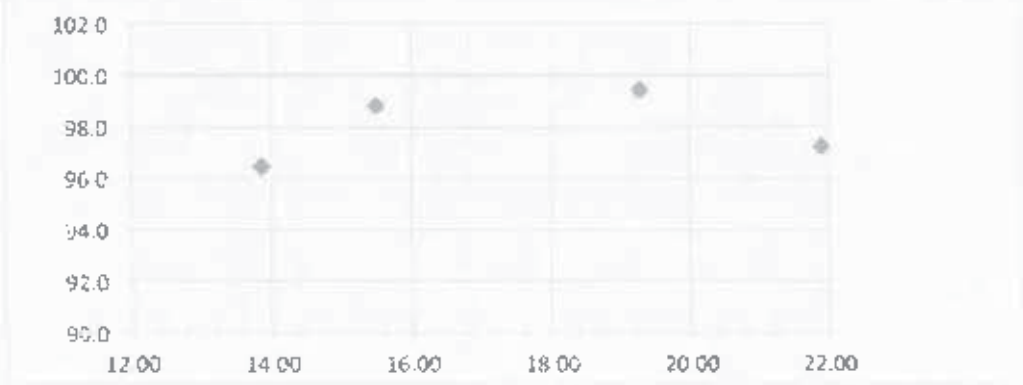
"Building on Excellence"

PROCTOR WORKSHEET

Project:	Smokey Canyon	**Client:**	Kilroy
Project Number:	P15055	**Date:**	4/6/15
Technician:	KS	**Soil Type:**	Dinwoody Borrow
Location of Sample:	Top of Hill		
ASTM Standard Used:		**Mold Weight:**	4.452
		Mold Volume:	0.03333

D-698 X **D-1557** **Other:**

Soil Sample	No.1	No.2	No.3	No.4	No.5
Moist Wt Full Mold		8.1123	8.2556	8.4048	8.4028
Wt of Moist Soil	3.4520	3.6603	3.8036	3.9528	3.9508
Moist Unit Wt	103.6	109.8	114.1	118.6	118.5
Wet Soil + Container		0.6322	0.6988	0.6094	0.3530
Dry Soil + Container		0.6108	0.6728	0.5848	0.3276
Mass of Container		0.4564	0.5050	0.4572	0.2116
Mass of Water	0.0000	0.0214	0.0260	0.0246	0.0254
Mass of Dry Soil	0.0000	0.1544	0.1678	0.1276	0.1160
Moisture % (w)	#DIV/0!	13.86	15.49	19.28	21.90
Dry Density = (Moist Unit Wt/(1+w))	#DIV/0!	96.5	98.8	99.4	97.2



Total Sample Weight (lbs)	23.7		Spec. Grav	2.45
Wt Ret on 3/4 Sieve (lbs)	1.2	5%		

	Measured	Corrected
Max Dry Density	101.1	108.5
Optimum Moisture%	13.0	16.8

Reviewed By: JPB

XCELLENGINEERING

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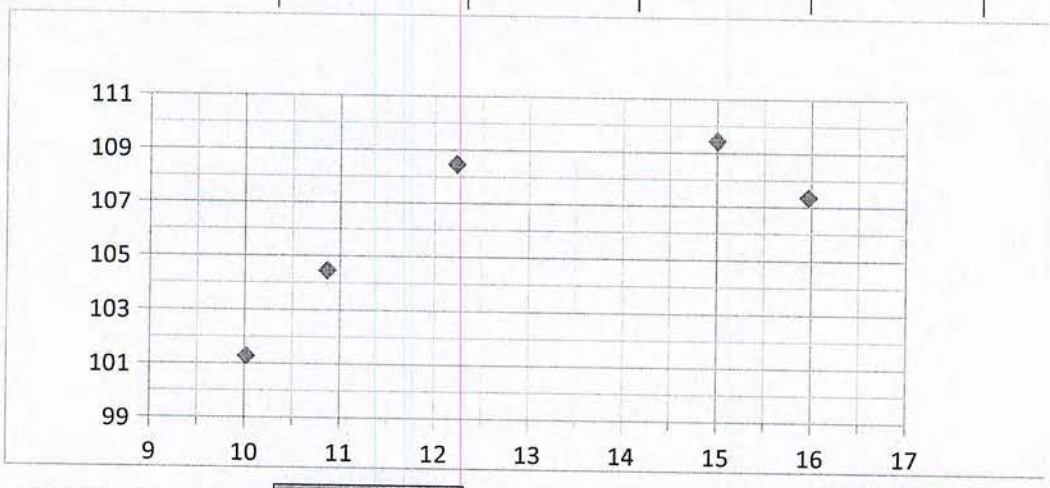
PROCTOR WORKSHEET

Project:	Smokey Canyon	**Client:**	Kilroy
Project Number:	P15055	**Date:**	4/6/2015
Technician:	KS	**Soil Type:**	Dinwoody
Location of Sample:	Saddle Basin Embankment		
ASTM Standard Used:		**Mold Weight:**	4.452
		Mold Volume:	0.03333

D-698 X **D-1557** **Other:**

Soil Sample	No.1	No.2	No.3	No.4	No.5
Moist Wt Full Mold	8.1658	8.3116	8.5096	8.6466	8.6018
Wt of Moist Soil	3.7138	3.8596	4.0576	4.1946	4.1498
Moist Unit Wt	111.4	115.8	121.7	125.9	124.5
Wet Soil + Container	0.6908	0.4054	0.3824	0.3692	0.3814
Dry Soil + Container	0.6696	0.3864	0.3642	0.3488	0.3592
Mass of Container	0.4580	0.2116	0.2154	0.2128	0.2202
Mass of Water	0.0212	0.0190	0.0182	0.0204	0.0222
Mass of Dry Soil	0.2116	0.1748	0.1488	0.1360	0.1390
Moisture % (w)	10.02	10.87	12.23	15.00	15.97
Dry Density = (Moist Unit Wt/ (1+w))	101.3	104.4	108.5	109.4	107.4



Total Sample Weight (lbs)	38.5		Spec. Grav.	2.45
Wt Ret on 3/4 Sieve (lbs)	10.4	27%		

	Measured	Corrected
Max Dry Density	110.1	121.6
Optimum Moisture	13.9	

Reviewed By: JPB

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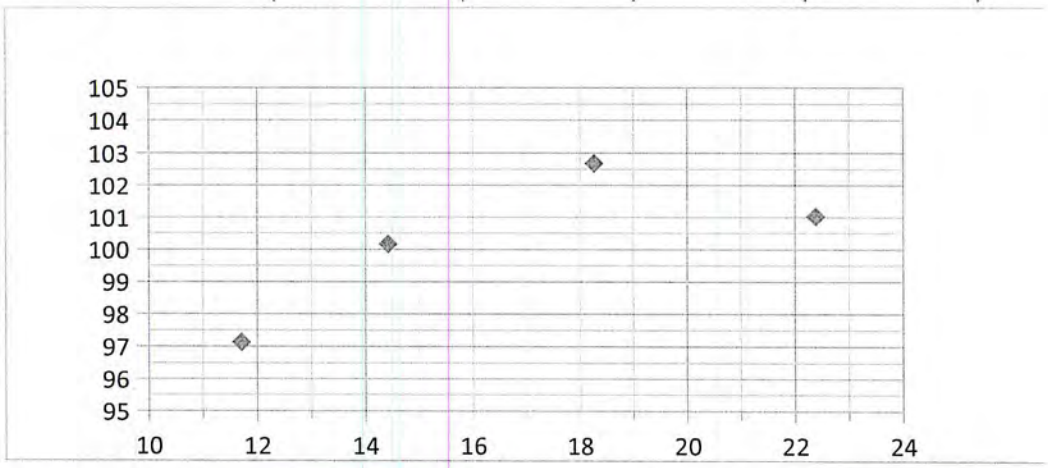
PROCTOR WORKSHEET

Project:	Smokey Canyon	**Client:**	Kilroy
Project Number:	P15055	**Date:**	4/6/2015
Technician:	KS	**Soil Type:**	Dinwoody
Location of Sample:	North Basin		
ASTM Standard Used:		**Mold Weight:**	4.452
		Mold Volume:	0.03333

D-698 X **D-1557** **Other:**

Soil Sample	No.1	No.2	No.3	No.4	No.5
Moist Wt Full Mold	8.0682	8.2726	8.5002	8.5728	
Wt of Moist Soil	3.6162	3.8206	4.0482	4.1208	#VALUE!
Moist Unit Wt	108.5	114.6	121.5	123.6	#VALUE!
Wet Soil + Container	0.7714	0.7162	0.6984	0.7852	
Dry Soil + Container	0.7580	0.6982	0.6790	0.7462	
Mass of Container	0.6436	0.5734	0.5728	0.5720	
Mass of Water	0.0134	0.0180	0.0194	0.0390	#VALUE!
Mass of Dry Soil	0.1144	0.1248	0.1062	0.1742	#VALUE!
Moisture % (w)	11.71	14.42	18.27	22.39	#VALUE!
Dry Density = (Moist Unit Wt/ (1+w))	97.1	100.2	102.7	101.0	#VALUE!



Total Sample Weight (lbs)	41.2		Spec. Grav.	2.45
Wt Ret on 3/4 Sieve (lbs)	17.8	43%		

	Measured	Corrected
Max Dry Density	103.0	124.6
Optimum Moisture	19.1	

Reviewed By: JPB

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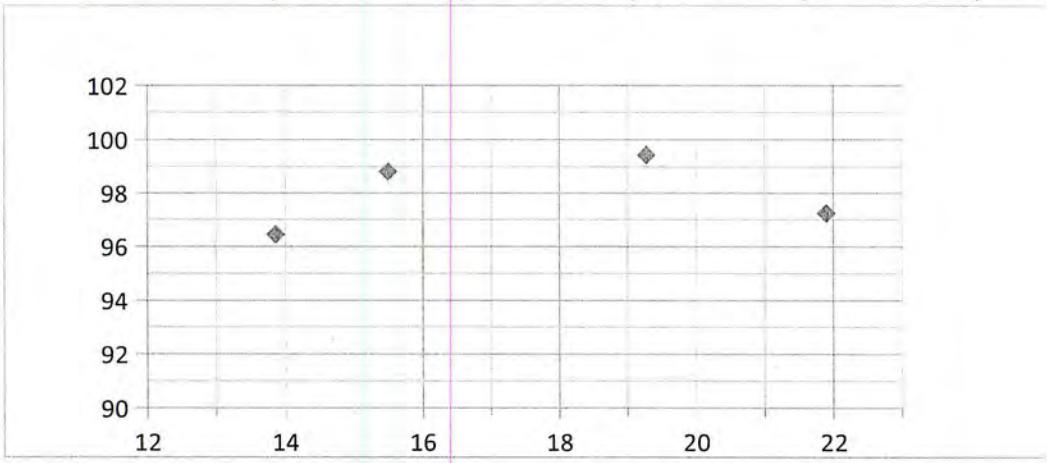
PROCTOR WORKSHEET

Project:	Smokey Canyon	**Client:**	Kilroy
Project Number:	P15055	**Date:**	4/6/2015
Technician:	KS	**Soil Type:**	Dinwoody Barrow
Location of Sample:	Top of Hill		
ASTM Standard Used:		**Mold Weight:**	4.452
		Mold Volume:	0.03333

D-698 X **D-1557** **Other:**

Soil Sample	No.1	No.2	No.3	No.4	No.5
Moist Wt Full Mold		8.1123	8.2556	8.4048	8.4028
Wt of Moist Soil	#VALUE!	3.6603	3.8036	3.9528	3.9508
Moist Unit Wt	#VALUE!	109.8	114.1	118.6	118.5
Wet Soil + Container		0.6322	0.6988	0.6094	0.3530
Dry Soil + Container		0.6108	0.6728	0.5848	0.3276
Mass of Container		0.4564	0.5050	0.4572	0.2116
Mass of Water	#VALUE!	0.0214	0.0260	0.0246	0.0254
Mass of Dry Soil	#VALUE!	0.1544	0.1678	0.1276	0.1160
Moisture % (w)	#VALUE!	13.86	15.49	19.28	21.90
Dry Density = (Moist Unit Wt/ (1+w))	#VALUE!	96.5	98.8	99.4	97.2



Total Sample Weight (lbs)	23.7		Spec. Grav.	2.45
Wt Ret on 3/4 Sieve (lbs)	3.4	14%		

	Measured	Corrected
Max Dry Density	101.1	108.5
Optimum Moisture	18.0	

Reviewed By: JPB

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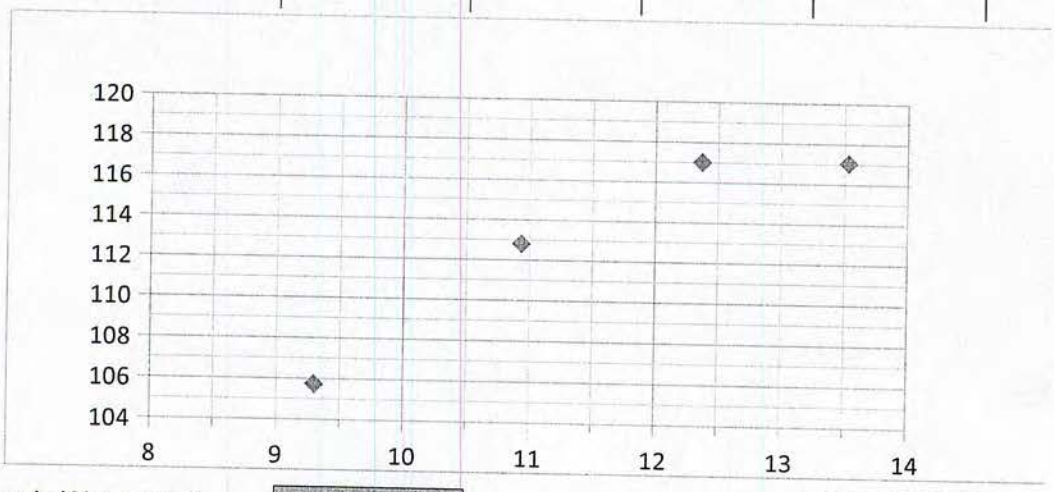
PROCTOR WORKSHEET

Project:	Smokey Canyon	**Client:**	Kilroy
Project Number:	P15055	**Date:**	4/6/2015
Technician:	KS	**Soil Type:**	Dinwoody
Location of Sample:	South Embankment #1		
ASTM Standard Used:		**Mold Weight:**	4.452
		Mold Volume:	0.03333

D-698 X **D-1557** **Other:**

Soil Sample	No.1	No.2	No.3	No.4	No.5
Moist Wt Full Mold	8.3040	8.6232	8.8342	8.8820	
Wt of Moist Soil	3.8520	4.1712	4.3822	4.4300	#VALUE!
Moist Unit Wt	115.6	125.1	131.5	132.9	#VALUE!
Wet Soil + Container	0.3210	0.7388	0.7138	0.7194	
Dry Soil + Container	0.3113	0.7224	0.6983	0.7020	
Mass of Container	0.2070	0.5724	0.5730	0.5734	
Mass of Water	0.0097	0.0164	0.0155	0.0174	#VALUE!
Mass of Dry Soil	0.1043	0.1500	0.1253	0.1286	#VALUE!
Moisture % (w)	9.30	10.93	12.37	13.53	#VALUE!
Dry Density = (Moist Unit Wt/ (1+w))	105.7	112.8	117.0	117.1	#VALUE!



Total Sample Weight (lbs)	37.2		Spec. Grav.	2.45
Wt Ret on 3/4 Sieve (lbs)	12.0	32%		

	Measured	Corrected
Max Dry Density	117.3	128.8
Optimum Moisture	13.0	

Reviewed By: JPB

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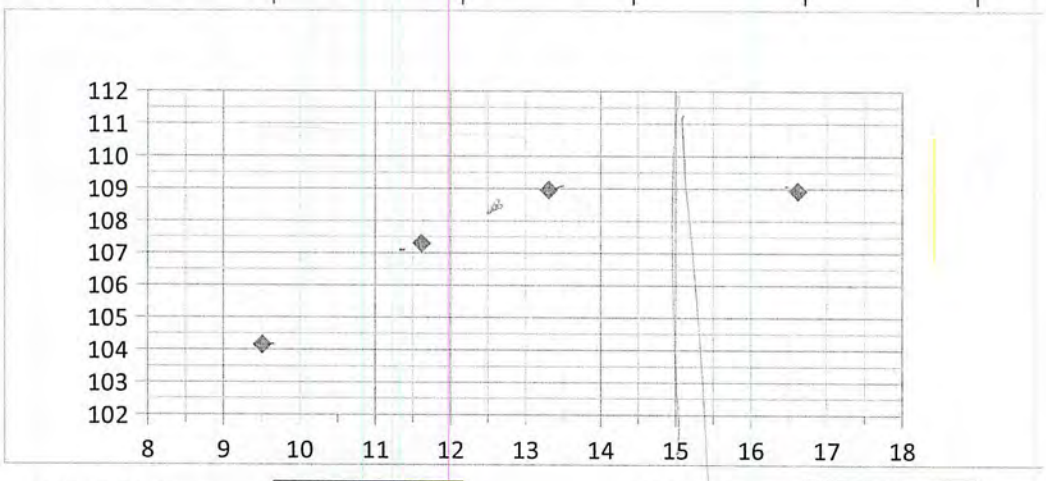
PROCTOR WORKSHEET

Project:	Smokey Canyon	**Client:**	Kilroy
Project Number:	P15055	**Date:**	4/6/2015
Technician:	KS	**Soil Type:**	Dinwoody
Location of Sample:	South Embankment #2		
ASTM Standard Used:		**Mold Weight:**	4.452
		Mold Volume:	0.03333

D-698 X **D-1557** **Other:**

Soil Sample	No.1	No.2	No.3	No.4	No.5
Moist Wt Full Mold	8.2538	8.4438	8.5670	8.6860	
Wt of Moist Soil	3.8018	3.9918	4.1150	4.2340	#VALUE!
Moist Unit Wt	114.1	119.8	123.5	127.0	#VALUE!
Wet Soil + Container	0.7060	0.6430	0.6326	0.8284	
Dry Soil + Container	0.6886	0.6236	0.6120	0.8020	
Mass of Container	0.5056	0.4566	0.4572	0.6432	
Mass of Water	0.0174	0.0194	0.0206	0.0264	#VALUE!
Mass of Dry Soil	0.1830	0.1670	0.1548	0.1588	#VALUE!
Moisture % (w)	9.51	11.62	13.31	16.62	#VALUE!
Dry Density = (Moist Unit Wt/ (1+w))	104.2	107.3	109.0	108.9	#VALUE!



Total Sample Weight (lbs)	21.0		Spec. Grav.	2.45
Wt Ret on 3/4 Sieve (lbs)	6.0	29%		

	Measured	Corrected
Max Dry Density	109.9	122.2
Optimum Moisture	15.0	

Reviewed By: JPB

XCELL ENGINEERING, LC
260 Laurel Lane
Chubbuck, Idaho 83202
(208) 237-5900 Phone
(208) 237-5925 fax

Project: Smokey Canyon
Number: P15055
Engineer/Tech: KS

Client: Kilroy
Date: 4-13-15

	Soil Type	**Max Wt**
1)	Dinwoody	128.8
2)		
3)		
4)		

ASTM Standard Used:

D-698 X D-1557

PAGE 1

No.	Location & Elevation South Sediment Basin	Curve Used	Wet Den pcf	Dry Den pcf	Moist %	% Comp
1	1st Lift N	1	140.3	125.9	11.4	98
2	1st Lift N	1	138.3	123.0	12.5	96
3	2nd Lift	1	140.7	125.7	11.9	98
4	3rd Lift N	1	142.6	128.8	10.7	100
5	3rd Lift S	1	137.3	123.2	11.5	96
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

Reviewed By: KB for PB

Xcell Engineering makes no warranty, representation or certification of any kind with regard to suitability of the property, for any purpose whatsoever, on which the tests above have been performed. The testing has been performed, as requested, in general accordance with the ASTM Standards. However, it is the responsibility of the property owner, contractor and others with interest in, or inspection responsibility for the property to determine suitability and how the preceding results may impact proposed uses.

XCELL ENGINEERING, LC
260 Laurel Lane
Chubbuck, Idaho 83202
(208) 237-5900 Phone
(208) 237-5925 fax

Project: Smokey Canyon
Number: P15055
Engineer/Tech: JPB

Client: Kilroy
Date: 4-22-15

	Soil Type	**Max Wt**
1)	S. Emb. #2 Dinwoody	122.2
2)		
3)		
4)		

ASTM Standard Used:

D-698 X D-1557

PAGE 1

No.	Location & Elevation SOUTH SEDIMENT BASIN	Curve Used	Wet Den pcf	Dry Den pcf	Moist %	% Comp
1	Lift #7	1	134.7	116.9	15.2	96
2	Lift #6	1	136.4	118.9	14.7	97
3	Lift #5	1	137.8	118.4	16.4	97
4	Lift #4	1	141.4	123.6	14.4	101
5	Lift #8	1	138.5	121.6	13.9	100
6	Lift#9	1	138.7	122.9	12.9	101
7	Lift 10A Outflow E	1	139.6	122.5	13.9	100
8	Lift 10B Outflow W	1	134.4	118.9	13.0	97
9	Lift 11A N	1	138.3	126.4	9.4	104
10	Lift 11B W	1	143.9	130.6	10.2	107
11	Lift 8 Inside	1	132.1	118.1	11.9	97
12	Lift 6 Inside	1	139.0	125.4	10.8	103
13						
14						
15						
16						

Reviewed By: _____

Xcell Engineering makes no warranty, representation or certification of any kind with regard to suitability of the property, for any purpose whatsoever, on which the tests above have been performed. The testing has been performed, as requested, in general accordance with the ASTM Standards. However, it is the responsibility of the property owner, contractor and others with interest in, or inspection responsibility for the property to determine suitability and how the preceding results may impact proposed uses.

XCELL ENGINEERING, LC
260 Laurel Lane
Chubbuck, Idaho 83202
(208) 237-5900 Phone
(208) 237-5925 fax

Project: Smokey Canyon
Number: P15055
Engineer/Tech: KS

Client: Kilroy
Date: 5-6-15

	Soil Type	**Max Wt**
1)	Dinwoody	122.2
2)		
3)		
4)		

ASTM Standard Used:

D-698 X D-1557

PAGE 1

No.	Location & Elevation Rhine#1	Curve Used	Wet Den pcf	Dry Den pcf	Moist %	% Comp
	**DG dozer pulling					
	WRT pnuematic roller					
1	0 Passes	1	128.6	109.6	17.3	90
2	1 Pass	1	129.2	110.6	16.8	91
3	2 Passes	1	129.9	111.4	16.6	91
4	3 Passes	1	128.7	109.6	17.4	90
5	*4 Passes	1	129.3	112.5	14.9	92
6	5 Passes	1	129.7	112.3	15.5	92

Reviewed By: _____

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XCELL ENGINEERING, LLC
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E-mail: xcelleng@qwestoffice.net

November 2, 2015
File: P15055 Smokey Canyon

Jeff Zelazoski
Kilroy, LLC
PO Box 729
Afton WY 83110

RE: **Compaction Moisture**
Smoky Canyon Mine
Caribou County, Idaho

Jeff:
I have attached the proctors for the density testing from June to September. The optimum moisture content determined on the proctor curves has been adjusted to take into account the higher unit weight of larger rock in the materials. The optimum moisture content is about 1-2% lower when the rock correction is taken into account. This indicates moisture content more in accordance with that indicated on the proctors, with the exception of tests performed more than a day after placement. In these instances the upper 6-12 inches of material was drier (summer weather) and indicated lower moisture content. If you have questions, please call.

Sincerely,
Xcell Engineering, LLC

J. Paul Bastian, P.E

XCELLENGINEERING

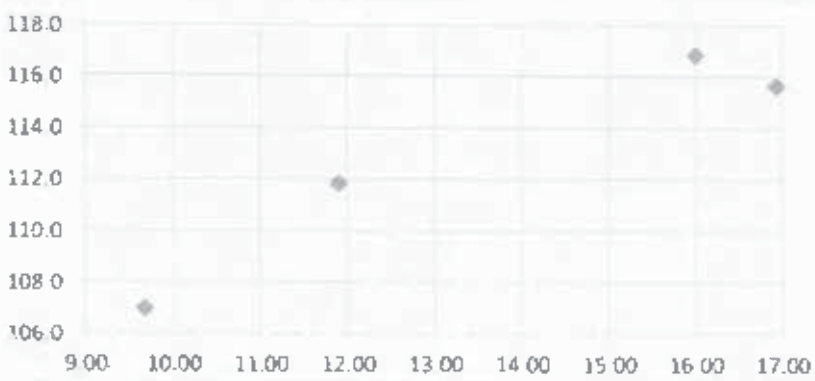
"Building on Excellence"

PROCTOR WORKSHEET

Project:	Smokey Canyon	**Client:**	Kilroy
Project Number:	P15055	**Date:**	6/9/15
Technician:	LL	**Soil Type:**	B-Dinwoody
Location of Sample:	Picked UP		
ASTM Standard Used:		**Mold Weight:**	4.452
		Mold Volume:	0.03333

D-698 X **D-1557** **Other:**

Soil Sample	No.1	No.2	No.3	No.4	No.5
Moist Wt Full Mold	8.3626	8.6226	8.7942	8.9682	8.9578
Wt of Moist Soil	3.9106	4.1706	4.3422	4.5162	4.5058
Moist Unit Wt	117.3	125.1	130.3	135.5	135.2
Wet Soil + Container	0.6676	0.7334	0.7806	0.5908	0.6514
Dry Soil + Container	0.6592	0.7164	0.6924	0.5724	0.6234
Mass of Container	0.5724	0.5736	0.5722	0.4574	0.4580
Mass of Water	0.0084	0.0170	0.0882	0.0184	0.0280
Mass of Dry Soil	0.0868	0.1428	0.1202	0.1150	0.1654
Moisture % (w)	9.68	11.90	73.38	16.00	16.93
Dry Density = (Moist Unit Wt/(1+w))	107.0	111.8	75.1	116.8	115.6



Total Sample Weight (lbs)	29.5	Spec. Grav	2.45
Wt Ret on 3/4 Sieve (lbs)	4.2		

	Measured	Corrected
Max Dry Density	116.8	121.9
Optimum Moisture%	16.0	15.3

Reviewed By: JPB

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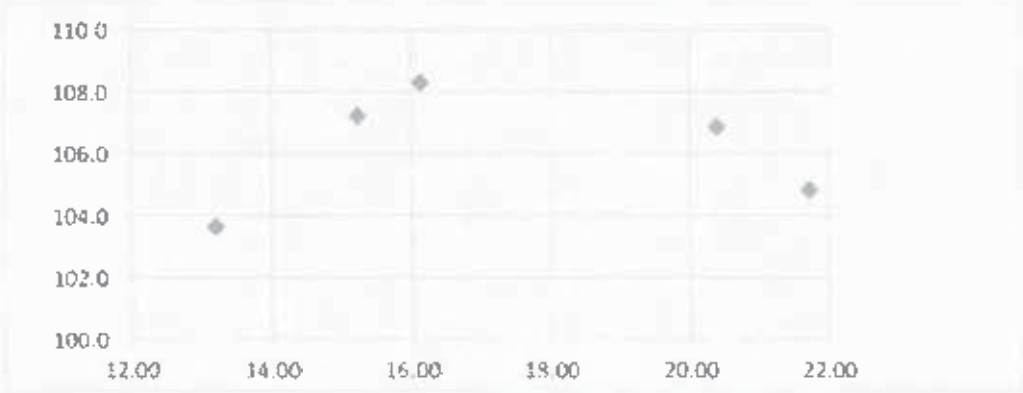
PROCTOR WORKSHEET

Project:	Smokey Canyon	**Client:**	Kilroy
Project Number:	P15055	**Date:**	6/9/15
Technician:	LL	**Soil Type:**	D-Dinwoody
Location of Sample:	Picked UP		
ASTM Standard Used:		**Mold Weight:**	4.452
		Mold Volume:	0.03333

D-698 X **D-1557** **Other:**

Soil Sample	No.1	No.2	No.3	No.4	No.5
Moist Wt Full Mold	8.3622	8.5698	8.6434	8.7394	8.7042
Wt of Moist Soil	3.9102	4.1178	4.1914	4.2874	4.2522
Moist Unit Wt	117.3	123.5	125.8	128.6	127.6
Wet Soil + Container	0.5968	0.6074	0.5788	0.5464	0.5810
Dry Soil + Container	0.5825	0.5882	0.5618	0.5272	0.5608
Mass of Container	0.4742	0.4622	0.4564	0.4330	0.4678
Mass of Water	0.0143	0.0192	0.0170	0.0192	0.0202
Mass of Dry Soil	0.1083	0.1260	0.1054	0.0942	0.0930
Moisture % (w)	13.29	15.24	16.13	20.38	21.72
Dry Density = (Moist Unit Wt/(1+w))	103.6	107.2	108.3	106.9	104.8



Total Sample Weight (lbs)	29.5	Spec. Grav	2.45
Wt Ret on 3/4 Sieve (lbs)	4.2		

	Measured	Corrected
Max Dry Density	109.3	119.3
Optimum Moisture%	18.0	16.5

Reviewed By: JPB

XCELLENGINEERING

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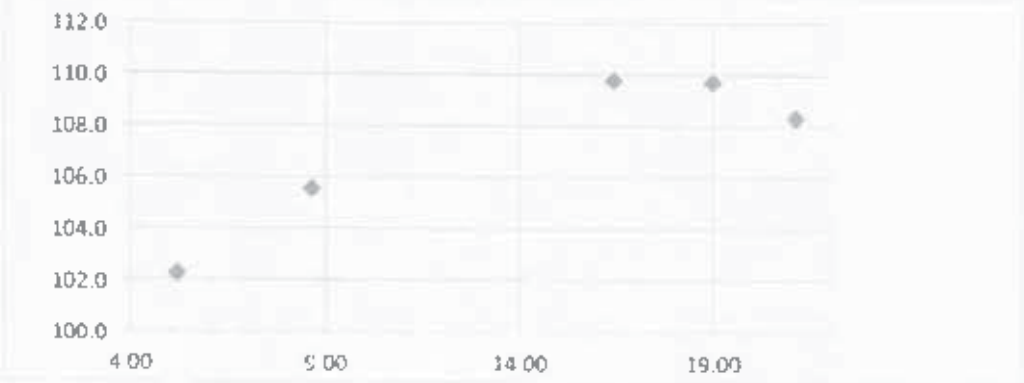
PROCTOR WORKSHEET

Project:	Smokey Canyon	**Client:**	Kilroy
Project Number:	P15055	**Date:**	6/10/15
Technician:	LL	**Soil Type:**	A-Dinwoody
Location of Sample:	Picked UP		
ASTM Standard Used:		**Mold Weight:**	4.462
		Mold Volume:	0.03333

D-698 X **D-1557** **Other:**

Soil Sample	No.1	No.2	No.3	No.4	No.5
Moist Wt Full Mold	8.0370	8.2740	8.7118	8.8030	8.8254
Wt of Moist Soil	3.5850	3.8220	4.2598	4.3510	4.3734
Moist Unit Wt	107.6	114.7	127.8	130.5	131.2
Wet Soil + Container	0.6758	0.6988	0.6554	0.7324	0.6570
Dry Soil + Container	0.6707	0.6888	0.6436	0.7062	0.6422
Mass of Container	0.5728	0.5734	0.5718	0.5736	0.5722
Mass of Water	0.0051	0.0100	0.0118	0.0262	0.0148
Mass of Dry Soil	0.0979	0.1154	0.0718	0.1326	0.0700
Moisture % (w)	5.21	8.67	16.42	19.69	21.14
Dry Density = (Moist Unit Wt/(1+w))	102.2	105.5	109.8	109.7	108.3



Total Sample Weight (lbs)	65.0		Spec. Grav	2.3
Wt Ret on 3/4 Sieve (lbs)	4.8			

	Measured	Corrected
Max Dry Density	110.0	116.4
Optimum Moisture%	16.4	15.4

Reviewed By: JPB

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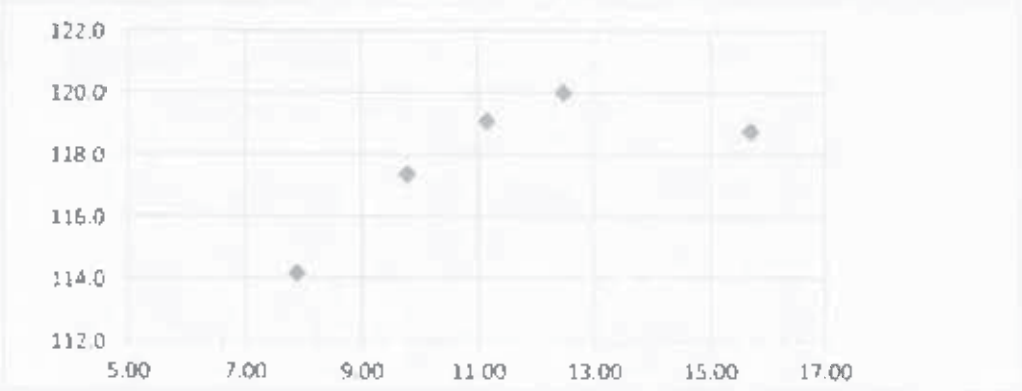
PROCTOR WORKSHEET

Project:	Smokey Canyon	**Client:**	Kilroy
Project Number:	P15055	**Date:**	6/12/15
Technician:	LL	**Soil Type:**	SP Chert
Location of Sample:	Picked UP		
ASTM Standard Used:		**Mold Weight:**	4.452
		Mold Volume:	0.03333

D-698 X **D-1557** **Other:**

Soil Sample	No.1	No.2	No.3	No.4	No.5
Moist Wt Full Mold	8.5566	8.7454	8.8632	8.9500	9.0312
Wt of Moist Soil	4.1046	4.2934	4.4112	4.4980	4.5792
Moist Unit Wt	123.2	128.8	132.4	135.0	137.4
Wet Soil + Container	0.5136	0.5316	0.5558	0.5876	0.5574
Dry Soil + Container	0.5062	0.5224	0.5446	0.5736	0.5454
Mass of Container	0.4124	0.4284	0.4442	0.4614	0.4690
Mass of Water	0.0074	0.0092	0.0112	0.0140	0.0120
Mass of Dry Soil	0.0938	0.0940	0.1004	0.1122	0.0764
Moisture % (w)	7.89	9.79	11.16	12.48	15.71
Dry Density = (Moist Unit Wt/(1+w))	114.1	117.3	119.1	120.0	118.7



Total Sample Weight (lbs)	40.8	Spec. Grav	2.3
Wt Ret on 3/4 Sieve (lbs)	15.6		

	Measured	Corrected
Max Dry Density	120.4	132.8
Optimum Moisture%	13.2	12.0

Reviewed By: JPB

JUN 3 0 2015

XCELL ENGINEERING, LC
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Chubbuck, Idaho 83202
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(208) 237-5925 fax

Project: East Pond EMB.
Number: P15055
Engineer/Tech: JPB

Client: Kilroy
Date: 6-26-15

	Soil Type	Max Wt
1)	Dinwoody A	116.4
2)		
3)		
4)		

ASTM Standard Used:

D-698 X D-1557

PAGE 1

No.	Location & Elevation	Curve Used	Wet Den pcf	Dry Den pcf	Moist %	% Comp
1	Top 1	1	128.0	114.2	12.1	98
2	Top 2	1	129.3	113.9	13.5	98
3	Top 3	1	130.3	119.5	8.9	103 (ROCK)
4	Top 4	1	129.5	112.9	14.7	97
5	Top 5	1	129.2	113.2	14.1	97
6	EMB 4	1	128.2	111.1	15.3	96
7	EMB 3	1	129.0	112.0	15.2	96
8	EMB 2	1	137.3	118.6	15.7	102
9	EMB 1	1	133.8	117.9	13.4	101
10						
11						
12						
13						
14						
15						
16						

Reviewed By: _____

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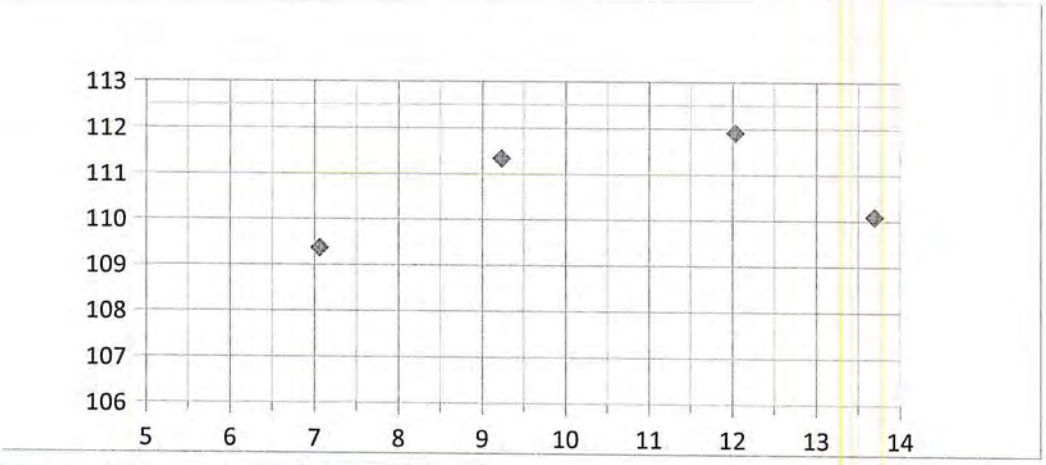
PROCTOR WORKSHEET

Project:	Saddle Infiltration Basin	**Client:**	Kilroy
Project Number:	P15055	**Date:**	7/13/2015
Technician:	KS	**Soil Type:**	wells formation sand
Location of Sample:	On Site		
ASTM Standard Used:		**Mold Weight:**	4.452
		Mold Volume:	0.03333

D-698 X **D-1557** **Other:**

Soil Sample	No.1	No.2	No.3	No.4	No.5
Moist Wt Full Mold	8.5054	8.3550	8.6308	8.6234	
Wt of Moist Soil	4.0534	3.9030	4.1788	4.1714	
Moist Unit Wt	121.6	117.1	125.4	125.2	
Wet Soil + Container	0.5308	0.5932	0.5778	0.6436	
Dry Soil + Container	0.5246	0.5842	0.5700	0.6350	
Mass of Container	0.4574	0.4568	0.5052	0.5722	
Mass of Water	0.0062	0.0090	0.0078	0.0086	
Mass of Dry Soil	0.0672	0.1274	0.0648	0.0628	
Moisture % (w)	9.23	7.06	12.04	13.69	
Dry Density = (Moist Unit Wt/ (1+w))	111.3	109.4	111.9	110.1	



Total Sample Weight (lbs)	25.6		Spec. Grav.	2.45
Wt Ret on 3/4 Sieve (lbs)	0.6	2%		

	Measured	Corrected
Max Dry Density	112.2	113.2
Optimum Moisture	11.1	

Reviewed By: JPB

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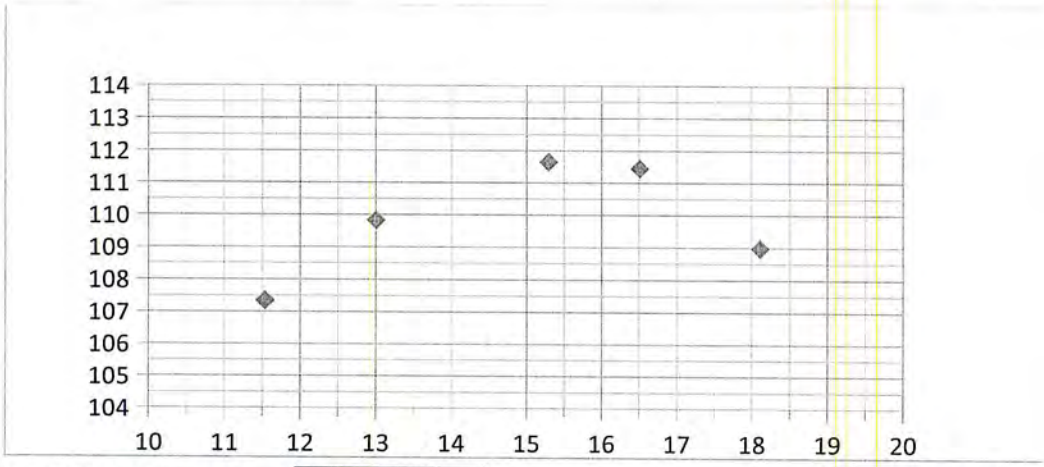
PROCTOR WORKSHEET

Project:	Saddle Mtn L. Basin	**Client:**	Kilroy
Project Number:	P15055	**Date:**	7/13/2015
Technician:	LL	**Soil Type:**	TP #2 Gravel & Clay
Location of Sample:	On Site		
ASTM Standard Used:		**Mold Weight:**	4.452
		Mold Volume:	0.03333

D-698 X **D-1557** **Other:**

Soil Sample	No.1	No.2	No.3	No.4	No.5
Moist Wt Full Mold	8.4426	8.5888	8.7425	8.7802	8.7420
Wt of Moist Soil	3.9906	4.1368	4.2905	4.3282	4.2900
Moist Unit Wt	119.7	124.1	128.7	129.9	128.7
Wet Soil + Container	0.6034	0.5530	0.6728	0.6930	0.6970
Dry Soil + Container	0.5932	0.5420	0.6594	0.6760	0.6778
Mass of Container	0.5048	0.4574	0.5718	0.5730	0.5718
Mass of Water	0.0102	0.0110	0.0134	0.0170	0.0192
Mass of Dry Soil	0.0884	0.0846	0.0876	0.1030	0.1060
Moisture % (w)	11.54	13.00	15.30	16.50	18.11
Dry Density = (Moist Unit Wt/ (1+w))	107.3	109.8	111.6	111.5	109.0



Total Sample Weight (lbs)	33.9		Spec. Grav.	2.45
Wt Ret on 3/4 Sieve (lbs)	8.7	26%		

	Measured	Corrected
Max Dry Density	111.8	122.3
Optimum Moisture	15.5	

Reviewed By: JPB

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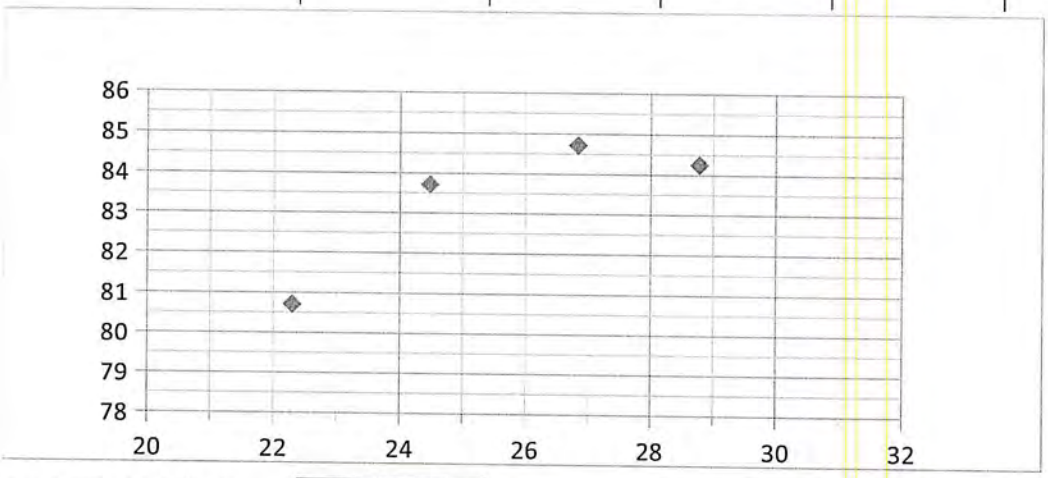
PROCTOR WORKSHEET

Project:	Saddle Infiltration Basin	**Client:**	Kilroy
Project Number:	P15055	**Date:**	7/14/2015
Technician:	LL	**Soil Type:**	TP#1 Clay
Location of Sample:	On Site		
ASTM Standard Used:		**Mold Weight:**	4.452
		Mold Volume:	0.03333

D-698 X **D-1557** **Other:**

Soil Sample	No.1	No.2	No.3	No.4	No.5
Moist Wt Full Mold	7.7418	7.9256	8.0332	8.0684	
Wt of Moist Soil	3.2898	3.4736	3.5812	3.6164	
Moist Unit Wt	98.7	104.2	107.4	108.5	
Wet Soil + Container	0.6728	0.6924	0.6778	0.6716	
Dry Soil + Container	0.6546	0.6688	0.6412	0.6236	
Mass of Container	0.5730	0.5724	0.5048	0.4568	
Mass of Water	0.0182	0.0236	0.0366	0.0480	
Mass of Dry Soil	0.0816	0.0964	0.1364	0.1668	
Moisture % (w)	22.30	24.48	26.83	28.78	
Dry Density = (Moist Unit Wt/ (1+w))	80.7	83.7	84.7	84.3	



Total Sample Weight (lbs)	25.0		Spec. Grav.	2.45
Wt Ret on 3/4 Sieve (lbs)	0.0	0%		

	Measured	Corrected
Max Dry Density	84.9	84.9
Optimum Moisture	26.6	

Reviewed By: JPB

XCELL ENGINEERING, LLC
260 Laurel Lane
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Ph (208) 237-5900 Fax (208) 237-5926

PROJECT DAILY

Project: NORTH SEDIMENT BASIN
Client: KILKOY
Project Number: P15055
Date: 8-3-15
Engineer/Tech: JPB

Work Performed: DENSITY TESTING ON NORTH SEDIMENT BASIN

Time: 7.5 HRS
Mileage: 227

Items of Non-conformance: N/A

Reported to: KIT W/KILKOY

Summary: FOUR TEST PITS WERE PREPARED @ SPECIFIC LOCATIONS AND ELEVATIONS. BORROW MATERIAL IS DINWIDDY. BORROW W/ MAX UNIT WEIGHT OF 108.5 PCF & OPTIMUM MOISTURE @ 18.0% THE COMPACTED FILL WAS UNIFORM & DENSE W/ MOISTURE READINGS FROM 14.3 - 21.5. THE LOCATIONS WERE SURVEYED IN BY KILKOY & LOCATION DESIGNATION & ELEVATION INDICATED AND RECORDED AS DIRECTED.

Reviewed By: [illegible]

XCELL ENGINEERING, LC
260 Laurel Lane
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(208) 237-5900 Phone
(208) 237-5925 fax

Project: North Sediment Basin
Number: P15055
Engineer/Tech: JPB

Client: Kiroy
Date: 8-3-15

	Soil Type	Max Wt
1)	Dinwoody barrow	108.5
2)		
3)		
4)		

ASTM Standard Used:

D-698 X D-1557 Other: Spec 95%

PAGE: 1 of 1

No.	Location & Elevation	Curve Used	Wet Den pcf	Dry Den pcf	Moist %	% Comp
1	Location #3 @ El. 7410	1	126.8	105.3	20.4	97
2	Location #4 @ El. 7411	1	119.8	104.8	14.3	97
3	Location #2 @ El. 7412	1	127.3	106.3	19.8	98
4	Location #1 @ El. 7414	1	126.9	104.4	21.5	96
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SEP 2 4 2015

Project: Smokey Canyon
Number: P15055
Engineer/Tech: JPB

Client: Kilroy
Date: 9-9-15

	Soil Type	Max Wt
1)	Dinwoody	116.4
2)	Dinwoody/borrow	108.5
3)	LL Chert	129.1
4)		

ASTM Standard Used:

D-698 X D-1557 Other: Spec 95%

PAGE 1 of 2

No.	Location & Elevation Location	Curve Used	Wet Den pcf	Dry Den pcf	Moist %	% Comp	Elevation
1	S-central pond top of emb	1	125.2	113.9	10.3	98	7223.63
2	S-central pond W side of emb	1	127.6	115.8	10.2	99	7220.88
3	S-central pond E side of emb	1	121.9	110.3	10.4	95	7221.07
4	S-central pond pond bottom E end	1	122.9	113.7	8.1	98	7217.84
5	S-central pond bottom center	1	121.0	111.2	8.7	96	7217.64
6	S-central pond bottom W end	1	122.8	112.6	9.1	97	7218.29
7	EOS bottom N end	1	128.0	117.3	9.2	101	7135.11
8	EOS bottom S end	1	130.3	118.7	9.8	102	7134.05
9	EOS top W emb	1	130.3	118.6	9.9	102	7142.21
10	EOS top N emb	1	124.7	115.1	8.3	99	7141.42
11	EOS S emb	2	123.7	112.6	9.9	97	7132.76
12	N Haul rd E side culvert xing	3	137.6	127.9	7.5	99	7137.53
13	N Haul rd W side culvert xing	3	130.0	126.5	3.4	98	7426.07
14	W side ditch emb Sta 5+00 Offset 980 R	2	128.8	110.8	16.2	102	7266.46
15	W side ditch emb Sta 4+00 Offset 940 R	2	127.2	109.3	16.4	101	7766.80
16	W side ditch emb Sta 5+00 Offset 780 R	2	120.2	107.7	11.5	99	7279.75

East Side EOS

N Culvert 42"

Reviewed By: [signature]

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SEP 2 4 2015

Project: Smokey Canyon
Number: P15055
Engineer/Tech: JPB

Client: Kilroy
Date: 9-9-15

	Soil Type	Max Wt
1)	Dinwoody	116.4
2)	Dinwoody-borrow	108.5
3)	LL Chert	129.1
4)		

ASTM Standard Used:

D-698 X D-1557 Other: Spec 95%

No.	Location & Elevation Location	Curve Used	Wet Den pcf	Dry Den pcf	Moist %	% Comp	Elevation
1	W side ditch emb	1	125.0	113.6	10.0	98	7290.56
2	W side ditch emb Sta 4+60 Offset 280'R	1	130.0	119.3	9.0	102	7316.71
3	W side access benchSta 7+00 Offset 480'R	1	128.6	119.8	7.3	103	7352.36
4	W side access bench Sta 8+60 Offset 140'R	1	133.9	120.3	11.3	103	7359.14
5	W side ditch emb Sta 7+50 Offset 520'R	1	134.6	117.4	14.7	101	7366.02
6	W side ditch emb Sta 8+00 Offset 600'R	2	125.2	107.1	16.9	99	7360.68
7	W side ditch emb Sta 6+00 Offset 720'R.	2	118.7	105.3	12.7	98	7362.35
8	N Haul rd ditch Sta 2+00 Offset 180'L	2	121.2	107.5	13.0	99	7461.62
9	N Haul rd. Sta 3+50 Offset 60'L 600'R	2	123.5	108.0	14.3	100	7449.66

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SEP 2 4 2015

Project: Smokey Canyon
Number: P15055
Engineer/Tech: JPB

Client: Kilroy
Date: 9-21-15

	Soil Type	Max Wt
1)	SP Chert	132.8
2)	D Dinwoody	119.3
3)		
4)		

ASTM Standard Used:

D-698 X D-1557 Other: Spec 95%

PAGE 1

No.	Location & Elevation	Curve Used	Wet Den pcf	Dry Den pcf	Moist %	% Comp	Elevation
1	S Culvert Lift 4	1	149	138.9	7.4	105	7244.75
2	S Culvert Lift 4	1	150.5	141.8	6.1	107	7240.72
3	E Slope Upper Ditch Sta 31+00 Offset 480'R	2	131.3	115.5	13.7	97	7192.65
4	E Slope Upper Ditch Sta 31+00 Offset 240'R	2	137.5	124.0	10.9	104	7198.77
5	Lower W Side Ditch Sta 2+90 Offset 830'R	2	131.3	114.8	14.4	96	7300.52
6	Lower W Side Ditch Sta 2+00 Offset 510'R	2	132.8	119.8	10.9	100	7287.88
7	W slope Access Rd Sta 0+00 Offset 250'R	2	136.2	118.9	14.5	100	7355.86
8	W slope Access Rd Sta 4+00 Offset 650'R	2	132.6	114.9	15.4	96	7362.25
9	W slope Upper Ditch Sta 6+50 Offset 420'R	2	133.8	120.1	11.4	101	7369.12
10	W Slope Upper Ditch Sta 5+00 Offset 300'R	2	138.3	120.5	14.7	101	7385.23

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SEP 2 4 201

Project: Smokey Canyon
Number: P15055
Engineer/Tech: JPB

Client: Kilroy
Date: 9-23-15

	Soil Type	Max Wt
1)	SP Chert	132.8
2)	B Dinwoody	121.9
3)		
4)		

ASTM Standard Used:

D-698 X D-1557 Other: Spec 95%

PAGE 1

No.	Location & Elevation	Curve Used	Wet Den pcf	Dry Den pcf	Moist %	% Comp
1	S Culvert Final Lft Offset 24' W end 36"	1	136.6	129.8	5.2	98
2	S Culvert Final Lft Offset 75' W end 36"	1	150.3	141.1	6.5	106
3	W ditch FG 200'downstream of Culvert 42"	2	138.4	123.2	12.4	101
4	W ditch FG 100'downstream of Culvert 42"	2	137.1	122.6	11.9	101
5						
6						
7						
8						

Reviewed By:

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FIELD DENSITY TEST REPORT

Project: Smokey Canyon
Number: P15055
Engineer/Tech: KS

Client: Kilroy
Date: 11-20-15

	Soil Type	Max Wt	
1)	Dinwoody-pond	7296	115.6 ← West side South Sed Basin
2)			

ASTM Standard Used:

D-698 X D-1557 Other: Spec 95%

PAGE 1

No.	Location & Elevation Pond 7296	Curve Used	Wet Den pcf	Dry Den pcf	Moist %	% Comp
1	W center crest	1	126.9	113.1	12.2	95
2	W N crest	1	126.5	114.0	11.0	96
3	W slope	1	126.9	113.7	11.6	96
4	S slope	1	127.2	117.6	8.2	99
5	S crest	1	127.8	114.9	11.2	97
6	SE crest	1	128.7	117.0	10.0	99
7	E crest	1	127.6	116.0	10.5	98
8	E slope	1	127.1	115.0	8.9	97
9	SW bottom	1	126.3	113.4	11.2	96
10	E center bottom	1	128.3	115.7	11.4	97
11						
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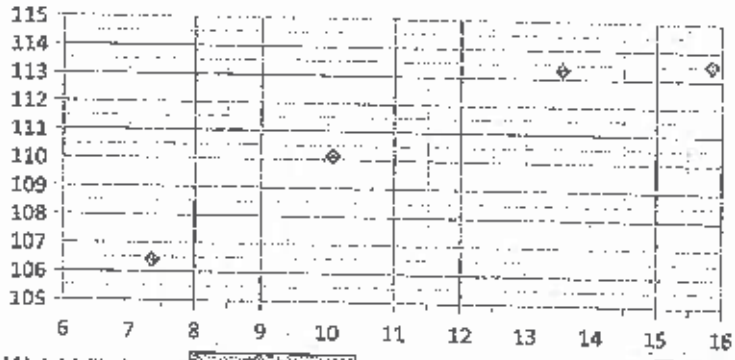
PROCTOR WORKSHEET

Project:	Smokey Canyon	Client:	Kilroy
Project Number:	P15055	Date:	11/23/2015
Technician:	KS	Soil Type:	Dinwoody
Location of Sample:	Pond 7296		
ASTM Standard Used:		Mold Weight:	4.452
	West Side South Sed Basin	Mold Volume:	0.03333

D-698 X D-1557 Other:

Soil Sample	No.1	No.2	No.3	No.4	No.5
Moist Wt Full Mold	8.2596	8.4930	8.7404	8.8346	
Wt of Moist Soil	3.8076	4.0410	4.2884	4.3826	
Moist Unit Wt	114.2	121.2	128.7	131.5	
Wet Soil + Container	0.5968	0.5792	0.6112	0.7296	
Dry Soil + Container	0.5872	0.5680	0.5985	0.7082	
Mass of Container	0.4566	0.4570	0.5048	0.5732	
Mass of Water	0.0096	0.0112	0.0127	0.0214	
Mass of Dry Soil	0.1306	0.1110	0.0937	0.1350	
Moisture % (w)	7.35	10.09	13.55	15.85	
Dry Density = (Moist Unit Wt/(1+w))	106.4	110.1	113.3	113.5	



Total Sample Weight (lbs) [redacted]

Wt Ret on 3/4 Sieve (lbs) [redacted]

Spec. Grav. [redacted]

	Measured	Corrected
Max Dry Density	113.8	118.6
Optimum Moisture	14.8	

Reviewed By: JPB

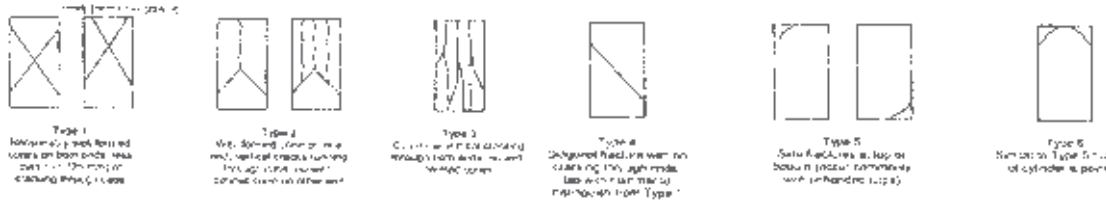
GROUT AND CONCRETE COMPRESSIVE STRENGTH

JORGENSEN

Date Sampled:	10/22/2015	Project Name:	Kilroy-Smokey Canyon Mine
Cylinder Set:	Grout	Project Number:	15501
		Project Contractor:	Kilroy LLC
Report Date:	11/25/2015	Project Location:	Pole Canyon-Smokey Canyon Mine

COMPRESSIVE STRENGTH DATA

Cylinder Identification		A	B	C	D	
Date Broken		10/29/2015	11/19/2015	11/19/2015		
Cylinder Age	(days)	7D	28D	28D		
Average Diameter	(inches)	N/A	N/A	N/A		
Cross Section Area	(in^2)	10.26	10.66	10.46		
Maximum Load	(pounds)	29,261	79,010	73,370		
Compressive Strength	**(psi)**	**2,852**	**7,400**	**7,000**		
Break Pattern*		4	3	3		



MISCELLANEOUS DATA

Sampled By:	KS	Broken By:	KS
Ticket Number:	2267		
Total Volume Poured (cy):			
Date Received:	22-Oct-15		
Field Cure Temperatures (°F):	Minimum	Maximum	
Sample Location in Structure :	In rip rap near culvert		
Weather:	37° cloudy		
Remarks:	Sample taken from pump hose		

MATERIALS AND MIX DATA

Supplier:	Kilroy, LLC
Mix Number:	590-2
Design Strength:	
Admixtures:	

Copies To:

Reviewed By: Date:

JORGENSEN

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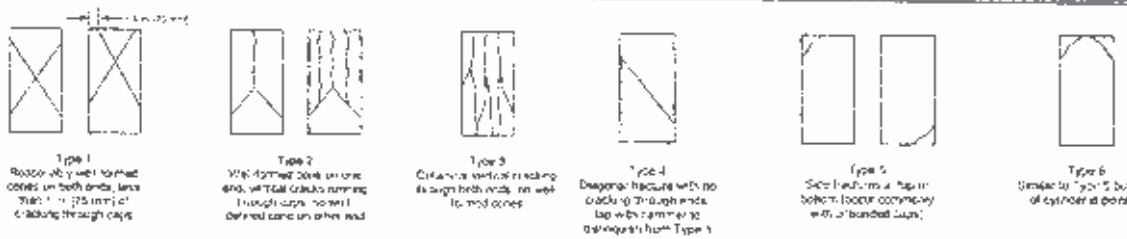
Jackson, WY 8300
PH: 307.733.5151

CONCRETE FIELD TEST REPORT

Project Name:	Smokey Canyon Mine	Project No.:	15501
Cylinder Set:		Date Sampled:	11/13/2015
Project Contractor:	Killroy LLC	Report Date:	11/25/2015
Project Location:	Pole Canyon		

COMPRESSIVE STRENGTH DATA

Cylinder Identification		A	B	C	D	E	F
Date Broken		11/16/2015	11/20/2015				
Cylinder Age	(days)	3D	7D				
Average Diameter	(inches)	4.012	4.025				
Cross Section Area	(in^2)	12.64	12.72				
Maximum Load	(pounds)	19,920	44,540				
Compressive Strength	**(psi)**	**1,580**	**3,500**				
Break Pattern*		5	5				



FIELD TEST DATA

		FIELD TESTS FROM OTHER TRUCKS				SPECIFIED LIMITS
Truck Number (x of y):	1 of 2					
Temperature (°F):	40°					4000 PSI
Slump (inches):	6.5					
Air Content (%):	5.9%					
Number of Cylinders:	8					3D, 7D, 14D, 2 28D
Unit Weight (pcf):	143.6					

MISCELLANEOUS DATA

Sampled By:	KS	Broken By:	KS
Ticket Number:	2378		
Total Volume Poured (cy):	11 ±		
Date Received:	13-Nov-15		
Field Cure Temperatures (°F):	Min 28	Max	44
Sample Location in Structure :			
Weather:	45° Sunny, clear		
Remarks:	Mixer arrived on site early. Sample was collected from within the forms.		

MATERIALS AND MIX DATA

Supplier:	Kilroy LLC
Mix Number:	560-13
Design Strength:	4000
Admixtures:	Fly ash, water reducer

Copies To:

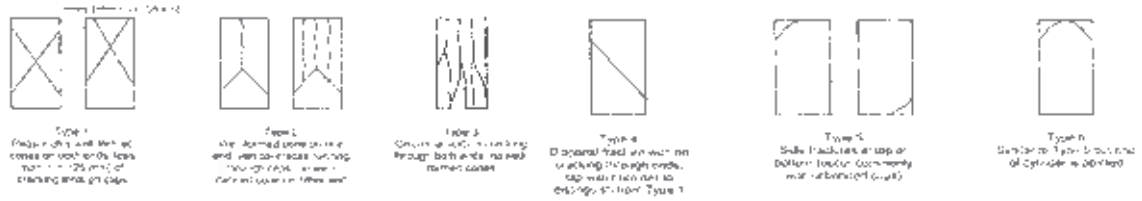
Reviewed By: Date:

JORGENSEN

Date Sampled:	12/3/2015	Project Name:	Kilroy-Smokey Canyon Mine
Cylinder Set:	Grout	Project Number:	15501
		Project Contractor:	Kilroy LLC
Report Date:	12/31/2015	Project Location:	Pole Canyon-Smokey Canyon Mine

COMPRESSIVE STRENGTH DATA

Cylinder Identification		A	B	C	D	
Date Broken		12/10/2015	12/31/2015	12/31/2015		
Cylinder Age	(days)	7D	28D	28D		
Average Diameter	(inches)	N/A	N/A	N/A		
Cross Section Area	(in^2)	10.66	10.86	10.47		
Maximum Load	(pounds)	41,320	58,000	53,630		
Compressive Strength	**(psi)**	**3,880**	**5,340**	**5,120**		
Break Pattern*		5	4	4		



MISCELLANEOUS DATA

Sampled By:	KS	Broken By:	KS
Ticket Number:			
Total Volume Poured (cy):			
Date Received:	3-Dec-15		
Field Cure Temperatures (°F):	Minimum	Maximum	
Sample Location in Structure :	In rip rap settling pond		
Weather:	25° sunny, clear		
Remarks:	Sample taken from mixer		

MATERIALS AND MIX DATA

Supplier:	Kilroy, LLC
Mix Number:	590-2
Design Strength:	
Admixtures:	

Copies To:

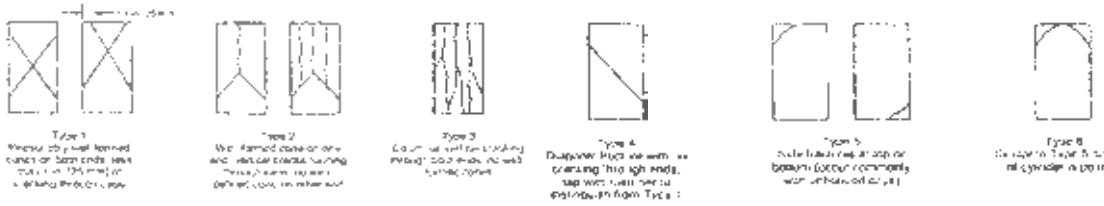
Reviewed By: Date:

JORGENSEN

Date Sampled:	12/3/2015	Project Name:	Kilroy-Smokey Canyon Mine
Cylinder Set:	Grout	Project Number:	15501
		Project Contractor:	Kilroy LLC
Report Date:	12/31/2015	Project Location:	Pole Canyon-Smokey Canyon Mine

COMPRESSIVE STRENGTH DATA

Cylinder Identification		A	B	C	D	
Date Broken		12/10/2015	12/31/2015	12/31/2015		
Cylinder Age	(days)	7D	28D	28D		
Average Diameter	(inches)	N/A	N/A	N/A		
Cross Section Area	(in^2)	10.77	10.66	11.29		
Maximum Load	(pounds)	39,890	53,170	60,730		
Compressive Strength	**(psi)**	**3,700**	**4,990**	**5,380**		
Break Pattern*		5	3	2		



MISCELLANEOUS DATA

Sampled By:	KS	Broken By:	KS
Ticket Number:			
Total Volume Poured (cy):			
Date Received:	3-Dec-15		
Field Cure Temperatures (°F):	Minimum	Maximum	
Sample Location in Structure :	In rip rap settling pond		
Weather:	25° sunny, clear		
Remarks:	Sample taken from mixer		

MATERIALS AND MIX DATA

Supplier:	Kilroy, LLC
Mix Number:	590-2
Design Strength:	
Admixtures:	

Copies To:

Reviewed By: Date:

CONSTRUCTION QUALITY ASSURANCE TESTING

FIELD REPORTS

STRATA

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DAILY FIELD REPORT

Project Name: Smokey Canyon Mine
Project Address: Smokey Canyon Mine, Idaho
Permit Number: NP

Date/Day: 11/13/2015 Friday
Client Name: Formation Environmental
Project ID.: PO15032A

Activity Code	Description	From	To	Hours	Miles
	Concrete Testing	9:00 AM	5:00 PM	8.0	230

Equipment Expense: ___ Densometer ___ Mobile Laboratory ___ Torque Wrench ___ Floor Flatness ___ Core Barrel ___ Core Drill ___ Rebar Locator ___ Skidmore ___ NDT Equipment ___ Core Diameter ___ Per Diem & Lodging ___ Other: ___

Sample Quantities: ___ Concrete ___ Cubes ___ Mortar ___ Grout ___ Prisms ___ Asphalt ___ Aggregate ___ Soil ___ CMU ___ SAFRM ___ Other: ___

Concrete/Grout Field Test Summary

Set No.	Mix No.	Supplier	Truck No.	Ticket No.	Slump (in)	Air Content (%)	Unit Wt. (PCF)	Mix Temp. (°F)	Air Temp. (°F)	Total (Yd³)
1	560-13	Kilroy	1311	2378	6 ¾	5.0	---	52	44	11 of 11

Reference Plans/Specifications: By Formation Environmental Dated 8/14 Revision 1 DWG No. 009-001-C13

Reported To:

Name	Position	Company
Jon Friedman	Superintendent	Formation Environmental

Weather: Sunny and mid 70s

Narrative:
I loaded the testing equipment and traveled to the job site. On site I traveled to the Kilroy job trailer. I waited at the trailer for an escort and then traveled to the concrete placement. I obtained a sample of the fresh mixed concrete and tested temperature, slump and air content, and recorded the test results. I then cast 5 compressive strength cylinders and placed them in a cure box, filled with 75°F water and left on site for initial cure. Concrete was placed at the drainage swale across the southeast access road. (DWG NO. 009-001 C13)

After taking a few pictures I loaded the testing equipment and traveled back to the Pocatello office.

Project Representative: John Friedman/Formation Environmental
Name/Company

STRATA Representative: Michael Hitchcock
Michael Hitchcock

Reviewed: [signature]

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DAILY FIELD REPORT

Project Name:	Smokey Canyon Mine	**Date/Day:**	11/13/2015 Friday
Project Address:	Smokey Canyon Mine, Idaho	**Client Name:**	Formation Environmental
Permit Number:	NP	**Project ID.:**	PO15032A

Photo 1: Concrete placement.

Project Representative: John Friedman/Formation Environmental
Name/Company

STRATA Representative: Michael Hitchcock
Michael Hitchcock

Reviewed:

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DAILY FIELD REPORT

Project Name: Smokey Canyon Mine
Project Address: Simplot, Smokey Canyon Mine, Wyoming
Permit Number: NP
Date/Day: 11/14/2015 Saturday
Client Name: Formation Environmental
Project ID.: PO15032A

Activity Code	Description	From	To	Hours	Miles
	Cylinder Pickup	8:15 AM	3:15 AM	7.0	230

Equipment Expense
___ Densometer ___ Mobile Laboratory ___ Torque Wrench ___ Floor Flatness ___ Core Barrel
___ Core Drill ___ Rebar Locator ___ Skidmore ___ NDT Equipment ___ Core Diameter
___ Per Diem & Lodging ___ Other: _____

Sample Quantities
___ Concrete ___ Cubes ___ Mortar ___ Grout ___ Prisms ___ Asphalt
___ Aggregate ___ Soil ___ CMU ___ SAFRM ___ Other: _____

Concrete/Grout Field Test Summary

Set No.	Mix No.	Supplier	Truck No.	Ticket No.	Slump (in)	Air Content (%)	Unit Wt. (PCF)	Mix Temp. (°F)	Air Temp. (°F)	Total (Yd³)

Reference Plans/Specifications:

Reported To:
NA (Name) — NA (Position) — NA (Company)
_____ (Name) — _____ (Position) — _____ (Company)

Weather: Sunny, breezy, 30s

Narrative:
I traveled to the project site, on site I obtained one set of five 6x12 compressive strength cylinders that were cast on 11/13/15. The temperature readings inside the cure box were as follows: A high of 75, a low of 65, and a current of 65. I transported these samples to the Pocatello laboratory where they were stripped and placed into the cure room. I wrote my daily field report.

Project Representative: John Friedman/Formation Environmental
Signature Name/Company

STRATA Representative: Scott Myers
Scott Myers

Reviewed: _____

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DAILY FIELD REPORT

Project Name: Smokey Canyon Mine
Project Address: Smokey Canyon Mine, Idaho
Client: Formation Environmental

Date/Day: 12/03/2015 Thursday
Project No.: PO15032A
Permit No.: NP

Field Services Performed	From	To	Hours	Miles
Grout Testing	8:00 AM	5:00 PM	9.0	230

Equipment Expense
___ Densometer ___ Mobile Laboratory ___ Torque Wrench ___ Floor Flatness ___ Core Barrel
___ Core Drill ___ Rebar Locator ___ Skidmore ___ NOT Equipment ___ Core Diameter
___ Per Diem & Lodging ___ Other: ___

Sample Quantities
___ Concrete ___ Cubes ___ Mortar 10 Grout ___ Prisms ___ Asphalt
___ Aggregate ___ Soil ___ CMU ___ SFRM ___ Other: ___

Concrete/Grout Field Test Summary

SPECIFICATIONS

Compressive Strength (psi): 2000
Slump (inches): NP
Air Content (%): NP
Temperature (°F): NP

Supplier: Kerg
Class of Concrete: NP
Total Concrete Placed (yd³): NP
Placement Location: Grouted rip rap for inlets and outfalls

Load #	Load Size (yd³)	Load Location	Ticket #	Truck #	Batch Time	Empty Time	Time Tested	Slump (in)	Air (%)	Unit Wt (pcf)	Air Temp (°F)	Concrete Temp (°F)	Water Added (gal)	Cyls Cast
8	10	West Sedimentation Basin Outfall	2434	1313	12:06 PM	1:29PM	1:24PM	6 ½	8.3	NA	37	53	0	5
9	10	West Sedimentation Basin Outfall	2436	1308	1:53 PM	2:30PM	2:15PM	7	9.0	NA	38	59	0	5

Reference Plans/Specifications: Revision No: Date Approved:

Reported To: John Friedman (Name) Field Engineer (Position) Formation Environmental (Company)
Name Position Company

Weather: Sunny, high 30s

Narrative:
I loaded my testing equipment and traveled to the Smoky Canyon Mine project site. On site I spoke with John Friedman of Formation Environmental. He requested that I obtain two samples from two different truck loads and perform temperature, slump, and air tests on each sample. He also requested that I cast one set of 5 4x8 compressive strength cylinders from each sample. He informed me that it would be acceptable to obtain my samples from back to back truck loads and that is what I did. I was also informed that there was no temperature, slump, or air content specifications. I prepared my testing equipment and obtained two samples and performed a set of tests and cast a set of cylinders for each as requested by John. The location of today's placement is the grouted rip rap for the inlets and outfalls near the Northwest and West Sedimentation Basins. Once I had completed both sets of tests I loaded my equipment and returned to the Pocatello office.

Noted Deviations: none

Project Representative: John Friedman/Formation Environmental (Name/Company)
STRATA Representative: Scott Myers (Scott Myers)
Reviewed: Michael Hitchcock

STRATA

DAILY FIELD REPORT

Project Name: Smokey Canyon Mine
Project Address: Smokey Canyon Mine, Idaho
Client: Formation Environmental

Date/Day: 12/04/2015 Friday
Project No.: PO15032A
Permit No.: NP

Field Services Performed	From	To	Hours	Miles
Cylinder Pickup	8:00 AM	2:00 PM	6.0	230

Equipment Expense: ___ Densometer ___ Mobile Laboratory ___ Torque Wrench ___ Floor Flatness ___ Core Barrel ___ Core Drill ___ Rebar Locator ___ Skidmore ___ NDT Equipment ___ Core Diameter ___ Per Diem & Lodging ___ Other

Sample Quantities: ___ Concrete ___ Cubes ___ Mortar 10 Grout ___ Prisms ___ Asphalt ___ Aggregate ___ Soil ___ CMU ___ SFRM ___ Other:

Concrete/Grout Field Test Summary

SPECIFICATIONS
Compressive Strength (psi):
Slump (inches):
Air Content (%):
Temperature (°F):

Supplier
Class of Concrete:
Total Concrete Placed (yd³):
Placement Location

Load #	Load Size (yd³)	Load Location	Ticket #	Truck #	Batch Time	Empty Turns	Time Tested	Slump (in)	Air (%)	Unit Wt (pcf)	Air Temp (°F)	Concrete Temp (°F)	Water Added (gal)	Cyls. Cast

Reference Plans/Specifications: Revision No: Date Approved:

Reported To: John Friedman (Name) Field Engineer (Position) Formation Environmental (Company)
Name Position Company

Weather: Sunny, high 30s

Narrative:
I traveled to the Smoky Canyon Mine Project site, on site I obtained two sets of five 4x8 compressive strength cylinders that were cast on 12/3/15. The overnight temperature readings inside the cure box were as follows: A high of 74, a low of 65, and a current of 67. I transported these samples to the Pocatello laboratory where they were stripped and placed into the cure room. I wrote my daily field report.

Noted Deviations: none

Project Representative: John Friedman/Formation Environmental (Name/Company) STRATA Representative Scott Myers (Scott Myers)

Reviewed: Michael Hitchcock

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DFR Number: DSM040915
Page: 1 of 1

DAILY FIELD REPORT

Project Name: Smokey Canyon Mine
Project Address: Smokey Canyon Mine, Wyoming
Permit Number: NP

Date/Day: 04/09/2015 Thursday
Client Name: Formation Environmental
Project ID.: PO15032A

Activity Code	Description	From	To	Hours	Miles
	Sample Pickup	7:30 AM	4:15 PM	8.75	230

Equipment Expense
___ Densometer ___ Mobile Laboratory ___ Torque Wrench ___ Floor Flatness ___ Core Barrel
___ Core Drill ___ Rebar Locator ___ Skidmore ___ NDT Equipment ___ Core Diameter
___ Per Diem & Lodging ___ Other: ___

Sample Quantities
___ Concrete ___ Cubes ___ Mortar ___ Grout ___ Prisms ___ Asphalt
___ Aggregate 2 Soil ___ CMU ___ SAFRM ___ Other: ___

Concrete/Grout Field Test Summary

Set No.	Mix No.	Supplier	Truck No.	Ticket No.	Slump (in)	Air Content (%)	Unit Wt. (PCF)	Mix Temp. (°F)	Air Temp. (°F)	Total (Yd³)

Reference Plans/Specifications:

Reported To:

Name	Position	Company
Brian Hanson	Representative	Formation Environmental
John Friedman	Representative	Formation Environmental

Weather: Raining, 40s

Narrative:
I loaded my sampling equipment and drove to the Smokey Canyon Simplot site in Wyoming. Once on site I reported to the guard station, where I signed in and watched the safety orientation video and signed proper paper work. I then met with Brian Hanson and John Friedman of Formation Environmental and was escorted by them to the stockpiles from which I sampled the Dinwoody Borrow material. I sampled from the north and south areas. I was informed by Brian Hanson that both samples required a gradation and moisture density relation laboratory test. I transported these samples to the Pocatello office where they were logged in. I wrote my daily field report.

Project Representative: Brian Hanson/Formation Environmental
Name/Company

STRATA Representative: Scott Myers
Scott Myers

Reviewed:

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DFR Number: MLH042215
Page: 1 of 1

DAILY FIELD REPORT

Project Name: Smokey Canyon Mine
Project Address: Smokey Canyon Mine, Wyoming
Permit Number: NP

Date/Day: 04/22/2015 Wednesday
Client Name: Formation Environmental
Project ID.: PO15032A

Activity Code	Description	From	To	Hours	Miles
	Density Testing	7:00 AM	5:00 PM	10	230

Equipment Expense
x Densometer ___ Mobile Laboratory ___ Torque Wrench ___ Floor Flatness ___ Core Barrel
___ Core Drill ___ Rebar Locator ___ Skidmore ___ NDT Equipment ___ Core Diameter
___ Per Diem & Lodging ___ Other: ___

Sample Quantities
___ Concrete ___ Cubes ___ Mortar ___ Grout ___ Prisms ___ Asphalt
___ Aggregate ___ Soil ___ CMU ___ SAFRM Other: ___

Concrete/Grout Field Test Summary

Set No.	Mix No.	Supplier	Truck No.	Ticket No.	Slump (in)	Air Content (%)	Unit Wt. (PCF)	Mix Temp. (°F)	Air Temp. (°F)	Total (Yd³)

Reference Plans/Specifications:

Reported To:

Name	Position	Company
Jon Friedman	Superintendent	Formation Environmental

Weather: Sunny and mid 70s

Narrative:
I loaded the testing equipment and traveled to the job site. On site I received the onsite safety instructions and meet with Jon Friedman of Formation Environmental. Together we traveled to the dinwoody south sediment pond embankment where I performed in-place moisture density tests at various locations on the exterior and interior of the embankment wall. I also obtained a sample of the Spillway Excavation for a sieve and proctor. I then obtained a sample of the Pipe Bedding from an onsite stockpile; the source is Kilroy's Lancaster Pit.

I returned to the Pocatello office.

Project Representative: John Friedman/Formation Environmental
Name/Company

STRATA Representative: Michael Hitchcock
Michael Hitchcock

Reviewed: ___

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DAILY FIELD REPORT

DFR Number: DSM090215
Page: 1 of 5

Project Name: Smokey Canyon Mine
Project Address: Smokey Canyon Mine, Idaho
Permit Number: NP

Date/Day: 09/02/2015 Wednesday
Client Name: Formation Environmental
Project ID.: PO15032A

Activity Code	Description	From	To	Hours	Miles
	Density Testing	5:30 AM	2:00 PM	8.5	230

Equipment Expense
X Densometer ___ Mobile Laboratory ___ Torque Wrench ___ Floor Flatness ___ Core Barrel
___ Core Drill ___ Rebar Locator ___ Skidmore ___ NDT Equipment ___ Core Diameter
___ Per Diem & Lodging ___ Other: ___

Sample Quantities
___ Concrete ___ Cubes ___ Mortar ___ Grout ___ Prisms ___ Asphalt
___ Aggregate ___ Soil ___ CMU ___ SAFRM ___ Other: ___

Concrete/Grout Field Test Summary

Set No.	Mix No.	Supplier	Truck No.	Ticket No.	Slump (in)	Air Content (%)	Unit Wt. (PCF)	Mix Temp. (°F)	Air Temp. (°F)	Total (Yd³)

Reference Plans/Specifications: Proctor #s: PO1500143, PO1500278, PO1500142

Reported To:

Name	Position	Company
John Freidman	Representative	Formation Environmental

Weather: Sunny, low 80s

Narrative:

I loaded my testing equipment and traveled to the project site, I arrived on site at 8:00am as requested and reported to John Freidman. He escorted me to several different areas in the mine where I performed in place soil density testing at a rate of his request. The first area was the 42" culvert crossing the haul road, on the west shoulder of the haul road. I performed two in place soil density tests in this area both of which yielded dry density results that were above 95% of the maximum dry density outlined in proctor number PO1500142. The second area was the north sedimentation basin. I performed two in place soil density tests in this area both of which yielded dry density results that were above 95% of the maximum dry density outlined by Proctor number PO1500278 (Field test #3) and PO1500143 (Field test #4). The third area was the south central sedimentation basin. I performed one in place soil density test in this area which yielded a dry density result above 95% of the maximum dry density outlined in proctor number PO1500278. The final area in which I tested was the east energy dissipation structure. I performed one in place soil density test that yielded a dry density result that was above 95% of the maximum dry density outlined in proctor number PO1500143.

I informed John Freidman of all test results Please see my Field Density Test Results report for further information on testing locations and results. I took pictures of all the areas tested and was informed by John that no further testing would be needed for the day. I wrote my reports.

I returned to the Pocatello office.

Project Representative: John Friedman/Formation Environmental
Name/Company

STRATA Representative: Scott Myers
Scott Myers

Reviewed:

STRATA

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DAILY FIELD REPORT

Project Name:	Smokey Canyon Mine	**Date/Day:**	09/02/2015 Wednesday
Project Address:	Smokey Canyon Mine, Idaho	**Client Name:**	Formation Environmental
Permit Number:	NP	**Project ID.:**	PO15032A

Photo 1: Area in which I performed field density test numbers 1 and 2.

Project Representative: John Friedman/Formation Environmental
Name/Company

STRATA Representative: Scott Myers
Scott Myers

Reviewed:

STRATA

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DAILY FIELD REPORT

Project Name:	Smokey Canyon Mine	**Date/Day:**	09/02/2015 Wednesday
Project Address:	Smokey Canyon Mine, Idaho	**Client Name:**	Formation Environmental
Permit Number:	NP	**Project ID.:**	PO15032A

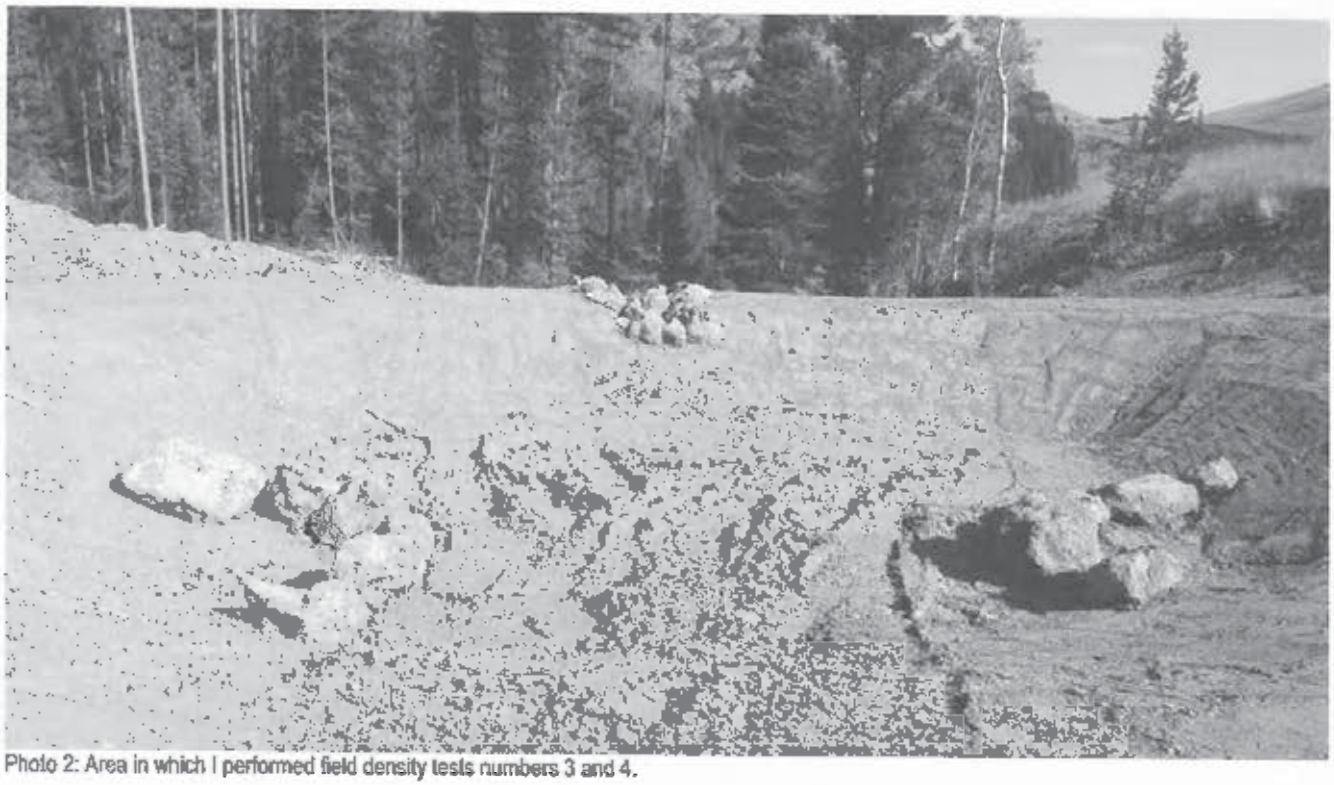

Photo 2: Area in which I performed field density tests numbers 3 and 4.

Project Representative: John Friedman/Formation Environmental
Name/Company

STRATA Representative: Scott Myers
Scott Myers

Reviewed:

STRATA

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DAILY FIELD REPORT

Project Name:	Smokey Canyon Mine	**Date/Day:**	09/02/2015 Wednesday
Project Address:	Smokey Canyon Mine, Idaho	**Client Name:**	Formation Environmental
Permit Number:	NP	**Project ID.:**	PO15032A

Photo 3: Area in which I performed field density test number 5.

Project Representative: John Friedman/Formation Environmental
Name/Company

STRATA Representative: Scott Myers
Scott Myers

Reviewed:

STRATA

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DAILY FIELD REPORT

Project Name: Smokey Canyon Mine
Project Address: Smokey Canyon Mine, Idaho
Permit Number: NP

Date/Day: 09/02/2015 Wednesday
Client Name: Formation Environmental
Project ID.: PO15032A

Photo 4: Area in which I performed field density test number 6.

Project Representative: John Friedman/Formation Environmental
Name/Company

STRATA Representative: Scott Myers
Scott Myers

Reviewed:

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DAILY FIELD REPORT

DFR Number: DSM092415
Page: 1 of 1

Project Name: Smokey Canyon Mine
Project Address: Smokey Canyon Mine, Idaho
Permit Number: NP

Date/Day: 09/24/2015 Thursday
Client Name: Formation Environmental
Project ID.: PO15032A

Activity Code	Description	From	To	Hours	Miles
	Density Testing and Sampling	6:30 AM	12:30 PM	6.0	230

Equipment Expense: X Densometer; Mobile Laboratory; Torque Wrench; Floor Flatness; Core Barrel; Core Drill; Rebar Locator; Skidmore; NDT Equipment; Core Diameter; Per Diem & Lodging; Other:

Sample Quantities: Concrete; Cubes; Mortar; Grout; Prisms; Asphalt; Aggregate; 2 Soil; CMU; SAFRM; Other:

Concrete/Grout Field Test Summary

Set No.	Mix No.	Supplier	Truck No.	Ticket No.	Slump (in)	Air Content (%)	Unit Wt. (PCF)	Mix Temp. (°F)	Air Temp. (°F)	Total (Yd³)

Reference Plans/Specifications:

Reported To: John Friedman (Name) — Representative (Position) — Formation Environmental (Company)

Name — Position — Company

Weather: Sunny, low /0s

Narrative:

I loaded my testing and sampling equipment and drove to the project site, on site I spoke with John Friedman of Formation Environmental. He informed me that he would escort me to different areas on the mine site where I would be performing in place soil density testing and obtaining soil samples. The first area in which I performed in place soil density tests was the south culvert (36" diameter cmp) 35' west of the outlet. I performed two tests in this location on either side of the culvert. Both tests yielded dry density results that were above 95% of the maximum density outlined by the proctor value. I informed John of my test results. The second area in which I performed in place soil density tests was the West side run off ditch. I performed two in place soil density tests and obtained two soil samples from this area. Both test results yielded dry density results that were above 95% of the maximum density outlined in the proctor value. I obtained sample number one in this area at 140' upstream of the EDS and sample number two in the same area at 270' downstream of the EDS. I informed John of all test results and he informed me that STRATA's services were no longer required for the day. I loaded my equipment and wrote my reports.

I transported the two soil samples to the Pocatello laboratory.

Project Representative: John Friedman/Formation Environmental (Name/Company)

STRATA Representative: Scott Myers (Scott Myers)

Reviewed:

STRATA

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DAILY FIELD REPORT

DFR Number: MLH102115
Page: 1 of 2

Project Name: Smokey Canyon Mine
Project Address: Smokey Canyon Mine, Idaho
Permit Number: NP

Date/Day: 10/21/2015 Wednesday
Client Name: Formation Environmental
Project ID.: PO15032A

Activity Code	Description	From	To	Hours	Miles
	Density Testing	12:00 PM	7:00 PM	7.0	230

Equipment Expense
X Densometer ___ Mobile Laboratory ___ Torque Wrench ___ Floor Flatness ___ Core Barrel
___ Core Drill ___ Rebar Locator ___ Skidmore ___ NDT Equipment ___ Core Diameter
___ Per Diem & Lodging ___ Other ___

Sample Quantities
___ Concrete ___ Cubes ___ Mortar ___ Grout ___ Prisms ___ Asphalt
___ Aggregate ___ Soil ___ CMU ___ SAFRM ___ Other: ___

Concrete/Grout Field Test Summary

Set No.	Mix No.	Supplier	Truck No.	Ticket No.	Slump (in)	Air Content (%)	Unit Wt. (PCF)	Mix Temp. (°F)	Air Temp. (°F)	Total (Yd³)

Reference Plans/Specifications:

Reported To:

Name	Position	Company
Jon Friedman	Superintendent	Formation Environmental

Weather: Sunny and mid 70s

Narrative:
I loaded the testing equipment and traveled to the job site. On site I was escorted to the Saddle Infiltration Basin. There I performed in-place moisture density testing on the embankment slope. After recording the density test results I obtained a sample of the material from underneath the areas tested. I combined this sample into two buckets and transported the sample to the Pocatello office.

Project Representative: John Friedman/Formation Environmental
Name/Company

STRATA Representative: Michael Hitchcock
Michael Hitchcock

Reviewed:

STRATA

(208) 237-3400

DAILY FIELD REPORT

Project Name:	Smokey Canyon Mine	**Date/Day:**	10/21/2015 Wednesday
Project Address:	Smokey Canyon Mine, Idaho	**Client Name:**	Formation Environmental
Permit Number:	NP	**Project ID.:**	PO15032A

Photo 1: Density Test locations on the North Slope.

Project Representative: John Friedman/Formation Environmental
Name/Company

STRATA Representative: Michael Hitchcock
Michael Hitchcock

Reviewed:

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www.stratageotech.com

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DFR Number: DSM111115
Page: 1 of 4

DAILY FIELD REPORT

Project Name: Smokey Canyon Mine
Project Address: Smokey Canyon Mine, Idaho
Permit Number: NP

Date/Day: 11/11/2015 Wednesday
Client Name: Formation Environmental
Project ID.: PO15032A

Activity Code	Description	From	To	Hours	Miles
	Density Testing/Soil Sampling	5:30 AM	1:00 PM	7.5	230

Equipment Expense
X Densometer ___ Mobile Laboratory ___ Torque Wrench ___ Floor Flatness ___ Core Barrel
___ Core Drill ___ Rebar Locator ___ Skidmore ___ NDT Equipment ___ Core Diameter
___ Per Diem & Lodging ___ Other: ___

Sample Quantities
___ Concrete ___ Cubes ___ Mortar ___ Grout ___ Prisms ___ Asphalt
___ Aggregate 2 Soil ___ CMU ___ SAFRM ___ Other: ___

Concrete/Grout Field Test Summary

Set No.	Mix No.	Supplier	Truck No.	Ticket No.	Slump (in)	Air Content (%)	Unit Wt. (PCF)	Mix Temp. (°F)	Air Temp. (°F)	Total (Yd³)

Reference Plans/Specifications:

Reported To: John Freidman (Name) — Representative (Position) — Formation Environmental (Company)
___ (Name) — ___ (Position) — ___ (Company)

Weather: Snowing, breezy, 30s

Narrative:

I loaded my testing and sampling equipment and traveled to the project site, on site I spoke with John Freidman and he requested that I perform a total of four in place soil density tests on the South, West, and East side embankments of the West side, South Sedimentation Basin (Photo 1). He informed me that a proctor for the specific material being placed in this area had not been developed at this time. He requested that I obtain two samples from this area so that a moisture density curve could be developed and the density test results could be compared to the curves. As requested I performed four in place soil density tests, one test on the West side embankment, two tests on the South side embankment, and one test on the East side embankment. I recorded these results and reported the dry density pcf and moisture content to John. Following my density tests I obtained two samples for proctor and gradation testing. The first sample obtained was taken from the North end of the West embankment (Photo 2) from directly underneath the area of density test number one. The second sample obtained was taken from the North end of the East embankment (Photo 3) in the area directly beneath density test number four. I took pictures of the sedimentation basin and the two areas where samples were obtained. At this time John informed me that Strata's services were no longer needed for today. I loaded my testing equipment and samples obtained.

I transported the two soil samples to the Pocatello laboratory for testing and wrote my reports.

Project Representative: John Friedman/Formation Environmental (Name/Company)

STRATA Representative: Scott Myers (Scott Myers)

Reviewed: Michael Hitchcock

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DAILY FIELD REPORT

Project Name:	Smokey Canyon Mine	**Date/Day:**	11/11/2015 Wednesday
Project Address:	Smokey Canyon Mine, Idaho	**Client Name:**	Formation Environmental
Permit Number:	NP	**Project ID.:**	PO15032A

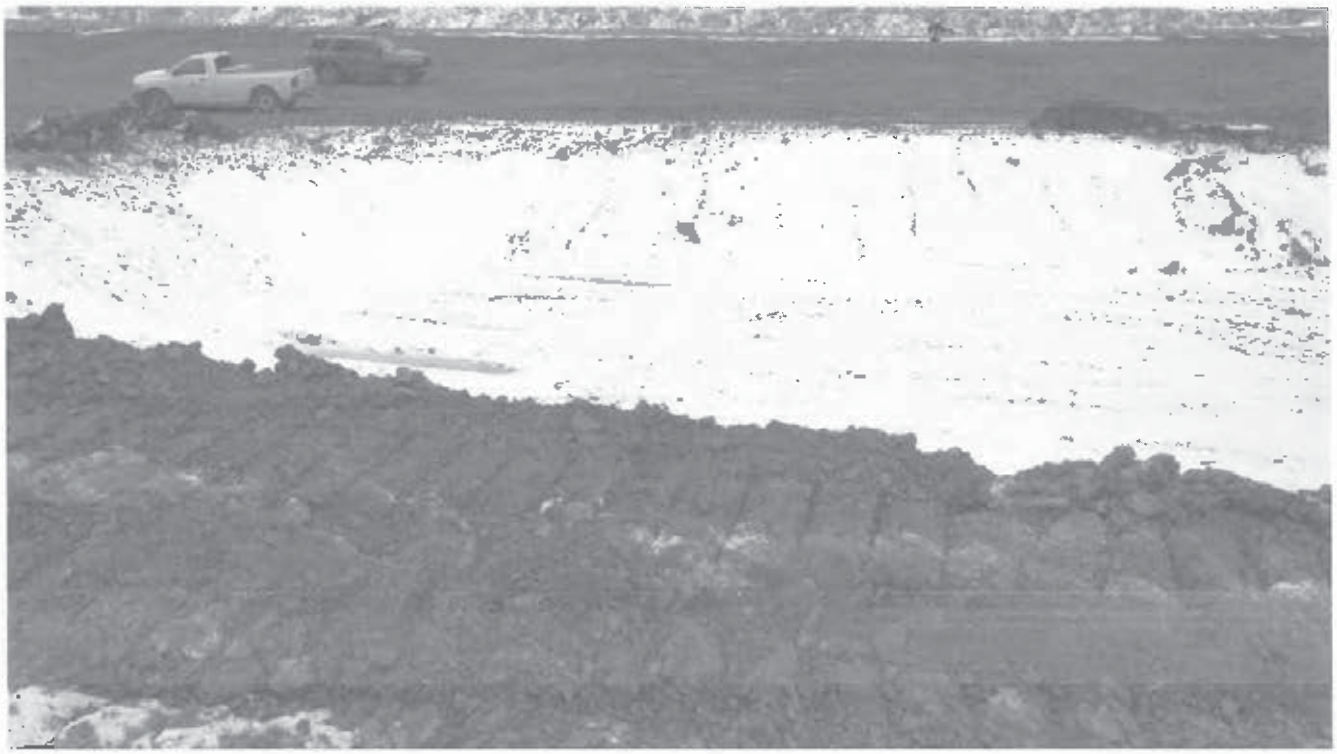

Photo 1: The West side, South Sedimentation Basin.

Project Representative: John Friedman/Formation Environmental
Name/Company

STRATA Representative: Scott Myers
Scott Myers

Reviewed: Michael Whitehead

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DAILY FIELD REPORT

Project Name:	Smokey Canyon Mine	**Date/Day:**	11/11/2015 Wednesday
Project Address:	Smokey Canyon Mine, Idaho	**Client Name:**	Formation Environmental
Permit Number:	NP	**Project ID.:**	PO15032A

Photo 2: The North end of the West embankment. I performed in place soil density test number one in this area and obtained the first sample.

Project Representative: John Friedman/Formation Environmental
Name/Company

STRATA Representative: Scott Myers
Scott Myers

Reviewed: Michael Whitehead

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DAILY FIELD REPORT

Project Name: Smokey Canyon Mine
Project Address: Smokey Canyon Mine, Idaho
Permit Number: NP

Date/Day: 11/11/2015 Wednesday
Client Name: Formation Environmental
Project ID.: PO15032A

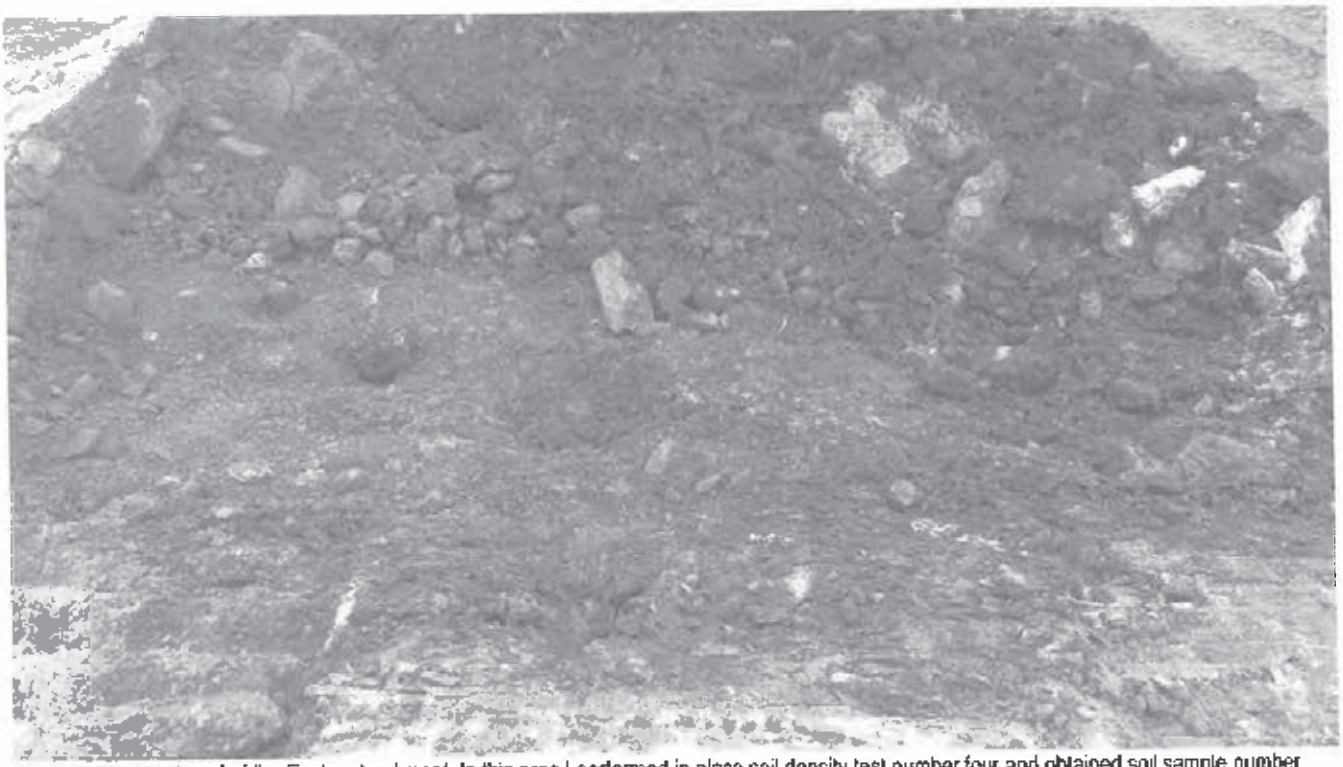

Photo 3: The North end of the East embankment. In this area I performed in place soil density test number four and obtained soil sample number two.

Project Representative: John Friedman/Formation Environmental
Name/Company

STRATA Representative: Scott Myers
Scott Myers

Reviewed: Michael Hitchcock

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DAILY FIELD REPORT

Project Name: Smokey Canyon Mine
Project Address: Smokey Canyon Mine, Wyoming
Permit Number: NP

Date/Day: 06/30/2015 Tuesday
Client Name: Formation Environmental
Project ID.: PO15032A

Activity Code	Description	From	To	Hours	Miles
	Density Testing/Sampling	9:30 AM	8:00 PM	10.5	230

Equipment Expense
x Densometer ___ Mobile Laboratory ___ Torque Wrench ___ Floor Flatness ___ Core Barrel
___ Core Drill ___ Rebar Locator ___ Skidmore ___ NDT Equipment ___ Core Diameter
___ Per Diem & Lodging ___ Other: ___

Sample Quantities
___ Concrete ___ Cubes ___ Mortar ___ Grout ___ Prisms ___ Asphalt
___ Aggregate 4 Soil ___ CMU ___ SAFRM ___ Other: ___

Concrete/Grout Field Test Summary

Set No.	Mix No.	Supplier	Truck No.	Ticket No.	Slump (in)	Air Content (%)	Unit Wt. (PCF)	Mix Temp. (°F)	Air Temp. (°F)	Total (Yd³)

Reference Plans/Specifications:

Reported To:

Name	Position	Company
Brian Hanson	Representative	Formation Environmental
John Freidman	Representative	Formation Environmental

Weather: Sunny, low 80s

Narrative:

I loaded my testing and sampling equipment and drove to the project site, on site I signed in at the guard office and met with John Freidman. John escorted me to the East Sedimentation Basin which is the area I performed in place soil density testing. I performed a total of four in place soil density tests along the East side Berm. Three tests were performed on the interior of the basin and one test was performed on the top of the berm which is the exterior of the basin. Of the four tests only test number 3 was in general conformance with the specifications. I informed John of my test results and he requested that I obtain a sample of the Dinwoody material I tested for compaction. He requested that STRATA perform a gradation and standard proctor test on the sample to see if the material had changed in any way and compare my currently failing density test results with the new proctor curve. My sample location is from Field density test number four. I do note that I mentioned that the last time Strata performed density testing there where two areas that were not within general conformance with the specifications and I asked if he would like me to retest the areas. He informed me that the areas where still not ready and would need to be retested at a later date. Following my in place soil density testing John requested that obtain more samples for testing. All the samples I obtained were requested by John. I obtained a sample of Limestone, and Shale stone material. John requested that STRATA perform L.A.R. Testing on both these samples. I also obtained a sample of 3" minus pit run material. John requested that strata perform a gradation and standard proctor on this sample. The final sample I obtained was a sample of drain rock material. John requested that Strata perform a gradation test on this sample. All these samples excluding the sample of Dinwoody were obtained from onsite stockpiles. I took photographs and wrote my reports.

I transported these samples to the Pocatello laboratory.

Project Representative: John Friedman/Formation Environmental
Name/Company

STRATA Representative: Scott Myers
Scott Myers

Reviewed: ___

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DAILY FIELD REPORT

Project Name:	Smokey Canyon Mine	**Date/Day:**	06/30/2015 Tuesday
Project Address:	Smokey Canyon Mine, Wyoming	**Client Name:**	Formation Environmental
Permit Number:	NP	**Project ID.:**	PO15032A

Photo 1: East Sedimentary Basin.

Project Representative: John Friedman/Formation Environmental
Name/Company

STRATA Representative: Scott Myers
Scott Myers

Reviewed:

STRATA

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DAILY FIELD REPORT

Project Name:	Smokey Canyon Mine	**Date/Day:**	06/30/2015 Tuesday
Project Address:	Smokey Canyon Mine, Wyoming	**Client Name:**	Formation Environmental
Permit Number:	NP	**Project ID.:**	PO15032A

Photo 2: Stockpile of limestone and shale stone material.

Project Representative: John Friedman/Formation Environmental
Name/Company

STRATA Representative: Scott Myers
Scott Myers

Reviewed:

LABORATORY
MOISTURE – DENSITY RELATIONSHIP
(PROCTOR CURVES)

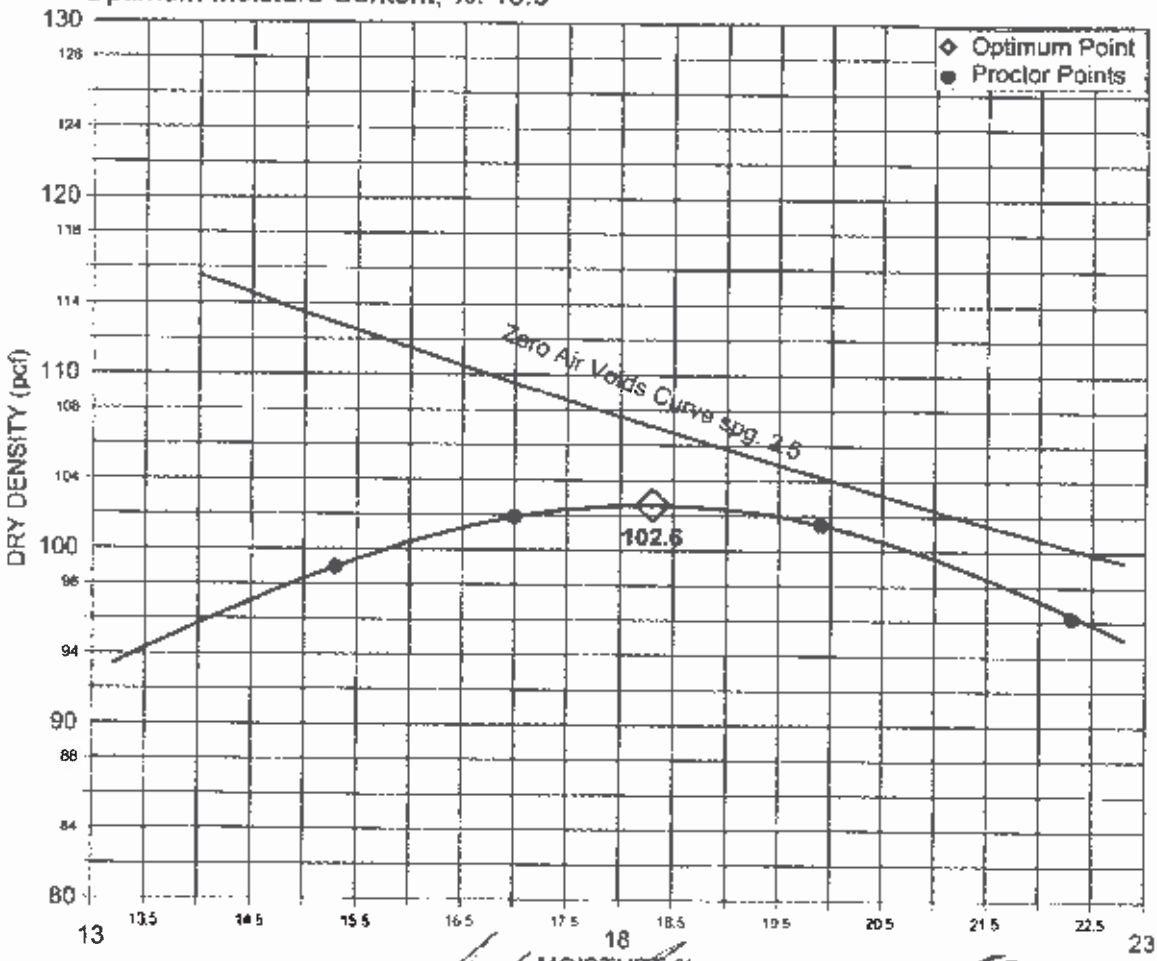
MOISTURE-DENSITY RELATIONSHIP CURVE
ASSHTO T99
Method C

Project: Smoky-Pole NTCRA
Client Name: Formation Enviromental
Project ID.: PO12068A
Sample No.: PO1500050
Sample Source: Sokey Canyon Mine
Sample Classification: Lean Clay with Sand (CL)
Date Sample: 03/03/2015
Sampled By: Client
Date Tested: 3/17/2015
Tested By: M. Hitchcock- STRATA
Soil Tempered: Yes
Rammer Type: Mecanical

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch	100	
3/4 inch	99	100
3/8 inch		
#4 screen		

Maximum Dry Density, pcf : 102.6
Optimum Moisture Content, %: 18.3



Reviewed By: Michael [signature]

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Integrity from the Ground Up

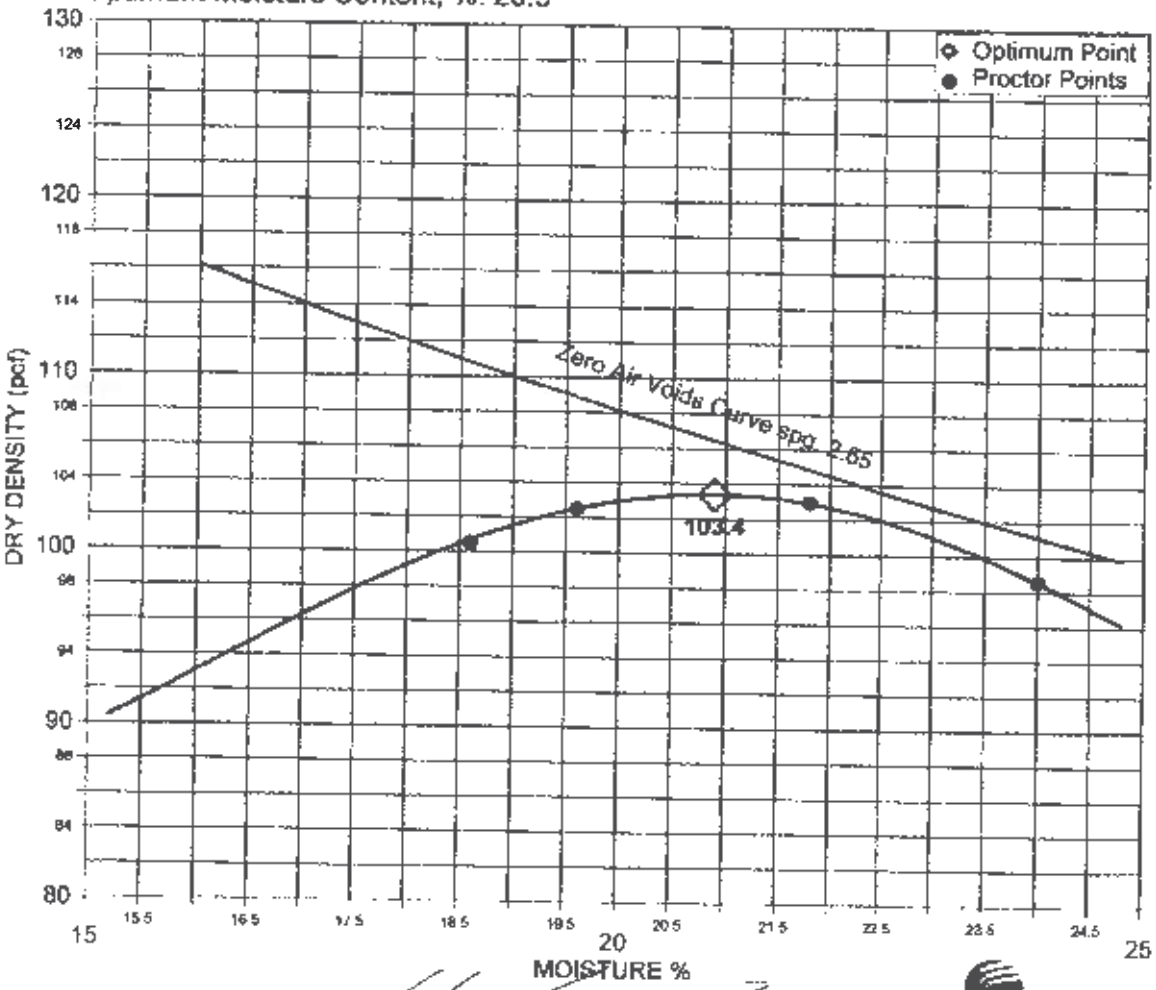
MOISTURE-DENSITY RELATIONSHIP CURVE
ASSHTO T99
Method C

Project: Smoky-Pole NTCRA
Client Name: Formation Enviromental
Project ID.: PO12068A
Sample No.: PO1500051
Sample Source: Smokey Canyon Mine
Sample Classification: Sandy Lean Clay (CL)
Date Sample: 03/03/2015
Sampled By: Client
Date Tested: 3/17/2015
Tested By: M. Hitchcock- STRATA
Soil Tempered: Yes
Rammer Type: Mecanical

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch	100	
3/4 inch	97	100
3/8 inch		
#4 screen		

Maximum Dry Density, pcf : 103.8
Optimum Moisture Content, %: 20.3



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Integrity from the ground up

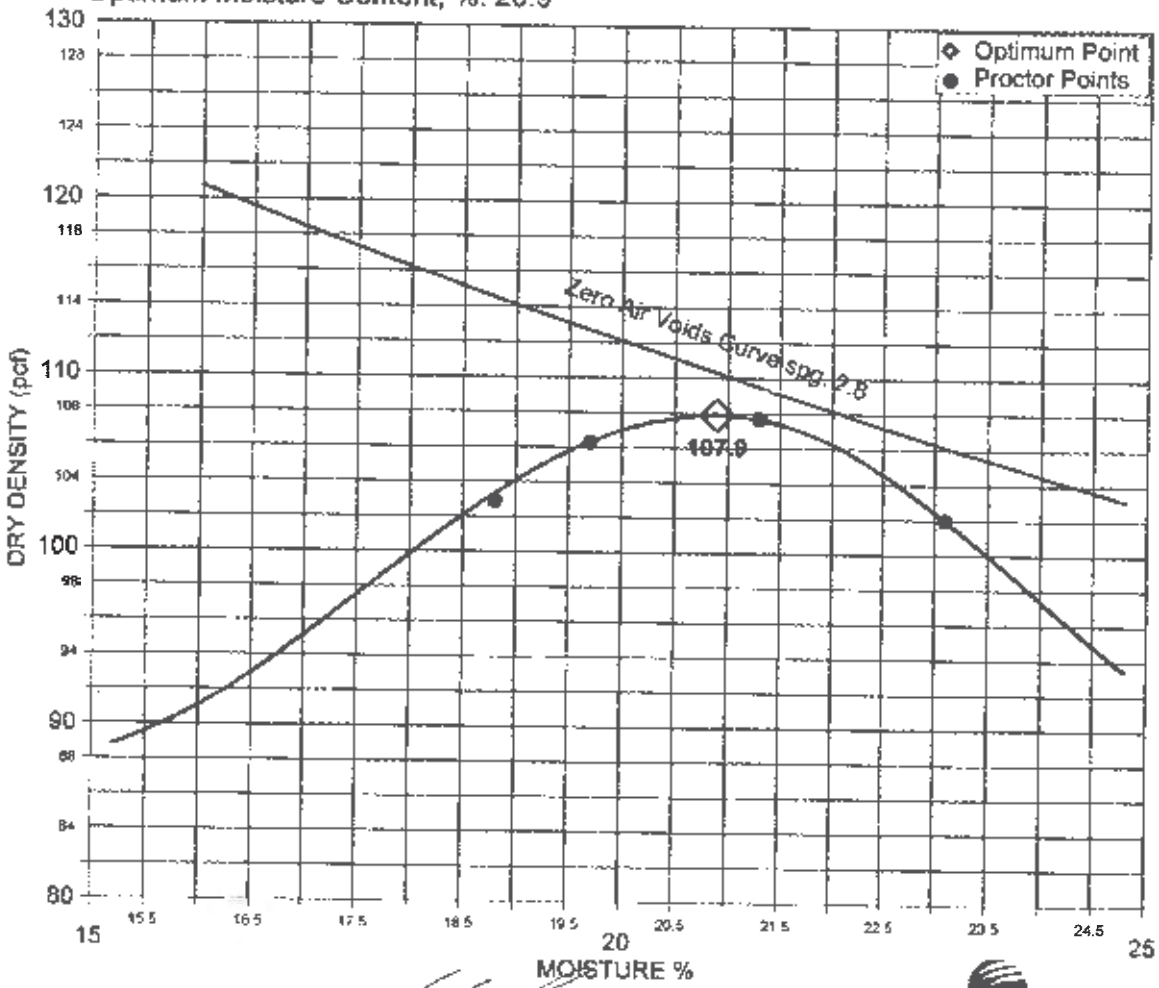
MOISTURE-DENSITY RELATIONSHIP CURVE
ASSHTO T99
Method C

Project: Smoky-Pole NTCRA
Client Name: Formation Enviromental
Project ID.: PO12068A
Sample No.: PO1500052
Sample Source: Smokey Canyon Mine
Sample Classification: Sandy Lean Clay (CL)
Date Sample: 03/03/2015
Sampled By: Client
Date Tested: 3/17/2015
Tested By: M. Hitchcock- STRATA
Soil Tempered: Yes
Rammer Type: Mecanical

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch	100	
3/4 inch	99	100
3/8 inch		
#4 screen		

Maximum Dry Density, pcf : 107.9
Optimum Moisture Content, %: 20.9



Reviewed By:

STRATA

MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D698
Method C

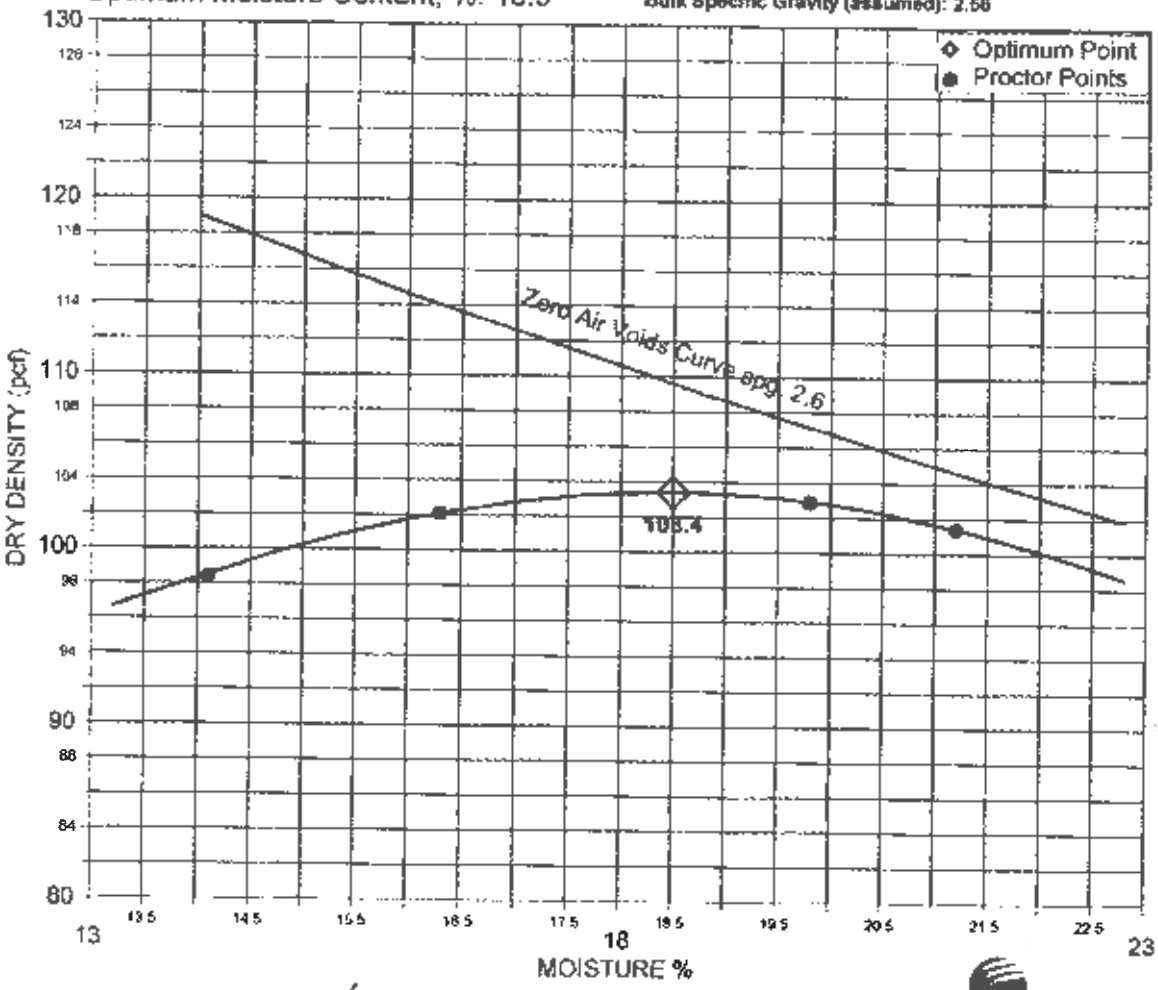
Project: Smokey Canyon Mine
Client Name: Formation Enviromental
Project ID.: PO15032A
Sample No.: PO1500114
Sample Source: Onsite Stockpile
Sample Classification: South Area Borrow
Date Sample: 04/09/2015
Sampled By: S. Myers - STRATA
Date Tested: 04/14/2015
Tested By: S. Myers - STRATA
Soil Tempered: Yes
Rammer Type: Mecanical

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch	100	
3/4 inch	76	100
3/8 inch		
#4 screen		

Maximum Dry Density, pcf : 103.4
Optimum Moisture Content, %: 18.5

Corrected Dry Density, pcf: 112.8
Corrected Moisture Content, %: 14.3
Coarse Aggregate Correction, %: 24.0
Bulk Specific Gravity (assumed): 2.56



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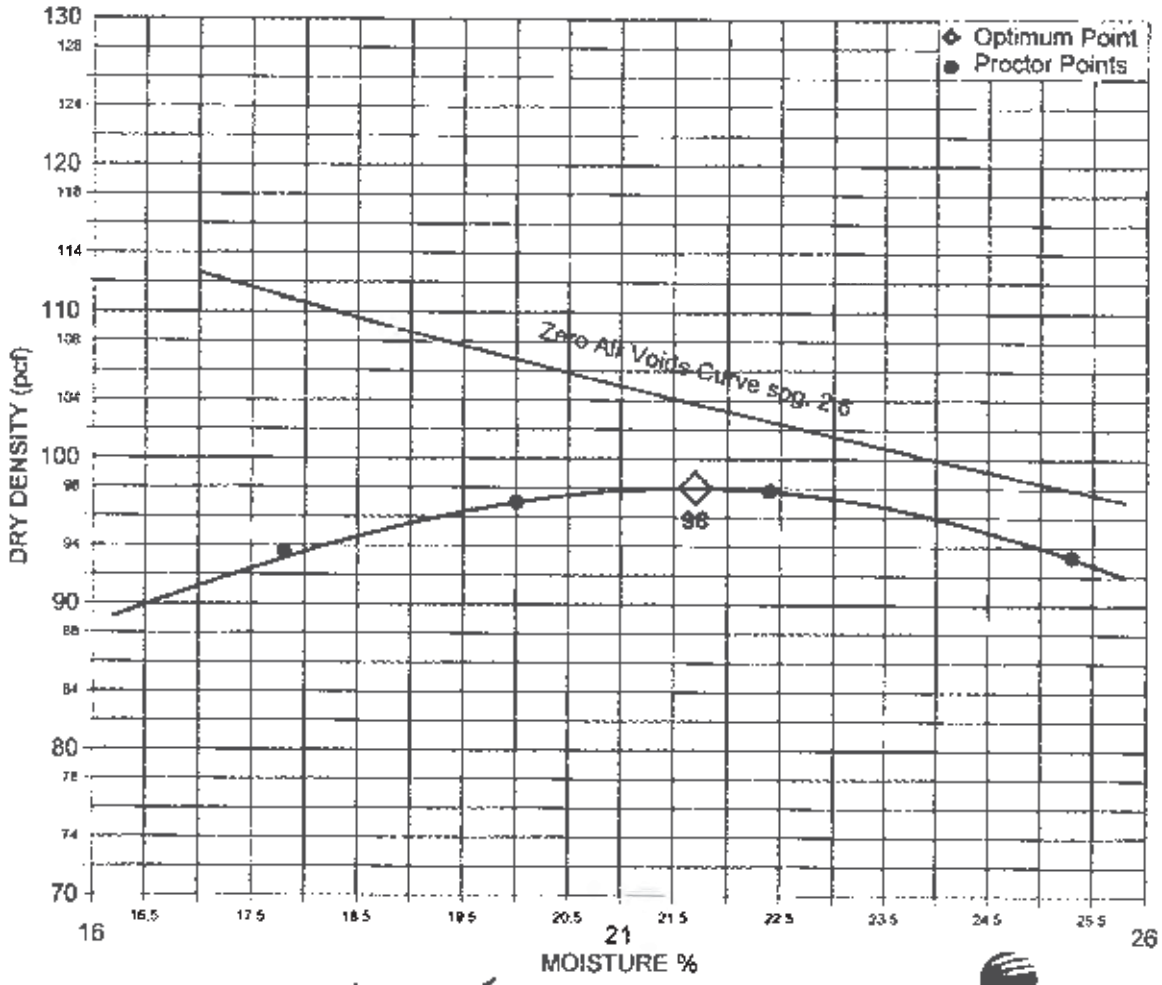
MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D698
Method C

Project: Smokey Canyon Mine
Client Name: Formation Environmental
Project ID.: PO15032A
Sample No.: PO1500115
Sample Source: Onsite Stockpile
Sample Classification: North Area Borrow
Date Sample:04/09/2015
Sampled By: S. Myers - STRATA
Date Tested: 04/14/2015
Tested By: S. Myers - STRATA
Soil Tempered: No
Rammer Type: Manual
Maximum Dry Density, pcf : 98.0
Optimum Moisture Content, %: 21.7

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch		
3/4 inch	100	100
3/8 inch		
#4 screen		

This material may represent topsoil due to lack of gravel.



Reviewed By: _____

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MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D698
Method C

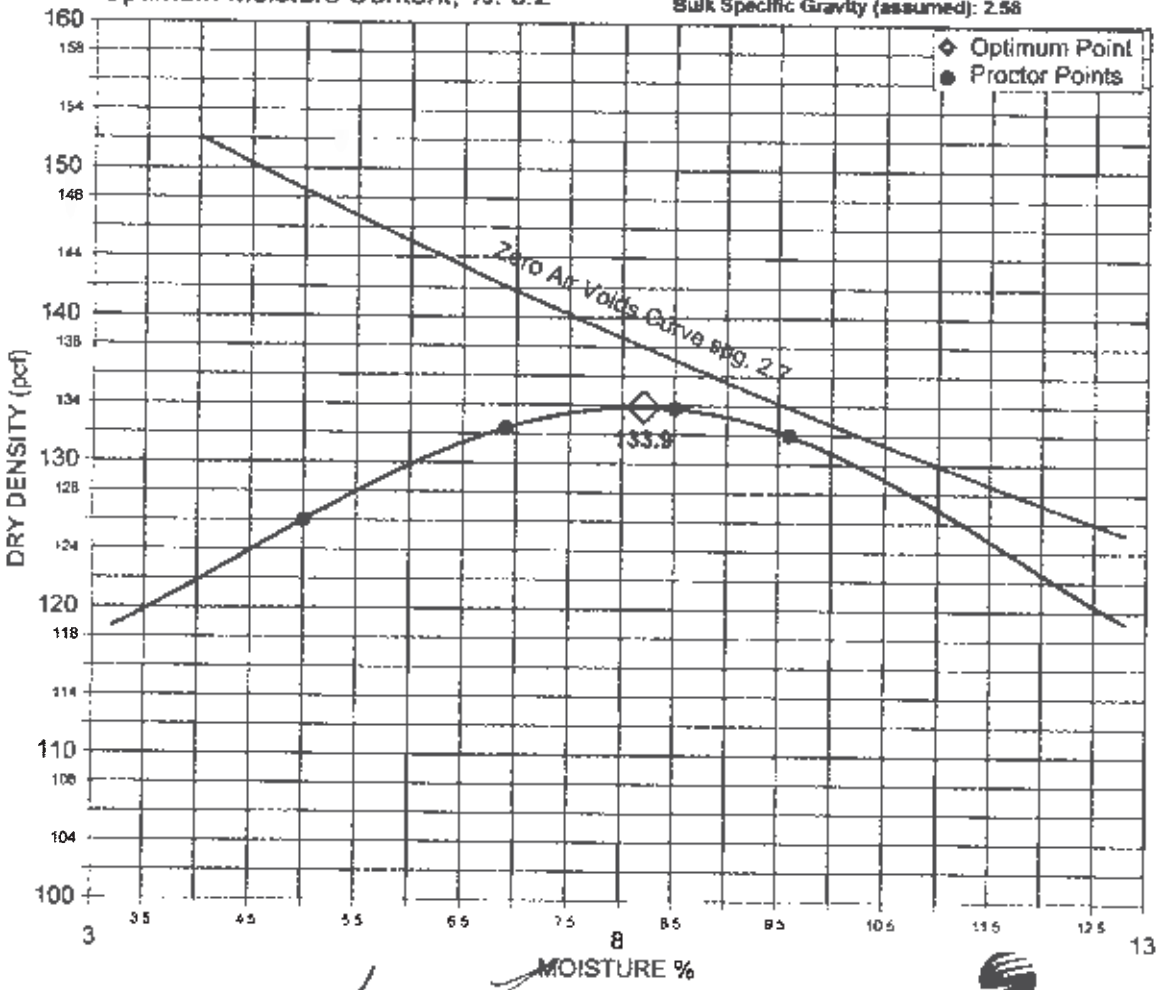
Project: Smokey Canyon Mine
Client Name: Formation Environmental
Project ID.: PO15032A
Sample No.: PO1500142
Sample Source: Lancaster Pit
Sample Classification: Pipe Bedding
Date Sample: 04/22/2015
Sampled By: S. Myers - STRATA
Date Tested: 04/25/2015
Tested By: S. Myers - STRATA
Soil Tempered: Yes
Rammer Type: Mecanical

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch	100	
3/4 inch	94	100
3/8 inch		
#4 screen		

Maximum Dry Density, pcf : 133.9
Optimum Moisture Content, %: 8.2

Corrected Dry Density, pcf: 135.3
Corrected Moisture Content, %: 7.3
Coarse Aggregate Correction, %: 6.4
Bulk Specific Gravity (assumed): 2.58



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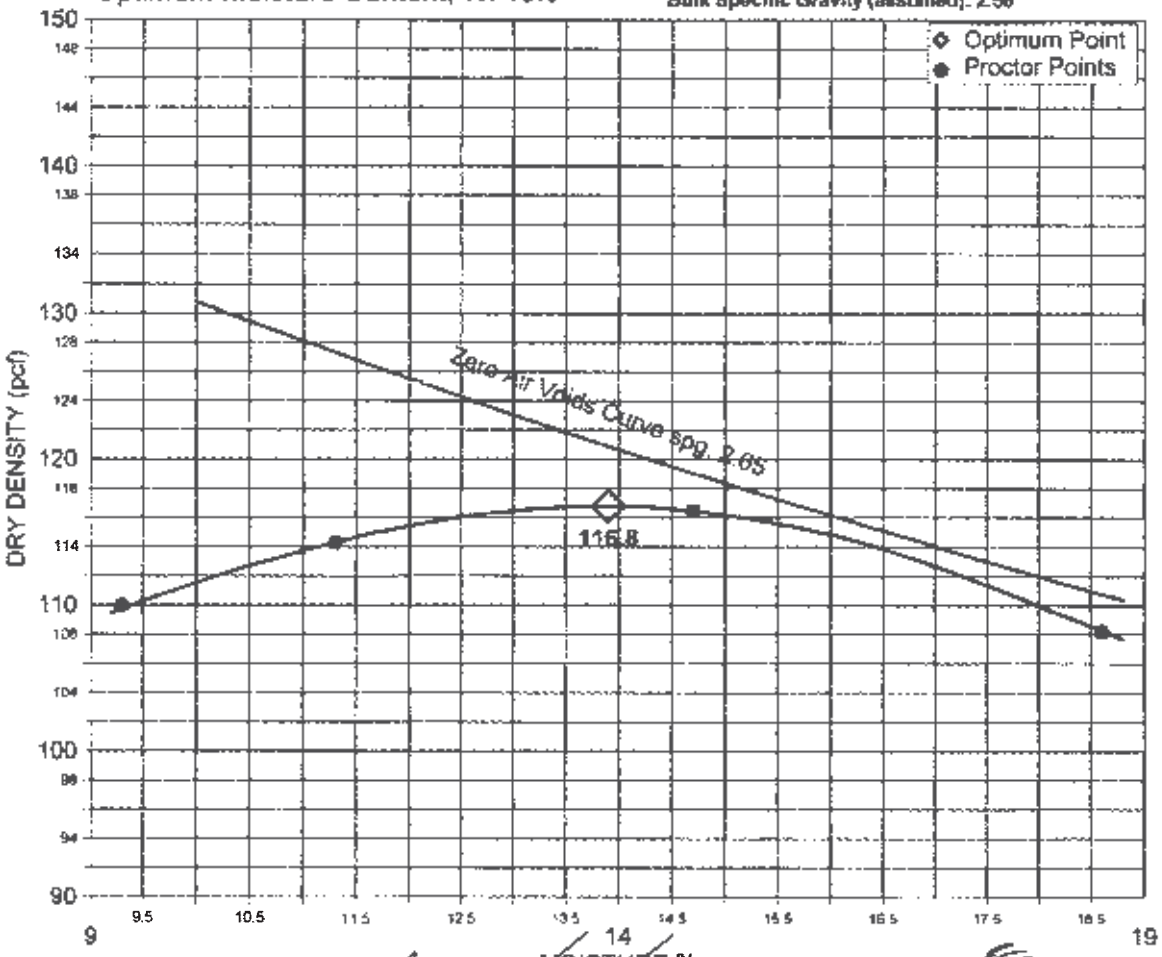
MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D698
Method C

Project: Smokey Canyon Mine
Client Name: Formation Environmental
Project ID.: PO15032A
Sample No.: PO1500143
Sample Source: South Sedimentation Basin
Embankment Spillway Excavation Spoil
Sample Classification: Dinwoody
Date Sample: 04/22/2015
Sampled By: M. Hitchcock - STRATA
Date Tested: 04/23/2015
Tested By: M. Hitchcock - STRATA
Soil Tempered: Yes
Rammer Type: Mecanical
Maximum Dry Density, pcf : 116.8
Optimum Moisture Content, %: 13.9

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
4 inch	100	
2 inch		
3/4 inch	71	100
3/8 inch		
#4 screen		

Corrected Dry Density, pcf: 126.3
Corrected Moisture Content, %: 10.0
Coarse Aggregate Correction, %: 28.6
Bulk Specific Gravity (assumed): 2.56



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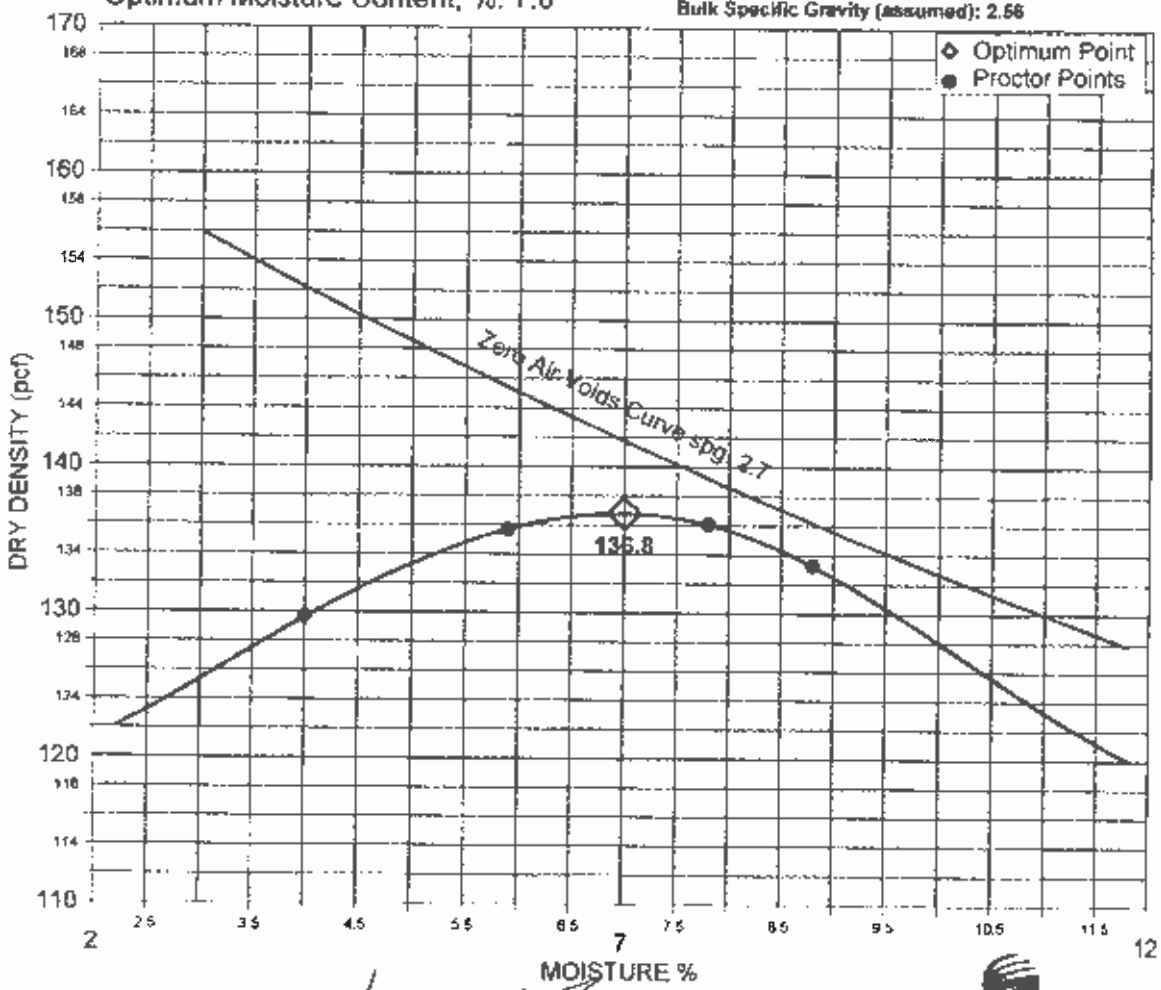
MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D698
Method C

Project: Smoky Canyon Mine
Client Name: Formation Enviromental
Project ID.: PO15032A
Sample No.: PO1500277
Sample Source: Babe's Pit
Sample Classification: 3" Minus Pit Run
Date Sample: 06/30/2015
Sampled By: S. Myers - STRATA
Date Tested: 07/09/2015
Tested By: J. Martin - STRATA
Soil Tempered: Yes
Rammer Type: Mecanical
Maximum Dry Density, pcf : 136.8
Optimum Moisture Content, %: 7.0

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch	100	
2 inch	96	
3/4 inch	62	100
3/8 inch		
#4 screen		

Corrected Dry Density, pcf: 144.3
Corrected Moisture Content, %: 4.3
Coarse Aggregate Correction, %: 38
Bulk Specific Gravity (assumed): 2.56



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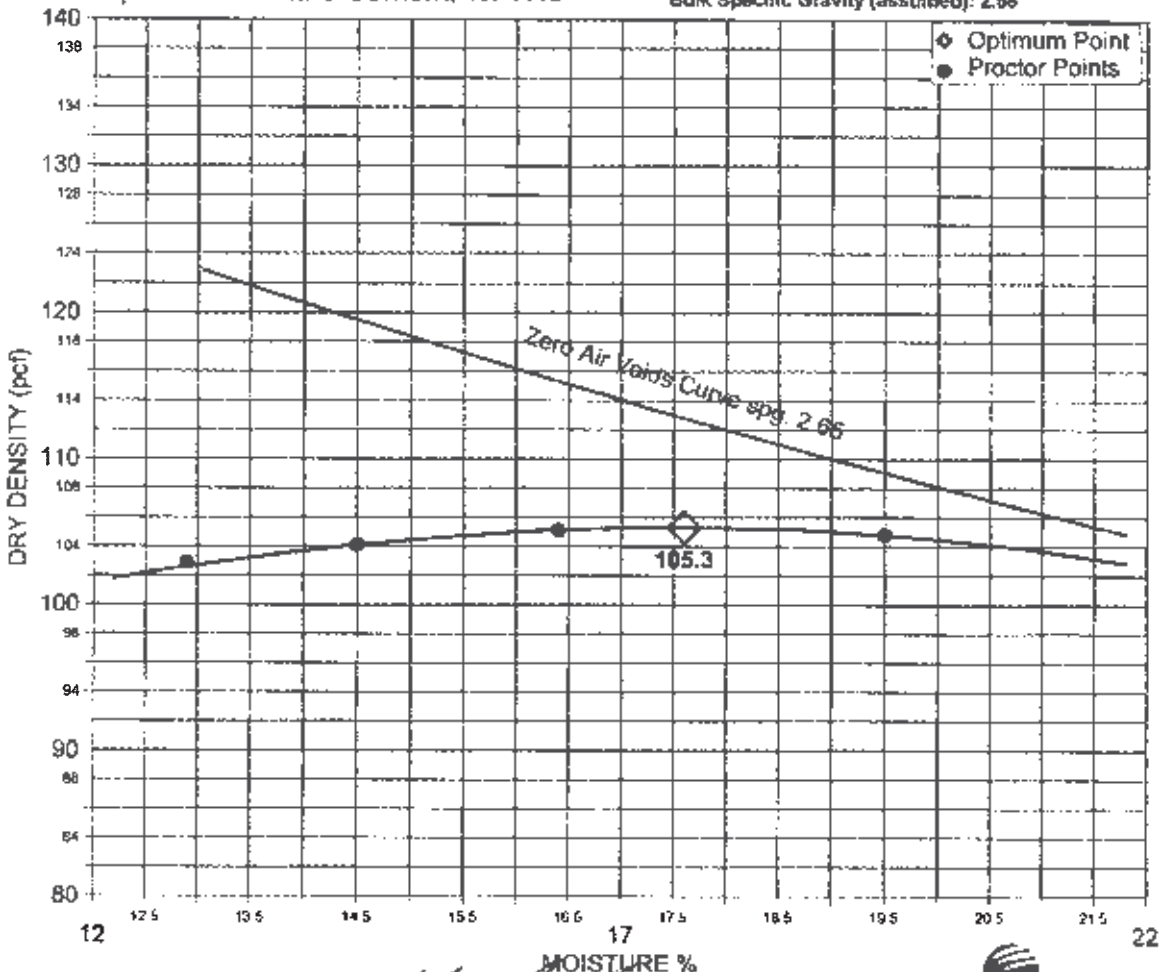
MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D698
Method B

Project: Smoky Canyon Mine
Client Name: Formation Environmental
Project ID.: PO15032A
Sample No.: PO1500278
Sample Source: Center of Outside of East Berm of East Sedimentation Basin
Sample Classification: Dinwoody
Date Sample: 06/30/2015
Sampled By: S. Myers - STRATA
Date Tested: 07/06/2015
Tested By: J. Martin - STRATA
Soil Tempered: Yes
Rammer Type: Mecanical
Maximum Dry Density, pcf : 105.3
Optimum Moisture Content, %: 17.6

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch	100	
3/4 inch	92	
3/8 inch	78	100
#4 screen		

Corrected Dry Density, pcf: 113.3
Corrected Moisture Content, %: 14.0
Coarse Aggregate Correction, %: 8.0
Bulk Specific Gravity (assumed): 2.56



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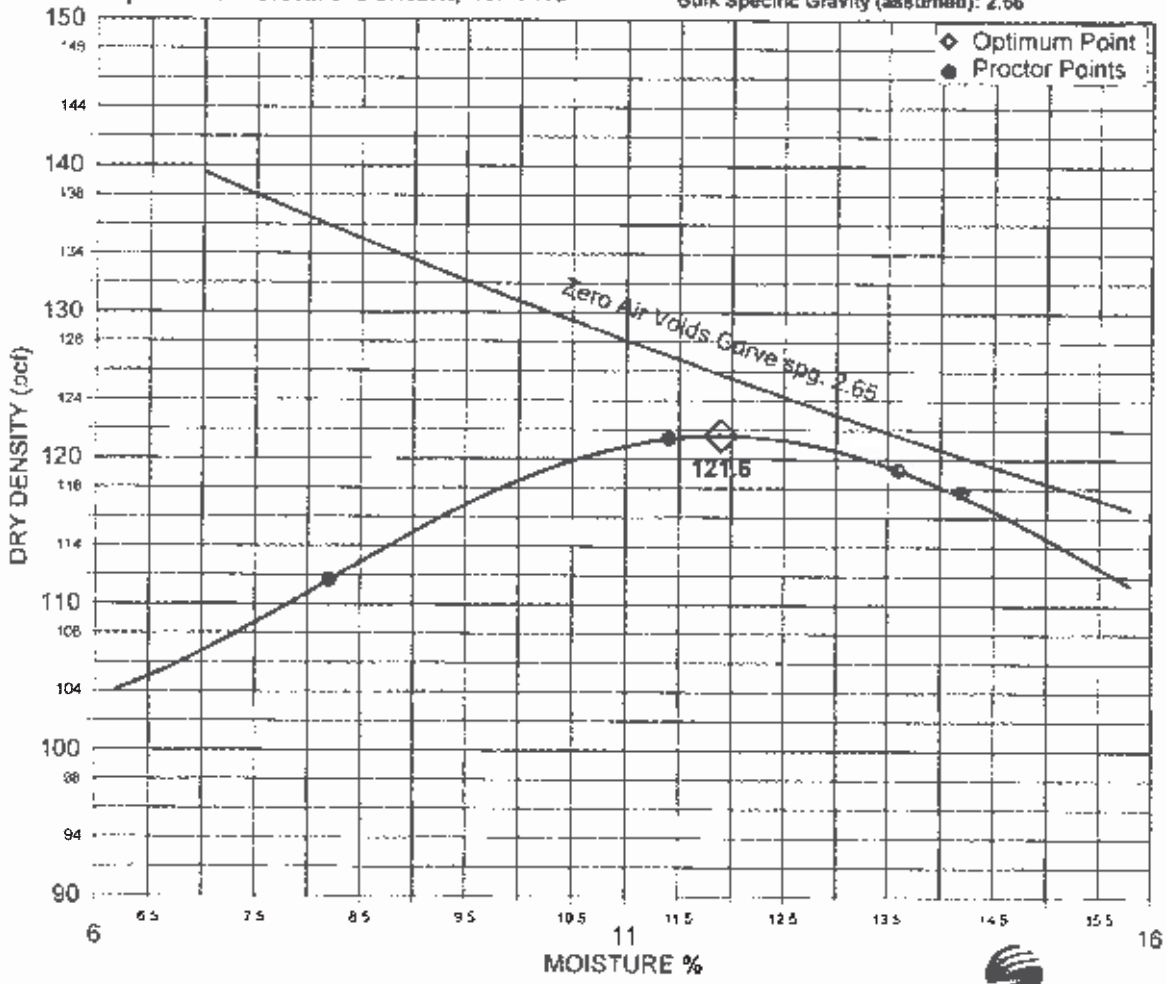
MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D698
Method C

Project: Smoky Canyon Mine
Client Name: Formation Environmental
Project ID.: PO15032A
Sample No.: PO1500666
Sample Source: North Embankment of Saddle Infiltration Basin
Sample Classification: Silty Gravel w/Sand
Date Sample: 10/21/2015
Sampled By: M. Hitchcock - STRATA
Date Tested: 10/26/2015
Tested By: J. Kofoed - STRATA
Soil Tempered: No
Rammer Type: Mechanical
Maximum Dry Density, pcf : 121.6
Optimum Moisture Content, %: 11.9

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch	100	
3/4 inch	72	100
3/8 inch		
#4 screen		

Corrected Dry Density, pcf: 130.0
Corrected Moisture Content, %: 8.8
Coarse Aggregate Correction, %: 27.7
Bulk Specific Gravity (assumed): 2.56



Reviewed By: Michael Hitchcock

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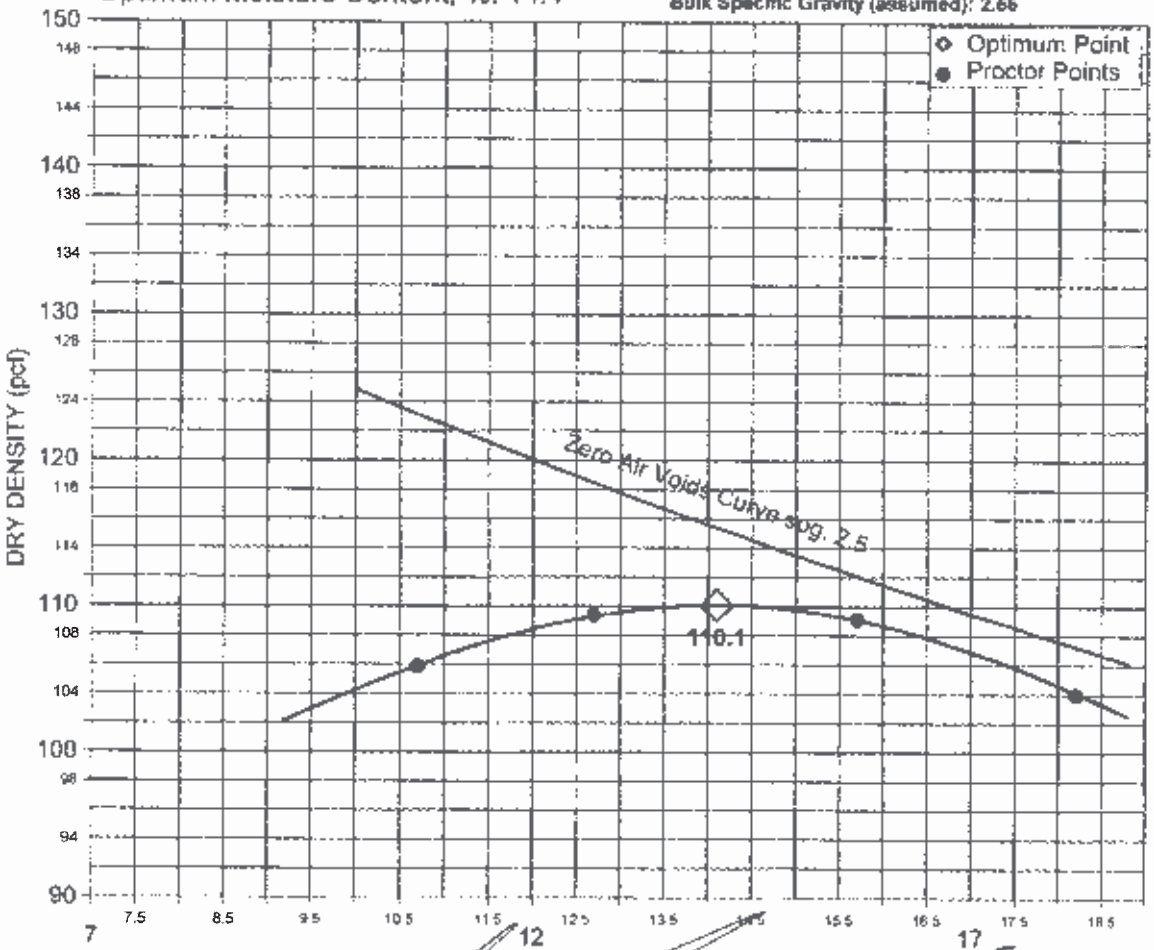
MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D698
Method C

Project: Smoky Canyon Mine
Client Name: Formation Environmental
Project ID.: PO15032A
Sample No.: PO1500726
Sample Source: West Side of the South Sedimentation Basin
Sample Classification: Silty Gravel (GM)
Date Sample: 11/11/2015
Sampled By: S. Myers - STRATA
Date Tested: 11/16/2015
Tested By: S. Myers - STRATA
Soil Tempered: No
Rammer Type: Mechanical
Maximum Dry Density, pcf : 110.2
Optimum Moisture Content, %: 14.1

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch	100	
2 inch	96	
3/4 inch	70	100
3/8 inch		
#4 screen		

Corrected Dry Density, pcf: 121.3
Corrected Moisture Content, %: 10.0
Coarse Aggregate Correction, %: 28.6
Bulk Specific Gravity (assumed): 2.66



Reviewed By:

STRATA

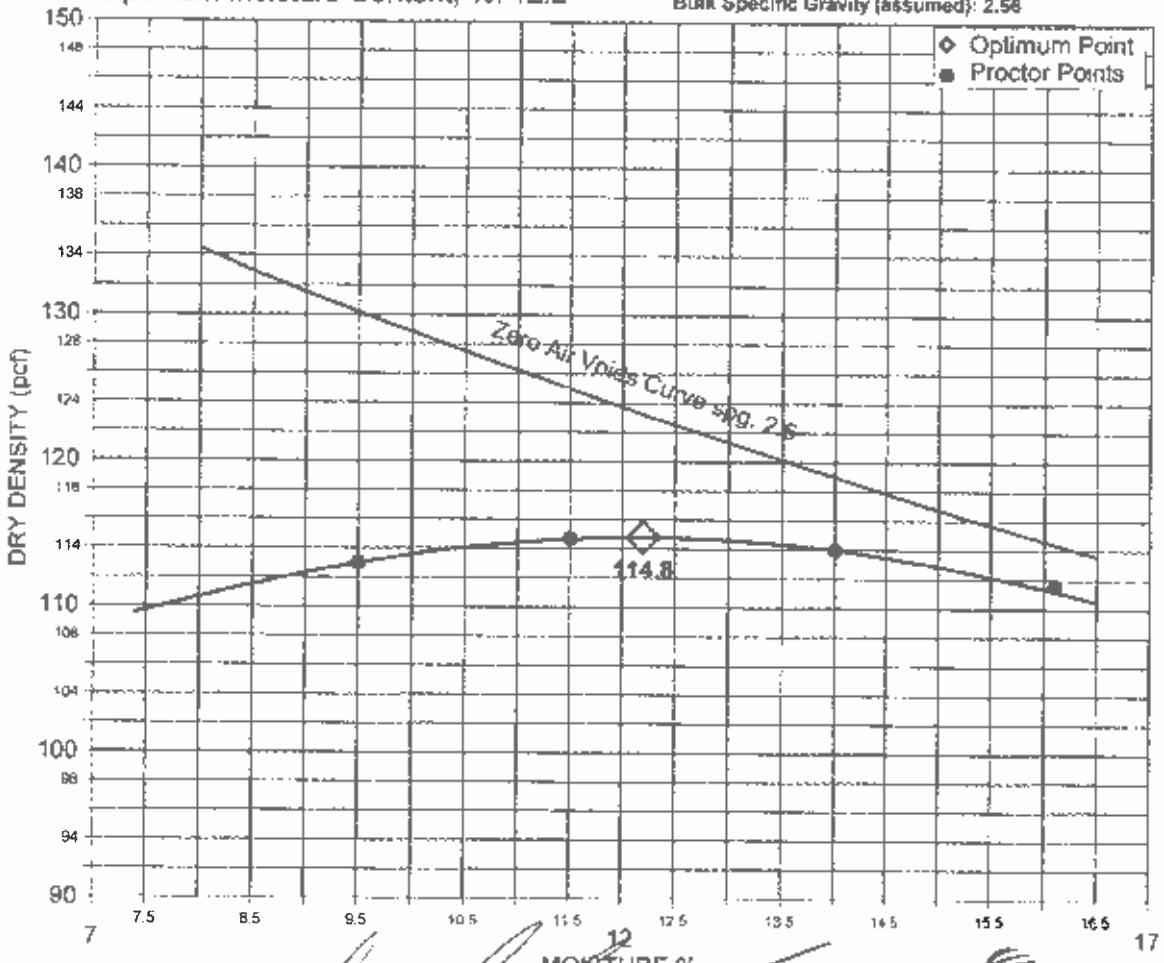
MOISTURE-DENSITY RELATIONSHIP CURVE
ASTM D698
Method C

Project: Smoky Canyon Mine
Client Name: Formation Environmental
Project ID.: PO15032A
Sample No.: PO1500727
Sample Source: West Side of the South Sedimentation Basin
Sample Classification: Silty Gravel w/Sand (GM)
Date Sample: 11/11/2015
Sampled By: S. Myers - STRATA
Date Tested: 11/116/2015
Tested By: S. Myers - STRATA
Soil Tempered: No
Rammer Type: Mechanical
Maximum Dry Density, pcf : 114.8
Optimum Moisture Content, %: 12.2

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
3 inch		
2 inch	100	
3/4 inch	83	100
3/8 inch		
#4 screen		

Corrected Dry Density, pcf: 120.3
Corrected Moisture Content, %: 10.3
Coarse Aggregate Correction, %: 16.9
Bulk Specific Gravity (assumed): 2.56



Reviewed By:

STRATA

FIELD DENSITY TEST REPORTS

STRATA

(208) 237-3400

DFR No.: MLH042215
Page: 1 of 1

IN-PLACE DENSITY TESTS

Project Name: Smokey Canyon Mine
Project Address: Smokey Canyon Mine, Wyoming
Client Name: Formation Environmental

Date/Day: 4/22/2015 Wednesday
Permit No.: NP
Project ID.: PO15032A

Test Method: (N) Nuclear Densometer x — ASTM D6938 x — AASHTO T310
(S) Sand Cone — ASTM D1556/D2216 — AASHTO T191

Gauge Make/Model: Troxler 3430 **Serial No.:** 36687
Std Count - Density N_1: 2145 **Moist N_1** 640 **Calibration Date:** Feb-15

Test Location Selected By: Strata Rep.: M. Hitchcock Your Personnel:
Contractor: Other:

Proctor Information

Proctor No.	Lab No.	Maximum Density, pcf	Optimum Moisture	Soil Description
1	PO1500143	126.3	10.0	Dinwoody
2				
3				
4				

Proctor Test Method	
ASTM D698	x
ASTM D1557	
AASHTO T99	
AASHTO T180	

TEST RESULTS

Field No. Remarks:	Location	Elevation	Test Depth, inches	Field Moisture, %	Field Dry Density, pcf	Proctor No.	Maximum Density Obtained
1	Spillway Subgrade, 2' Up Stream of Centerline N42°40.016' and W111°07.902'	FG	12	9.6	120.3	1	95%
2	Spillway Subgrade, 3' Down Stream of Centerline N42°40.015' W111°07.902'	FG	12	10.9	122.4	1	97%
3	8' Left of Spillway, N42°40.012' W111°07.896' (5)	Mid Height	12	11.6	128.2	1	100+%
4	18' Left of Spillway, N42°40.015' W111°07.894' (4)	Mid Height	12	12.0	116.0	1	92%
5	13' Down Stream of Centerline, N42°40.010' W111°07.911'	2.5' BTE	12	11.8	115.6	1	92%
6	Inside Pond, 30' Left of Spillway, N42°40.023' W111°07.901'	ET	12	9.8	123.5	1	98%

Elevations: TE = Top of Embankment ET = Embankment Toe FG = Finish Grade
EG = Existing Grade AC = Asphalt Concrete A or B preceding elevation designates above or below (i.e. 4' ASG or 4' BSG)

Remarks:

Reported to: Reviewed by:

STRATA

(208) 237-3400

DFR No.: DSM063015
Page 1 of 1

IN-PLACE DENSITY TESTS

Project Name: Smoky Canyon Mine
Project Address: Smoky Canyon Mine, Idaho
Client Name: Formation Environmental

Date/Day: 6/30/2015 Tuesday
Permit No.: NP
Project ID.: PO15032A

Test Method:
(N) Nuclear Densometer x — ASTM D6938 x — AASHTO T310
(S) Sand Cone — ASTM D1556/D2216 — AASHTO T191

Gauge Make/Model: Troxler 3430 **Serial No.:** 62025
Std Count - Density N_1: 2300 **Moist N_1** 653 **Calibration Date:** Feb-15

Test Location Selected By: Strata Rep.: S.Myers Your Personnel:
Contractor: Other

Proctor Information

Proctor No.	Lab No.	Maximum Density, pcf	Optimum Moisture	Soil Description
1	PO1500143	126.3	10.0	Dinwoody
2	PO1500278	113.3	14.0	Dinwoody
3				
4				

Proctor Test Method
ASTM D698 x
ASTM D1557
AASHTO T99
AASHTO T180

TEST RESULTS

Field No. Remarks:	Location	Elevation	Test Depth, inches	Field Moisture, %	Field Dry Density, pcf	Proctor No.	Maximum Density Obtained
1	East Sedimentation Basin, South East Side of the East Berm on the Interior of the Basin	6880	12	13.0	116.3	2	103%
2	East Sedimentation Basin, Center of the East Side Berm on the Interior of the Basin	6884	12	13.0	115.0	2	102%
3	East Sedimentation Basin, North Side of the East Berm on the Interior of the Basin	6881	12	14.0	121.9	1	97%
4	East Sedimentation Basin, North East End of the East Berm, on the Exterior of the Basin	6885	12	10.2	112.4	2	99%

Elevations: BOT = Bottom of Trench SG = Subgrade FG = Final Grade
EG = Existing Grade AC = Asphalt Concrete A or B preceding elevation designates above or below (i.e. 4' ASG or 4' BSG)

Remarks: 1, 2 and 4 were updated to reflect the new moistre density relationship curve's value.

Reported to: John Freidman Reviewed by: Michael Hitchcock

IN-PLACE FIELD DENSITY TESTS

Project Name: Smoky Canyon Mine
Project Address: Smoky Canyon Mine, Idaho
Client: Formation Environmental

Date/Day: 9/2/15 Wednesday
Project Number: PO15032A
Permit Number: NP

Test Method: (N) Nuclear Densometer x | ASTM D6938 x | AASHTO T310
(S) Sand Cone | ASTM D1556/D2216 | AASHTO T191

Gauge Make/Model: Troxler 3430 **Serial No.:** 62025
Std Count - Density N_1: 2285 **Moist N_1** 680 **Calibration Date:** Mar-15

Test Location Selected By: STRATA Rep: S.Myers Your Personnel:
Contractor: Other:

Proctor Information

Proctor No.	Lab No.	Maximum Density,	Optimum Moisture	Soil Description / Sample Location
1	PO1500142	135.3	7.3%	Pipe Bedding
2	PO1500278	113.3	14.0%	Dinwoody
3	PO1500143	126.3	10.0%	Dinwoody
4				

Proctor Test Method	
ASTM D698	x
ASTM D1557	
AASHTO T99	
AASHTO T180	

TEST RESULTS

Field Number	Location	Elevation	Test Depth (in)	Field Moisture (%)	Field Dry Density (pcf)	Field Wet Density (pcf)	Proctor No.	Compaction Obtained (%)	Specified Compaction (%)
1	42" Culvert Crossing the Haul Road, West Shoulder of Road, 25' East of Outlet, South Side of Culvert	1' ATP	12	4.2%	127.9	133.3	1	95%	95%
2	42" Culvert Crossing the Haul Road, West Shoulder of Road, 25' East of Outlet, North Side of Culvert	1'ATP	12	4.4%	129.5	135.2	1	96%	95%
3	North Sedimentation Basin, North Embankment 10' West of Spillway Center Line	Top Lift	12	10.4%	111.4	122.9	2	98%	95%
4	North Sedimentation Basin, North Embankment 10' East of Spillway Center Line	Top Lift	12	9.0%	120.8	131.7	3	96%	95%
5	South Central Sedimentation Basin, Center of the East Embankment	Top Lift	12	10.9%	114.9	127.3	2	100+%	95%
6	East Energy Disapation Structure, Center of the North Embankment.	Top Lift	12	12.4%	125.2	140.7	3	99%	95%

Remarks:

Elevation Code: FB = Finished Base | EG = Existing Grade | TP = Top of Pipe | A + Elev = Above that Elevation
FG = Finished Grade | SB = SubBase | FTG = Footing Grade | B + Elev = Below that Elevation

Reviewed By:

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IN-PLACE FIELD DENSITY TESTS

Project Name: Smokey Canyon Mine
Project Address: Smokey Canyon Mine, Wyoming
Client: Formation Environmental

Date/Day: Thursday, September 24, 2015
Project Number: PO15032A
Permit Number: NP

Test Method: (N) Nuclear Densometer x; (S) Sand Cone; ASTM D6938 x; ASTM D1556/D2216; AASHTO T310; AASHTO T191

Gauge Make/Model: Troxler 3430 **Serial No.:** 25818
Std Count - Density N_1: 2179 **Moist N_1** 650 **Calibration Date:** Mar-15

Test Location Selected By: STRATA Rep: S.Myers; Contractor:; Your Personnel:; Other:

Proctor Information

Proctor No.	Lab No.	Maximum Density,	Optimum Moisture	Soil Description / Sample Location
1	PO1500142	135.3	7.3%	Pipe Bedding
2	PO1500143	126.3	10.0%	Dirt Woody
3				
4				

Proctor Test Method
ASTM D698 x
ASTM D1557
AASHTO T99
AASHTO T180

TEST RESULTS

Field Number	Location	Elevation	Test Depth (in)	Field Moisture (%)	Field Dry Density (pcf)	Field Wet Density (pcf)	Proctor No.	Compaction Obtained (%)	Specified Compaction (%)
1	South Culvert (36" diameter cmp) 35' West of Outlet Left of the Center Line	TOP	12	5.4%	141.9	149.5	1	100+%	95%
2	South Culvert (36" diameter cmp) 35' West of Outlet Right of the Center Line	TOP	12	4.5%	139.9	146.2	1	100+%	95%
3	West Side Run Off Ditch 130' Upstream of EDS 15' Right of Ditch Center Line	NP	12	14.0%	122.3	132.4	2	97%	95%
4	West Side Run Off Ditch 225' Upstream of EDS 15' Right of Ditch Center Line	NP	12	10.6%	123.5	136.6	2	98%	95%

Remarks:

Elevation Code: FB = Finished Base; FG = Finished Grade; EG = Existing Grade; SB = SubBase; SG = Subgrade; FTG = Footing Grade; A + Elev = Above that Elevation; B + Elev = Below that Elevation; TOP = Top of Pipe

Reviewed By:

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IN-PLACE FIELD DENSITY TESTS

Project Name: Smokey Canyon Mine
Project Address: Smokey Canyon Mine, Wyoming
Client: Formation Environmental

Date/Day: Wednesday, October 21, 2015
Project Number: PO15032A
Permit Number: NP

Test Method: (N) Nuclear Densometer x; (S) Sand Cone; ASTM D6938 x; ASTM D1556/D2216; AASHTO T310; AASHTO T191

Gauge Make/Model: Troxler 3430 **Serial No.:** 25176
Std Count - Density N_1: 2068 **Moist N_1** 644 **Calibration Date:** May-15

Test Location Selected By: STRATA Rep: M. Hitchcock; Contractor:; Your Personnel:; Other:

Proctor Information

Proctor No.	Lab No.	Maximum Density, pcf	Optimum Moisture	Soil Description / Sample Location
1	PO1500666	130.0	8.8%	Silty Gravel w/Sand
2				
3				
4				

Proctor Test Method
ASTM D698 x
ASTM D1557
AASHTO T99
AASHTO T180

TEST RESULTS

Field Number	Location	Elevation	Test Depth (in)	Field Moisture (%)	Field Dry Density (pcf)	Field Wet Density (pcf)	Proctor No.	Compaction Obtained (%)	Specified Compaction (%)
1	North Embankment of the Saddel Infiltration Basin	TOE	12	8.2%	132.1	142.9	1	100+%	95%
2	North Embankment of the Saddel Infiltration Basin	5' BTOE	12	9.2%	128.0	139.8	1	98%	95%
3	North Embankment of the Saddel Infiltration Basin	6' BTOE	12	9.7%	127.9	140.3	1	98%	95%
4	South Embankment of the Saddel Infiltration Basin	TOE	12	8.7%	131.7	143.2	1	100+%	95%

Remarks: TOE = Top of Embankment

Elevation Code: FB = Finished Base; FG = Finished Grade; EG = Existing Grade; SB = SubBase; SG = Subgrade; FTG = Footing Grade; A + Elev = Above that Elevation; B + Elev = Below that Elevation

Reviewed By:

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IN-PLACE FIELD DENSITY TESTS

Project Name: Smokey Canyon Mine
Project Address: Smokey Canyon Mine, Wyoming
Client: Formation Environmental

Date/Day: Wednesday, November 11, 2015
Project Number: PO15032A
Permit Number: NP

Test Method: (N) Nuclear Densometer x | ASTM D6938 x | AASHTO T310
(S) Sand Cone | ASTM D1556/D2216 | AASHTO T191

Gauge Make/Model: Troxler 3430 **Serial No.:** 62025
Std Count - Density N_1: 2170 **Moist N_2** 650 **Calibration Date:** Feb-15

Test Location Selected By: STRATA Rep: S.Myers Your Personnel:
Contractor: Other:

Proctor Information

Proctor No.	Lab No.	Maximum Density,	Optimum Moisture	Soil Description / Sample Location
1	PO1500726	121.3	10.0%	Silty Gravel (GM)
2	PO1500727	120.3	10.3%	Silty Gravel w/Sand (GM)
3				
4				

Proctor Test Method
ASTM D698 x
ASTM D1557
AASHTO T99
AASHTO T180

TEST RESULTS

Field Number	Location	Elevation	Test Depth (in)	Field Moisture (%)	Field Dry Density (pcf)	Field Wet Density (pcf)	Proctor No	Compaction Obtained (%)	Specified Compaction (%)
1	North End of the West Embankment of the West Side, South Sedimentation Basin	2'BFG	12	15.8%	98.2	113.7	1	81%	95%
2	West End of the South Side Embankment of the West Side, South Sedimentation Basin	1'BFG	12	10.3%	109.7	120.9	1	90%	95%
3	East End of the South Side Embankment of the West Side, South Sedimentation Basin	1'BFG	12	9.9%	119.8	131.7	2	100%	95%
4	North End of the East Side Embankment of the West Side, South Sedimentation Basin	1'BFG	12	9.1%	125.5	137.0	2	100+%	95%

Remarks: Test No. 1 & 2 did not mee the minimum specified comation of 95%.

Elevation Code: FB = Finished Base | EG = Existing Grade | SG = Subgrade | A + Elev = Above that Elevation
FG = Finished Grade | SB = SubBase | FTG = Footing Grade | B + Elev = Below that Elevation

Reviewed By: Michael Hitchcock

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GRAIN SIZE SIEVE ANALYSIS

STRATA

A Professional Services Company

Integrity from the ground up

Project:	Smokey Canyon Mine	
Client Name:	Formation Environmental 2500 55th Street Boulder, Colorado 80301	Project ID: PO15032A Sample No.: PO1500114

Sample Source:	South Area - Stockpile
Sample Classification:	Dinwoody Borrow
Date Sample:	4/9/2015
Sample By:	S. Myers - STRATA
Date Tested:	4/20/2015
Tested By:	S. Myers - STRATA

Sieve Analysis
Standards: ASTM C136/C117

Sieve Size		Percent Passing
5"	127 mm	100
4"	102 mm	93
3"	75 mm	89
2 1/2"	64 mm	89
2"	53 mm	85
1 1/2"	38 mm	82
1"	25 mm	78
3/4"	19 mm	75
1/2"	12.5 mm	72
3/8"	9.5 mm	71
No. 4	4.75 mm	71
No. 8	2.36 mm	61
No. 16	1.18 mm	58
No. 30	0.6 mm	54
No. 50	0.3 mm	50
No. 100	0.15 mm	47
No. 200	0.075 mm	43

Reviewed By: Michael Hitchcock

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Integrity from the Ground Up

Project:	Smokey Canyon Mine	
Client Name:	Formation Environmental 2500 55th Street Boulder, Colorado 80301	Project ID: PO15032A Sample No.: PO1500115

Sample Source:	Spillway Excavation of South Pond
Sample Classification:	Dinwoody
Date Sample:	4/9/2015
Sample By:	S. Myers - STRATA
Date Tested:	4/20/2015
Tested By:	S. Myers - STRATA

Sieve Analysis

Standards: ASTM C136/C117

Sieve Size		Percent Passing
2 1/2"	64 mm	100
2"	53 mm	98
1 1/2"	38 mm	95
1"	25 mm	95
3/4"	19 mm	94
1/2"	12.5 mm	94
3/8"	9.5 mm	93
No. 4	4.75 mm	93
No. 8	2.36 mm	86
No. 16	1.18 mm	81
No. 30	0.6 mm	75
No. 50	0.3 mm	68
No. 100	0.15 mm	63
No. 200	0.075 mm	58

Reviewed By: _____

[illegible] Forrest Way Ste. [illegible], Pocatello, Idaho [illegible] Phone: 208.237.[illegible] Fax: 208.237.[illegible]
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Project:	Smokey Canyon Mine	
Client Name:	Formation Environmental 2500 55th Street Boulder, Colorado 80301	Project ID: PO15032A Sample No.: PO1500120

Sample Source:	Smokey Canyon Mine
Sample Classification:	Brown Chert
Date Sample:	4/15/2015
Sample By:	S. Myers - STRATA
Date Tested:	4/25/2015
Tested By:	S. Myers - STRATA

Sieve Analysis
Standards: ASTM C136/C117

Sieve Size		Percent Passing
6"	152 mm	100
5"	127 mm	92
4"	102 mm	86
3"	75 mm	77
2 1/2"	64 mm	73
2"	53 mm	70
1 1/2"	38 mm	68
1"	25 mm	60
3/4"	19 mm	55
1/2"	12.5 mm	48
3/8"	9.5 mm	44
No. 4	4.75 mm	37
No. 8	2.36 mm	30
No. 16	1.18 mm	24
No. 30	0.6 mm	21
No. 50	0.3 mm	19
No. 100	0.15 mm	18
No. 200	0.075 mm	16

Reviewed By: Michael Hitchcock

STRATA

A Professional Strength Construction

Integrity from the Ground Up

Project:	Smokey Canyon Mine	
Client Name:	Formation Environmental 2500 55th Street Boulder, Colorado 80301	Project ID: PO15032A Sample No.: PO1500142

Sample Source:	Kilroy - Lancaster Pit
Sample Classification:	Pipe Bedding / Road Base
Date Sample:	4/22/2015
Sample By:	M. Hitchcock - STRATA
Date Tested:	4/25/2015
Tested By:	S. Myers - STRATA

Sieve Analysis
Standards: ASTM C136/C117

Sieve Size		Percent Passing
1 1/2"	38 mm	100
1"	25 mm	99
3/4"	19 mm	94
1/2"	12.5 mm	78
3/8"	9.5 mm	67
No. 4	4.75 mm	48
No. 8	2.36 mm	35
No. 16	1.18 mm	27
No. 30	0.6 mm	21
No. 50	0.3 mm	16
No. 100	0.15 mm	14
No. 200	0.075 mm	11

Reviewed By:

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Integrity from the ground up

Project:	Smokey Canyon Mine	
Client Name:	Formation Environmental 2500 55th Street Boulder, Colorado 80301	Project ID: PO15032A Sample No.: PO1500143

Sample Source:	Spillway Excavation of South Sedimentation Pond
Sample Classification:	Dinwoody
Date Sample:	4/22/2015
Sample By:	M. Hitchcock - STRATA
Date Tested:	4/25/2015
Tested By:	S. Myers - STRATA

Sieve Analysis
Standards: ASTM C136/C117

Sieve Size		Percent Passing
4"	102 mm	100
3"	75 mm	92
2 1/2"	64 mm	92
2"	53 mm	84
1 1/2"	38 mm	80
1"	25 mm	76
3/4"	19 mm	71
1/2"	12.5 mm	62
3/8"	9.5 mm	55
No. 4	4.75 mm	40
No. 8	2.36 mm	36
No. 16	1.18 mm	32
No. 30	0.6 mm	28
No. 50	0.3 mm	25
No. 100	0.15 mm	23
No. 200	0.075 mm	21

Reviewed By: Michael Hitchcock

STRATA

Project:	Smoky Canyon Mine	
Client Name:	Formation Environmental 2500 55th Street Boulder, Colorado 80301	Project ID: PO15032A Sample No.: PO1500277

Sample Source:	Babe's Pit
Sample Classification:	3" Minus Pit Run
Date Sample:	6/30/2015
Sample By:	S. Myers - STRATA
Date Tested:	7/6/2015
Tested By:	S. Myers - STRATA

Sieve Analysis
Standards: ASTM C136/C117

Sieve Size		Percent Passing
2 1/2"	64 mm	100
2"	53 mm	96
1 1/2"	38 mm	87
1"	25 mm	72
3/4"	19 mm	62
1/2"	12.5 mm	51
3/8"	9.5 mm	44
No. 4	4.75 mm	32
No. 8	2.36 mm	25
No. 16	1.18 mm	19
No. 30	0.6 mm	16
No. 50	0.3 mm	13
No. 100	0.15 mm	12
No. 200	0.075 mm	10

Reviewed By: Michael Hitchcock

STRATA

Project:	Smoky Canyon Mine	
Client Name:	Formation Environmental 2500 55th Street Boulder, Colorado 80301	Project ID: PO15032A Sample No.: PO1500278

Sample Source:	Center of Outside of East Berm of East Sedimentation Basin
Sample Classification:	Dinwoody
Date Sample:	6/30/2015
Sample By:	S. Myers - STRATA
Date Tested:	7/6/2015
Tested By:	S. Myers - STRATA

Sieve Analysis
Standards: ASTM C136/C117

Sieve Size		Percent Passing
2"	53 mm	100
1 1/2"	38 mm	99
1"	25 mm	96
3/4"	19 mm	92
1/2"	12.5 mm	84
3/8"	9.5 mm	78
No. 4	4.75 mm	62
No. 8	2.36 mm	57
No. 16	1.18 mm	52
No. 30	0.6 mm	47
No. 50	0.3 mm	43
No. 100	0.15 mm	38
No. 200	0.075 mm	33

Reviewed By: Michael Hitchcock

STRATA

A Professional Services Corporation

Integrity from the Ground Up

Project:	Smoky Canyon Mine	
Client Name:	Formation Environmental 2500 55th Street Boulder, Colorado 80301	Project ID: PO15032A Sample No.: PO1500279

Sample Source:	Onsite Stockpile
Sample Classification:	Drain Rock
Date Sample:	6/30/2015
Sample By:	S. Myers - STRATA
Date Tested:	7/6/2015
Tested By:	S. Myers - STRATA

Sieve Analysis
Standards: ASTM C136/C117

Sieve Size		Percent Passing
2 1/2"	64 mm	100
2"	53 mm	98
1 1/2"	38 mm	72
1"	25 mm	16
3/4"	19 mm	2
1/2"	12.5 mm	1
3/8"	9.5 mm	1
No. 4	4.75 mm	1
No. 8	2.36 mm	1
No. 16	1.18 mm	1
No. 30	0.6 mm	1
No. 50	0.3 mm	1
No. 100	0.15 mm	1
No. 200	0.075 mm	0.5

Reviewed By: Michael Hitchcock

STRATA

Project:	Smoky Canyon Mine	
Client Name:	Formation Environmental 2500 55th Street Boulder, Colorado 80301	Project ID: PO15032A Sample No.: PO1500666

Sample Source:	North Embankment of the Saddle Infiltration Basin
Sample Classification:	Silty Gravel w/Sand
Date Sample:	10/21/2015
Sample By:	M. Hitchcock - STRATA
Date Tested:	10/26/2015
Tested By:	J. Kofoed - STRATA

Sieve Analysis
Standards: ASTM C136/C117

Sieve Size		Percent Passing
2"	53 mm	100
1 1/2"	38 mm	91
1"	25 mm	82
3/4"	19 mm	72
1/2"	12.5 mm	59
3/8"	9.5 mm	51
No 4	4.75 mm	33
No. 8	2.36 mm	28
No. 16	1.18 mm	23
No. 30	0.6 mm	20
No. 50	0.3 mm	18
No. 100	0.15 mm	17
No. 200	0.075 mm	15

Reviewed By: Michael Hitchcock

STRATA

Project:	Smoky Canyon Mine	
Client Name:	Formation Environmental 2500 55th Street Boulder, Colorado 80301	Project ID: PO15032A Sample No.: PO1500726

Sample Source:	West Side of the South Sedimentation Basin
Sample Classification:	Silty Gravel (GM)
Date Sample:	11/11/2015
Sample By:	S. Myers - STRATA
Date Tested:	11/16/2015
Tested By:	S. Myers - STRATA

Sieve Analysis
Standards: ASTM C136/C117

Sieve Size		Percent Passing
3"	75 mm	100
2"	53 mm	96
1 1/2"	38 mm	90
1"	25 mm	80
3/4"	19 mm	70
1/2"	12.5 mm	58
3/8"	9.5 mm	49
No. 4	4.75 mm	33
No. 8	2.36 mm	29
No. 16	1.18 mm	27
No. 30	0.6 mm	24
No. 50	0.3 mm	23
No. 100	0.15 mm	21
No. 200	0.075 mm	20

Reviewed By:

STRATA

Project:	Smoky Canyon Mine	
Client Name:	Formation Environmental 2500 55th Street Boulder, Colorado 80301	Project ID: PO15032A Sample No.: PO1500727

Sample Source:	West Side of the South Sedimentation Basin
Sample Classification:	Silty Gravel w/Sand (GM)
Date Sample:	11/11/2015
Sample By:	S. Myers - STRATA
Date Tested:	11/16/2015
Tested By:	S. Myers - STRATA

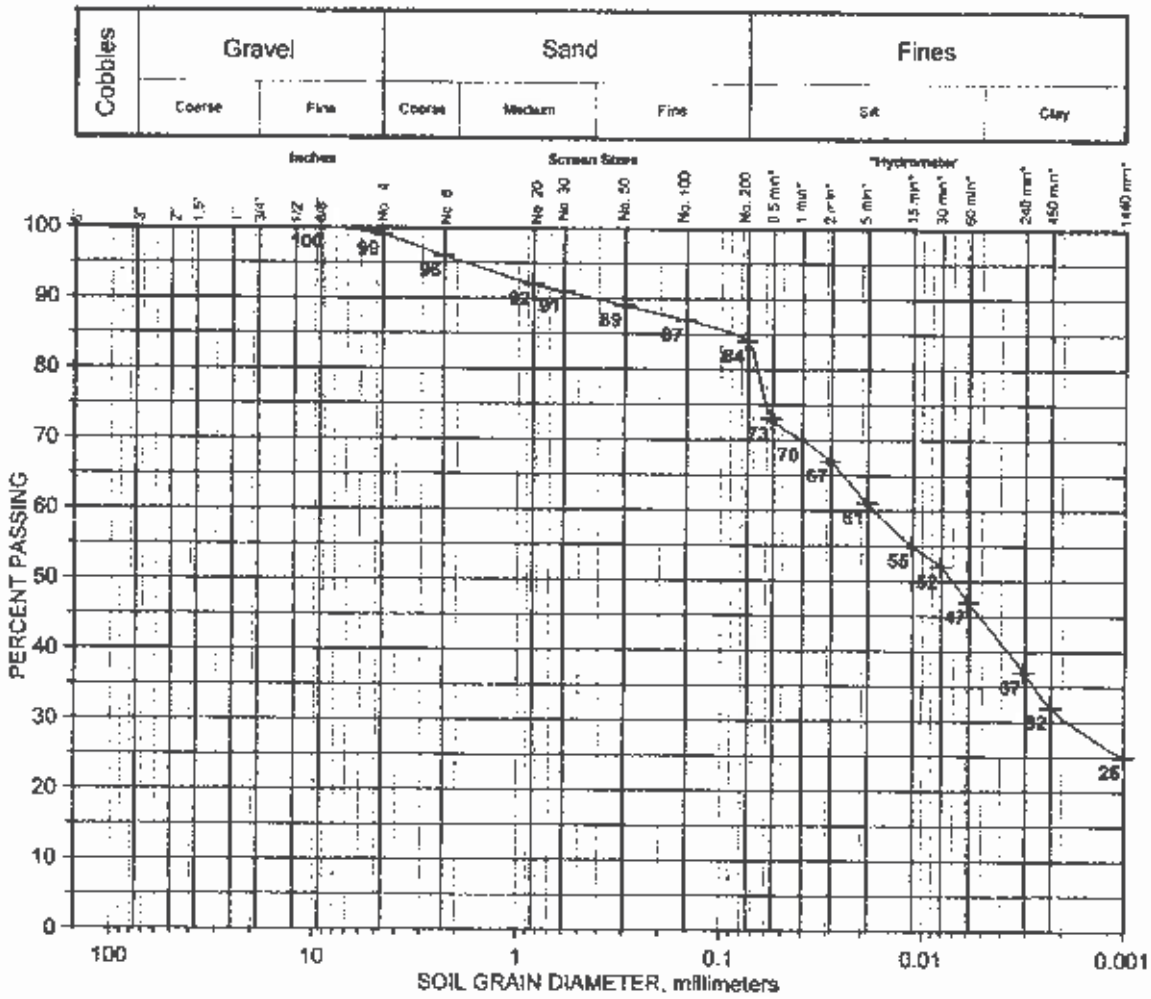
Sieve Analysis
Standards: ASTM C136/C117

Sieve Size		Percent Passing
2"	53 mm	100
1 1/2"	38 mm	96
1"	25 mm	92
3/4"	19 mm	83
1/2"	12.5 mm	70
3/8"	9.5 mm	63
No. 4	4.75 mm	43
No. 8	2.36 mm	35
No. 16	1.18 mm	30
No. 30	0.6 mm	26
No. 50	0.3 mm	23
No. 100	0.15 mm	21
No. 200	0.075 mm	19

Reviewed By: Michael Hitchcock

GRADATION ANALYSIS
ASTM D 422

Project: Smoky-Pole NTCRA
Client: Formation Enviromental
Project Number: PO12068A
Lab Number: PO1500050
Sample Identification: SC0315-DinBorrowN-SL001
Sample Classification: Lean Clay with Sand (CL)
Date tested: 3/11/2015 By: M. Hitchcock - STRATA

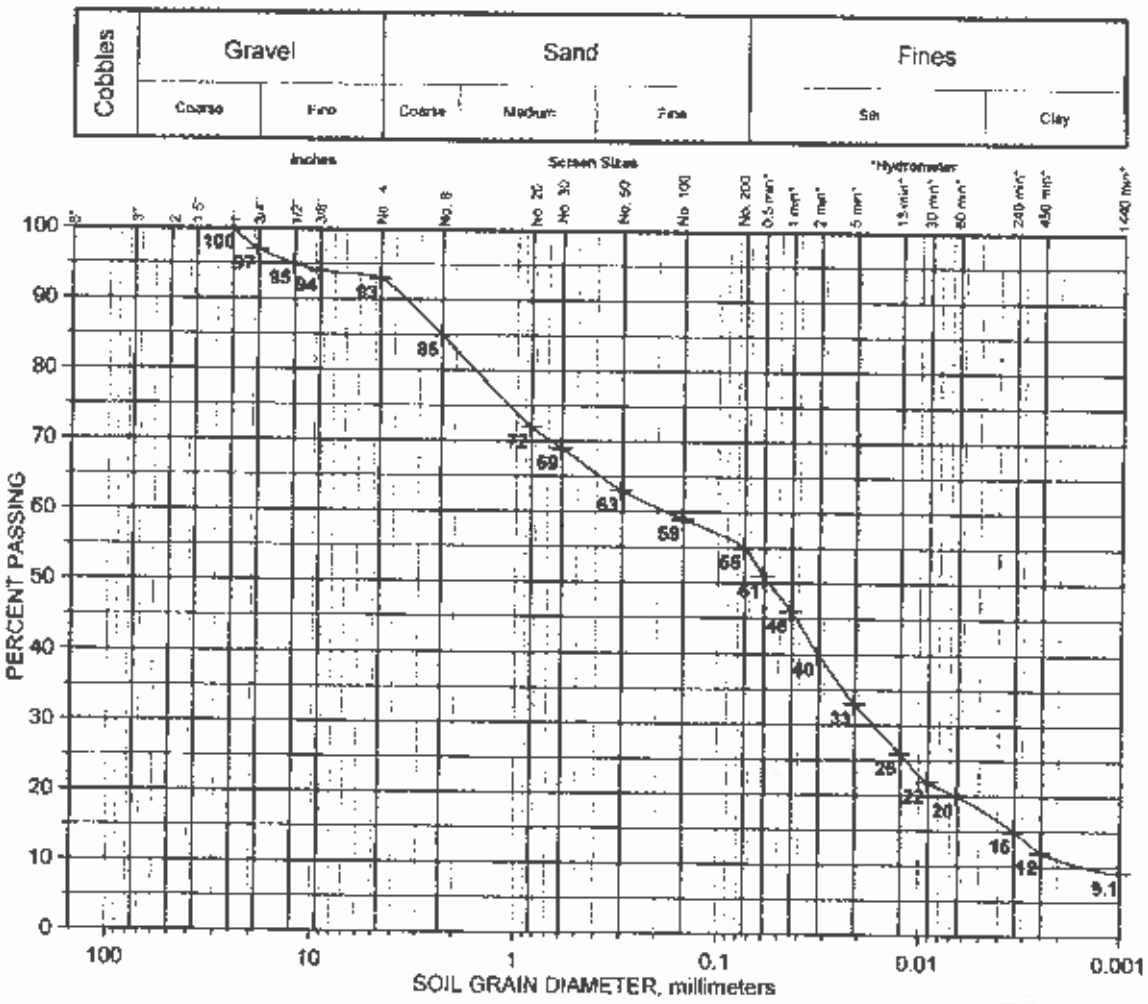


Reviewed by:

STRATA
A Professional Services Corporation
Integrity from the Ground Up

GRADATION ANALYSIS
ASTM D 422

Project: Smoky-Pole NTCRA
Client: Formation Enviromental
Project Number: PO12068A
Lab Number: PO1500051
Sample Identification: SC0315-DinBorrowC-SL001
Sample Classification: Sandy Lean Clay (CL)
Date tested: 3/11/2015 By: M. Hitchcock - STRATA



Reviewed by:

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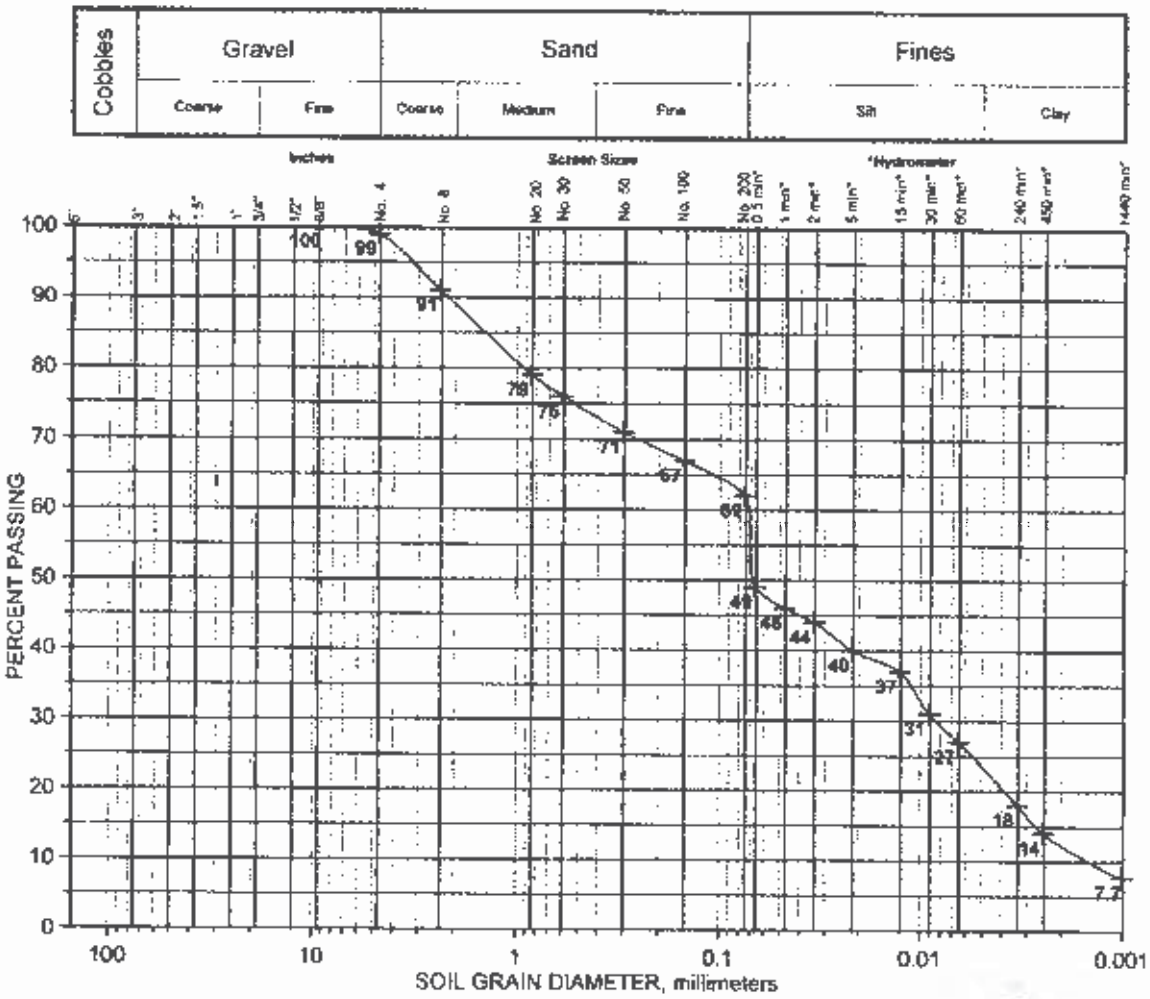
GRADATION ANALYSIS
ASTM D 422

Project: Smoky-Pole NTCRA
Client: Formation Enviromental
Project Number: PO12068A
Lab Number: PO1500052
Sample Identification: SC0315-DinBorrowS-SL001
Sample Classification: Sandy Lean Clay (CL)
Date tested: 3/11/2015 By: M. Hitchcock - STRATA



Reviewed by:

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LABORATORY PERMEABILITY TESTS

FLEXWALL PERM ASTM D5084 (Method - C)

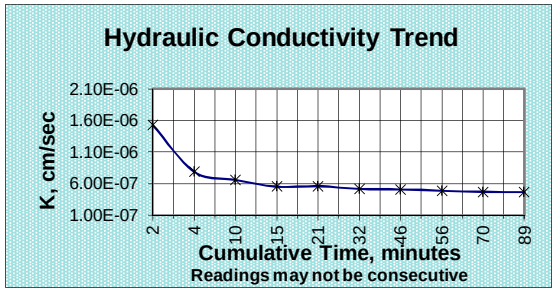
Project: Smoky-Pole NTCRA
Client: Formation Environmental
Sample ID: Sokey Canyon Mine

Sample Classification: Lean Clay with Sand

Standard: AASHTO T 99
Max. Dry Density, pcf: 102.6
Optimum Moisture, %: 18.3

Project Number: PO12068A
Sample Number: PO1500050
Date: 5/29/15

Chamber Pressure: 30
Back Pressure: 28
Saturation, %: 98
Permeant Type: Tap Water



	Ht, in	Diameter Inches	Wet Wt g	Moisture %	Area sq cm	Dry Wt. g	Density, pcf	% of Proctor %
Initial	2.803	2.883	524.0	19.1	42.12	439.9	91.6	89.3
Final	2.807	2.922	567.1	28.9	43.26	439.9	89.0	86.8

START H2	H1	delta 1	STOP H2	H1	delta 2	T sec	Temp Tx	K cm/s
42.20	2.70	43.21	42.18	4.10	41.66	120	22.8	1.53E-06
42.18	4.10	41.66	42.18	4.80	40.88	120	22.8	7.89E-07
42.18	4.80	40.88	42.16	6.50	39.00	360	22.8	6.55E-07
42.16	6.50	39.00	42.14	7.65	37.73	300	22.8	5.53E-07
42.14	7.65	37.73	42.13	9.00	36.24	360	22.8	5.61E-07
42.13	9.00	36.24	42.10	11.15	33.86	660	22.8	5.16E-07
42.10	11.15	33.86	42.07	13.65	31.09	840	22.8	5.09E-07
42.07	13.65	31.09	42.05	15.25	29.32	600	22.8	4.90E-07
42.05	15.25	29.32	42.03	17.25	27.10	840	22.8	4.70E-07
42.03	17.25	27.10	42.00	19.70	24.39	1140	22.8	4.63E-07

***Hydraulic Conductivity, cm/sec: 4.8E-07**
Maximum Gradient: 6.1
Minimum Gradient: 3.4

Final Density, pcf: (see note) 89.0
Final Moisture, %: 28.9
Hydraulic Conductivity, in/hr 0.00068

*Value based on average of last 4 readings within 25% of mean.
Notes: Samples can expand at saturation causing an decrease in density.

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Reviewed by:

FLEXWALL PERM ASTM D5084 (Method - C)

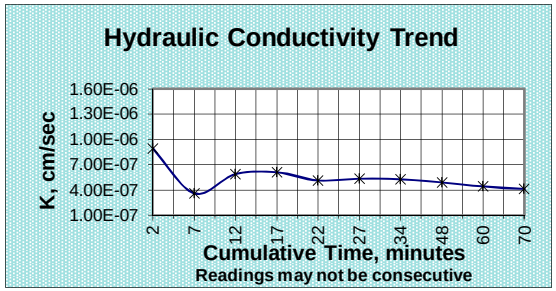
Project: Smoky-Pole NTCRA
Client: Formation Environmental
Sample ID: Sokey Canyon Mine

Sample Classification: Sandy Lean Clay

Standard: AASHTO T 99
Max. Dry Density, pcf: 103.8
Optimum Moisture, %: 20.3

Project Number: PO12068A
Sample Number: PO1500051
Date: 5/29/15

Chamber Pressure: 30
Back Pressure: 28
Saturation, %: 99
Permeant Type: Tap Water



	Ht, in	Diameter Inches	Wet Wt g	Moisture %	Area sq cm	Dry Wt. g	Density, pcf	% of Proctor %
Initial	2.803	2.883	538.1	21.1	42.12	444.4	92.5	89.1
Final	2.705	2.889	557.1	25.4	42.29	444.4	95.5	92.0

START H2	H1	delta 1	STOP H2	H1	delta 2	T sec	Temp Tx	K cm/s
41.90	8.70	36.32	41.89	9.40	35.54	120	22.8	8.94E-07
41.89	9.40	35.54	41.88	10.10	34.77	300	22.8	3.61E-07
41.88	10.10	34.77	41.87	11.20	33.55	300	22.8	5.88E-07
41.87	11.20	33.55	41.86	12.30	32.33	300	22.8	6.10E-07
41.86	12.30	32.33	41.85	13.20	31.34	300	22.8	5.12E-07
41.85	13.20	31.34	41.84	14.10	30.34	300	22.8	5.34E-07
41.84	14.10	30.34	41.82	15.30	29.01	420	22.8	5.27E-07
41.82	15.30	29.01	41.80	17.40	26.69	840	22.8	4.90E-07
41.80	17.40	26.69	41.78	18.90	25.03	720	22.8	4.41E-07
41.78	18.90	25.03	41.77	20.00	23.81	600	22.8	4.11E-07

***Hydraulic Conductivity, cm/sec: 4.7E-07**
Maximum Gradient: 5.3
Minimum Gradient: 3.5

Final Density, pcf: (see note) 95.5
Final Moisture, %: 25.4
Hydraulic Conductivity, in/hr 0.00066

*Value based on average of last 4 readings within 25% of mean.
Notes: Samples can collapse at saturation causing an increase in density.

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Reviewed by:

FLEXWALL PERM ASTM D5084 (Method - C)

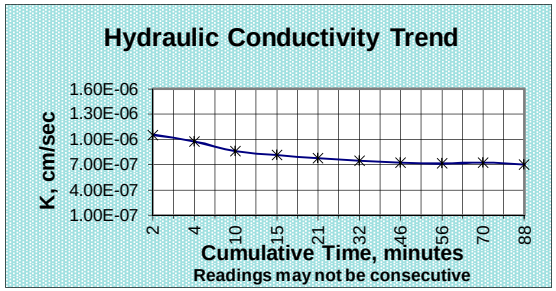
Project: Smoky-Pole NTCRA
Client: Formation Environmental
Sample ID: Sokey Canyon Mine

Sample Classification: Sandy Lean Clay

Standard: AASHTO T 99
Max. Dry Density, pcf: 107.9
Optimum Moisture, %: 20.9

Project Number: PO12068A
Sample Number: PO1500052
Date: 5/29/15

Chamber Pressure: 30
Back Pressure: 28
Saturation, %: 99
Permeant Type: Tap Water



	Ht, in	Diameter Inches	Wet Wt g	Moisture %	Area sq cm	Dry Wt. g	Density, pcf	% of Proctor %
Initial	2.803	2.883	562.8	21.9	42.12	461.8	96.2	89.1
Final	2.805	2.889	579.7	25.5	42.29	461.8	95.7	88.7

START H2	H1	delta 1	STOP H2	H1	delta 2	T sec	Temp Tx	K cm/s
45.50	2.00	47.58	45.49	3.05	46.42	120	22.8	1.05E-06
45.49	3.05	46.42	45.48	4.00	45.37	120	22.8	9.77E-07
45.48	4.00	45.37	45.45	6.40	42.71	360	22.8	8.60E-07
45.45	6.40	42.71	45.43	8.20	40.72	300	22.8	8.15E-07
45.43	8.20	40.72	45.40	10.15	38.56	360	22.8	7.76E-07
45.40	10.15	38.56	45.37	13.35	35.02	660	22.8	7.47E-07
45.37	13.35	35.02	45.32	16.90	31.09	840	22.8	7.26E-07
45.32	16.90	31.09	45.30	19.15	28.60	600	22.8	7.13E-07
45.30	19.15	28.60	45.26	22.05	25.39	840	22.8	7.26E-07
45.26	22.05	25.39	45.23	25.20	21.91	1080	22.8	6.99E-07

***Hydraulic Conductivity, cm/sec: 7.2E-07**
Maximum Gradient: 6.7
Minimum Gradient: 3.1

Final Density, pcf: (see note) 95.7
Final Moisture, %: 25.5
Hydraulic Conductivity, in/hr 0.00101

*Value based on average of last 4 readings within 25% of mean.
Notes: Samples can expand at saturation causing an decrease in density.

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Reviewed by:

ATTERBERG LIMITS DETERMINATION

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Integrity from the ground up

Project:	Smoky-Pole NTCRA	
Client Name:	Formation Evironmental 2500 55th St. Ste. 200 Bolder, CO 80301	Project ID: PO12068A Sample No.: PO1500050

Material Source:	Smokey Canyon Mine
Date Sampled:	3/3/2015
Sampled By:	Client
Date Received:	3/17/2015
Description:	SC0315-DinBorrowN-SL001

Atterberg Limits

Standards: ASTM D4318

Liquid Limit =	44
Plastic Limit =	22
Plasticity Index =	22

Reviewed By:

5815 Garrett Way Ste. C, Pocatello, Idaho 83201 Phone: 208.237.3400 Fax: 208.237.3401
www.stratageotech.com

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A Professional Strata Corporation

Integrity from the Ground Up

Project:	Smoky-Pole NTCRA	
Client Name:	Formation Evironmental 2500 55th St. Ste. 200 Bolder, CO 80301	Project ID: PO12068A Sample No.: PO1500051

Material Source:	Smokey Canyon Mine
Date Sampled:	3/3/2015
Sampled By:	Client
Date Received:	3/17/2015
Description:	SC0315-DinBorrowC-SL001

Atterberg Limits

Standards: ASTM D4318

Liquid Limit =	36
Plastic Limit =	22
Plasticity Index =	14

Reviewed By:

2875 Gulf Way Ste. A, Pocatello, Idaho 83201 Phone: 208.237.3408 Fax: 208.237.2469
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STRATA

A Professional Strategic Consortium

Integrity from the Ground Up

Project:	Smoky-Pole NTCRA	
Client Name:	Formation Eviromental 2500 55th St. Ste. 200 Bolder, CO 80301	Project ID: PO12068A Sample No.: PO1500052

Material Source:	Smokey Canyon Mine
Date Sampled:	3/3/2015
Sampled By:	Client
Date Received:	3/17/2015
Description:	SC0315-DinBorrowS-SL001

Atterberg Limits

Standards: ASTM D4318

Liquid Limit =	34
Plastic Limit =	21
Plasticity Index =	13

Reviewed By:

2815 Garrett Way Ste. C, Pocatello Idaho 83201 Phone: 208.237.3400 Fax: 208.237.3449
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LOS ANGELES ABRASION TEST

STRATA

Laboratory Report

Project: Smoky Canyon Mine

Client: Formation Enviormental

Project Number: PO15032A
Date: 7/10/15
Tested By: A. McCormick

Sample Source: Smoky Canyon Mine
Sample Location: Smoky Canyon Mine
Sample Description: Rocks RIPRAP

Sample Number: PO1500280-281
Sampled By: Client
Date Sampled: 6/30/15
Date Received:7/6/15

Los Angeles Abrasion

Standards: ASTM C- 131 & AASHTO T-96

Grading A

PO1500280 (Shale Rock)

Percent Lost (%) = 20

PO1500281 (Limestone)

Percent Lost (%) = 24

Reviewed By: Michael Hitchcock

8653 West Blackmore Drive, Boise, Idaho 83709 Phone:208.376.8200 Fax:208.376.8201
www.stratageotech.com

GROUT AND CONCRETE COMPRESSIVE STRENGTH

STRATA

CONCRETE CYLINDER TEST REPORT

Client:	Formation Environmental 2500 55th St. Ste.200 Boulder, CO 80301	Report No.:	1
		Date:	11/13/15
		Day of Week:	Friday
Project:	Smokey Canyon Mine	Project ID:	PO15032A
Project Address:	Smokey Canyon Mine, Wyoming	Permit No.:	NP
Contractor:	Kilroy Construction		
Placement Location:	Dranage Swale Across the Southeast Access Road	Set No.:	1
Sample Location:	Same		

MATERIALS AND MIX DATA

Reported by:	Kilroy Construction	Concrete Supplier:	Kilroy Construction
Mix No.:	560-13	Method of Mixing:	Transit
Cementitious Mat.:	Type I/II Flyash	Aggregate Source:	NP
		Agg. Correction Factor:	NP
Admixtures:	Air Entrainment Additive		
	Water Reducer		

SPECIFICATIONS

Slump, inches:	NP	REQUIRED STRENGTH, PSI	4000 @ 28 days
Air Content, %:	NP		

FIELD TEST DATA

Slump, inches:	6 3/4	(ASTM C-143)	Truck No.:	1311
Air Content, %:	5.0	(ASTM C-231)	Ticket No.:	2378
Unit Weight, pcf:	- - - -	(ASTM C-138)	Time Batched:	11:14 AM
Conc. Temp. °F:	52	(ASTM C-1064)	No. CY represented:	11 of 11
Air Temp. °F:	44		Water Added, gal.:	0
Date Cast:	11/13/15		Weather:	
Time:	1:00 PM By: M. Hitchcock - STRATA		Date Received:	11/14/15

* Note-(Concrete sampled in accordance with ASTM C 172. Cylinders were cast and cured in accordance with ASTM C 31)

LABORATORY TEST DATA

(ASTM C 39)

Sample No.: PO1500265

Cylinder ID	Cylinder Diameter (inches)	X-Sec Area (sq in)	Total Load (lbs)	Fracture Type	Date Tested	Age Tested (days)	Comp. Strength (psi)
PO1500265A	6.00	28.27	93860	5	11/20/15	7	3320
PO1500265B	6.00	28.27	119080	5	11/27/15	14	4210
PO1500265C	6.00	28.27	142580	5	12/11/15	28	5040
PO1500265D	6.00	28.27	140440	5	12/11/15	28	4970
PO1500265E					HOLD	H	

NR = Not Required NP = Not Provided

28 Day Average: 5010

Reviewed By:

1615 Garrow Way Ste. C, Pocatello, Idaho 83201 Phone: 208.232.2400 Fax: 208.233.3449
www.stratageotech.com

STRATA

CONCRETE CYLINDER TEST REPORT

Client:	Formation Environmental 2500 55th St. Ste.200 Boulder, CO 80301	Report No.:	2
		Date:	12/03/15
		Day of Week:	Thursday
Project:	Smokey Canyon Mine	Project ID:	PO15032A
Project Address:	Smokey Canyon Mine, Wyoming	Permit No.:	NP
Contractor:	Kilroy Construction		
Placement Location:	Grouted Rip Rap for Inlets and Outfalls Near the Northwest and West Sedimentation Basins	Set No.:	1 of 2
Sample Location:	Grouted Rip Rap for the West Sedimentation Basin Outfall		

MATERIALS AND MIX DATA

Reported by:	Kilroy	Concrete Supplier:	Kilroy
Mix No.:	590-2	Method of Mixing:	Transit
Cementitious Mat.:	Cement Flyash	Aggregate Source:	NP
		Agg. Correction Factor:	NP
Admixtures:	Air Entrainment Additive Water Reducer		

SPECIFICATIONS

Slump, inches:	NP	REQUIRED STRENGTH, PSI	2000 @ 28 days
Air Content, %:	NP		

FIELD TEST DATA

Slump, inches:	6 1/2	(ASTM C-143)	Truck No.:	1313
Air Content, %:	8.3	(ASTM C-231)	Ticket No.:	2434
Unit Weight, pcf:	- - - -	(ASTM C-138)	Time Batched:	12:06 PM
Conc. Temp. °F:	53	(ASTM C-1064)	No. CY represented:	79 of 140
Air Temp, °F:	37		Water Added, gal.:	0
Date Cast:	12/03/15		Weather:	
Time:	1:24PM By: S. Myers - STRATA		Date Received:	12/04/15

* Note-(Concrete sampled in accordance with ASTM C 172, Cylinders were cast and cured in accordance with ASTM C 31)

LABORATORY TEST DATA

(ASTM C 39)

Sample No.: PO1510049

Cylinder ID	Cylinder Diameter (inches)	X-Sec Area (sq in)	Total Load (lbs)	Fracture Type	Date Tested	Age Tested (days)	Comp. Strength (psi)
PO1510049A	4.00	12.57	48420	5	12/10/15	7	3850
PO1510049B	4.00	12.57	73520	2	12/31/15	28	5850
PO1510049C	4.00	12.57	75320	5	12/31/15	28	5990
PO1510049D	4.00	12.57	72760	5	12/31/15	28	5790
PO1510049E					HOLD	H	

NR = Not Required NP = Not Provided

28 Day Average: 5880

Reviewed By: Michael [illegible]

2835 Garrett Way Ste. C, Pocatello, Idaho 83201 Phone: 208.237.1400 Fax: 208.237.3649
www.stratageotech.com

STRATA

CONCRETE CYLINDER TEST REPORT

Client:	Formation Environmental 2500 55th St. Ste.200 Boulder, CO 80301	Report No.: Date: Day of Week:	3 12/03/15 Thursday
Project:	Smokey Canyon Mine	Project ID:	PO15032A
Project Address:	Smokey Canyon Mine, Wyoming	Permit No.:	NP
Contractor:	Kilroy Construction		
Placement Location:	Grouted Rip Rap for Inlets and Outfalls Near the Northwest and West Sedimentation Basins	Set No.:	2 of 2
Sample Location:	Grouted Rip Rap for the West Sedimentation Basin Outfall		

MATERIALS AND MIX DATA

Reported by:	Kilroy	Concrete Supplier:	Kilroy
Mix No.:	590-2	Method of Mixing:	Transit
Cementitious Mat.:	Cement Flyash	Aggregate Source:	NP
		Agg. Correction Factor:	NP
Admixtures:	Air Entrainment Additive Water Reducer		

SPECIFICATIONS

Slump, inches:	NP	REQUIRED STRENGTH, PSI	2000 @ 28 days
Air Content, %:	NP		

FIELD TEST DATA

Slump, inches:	7	(ASTM C-143)	Truck No.:	1308
Air Content, %:	9.0	(ASTM C-231)	Ticket No.:	2436
Unit Weight, pcf:	- - - -	(ASTM C-138)	Time Batched:	1:53 PM
Conc. Temp. °F:	59	(ASTM C-1064)	No. CY represented:	99 of 140
Air Temp, °F:	38		Water Added, gal.:	0
Date Cast:	12/03/15		Weather:	
Time:	2:15PM By: S. Myers - STRATA		Date Received:	12/04/15

* Note--(Concrete sampled in accordance with ASTM C 172. Cylinders were cast and cured in accordance with ASTM C 31)

LABORATORY TEST DATA

(ASTM C 39)

Sample No.: PO1510050

Cylinder ID	Cylinder Diameter (inches)	X-Sec Area (sq in)	Total Load (lbs)	Fracture Type	Date Tested	Age Tested (days)	Comp. Strength (psi)
PO1510050A	4.00	12.57	40240	5	12/10/15	7	3200
PO1510050B	4.00	12.57	61300	2	12/31/15	28	4880
PO1510050C	4.00	12.57	60340	2	12/31/15	28	4800
PO1510050D	4.00	12.57	59340	5	12/31/15	28	4720
PO1510050E					HOLD	H	

NR = Not Required NP = Not Provided

28 Day Average: 4800

Reviewed By: Michael Hitchcock

2615 Gertrude Way Ste. C, Pocatello, Idaho 83201 Phone: 208.232.3408 Fax: 208.237.3445
www.stratageotech.com

BOREHOLE PERMEAMETER TESTING

J.R. SIMPLOT COMPANY 1130 W. HIGHWAY 30 POCATELLO, IDAHO 83204
P.O. BOX 912 POCATELLO, IDAHO 83204
(208) 235-5802 FAX (208) 235-5899

CORPORATE – POCATELLO OFFICE

January 26, 2016

Sherri Stumbo
OSC/RPM
USDA Forest Service
Intermountain Region
4350 South Cliffs Drive
Pocatello, ID 83204

RE: SATURATED HYDRAULIC CONDUCTIVITY (Ks) RESULTS
SMOKY CANYON MINE
POLE CANYON OVERBURDEN DISPOSAL AREA REMOVAL ACTION

Dear Ms. Stumbo,

As you know, the performance standard for the completed cover system on the Pole Canyon Overburden Disposal Area (ODA) is achievement of a saturated hydraulic conductivity of 1×10^{-4} centimeters per second (cm/s) or less, as set forth in U.S. Forest Service (USFS)-approved Engineering Evaluation/Cost Analysis (EE/CA) Alternative 3.[1] As required by the approved Dinwoody Quality Control Plan (QCP),[2] Simplot conducted permeability testing to demonstrate achievement of this performance standard. Per the Dinwoody QCP, the geometric mean of 13 permeability measurements, each representing specific subareas of the Pole Canyon ODA cover system, is required to be 1×10^{-4} cm/sec or less. The test areas are shown on the attached figure.

Simplot conducted the permeability testing between mid-June and late November 2015 as the cover system was constructed. Per the approved Dinwoody QCP, the borehole permeameter testing protocol followed the constant head method of American Society for Testing and Materials (ASTM) Designation D-6391, Field Measurement of Hydraulic Conductivity Using Infiltration from a Borehole (as modified for site-specific conditions by Dr. Craig Benson). This procedure has been reviewed and approved by the Agencies and their third party oversight contractor (American Geotechnics) for compliance with placement of the Deep Dinwoody cover system for Panels F and G.

The results of the permeability test results are summarized on the following table.

[1] The final EE/CA was prepared on behalf of the J.R. Simplot Company (Simplot) by Formation Environmental, LLC (Formation) and submitted to the Agencies in April 2012. The USFS issued its Action Memorandum based on the EE/CA on January 7, 2013.

[2] Provided as Appendix C of the USFS-approved Removal Action Work Plan (RAWP), prepared on behalf of Simplot by Formation and submitted to the Agencies in August 2014.

Test ID	Project	Final Test Date	Ksat@10deg (cm/sec)
CU1	Pole Canyon	11/3/2015	3.43E-07
CU1 Prelim (Under new blast compound)	Pole Canyon	6/16/2015	1.57E-06
CU2	Pole Canyon	10/8/2015	1.67E-07
CU3	Pole Canyon	11/3/2015	9.43E-06
CU4	Pole Canyon	11/3/2015	9.50E-08
CU5	Pole Canyon	11/3/2015	2.38E-07
CU6	Pole Canyon	10/22/2015	9.56E-07
CU7	Pole Canyon	11/24/2015	9.20E-08
CU9	Pole Canyon	11/24/2015	1.25E-06
CU8	Pole Canyon	11/25/2015	4.10E-07
CU10	Pole Canyon	11/24/2015	2.50E-07
CU11	Pole Canyon	10/8/2015	5.39E-06
CU12	Pole Canyon	11/3/2015	1.49E-06
CU13	Pole Canyon	11/25/2015	5.40E-07
		Geomean =	6.08E-07

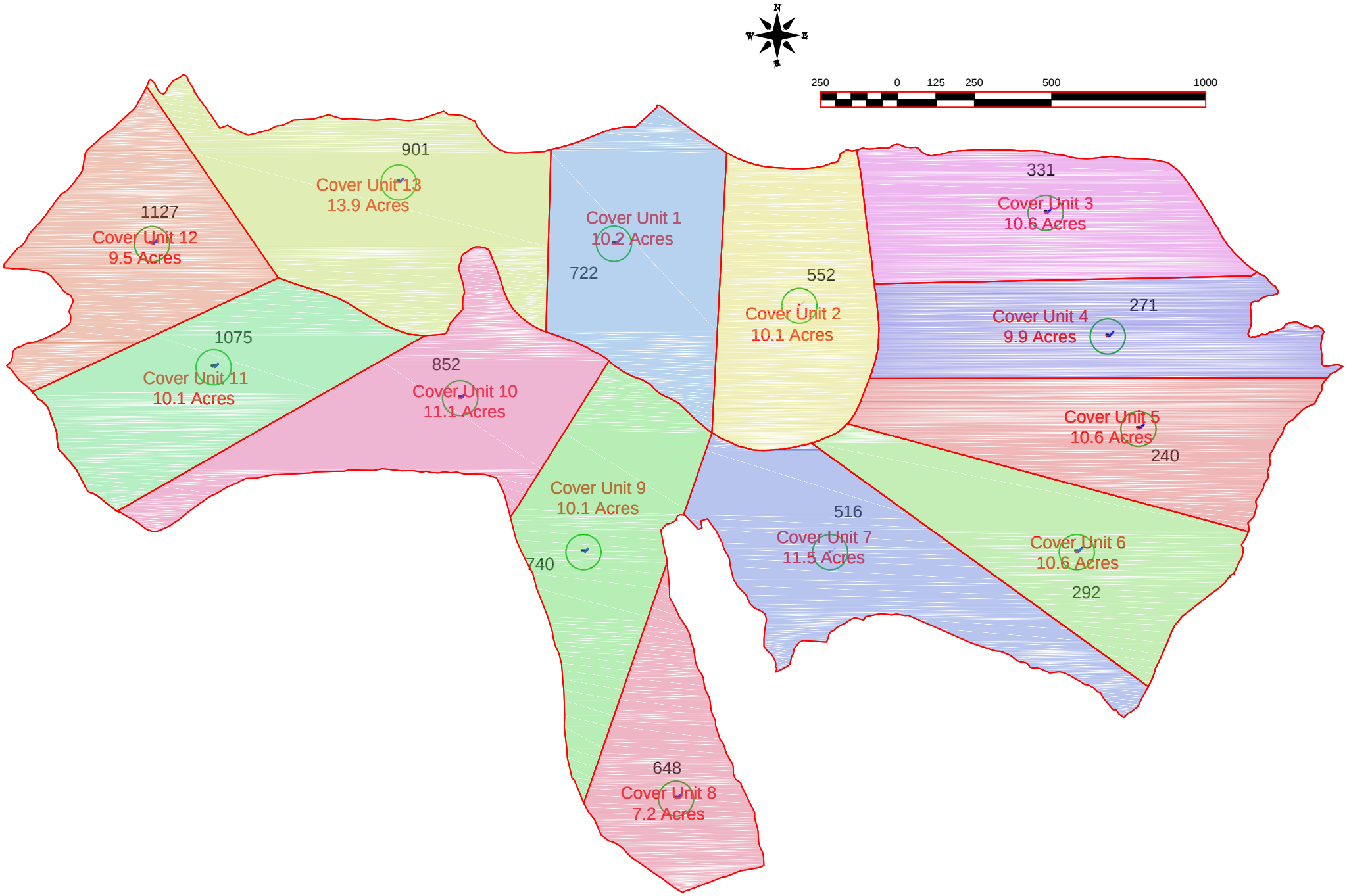
As shown, the geometric mean of the permeability test results is less than 1 x 10^{-4} cm/sec, indicating that the cover system performance standard has been met.

Please contact me if there are questions regarding these test results.

Sincerely,

Monty Johnson
Environmental Engineering Manager

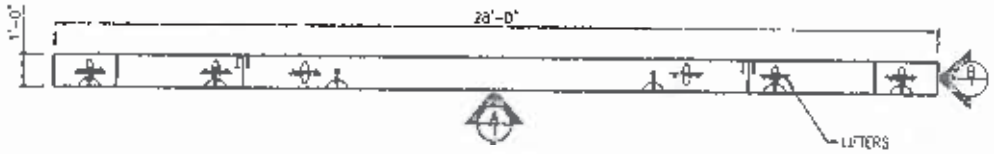
cc: Sherri Stumbo -- USDA Forest Service, 410 East Hooper, Soda Springs, ID 83276
James Alexander – USDA Office of the General Counsel (electronic files only)
Wayne Crowther – IDEQ, 444 Hospital Way, Suite 300, Pocatello, ID 83201
Colleen O'Hara-Epperly – BLM, 4350 South Cliffs Dr., Pocatello, ID 83204
Sandi Fisher -- USFWS, 4425 Burley Dr., Suite A, Chubbuck, ID 83202
Kelly Wright – Shoshone-Bannock Tribes, P.O. Box 306, Fort Hall, ID 83203
Susan Hanson -- 11458 N. Philbin Road, Pocatello, ID 83202
Rick McCormick -- CH2M Hill, 322 East Front St., Suite 200, Boise, ID 83702
Jeff Osterman - CH2M Hill, 322 East Front St., Suite 200, Boise, ID 83702
Alan Prouty – J.R. Simplot Company, P.O. Box 27, Boise, ID 83707
Burl Ackerman, J.R. Simplot Company, P.O. Box 27, Boise, ID 83707
Chad Genry -- J.R. Simplot Company, P.O. Box 1270, Afton, WY 83110
Grant Williams – J.R. Simplot Company, P.O. Box 1270, Afton, WY 83110
Dennis Facer – J.R. Simplot Company, P.O. Box 912, 1130 West Highway 30, Pocatello, ID 83204
Brian Hansen – Formation Environmental, 2500 55th St., Boulder, CO 80301


N
W
E
S
250
0
125
250
500
1000
901
Cover Unit 13
13.9 Acres
1127
Cover Unit 12
9.5 Acres
Cover Unit 1
10.2 Acres
722
552
Cover Unit 2
10.1 Acres
331
Cover Unit 3
10.6 Acres
271
Cover Unit 4
9.9 Acres
1075
Cover Unit 11
10.1 Acres
852
Cover Unit 10
11.1 Acres
Cover Unit 5
10.6 Acres
240
Cover Unit 9
10.1 Acres
740
516
Cover Unit 7
11.5 Acres
Cover Unit 6
10.6 Acres
292
648
Cover Unit 8
7.2 Acres

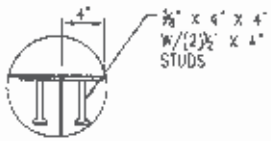
CONTRACTOR SUBMITTALS

PRE-CAST CONCRETE CUT-OFF WALL STRUCTURES
SPECIFICATION SHEETS

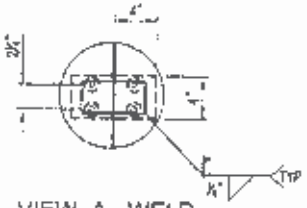
Approved
5/26/15
BL Hu
(6 195)



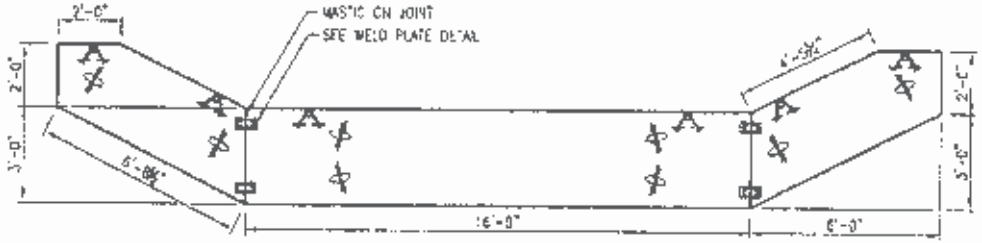
PLAN VIEW
SCALE: 3/16" = 1'-0"



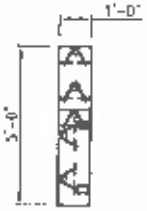
PLAN VIEW - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A
SCALE: 3/16" = 1'-0"



VIEW B
SCALE: 3/16" = 1'-0"

SHIPPED LOOSE ITEMS

QTY	DESCRIPTION
4	3/8" X 3" X 8" FLAT L(WELD PLANT)

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
6'-0" X 3'-0" X 1'-0" HEAD WALL (END)	2	2,550 LBS
16'-0" X 3'-0" X 1'-0" HEAD WALL (MID)	1	5,400 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF.
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX.
   - 2.4. ASSUMED WATER TABLE: 3.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF.
   - 2.6 LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 6000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"
DATE 5/26/15 INITIALS: BLH

Oldcastle Precast

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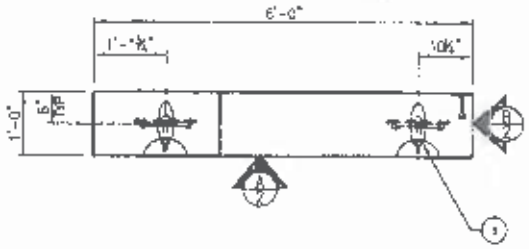
28'-0" X 5'-0" X 1'-0" HEAD WALL
SUBMITTAL LAYOUT - SOUTH CENTRAL SED. BASIN
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

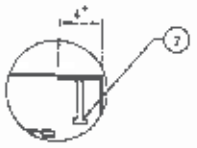
DATE	SALES	DRAWN	CHECKED	APPROVED	SALES ORDER
7/28/15	CE	JZH	MB		156134

DRAWING NUMBER	REVISION	SHEET
230-156134-015	REV DATE	1 OF 6

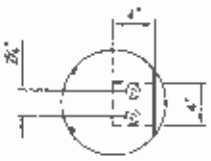
#	DATE	REVISIONS	BY



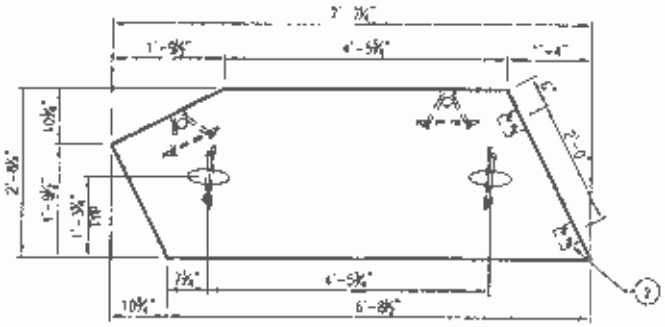
PLAN VIEW
SCALE: 3/8" = 1'-0"



PLAN VIEW - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A
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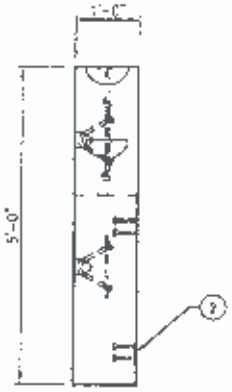

VIEW B
SCALE: 3/8" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	ADM
1	4 EA	NB-8" X .875 A-ANCHOR LIFT INSERT	7000105
2	2 EA	½"X4"X4" FLAT PLATE W/(2) ½"X4" STUDS	
	0.66 CYD	PRECAST MIX DESIGN #3 6000 SCC	9002500
	38 LBS	#5 REBAR	8010013

PRODUCT WEIGHTS

PRODUCT	LINE #	HANDLING WEIGHT
8'-0" X 5'-0" X 1'-0" HEAD WALL (END)		2,550 LBS

SHOP NOTES:
1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

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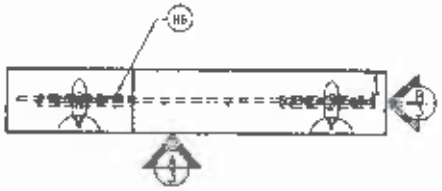
28'-0" X 5'-0" X 1'-0" HEAD WALL
PRODUCTION DRAWING - LEFT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

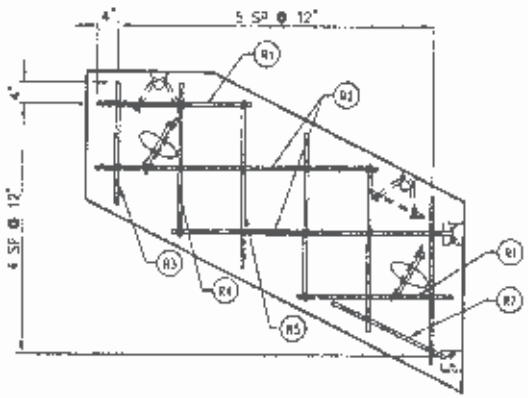
DATE	DESIGN	DRAWN	SUBMITTED	CHECKED	DATE ORDER
7/28/15	CE	JZH	MB		155134

DRAWING NUMBER	REVISION	SHEET
200-155134-010	REV-0-C	2 OF 6

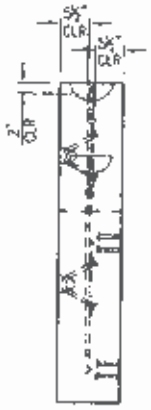
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE: 3/8" = 1'-0"



VIEW A
SCALE: 3/8" = 1'-0"



VIEW B
SCALE: 3/8" = 1'-0"

REINFORCEMENT CUT LIST				
#	QTY	MATERIAL	LENGTH	SHAPE
R1	2	#5 BAR	7'-6 1/2"	STR
R2	2	#5 BAR	4'-5 1/2"	STR
R3	1	#5 BAR	1'-11"	STR
R4	1	#5 BAR	2'-6"	STR
R5	4	#5 BAR	2'-7 1/2"	STR
R6	4	#5 BAR	1'-8"	STR
R7	1	#5 BAR	2'-0"	STR

STEEL WEIGHT		
PRODUCT	MATERIAL	WEIGHT
HEAD WALL	#5GRD60	38 LBS

SHOP NOTES:
1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

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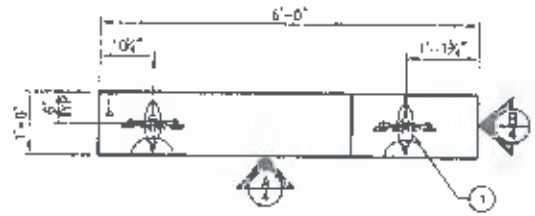
28'-0" X 5'-0" X 1'-0" HEAD WALL
REINFORCING DRAWING - LEFT END
POLE CANYON
AFTON, WY

CUSTOMER: KILROY LLC

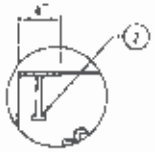
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
7/28/15	CE	JZH	MB		155134

DRAWING NUMBER: 230-106134-015
REVISION: REV DATE
SHEET: 3 OF 6

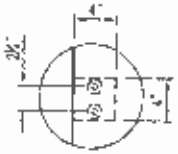
#	DATE	REVISIONS	BY



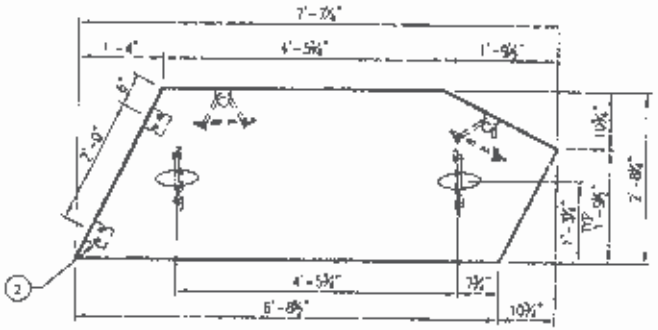
PLAN VIEW
SCALE: 3/8" = 1'-0"



PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



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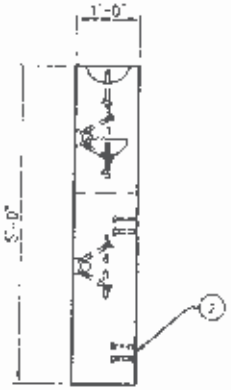

VIEW B
SCALE 3/8" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	ACM
1	4 EA	M8-8" X 8"1 A-ANCHOR LIFT INSERT	7000105
2	2 EA	⅜"X4"X4" FLAT PLATE W/(2) ½"X4" STUDS	
	0.65 CYD	PRECAST MIX DESIGN #3 8000 SCC	9002500
	30 LBS	#5 REBAR	8010013

PRODUCT WEIGHTS

PRODUCT	LINE #	HANDLING WEIGHT
6'-0" X 5'-0" X 1'-0" HEAD WALL (END)		2,660 LBS

SHOP NOTES:

1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE _____ INITIALS _____

Oldcastle Precast

2900 E YELLOWSTONE HWY, IDAHO FALLS, IDAHO 83402
PHONE: (208) 528-8100 FAX: (208) 522-9701

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28'-0" X 5'-0" X 1'-0" HEAD WALL

PRODUCTION DRAWING - RIGHT END

POLE CANYON

AFTON, WY

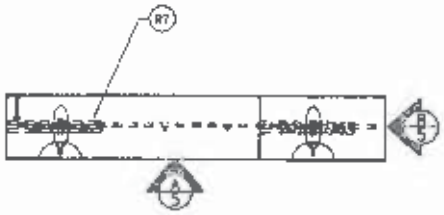
CUSTOMER

KILROY LLC

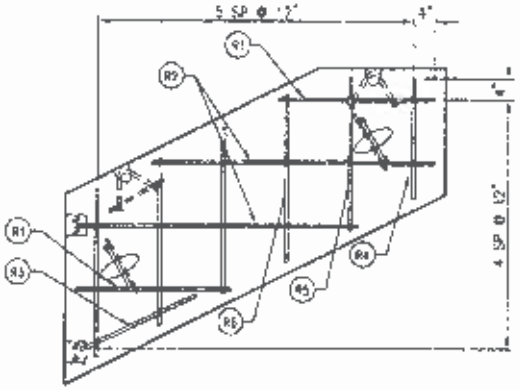
DATE	SALES	DRAWN	PROJECT	CHECKED	SALES ORDER
7/28/16	CE	JZN	MB		155134

DRAWING NUMBER	REVISION	SHEET
230-155134-015	REV DATE	4 OF 8

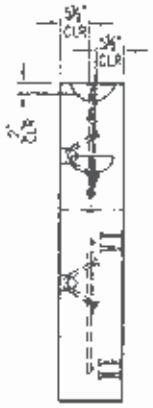
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE 3/8" = 1'-0"



VIEW A
SCALE. 3/8" = 1'-0"



VIEW B
SCALE. 3/8" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	2	#5 BAR	2'-6 1/2"	STR
R2	2	#5 BAR	4'-3 1/2"	STR
R3	1	#5 BAR	2'-0"	STR
R4	1	#5 BAR	1'-11"	STR
R5	1	#5 BAR	2'-6"	STR
R6	4	#5 BAR	2'-7 1/2"	STR
R7	4	#5 BAR	1'-6"	STR

STEEL WEIGHT

PRODUCT	MATERIAL	WEIGHT
HEAD WALL	#5/GR60	38 LBS

SHOP NOTES:
1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 5000 PSI
3. 1,500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE _____ INITIALS _____

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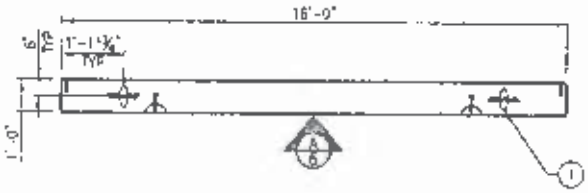
28'-0" X 5'-0" X 1'-0" HEAD WALL
REINFORCING DRAWING - RIGHT END
POLE CANYON
AFTON, WY

CUSTOMER: KILROY LLC

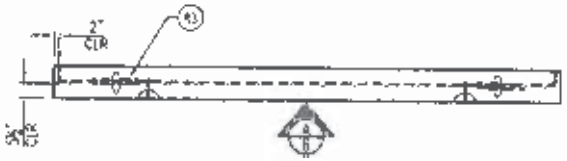
DATE	SCALE	DRAWN	CHECKED	DRAWN	CHECKED	BUZZ ORDER
7/28/15	CE	JZH	MB			155134

DRAWING NUMBER: 230-155134-015
REVISION: REV DATE
SHEET: 5 OF 6

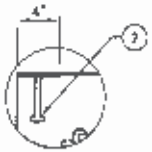
#	DATE	REVISIONS	BY



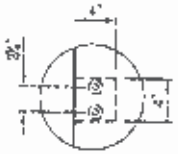
PLAN VIEW
SCALE: 3/16" = 1'-0"



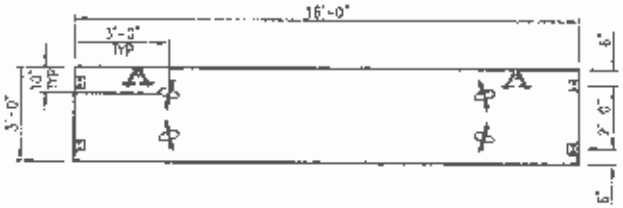
PLAN VIEW - REBAR CLR
SCALE 3/16" = 1'-0"



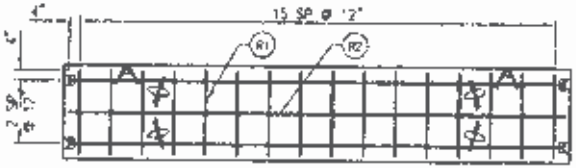
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 3/16" = 1'-0"



VIEW A - REBAR LAYOUT
SCALE 3/16" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	15	#5 BAR	2'-8"	STR
R2	3	#5 BAR	15'-8"	STR
R3	4	#5 BAR	1'-8"	STR

BILL OF MATERIALS

#	QTY	DESCRIPTION	ASM
1	6 EA	NB 8" X 871 A-ANCHOR LIFT INSERT	7000050
2	4 EA	1/2"X4"X4" FLAT PLATE W/(2) 1/2"X4" STUDS	
	3.78 CYD	PRECAST MIX DESIGN #3 6000 SCC	9002600
	100 LBS	#5 REBAR	8010013

PRODUCT WEIGHTS

PRODUCT	LINE #	HANDLING WEIGHT
16'-0" X 3'-0" X 1'-0" HEAD WALL (MLD)		7,200 LBS

SHOP NOTES:
1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE _____ INITIALS _____

Oldcastle Precast

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28'-0" X 5'-0" X 1'-0" HEAD WALL
PRODUCTION DRAWING - USO
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

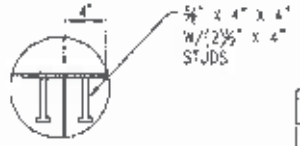
DATE	SALES	DRAWN	DESIGNED	CHECKED	WORK ORDER
7/29/15	CE	JZK	MB		155134

DRAWING NUMBER	REVISION	SHEET
230-155134-0*15	REV DATE	6 OF 6

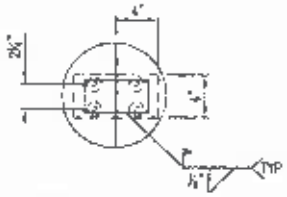
#	DATE	REVISIONS	BY

APPROVED
5/26/15
BGH (EMS)

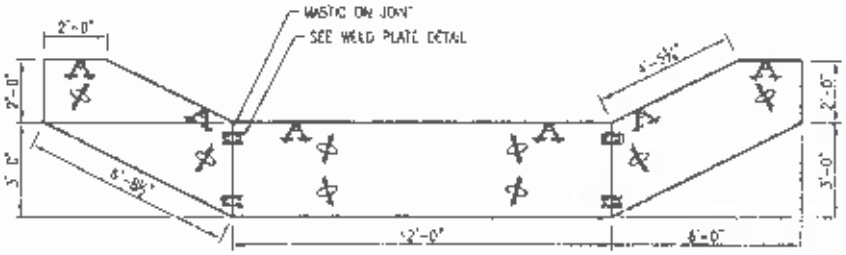
PLAN VIEW
SCALE 3/16" = 1'-0"



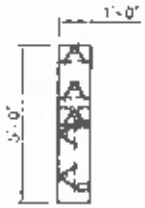
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 3/16" = 1'-0"



VIEW B
SCALE 3/16" = 1'-0"

SHIPPED LOOSE ITEMS

QTY	DESCRIPTION
4	1/2" X 3" X 6" PLATE

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
6'-0" X 5'-0" X 1'-0" HEAD WALL (END)	2	2,550 LBS
12'-0" X 5'-0" X 1'-0" HEAD WALL (MID)	1	5,400 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED
2. DESIGN LOADINGS:
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF.
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN & 0' MAX
   - 2.4. ASSUMED WATER TABLE: 6.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF.
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 6000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"
DATE: 5/26/15 INITIALS: BGH

Oldcastle Precast

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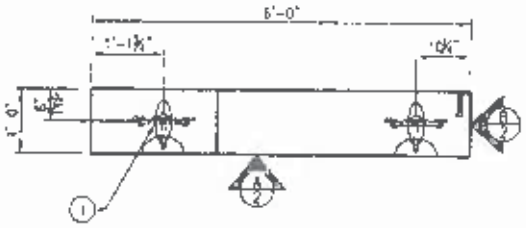
24'-0" X 5'-0" X 1'-0" HEAD WALL
SUBMITTAL LAYOUT - EAST BED BASIN
POLE CANYON
ASTON, WY

CUSTOMER: KILROY LLC

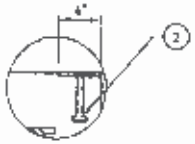
DATE	DRAWN	ORIGIN	DRAWER	CHECKED	SALES ORDER
7/28/15	CE	JZH	NB		155134

DRAWING NUMBER: 230-156134-018
REVISION: 1 REV DATE: SHEET 1 OF 6

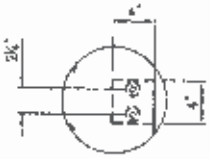
#	DATE	REVISIONS	BY



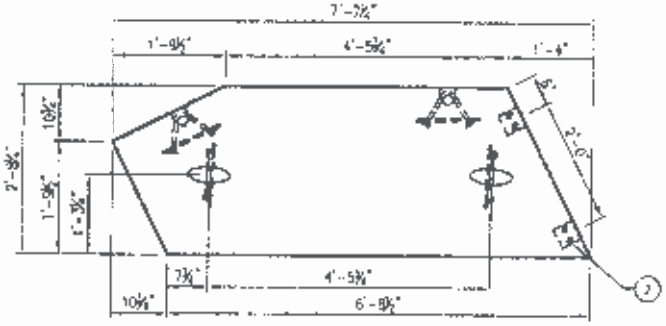
PLAN VIEW
SCALE 3/8" = 1'-0"



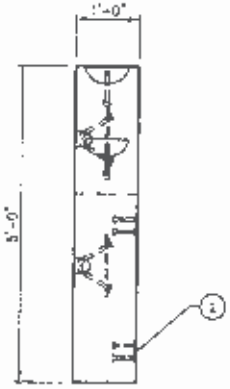
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	A/N#
1	4 EA	M8 8" X .871 A-ANCHOR LIFT INSERT	7000105
2	2 EA	¼"X4"X4" FLAT PLATE W/(2) ½"X4" STUDS	
	0.65 CYD	PRECAST MIX DESIGN #3-5000 SCC	9002500
	38 LBS	#5 REBAR	8010013

PRODUCT WEIGHTS

PRODUCT	LINE #	HANDLING WEIGHT
8'-0" X 5'-0" X 1'-0" HEAD WALL (END)		2,560 LBS

SHOP NOTES:

1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 5000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

2900 W. YELLOWSTONE HWY IDAHO FALLS, IDAHO 83402
PHONE: (208) 522-8294 FAX: (208) 522-8494

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24'-0" X 5'-0" X 1'-0" HEAD WALL

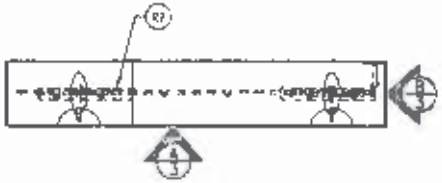
PRODUCTION DRAWING - LEFT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

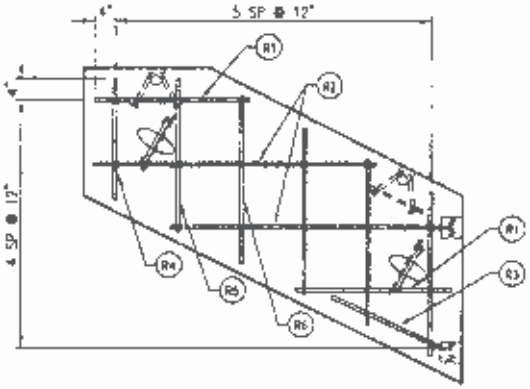
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
7/26/13	CE	JZH	MB		155134

DRAWING NUMBER: 230-155134-016
REVISION: REV DATE
SHEET: 2 OF 8

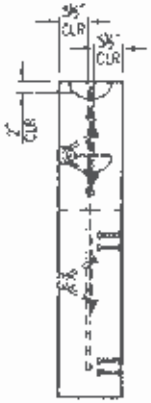
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE: 3/8" = 1'-0"



VIEW A
SCALE: 3/8" = 1'-0"



VIEW B
SCALE: 3/8" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	2	#5 BAR	2'-5 1/2"	STR
R2	2	#5 BAR	4'-6 1/2"	STR
R3	1	#5 BAR	7'-0"	STR
R4	1	#5 BAR	1'-11"	STR
R5	1	#5 BAR	2'-6"	STR
R6	4	#5 BAR	2'-7 1/2"	STR
R7	4	#5 BAR	1'-8"	STR

STEEL WEIGHT

PRODUCT	MATERIAL	WEIGHT
HEAD WALL	#5@12"OC	38 LBS

SHOP NOTES:
1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 1600 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

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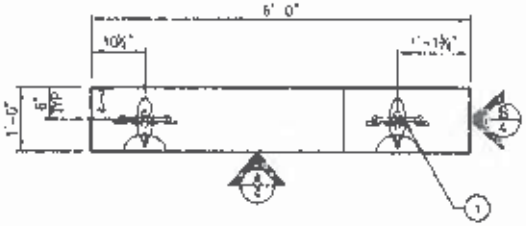
24'-0" X 5'-0" X 1'-0" HEAD WALL
PRODUCTION DRAWING - LEFT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

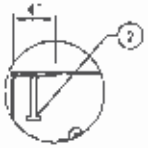
DATE	MODE	DRAWN	DESIGNED	CHECKED	AUTHORIZED
7/28/16	CE	JZH	MB		155134

DRAWING NUMBER: 230-155134-016
REVISION: REV DATE
SHEET: 3 OF 6

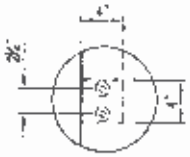
#	DATE	REVISIONS	BY



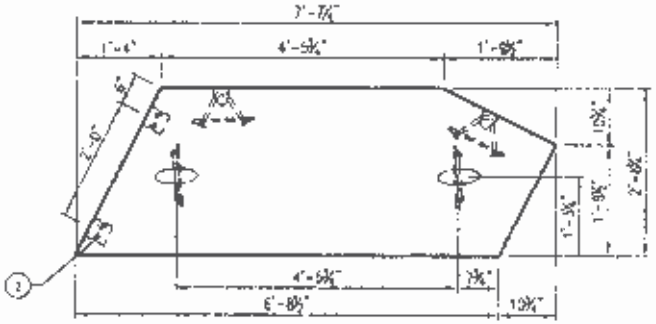
PLAN VIEW
SCALE 3/8" = 1'-0"



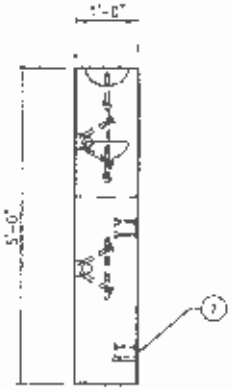
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	A/N#
1	4 EA	M8 8" X .871 A-ANCHOR LIFT INSERT	7000103
2	2 EA	3/8"X4"X4" FLAT PLATE W/(2) 1/2"X4" STUDS	
	0.85 CYD	PRECAST MIX DESIGN #3 6000 SCC	6002505
	38 LBS	#5 REBAR	6010013

PRODUCT WEIGHTS

PRODUCT	LINE #	HANDLING WEIGHT
5'-0" X 5'-0" X 1'-0" HEAD WALL (END)		2,560 LBS

SHOP NOTES:

1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

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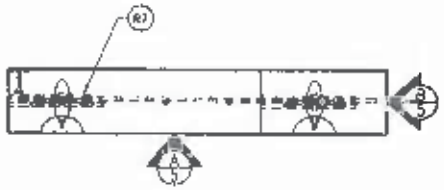
24'-0" X 5'-0" X 1'-0" HEAD WALL
PRODUCTION DRAWING - RIGHT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

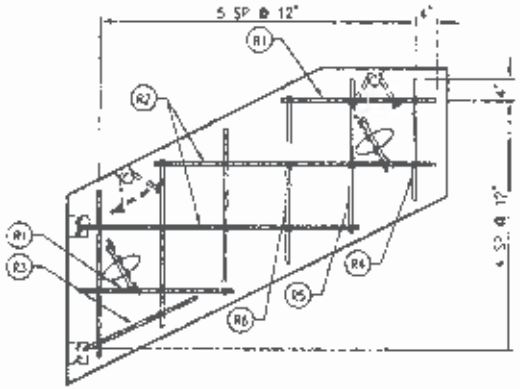
DATE	CALC	DRAWN	ENGINEER	CHECKED	SALES ORDER
7/28/15	CE	JRH	MB		135134

DRAWING NUMBER	REVISION	SHEET
230-135134-016	REV DATE	4 OF 6

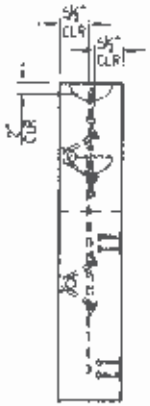
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE 3/8" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	2	#5 BAR	2'-5 1/2"	STR
R2	2	#5 BAR	4'-5 1/2"	STR
R3	1	#5 BAR	2'-0"	STR
R4	1	#5 BAR	1'-11"	STR
R5	1	#5 BAR	2'-5"	STR
R6	4	#5 BAR	2'-7 1/2"	STR
R7	4	#5 BAR	1'-6"	STR

STEEL WEIGHT

PRODUCT	MATERIAL	WEIGHT
HEAD WALL	#5DR360	38 LBS

SHOP NOTES:
1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 1800 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE _____ INITIALS _____

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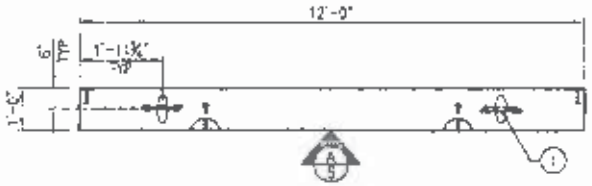
24'-0" X 5'-0" X 1'-0" HEAD WALL
REINFORCING DRAWING - RIGHT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

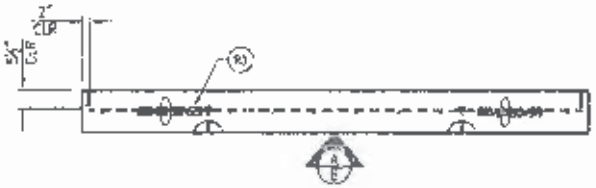
DATE	DRAWN	DRAWN	ENGINEER	CHECKED	PROJECT/ORDER
7/28/15	CS	JZH	MB		155134

DRAWING NUMBER	REVISION	SHEET
Z30-155134-016	REV 0 of 0	5 OF 6

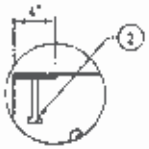
#	DATE	REVISIONS	BY



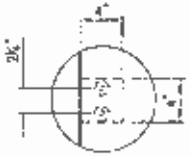
PLAN VIEW
SCALE 1/4" = 1'-0"



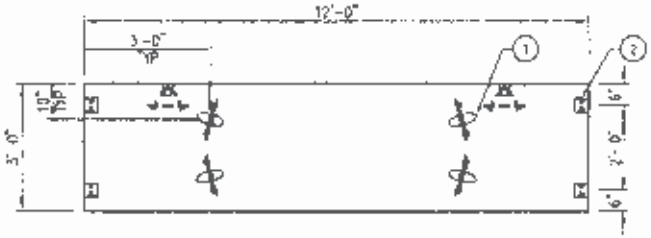
PLAN VIEW
SCALE 1/4" = 1'-0"



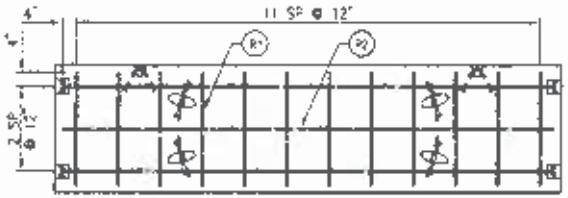
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 1/4" = 1'-0"



VIEW A
SCALE 1/4" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	12	#5 BAR	2'-4"	STR
R2	3	#5 BAR	11'-8"	STR
R3	4	#5 BAR	1'-8"	STR

BILL OF MATERIALS

#	QTY	DESCRIPTION	AXM
1	8 EA	M8 8" X .571 A-ANCHOR LIFT INSERT	7600053
4	2 EA	¼"X4"X4" FLAT PLATE W/(2) ½"X4" STUDS	
	1.33 CYD	PRECAST MIX DESIGN #3 8000-SCC	9002500
	75 LBS	#5 REBAR	9010013

PRODUCT WEIGHTS

PRODUCT	LINE #	HANDLING WEIGHT
12'-0" X 3'-0" X 1'-0" HEAD WALL (END)		5,400 LBS

SHOP NOTES:
1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 8000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE _____ INITIALS _____

Oldcastle Precast

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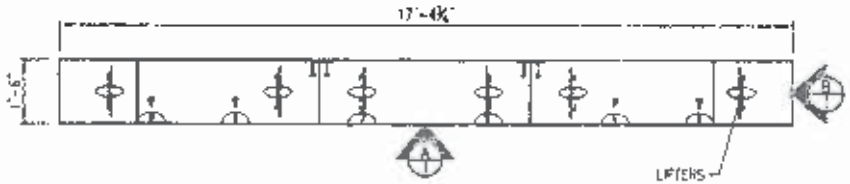
24'-0" X 5'-0" X 1'-0" HEAD WALL
PRODUCTION & REINFORCING DRAWING - MID
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

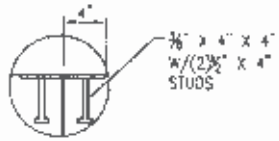
DATE	SALES	DESIGN	DESIGNER	CHECKED	SALES ORDER
7/28/15	CE	ZH	MB		155134

DRAWING NUMBER	REVISION	SHEET
230-155134-016	REV DATE	6 OF 8

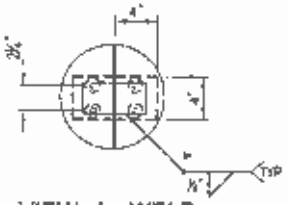
#	DATE	REVISIONS	BY



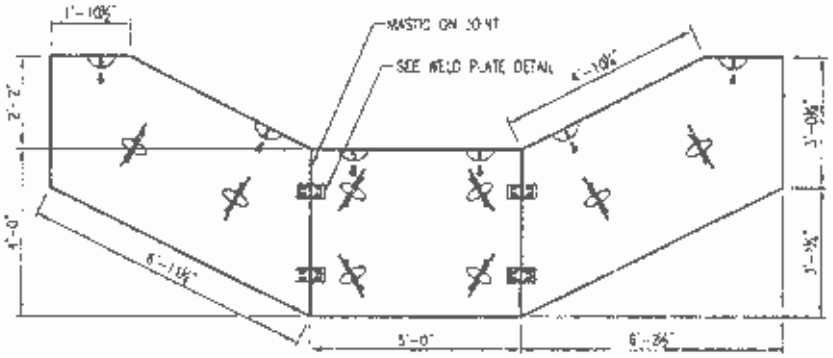
PLAN VIEW
SCALE 1/4" = 1'-0"



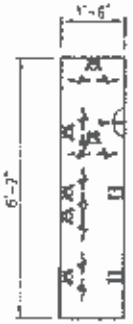
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A
SCALE 1/4" = 1'-0"



VIEW B
SCALE: 1/4" = 1'-0"

Approved (6 pgs)
DG Hanson
5/26/15

SHIPPED LOOSE ITEMS

QTY	DESCRIPTION
4	½" X 3" X 6" FLAT c

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
6'-2 1/2" X 8'-4" X 1'-6" HEAD WALL (END)	2	6,384 LBS
5'-0" X 4'-0" X 1'-6" HEAD WALL (MID)	1	4,600 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF.
   - 2.3 DEPTH OF OVERBURDEN 6.0' MIN 4.0' MAX.
   - 2.4 ASSUMED WATER TABLE: 5.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF.
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 6000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT, ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"
DATE 5/26/15 INITIALS DGH

Oldcastle Precast

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17'-4 3/4" X 6'-2" X 1'-6" HEAD WALL

SUBMITTAL LAYOUT - NW BASIN DISCHARGE DITCH
POLE CANYON
AFTON, WY

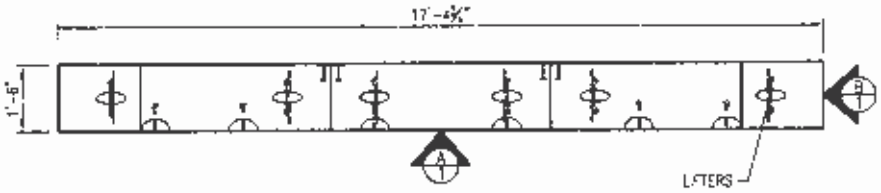
CUSTOMER
KILROY LLC

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
8/20/15	CE	JZH	MB		155134

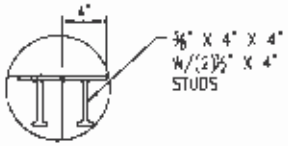
DRAWING NUMBER: 230-153134-013
REVISION:
REV DATE:
PAGE: 1 OF 6

#	DATE	REVISIONS	BY

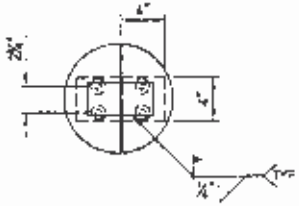
Received 8-25-15



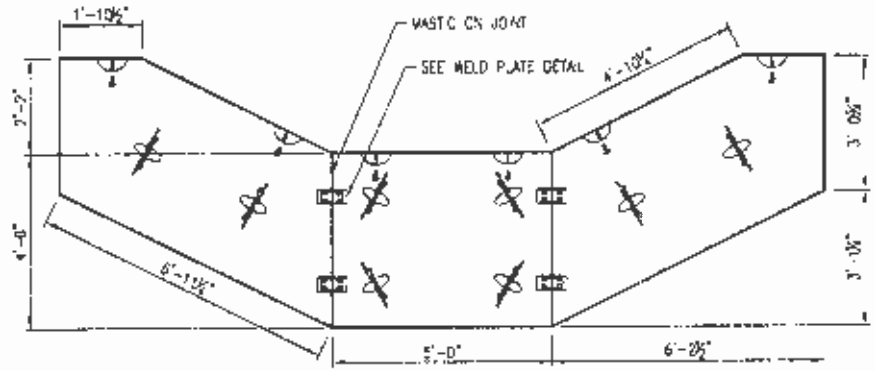
PLAN VIEW
SCALE 1/4" = 1'-0"



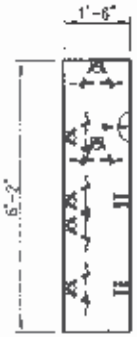
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 1/4" = 1'-0"



VIEW B
SCALE 1/4" = 1'-0"

SHIPPED LOOSE ITEMS

QTY	DESCRIPTION
4	2" X 3" X 8' FLAT 8

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
6'-2 1/2" X 8'-2" X 1'-6" HEAD WALL (END)	2	6,384 LBS
5'-0" X 4'-0" X 1'-6" HEAD WALL (MID)	1	4,500 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF.
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX
   - 2.4. ASSUMED WATER TABLE, 6.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF.
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 6000 PSI (MIN)
4. STEEL REINFORCEMENT, REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast®

2240 S YELLOWSTONE HWY IDAHO FALLS IDAHO 83402
PHONE (208) 524-7150 FAX (208) 524-7151

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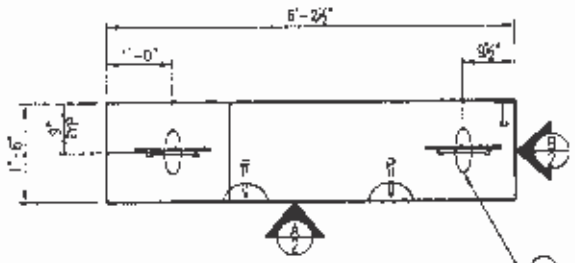
17'-4 3/4" X 6'-2" X 1'-6" HEAD WALL
SUBMITTAL LAYOUT - NW BASIN DISCHARGE DITCH
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

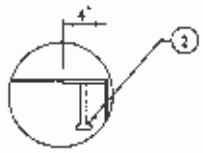
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
8/20/15	CE	JZH	MB		155134

DRAWING NUMBER	REVISION	SHEET
230-155134-013	REV DATE	1 OF 6

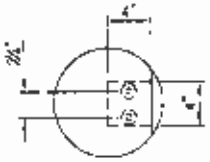
#	DATE	REVISIONS	BY



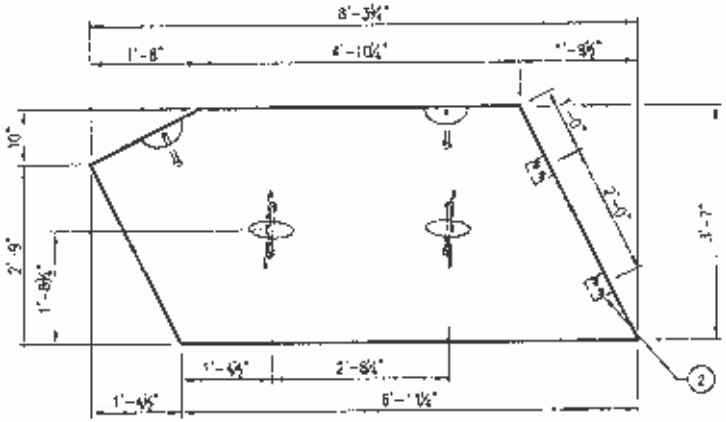
PLAN VIEW
SCALE 3/8" = 1'-0"



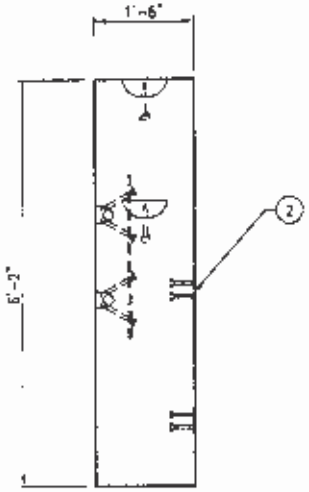
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	ASM
1	4 EA	M8-8" X .67" A-ANCHOR LIFT INSERT	T000135
2	2 EA	½"X4"X6" FLAT PLATE W/(2) ½"X4" STUDS	
	1.33 CYD	PRECAST MIX DESIGN #3 6000 SCC	900250C
	74 LBS	#5 REBAR	B010014

PRODUCT WEIGHTS

PRODUCT	LINE #	HANDLING WEIGHT
8'-2 1/2" X 8'-2" X 1'-6" HEAD WALL (END)		5,384 LBS

SHOP NOTES:

1. USE STD REBAR
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: INITIALS:

Oldcastle Precast®

[illegible]
PHONE: [illegible] FAX: [illegible]

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17'-4 3/4" X 6'-2" X 1'-6" HEAD WALL

PRODUCTION DRAWING - LEFT END

POLE CANYON

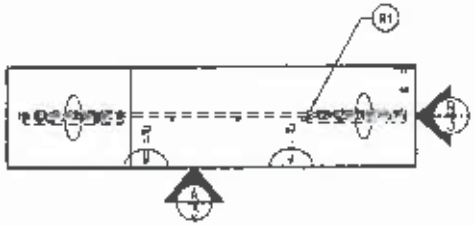
AFTON, WY

CUSTOMER
KILROY LLC

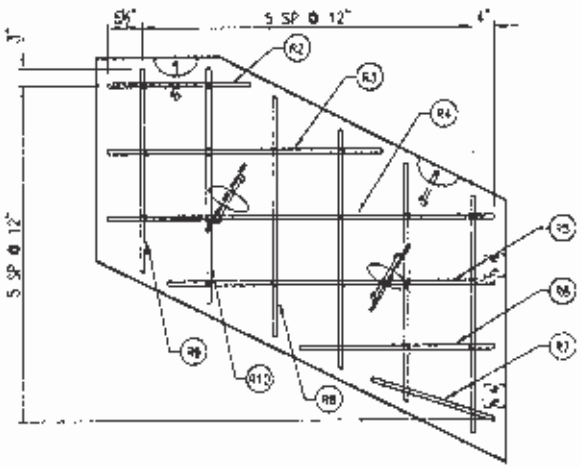
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
8/2/15	CE	JZH	MB		155134

DRAWING NUMBER	REVISION	SHEET
230-155134-C10	REV DATE	2 OF 6

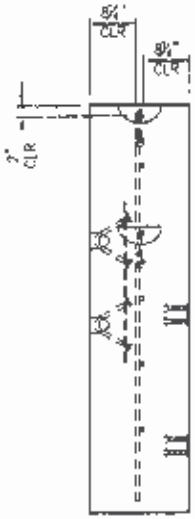
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE 3/8" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	4	#6 BAR	1'-6"	STR
R2	1	#6 BAR	2'-2"	STR
R3	1	#6 BAR	4'-2"	STR
R4	1	#6 BAR	5'-10 1/2"	STR
R5	1	#6 BAR	6'-11 1/2"	STR
R6	1	#6 BAR	7'-11 1/2"	STR
R7	1	#6 BAR	1'-1" 1/2"	STR
R8	4	#6 BAR	3'-7 1/2"	STR
R9	1	#6 BAR	3'-1"	STR
R10	1	#6 BAR	3'-7"	STR

STEEL WEIGHT

PRODUCT	MATERIAL	WEIGHT
HEAD WALL	#6GR60	74 LBS

SHOP NOTES:
1. USE STD REBAR
2. CONCRETE STRENGTH: 9000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast®

2340 E. YELLOWSTONE HWY, DRIVE FALLS, IDAHO 83402
PHONE (208) 524-7151 FAX (208) 523-8751

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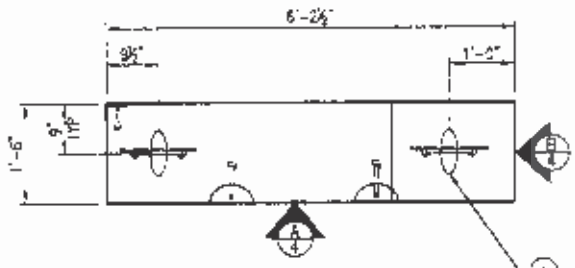
17'-4 3/4" X 6'-2" X 1'-6" HEAD WALL
REINFORCING DRAWING - LEFT END
POLE CANYON
ASTON, WY

CUSTOMER
KILROY LLC

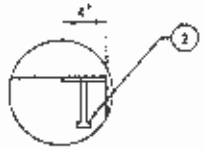
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
8/20/15	CE	JZH	MB		155134

DRAWING NUMBER: 230-155134-013
REVISION: REV DATE
SHEET: 3 OF 6

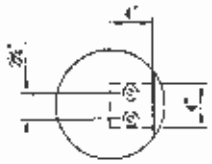
#	DATE	REVISIONS	BY



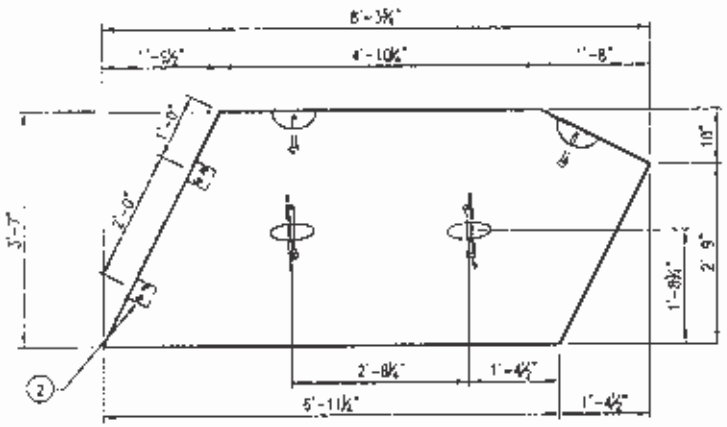
PLAN VIEW
SCALE 3/8" = 1'-0"



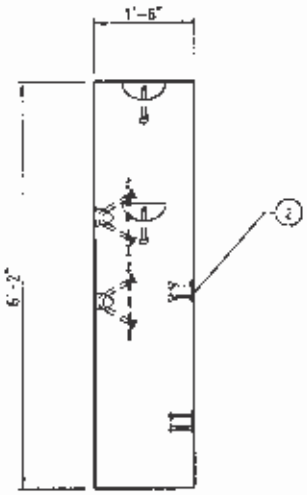
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	XW
1	4 EA	M8 8" X .671 A-ANCHOR LIFT INSERT	7000105
2	2 EA	⅜"X4"X4" FLAT PLATE W/(2) ⅜"X4" STUDS	
	1.30 CYD	PRECAST MIX DESIGN #3 6000 SCC	9002500
	74 LBS	#8 REBAR	8010014

PRODUCT WEIGHTS

PRODUCT	LINE #	HANDLING WEIGHT
6'-2 1/2" X 6'-2" X 1'-6" HEAD WALL (END)		5,384 LBS

SHOP NOTES:
1. USE STD REBAR
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: INITIALS:

Oldcastle Precast®

2246 S YELLOWSTONE HWY IDAHO FALLS, IDAHO 83402
PHONE: (208) 523-1150 FAX: (208) 523-1410

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17'-4 3/4" X 6'-2" X 1'-6" HEAD WALL

PRODUCTION DRAWING - LEFT END

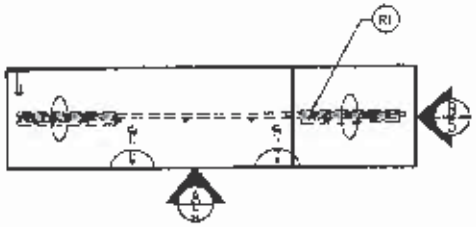
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

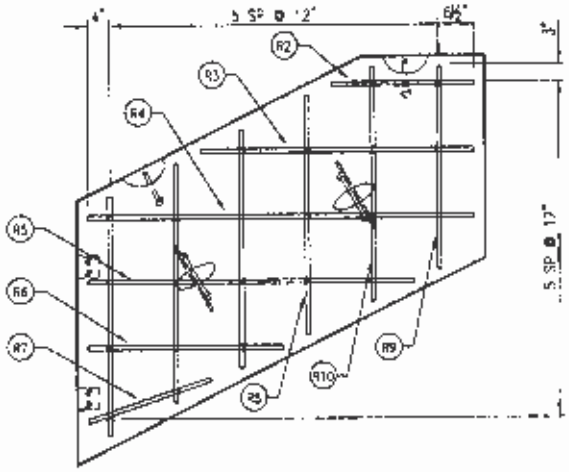
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
8/20/15	CE	JZH	MB		150134

DRAWING NUMBER	REVISION	SHEET
230-150134-013	REV DATE	4 OF 6

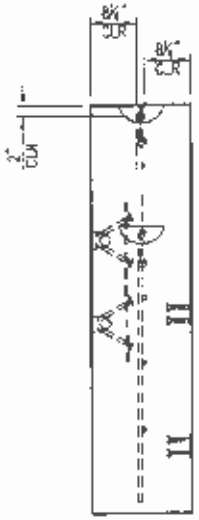
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE 3/8" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	4	#6 BAR	1'-6"	STR
R2	1	#6 BAR	2'-2"	STR
R3	1	#6 BAR	4'-2"	STR
R4	1	#6 BAR	5'-10 1/2"	STR
R5	1	#6 BAR	4'-11 1/2"	STR
R6	1	#6 BAR	2'-11 1/2"	STR
R7	1	#6 BAR	[illegible]	STR
R8	4	#6 BAR	3'-7 1/2"	STR
R9	1	#6 BAR	3'-1"	STR
R10	1	#6 BAR	3'-7"	STR

STEEL WEIGHT

PRODUCT	MATERIAL	WEIGHT
HEAD WALL	#6/GR60	74 LBS

SHOP NOTES:
1. USE STD REBAR
2. CONCRETE STRENGTH: 6000 PSI
3. 4500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

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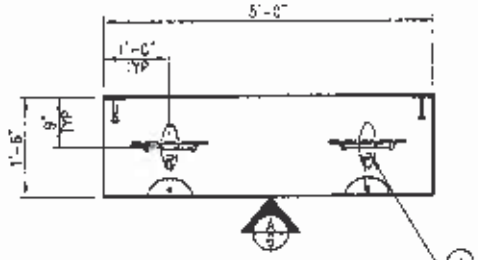
17'-4 3/4" X 6'-2" X 1'-6" HEAD WALL
REINFORCING DRAWING - RIGHT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

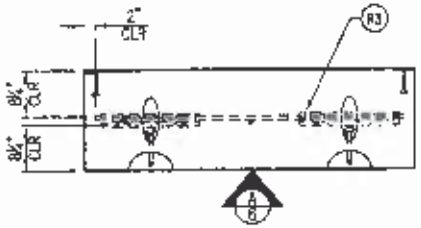
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
8/20/15	CE	JRH	MB		155134

DRAWING NUMBER	REVISION	SHEET
236-155134-0*3	REV DATE	5 OF 6

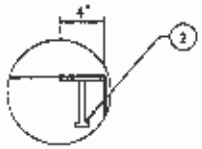
#	DATE	REVISIONS	BY



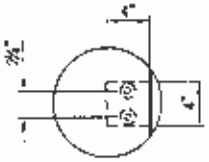
PLAN VIEW
SCALE: 3/8" = 1'-0"



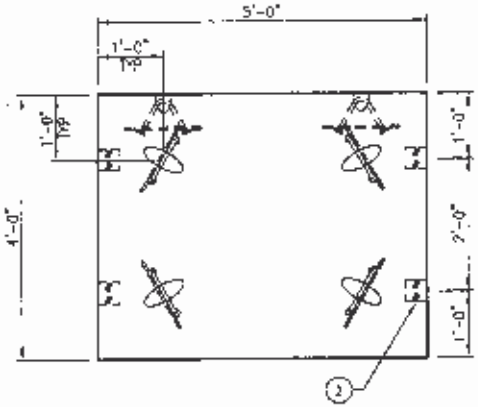
PLAN VIEW
SCALE: 3/8" = 1'-0"



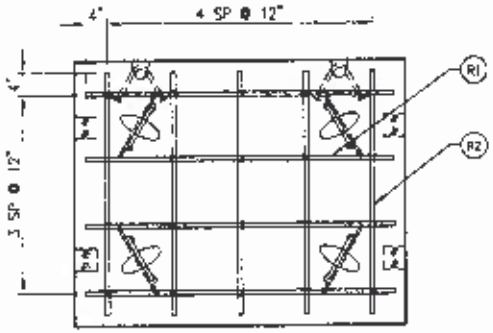
PLAN VIEW - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A
SCALE: 3/8" = 1'-0"



VIEW A
SCALE: 3/8" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	4	#6 BAR	4'-5"	STR
R2	5	#6 BAR	3'-5"	STR
R3	4	#6 BAR	1'-6"	STR

BILL OF MATERIALS

#	QTY	DESCRIPTION	ADI
1	8 EA	WB 8" X 8T1 AANCHOR LIFT INSERT	7200065
2	4 EA	¾"X4"X4" FLAT PLATE W/(2) ½"X4" STUDS	
	1.12 CYD	PRECAST MIX DESIGN #3 8000 SCC	9002500
	85 LBS	#6 REBAR	80100'4

PRODUCT WEIGHTS

PRODUCT	JNE #	WEIGHT
5'-0" X 4'-0" X 1'-6" HEAD WALL (MID)		4,500 LBS

SHOP NOTES:
1. USE STD REBAR
2. CONCRETE STRENGTH: 8000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast®

[illegible] YELLOWSTONE HWY IDAHO FALLS, IDAHO [illegible]
PHONE: [illegible] FAX: [illegible]

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17'-4 3/4" X 6'-2" X 1'-6" HEAD WALL
PRODUCTION & REINFORCING DRAWING - MID
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

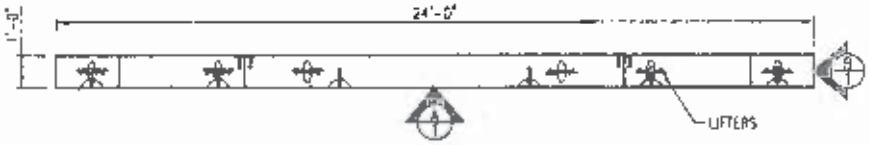
DATE	SALES	DRAWN	ENGINEER	CHECKED	SAP PROJECT
8/20/15	CE	JZH	MB		155134

DRAWING NUMBER	REVISION	SHEET
230-155134-013	REV DATE	6 OF 6

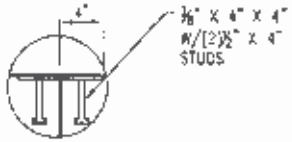
#	DATE	REVISIONS	BY

Approved (6,7,9,5)

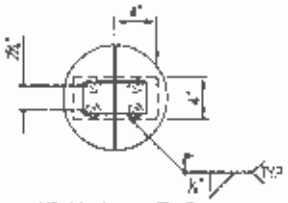
BG Hen
5/26/15



PLAN VIEW
SCALE: 3/16" = 1'-0"



PLAN VIEW - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
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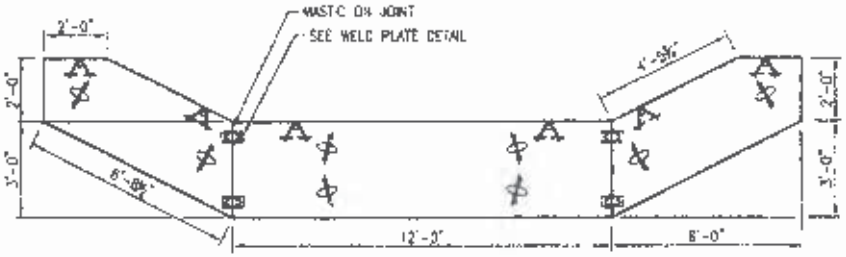

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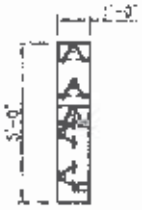

VIEW B
SCALE: 3/16" = 1'-0"

SHIPPED LOOSE ITEMS

QTY	DESCRIPTION
4	½" X 5" X 6" PLATE

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
6'-0" X 5'-0" X 1'-0" HEAD WALL (END)	2	7,560 LBS
12'-0" X 5'-0" X 1'-0" HEAD WALL (MID)	1	5,400 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF.
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN & 0' MAX.
   - 2.4. ASSUMED WATER TABLE: 5.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF.
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 4000 PSI (MIN.)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"
DATE: 5/26/15 INITIALS: BGH

Oldcastle Precast

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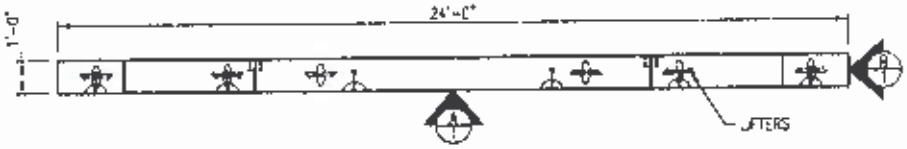
24'-0" X 5'-0" X 1'-0" HEAD WALL
SUBMITTAL LAYOUT - WEST-SIDE SOUTH GED EASIN
POLE CANYON
AFTON, WY

OWNER: KILROY LLC

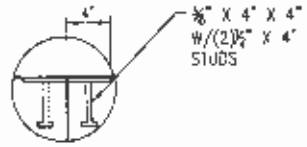
DATE	BAZS	DRAWN	ENGINEER	CHECKED	BAZS ORDER
5/18/15	CE	JZH	MB		165134
DRAWING NUMBER: 220-165134-014			REVISION	REVDATE	SHEET 1 OF 4

#	DATE	REVISIONS	BY

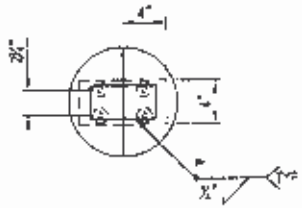
Received 8-25-15



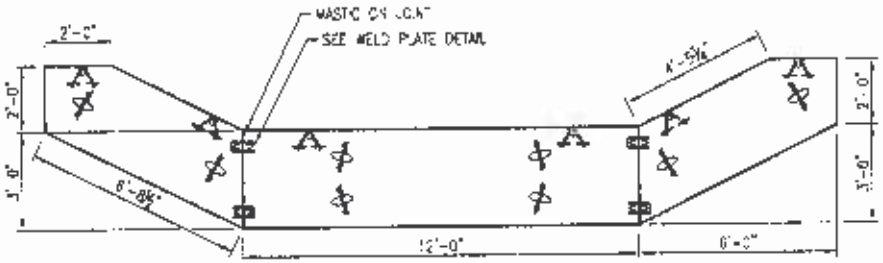
PLAN VIEW
SCALE 3/16" = 1'-0"



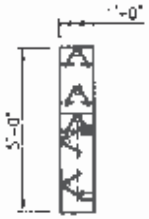
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 3/16" = 1'-0"



VIEW B
SCALE 3/16" = 1'-0"

SHIPPED LOOSE ITEMS

QTY	DESCRIPTION
4	1/2" X 3" X 8" FLAT L

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
8'-0" X 6'-0" X 1'-0" HEAD WALL (END)	2	2,650 LBS
12'-0" X 3'-0" X 1'-0" HEAD WALL (MID)	1	5,400 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2 SOIL WEIGHT = 120 PCF.
   - 2.3 DEPTH OF OVERBURDEN: 2'-0" MIN. & 6' MAX.
   - 2.4 ASSUMED WATER TABLE: 5.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 6000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast®

2300 E YELLOWSTONE HWY CHAD FALLS, IDAHO 83402
PHONE: (208) 524-7160 FAX: (208) 524-7121

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24'-0" X 5'-0" X 1'-0" HEAD WALL

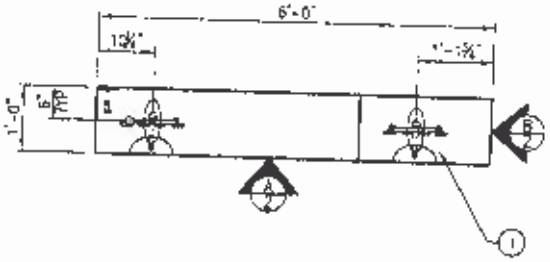
SUBMITTAL LAYOUT - WEST-SIDE SOUTH SED BASIN
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

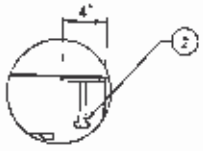
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
8/19/15	CE	AZH	MB		155134

DRAWING NUMBER	REVISION	SHEET
230-155134-014	NO. DATE	1 OF 6

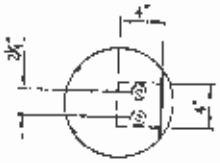
#	DATE	REVISIONS	BY



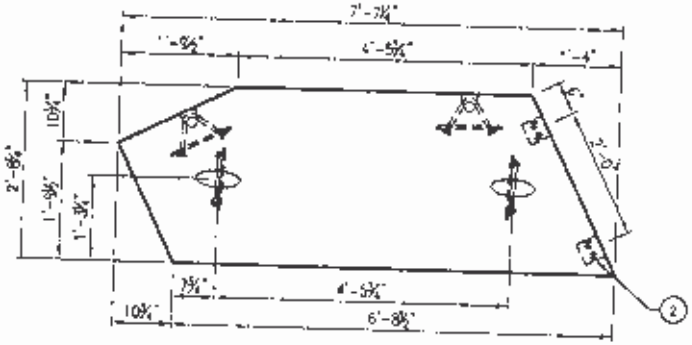
PLAN VIEW
SCALE 3/8" = 1'-0"



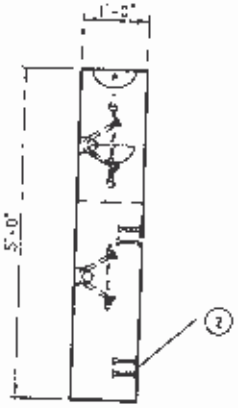
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	ADP
1	4 EA	M8 5" X .671 A-ANCHOR LIFT INSERT	7000105
2	2 EA	¾"X6"X4" FLAT PLATE W/(2) 4"X¾" STUDS	
	0.85 CYD	PRECAST MIX DESIGN #3-8000 SCC	9002500
	38 LBS	#8 REBAR	8010014

PRODUCT WEIGHTS

PRODUCT	LINE #	HANDLING WEIGHT
6'-0" X 5'-0" X 1'-0" HEAD WALL (EWO)		2,550 LBS

SHOP NOTES:
1. USE STD REBAR
2. CONCRETE STRENGTH: 8000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS _____

Oldcastle Precast

[illegible]
PHONE: [illegible] FAX: [illegible]

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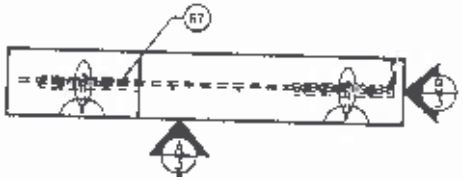
24'-0" X 5'-0" X 1'-0" HEAD WALL
PRODUCTION DRAWING - LEFT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

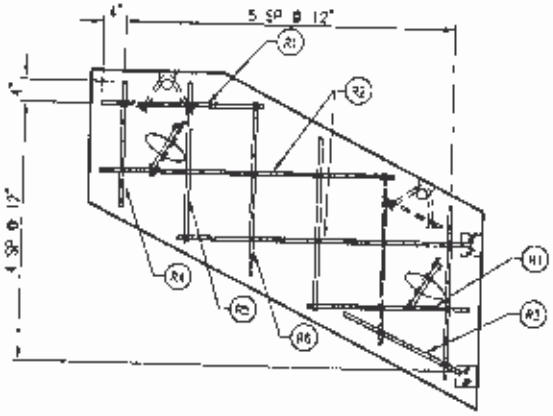
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
8-19-15	CE	JZH	MB		155134

DRAWING NUMBER: 230-155134-014
REVISION: REV DATE
SHEET: 2 OF 6

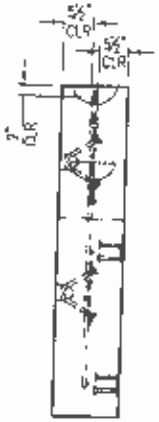
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE 3/8" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	2	#5 BAR	2'-8 1/2"	STR
R2	2	#3 BAR	4'-5 1/2"	STR
R3	1	#5 BAR	2'-0"	STR
R4	1	#5 BAR	[illegible]	STR
R5	1	#5 BAR	2'-5"	STR
R6	4	#5 BAR	2'-7 1/2"	STR
R7	4	#5 BAR	1'-5"	STR

STEEL WEIGHT

PRODUCT	MATERIAL	WEIGHT
HEAD WALL	#5 GRADE	38 LBS

SHOP NOTES:
1. USE STD REBAR
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast®

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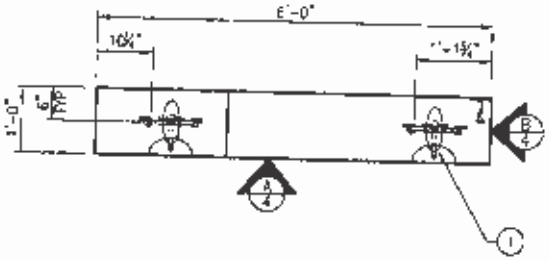
24'-0" X 5'-0" X 1'-0" HEAD WALL
REINFORCING DRAWING - LEFT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

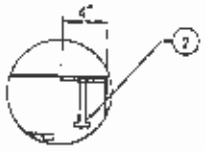
DATE	SALES	DRAWN	ENGINEER	CHECKED	DATE ORDER
8/19/15	CE	JZH	NB		155734

DRAWING NUMBER: 230-155134-014
REVISION: REV DATE
SHEET: 3 OF 6

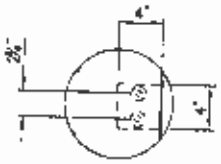
#	DATE	REVISIONS	BY



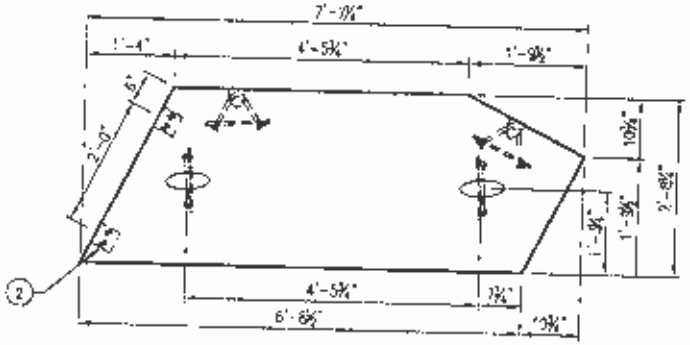
PLAN VIEW
SCALE 3/8" = 1'-0"



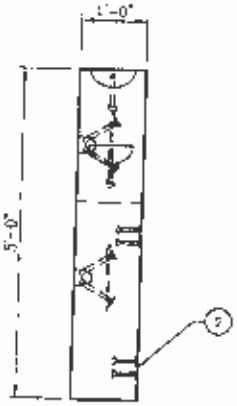
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	ASI#
1	4 EA	M8 8" X .871 A-ANCHOR LIFT INSERT	7000105
2	2 EA	1/2"X8"X4" FLAT PLATE W/(2) 1/2"X4" STUDS	
	0.85 CYD	PRECAST MIX DESIGN #3 6000 SCC	9002500
	38 LBS	#5 REBAR	8010014

PRODUCT WEIGHTS

PRODUCT	LINE #	HANDLING WEIGHT
6'-0" X 5'-0" X 1'-0" HEAD WALL (END)		2,550 LBS

SHOP NOTES:

1. USE #10 REBAR
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

2242 E 7TH LOWER MAIN ROAD PALLS IDAHO 83402
PHONE (208) 524-4140 FAX (208) 522-4101

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24'-0" X 5'-0" X 1'-0" HEAD WALL

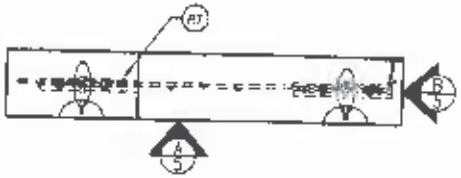
PRODUCTION DRAWING - RIGHT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

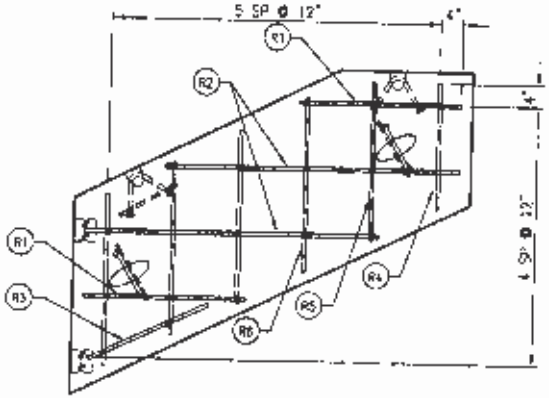
DATE	SCALE	DRAWN	ENGINEER	CHECKED	SCES ORDER
8/19/15	CE	JZH	NB		155134

DRAWING NUMBER	REVISION	SHEET
230-155134-014	REV DATE	4 OF 6

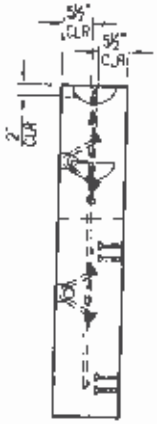
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE 3/8" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	2	#5 BAR	2'-6 1/2"	STR
R2	2	#5 BAR	4'-5 1/2"	STR
R3	1	#5 BAR	2'-0"	STR
R4	1	#5 BAR	1'-11"	STR
R5	1	#5 BAR	2'-5"	STR
R6	4	#5 BAR	2'-7 1/2"	STR
R7	4	#5 BAR	1'-8"	STR

STEEL WEIGHT

PRODUCT	MATERIAL	WEIGHT
HEAD WALL	#5 GRD60	38 LBS

SHOP NOTES:
1. USE STD REBAR
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: INITIALS:

Oldcastle Precast®

2348 YELLOWSTONE HWY IDAHO FALLS, IDAHO 83402
PHONE: (208) 523-8132 FAX (208) 523-8132

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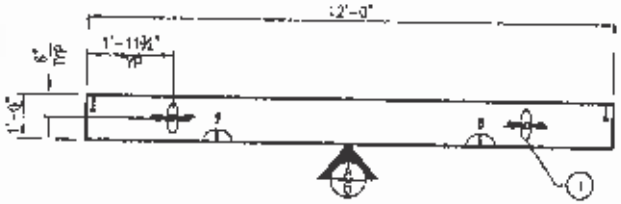
24'-0" X 5'-0" X 1'-0" HEAD WALL
REINFORCING DRAWING - RIGHT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
8/18/15	CE	JZH	MB		155134

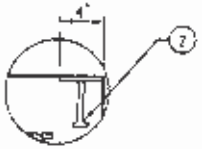
DRAWING NUMBER	REVISION	SHEET
230-155134-014	REV DATE	5 OF 6

#	DATE	REVISIONS	BY

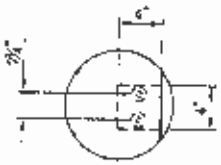


PLAN VIEW
SCALE 1/4" = 1'-0"

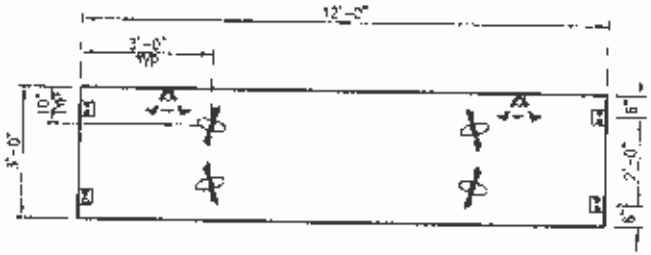
PLAN VIEW
SCALE 1/4" = 1'-0"



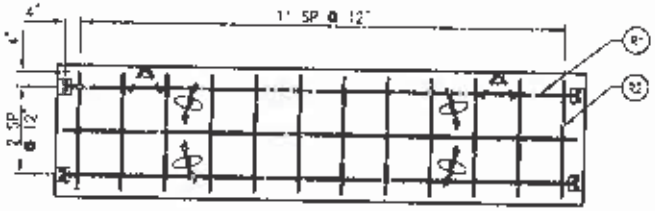
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 1/4" = 1'-0"



VIEW A
SCALE 1/4" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	3	#5 BAR	11'-6"	STR
R2	12	#5 BAR	2'-8"	STR
R3	4	#5 BAR	1'-6"	STR

BILL OF MATERIALS

#	QTY	DESCRIPTION	ASI#
1	8 EA	M8 8" X .671 A-ANCHOR LIFT INSERT	7000266
2	2 EA	⅜"X4"X8" FLAT PLATE W/2½"X4" STUDS	
	1.33 CYD	PRECAST MIX DESIGN #9 6000 SCC	9002500
	78 LBS	#8 REBAR	8010014

PRODUCT WEIGHTS

PRODUCT	LINE #	HANDLING WEIGHT
12'-0" X 3'-0" X 1'-0" HEAD WALL (MID)		5 400 LBS

SHOP NOTES:
1. USE STD REBAR
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast®

[illegible] TELLSTONE [illegible] IDAHO FALLS, IDAHO [illegible]
PHONE: [illegible] FAX: [illegible]

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24'-0" X 5'-0" X 1'-0" HEAD WALL
PRODUCTION & REINFORCING DRAWING - MID
POLE CANYON
AFTON, WY

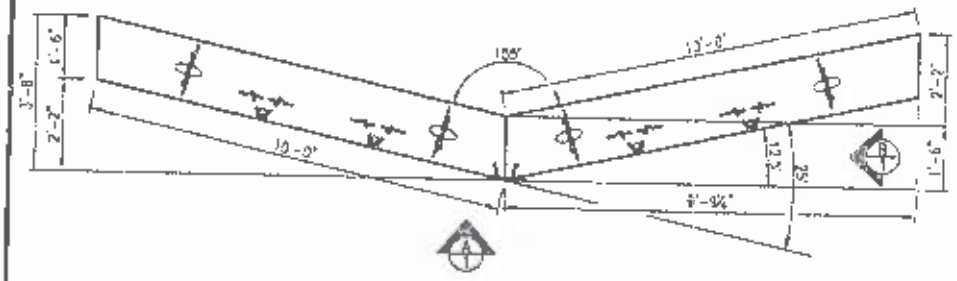
CUSTOMER
KILROY LLC

DATE	SALES	DRAWN	ENGINEER	DESIGNER	SALES ORDER
5/19/15	DE	JZH	MB		155134

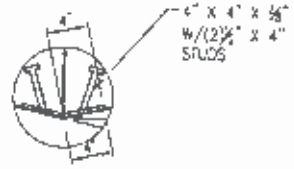
DRAWING NUMBER	REVISION	SHEET
230-155134-014	REV DATE	2 OF 8

#	DATE	REVISIONS	BY

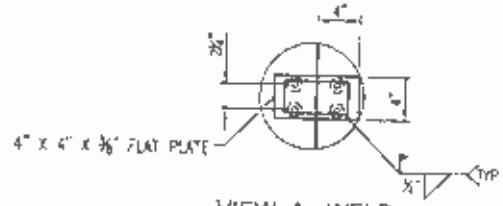
Approved
8/19/15
BG Hav



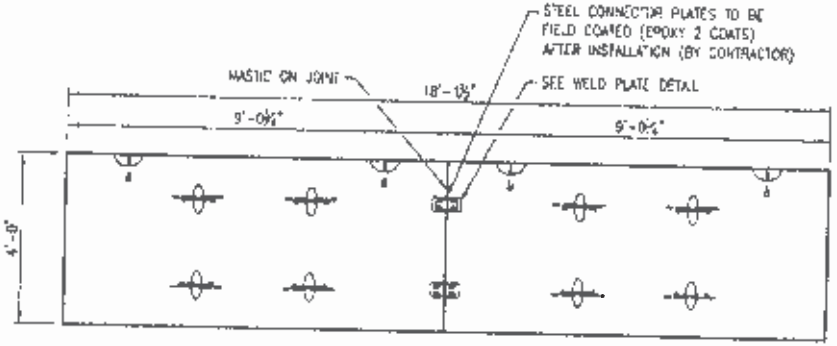
PLAN VIEW
SCALE: 1/4" = 1'-0"



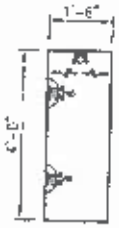
PLAN VIEW - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A
SCALE: 1/4" = 1'-0"



VIEW B
SCALE: 1/4" = 1'-0"

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
10'-0" X 4'-0" X 1'-6" HEAD WALL	2	8,000 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1 AASHTO HS-20-44, W/IMPACT
   - 2.2 SOIL WEIGHT = 120 PCF.
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX.
   - 2.4 ASSUMED WATER TABLE: 5.0' BELOW FINISHED GRADE
   - 2.5 EQUIV. FLUID PRESSURE = 40 PCF.
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 5000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE: 8/19/15 INITIALS: BGH

Oldcastle Precast

[illegible] YELLOWSTONE HWY, [illegible]
PHONE: [illegible] FAX: [illegible]

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20'-0" X 4'-0" X 1'-6" HEAD WALL

SUBMITTAL LAYOUT - OUTFALL INTO EAST EDS
POLE CANYON
AFTON, WY

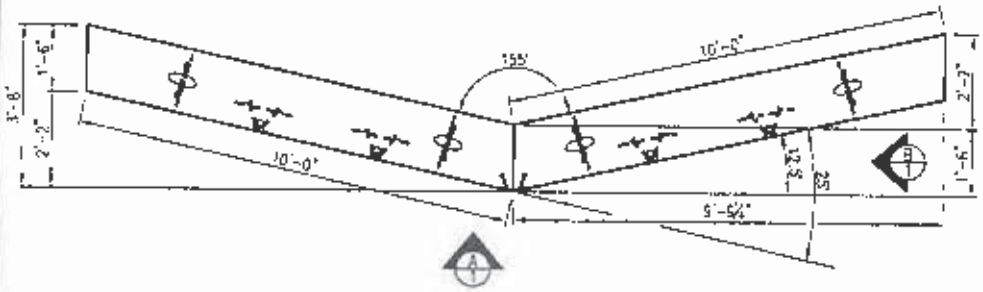
CUSTOMER: KILROY LLC

DATE	DRAWN	ENGINEER	CHECKED	SALES ORDER
8/7/15	CE	JZH	MB	155134

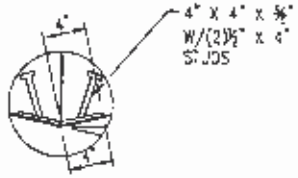
DRAWING NUMBER: 230-155134-009
REVISION: REV DATE
SHEET: 1 OF 1

#	DATE	REVISIONS	BY

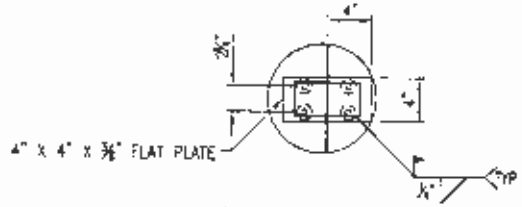
Received 8-19-15



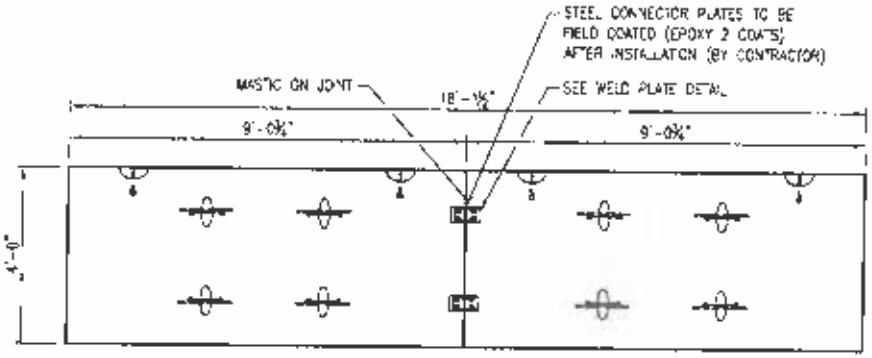
PLAN VIEW
SCALE: 1/4" = 1'-0"



PLAN VIEW - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A
SCALE: 1/4" = 1'-0"

VIEW B
SCALE: 1/4" = 1'-0"

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
10'-0" X 4'-0" X 1'-6" HEAD WALL	2	9,000 LBS

DESIGN NOTES:

1. MN DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF.
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX.
   - 2.4. ASSUMED WATER TABLE 5.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF.
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 8000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

[illegible]

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20'-0" X 4'-0" X 1'-6" HEAD WALL

SUBMITTAL LAYOUT - OUTFALL INTO EAST SDS
POLE CANYON
AFTON, WY

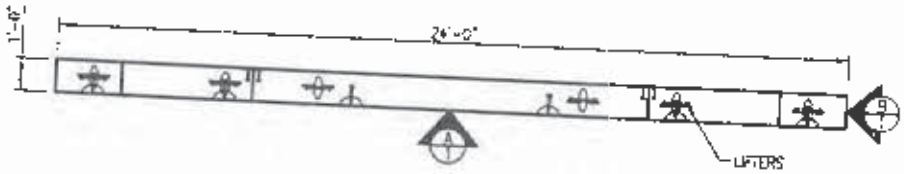
CUSTOMER: KILROY LLC

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
5/7/15	CE	JZH	MB		155134

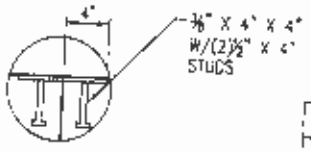
DRAWING NUMBER	REVISION	SHEET
230-155134-209	REV DATE	1 OF 1

#	DATE	REVISIONS	BY

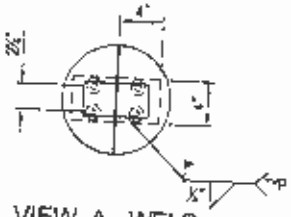
Received 8-25-15



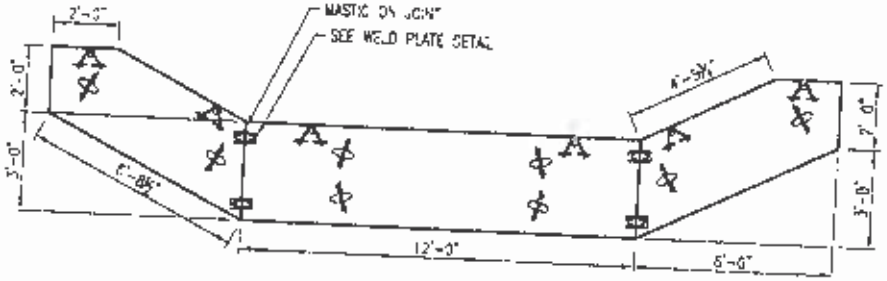
PLAN VIEW
SCALE 3/16" = 1'-0"



PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A
SCALE 3/16" = 1'-0"

VIEW B
SCALE 3/16" = 1'-0"

SHIPPED LOOSE ITEMS

QTY	DESCRIPTION
4	1/2" X 3" X 6" PLATE

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
8'-0" X 5'-0" X 1'-0" HEAD WALL (END)	2	2,650 LBS
12'-0" X 3'-0" X 1'-0" HEAD WALL (MID)	1	5,400 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF.
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX
   - 2.4. ASSUMED WATER TABLE: 5.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF.
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 5000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

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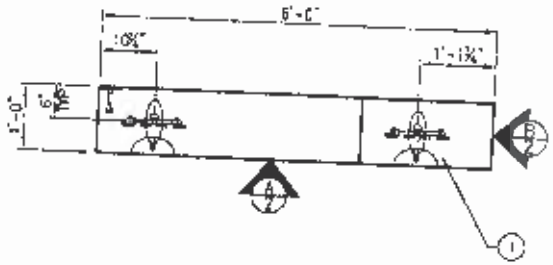
24'-0" X 5'-0" X 1'-0" HEAD WALL
SUBMITTAL LAYOUT - WEST-SIDE SOUTH SED. BASIN
POLE CANYON
AFTON, WY

CUSTOMER: KILROY LLC

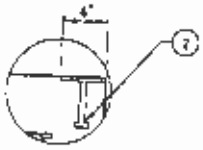
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
8/12/15	DE	JZK	MB		156134

DRAWING NUMBER: 283-155134-0*4
REVISION: REV DATE
SHEET: 1 OF 8

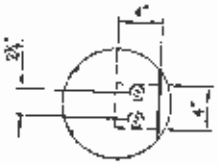
#	DATE	REVISIONS	BY



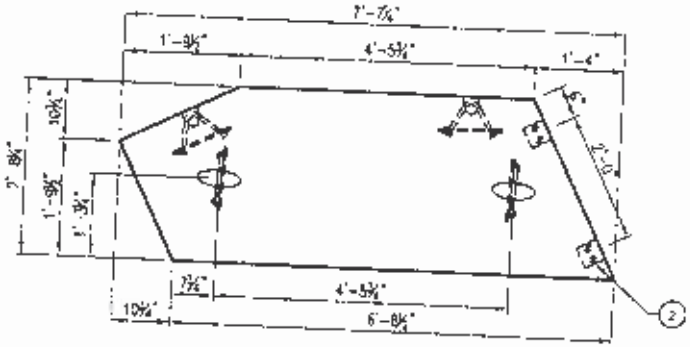
PLAN VIEW
SCALE: 3/8" = 1'-0"



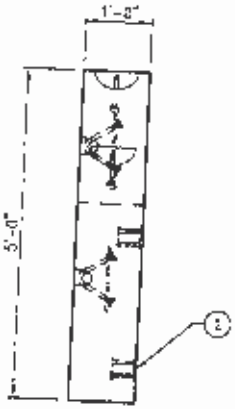
PLAN VIEW - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A
SCALE: 3/8" = 1'-0"



VIEW B
SCALE: 3/8" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	A/#
1	4 EA	3/8" X 3" A-ANCHOR LIFT INSERT	7000-35
2	2 EA	1/4"X4"X4" FLAT PLATE W/(2) 3/4"X4" STUDS	
	0.65 CYD	PRECAST MIX DESIGN #3-6000 SCC	6002500
	34 LBS	#6 REBAR	6010014

PRODUCT WEIGHTS

PRODUCT	LINE #	HANDLING WEIGHT
8'-0" X 5'-0" X 1'-0" HEAD WALL (END)		2,550 LBS

SHOP NOTES:

1. USE STD REBAR
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

24'-0" X 5'-0" X 1'-0" HEAD WALL
PRODUCTION DRAWING - LEFT END
POLE CANYON
ADMON, WY

CUSTOMER
KILROY LLC

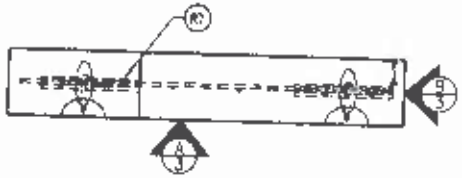
DATE	SALES	DESIGN	ENGINEER	CHECKED	SALES ORDER
6-18-15	CE	JZH	WB		155134

DRAWING NUMBER: 23C-155134-014

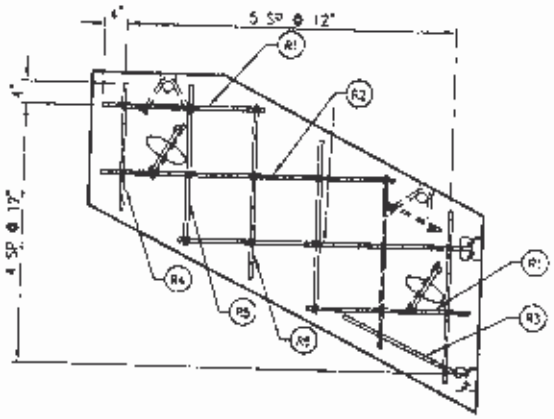
REVISION: REV DATE

SHEET 2 OF 6

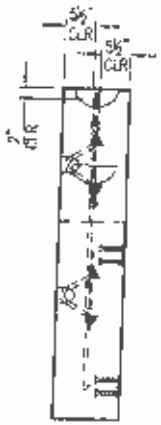
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE: 3/8" = 1'-0"



VIEW A
SCALE: 3/8" = 1'-0"



VIEW B
SCALE: 3/8" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	2	#5 BAR	2'-5 1/2"	STR
R2	2	#5 BAR	4'-5 1/2"	STR
R3	1	#5 BAR	2'-0"	STR
R4	1	#5 BAR	1'-1"	STR
R5	1	#5 BAR	2'-5"	STR
R6	4	#5 BAR	2'-7 1/2"	STR
R7	4	#5 BAR	1'-8"	STR

STEEL WEIGHT

PRODUCT	MATERIAL	WEIGHT
HEAD WALL	#5-GR60	38 LBS

SHOP NOTES:
1. USE STD REBAR
2. CONCRETE STRENGTH: 8000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast®

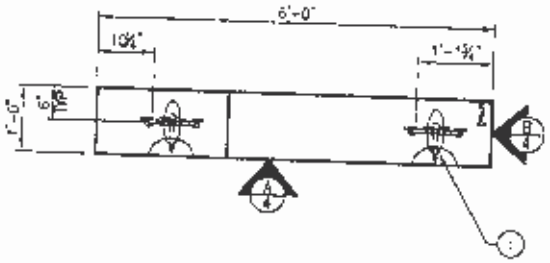
24'-0" X 5'-0" X 1'-0" HEAD WALL
REINFORCING DRAWING - LEFT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

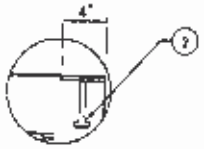
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
8/13/15	CE	JZH	MG		155134

DRAWING NUMBER: 230-155134-014
REVISION: REV DATE
SHEET: 3 OF 6

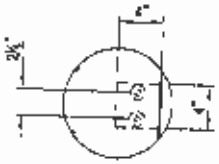
#	DATE	REVISIONS	BY



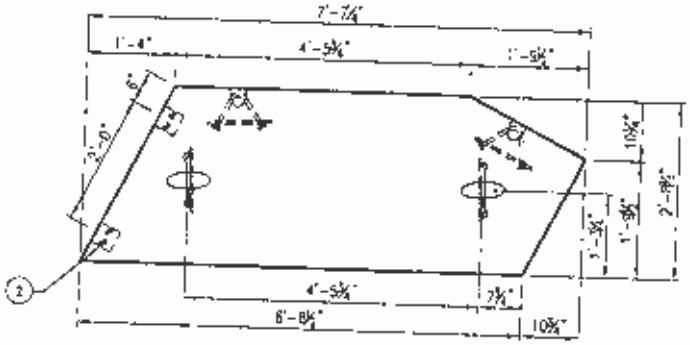
PLAN VIEW
SCALE 3/8" = 1'-0"



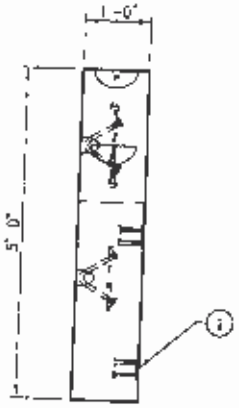
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	A#
1	4 EA	MB 8" X .671 A-ANCHOR LIFT INSERT	7000105
2	2 EA	¼"X4"X4" FLAT PLATE W/(2) ½"X4" STUDS	
	0.65 CYD	PRECAST MIX DESIGN #3 6000 SCC	9002500
	38 LBS	#6 REBAR	8010014

PRODUCT WEIGHTS

PRODUCT	UPC #	HANDLING WEIGHT
6'-0" X 5'-0" X 1'-0" HEAD WALL (END)		2,550 LBS

SHOP NOTES:
1. USE STD REBAR
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast®

2000 S YELLOWSTONE HWY IDAHO FALLS, IDAHO 83402
PHONE (208) 522-8150 FAX (208) 522-8151

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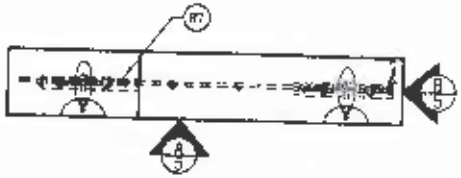
24'-0" X 5'-0" X 1'-0" HEAD WALL
PRODUCTION DRAWING - RIGHT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

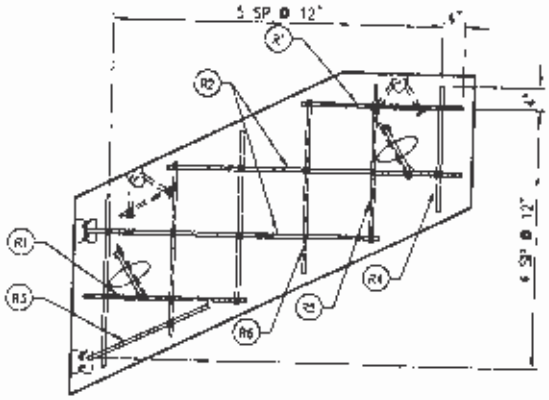
DATE	SALES	DRAWN	ENGINEER	CHECKED	MASTER ORDER
5/19/15	CE	JZH	MB		155134

DRAWING NUMBER: 200-155134-014
REVISION: REV 04/15
PAGE: 4 OF 6

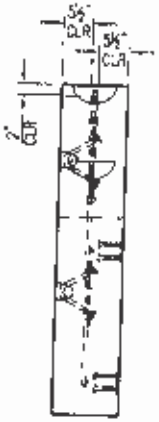
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE: 3/8" = 1'-0"



VIEW A
SCALE: 3/8" = 1'-0"



VIEW B
SCALE: 3/8" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	2	#5 BAR	2'-5 1/2"	STR
R2	2	#5 BAR	4'-5 1/2"	STR
R3	1	#5 BAR	2'-0"	STR
R4	1	#5 BAR	1'-11"	STR
R5	1	#5 BAR	2'-4"	STR
R6	4	#5 BAR	2'-7 1/2"	STR
R7	6	#5 BAR	1'-0"	STR

STEEL WEIGHT

PRODUCT	MATERIAL	WEIGHT
HEAD WALL	#5/GR60	35 LBS

SHOP NOTES:
1. USE STD REBAR
2. CONCRETE STRENGTH: 5000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast®

ZONE 8 "YELLOWSTONE HWY" CHAS RULE, IDAHO 83440
PHONE: (208) 624-7500 FAX: (208) 624-7501

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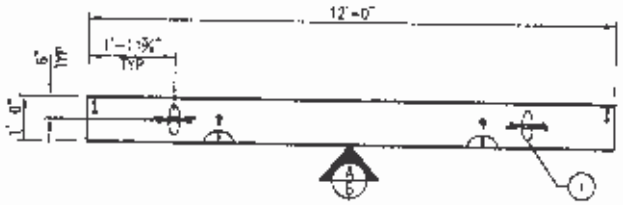
24'-0" X 5'-0" X 1'-0" HEAD WALL
REINFORCING DRAWING - RIGHT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

DATE	SALES	DRAWN	DESIGNED	CHECKED	SALES ORDER
8/18/15	CE	JZH	MB		156134

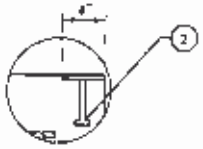
DRAWING NUMBER: 280-156134-014
REVISION: REV DATE
SHEET: 5 OF 6

#	DATE	REVISIONS	BY

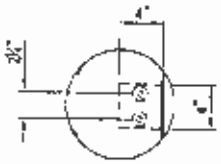


PLAN VIEW
SCALE 1/4" = 1'-0"

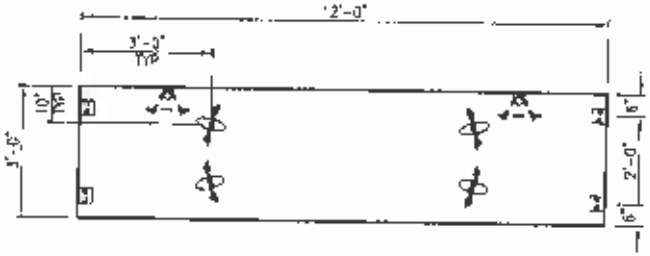
PLAN VIEW
SCALE 1/4" = 1'-0"



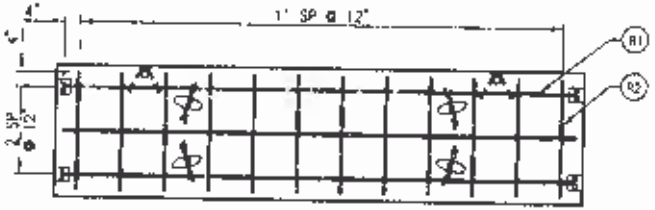
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 1/4" = 1'-0"



VIEW A
SCALE 1/4" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	3	#5 BAR	11'-8"	STR
R2	12	#5 BAR	2'-8"	STR
R3	4	#5 BAR	1'-8"	STR

BILL OF MATERIALS

#	QTY	DESCRIPTION	AXM
1	6 EA	M8 6" X .871 A-ANCHOR LIFT INSERT	7000055
2	2 EA	3"X4"X4" FLAT PLATE W/(2) 4"X4" STUDS	
	1.33 CYD	PRECAST MIX DESIGN #3 6000 SCC	9002500
	76 LBS	#5 REBAR	8010014

PRODUCT WEIGHTS

PRODUCT	LINE #	HANDLING WEIGHT
12'-0" X 5'-0" X 1'-0" HEAD WALL (WC)		5,400 LBS

SHOP NOTES:
1. USE STD REBAR
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast®

2040 S YELLOWSTONE HWY IDAHO FALLS, IDAHO 83402
PHONE: (208) 523-4163 FAX: (208) 523-4167

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24'-0" X 5'-0" X 1'-0" HEAD WALL

PRODUCTION & REINFORCING DRAWING - MID
POLE CANYON
AFTON, WY

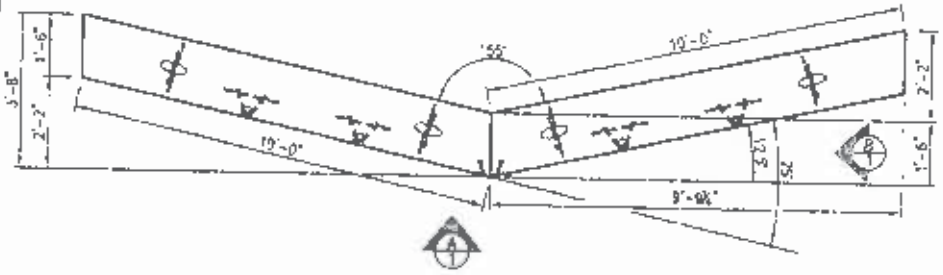
CUSTOMER
KILROY LLC

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
8/18/15	CE	JZH	MB		155134

DRAWING NUMBER	REVISION	SHEET
230-155134-01	REV DATE	2 OF 6

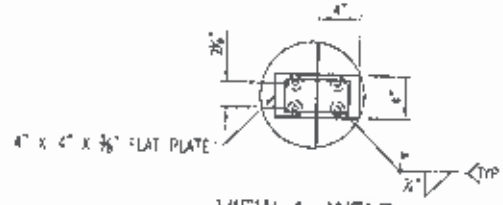
#	DATE	REVISIONS	BY

Approved
3/19/15
B6 Hau

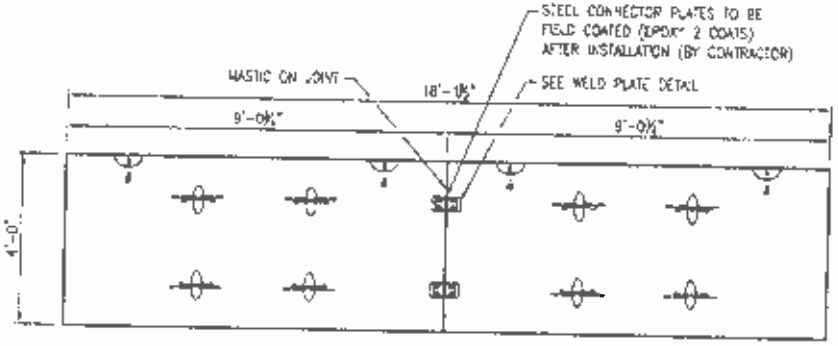


PLAN VIEW
SCALE 1/4" = 1'-0"

PLAN VIEW - WELD
PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD
PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 1/4" = 1'-0"

VIEW B
SCALE 1/4" = 1'-0"

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
10'-0" X 4'-0" X 1'-6" HEAD WALL	2	9,000 LBS

DESIGN NOTES

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1 AASHTO HS-20-44, W/IMPACT
   - 2.2 SOIL WEIGHT = 120 PCF
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN & 0' MAX.
   - 2.4. ASSUMED WATER TABLE: 5.0' BELOW FINISHED GRADE
   - 2.5 EQUIV. FLUID PRESSURE = 40 PCF.
   - 2.6 LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH 5000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE: 3/19/15 BY: B6 H

Oldcastle Precast

2316 E YELLOWSTONE HWY IDAHO FALLS, IDAHO 83402
PHONE: (208) 523-4166, FAX: (208) 523-2174

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20'-0" X 4'-0" X 1'-6" HEAD WALL

SUBMITTAL LAYOUT - OUTFALL INTO EAST EDS
POLE CANYON
AFTON, WY

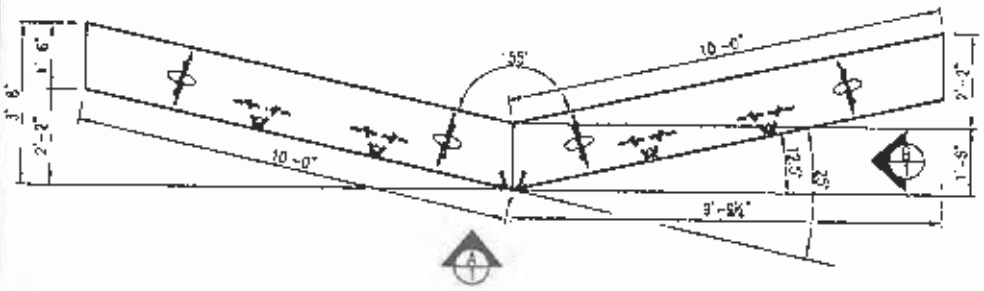
CUSTOMER
KILROY LLC

DATE	SCALE	DRAWN	ENGINEER	CHECKED	PROJECT NO.
6/7/16	CE	JDH	MB		155134

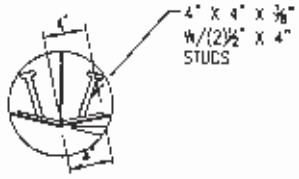
DRAWING NUMBER: 230-155134-009
REVISION: REV DATE
SHEET: 1 OF 1

#	DATE	REVISIONS	BY

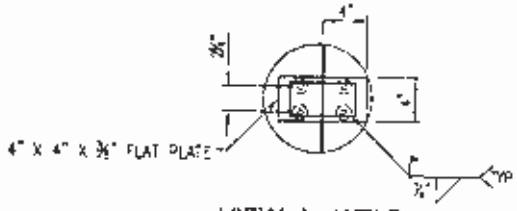
Received 8-19-15



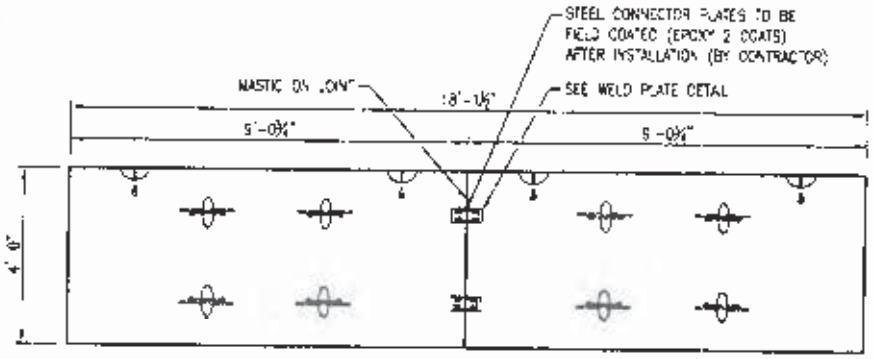
PLAN VIEW
SCALE 1/4" = 1'-0"



PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 1/4" = 1'-0"

VIEW B
SCALE 1/4" = 1'-0"

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
10'-0" X 4'-0" X 1'-6" HEAD WALL	2	9,000 LBS

DESIGN NOTES:

1. AASHTO DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF.
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX
   - 2.4. ASSUMED WATER TABLE: 5.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF.
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 6000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

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20'-0" X 4'-0" X 1'-6" HEAD WALL

SUBMITTAL LAYOUT - OUTFALL INTO EAST EDS
POLE CANYON
AFTON WY

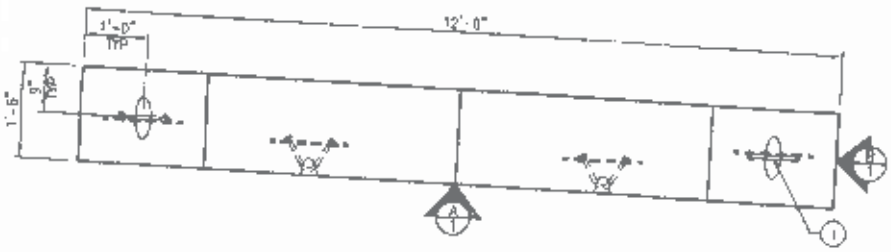
CUSTOMER
KILROY LLC

DATE	SALES	DRAWN	DESIGNER	CHECKED	SALES ORDER
8/7/15	CE	JZH	MB		155134

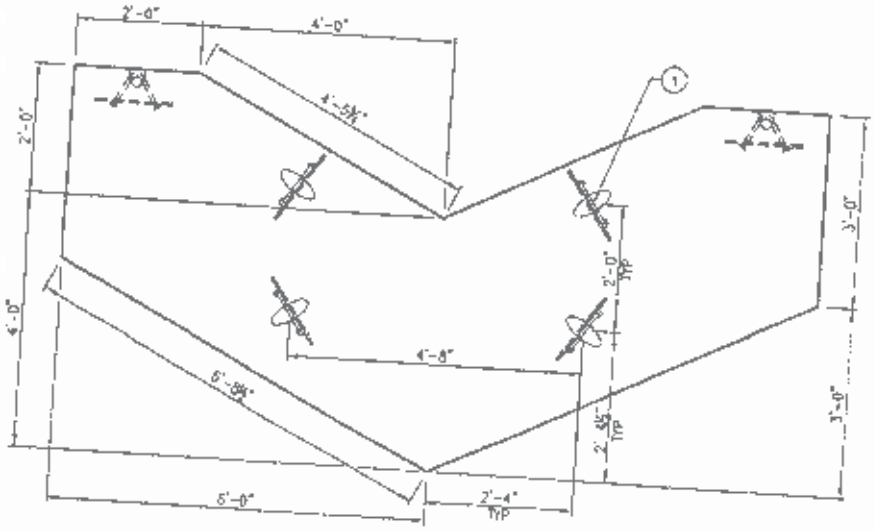
DRAWING NUMBER	REVISION	SHEET
230-155134-009	REV DATE	1 OF 1

#	DATE	REVISIONS	BY

Approved 8/11/15
BG Ah



PLAN VIEW
SCALE 3/8" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"

VIEW B
SCALE 3/8" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	AXM
1	8 EA	M8 8" X .871 A-ANCHOR LIFT INSERT	7000056
	2.56 CYD	PRECAST MIX DESIGN #3 6000 SCC	9002500
	111-0" LBS	#8 REBAR	8010014

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
12'-0" X 6'-0" X 1'-6" HEAD WALL	1	10,350 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS.
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF.
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX.
   - 2.4 ASSUMED WATER TABLE: 5.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF.
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 6000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 (SPECIFICATIONS)

APPROVED FOR "FABRICATION"
DATE 8/11/15 INITIALS BG AH

Oldcastle Precast

2948 S. YELLOWSTONE HWY IDAHO FALLS, IDAHO 83402
PHONE: (208) 522-8168, FAX: (208) 522-8174

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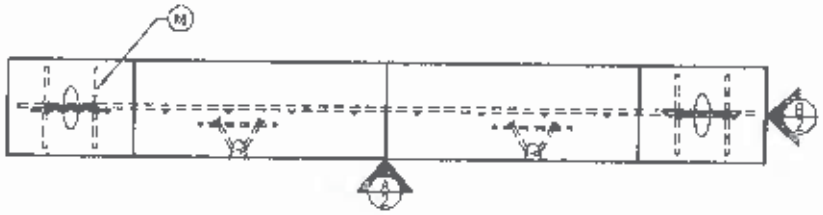
12'-0" X 6'-0" X 1'-6" HEAD WALL

SUBMITTAL & PRODUCTION - EAST SIDE TOP TO DOWNDRAIN
POLE CANYON
AFTON, WY

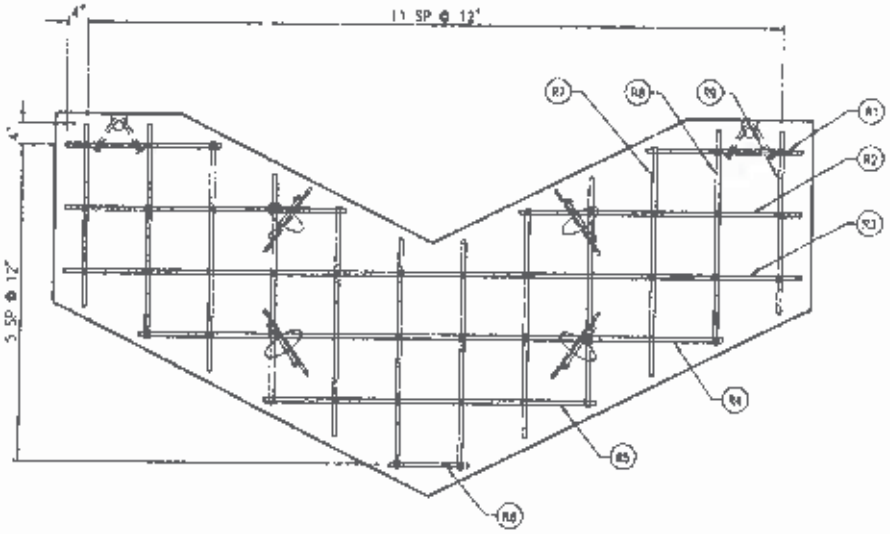
CLIENT/USER
KILROY LLC

DATE	DESIGN	DRAWN	CHECKED	CHECKED	SALES ORDER
6/3/15	CE	JZH	MB		156134
DRAWING NUMBER			REVISION	SHEET	
230-156134-005			Revision	1 OF 2	

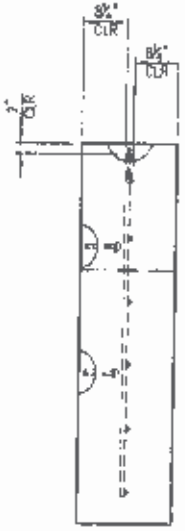
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE 3/8" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	2	#6 BAR	2'-5 1/2"	STR
R2	2	#6 BAR	4'-5 1/2"	STR
R3	1	#6 BAR	11'-6"	STR
R4	1	#6 BAR	9'-3"	STR
R5	1	#6 BAR	5'-3"	STR
R6	6	#6 BAR	1'-3"	STR
R7	8	#6 BAR	3'-7 1/2"	STR
R8	2	#6 BAR	3'-6"	STR
R9	2	#6 BAR	2'-11"	STR

STEEL WEIGHT

PRODUCT	MATERIAL	WEIGHT
HEAD WALL	#6/GRD60	132 LBS

SHOP NOTES:
1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

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12'-0" X 6'-0" X 1'-6" HEAD WALL
REINFORCING - EAST SIDE TOP TO DOWNDRAIN
POLE CANYON
ASTON, WY

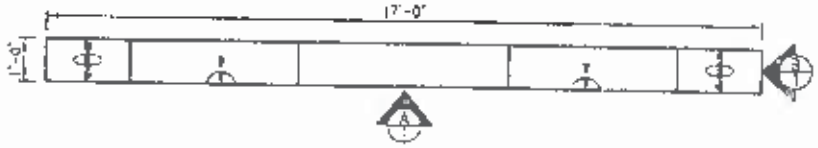
CUSTOMER
KILROY LLC

DATE	SCALE	DRAWN	ENGINEER	DESIGNED	SALES ORDER
3/3/15	CE	JZH	MB		155134

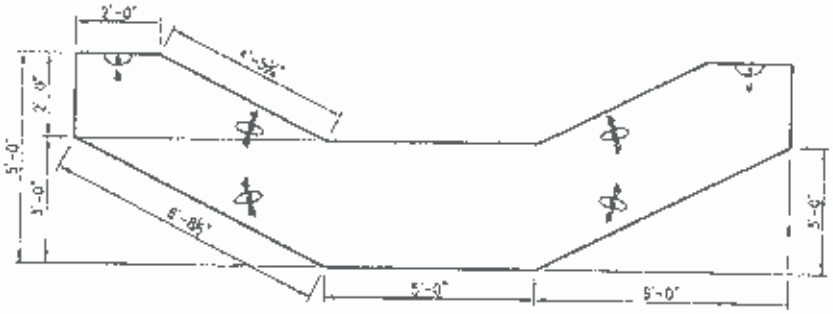
DRAWING NUMBER: 230-155134-005
REVISION: REV DATE
SHEET: 2 OF 2

#	DATE	REVISIONS	BY

Approved
8/11/15
BCH



PLAN VIEW
SCALE 1/4" = 1'-0"



VIEW A
SCALE 1/4" = 1'-0"

VIEW B
SCALE 1/4" = 1'-0"

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
17'-0" X 5'-0" X 1'-0" HEAD WALL	1	7,350 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS.
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX
   - 2.4. ASSUMED WATER TABLE: 3.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 5000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"
DATE 8/11/15 INITIALS BCH

Oldcastle Precast

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17'-0" X 5'-0" X 1'-0" HEAD WALL
SUBMITTAL LAYOUT - EAST DITCH ALONG HAUL ROAD
POLE CANYON
AFTON, WY

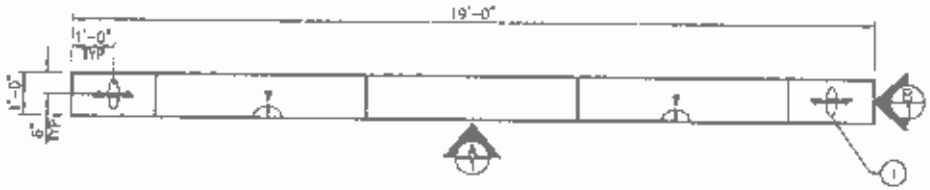
CUSTOMER
KILROY LLC

DATE	SALES	DRAWN	ENGINEER	CHECKED	ORDER
7/28/15	CE	JZH	MB		156134

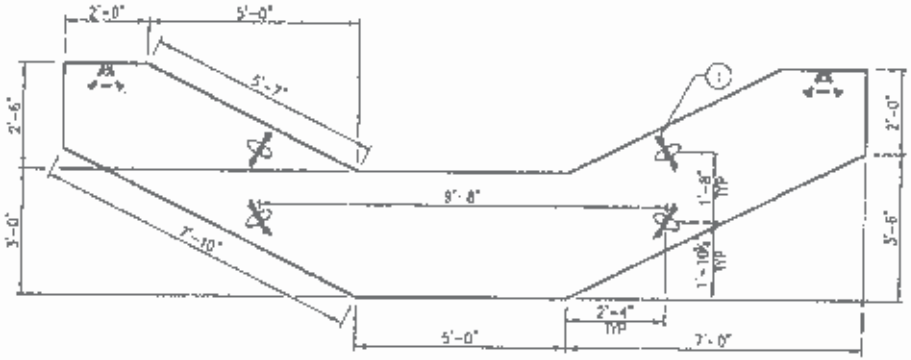
DRAWING NUMBER: 230-156134-008
REVISION: REV DATE
SHEET 1 OF 1

#	DATE	REVISIONS	BY

Approved
8/11/15
BEH



PLAN VIEW
SCALE 1/4" = 1'-0"



VIEW A
SCALE 1/4" = 1'-0"

VIEW B
SCALE 1/4" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	AXE
1	6 EA	M8-8" X .671 A-ANCHOR LIFT INSERT	7000085
	2.04 CYD	PRECAST MIX DESIGN #9-8000 SCC	9000800
	8'-10" LBS	#5 REBAR	8010013

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
19'-0" X 5'-6" X 1'-0" HEAD WALL	1	6,250 LBS

DESIGN NOTES:

1. MBL DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF.
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX.
   - 2.4. ASSUMED WATER TABLE: 6.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF.
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 8000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"
DATE: 8/11/15 INITIALS: BEH

Oldcastle Precast

[illegible]
PHONE: [illegible] FAX: [illegible]

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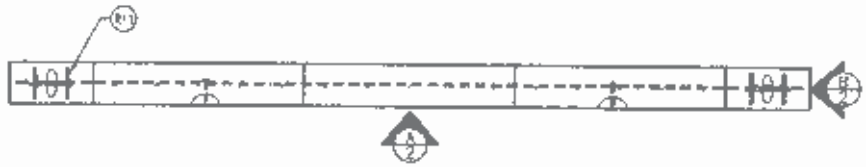
19'-0" X 5'-6" X 1'-0" HEAD WALL
SUBMITTAL & PRODUCTION DRAWING - SOUTH-CENTRAL DITCH
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

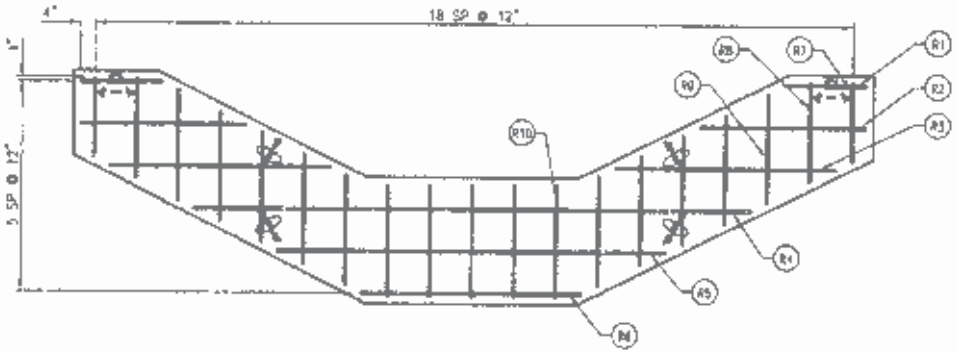
DATE	DRAWN	CHECKED	ENGINEER	CHECKED	DRAWING NUMBER
1/28/15	CE	JZH	MB		165134

DRAWING NUMBER	REVISION	SHEET
230-165134-006	REV DATE	1 OF 2

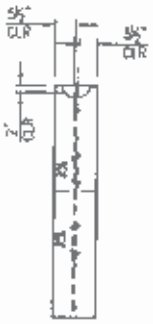
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE: 1/4" = 1'-0"



VIEW A
SCALE: 1/4" = 1'-0"



VIEW B
SCALE: 1/4" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	2	#6 BAR	1'-11 1/2"	STR
R2	2	#5 BAR	3'-11 1/2"	STR
R3	2	#5 BAR	5'-3"	STR
R4	1	#6 BAR	13'-3"	STR
R5	1	#5 BAR	9'-3"	STR
R6	1	#6 BAR	5'-3"	STR
R7	2	#5 BAR	1'-11"	STR
R8	2	#5 BAR	2'-6"	STR
R9	10	#5 BAR	2'-7 1/2"	STR
R10	5	#5 BAR	2'-6"	STR
R11	4	#5 BAR	0'-9"	STR

STEEL WEIGHT

PRODUCT	MATERIAL	WEIGHT
HEAD WALL	#5/#6 BAR	108 LBS

SHOP NOTES:
1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast®

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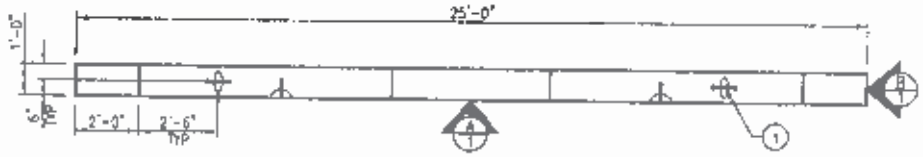
19'-0" X 5'-6" X 1'-0" HEAD WALL
SUBMITTAL & PRODUCTION DRAWING - SOUTH-CENTRAL DITCH
POLE CANYON
AFTON, WY

CUSTOMER: KILROY LLC

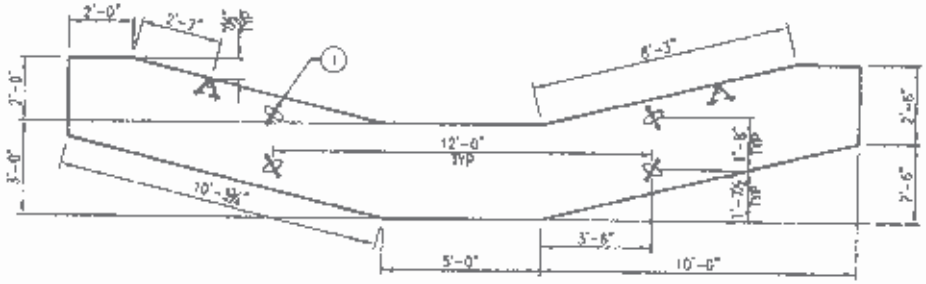
DATE	SCALE	DRAWN	ENGINEER	CHECKED	SALES ORDER
7/29/15	CS	JDH	MB		155134

DRAWING NUMBER: 230-155134-009
REVISION: REV DATE:
SHEET: 2 OF 2

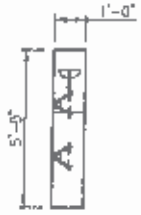
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE 3/16" = 1'-0"



VIEW A
SCALE 3/16" = 1'-0"



VIEW B
SCALE 3/16" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	ASM
1	8 EA	M8 0" X .875" A-ANCHOR LIFT INSERT	7000055
	2.75 CYD	PRECAST MIX DESIGN #3 8000 SCC	8002500
	13'-10" LBS	#6 REBAR	8010013

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
25'-0" X 5'-0" X 1'-0" HEAD WALL	1	11,100 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF.
   - 2.3. DEPTH OF OVERBURDEN 3.0' MIN 4.0' MAX.
   - 2.4. ASSUMED WATER TABLE: 5.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF.
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 8000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

1240 E. MEADOWSTONE WAY IDAHO FALLS, IDAHO 83402
PHONE: (208) 524-7100, FAX: (208) 524-7101

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25'-0" X 5'-0" X 1'-0" HEAD WALL

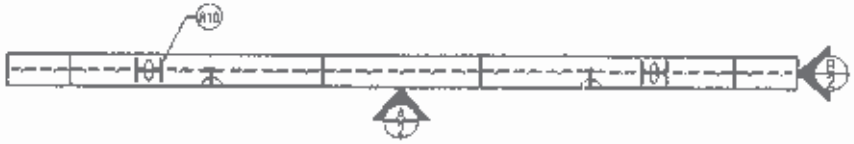
SUBMITTAL & PRODUCTION - OUTFALL INTO SADDLE INFIL. BASIN
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

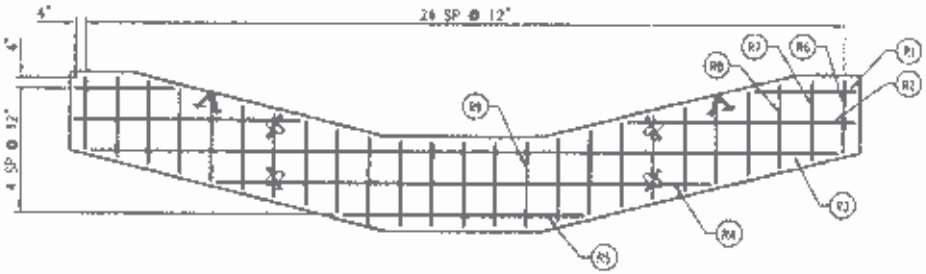
DATE	MADE	DRAWN	ENGINEER	CHECKED	SALES ORDER
7/26/18	CE	JDH	MB		156134

DRAWING NUMBER	REVISION	SHEET
230-156134-010	— REV DATE	1 OF 2

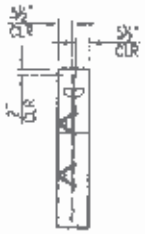
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE 3/16" = 1'-0"



VIEW A
SCALE 3/16" = 1'-0"



VIEW B
SCALE 3/16" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	2	#5 BAR	3'-2"	STR
R2	2	#5 BAR	7'-2"	STR
R3	1	#5 BAR	25'-7 1/2"	STR
R4	1	#5 BAR	15'-7 1/2"	STR
R5	1	#5 BAR	7'-7 1/2"	STR
R6	2	#5 BAR	2'-3 1/2"	STR
R7	2	#5 BAR	2'-8 1/2"	STR
R8	18	#5 BAR	2'-6"	STR
R9	5	#5 BAR	7'-6"	STR
R10	4	#5 BAR	1'-6"	STR

STEEL WEIGHT

PRODUCT	MATERIAL	WEIGHT
HEAD WALL	#5/GRD60	140 LBS

SHOP NOTES:
1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 1600 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

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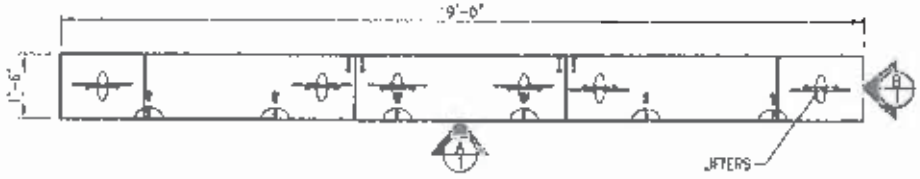
25'-0" X 5'-0" X 1'-0" HEAD WALL
REINFORCING DRAWING - OUTFALL INTO SADDLE INFIL. BASIN
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

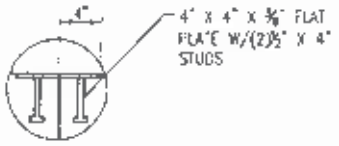
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
7/26/18	CE	JZH	MB		156134

DRAWING NUMBER: 230-156134-010
REVISION: REV DATE
SHEET: 2 OF 2

#	DATE	REVISIONS	BY

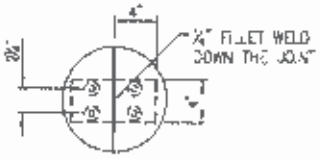


PLAN VIEW
SCALE 1/4" = 1'-0"

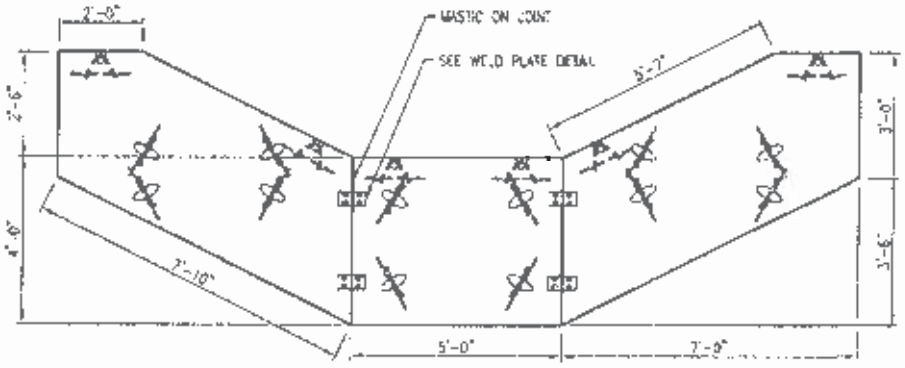


PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"

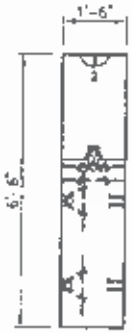
Approved 3/11/15 BC Hall



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 1/4" = 1'-0"



VIEW B
SCALE 1/4" = 1'-0"

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
7'-0" X 6'-6" X 1'-6" HEAD WALL (END)	2	6,075 LBS
6'-0" X 4'-0" X 1'-6" HEAD WALL (MID)	1	4,600 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF.
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX.
   - 2.4. ASSUMED WATER TABLE: 5.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF.
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 6000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"
DATE 3/11/15 INITIALS BC Hall

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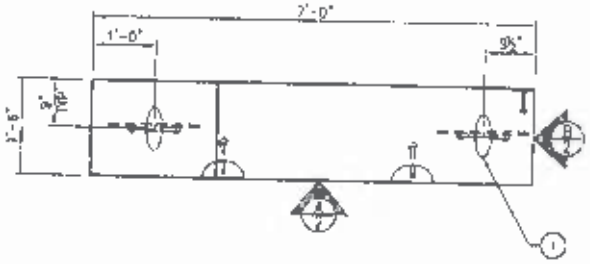
19'-0" X 6'-5" X 1'-6" HEAD WALL
SUBMITTAL LAYOUT - WEST-SIDE RUNOFF DITCH(WEST EDS)
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

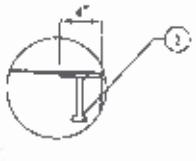
DATE	DRAWN	CHECKED	SALES ORDER
3/4/15	CE	JDH	MB		155134

DRAWING NUMBER	REVISION	SHEET
230-155134-011	REV DATE	1 OF 1

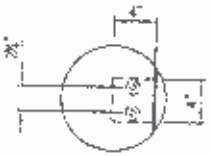
#	DATE	REVISIONS	BY



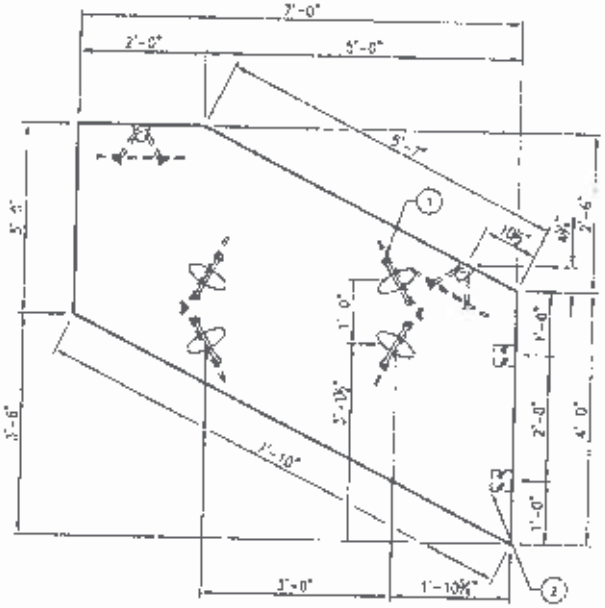
PLAN VIEW
SCALE 3/8" = 1'-0"



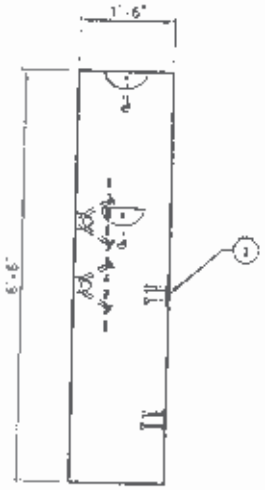
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	ASI#
1	6 EA	MB 6" X 871 A-ANCHOR LIFT INSERT	7000056
2	2 EA	4"X4"X¼" FLAT PLATE W/(2) ½"x4" STUDS	
	1.60 CYD	PRECAST MIX DESIGN 6000 SCC	9002500
	80 LBS	#6 REBAR	9010014

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
7'-0" X 6'-6" X 1'-6" HEAD WALL (END)	1	8,075 LBS

SHOP NOTES:

1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

3343 W FOLLOWSPRING WAY SANDY, UTAH 84092
PHONE: (801) 523-8100 FAX: (801) 523-8110

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19'-0" X 6'-5" X 1'-6" HEAD WALL

PRODUCTION DRAWING - LEFT END

POLE CANYON

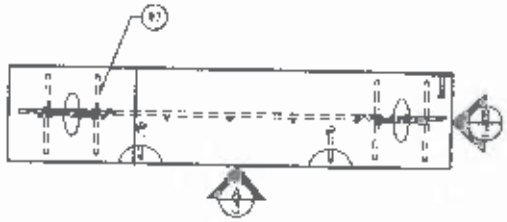
AFTON, WY

CUSTOMER
KILROY LLC

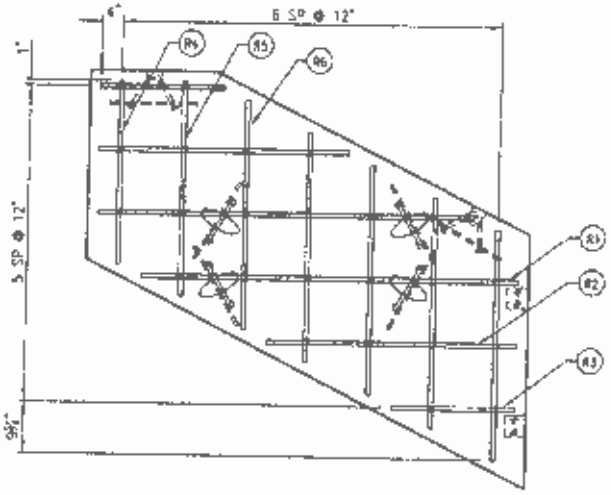
DATE	BAZER	DRAWN	ENGINEER	CHECKED	BAZER ORDER
6/4/15	CE	JZR	MB		135134

DRAWING NUMBER	REVISION	SHEET
230-135134-011	REV DATE	2 OF 1

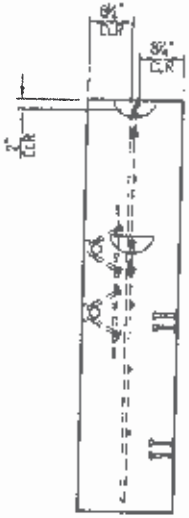
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE: 3/8" = 1'-0"



VIEW A
SCALE: 3/8" = 1'-0"



VIEW B
SCALE: 3/8" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	2	#6 BAR	3'-11 1/2"	STR
R2	2	#6 BAR	3'-11 1/2"	STR
R3	2	#6 BAR	1'-11 1/2"	STR
R4	1	#6 BAR	2'-11"	STR
R5	1	#6 BAR	5'-6"	STR
R6	5	#6 BAR	3'-1 1/2"	STR
R7	4	#6 BAR	1'-3"	STR

STEEL WEIGHT

PRODUCT	MATERIAL	WEIGHT
HEAD WALL	REINFORCED	80 LBS

SHOP NOTES:-
1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

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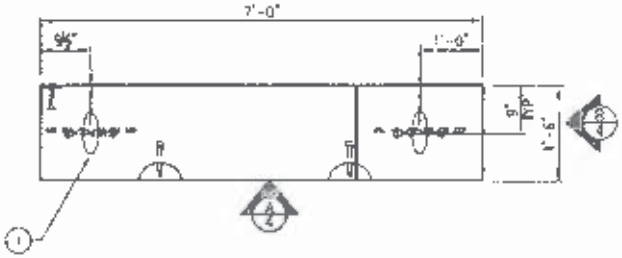
19'-0" X 6'-5" X 1'-6" HEAD WALL
REINFORCING DRAWING - LEFT END
POLE CANYON
AFTON, WY

CUSTOMER:
KILROY LLC

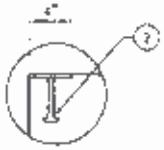
DATE	DESIGN	DRAWN	ENGINEER	CHECKED	LAYER/DESIGN
8/4/16	CE	JZH	MB		135134

DRAWING NUMBER	REVISION	SHEET
230-135134-011	REV DATE	3 OF 1

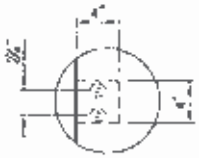
#	DATE	REVISIONS	BY



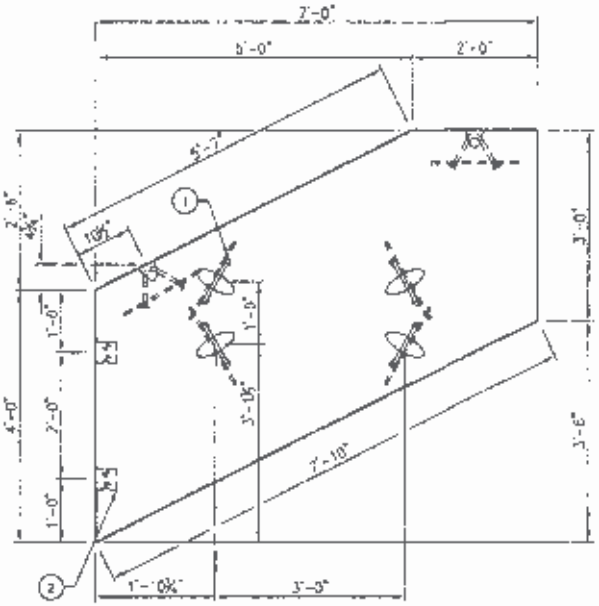
PLAN VIEW
SCALE 3/8" = 1'-0"



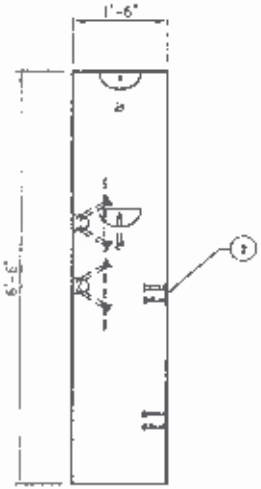
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	ARF
1	6 EA	M8 8" X .375 A-ANCHOR LIFT INSERT	7000066
2	2 EA	4"X4"X½" FLAT PLATE W/(2) ½"X4" STUDS	
	1.60 CYD	PRECAST MIX DESIGN #3 8000 SCC	0002500
	88 LBS	#8 REBAR	0010014

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
7'-0" X 6'-6" X 1'-6" HEAD WALL (END)	1	8,075 LBS

SHOP NOTES:

1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 8000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

[illegible]
PHONE: [illegible]

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19'-0" X 6'-5" X 1'-6" HEAD WALL

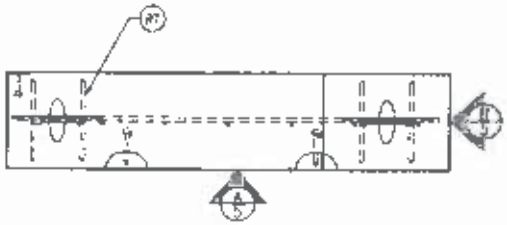
PRODUCTION DRAWING - RIGHT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

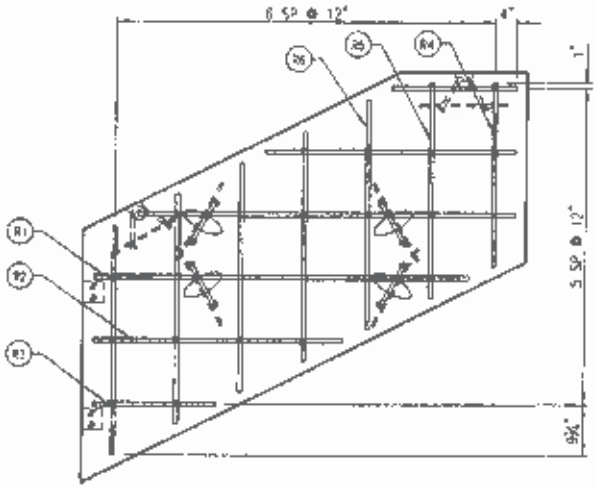
DATE	DRAWN	CHECKED	DESIGNED	DRAWING	SALES ORDER
8/4/15	CE	JDM	MB		155134

DRAWING NUMBER	REVISION	SHEET
230-155134-01	REV DATE	1 OF 1

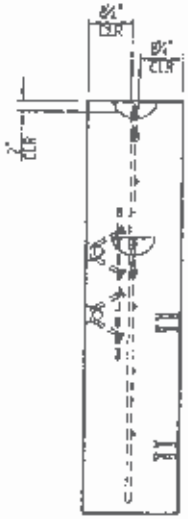
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE 3/8" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE: 3/8" = 1'-0"

REINFORCEMENT CUT LIST				
#	QTY	MATERIAL	LENGTH	SHAPE
R1	2	#6 BAR	3'-11 1/2"	STR
R2	2	#6 BAR	3'-11 1/2"	STR
R3	2	#6 BAR	1'-11 1/2"	STR
R4	1	#6 BAR	2'-11"	STR
R5	1	#6 BAR	3'-6"	STR
R6	5	#6 BAR	3'-7 1/2"	STR
R7	4	#6 BAR	1'-3"	STR

STEEL WEIGHT		
PRODUCT	MATERIAL	WEIGHT
HEAD WALL	#6/GR60	60 LBS

SHOP NOTES:
1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE _____ INITALS: _____

Oldcastle Precast

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19'-0" X 6'-5" X 1'-6" HEAD WALL

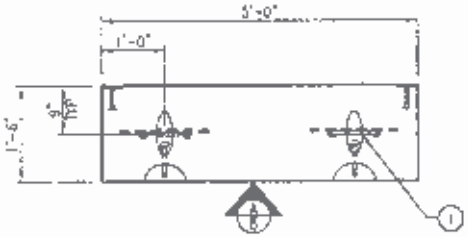
REINFORCING DRAWING - RIGHT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

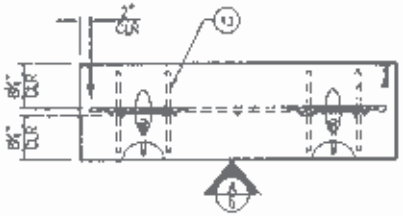
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/4/15	CE	JZH	MB		155134

DRAWING NUMBER	REVISION	SHEET
230-156134-011	REV DATE	5 OF 1

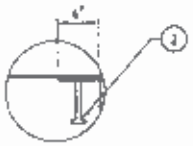
#	DATE	REVISIONS	BY



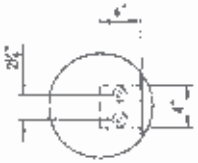
PLAN VIEW
SCALE: 3/8" = 1'-0"



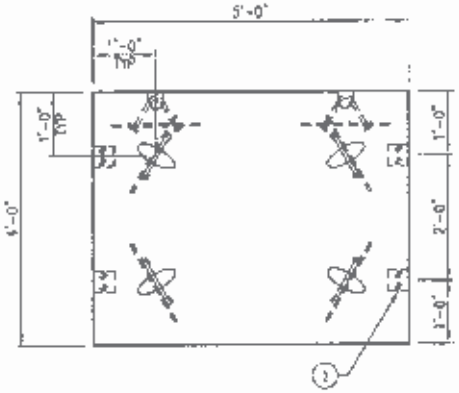
PLAN VIEW - REBAR CLR
SCALE: 3/8" = 1'-0"



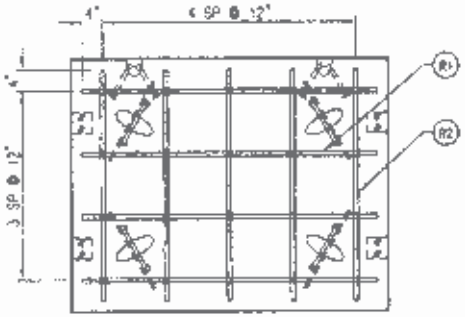
PLAN VIEW - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE: 3/4" = 1'-0"



VIEW A
SCALE: 3/8" = 1'-0"



VIEW A
SCALE: 3/8" = 1'-0"

REINFORCEMENT CUT LIST				
#	QTY	MATERIAL	LENGTH	SHAPE
R1	4	#4 BAR	4'-6"	STR
R2	5	#5 BAR	3'-6"	STR
R3	4	#5 BAR	1'-3"	STR

BILL OF MATERIALS

#	QTY	DESCRIPTION	ADI#
1	8 EA	M8-8" X .871 A-ANCHOR LIFT INSERT	7000055
2	4 EA	4"X4"X3/8" FLAT PLATE W/(2) ½"-14" STUDS	
	1 1/2 CYD	PRECAST MIX DESIGN #9 6000 SCC	9002500
	63 LBS	#5 REBAR	8010014

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
7'-0" X 6'-6" X 1'-6" HEAD WALL (MID)	1	4,800 LBS

SHOP NOTES:
1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

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19'-0" X 6'-5" X 1'-6" HEAD WALL

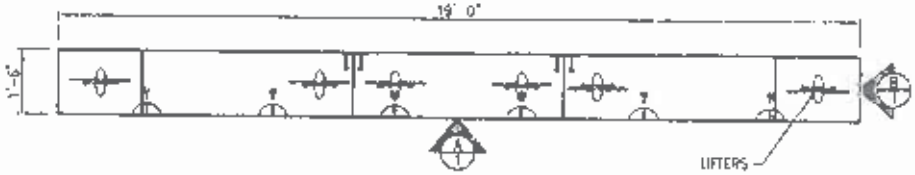
PRODUCTION DRAWING - MID
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

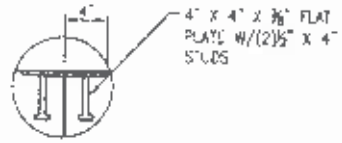
DATE (MM/YR)	DESIGN	DRAWN	ENGINEER	CHECKED	ORDER NUMBER
	CE	JDH	MG		158134

DRAWING NUMBER: 230-158134-011
REVISION / REV DATE
SHEET 2 OF 1

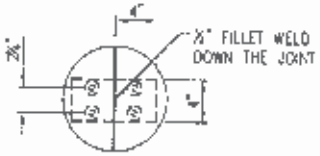
#	DATE	REVISIONS	BY



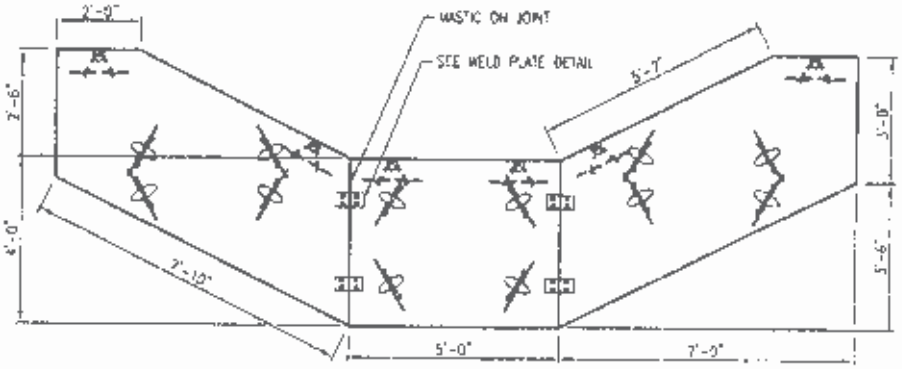
PLAN VIEW
SCALE 1/4" = 1'-0"



PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 1/4" = 1'-0"

VIEW B
SCALE 1/4" = 1'-0"

Approved
3/11/15
BCH

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
7'-0" X 6'-6" X 1'-6" HEAD WALL (END)	2	8,075 LBS
5'-0" X 6'-6" X 1'-6" HEAD WALL (MID)	3	4,500 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF.
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX
   - 2.4. ASSUMED WATER TABLE: 4.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 6000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"
DATE 3/11/15 INITIALS BCH

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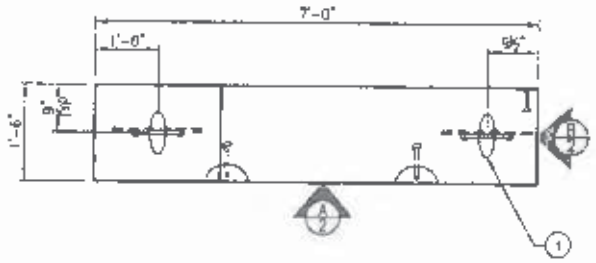
19'-0" X 6'-5" X 1'-6" HEAD WALL
SUBMITTAL LAYOUT WEST-SIDE RUNOFF DITCH(WEST SED. BASIN)
POLE CANYON
AFTON, WY

CUSTOMER: KILROY LLC

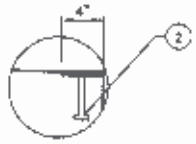
DATE	MADE	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/26/15	CE	JZH	MB		155134

DRAWING NUMBER: 230-155134-012
REVISION / REV DATE
SHEET 1 OF 1

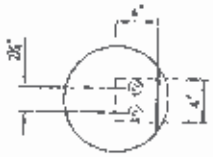
#	DATE	REVISIONS	BY



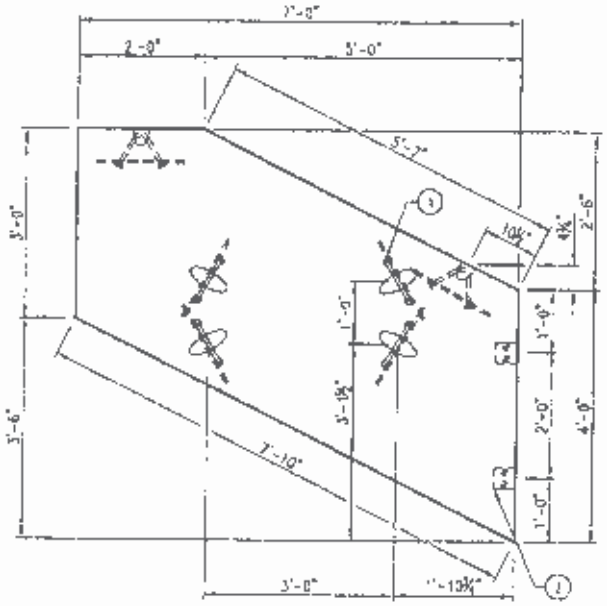
PLAN VIEW
SCALE 3/8" = 1'-0"



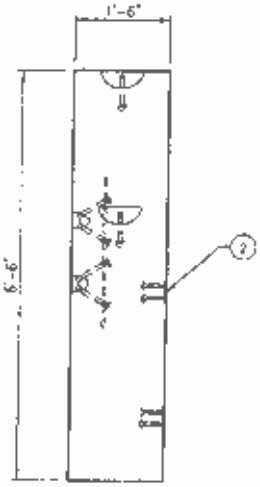
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	A/B
1	6 EA	M8 8" X .571 A-ANCHOR LIFT INSERT	7000055
2	2 EA	4"X4"X5/8" FLAT PLATE W/(2) ½"X4" STUDS	
	1.50 CYD	PRECAST MIX DESIGN #3-6000 SCC	2002500
	90 LBS	#5 REBAR	6010014

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
7'-0" X 6'-6" X 1'-6" HEAD WALL (END)	1	8,075 LBS

SHOP NOTES:

1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

2241 S YELLOWSTONE HWY IDAHO FALLS, IDAHO 83402
PHONE: (208) 524-4700 FAX: (208) 524-4701

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19'-0" X 6'-5" X 1'-6" HEAD WALL

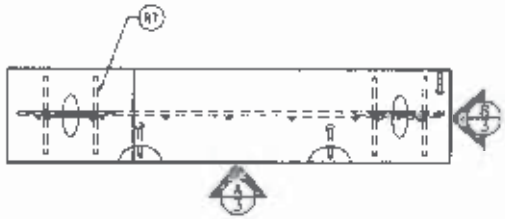
PRODUCTION DRAWING - LEFT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

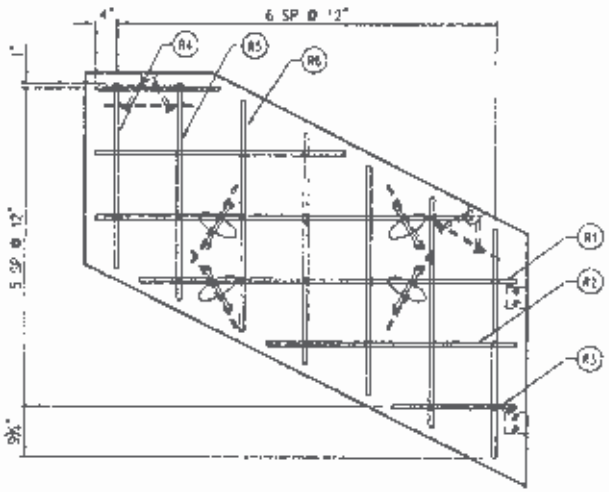
DATE	DRAWN	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/26/15	CE	JZH	MB		151134

DRAWING NUMBER	REVISION	SHEET
230-155*34-012	REV DATE	2 OF 1

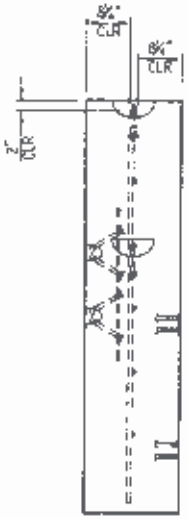
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE 3/8" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	2	#6 BAR	5'-11 1/2"	STR
R2	2	#6 BAR	3'-11 1/2"	STR
R3	2	#6 BAR	1'-11 1/2"	STR
R4	1	#6 BAR	2'-1"	STR
R5	1	#6 BAR	3'-6"	STR
R6	6	#6 BAR	3'-7 1/2"	STR
R7	4	#6 BAR	1'-3"	STR

STEEL WEIGHT

PRODUCT	MATERIAL	WEIGHT
HEAD WALL	#6/GR60	80 LBS

SHOP NOTES:
1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MIN ULT STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS _____

Oldcastle Precast

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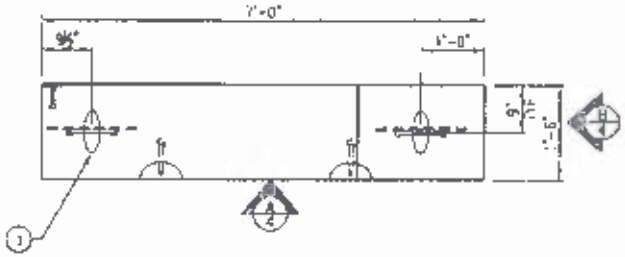
19'-0" X 6'-5" X 1'-6" HEAD WALL
REINFORCING DRAWING - LEFT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

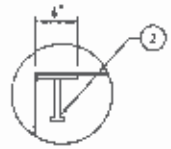
DATE	SCALE	DRAWN	DESIGNED	CHECKED	SALES ORDER
8/28/15	CE	JZH	MB		155134

DRAWING NUMBER	REVISION	SHEET
280-155134-012	REV 0 = 1E	3 OF 1

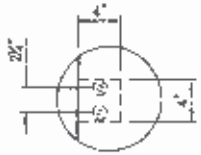
#	DATE	REVISIONS	BY



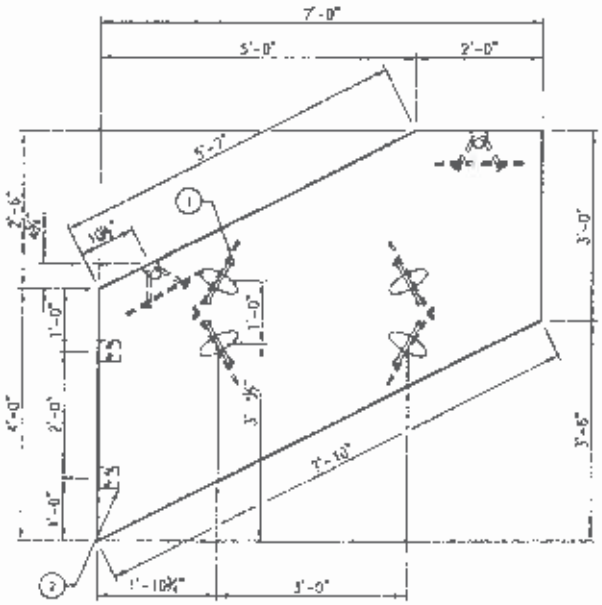
PLAN VIEW
SCALE 3/8" = 1'-0"



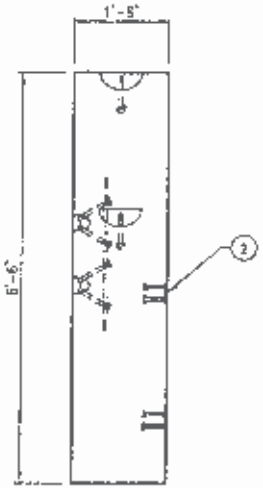
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW B
SCALE 3/8" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	ASM
1	4 EA	MB 6" X .071 A-ANCHOR LIFT INSERT	7000066
2	2 EA	4"X4"X3/8" FLAT PLATE W/(2) 5/8"X4" STUDS	
	1.50 CYD	PRECAST MIX DESIGN #3 6000 SCC	8002500
	80 LBS	#5 REBAR	8010014

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
7'-0" X 6'-6" X 1'-6" HEAD WALL (END)	1	8,076 LBS

SHOP NOTES:
1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH: 6000 PSI
3. 3500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

[illegible]
PHONE: [illegible] FAX: [illegible]

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19'-0" X 6'-5' X 1'-6" HEAD WALL

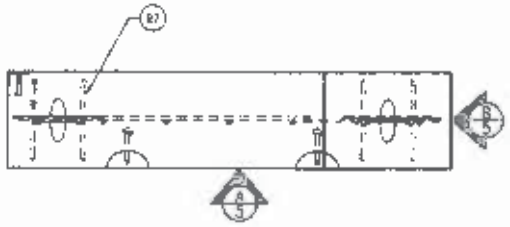
PRODUCTION DRAWING - RIGHT END
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

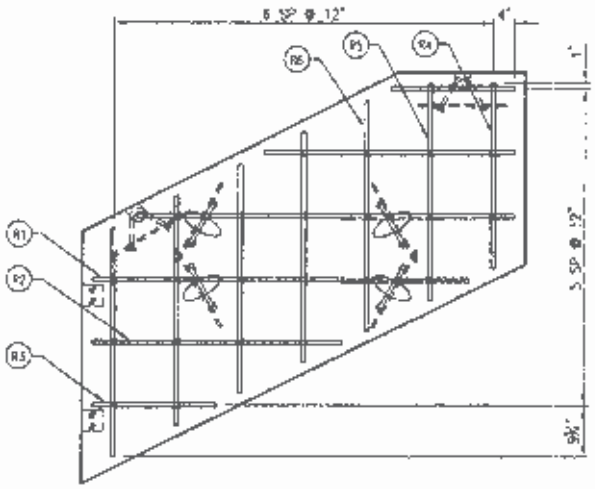
DATE	DESIGN	DRAWN	CHECKED	CHECKED	SALES ORDER
5/26/15	CE	JZH	MB		56134

DRAWING NUMBER	REVISION	SHEET
23D-156134-012	REV DATE	4 OF 1

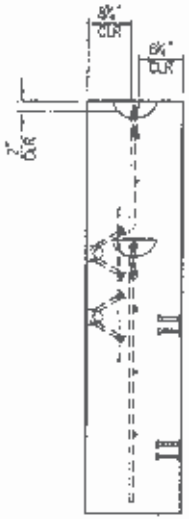
#	DATE	REVISIONS	BY



PLAN VIEW
SCALE: 3/8" = 1'-0"



VIEW A
SCALE: 3/8" = 1'-0"



VIEW B
SCALE: 3/8" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	2	#6 BAR	5'-11 1/2"	STR
R2	2	#6 BAR	3'-11 1/2"	STR
R3	2	#6 BAR	5'-11 1/2"	STR
R4	1	#6 BAR	2'-1"	STR
R5	1	#6 BAR	3'-5"	STR
R6	5	#6 BAR	3'-7 1/2"	STR
R7	4	#6 BAR	1'-3"	STR

STEEL WEIGHT

PRODUCT	MATERIAL	WEIGHT
HEAD WALL	#6/GR60	50 LBS

SHOP NOTES:
1. REINFORCING DESIGNED BY OTHERS
2. CONCRETE STRENGTH 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

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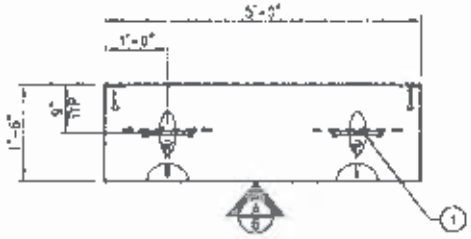
19'-0" X 6'-5" X 1'-6" HEAD WALL
REINFORCING DRAWING - RIGHT END
POLE CANYON
AFTON, WY

CUSTOMER: KILROY LLC

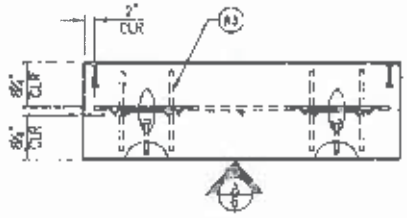
DATE	DRAWN	CHECKED	ENGINEER	CHECKED	WO/ORDER
8/26/13	DE	JZH	MB		155134

DRAWING NUMBER: 200-155134-012 | REVISION: REV DATE | SHEET: 5 OF 1

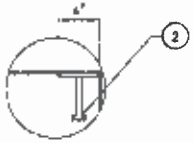
#	DATE	REVISIONS	BY



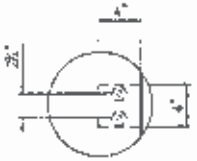
PLAN VIEW
SCALE 3/8" = 1'-0"



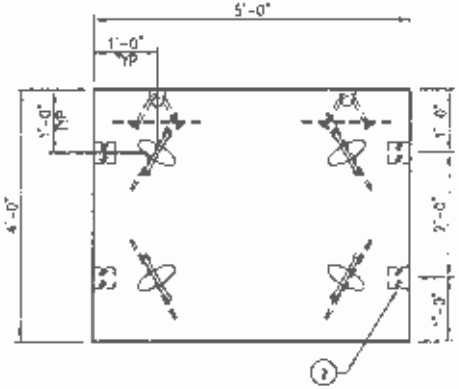
PLAN VIEW - REBAR CLR
SCALE 3/8" = 1'-0"



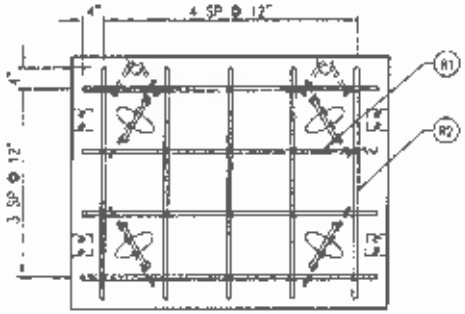
PLAN VIEW - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A - WELD PLATE DETAIL
SCALE 3/4" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"



VIEW A
SCALE 3/8" = 1'-0"

REINFORCEMENT CUT LIST				
#	QTY	MATERIAL	LENGTH	SHAPE
R1	4	#5 BAR	4'-8"	STR
R2	6	#5 BAR	3'-8"	STR
R3	4	#5 BAR	1'-3"	STR

BILL OF MATERIALS

#	QTY	DESCRIPTION	ASI#
1	8 EA	M8 6" X .671 A-ANCHOR LIFT INSERT	7600055
2	4 EA	4"X4"X¼" FLAT PLATE W/(2)-½"X4" STUDS	
	1.12 CYD	PRECAST MIX DESIGN #9 6000 SCC	8002800
	83 LBS	#5 REBAR	8010014

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
7'-0" X 6'-5" X 1'-6" HEAD WALL (MID)	1	4,600 LBS

SHOP NOTES:
1. REINFORCING DESIGNED BY OTHERS!
2. CONCRETE STRENGTH: 6000 PSI
3. 1500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast

2945 S. YELLOWSTONE HWY IDAHO FALLS, IDAHO 83402
PHONE: (208) 522-7140, FAX: (208) 522-0797

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19'-0" X 6'-5" X 1'-6" HEAD WALL

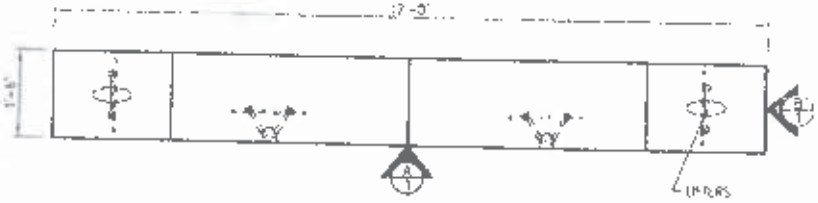
PRODUCTION DRAWING - MID
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

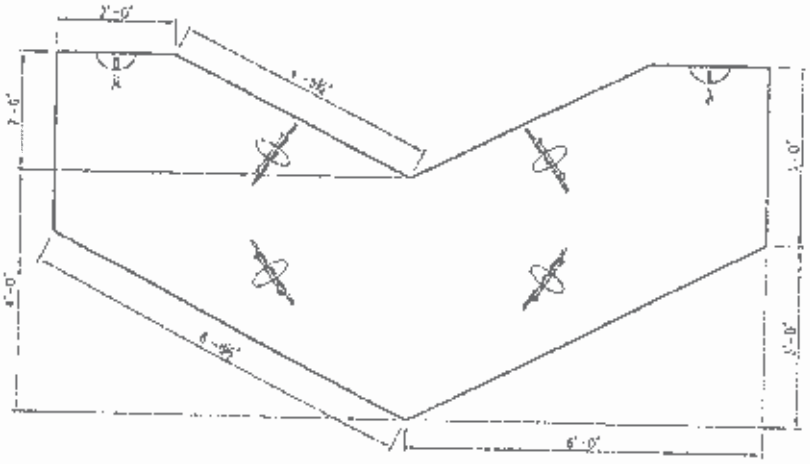
DATE	SALES	DRAWN	ENGINEER	CHECKED	WORK ORDER
8/26/15	CE	JZH	MB		156134

DRAWING NUMBER	REVISION	SHEET
230-156134-012	REV DATE	2 OF 1

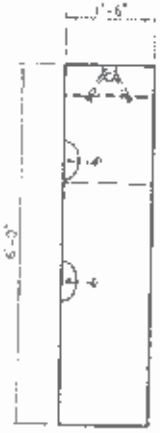
#	DATE	REVISIONS	BY



PLAN VIEW



VIEW A



VIEW B

Approved
DEtlam
3/3/15

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
12'-0" X 6'-0" X 1'-6" HEAD WALL	1	15,260 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED
2. DESIGN LOADINGS:
   - 2.1 AASHTO HS-20-44, W/IMPACT
   - 2.2 SOIL WEIGHT = 120 PCF.
   - 2.3 DEPTH OF OVERBURDEN 0'-0" MIN 4'-0" MAX.
   - 2.4 ASSUMED WATER TABLE 5'-0" BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF.
   - 2.6 LATERAL LIVE LOAD SURCHARGE PER CODE
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH 5000 PSI (MIN)
4. STEEL REINFORCEMENT REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE 3/3/15 INITIALS DEH

Oldcastle Precast

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12'-0" X 6'-0" X 1'-6" HEAD WALL

SUBMITTAL LAYOUT - EAST SIDE TOP TO DOWNDRAIN

POLE CANYON

AFTON, WY

CUSTOMER: KILROY LLC

DATE	DRAWN	CHECKED	SCALE
2/26/15	CE	DEH	1/8" = 1'-0"

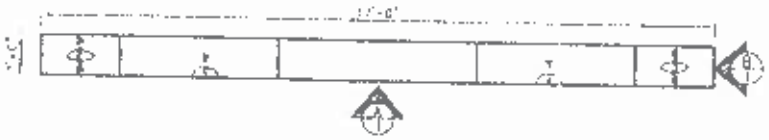
DRAWING NUMBER: 230-156134-000

REVISION: REV DATE

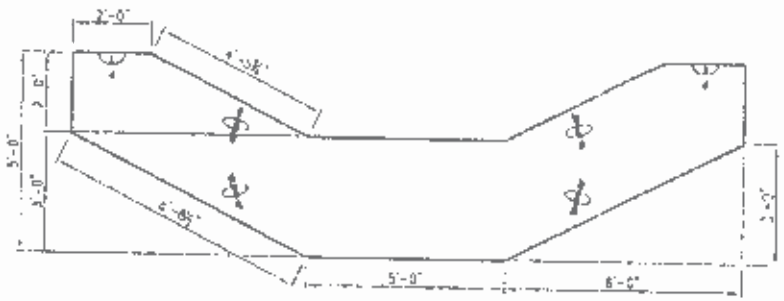
SHEET 1 OF 1

#	DATE	REVISIONS	BY

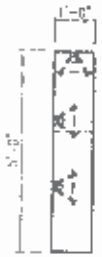
Approved
BE Hawn
5/13/15



PLAN VIEW



VIEW A



VIEW B

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
17'-0" X 5'-0" X 1'-0" HEAD WALL	1	7,350 LBS

DESIGN NOTES:

1. AASHTO DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX.
   - 2.4. ASSUMED WATER TABLE: 5.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE - 40 PCF
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 6000 PSI (40K)
4. STEEL REINFORCEMENT: REBAR, ASTM A 615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE: 5/13/15 INITIALS: BEH

Oldcastle Precast

[illegible]
PHONE: [illegible] FAX: [illegible]

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17'-0" X 5'-0" X 1'-0" HEAD WALL

SUBMITTAL LAYOUT - EAST DITCH ALONG HAUL ROAD

POLE CANYON

AFTON, WY

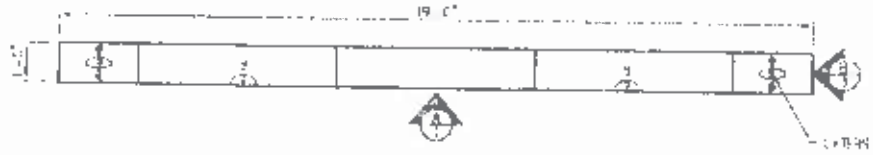
CUSTOMER

KILROY LLC

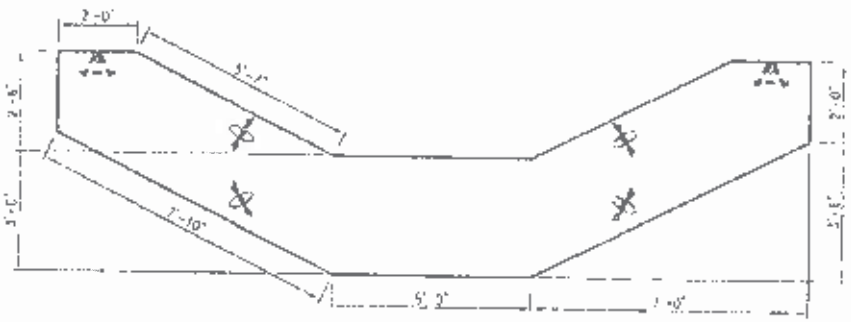
DATE	DESIGN	DRAWN	CHECKED	SALES ORDER
7/7/15	CF	JDH	MB	156134
DRAWING NUMBER			REVISION	SHEET
230-156134-028			REV-0-0	1 OF 1

#	DATE	REVISIONS	BY

Approved
156 Hann
8/3/15



PLAN VIEW



VIEW A

VIEW B

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
19'-0" X 5'-8" X 1'-0" HEAD WALL	1	8,250 LBS

DESIGN NOTES:

1. MSE DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1 AASHTO HS-20-44, W/IMPACT
   - 2.2 SOIL WEIGHT = 120 PCF.
   - 2.3 DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX.
   - 2.4 ASSUMED WATER TABLE 6.0' BELOW FINISHED GRADE
   - 2.5 EQUIV. FLUID PRESSURE = 40 PCF
   - 2.6 LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH, 6000 PSI (W/A)
4. STEEL REINFORCEMENT REBAR, ASTM A-615 GRADE 60
5. CEMENT ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE 8/3/15 BY 156H

Oldcastle Precast

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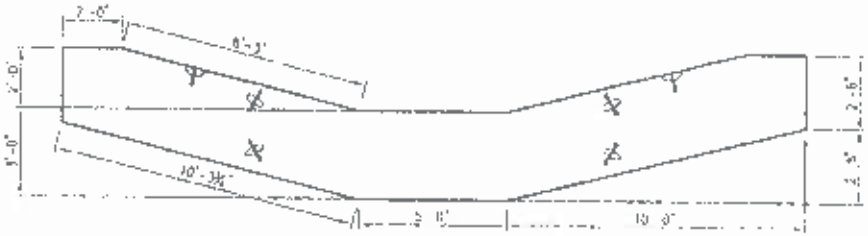
19'-0" X 5'-8" X 1'-0" HEAD WALL
SUBMITTAL LAYOUT - SOUTH-CENTRAL DITCH
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

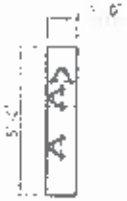
DATE	DRAWN	CHECKED	DESIGNED	CHECKED	SCALE/SHEET
7/17/15	CE	JDH	NB		156134
DRAWING NUMBER: 250-156134-C08				REVISION / REV DATE	SHEET 1 OF 1

#	DATE	REVISIONS	BY

PLAN VIEW



VIEW A



VIEW B

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
25'-0" X 5'-0" X 1'-0" HEAD WALL	1	11,100 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS.
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF.
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX.
   - 2.4. ASSUMED WATER TABLE: 5.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 6000 PSI (MIN.)
4. STEEL REINFORCEMENT: REBAR: ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE 8/3/15 INITIALS BGH

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25'-0" X 5'-0" X 1'-0" HEAD WALL

SUBMITTAL LAYOUT - OUTFALL INTO SADDLE INFIL. BASIN

POLE CANYON

AFTON, WY

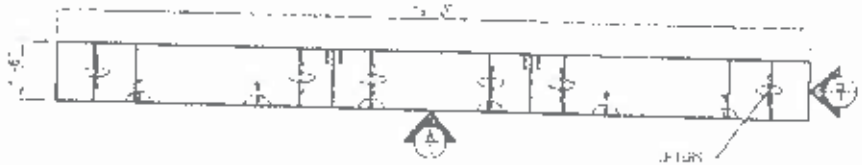
CUSTOMER: KILROY LLC

DATE	DRAWN	CHECKED	DRAWING	CHECKED	DATE ORDER
7/29/15	CC	JDr	MB		158134

DRAWING NUMBER	REVISION	SHEET
230-158134-010	—	1 OF 1

#	DATE	REVISIONS	BY

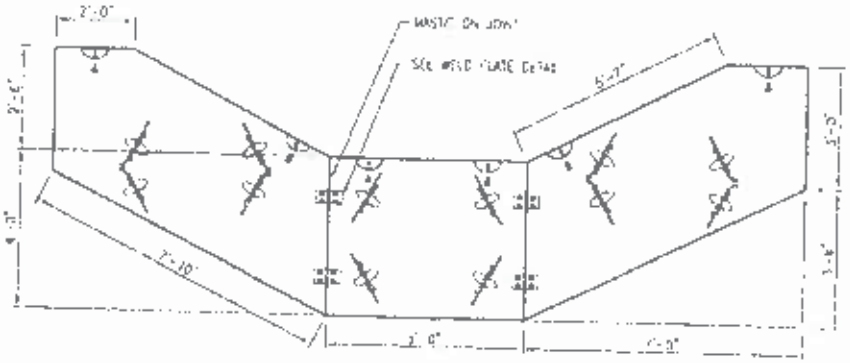
H/120 v.c
136 Hav
8/3/15



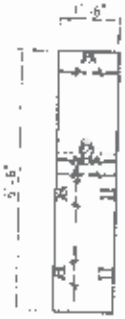
PLAN VIEW

PLAN VIEW - WELD PLATE DETAIL

VIEW A - WELD PLATE DETAIL



VIEW A



VIEW B

Approved
BE Hall
5/3/15

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
9'-0" X 6'-5" X 1'-6" HEAD WALL (FMX)	2	8,075 LBS
9'-0" X 6'-0" X 1'-6" HEAD WALL (MID)	1	4,300 LBS

DESIGN NOTES:

1. M.H. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED
2. DESIGN LOADINGS
   - 2.1 AASHTO HS-20-44, W/ IMPACT
   - 2.2 SOIL WEIGHT = 120 PCF,
   - 2.3 DEPTH OF OVERBURDEN: 0.0' MIN 4.0' MAX
   - 2.4 ASSUMED WATER TABLE: 5.0' BELOW FINISHED GRADE
   - 2.5 EQUIV. FLUID PRESSURE = 40 PCF
   - 2.6 LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 6000 PSI (M H)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE: 5/3/15 INITIALS: BEH

Oldcastle Precast

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19'-0" X 6'-5" X 1'-6" HEAD WALL

SUBMITTAL LAYOUT - WEST-SIDE RUNOFF DITCH(WEST EDG)

POLE CANYON

AFTON, WY

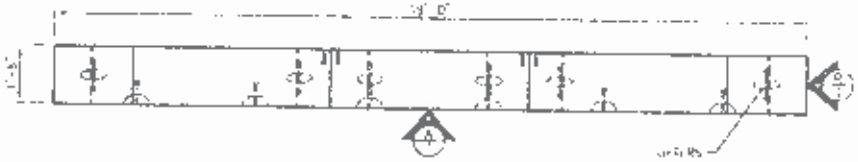
KILROY LLC

DATE	SALES	DRAWN	ENGINEER	ORDER	SALES ORDER
1/28/15	CF	JDH	JAB		166134

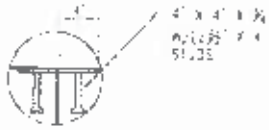
DRAWING NUMBER: 230-166134-011

REVISION: REV 0/0 SHEET: 1 OF 1

#	DATE	REVISIONS	BY

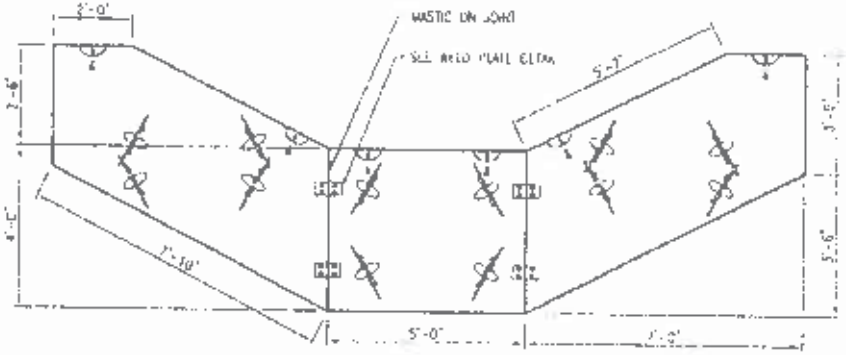


PLAN VIEW

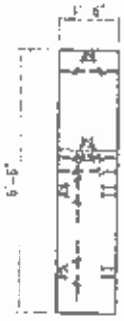


PLAN VIEW - WELD PLATE DETAIL

VIEW A - WELD PLATE DETAIL



VIEW A



VIEW B

Approved
BB Hun
8/3/15

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
19'-0" X 6'-6" X 1'-6" HEAD WALL (END)	2	8,018 LBS
19'-0" X 6'-6" X 1'-6" HEAD WALL (MID)	1	4,500 LBS

DESIGN NOTES:

1. MFN DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS.
   - 2.1 AASHTO HS-25-44, WHEEL IMPACT
   - 2.2 SOIL WEIGHT = 120 PCF.
   - 2.3 DEPTH OF OVERBURDEN 3.0' MIN 4.0' MAX.
   - 2.4 ASSUMED WATER TABLE 5.0' BELOW FINISHED GRADE
   - 2.5 EQUIV. FLUID PRESSURE = 40 PCF
   - 2.6 LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 5000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE 8/3/15 INITIALS BBH

Oldcastle Precast

2365 E COLLEGE WAY, STE 101, CASPER, WY 82609
PHONE: (307) 234-1116, FAX: (307) 234-0411

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19'-0" X 6'-6" X 1'-6" HEAD WALL

SUBMITTAL LAYOUT WEST-SIDE RUNOFF DITCH(WEST SED. BASIN)

POLE CANYON

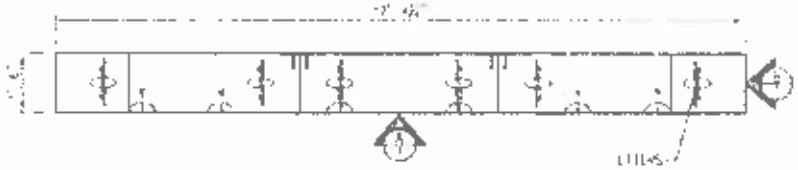
ATYON, WY

CUSTOMER: KILROY LLC

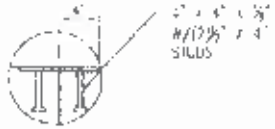
DATE	DESIGN	DRAWN	CHECKED	SALES ORDER
7/22/15	CE	JDH	MB	156134
DRAWING NUMBER: 230-156134-012			SHEET / SHEETS: 1 OF 1	

#	DATE	REVISIONS	BY

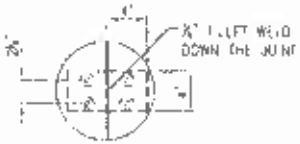
Approved
SE Hart
8/3/15



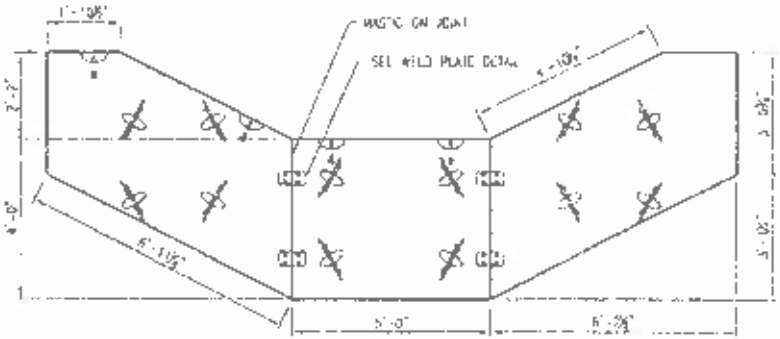
PLAN VIEW



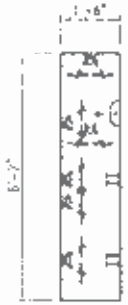
PLAN VIEW - WELD PLATE DETAIL



VIEW A - WELD PLATE DETAIL



VIEW A



VIEW B

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
8'-2 (12" X 7'-0" X 1'-6" HEAD WALL (END)	2	5,384 LBS
9'-0" X 7'-0" X 1'-6" HEAD WALL (MID)	1	4,505 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1 AASHTO HS-20-44, W/IMPACT
   - 2.2 SOIL WEIGHT = 120 PCF
   - 2.3 DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX.
   - 2.4 ASSUMED WATER TABLE: 5.0' BELOW FINISHED GRADE
   - 2.5 EQUIV. FLUID PRESSURE = 40 PCF
   - 2.6 LATERAL LIVE LOAD SURCHARGE PER CODE
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 5000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE 8/3/15 INITIALS SEH

Oldcastle Precast

17'-4 3/4" X 6'-2" X 1'-6" HEAD WALL

SUBMITTAL LAYOUT - HW BASIN DISCHARGE DITCH

POLE CANYON

ASTON, WY

CUSTOMER

KILROY LLC

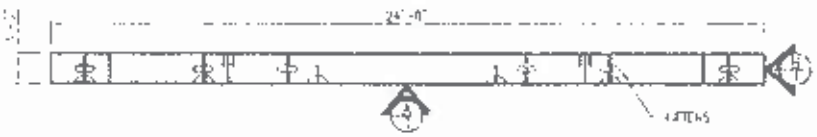
DATE	SCALE	DRAWN	DESIGNED	CHECKED	SHEET SIZE
8/17/15	CE	JEH	MB		156134

DRAWING NUMBER: 230-150134-013

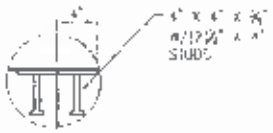
REV DATE: 1 OF 1

#	DATE	REVISIONS	BY

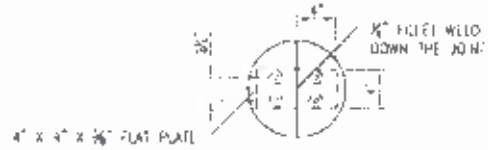
Approved
BE Hall
8/3/15



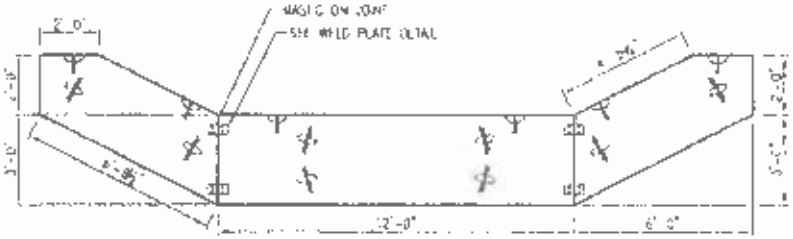
PLAN VIEW



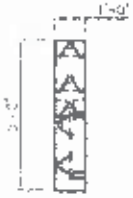
PLAN VIEW - WELD PLATE DETAIL



VIEW A - WELD PLATE DETAIL



VIEW A



VIEW B

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
8'-0" X 5'-0" X 1'-0" HEAD WALL (END)	2	3,350 LBS
12'-0" X 5'-0" X 1'-0" HEAD WALL (MID)	1	5,400 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS
   - 2.1 AASHTO HS-20-44, W/IMPACT
   - 2.2 SOIL WEIGHT = 120 PCF.
   - 2.3 DEPTH OF OVERBURDEN 0.0' MIN 6.0' MAX.
   - 2.4 ASSUMED WATER TABLE - 5.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF.
   - 2.6 LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH 5000 PSI (MIN.)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE 8/3/15 INITIALS BEH

Oldcastle Precast

24'-0" X 5'-0" X 1'-0" HEAD WALL

SUBMITTAL LAYOUT - WEST SIDE SOUTH SED. @ SH

POLE CANYON

AFTON, WY

CUSTOMER

KILROY LLC

DATE	SCALE	DRAWN	DESIGNED	CHECKED	SALES ORDER
7/24/15	0.2	JDH	VB		186134

DRAWING NUMBER: 230-1561A-014

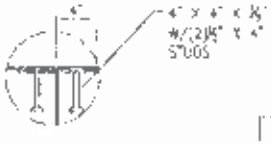
REVISION: A/WAIVE

SHEET 1 OF 1

#	DATE	REVISIONS	BY

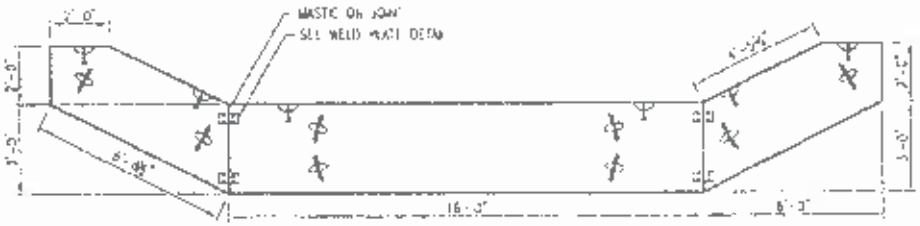
Approved
BK Hall
8/3/15

PLAN VIEW

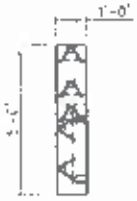


PLAN VIEW - WELD PLATE DETAIL

VIEW A - WELD PLATE DETAIL



VIEW A



VIEW B

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
8'-0" X 5'-0" X 1'-0" HEAD WALL (END)	2	2,550 LBS
16'-0" X 5'-0" X 1'-0" HEAD WALL (MID)	1	5,400 LBS

DESIGN NOTES

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED
2. DESIGN LOADINGS
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.3. SOIL WEIGHT = 120 PCF
   - 2.5 DEPTH OF OVERBURDEN 0.0' MIN, 4.0' MAX.
   - 2.4 ASSUMED WATER TABLE - 5.0' BELOW FINISHED GRADE
   - 2.5 EQUIV. FLUID PRESSURE = 40 PCF
   - 2.6 LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH 5000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE 8/3/15 INITIALS BKH

Oldcastle Precast

28'-0" X 5'-0" X 1'-0" HEAD WALL

SUBMITTAL LAYOUT - SOUTH CENTRAL SED. BASIN

POLE CANYON

AFTON, WY

OWNER

KILROY LLC

DATE	SCALE	DRAWN	PROJECT	CHECKED	SALES ORDER
7/15/15	GE	JZH	AB		156134
SALES ORDER				REVISION	SHEET
230-156134-01				REV DATE	1 OF 5

#	DATE	REVISIONS	BY

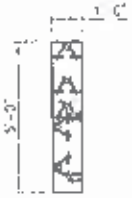
Approved
BC Hu-
8/3/15

PLAN VIEW

PLAN VIEW - WELD
PLATE DETAIL

VIEW A - WELD
PLATE DETAIL

VIEW A



VIEW B

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
5'-0" X 5'-0" X 1'-0" HEAD WALL (END)	2	2,560 LBS
12'-0" X 5'-0" X 1'-0" HEAD WALL (MID)	1	6,400 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2 SOIL WEIGHT = 120 PCF
   - 2.3 DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX
   - 2.4 ASSUMED WATER TABLE: 5.0' BELOW FINISHED GRADE
   - 2.5 EQUIV. FLUID PRESSURE = 60 PCF
   - 2.6 LATERAL LIVE LOAD SURCHARGE PER CODE
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH 6000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR
"FABRICATION"
DATE 8/3/15 INITIALS CCH

Oldcastle Precast

24'-0" X 5'-0" X 1'-0" HEAD WALL
SUBMITTAL LAYOUT - EAST SED. BASIN
POLE CANYON
AFTON, WY

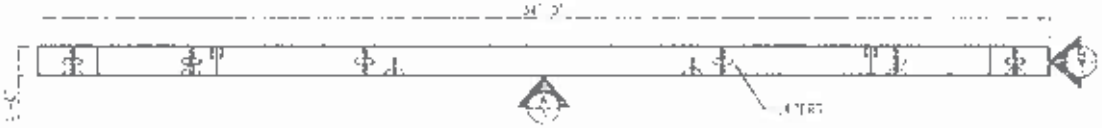
KILROY LLC

DATE	SALES	DRAWN	ENGINEER	CHECKED	SHEET
7/17/15	CE	JDY	VB		1 OF 1

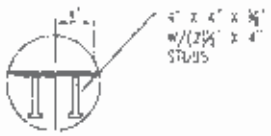
250-156134-015

#	DATE	REVISIONS	BY

HMP10v4C
BG Hall
8/5/15

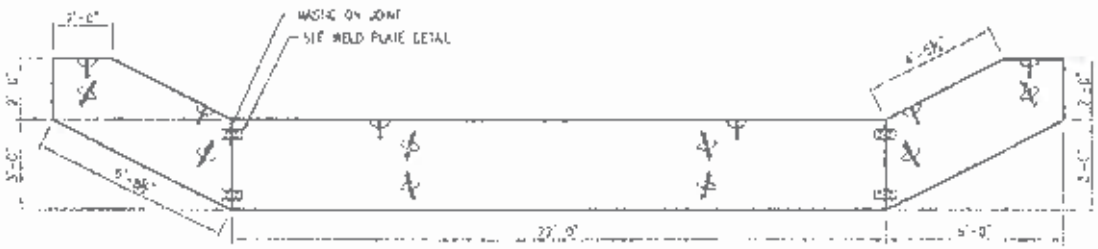


PLAN VIEW



PLAN VIEW - WELD PLATE DETAIL

VIEW A - WELD PLATE DETAIL



VIEW A

VIEW B

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
8'-0" X 5'-0" X 1'-0" HEAD WALL (FWD)	2	2,950 LBS
22'-0" X 7'-0" X 1'-0" HEAD WALL (NWD)	1	8,800 LBS

DESIGN NOTES:

1. WIN DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADING:
   - 2.1. AASHTO HS-20-44, W/IMPACT
   - 2.2. SOIL WEIGHT = 120 PCF.
   - 2.3. DEPTH OF OVERBURDEN 0'-0" MIN 4'-0" MAX.
   - 2.4. ASSUMED WATER TABLE 5'-0" BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 40 PCF
   - 2.6. LATERAL LIVE LOAD SURCHARGE PER CODE.
3. CONCRETE: 28 DAY COMPRESSIVE STRENGTH 6000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE 8/3/15 INITIALS BGH

Oldcastle Precast

34'-0" X 5'-0" 1'-0" HEAD WALL

SUBMITTAL LAYOUT - SADDLE INFILTRATION

POLE CANYON

AFTON, WY

CUSTOMER

KILROY LLC

DATE	DRAWN	CHECKED	JOB NUMBER
7/20/15	CE / JZ	AW	156134

DRAWING NUMBER: 220 156134-017

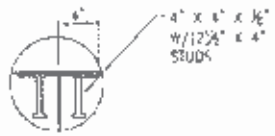
REVISION: REV DATE

SHEET: 1 OF 1

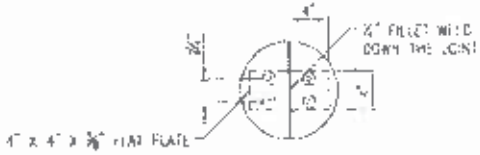
#	DATE	REVISIONS	BY

Approved
DC Hall
8/3/15

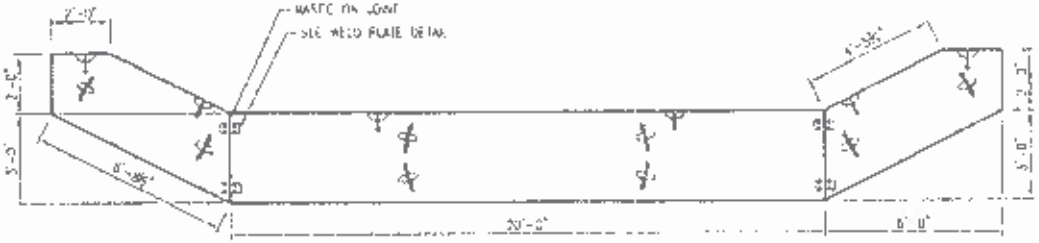
PLAN VIEW



PLAN VIEW - WELD PLATE DETAIL



VIEW A - WELD PLATE DETAIL



VIEW A

VIEW B

PRODUCT WEIGHTS

PRODUCT	QTY	WEIGHT
5'-0" X 5'-0" X 1'-0" HEAD WALL (END)	2	2,550 LBS
20'-0" X 5'-0" X 1'-0" HEAD WALL (MID)	1	9,000 LBS

DESIGN NOTES:

1. MIN. DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED
2. DESIGN LOADINGS.
   - 2.1 AASHTO HS-20-44, W/IMPACT
   - 2.2 SOIL WEIGHT - 120 PCF.
   - 2.3 DEPTH OF OVERBURDEN 0.0' MIN 4.0' MAX.
   - 2.4 ASSUMED WATER TABLE: 6.0' BELOW FINISHED GRADE
   - 2.5 EQUIV. FLUID PRESSURE = 40 PCF
   - 2.6 LATERAL LIVE LOAD SURCHARGE PER CODE
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 6000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT, ASTM C-150 SPECIFICATIONS

APPROVED FOR "FABRICATION"

DATE 8/3/15 INITIALS DCH

Oldcastle Precast

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32'-0" X 5'-0" X 1'-0" HEAD WALL
SUBMITTAL LAYOUT - NORTHWEST SED. BASIN
POLE CANYON
AFTON, WY

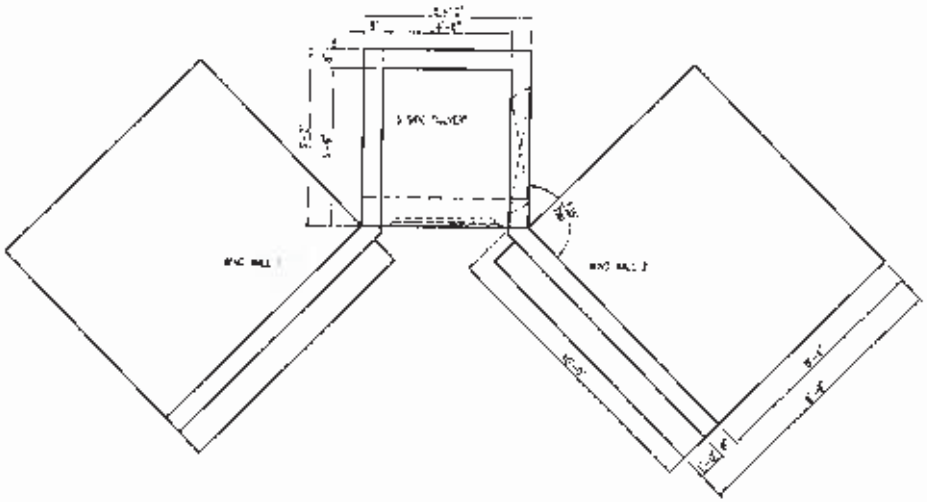
CUSTOMER
KILROY LLC

DATE	SIZES	DRAWN	CHECKED	CHECKED	SALES ORDER
7/20/15	OE	JZH	MB		135163

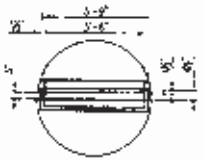
DRAWING NUMBER: 230-156134-014
REVISION: REV 0001
SHEET: 1 OF 1

#	DATE	REVISIONS	BY

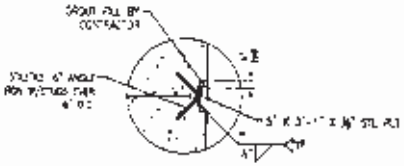
PRE-CAST CONCRETE HEAD-WALL STRUCTURES
SPECIFICATION SHEETS



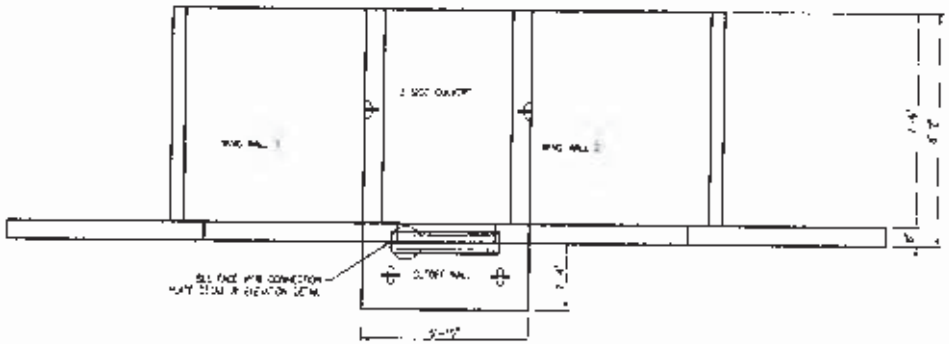
PLAN VIEW



ELEVATION VIEW - WELD PLATE DETAIL



FACE VIEW - CONNECTION PLATE DETAIL



ELEVATION VIEW

SHIPPED LOOSE ITEMS

QTY	DESCRIPTION
[illegible]	[illegible]

PRODUCT WEIGHTS

PRODUCT	UNLOAD WEIGHT
3-8'X4'-6" CULVERT	[illegible] LBS
WING WALL 1	[illegible] LBS
WING WALL 2	[illegible] LBS
OUTLET WALL	[illegible] LBS

DESIGN NOTES:

1. [illegible]
2. DESIGN LOADING:
   2.1 [illegible]
   2.2 [illegible]
   2.3 [illegible]
   2.4 [illegible]
   2.5 [illegible]
   2.6 [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]

APPROVED FOR "FABRICATION"

DATE _____ BY _____

Oldcastle Precast

3-8'X4'-6" CULVERT

SUBMITTAL DRAWING

TITLE CARTON

ARTICLE NO.

PREPARED FOR

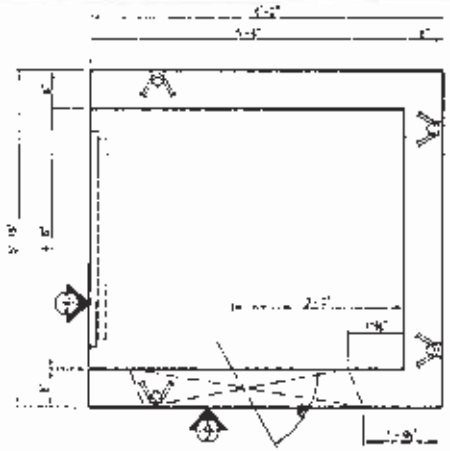
KURDY LLC

DATE	SCALE	DRAWN	CHECKED	APPROVED	REVISION
4/2/14	1:2	CH	MB		10/01/

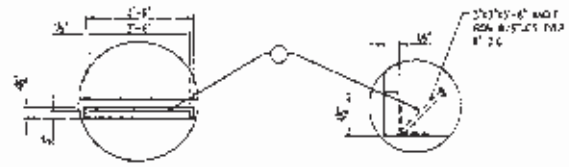
DRAWING NUMBER

SHEET 1 OF 1

#	DATE	REVISIONS	BY
1	4/23/14	WING WALLS	[illegible]
2	4/28/14	WELD PLATES	[illegible]

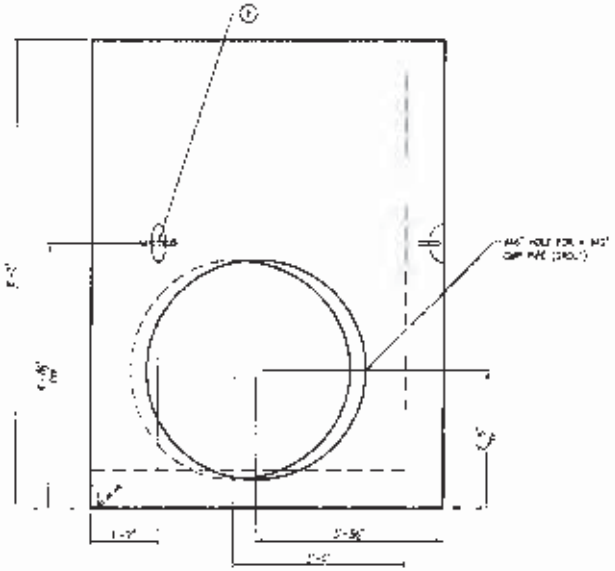


PLAN VIEW

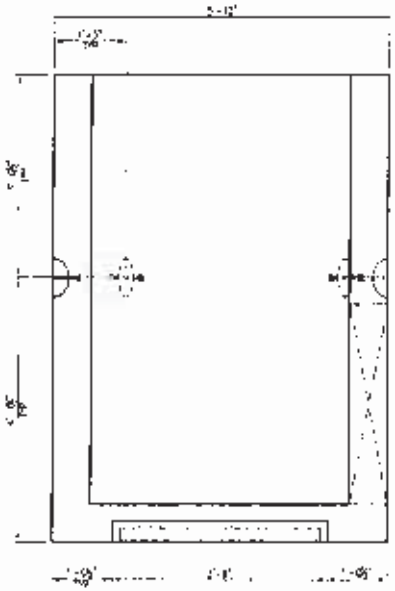


PLAN VIEW - WELD PLATE DETAIL

SIDE - WELD PLATE DETAIL



VIEW A



VIEW D

BILL OF MATERIALS

#	QTY	DESCRIPTION	
1	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]

PRODUCT WEIGHTS

PRODUCT	QTY	HANDLING WEIGHT
[illegible] 2 SIDE CULVERT	1	[illegible]

SHOP NOTES

1. [illegible] REBAR
2. CONCRETE STRENGTH [illegible]
3. [illegible] (STRENGTH REQUIRED)

APPROVED FOR FABRICATION

DATE_____ INITIALS_____

Oldcastle Precast

5'-8"X4'-8" CULVERT

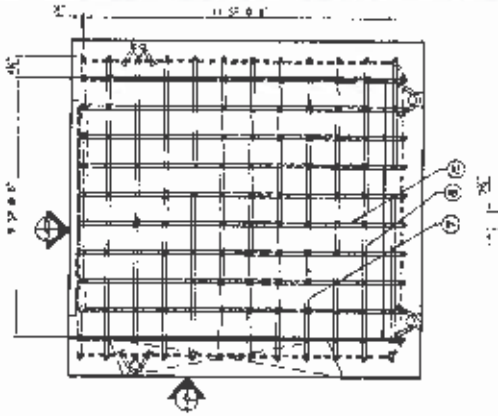
PRODUCTION DRAWING - 2 SIDE CULVERT

POLE CANYON

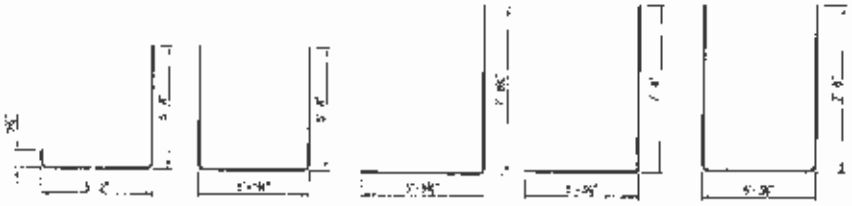
[illegible]

KILROY LLC

#	DATE	REVISION	BY
[illegible]	[illegible]	WELD PLATES	[illegible]
[illegible]	[illegible]	WELD PLATES	[illegible]



PLAN VIEW



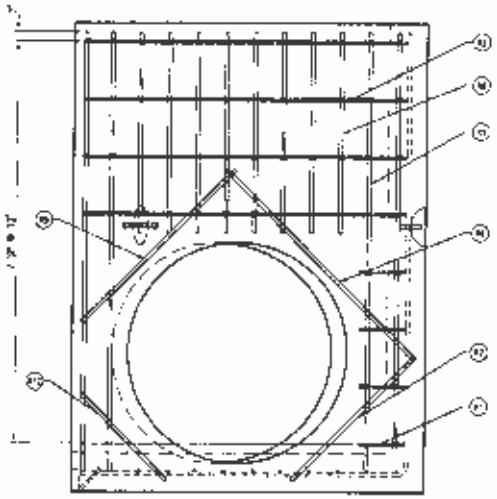
R1 DETAIL

R2 DETAIL

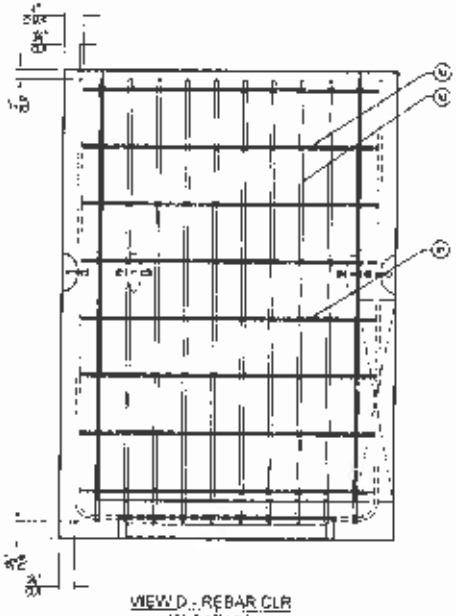
R3 DETAIL

R4 DETAIL

R5 DETAIL



VIEW A



VIEW D - REBAR CLR

#	QTY	MATERIAL	LENGTH	SHAPE
R1	4	#6 BAR	[illegible]	[illegible]
R2	4	#6 BAR	[illegible]	[illegible]
R3	12	#6 BAR	[illegible]	[illegible]
R4	4	#6 BAR	[illegible]	[illegible]
R5	4	#6 BAR	[illegible]	[illegible]
R6	1	#6 BAR	[illegible]	[illegible]
R7	1	#6 BAR	[illegible]	[illegible]
R8	1	#6 BAR	[illegible]	[illegible]
R9	1	#6 BAR	[illegible]	[illegible]
R10	1	#6 BAR	[illegible]	[illegible]

SHOP NOTES:
1. USE STEEL BAR
2. CONCRETE STRENGTH [illegible]
3. [illegible] STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE _____ BY AS _____

Oldcastle Precast®

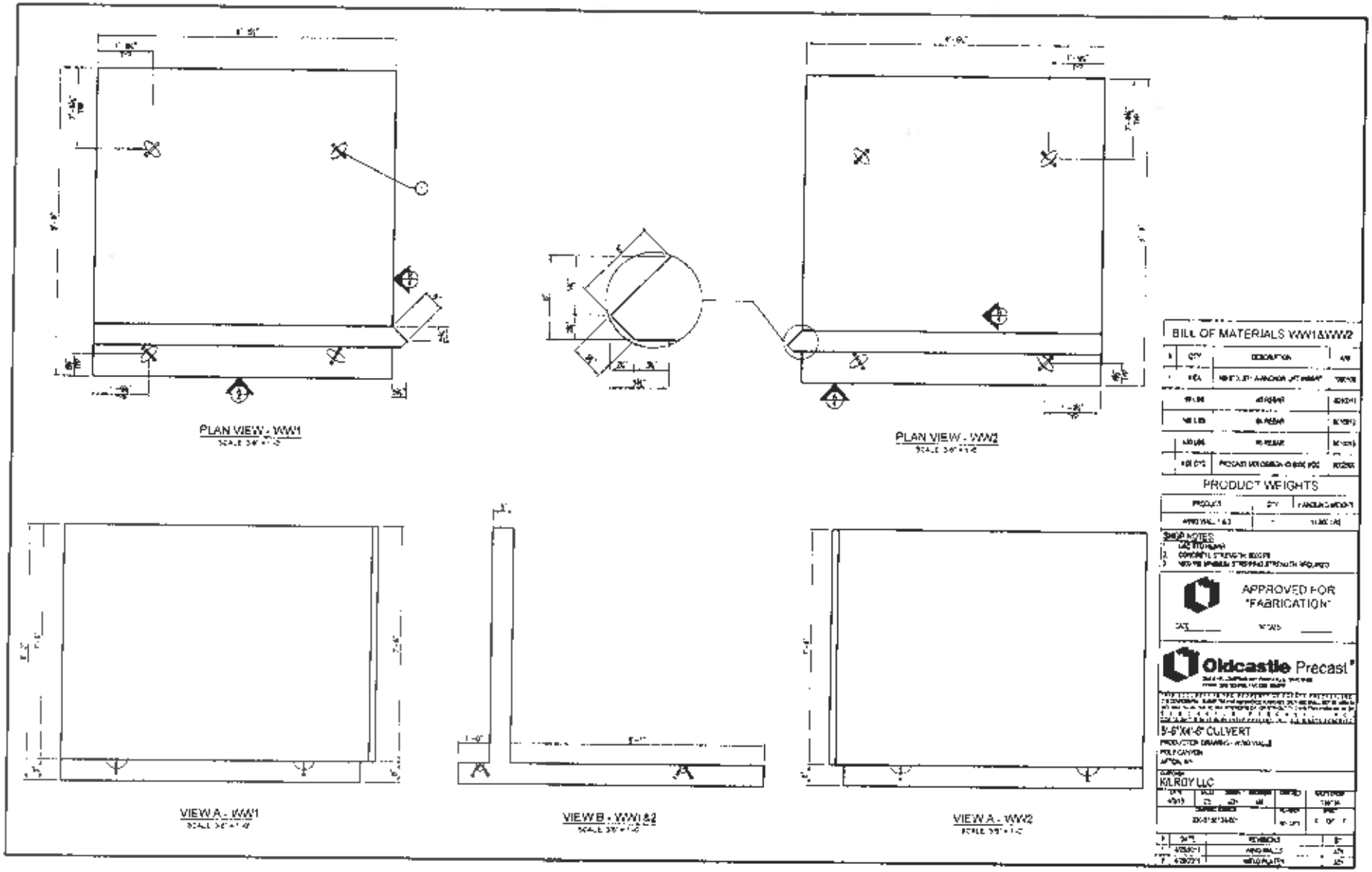
5'-6"X4'-6" CULVERT

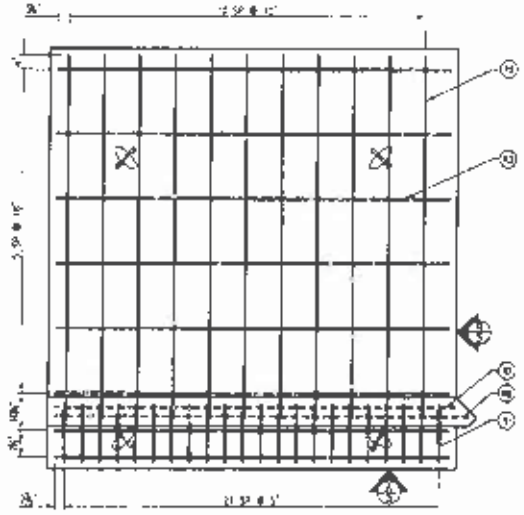
REINFORCING CHANGE - SIDE CULVERT

POLK COUNTY, FL

KILROY LLC

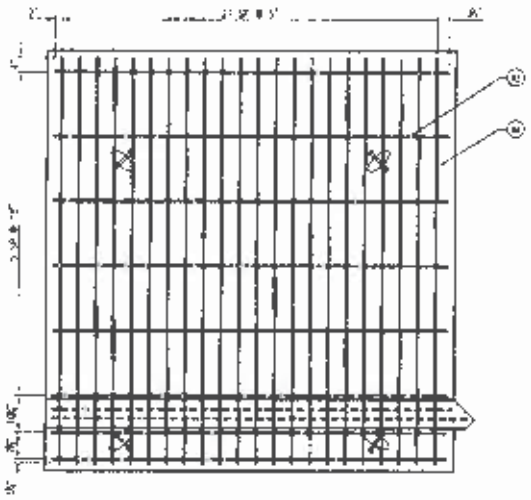
#	DATE	REVISIONS	BY
1	[illegible]	REBAR	[illegible]
2	[illegible]	[illegible]	[illegible]


PLAN VIEW - WW1
PLAN VIEW - WW2
VIEW A - WW1
VIEW B - WW1 & 2
VIEW A - WW2
BILL OF MATERIALS WW1&WW2
PRODUCT WEIGHTS
SHOP NOTES
APPROVED FOR "FABRICATION"
Oldcastle Precast
9'-6"X4'-6" CULVERT
KILROY LLC

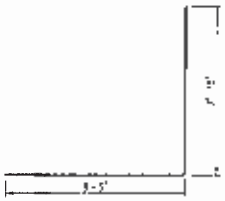


PLAN VIEW WW1 - BTM MAT

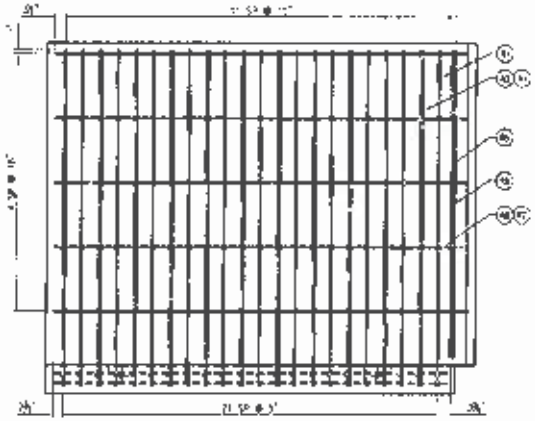
R1 DETAIL



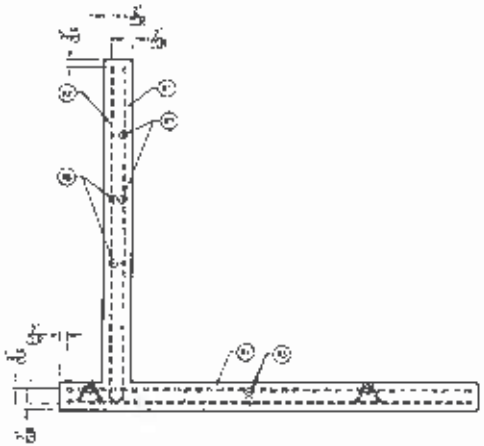
PLAN VIEW WW1- TOP MAT



R2 DETAIL



VIEW A WW1



VIEW B - CLR DETAIL

SHOP NOTES:

APPROVED FOR FABRICATION

DATE _____ BY _____

Oldcastle Precast

5-6'X4'-6" CULVERT

REINFORCING DRAWING - MATERIAL

ROUE CANYON

APTOS, CA

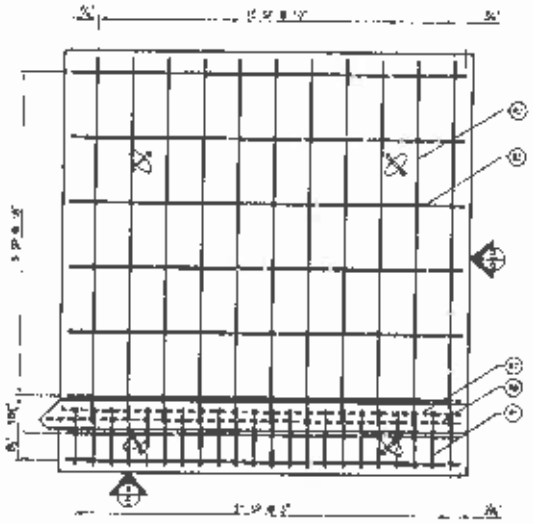
OWNER

KLRCY LLC

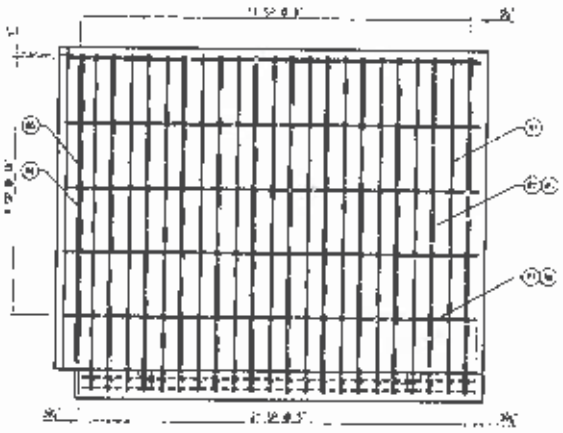
DATE	SCALE	DRAWN	CHECKED	SHEET
4/2/13	CL	AD	MB	1 OF 1

DRAWING NUMBER

#	DATE	REVISIONS	BY
1	4/30/13	REBAR	LCH
2	4/30/13	WELD PLATES	LCH

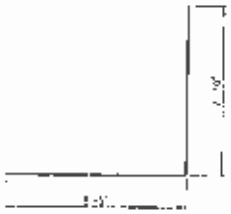


PLAN VIEW WW2 - BTM MAT

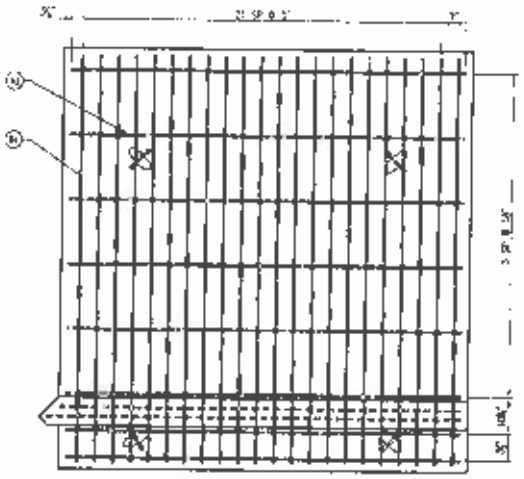


VIEW A WW2

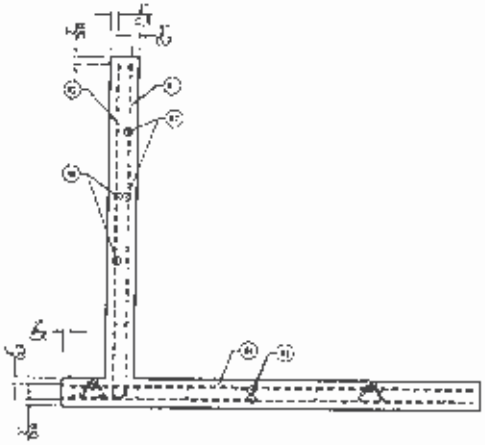
R1 DETAIL



R2 DETAIL



PLAN VIEW WW2 - TOP MAT



VIEW B - CLR DETAIL

REINFORCEMENT LIST

SHOP NOTES

1. [illegible]
2. CONCRETE STRENGTH [illegible]
3. [illegible]

APPROVED FOR "FABRICATION"

Oldcastle Precast

5'-6"X4'-8" CULVERT

REINFORCING DRAWING - WING WALLS

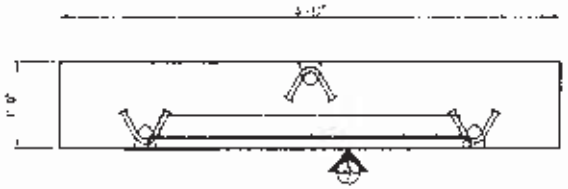
ROLE CANYON

AITKIN, MN

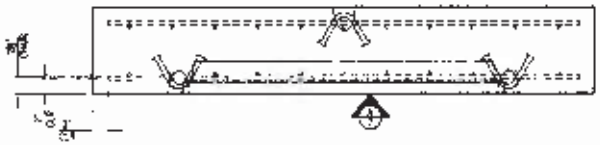
CLIENT

KILROY LLC

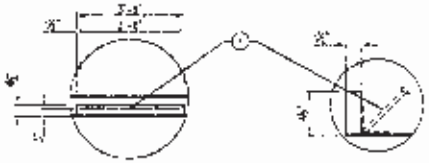
DATE	REVISIONS	BY
1	[illegible]	[illegible]
2	[illegible]	[illegible]



PLAN VIEW

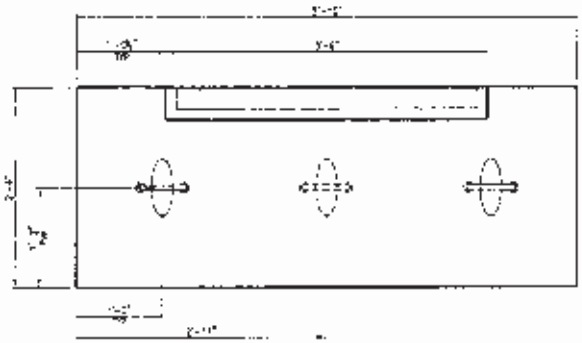


PLAN VIEW - REBAR CLR

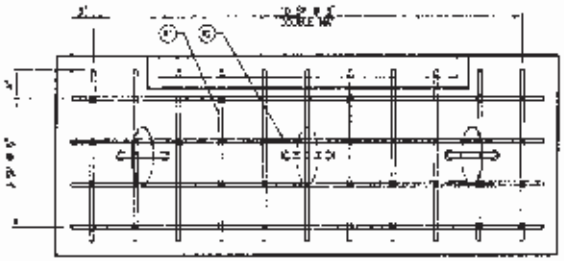


VIEW A - WELD PLATE DETAIL

SIDE - WELD PLATE DETAIL



VIEW A



VIEW A - REBAR- DOUBLE MAT

REINFORCEMENT LIST

	QTY	MATERIAL	LENGTH	SHAPE

SILL OF MATERIALS

	QTY	DESCRIPTION	

PRODUCT WEIGHTS

PRODUCT	QTY	HANDLING WEIGHT
CUTOFF WALL		

SHOP NOTES:

1. USE STD REBAR
2. CONCRETE STRENGTH: 6000 PSI
3. [illegible] STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

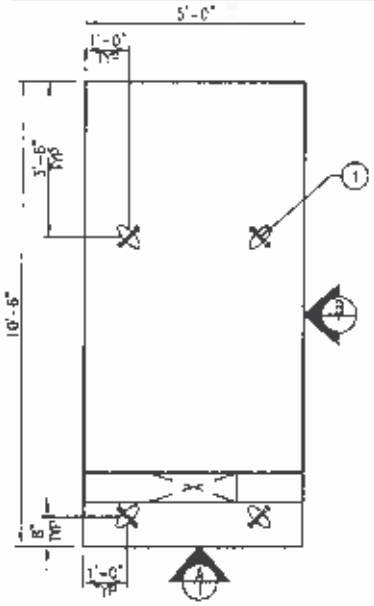
DATE _____ BY _____

Oldcastle Precast

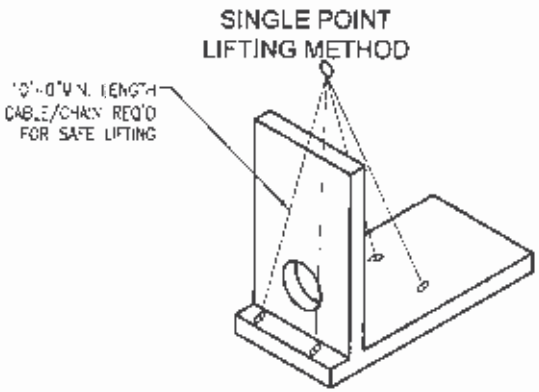
5'-6"X4'-8" CULVERT

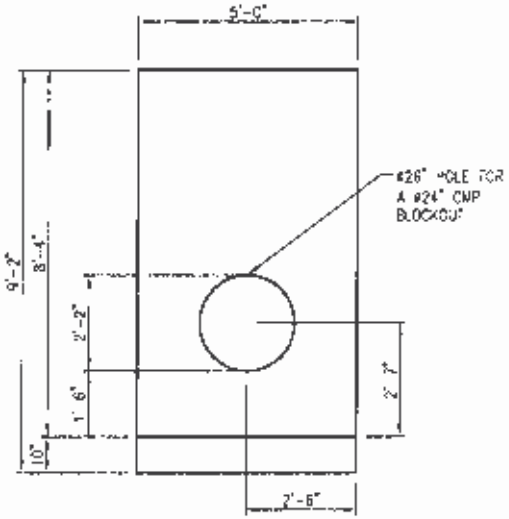
KILROY LLC

#	DATE	REVISIONS	BY
1	[illegible]	WELD PLATES	[illegible]

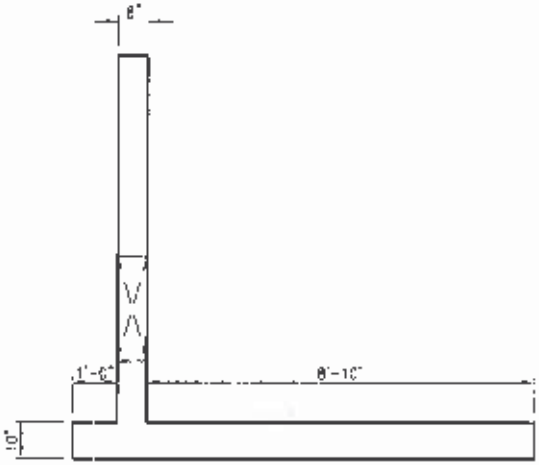


PLAN VIEW
SCALE 1/4" = 1'-0"





VIEW A
SCALE 1/4" = 1'-0"



VIEW B
SCALE 1/4" = 1'-0"

BILL OF MATERIALS

#	QTY	DESCRIPTION	A/M
1	4 EA	M8 8" X .67" A-ANCHOR LIFT INSERT	7000106
	2.55 CYD	PRECAST MIX DESIGN #3 6000 SCC	9002500
	58 LBS	#3 REBAR	8010011
	105 LBS	#4 REBAR	8010012
	117 LBS	#5 REBAR	8010013
	248 LBS	#8 REBAR	8010014

PRODUCT WEIGHTS

PRODUCT	QTY	HANDLING WEIGHT
5'X8'-4"x10'-6" HEADWALL	1	10,300 LBS

DESIGN NOTES:

1. MAX DESIGN CRITERIA PER ACI - 318 CODE & AS NOTED.
2. DESIGN LOADINGS:
   - 2.1 AASHTO HS-20-44, W/IMPACT
   - 2.2 SOIL WEIGHT = 120 PCF.
   - 2.3. DEPTH OF OVERBURDEN 0.0' MIN 4.7' MAX.
   - 2.4. ASSUMED WATER TABLE, 5.0' BELOW FINISHED GRADE
   - 2.5. EQUIV. FLUID PRESSURE = 65 PCF (PARTIALLY SATURATED)
   - 2.6 125 PCF LATERAL LIVE LOAD SURCHARGE.
3. CONCRETE 28 DAY COMPRESSIVE STRENGTH: 6000 PSI (MIN)
4. STEEL REINFORCEMENT: REBAR, ASTM A-615 GRADE 60
5. CEMENT: ASTM C-150 SPECIFICATIONS

APPROVED FOR
"FABRICATION"

DATE: _____ INITIALS: _____

Oldcastle Precast®

2240 E YELLOWSTONE HWY DAYS FALLS, IDAHO 83402
PHONE (208) 524-5150 FAX (208) 524-8771

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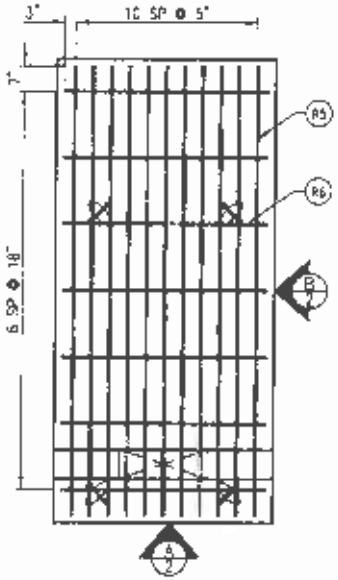
5'x8'-4"x10'-6" HEADWALL
PRODUCTION / REINFORCING DRAWING
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

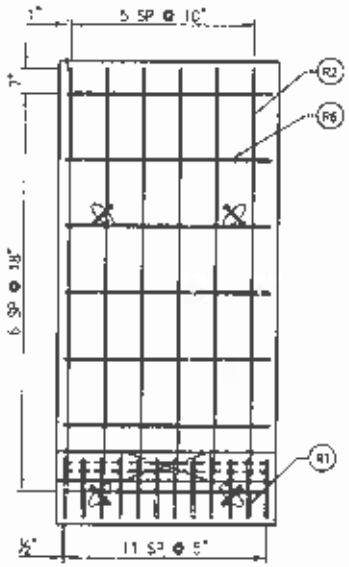
DATE	SALES	DRAWN	ENGINEER	SCHEDULE	SALES ORDER
3/25/15	CE	JZH	MB		*56134

DRAWING NUMBER	REVISION	SHEET
230-S156134-002	REV DATE	1 OF 2

#	DATE	REVISIONS	BY

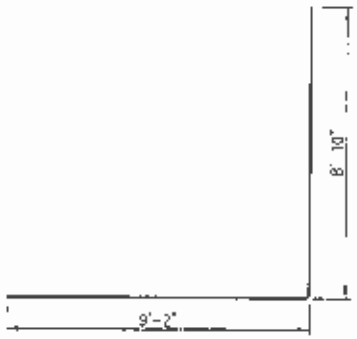


PLAN VIEW - TOP MAT
SCALE 1/4" = 1'-0"



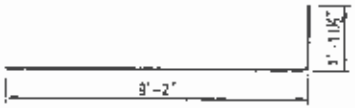
PLAN VIEW - BTM MAT
SCALE 1/4" = 1'-0"

R1 DETAIL

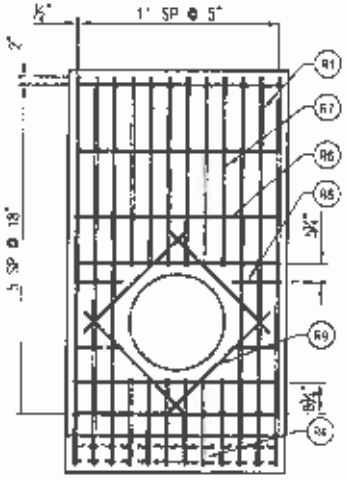


R2 DETAIL

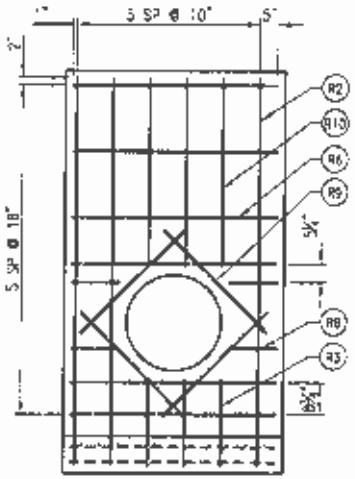
R4 DETAIL



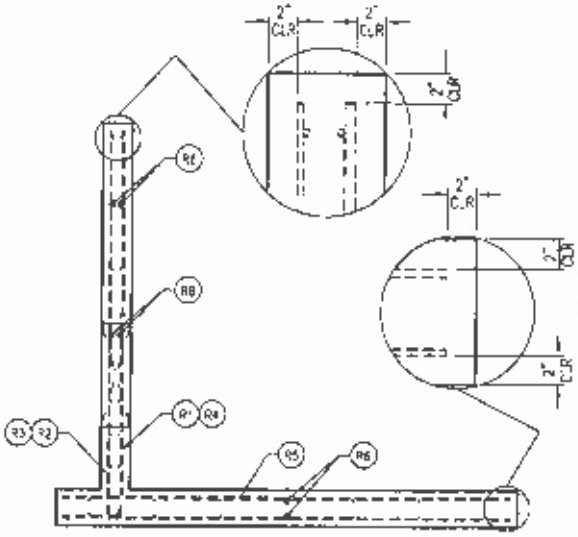
R3 DETAIL



VIEW A -BACK MAT
SCALE 1/4" = 1'-0"



VIEW A - FRONT MAT
SCALE 1/4" = 1'-0"



VIEW B - REBAR CLR
SCALE 1/4" = 1'-0"

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1	12	#6 BAR	10'-0 1/2"	L BAR
R2	8	#3 BAR	17'-10 1/2"	L BAR
R3	3	#3 BAR	11'-0"	L BAR
R4	6	#6 BAR	3'-2"	L BAR
R5	11	#5 BAR	10'-2"	STR
R6	26	#4 BAR	4'-5"	STR
R7	6	#6 BAR	4'-3 1/2"	STR
R8	8	#4 BAR	1'-1"	STR
R9	8	#4 BAR	3'-4"	STR
R10	3	#3 BAR	4'-3 1/2"	STR

SHOP NOTES:
1. DESIGN BY OTHER
2. CONCRETE STRENGTH: 5000 PSI
3. 3500 PSI MINIMUM STRIPPING STRENGTH REQUIRED

APPROVED FOR "FABRICATION"

DATE: _____ INITIALS _____

Oldcastle Precast®

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5'x8'-4"10'-6" HEADWALL
PRODUCTION / REINFORCING DRAWING
POLE CANYON
AFTON, WY

CUSTOMER
KILROY LLC

DATE	SALES	DRAWN	ENGINEER	CHECKED	SCHEDULE
3/25/15	CE	JZ	WB		55134

DRAWING NUMBER: 230-S-55134-002
REVISION: Rev 0/17
SHEET: 2 OF 2

#	DATE	REVISIONS	BY

PRE-CAST CONCRETE MANHOLE EXTENSION STRUCTURES

SPECIFICATION SHEETS

Oldcastle Precast
Delivering Relevancy

2240 S Yellowstone Highway
Idaho Falls, ID 83402-4323
Phone: 208-522-6150

Approved
BG Hansen
6/22/2015

Letter of Transmittal

To: Jeff Zelazoski
Kilroy LLC

Date: 6/19/2015

Subject: Submittal

Job Name: Pole Canyon

Location: Afton, WY

We are sending you:

- ☐ Copy of Letter
- ☐ Plans/Prints
- ☐ Mix Designs
- ☐ Quotation
- ☐ Change Order
- ☒ Shop Drawings
- ☒ Material Submittals
- ☐ Specifications
- ☐ Samples
- ☐ Other

Document Type	Pages	Date	Description
Submittals	2	6/19/2015	60" Manhole Section Detail
	1		Manhole Step Detail

These are transmitted as:

- ☒ For Approval
- ☐ Resubmit
- ☐ As Requested
- ☐ Other
- ☐ For Your Use

- ☐ Approved
- ☐ Approved as Noted
- ☐ Amend and Resubmit

Remarks: Please contact me with any questions

From: Kim Howells

Signature: Kim Howells

Oldcastle Precast
Delivering Reliability

2240 S Yellowstone Highway
Idaho Falls, ID 83402-4323
Phone: 208-522-6150

Letter of Transmittal

To: Jeff Zelazoski
Kilroy LLC

Date: 6/19/2015

Subject: Submittal

Job Name: Pole Canyon

Location: Afton, WY

We are sending you:

- ☐ Copy of Letter
- ☐ Plans/Prints
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- ☒ Shop Drawings
- ☒ Material Submittals
- ☐ Specifications
- ☐ Samples
- ☐ Other

Document Type	Pages	Date	Description
Submittals	2	6/19/2015	60" Manhole Section Detail
	1		Manhole Step Detail

These are transmitted as:

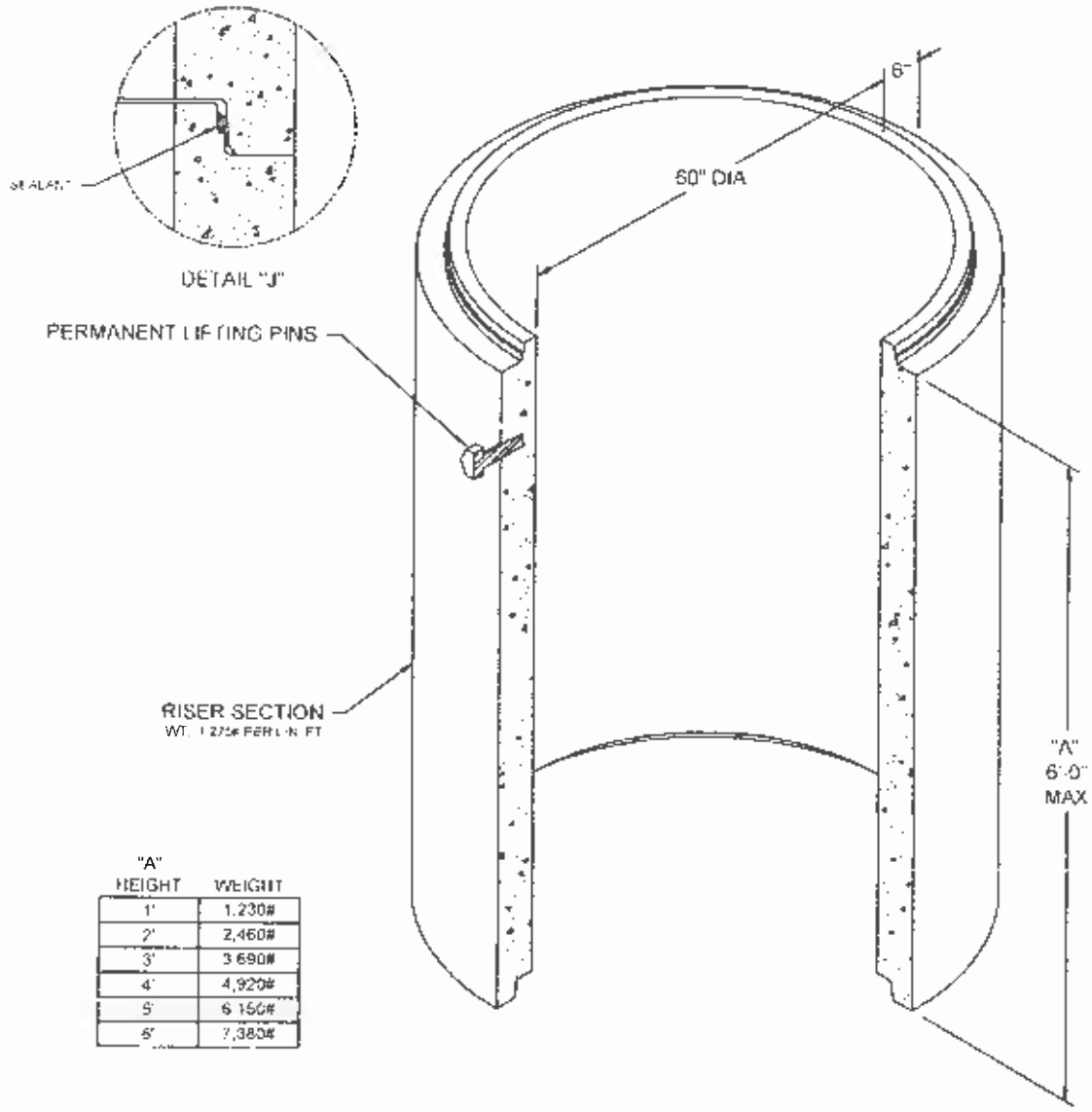
- ☒ For Approval
- ☐ As Requested
- ☐ For Your Use
- ☐ Resubmit
- ☐ Other

- ☐ Approved
- ☐ Approved as Noted
- ☐ Amend and Resubmit

Remarks: Please contact me with any questions

From: Kim Howells

Signature: Kim Howells



"A" HEIGHT	WEIGHT
1'	1,230#
2'	2,460#
3'	3,690#
4'	4,920#
5'	6,150#
6'	7,380#

NOTES

1. MANHOLE SECTIONS ARE DESIGNED TO MEET ASTM C478
2. OPENINGS MAY BE SIZED AND LOCATED AS REQUIRED
3. FOR OPTIONAL ACCESSORIES CHECK ACCESSORIES / HARDWARE SECTION
4. AVAILABLE WITH FLOOR (FLAT OR W/INVERTS)
5. HOLDS 147 GALLONS PER FOOT

Oldcastle Precast
2240 S. Yellowstone Hwy, Idaho Falls, Idaho 83402
Phone: 208-522-6150 Fax: 208-522-9701

Manholes

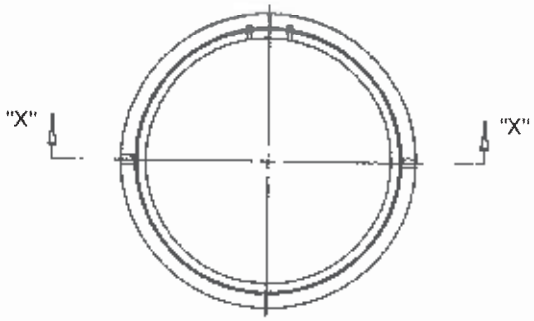
FILE NAME: 250TBM40B

ISSUE DATE: 1/2011

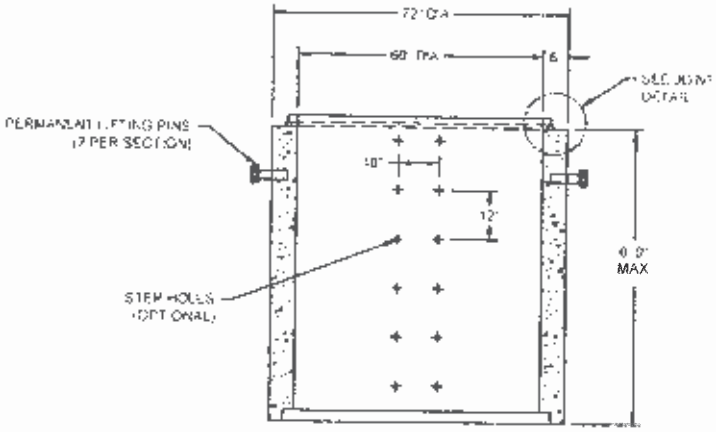
www.oldcastleprecast.com

60" Dia. Section
Wetcast
ISO View

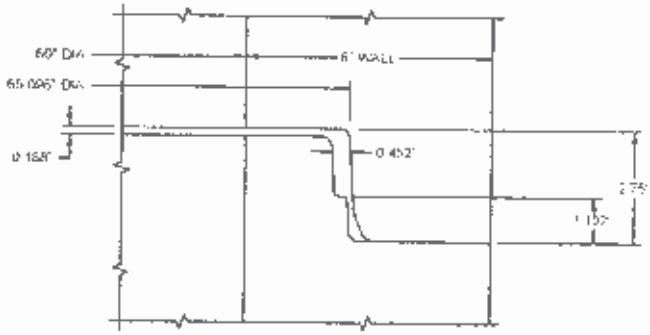
Copyright © 2011



PLAN VIEW



SECTION "X"-"X"



JOINT DETAIL

Oldcastle Precast
2240 S. Yellowstone Hwy, Idaho Falls, Idaho 83402
Phone: 208-522-6150 Fax: 208-522-9701

Manholes

FILE NAME: 230TBMH08

ISSUE DATE: 1/2011

www.oldcastleprecast.com

60" Dia. Section
Wetcast

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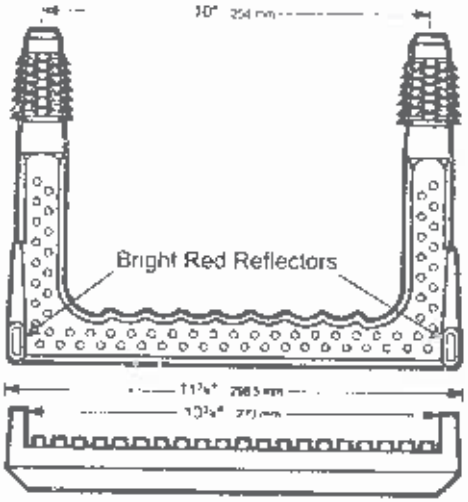
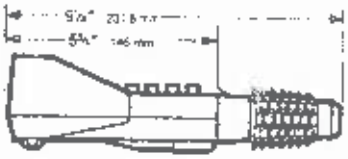
P-10938





Step #
P-10938

Weight: 2.15 lbs. each

RUNG
½" Grade 60 Rebar

SPECIFICATIONS
All Lane Poly Steps meet the requirements of ASTM C-478 and AASHTO M-199. The polypropylene conforms to ASTM D-4101. The ½" Grade 60 reinforcing bar meets ASTM A-615

LANE POLYPROPYLENE MANHOLE STEPS

LANE INTERNATIONAL CORPORATION

P.O. Box 925 • 10758 S.W. Manhasset Dr. • Tualatin, OR 97062 • 503-692-9860 • 800-666-0076
Fax 503-692-9863 • www.laneinternational.com

GROUT DESIGN MIX

Approved
DG Hansen
10/16/15

KILROY LLC

10/15/2015

Job: Simplot - Pole Canyon

Class of Concrete: 6 Sack Pea Grout

Design Mix information

Ingredient	Description			
Cement	ASTM C-150 (Type II)	564	LBS	Per Yard
Fine Aggregate	Concrete Sand	1645	LBS	Per Yard
Coarse Aggregate	¼" Minus	1645	LBS	Per Yard
Fly Ash (Class F)		0	LBS	Per Yard
Total Water		33	GALS	Per Yard
Net Water		272	LBS	Per Yard
W/(C+FA)Ratio		0.48	Designs	
W/(C+FA)Ratio		Specification		
POZZ 322N Water Reducer	ASTM C494/C494	25	OZ	Per Yard
Percent Entrained Air Content	ASTMC260	2.0	OZ	6.0%
Consistency – Max. Slump in.(mm)	8-10"	Inches		

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

ASH GROVE CEMENT COMPANY

WESTERN REGION
33050 SHUTTAL CREEK ROAD
P.O. BOX 287
DURKEE, OREGON 97905
(541) 877-2411

Durkee Plant

Mill Test Report

Mill Analysis No. 14-22
Bin No. 2,3,4,5

Cement Type: II-V L.A.
Production Period: September 1 to September 30

Date: 9-Oct-14

STANDARD REQUIREMENTS
ASTM C - 150

CHEMICAL

Item (C 114)	Spec. Limit	Test Result
SiO2 (%)	20.0 min	21.3
Al2O3(%)	6.0 max	3.3
Fe2O3(%)	6.0 max	2.9
CaO (%)	A	64.1
MgO (%)	6.0 max	1.8
SO3 (%)	3.0 max	3.2
Loss on ignition (%)	3.0 max	1.73
Na2O (%)	A	0.24
K2O (%)	A	0.44
TiO2 (%)	A	0.25
P2O5 (%)	A	0.09
Mn2O3 (%)	A	0.08
Insoluble Residue (%)	0.75 max	0.45
CO2 (%)	A	1.29
Limestone %	5.0 max	3.19
CaCO3 in Limestone	70.min	89.35
C3S + 4.75C3A	100 max	77
Potential compounds (%)	C	
C3S	A	58
C2S	A	17
C3A	8.0 max	4
C4AF	A	9
C4AF+2(C3A)	A	17

PHYSICAL

Item		Spec limit	Test Result
Air content of mortar (volume %) C 185		12 max	6.6
Fineness (m^2/kg) C 204 (Air permeability)		280 min	398
Autoclave expansion (%) C 151		0.80 max	0.027
Compressive strength Psi (Mpa) C 109		Min:	
	1 Day	A	1985 (13.7)
	3 Days	1450 (10.0)	3943 (27.2)
	7 Days	2470 (17.0)	5022 (34.6)
	28 Days	A	F
Time of setting (minutes) C 191 (Vicat)			
	Initial	not less than 45	128
	Final	not more than 375	236

OPTIONAL REQUIREMENTS
ASTM C - 150, (other)

CHEMICAL

Item	Spec. Limit	Test Result
Equivalent alkalies (%)	0.60 max	0.53

PHYSICAL

Item	Spec. Limit	Test Result
False set (%) C 451	50 min	90
Heat of hydration (cal/g) C186 7 days	B	78
Compressive strength (Mpa) 28 Days	28.0	F
C1038	0.02%	0.008%
C-452	0.035	0.023
% retain on 45µm sieve	28% max	1.54%

A=not applicable
B= Test results represents most recent value and is provided for information only.
C= Adjusted per A 1.6.
D=C 1038 expansion in water does not exceed 0.02 at 14 days.
F=Test results for this production period not yet available.

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirement of the ASTM C 150 -10 or AASHTO M-85 -10 Type II-V specification also will meet CSA 3000-08 Type HS.

Signature: M. Kelly

Title: Chief Chemist

KILROY LLC

AGGREGATE ANALYSIS

TEST NUMBER	4	DATE	April 4, 2014
SUBMITTED BY	Kilroy llc	AT	
SAMPLE I.D.		SAMPLED BY	Jeff K
PIT OR QUARRY	Strawberry Pit	PROJECT #	
QUANTITY (tons)		LOCATION	
FOR USE AS	1/4" Pea Rock	COUNTY	Lincoln

	COARSE AGG. (E)	FINE AGGREGATE (F)
SAMPLE WT. (E or F)	1	784.7
AFTER WASH		779.4
WT. PASS 200		5.3
WT. PASS 200PAN		2.4
TOTAL PASS 200		7.7

	Weight Retained (lbs or kg)	% Retained (A or B/ D) x 100
RETAINED No. 4 = (A)	0.0	0.0
PASS No. 4 = (B)	779.0	100.0
TOTAL, A + B = (D)	779.0	100.0

SIEVE SIZE	WT RET	% RET K/E*100	WT RET	% RET P/F*100	% RET R*2 1000	COMBINED AGG TOTAL % RET M+S+V	% PASSING 100 - Z		SPECS % PASSING
	K	L	P	Q	S	Z			
1 1/2"	0.0	0.0				0.0	100.0	100	
1"	0.0	0.0				0.0	100.0	100	
3/4"	0.0	0.0				0.0	100.0	100	
1/2"	0.0	0.0				0.0	100.0	100	
3/8"	0.0	0.0				0.0	100.0	100	
#4	0.0	0.0	89.7	11.4	11.4	11.4	88.6	89	
#8			638.9	81.4	81.4	81.4	7.1	7	
#16			0.0	0.0	0.0	0.0	7.1	7	
#30			27.8	3.5	3.5	3.5	3.6	4	
#40				0.0	0.0	0.0	3.6	4	
#50			0.0	0.0	0.0	0.0	3.6	4	
#100			14.8	1.9	1.9	1.9	1.7	2	
#200			5.6	0.7	0.7	0.7	1.0	1.0	
							WET WT		
TP 200	1320.5	132050.0	7.7	1.0	1.0	1.0	DRY WT		
TOTAL	1320.5	132050.0	784.5	100.0	100.0	100.0	WT H2O	#VALUE!	
FRACTURED FACES %							% H2O	#VALUE!	
FLAT & ELONGATED %									
FINENESS MODULUS see MT M, Sect. 602.0.									

						% MOISTURE			
						(DOPED x 100	x Corr. Factor		
LIQUID LIMIT (LL)									
PLASTIC LIMIT (PL)									

REMARKS

TESTED BY

BASF

The Chemical Company

October 15, 2015

Kilroy LLC
132 W. Rocky Rd
Afton, WY 83110

Attention: Jeff Zelazoski
Project: Simplot-Pole Canyon
Project location: Smoky Canyon Mine

Certificate of Conformance
MasterPozzolith® 322 Admixture (formerly Pozzolith 322N)
BASF Corporation Admixture for Concrete

I, Richard Hubbard, Sr. Technical Marketing Specialist for BASF Corporation, Cleveland, Ohio, certify:
That MasterPozzolith 322 admixture is a BASF Corporation Water-Reducing Admixture for concrete; and
That MasterPozzolith 322 and Pozzolith 322N admixture are the same product having idenlical composition, differing only in designation; and
That no calcium chloride or chloride based ingredient is used in the manufacture of MasterPozzolith 322 admixture; and
That MasterPozzolith 322 admixture, based on the chlorides originating from all the ingredients used in its manufacture, contributes less than 0.00024 percent (2.4 ppm) chloride ions by weight of the cement when used at the rate of 65 mL per 100 kg (1 fluid ounce per 100 pounds) of cement; and
That MasterPozzolith 322 admixture meets the requirements for a Type A, Water Reducing, Type B, Retarding, and Type D, Water Reducing and Retarding Admixture specified in ASTM C494/C494M and AASHTO M194, the Standard Specification for Chemical Admixtures for Concrete, as well as the requirements for Type A, Type B and Type D admixtures as specified in Corps of Engineers' CRD-C 87.

Richard Hubbard III

Richard Hubbard
Sr. Technical Marketing Specialist

BASF Corporation
Admixtures Systems
23700 Chagrin Boulevard
Cleveland, Ohio 44122
Telephone (216) 839-7500

MASTER® BUILDERS SOLUTIONS

BASF

The Chemical Company

October 15, 2015

Kilroy LLC
132 W. Rocky Rd
Afton, WY 83110

Attention: Jeff Zelazoski
Project: Simplot-Pole Canyon
Project location: Smoky Canyon Mine

Certificate of Conformance
MasterAir® AE 90 Admixture (formerly MB-AE 90)
BASF Corporation Air-Entraining Admixture for Concrete"

I, Richard Hubbard, Sr. Technical Marketing Specialist for BASF Corporation, Cleveland, Ohio, certify:
That MasterAir AE 90 admixture is a BASF Corporation Air-Entraining Admixture for concrete; and
That MasterAir AE 90 and MB AE 90 admixture are the same product having identical composition, differing only in designation; and
That no calcium chloride or chloride based ingredient is used in the manufacture of MasterAir AE 90 admixture; and
That MasterAir AE 90 admixture, based on the chlorides originating from all the ingredients used in its manufacture, contributes less than 0.000068 percent (0.68 ppm) chloride ions by weight of the cement when used at the rate of 65 mL per 100 kg (1 fluid ounce per 100 pounds) of cement; and
That MasterAir AE 90 admixture meets the requirements of ASTM C260, the Standard Specification for Air-Entraining Admixtures for Concrete, as well as the requirements for air-entraining admixtures as specified in Corps of Engineers' CRD-C 13 and AASHTO M154.

Richard Hubbard III

Richard Hubbard
Sr. Technical Marketing Specialist

BASF Corporation
Admixtures Systems
23700 Chagrin Boulevard
Cleveland, Ohio 44122
Telephone (216) 839-7500

MASTER® BUILDERS SOLUTIONS

GROUT AND CONCRETE TRUCK DELIVERY TICKETS

KILROY LLC

SHIP TO:	DELIVERY INSTRUCTIONS:
Kilroy - Simplot	Smokey Canyon Mine
CUSTOMER: Kilroy Jobs	1518 phase 3200.1

P.O. NUMBER	DRIVER	TRUCK
	19	1312

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
12/03/2015					10.00	140.00	10.00	C2427

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	78.00	780.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
10.00	602	Hot water	10.00	100.00
10.00	605-1	Calcium Chloride	2.75	27.50
~~3.00~~	~~599~~	~~Truck Time~~	~~95.00~~	~~285.00~~

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1742.50
Tax	45.38
Ticket Total	1787.88
Grand Total	123788 1787.88

Purchaser to assume responsibility for damages to all highway walks, drives and pay for any necessary tarmac work and any damage to mixer or equipment where adequate drives are not provided

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.

Additional water for the mix will be added only at the customer's own request and risk.

2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By: Kelsey Hamer

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
12/3/2015 6:58 AM	2427	1312	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,900	-2	0.0	55.7	2.75m
ROCK	1645	16,598	16,460	-138	-0.8	17.8	0.90m
CEMENT	564	5,640	5,605	-35	-0.6		
> FLYASH	50	500	540	40	8.0		
> WATER	33.0	258.0	261.0	3.0	1.2		
AIR	2.00	20.00	19.00	-1.0	-5.0		
WR	25.00	250.00	250.00	0.0	0.0		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	261.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	334.49
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.45
Agg S/E	0/ 0
Cem S/E	0/ 5

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO.	DELIVERY INSTRUCTIONS:
Kilroy - Simplot	Smokey Canyon Mine

CUSTOMER: Kilroy Jobs

15-18
phase 3200.1

P.O. NUMBER	DRIVER	TRUCK
	62	1311

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
12/03/2015					10.00	140.00	20.00	C 2428

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	78.00	780.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
10.00	602	Hot water	10.00	100.00
10.00	605-1	Calcium Chloride	2.75	27.50
3.00	599	Truck Time	95.00	285.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1742.50
Tax	45.38
Ticket Total	1787.88
Grand Total	123788 3575.76

Purchaser to assume responsibility for damages to all highway walks, drives and pay for any necessary tolerance adjustments and damage to mixers of equipment where adequate drives are not provided.

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.

Additional water for the mix will be added only at the customer's own request and risk.

2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By: Ken Hanson

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
12/3/2015 7:16 AM	2428	1311	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,800	-102	-0.6	55.4	2.75m
ROCK	1645	16,598	16,480	-118	-0.7	17.8	0.90m
CEMENT	564	5,640	5,590	-50	-0.9		
FLYASH	50	500	500	0	0.0		
> WATER	33.0	258.0	261.0	3.0	1.2		
AIR	2.00	20.00	19.00	-1.0	-5.0		
WR	25.00	250.00	250.00	0.0	0.0		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	261.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	334.18
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.46
Agg S/E	0/ 0
Cem S/E	10/ 10

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS: Smokey Canyon Mine

CUSTOMER: Kilroy Jobs

1518
3200.1

P.O. NUMBER	DRIVER	TRUCK
	46	1313

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00		7:50	8:45	11:00		

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
12/03/2015					10.00	140.00	30.00	C2429

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Polo Canyon	78.00	780.00
10.00	DEL1	Delivery charge	~~55.00~~	~~550.00~~
10.00	602	Hot water	10.00	100.00
10.00	605-1	Calcium Chloride	2.75	27.50
~~3.00~~	~~599~~	~~Truck Time~~	~~95.00~~	~~285.00~~

ution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1742.50
Tax	45.38
Ticket Total	1787.88
Grand Total	1237.88 5363.64

Purchaser to assume responsibility for damages to off highway roads, drives and pay for any necessary towing service and any damage to lawns or equipment where adequate drives are not provided.

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.
Additional water for the mix will be added only at the customer's own request and risk.
2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By: Karen Hanna

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
12/3/2015 7:43 AM	2429	1313	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,760	-142	-0.8	55.3	2.75m
ROCK	1645	16,598	16,440	-158	-1.0	17.7	0.90m
CEMENT	564	5,640	5,595	-45	-0.8		
FLYASH	50	500	480	-20	-4.0		
WATER	33.0	258.0	260.0	2.0	0.8		
AIR	2.00	20.00	20.00	0.0	0.0		
WR	25.00	250.00	250.00	0.0	0.0		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	260.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	333.00
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.46
Agg S/E	0/ 0
Cem S/E	10/ 10

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS: Smokey Canyon Mine

CUSTOMER: Kilroy Jobs

15.18
3200.1

P.O. NUMBER	DRIVER	TRUCK
15-18 3200.1	33	1309

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00			9:10			

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
12/03/2015					10.00	140.00	40.00	C 2430

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	78.00	780.00
10.00	DEL1	Delivery charge	~~55.00~~	~~550.00~~
10.00	602	Hot water	10.00	100.00
10.00	605-1	Calcium Chloride	2.75	27.50
3.00	599	Truck Time	~~95.00~~	~~285.00~~

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1742.50
Tax	45.38
Ticket Total	1787.88
Grand Total	~~1237.88~~ 7151.52

Purchaser to assume responsibility for damages to off highway walks, drives and pay for any necessary towing service and any damage to mixers or equipment where adequate drives are not provided.

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.

Additional water for the mix will be added only at the customer's own request and risk.

2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By: Karen Hamm

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
12/3/2015 8:05 AM	2430	1309	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,820	-82	-0.5	55.5	2.75m
ROCK	1645	16,598	16,480	-118	-0.7	17.8	0.90m
CEMENT	564	5,640	5,615	-25	-0.4		
FLYASH	50	500	495	-5	-1.0		
WATER	33.0	258.0	259.0	1.0	0.4		
AIR	2.00	20.00	21.00	1.0	5.0		
WR	25.00	250.00	250.00	0.0	0.0		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	259.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	332.25
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.45
Agg S/E	0/ 0
Cem S/E	10/ 10

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO:	DELIVERY INSTRUCTIONS:
Kilroy - Simplot	Smokey Canyon Mine
CUSTOMER: Kilroy Jobs	15-18 phase 32001

P.O. NUMBER	DRIVER	TRUCK
	18	1310

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1:00			11:15			

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
12/03/2015					9.00	140.00	49.00	C2431

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
9.00	590-2	Pole Canyon	78.00	702.00
9.00	DEL1	Delivery charge	~~55.00~~	~~495.00~~
9.00	602	Hot water	10.00	90.00
9.00	605-1	Calcium Chloride	2.75	24.75
3.00	599	Truck Time	95.00	285.00

WARNING: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS

Sub-Total	1596.75
Tax	40.84
Ticket Total	1637.59
Grand Total	11425 8789.11

Purchaser to assume responsibility for damages to off highway walks, drives and pay for any necessary moving service and any damages to drives or sidewalks where adequate drives are not provided.

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.

Additional water for the mix will be added only at the customer's own request and risk.

2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By: Kevin Hoover

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
12/3/2015 10:16 AM	2431	1310	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	15,212	15,100	-112	-0.7	49.8	2.75m
< ROCK	1645	14,938	14,320	-618	-4.1	15.5	0.90m
CEMENT	564	5,076	5,040	-36	-0.7		
FLYASH	50	450	440	-10	-2.2		
WATER	33.0	232.2	232.0	-0.2	-0.1		
AIR	2.00	18.00	17.00	-1.0	-5.6		
WR	25.00	225.00	224.00	-1.0	-0.4		

Load	9.00
Returned	0.00
Mix Slump	6.00
Mix Water	232.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	297.24
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.45
Agg S/E	0/ 0
Cem S/E	5/ 20
MANUAL	

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS: Smokey Canyon Mine

CUSTOMER: Kilroy Jobs

15-18
phase
3200.1

P.O. NUMBER	DRIVER	TRUCK
	62	1311

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00			11:30			

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
12/03/2015					10.00	140.00	59.00	C 2432

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	78.00	780.00
10.00	DEL1	Delivery charge	~~55.00~~	~~550.00~~
10.00	602	Hot water	10.00	100.00
10.00	605-1	Calcium Chloride	2.75	27.50
3.00	599	Truck Time	95.00	285.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1742.50
Tax	45.38
Ticket Total	1787.88
Grand Total	~~1237.88~~ 10576.99

Purchaser to assume responsibility for damages to off highway vehicle, driver and pay for any necessary towing service and any damage to trucks or equipment where adequate drives are not provided.

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.
Additional water for the mix will be added only at the customer's own request and risk.
1% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS

Received By: Kim Moore

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
12/3/2015 10:45 AM	2432	1311	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,760	-142	-0.8	55.3	2.75m
ROCK	1645	16,598	16,500	-98	-0.6	17.8	0.90m
CEMENT	564	5,640	5,585	-55	-1.0		
FLYASH	50	500	510	10	2.0		
> WATER	33.0	258.0	261.0	3.0	1.2		
AIR	2.00	20.00	20.00	0.0	0.0		
WR	25.00	250.00	248.00	-2.0	-0.8		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	261.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	334.07
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.46
Agg S/E	0/ -40
Cem S/E	10/ 15

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS: Smokey Canyon Mine

CUSTOMER: Kilroy Jobs

1518
phase 3200.1

P.O. NUMBER	DRIVER	TRUCK
15-18 phase 3200	33	1309

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00		12:15	1:10	3:00		

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
12/03/2015					10.00	140.00	69.00	C 2433

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	78.00	780.00
10.00	DEL1	Delivery charge	~~55.00~~	~~550.00~~
10.00	602	Hot water	10.00	100.00
10.00	605-1	Calcium Chloride	2.75	27.50
~~3.00~~	~~599~~	~~Truck Time~~	~~95.00~~	~~285.00~~

ution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1742.50
Tax	45.38
Ticket Total	123158 1787.88
Grand Total	12364.87

Purchaser to assume responsibility for damages to all highway walks, drives and pay for any necessary towing service and any damage to streets or equipment where adequate drives are not provided

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.

Additional water for the mix will be added only at the customer's own request and risk.

2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By: Kara Hansen

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
12/3/2015 11:41 AM	2433	1309	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,760	-142	-0.8	55.3	2.75m
ROCK	1645	16,598	16,440	-158	-1.0	17.7	0.90m
CEMENT	564	5,640	5,600	-40	-0.7		
FLYASH	50	500	500	0	0.0		
WATER	33.0	258.0	258.0	0.0	0.0		
AIR	2.00	20.00	20.00	0.0	0.0		
WR	25.00	250.00	248.00	-2.0	-0.8		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	258.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	331.00
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.45
Agg S/E	20/ 0
Cem S/E	10/ 20

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS: Smokey Canyon Mine

CUSTOMER: Kilroy Jobs

15-18
phase 3200.1

P.O. NUMBER	DRIVER	TRUCK
15-18 phase	3200 46	1313

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00		12:15	1:10	3:00		

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
12/03/2015					10.00	140.00	79.00	C2434

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	78.00	780.00
10.00	DEL1	Delivery charge	~~55.00~~	~~550.00~~
10.00	602	Hot water	10.00	100.00
10.00	605-1	Calcium Chloride	2.75	27.50
3.00	599	Truck Time	95.00	285.00

Sub-Total	1742.50
Tax	45.38
Ticket Total	1237.88 1787.88
Grand Total	14152.75

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Purchaser to assume responsibility for damages to all highways, walks, drives and pay for any necessary towing service and any damage to drivers or equipment where adequate drives are not provided.

This concrete is designed to give required strength and workability, but we cannot give uniformity of concrete after it is finished and cured.

Additional water for the mix will be added only at the customer's own request and risk.
2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
12/3/2015 12:06 PM	2434	1313	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist.
SAND	1645	16,902	16,820	-82	-0.5	55.5	2.75m
ROCK	1645	16,598	16,440	-158	-1.0	17.7	0.90m
CEMENT	564	5,640	5,590	-50	-0.9		
FLYASH	50	500	480	-20	-4.0		
WATER	33.0	258.0	258.0	0.0	0.0		
AIR	2.00	20.00	19.00	-1.0	-5.0		
WR	25.00	250.00	250.00	0.0	0.0		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	258.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	331.20
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt./Cm	0.46
Agg S/E	0/ 20
Cem S/E	10/ 20

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
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KILROY LLC

SHIP TO:	DELIVERY INSTRUCTIONS:
Kilroy - Simplot	Smokey Canyon Mine
CUSTOMER: Kilroy Jobs	15-18 phase 3200.1

P.O. NUMBER	DRIVER	TRUCK
15-18 phase 3200	18	1312

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00			3.10			

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
12/03/2015					10.00	140.00	89.00	C 2435

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	78.00	780.00
10.00	DEL1	Delivery charge	~~55.00~~	~~550.00~~
10.00	602	Hot water	10.00	100.00
10.00	605-1	Calcium Chloride	2.75	27.50
3.00	599	Truck Time	~~95.00~~	~~285.00~~

Sub-Total	1742.50
Tax	45.38
Ticket Total	1237.88 1787.88
Grand Total	15940.63

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Kilroy will assume responsibility for damages to all highway walks, drives and pay for any necessary towing service and any damage to drivers or equipment where adequate drives are not provided

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.
Additional water for the mix will be added only at the customer's own request and risk.
2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By: Kaysar Nave

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
12/3/2015 2:13 PM	2435	1312	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,760	-142	-0.8	55.3	2.75m
ROCK	1645	16,598	16,460	-138	-0.8	17.8	0.90m
CEMENT	564	5,640	5,605	-35	-0.6		
FLYASH	50	500	485	-15	-3.0		
WATER	33.0	258.0	257.0	-1.0	-0.4		
AIR	2.00	20.00	20.00	0.0	0.0		
WR	25.00	250.00	250.00	0.0	0.0		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	257.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	330.03
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.45
Agg S/E	0/ 0
Cem S/E	10/ .10

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO:	DELIVERY INSTRUCTIONS:
Kilroy - Simplot	Smokey Canyon Mine

CUSTOMER: Kilroy Jobs

1518
3200.1

do 10 yds total

P.O. NUMBER	DRIVER	TRUCK
15-18 phase	3200 ~~63~~ 19	1308

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
12/03/2015					3.33	140.00	92.33	C 2436

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
3.33	590-2	Pole Canyon	78.00	259.74
10 ~~3.33~~	DEL1	Delivery charge	55.00	183.15
3.33	602	Hot water	10.00	33.30
3.33	605-1	Calcium Chloride	2.75	9.16
~~3.00~~	~~599~~	~~Truck Time~~	~~95.00~~	~~285.00~~

Sub-Total	770.35
Tax	15.11
Ticket Total	123188 785.46 x 2
Grand Total	16726.09

ution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Purchaser to assume responsibility for damages to off highway walks, drives and pay for any necessary towing service and any damage to drivers or equipment where adequate drives are not provided.

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.
Additional water for the mix will be added only at the customer's own request and risk.
2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
12/3/2015 1:53 PM	2436	1308	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	5,628	5,680	52	0.9	18.7	2.75m
ROCK	1645	5,527	5,480	-47	-0.9	5.9	0.90m
>CEMENT	564	1,878	1,905	27	1.4		
FLYASH	50	166	150	-16	-9.9		
WATER	33.0	85.9	86.0	0.1	0.1		
AIR	2.00	6.66	7.00	0.3	5.1		
WR	25.00	83.25	84.00	0.8	0.9		

Load	3.33
Returned	0.00
Mix Slump	6.00
Mix Water	86.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	110.64
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.45
>Agg S/E 5680/	0
>Cem S/E 1680/	15
ADMIX NOT EMPTY	

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS: Pole Canyon Project

CUSTOMER: Kilroy Jobs

1518
3200.1

P.O. NUMBER	DRIVER	TRUCK
	19	1312

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.CO			8:00	8:50	8:45	

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
10/22/2015					10.00	150.00	10.00	C 2264

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
2.00	TRTM	Truck Time	95.00	190.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE [illegible] contact with eyes and prolonged contact with skin, in case of contact with skin and eyes, [illegible] irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND IS [illegible] LEAVING THE PLANT. ANY CHANGES OR CANCELLATIONS TELEPHONED TO THE OFFICE BEFORE LOADING IS [illegible]

1518
3200.1

Purchaser to assume responsibility for damages to all highway walks, driveways [illegible]

The concrete is designed to give required strength and workability, but no [illegible] additional water for the run will be added only at the customer's own expense and [illegible] 25% LATE MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

130 yds

Sub-Total	1365.00
Tax	31.25
Ticket Total	~~1396.25~~
Grand Total	~~1396.25~~

Wood [illegible]

[illegible] equipment where adequate devices are not provided

846.25

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id
10/22/2015 6:59 AM	2264	1312	590-2	0000 Kilroy Jobs

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,900	-2	0.0	55.7	2.75m
* ROCK	1407	14,196	14,140	-56	-0.4	15.3	0.90m
CEMENT	564	5,640	5,625	-15	-0.3		
>WATER	33.0	270.6	276.0	5.4	2.0		
<AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	252.00	2.0	0.8		

Load	10.00
Returned	0.00
Mix Slump	8.00
Mix Water	276.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	346.98
Add Water	0.00
Mix Wt/Cm	0.49
Act Wt/Cm	0.51
>Agg S/E	7640/ 20
Cem S/E	5/ 15
MANUAL	

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO:	DELIVERY INSTRUCTIONS:
Kilroy - Simplot	Pole Canyon Project
CUSTOMER. Kilroy Jobs	15.18 3200.1

P.O. NUMBER	DRIVER	TRUCK
	122	1309

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00		7:48	8:44			

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
10/22/2015					10.00	150.00	20.00	C2265

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DELI	Delivery charge	55.00	~~550.00~~
2.00	TRTM	Truck Time	95.00	190.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical assistance. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1365.00
Tax	91.25
Ticket Total	1396.25
Grand Total	2792.50

Purchaser to assume responsibility for damages to off highway roads, drives and pay for any necessary towing service and any damages to roads or equipment where adequate drives are not provided.

84625

This concrete is designed to give required strength and workability, but is neither guarantee color of concrete after it is finished and cured.
Additional water for the mix will be added only at the customer's own request and risk.
1% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS

Received By. _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	OCCC
10/22/2015 7:40 AM	2265	1309	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,860	-42	-0.3	55.6	2.75m
ROCK	1645	16,598	16,560	-38	-0.2	37.9	0.90m
CEMENT	564	5,640	5,615	-25	-0.4		
*>WATER	40.0	338.0	342.0	4.0	1.2		
<AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	250.00	0.0	0.0		

Load	10.00
Returned	0.00
Mix Slump	8.00
Mix Water	342.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	415.46
Add Water	0.00
Mix Wt/Cm	0.49
Act Wt/Cm	0.62
Agg S/E	0/ 20
Cem S/E	10/ 15

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

JOASh

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS: Pole Canyon Project.

CUSTOMER: Kilroy Jobs

15 IE
3200.1

P.O. NUMBER	DRIVER	TRUCK
	46	1311

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
10/22/2015					10.00	150.00	30.00	C 2267

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	550.00
2.00	TRTM	Truck Time	95.00	190.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1365.00
Tax	31.25
Ticket Total	1396.25
Grand Total	4188.75

Purchaser assumes responsibility for damages to all driveways, walks, drives and grass for any necessary hoisting service and any damage to drivers or equipment where adequate drives are not provided.

846.25

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.

Additional water for the mix will be added only at the customer's own request and risk.

2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
10/22/2015 8:50 AM	2267	1311	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,880	-22	-0.1	55.7	2.75m
ROCK	1645	16,598	16,500	-98	-0.6	17.8	0.90m
CEMENT	564	5,640	5,610	-30	-0.5		
*> WATER	38.0	318.0	324.0	6.0	1.9		
< AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	250.00	0.0	0.0		

Load	10.00
Returned	0.00
Mix Slump	8.00
Mix Water	324.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	397.46
Add Water	0.00
Mix Wt/Cm	0.49
Act Wt/Cm	0.59
Agg S/E	20/ 20
Cem S/E	10/ 15

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS: Pole Canyon Project

CUSTOMER: Kilroy Jobs

1518
3200.1

P.O. NUMBER	DRIVER	TRUCK
	19	1312

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
10/22/2015					10.00	250.00	40.00	C 2269

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DELI	Delivery charge	55.00	~~550.00~~
2.00	TRTM	Truck Time	95.00	190.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1365.00
Tax	31.25
Ticket Total	1396.25
Grand Total	5585.00

Purchaser is solely responsible for damages to all highways, walks, drives and pay for any necessary towing service and for damage to mixer or equipment where adequate drives are not provided.

846.25

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.

Additional water for the mix will be added only at the customer's own request and risk.

2% PER MONTH SERVICE CHARGE ON ACCOUNTS OVER 30 DAYS.

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
10/22/2015 10:01 AM	2269	1312	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,780	-122	-0.7	55.3	2.75m
ROCK	1645	16,598	16,500	-98	-0.6	17.8	0.90m
CEMENT	564	5,640	5,595	-45	-0.8		
*> WATER	30.0	248.0	255.0	7.0	2.8		
< AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	248.00	-2.0	-0.8		

Load	10.00
Returned	0.00
Mix Slump	8.00
Mix Water	255.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	328.14
Add Water	0.00
Mix Wt/Cm	0.49
Act Wt/Cm	0.49
Agg S/E	20/ 0
Cem S/E	15/ 20

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS: Pole Canyon Project

CUSTOMER: Kilroy Jobs

15-18
3200.1

P.O. NUMBER	DRIVER	TRUCK
	122	1309

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00		11:03	11:57	12:30	12:20	

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
10/22/2015					10.00	150.00	50.00	C2271

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
2.00	TRTM	Truck Time	95.00	190.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1365.00
Tax	31.25
Ticket Total	1396.25
Grand Total	6981.25

Purchaser to assume responsibility for damages to all hydrants, water drives and pipe not only, but any other underground utility service, and any damage to driveways or improved areas where adequate drives are not provided.

846.25

This ticket is designed to give required strength and durability, but no guarantee against color of concrete after it is finished and cured.

Additional water for the mix will be added only at the customer's own request and risk.

2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
10/22/2015 10:55 AM	2271	1309	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,980	78	0.5	56.0	2.75m
ROCK	1645	16,598	16,540	-58	-0.3	17.8	0.90m
CEMENT	564	5,640	5,600	-40	-0.7		
*> WATER	30.0	248.0	255.0	7.0	2.8		
<AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	248.00	-2.0	-0.8		

Load	10.00
Returned	0.00
Mix Slump	8.00
Mix Water	255.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	328.84
Add Water	0.00
Mix Wt/Cm	0.49
Act Wt/Cm	0.49
Agg S/E	0/ 0
>Cem S/E	15/ 25

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KILROY LLC

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS: Pole Canyon Project

CUSTOMER: Kilroy Jobs

15.18

3200.1

P.O. NUMBER	DRIVER	TRUCK
	18	1310

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS	TICKET NO.
10/22/2015					10.00	150.00	60.00	C2272

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
2.00	TRTM	Truck Time	95.00	190.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1365.00
Tax	31.25
Ticket Total	1396.25
Grand Total	8377.50

846.25

It is best to assume responsibility for damages to all highway traffic, drives and pay for any necessary towing service and any damage to drives or equipment where adequate drives are not provided.

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.

Additional water for the mix will be added only at the customer's own risk and cost.

2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
10/22/2015 11:42 AM	2272	1310	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,820	-82	-0.5	55.5	2.75m
ROCK	1645	16,598	16,460	-138	-0.8	17.8	0.90m
CEMENT	564	5,640	5,605	-35	-0.6		
>WATER	33.0	278.0	285.0	7.0	2.5		
<AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	248.00	-2.0	-0.8		

Load	10.00
Returned	0.00
Mix Slump	8.00
Mix Water	285.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	358.22
Add Water	0.00
Mix Wt/Cm	0.49
Act Wt/Cm	0.53
Agg S/E	20/ 0
>Cem S/E	15/ 25

P.O. Box 729
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Fax: 307-885-0601

KILROY LLC

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS: Pole Canyon Project

CUSTOMER: Kilroy Jobs

15.18
3200.1

P.O. NUMBER	DRIVER	TRUCK
	46	1311

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
10/22/2015					10.00	150.00	70.00	C 2273

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
2.00	TRTM	Truck Time	95.00	190.00

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CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1365.00
Tax	31.25
Ticket Total	1396.25
Grand Total	9773.75

Purchaser takes no responsibility for damages to curb, highway, walks, drives and pay for any necessary moving service and any damage to property or equipment where adequate drives are not provided.

846.25

The concrete is designed to give required strength and workability, but we cannot guarantee color or concrete after it is finished and cured. Additional water for the mix will be added only at the customer's own request and risk.
1½% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
10/22/2015 12:16 PM	2273	1311	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,800	-102	-0.6	55.4	2.75m
ROCK	1645	16,598	16,500	-98	-0.6	17.8	0.90m
CEMENT	564	5,640	5,595	-45	-0.8		
> WATER	33.0	278.0	285.0	7.0	2.5		
< AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	254.00	4.0	1.6		

Load	10.00
Returned	0.00
Mix Slump	8.00
Mix Water	285.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	358.20
Add Water	0.00
Mix Wt/Cm	0.49
Act. Wt/Cm	0.53
Agg S/E	0/ 0
Cem S/E	15/ 5

P.O. Box 729
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KILROY LLC

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS: Pole Canyon Project

CUSTOMER: Kilroy Jobs

15-18

3200.1

P.O. NUMBER	DRIVER	TRUCK
	19	1312

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
10/22/2015					10.00	150.00	80.00	C2275

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DELI	Delivery charge	55.00	~~550.00~~
2.00	TRTM	Truck Time	95.00	190.00

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CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS

Sub-Total	1365.00
Tax	31.25
Ticket Total	1396.25
Grand Total	11170.00

Purchaser assumes responsibility for damages to all highways, walks, driveways, and any necessary barricade service and any damage to houses or equipment where adequate driveways are not provided.

846.25

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.

Additional water for the mix will be added only at the operator's discretion when required and cost.

** 1.5% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
10/22/2015 1:09 PM	2275	1312	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,760	-142	-0.8	55.3	2.7bm
ROCK	1645	16,598	16,440	-158	-1.0	17.7	0.90m
CEMENT	564	5,640	5,585	-55	-1.0		
>WATER	33.0	278.0	285.0	7.0	2.5		
<AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	250.00	0.0	0.0		

Load	10.00
Returned	0.00
Mix Slump	8.00
Mix Water	285.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	358.00
Add Water	0.00
Mix Wt/Cm	0.49
Act Wt/Cm	0.53
Agg S/E	20/ 0
>Cem S/E	15/ 25

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KILROY LLC

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS: Pole Canyon Project

CUSTOMER: Kilroy Jobs

15.18
3200.1

P.O. NUMBER	DRIVER	TRUCK
	122	1309

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00			2:38	3:15	3:08	

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
10/22/2015					10.00	150.00	90.00	C2276

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
2.00	TRTM	Truck Time	95.00	190.00

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CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1365.00
Tax	31.25
Ticket Total	~~1396.25~~
Grand Total	12566.25

846.25

Purchaser to assume responsibility for damages to all highways, walks, drives and pay for any necessary towing service and any damage to houses or equipment where adequate drives are not provided.

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.

Additional water for the mix will be added only at the governor's own request and risk.

1½% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	OC00
10/22/2015 1:52 PM	2276	1309	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,980	78	0.5	56.0	2.75m
ROCK	1645	16,598	16,460	-138	-0.8	17.8	0.90m
CEMENT	564	5,640	5,615	-25	-0.4		
>WATER	33.0	278.0	285.0	7.0	2.5		
<AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	248.00	-2.0	-0.8		

Load	10.00
Returned	0.00
Mix Slump	8.00
Mix Water	285.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	358.75
Add Water	0.00
Mix Wt/Cm	0.49
Act Wt/Cm	0.53
Agg S/E	20/ 0
Cem S/E	15/ 20

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Afton, Wy 83110

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KILROY LLC

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS: Pole Canyon Project

CUSTOMER: Kilroy Jobs

1518
3200.1

P.O. NUMBER	DRIVER	TRUCK
	18	1310

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
10/22/2015					10.00	150.00	100.00	2277

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
2.00	TRTM	Truck Time	95.00	190.00

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CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATIONS OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1365.00
Tax	31.25
Ticket Total	1396.25
Grand Total	13962.50

Purchaser assumes responsibility for damages to off highway sites, drives not part of our recently loaded service and any damage to curbs or equipment where adequate drives are not provided.

The concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.
Additional water for the mix will be added only at the customer's own request and risk.
2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
10/22/2015 3:05 PM	2277	1310	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,820	-82	-0.5	55.5	2.75m
< ROCK	1645	16,598	16,420	-178	-1.1	17.7	0.90m
CEMENT	564	5,640	5,610	-30	-0.5		
> WATER	33.0	278.0	285.0	7.0	2.5		
< AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	252.00	2.0	0.8		

Load	10.00
Returned	0.00
Mix Slump	8.00
Mix Water	285.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	358.18
Add Water	0.00
Mix Wt/Cm	0.49
Act Wt/Cm	0.53
Agg S/E	20/ 0
Cem S/E	15/ 30

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KILROY LLC

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS
Pole Canyon Project

CUSTOMER: Kilroy Jobs

15.18
3200.1

P.O. NUMBER	DRIVER	TRUCK
	46	1311

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
10/22/2015					10.00	150.00	110.00	C 2279

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
2.00	TRTM	Truck Time	95.00	190.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS

Sub-Total	1365.00
Tax	31.25
Ticket Total	1396.25
Grand Total	15358.75

Not liable to assume responsibility for damages to all highway traffic, drives, sidewalks for any necessary moving service and any damage to houses or equipment where adequate drives are not provided.

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.

Additional water for the mix will be added only at the customer's own request and risk.

2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
10/22/2015 3:38 PM	2279	1311	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,740	-162	-1.0	55.2	2.75m
ROCK	1645	16,598	16,500	-98	-0.6	17.8	0.90m
CEMENT	564	5,640	5,610	-30	-0.5		
> WATER	33.0	278.0	285.0	7.0	2.5		
< AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	252.00	2.0	0.8		

Load	10.00
Returned	0.00
Mix Slump	8.00
Mix Water	285.00
Trim Wat	0.00
Truck Wat	0.00
Act. Water	358.00
Add Water	0.00
Mix Wt/Cm	0.49
Act Wt/Cm	0.53
Agg S/E	20/ 0
Cem S/E	15/ 15

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KILROY LLC

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS: Pole Canyon Project

15.18

3200.1

CUSTOMER: Kilroy Jobs

P.O. NUMBER	DRIVER	TRUCK
	19	1312

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
10/22/2015					10.00	150.00	120.00	C2280

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
2.00	TRTM	Truck Time	95.00	190.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1365.00
Tax	31.25
Ticket Total	1396.25
Grand Total	16755.00

Purchaser to assume responsibility for damages to all highways, streets, driveways, pay for any necessary hauling service and any damage to drivers or equipment where adequate drives are not provided.

1396.25

This concrete is designed to give required strength and workability but we cannot guarantee order of concrete after it is placed and cured.

Additional water for the mix will be added only at the customer's own request and risk.

2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
10/22/2015 4:00 PM	2280	1312	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,800	-102	-0.6	55.4	2.75m
ROCK	1645	16,598	16,500	-98	-0.6	17.8	0.90m
CEMENT	564	5,640	5,585	-55	-1.0		
> WATER	33.0	278.0	285.0	7.0	2.5		
< AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	252.00	2.0	0.8		

Load	10.00
Returned	0.00
Mix Slump	8.00
Mix Water	285.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	358.20
Add Water	0.00
Mix Wt/Cm	0.49
Act Wt/Cm	0.53
Agg S/E	20/ 0
Cem S/E	15/ 15

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO: Kilroy - Simplot

DELIVERY INSTRUCTIONS: Pole Canyon Project

CUSTOMER: Kilroy Jobs

15-18
3200

P.O. NUMBER	DRIVER	TRUCK
	122	1309

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
3.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO
10/22/2015					10.00	150.00	130.00	C 2281

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
2.00	TRTM	Truck Time	95.00	190.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS

Sub-Total	1365.00
Tax	31.25
Ticket Total	1396.25
Grand Total	18151.25

Purchaser to assume responsibility for damages to all highway walks, drives and pay for any necessary turning service and any damage to streets or curbing where adequate driveways are not provided

846.75

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.
Additional water for the mix will be added only at the customer's own request and risk.
2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
10/22/2015 4:19 PM	2281	1309	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,780	-122	-0.7	55.3	2.75m
ROCK	1645	16,598	16,460	-138	-0.8	17.8	0.90m
CEMENT	564	5,640	5,600	-40	-0.7		
> WATER	33.0	278.0	285.0	7.0	2.5		
< AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	252.00	2.0	0.8		

Load	10.00
Returned	0.00
Mix Slump	8.00
Mix Water	285.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	358.09
Add Water	0.00
Mix Wt/Cm	0.49
Act Wt/Cm	0.53
Agg S/E	20/ 0
Cem S/E	5/ 10

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO: Kilroy LLC

DELIVERY INSTRUCTIONS: Simplot - Pole Canyon

CUSTOMER: Kilroy Jobs

15.18
300.3

P.O. NUMBER	DRIVER	TRUCK
	19	1312

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00			7:00	9:30	9:10	

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM YDS	TICKET NO
11/05/2015					10.00	130.00	10.00	2337

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
3.00	599	Truck Time	95.00	285.00
10.00	602	Hot water	10.00	100.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATIONS OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1560.00
Tax	36.25
Ticket Total	1596.25
Grand Total	1596.25

Purchaser to assume responsibility for damages to all highways, walks, drives and pay for any necessary tow service and any

Your equipment where adequate drives are not provided. INV-26

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete as

Additional water for the mix will be added only at the customer's own request and risk.

1½% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS

Received By:

15.18
phase 300.3
110.400
$11508.75

Date/Time 11/5/2015 5:58 AM

Ticket 2337

Rec Name/Id 0000 Jobs

Material	SSD	Target	Actual	Var	
SAND	1645	16,902	16,760	-142	
ROCK	1645	16,598	16,460	-138	
CEMENT	564	5,640	5,595	-45	
FLYASH	50	500	480	-20	-4.0
> WATER	33.0	258.0	261.0	3.0	1.2
< AIR	2.00	20.00	18.00	-2.0	-10.0
WR	25.00	250.00	250.00	0.0	0.0

Moist 7.75m 17.8 0.90m

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	261.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	334.03
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.46
Agg S/E -20/	0
Cem S/E -5/	5

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO	DELIVERY INSTRUCTIONS:
Kilroy LLC	Simplot - Pole Canyon
CUSTOMER Kilroy Jobs	1518 3000

P.O. NUMBER	DRIVER	TRUCK
	122	1309

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00		6:49				

DATE	BATCH NO	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
11/05/2015					10.00	130.00	20.00	2338

QTY	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
3.00	599	Truck Time	95.00	285.00
10.00	602	Hot water	10.00	100.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1560.00
Tax	36.25
Ticket Total	1596.25
Grand Total	3192.50

Purchaser assumes responsibility for damages to all highways, walks, drives and pay for any necessary moving service and for shortage in mixes or equipment where adequate drive can not be provided.

This concrete is designed to give maximum strength and workability, but we cannot guarantee color or crack-free after it is finished and cured.

Additional water for the mix will be added only at the customer's own request and risk.

2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By:

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
11/5/2015 6:40 AM	2338	1309	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,740	-162	-1.0	55.2	2.75m
ROCK	1645	16,598	16,500	-98	-0.6	17.8	0.90m
CEMENT	564	5,640	5,590	-50	-0.9		
FLYASH	50	500	480	-20	-4.0		
WATER	33.0	258.0	260.0	2.0	0.8		
< AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	250.00	0.0	0.0		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	260.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	333.00
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.46
Agg S/E	0/ 20
Cem S/E	5/ 5

P.O. Box 729
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Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO: Kilroy LLC

DELIVERY INSTRUCTIONS: Simplot - Pole Canyon

CUSTOMER: Kilroy Jobs

1518
300.3

P.O. NUMBER	DRIVER	TRUCK
	62	1313

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	CY. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
11/05/2015					10.00	130.00	30.00	2339

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
3.00	599	Truck Time	95.00	285.00
10.00	602	Hot water	10.00	100.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1560.00
Tax	36.25
Ticket Total	1596.25
Grand Total	4788.75

Purchaser is solely responsible for damages to off highway roads, drives and pay for any necessary hauling service and any damage to drives or equipment which are inadequate, drives are not provided. 10.34.25

Due consideration is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.

Additional water for the mix will be added only at the customer's own risk and cost.

2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
11/5/2015 7:07 AM	2339	1313	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,960	58	0.3	55.9	2.75m
ROCK	1645	16,598	16,480	-118	-0.7	17.8	0.90m
CEMENT	564	5,640	5,595	-45	-0.8		
FLYASH	50	500	480	-20	-4.0		
WATER	33.0	258.0	258.0	0.0	0.0		
<AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	248.00	-2.0	-0.8		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	258.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	331.71
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.46
Agg S/E	0/ 20
Cem S/E	0/ 5

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO: Kilroy LLC

DELIVERY INSTRUCTIONS: Simplot - Pole Canyon

CUSTOMER: Kilroy Jobs

15/18 3003

P.O. NUMBER	DRIVER	TRUCK
	18	1311

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
11/05/2015					10.00	130.00	40.00	C2340

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
3.00	699	Truck Time	95.00	285.00
10.00	602	Hot water	10.00	100.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin or eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1560.00
Tax	36.25
Ticket Total	1596.25
Grand Total	6385.00

Purchaser is solely responsible for damages to sidewalks, walks, drives and guy for any necessary towing service and any damage to mixers or equipment where adequate drives are not provided.

1596.25

This concrete is designed to give required strength and workability, but we cannot guarantee color or concrete after it is finished and cured.
Additional water for the mix will be added only at the customer's own request and risk.
7% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By:

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
11/5/2015 8:16 AM	2340	1311	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,920	18	0.1	55.8	2.75m
ROCK	1645	16,598	16,500	-98	-0.6	17.8	0.90m
CEMENT	564	5,640	5,615	-25	-0.4		
FLYASH	50	500	480	-20	-4.0		
>WATER	33.0	258.0	261.0	3.0	1.2		
<AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	248.00	-2.0	-0.8		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	261.00
Trim Wat	0.00
Truck Wat	0.00
Act. Water	334.60
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.46
Agg S/E	0/ 20
Cem S/E	0/ 5

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO: Kilroy LLC

DELIVERY INSTRUCTIONS: Simplot - Pole Canyon

CUSTOMER: Kilroy Jobs

15.18
3003

P.O. NUMBER	DRIVER	TRUCK
	122	1309

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
11/05/2015					10.00	130.00	50.00	2341

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	550.00
3.00	599	Truck Time	95.00	285.00
10.00	602	Hot water	10.00	100.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1560.00
Tax	36.25
Ticket Total	1596.25
Grand Total	7981.25

Purchaser is solely responsible for damages to all highways, streets and pavement for any necessary hauling service and any damage to streets or equipment where adequate drives are not provided.

This concrete is designed to give required strength and workability but we cannot guarantee color of concrete after it is finished and cured.
Additional water for the mix will be added only at the customer's own request and risk.
2% PER MONTH SERVICE CHARGE ON ACCOUNTS OVER 30 DAYS.

Received By:

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
11/5/2015 9:43 AM	2341	1309	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,920	18	0.1	55.8	2.75m
ROCK	1645	16,598	16,440	-158	-1.0	17.7	0.90m
CEMENT	564	5,640	5,605	-35	-0.6		
FLYASH	50	500	500	0	0.0		
> WATER	33.0	258.0	261.0	3.0	1.2		
< AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	252.00	2.0	0.8		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	261.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	334.53
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.46
Agg S/E	0/ 0
Cem S/E	0/ 5

P.O. Box 729
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Afton, Wy 83110

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Fax: 307-885-0601

KILROY LLC

SHIP TO	DELIVERY INSTRUCTIONS:
Kilroy LLC	Simplot - Pole Canyon

CUSTOMER: Kilroy Jobs

15 18 2003

P.O. NUMBER	DRIVER	TRUCK
	19	1312

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00		10:30	11:10		1:30	

DATE	BATCH NO	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
11/05/2015					10.00	130.00	60.00	C 2342

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	550.00
3.00	599	Truck Time	95.00	285.00
10.00	602	Hot water	10.00	100.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATIONS OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1560.00
Tax	36.25
Ticket Total	1596.25
Grand Total	9577.50

Purchaser assumes responsibility for damage to off highway traffic devices not part for any necessary moving service and any damage to mixers or equipment where adequate drives are not provided.

10-4-25

This material is designed to give required strength and workability but we cannot guarantee water or concrete after it is poured and cured.

Additional water or admixtures will be added only at the customer's sole request and risk.

>= PURSUANT TO A NSF CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By:

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
11/5/2015 10:20 AM	2342	1312	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,960	58	0.3	55.9	2.75m
ROCK	1645	16,598	16,500	-98	-0.6	17.8	0.90m
CEMENT	564	5,640	5,610	-30	-0.5		
FLYASH	50	500	490	-10	-2.0		
>WATER	33.0	258.0	261.0	3.0	1.2		
<AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	248.00	-2.0	-0.8		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	261.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	334.73
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.46
Agg S/E	0/ 20
Cem S/E	0/ 5

P.O. Box 729
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Afton, Wy 83110

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Fax: 307-885-0601

KILROY LLC

SHIP TO.	DELIVERY INSTRUCTIONS
Kilroy LLC	Simplot - Pole Canyon
CUSTOMER: Kilroy Jobs	15-18 3000#

P.O. NUMBER	DRIVER	TRUCK
	62	1313

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
11/05/2015					10.00	130.00	70.00	2343

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
3.00	599	Truck Time	95.00	285.00
10.00	602	Hot water	10.00	100.00

Caution: Contains Portland Cement, Wear Rubber Gloves and Goggles. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1560.00
Tax	36.25
Ticket Total	1596.25
Grand Total	11173.75

Purchaser assumes responsibility for damages to buildings, driveways and property for any motor carrier service and any damage to drivers or equipment where damage to driveways and property.

This concrete is designed to give required strength and workability, but we cannot guarantee color of concrete after it is finished and cured.
Additional water for the mix will be added only at the customer's own request and risk.
1% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS.

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
11/5/2015 11:47 AM	2343	1313	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,900	-2	0.0	55.7	2.75m
ROCK	1645	16,598	16,520	-78	-0.5	17.8	0.90m
CEMENT	564	5,640	5,590	-50	-0.9		
FLYASH	50	500	495	-5	-1.0		
> WATER	33.0	258.0	261.0	3.0	1.2		
< AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	246.00	-4.0	-1.6		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	261.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	334.55
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.46
Agg S/E	20/ 0
Cem S/E	5/ 5

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO:	DELIVERY INSTRUCTIONS:
Kilroy LLC	Simplot - Pole Canyon
CUSTOMER: Kilroy Jobs	1548 3203

P.O. NUMBER	DRIVER	TRUCK
	18	1311

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00		12:20 PM				

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
11/05/2015					10.00	130.00	80.00	C 2344

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DELI	Delivery charge	55.00	550.00
3.00	599	Truck Time	95.00	285.00
10.00	602	Hot water	10.00	100.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATIONS OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE TRADING STARTS.

Sub-Total	1560.00
Tax	36.25
Ticket Total	1596.25
Grand Total	12770.00

Purchaser assumes responsibility for damage to sidewalks, walks, drives and pay for any move or any mixing service and any damage to owner or equipment where adequate drives are not provided.

1044.25

This concrete is designed to give maximum strength and workability, but it cannot compensate for added water after it is mixed and placed.

Additional water for slump will be added only at the customer's own request and risk.

2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS

Received By:

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
11/5/2015 12:07 PM	2344	1311	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,940	38	0.2	55.9	2.75m
ROCK	1645	16,598	16,500	-98	-0.6	17.8	0.90m
CEMENT	564	5,640	5,610	-30	-0.5		
FLYASH	50	500	500	0	0.0		
>WATER	33.0	258.0	261.0	3.0	1.2		
<AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	248.00	-2.0	-0.8		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	261.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	334.66
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.46
Agg S/E	0/ 20
Cem S/E	5/ 5

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO:	DELIVERY INSTRUCTIONS:
Kilroy LLC	Simplot - Pole Canyon
CUSTOMER: Kilroy Jobs	15-18 30003

P.O. NUMBER	DRIVER	TRUCK
	122	1309

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
11/05/2015					10.00	130.00	90.00	C-2345

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
3.00	599	Truck Time	95.00	285.00
10.00	602	Hot water	10.00	100.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin and eyes flush thoroughly with water. If irritation persists, get medical assistance. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS

Sub-Total	1560.00
Tax	36.25
Ticket Total	1596.25
Grand Total	14366.25

We [illegible] responsible for damages to Highway traffic, drivers and guy for any necessary turning services and for damages to curbs or sprinkler systems where adequate driveways are not provided. 1044.75

This concrete is designed to give required strength and work ability, but we cannot guarantee color of concrete after it is finished and cured.

Additional water for the mix will be added only at the customer's own request and risk.

2% PER MONTH SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS

Received By:

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
11/5/2015 12:25 PM	2345	1309	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,800	-102	-0.6	55.4	2.75m
ROCK	1645	16,598	16,520	-78	-0.5	17.8	0.90m
CEMENT	564	5,640	5,620	-20	-0.4		
FLYASH	50	500	480	-20	-4.0		
> WATER	33.0	258.0	261.0	3.0	1.2		
< AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	252.00	2.0	0.8		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	261.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	334.22
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.46
Agg S/E	20/ 20
Cem S/E	5/ 5

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO:	DELIVERY INSTRUCTIONS:
Kilroy LLC	Simplot - Pole Canyon
CUSTOMER: Kilroy Jobs	

15.18
3003

P.O. NUMBER	DRIVER	TRUCK
	19	1312

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00						

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
11/05/2015					10.00	130.00	100.00	2346

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DEL1	Delivery charge	55.00	~~550.00~~
3.00	599	Truck Time	95.00	285.00
10.00	602	Hot water	10.00	100.00

CAUTION: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with skin or eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE MENTIONED TO THE OFFICE BEFORE LOADING STARTS.

Sub-Total	1560.00
Tax	36.25
Ticket Total	1596.25
Grand Total	15962.50

[illegible] 1596.25

[illegible]

Additional water at the mix will be added only at the customer's own request and risk.
2% PER MONTH [illegible] CHARGE FOR ACCOUNTS OVER 30 DAYS

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
11/5/2015 1:35 PM	2346	1312	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,740	-162	-1.0	55.2	2.75m
ROCK	1645	16,598	16,540	-58	-0.3	17.8	0.90m
CEMENT	564	5,640	5,605	-35	-0.6		
FLYASH	50	500	480	-20	-4.0		
> WATER	33.0	258.0	261.0	3.0	1.2		
< AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	246.00	-4.0	-1.6		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	261.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	334.05
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.46
Agg S/E	20/ 20
Cem S/E	5/ 5

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

KILROY LLC

SHIP TO:	DELIVERY INSTRUCTIONS:
Kilroy LLC	Simplot - Pole Canyon
CUSTOMER: Kilroy Jobs	15.16 3003

P.O. NUMBER	DRIVER	TRUCK
	46	1313

PLANT	TERMS	LEAVE PLANT	ON JOB	OFF JOB	UNLOAD	RETURN PLANT
1.00		2:00	2:50	5:00		

DATE	BATCH NO.	FORMULA	ZONE	TRIM	C.Y. LOAD	C.Y. ORDERED	CUM. YDS.	TICKET NO.
11/05/2015					10.00	130.00	110.00	2347

QTY.	CODE	DESCRIPTION	UNIT PRICE	AMOUNT
10.00	590-2	Pole Canyon	62.50	625.00
10.00	DELI	Delivery charge	55.00	~~550.00~~
3.00	599	Truck Time	95.00	285.00
10.00	602	Hot water	10.00	100.00

Caution: Contains Portland Cement. Wear Rubber Boots and Gloves. PROLONGED CONTACT MAY CAUSE BURNS. Avoid contact with eyes and prolonged contact with skin. In case of contact with eyes, flush thoroughly with water. If irritation persists, get medical attention. KEEP CHILDREN AWAY.

CONCRETE IS A PERISHABLE COMMODITY AND BECOMES THE PROPERTY OF THE PURCHASER UPON LEAVING THE PLANT. ANY CHANGES OR CANCELLATION OF ORIGINAL INSTRUCTIONS MUST BE TELEPHONED TO THE OFFICE BEFORE LOADING STARTS

Sub-Total	1560.00
Tax	36.25
Ticket Total	1596.25
Grand Total	17558.75

Purchaser to assume responsibility for damage to curbs, highways, walks, driveways, lawns, sprinkler systems, etc. caused by heavy trucks, or damage to underground pipes, wires, or other obstructions not properly located or marked upon the premises provided. 12462.75

The concrete is designed to give optimum strength and durability, but it cannot guarantee color of concrete after it is mixed and cured.
Additional water for the mix will be added only at the customer's own request and risk.
2% FINANCE SERVICE CHARGE FOR ACCOUNTS OVER 30 DAYS

Received By: _____

Date/Time	Ticket	Truck	MixCode	Customer Name/Id	0000
11/5/2015 2:51 PM	2347	1313	590-2	Kilroy Jobs	

Material	SSD	Target	Actual	Var	Var%	Water	Moist
SAND	1645	16,902	16,820	-82	-0.5	55.5	2.75m
ROCK	1645	16,598	16,600	2	0.0	17.9	0.90m
CEMENT	564	5,640	5,625	-15	-0.3		
FLYASH	50	500	495	-5	-1.0		
>WATER	33.0	258.0	264.0	6.0	2.3		
<AIR	2.00	20.00	18.00	-2.0	-10.0		
WR	25.00	250.00	248.00	-2.0	-0.8		

Load	10.00
Returned	0.00
Mix Slump	6.00
Mix Water	264.00
Trim Wat	0.00
Truck Wat	0.00
Act Water	337.38
Add Water	0.00
Mix Wt/Cm	0.45
Act Wt/Cm	0.46
Agg S/E	0/ 0
Cem S/E	0/ 5

P.O. Box 729
132 W. Rocky Rd.
Afton, Wy 83110

Phone: 307-885-0600
Fax: 307-885-0601

POLYPROPYLENE TURF REINFORCEMENT MAT

Approved
SPCWD
BC Hauser

Cantbage Mills | Product Data

Geotextiles | Erosion Control | Geogrids | Geomembranes

ECP-2 (10oz) Polypropylene Turf Reinforcement Mat

The ECP-2 10oz is made with uniformly distributed 100% green polypropylene fiber and two heavy weight polypropylene nets securely sewn together with UV stabilized thread. The tightly compressed blankets are wrapped and include a product label, code and installation guide. The blankets are palletized for easy transportation.
The ECP-2 10oz is a permanent turf reinforcement mat for erosion control and is suitable for slopes 1:1 and high flow channels. The ECP-2 10oz meets Type 5.A, and 5.B specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.18.

Materials:	Netting - Top and Bottom	Matrix	Thread
	Heavyweight 5# PMSF UV Stabilized Polypropylene .5" x .5" Opening	100% Green Polypropylene Fiber 0.60 lbs/sq yd 325.5 g/m²	UV Stabilized 1.50" stitch spacing

Roll Sizes:	Standard	Mega
Width:	7.5 ft (2.3 m)	15.0 ft (4.6 m)
Length:	120.0 ft (36.6 m)	120.0 ft (36.6 m)
Weight ±10%:	60.0 lbs (27.2 kg)	120.0 lbs (54.4 kg)
Area:	100 yd² (83.6 m²)	200 yd² (167.2 m²)
#/Pallet:	16	16

Index Value Properties*:

Property	Test Method	Typical	
Mass/Unit Area	ASTM D5261	10	oz/yd² (339.1 g/m²)
Thickness	ASTM D5199	.40	in (10.2 mm)
Tensile Strength-MD	ASTM D5035	400	lb/ft (5.8 Kn/m)
Elongation-MD	ASTM D5035	23.5	%
Tensile Strength-XD	ASTM D5035	400	lb/ft (5.8 Kn/m)
Elongation-XD	ASTM D5035	20	%
Cone Penetration	ASTM D5567	75	%
Density	ASTM D792	.917	g/cc
Resiliency	ASTM D6524	80	%
UV Resistance	ASTM D4355-1500 hr	82	%

* May differ depending upon raw material variations

Bench-Scale Testing* (ECTC**):

Test Method	Parameters	Results
ECTC Method 2 Results	50mm (2in) / hr-30 min	SLR*** = 4.58
	100mm (4in) / hr-30 min	SLR*** = 8.8
	150mm (6in) / hr-30 min	SLR*** = 16.97
ECTC Method 3 Shear Resistance	Shear at 30 min soil loss	2.47 lb/ft²
ECTC Method 4 Germination	Top soil; Fescue; 21 day incubation	487% improvement

*Bench scale tests should not be used for design purposes.
**Soil Loss Ratio - Soil Loss Data Soil/Soil Loss with ECTC 1/0 Control
*** The preceding test data excerpts were reproduced with the permission of AASHTO, however, this does not constitute endorsement or approval of the product by AASHTO

Slope Performance Design Values*:

Property	Test Method	Value
Manning's n	Calculated	.024
C-Factors	ASTM D6459	

Slope Length (L)	5:1	3:1 - 2:1	2:1
< 50 ft (15m)	0.039	0.049	0.052
50 ft - 100 ft	0.025	0.034	0.037
> 100 ft (30 m)	0.053	0.072	0.076

*Large-Scale Results obtained by 3rd Party GAI Accredited Independent Laboratory

Channel Performance Design Values*:

Property	Test Method	Value
Unvegetated Shear Stress	ASTM D6460	7.15 lbs/ft² (100 Pa)
Unvegetated Velocity	ASTM D6460	10.0 ft/s (3.0 m/s)
Vegetated Shear Stress	ASTM D6460	10.0 lbs/ft² (479 Pa)
Vegetated Velocity	ASTM D6460	18.0 ft/s (5.5 m/s)

*Large-Scale Results obtained by 3rd Party GAI Accredited Independent Laboratory

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Cincinnati, OH 45242
www.cantbagemills.com

513-794-1600 TELEPHONE
800-543-4436 TOLL FREE
513-791-3134 FACSIMILE
info@cantbagemills.com

Since 1958: America's *First* Geotextile Company

Approved
[illegible]
[illegible]

Carthage Mills | Product Data

Geotextiles | Erosion Control | Geogrids | Geomembranes

ECS-2B Double Net Straw Biodegradable Rolled Erosion Control Product

The ECS-2B is a biodegradable erosion control blanket made with uniformly distributed 100% agricultural straw and two organic jute nets securely sewn together with biodegradable thread. The tightly compressed blankets are wrapped and include a product label, code and installation guide. The blankets are palletized for easy transportation.

The ECS-2B has functional longevity of approximately 12 months but will vary depending on soil and climate conditions, and is suitable for slopes 3:1 to 2:1 and low to medium flow channels. The ECS-2B meets Type 2.D specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) HP 03 Section 713.17.

Materials:	Netting – Top and Bottom	Matrix	Thread
	Organic Leno Weave Jute 100% Biodegradable 0.5" x 1.0" Opening	100% Agricultural Straw 0.55 lbs/sq yd 298.4 g/m²	Biodegradable 1.50" stitch spacing

Roll Sizes:	Standard	Mega
Width:	7.5 ft (2.3 m)	15.0 ft (4.6 m)
Length:	120.0 ft (36.6 m)	120.0 ft (36.6 m)
Weight ±10%:	59.3 lbs (26.9 kg)	118.6 lbs (53.8 kg)
Area:	100 yd² (83.6 m²)	200 yd² (167.2 m²)
#/Pallet:	16	16

Index Value Properties*:

Property	Test Method	Typical	
Mass/Unit Area	ASTM D6475	9.5	oz/yd² (322.3 g/m²)
Thickness	ASTM D6525	.30	in (7.6 mm)
Tensile Strength-MD	ASTM D6818	100	lb/ft (2.8 kN/m)
Elongation-MD	ASTM D6818	16.4	%
Tensile Strength-TD	ASTM D6818	130	lb/ft (1.9 kN/m)
Elongation-TD	ASTM D6818	16.8	%
Light Penetration	ASTM D6567	20	%
Water Absorption	ASTM D1117	510	%

* May differ depending upon raw material variations

Bench-Scale Testing* (ECTC**):

Test Method	Parameters	Results
ECTC Method 2 Long-Term	50mm (2in) / hr-30 min	SLR*** 10.90
	100mm (4in) / hr-30 min	SLR*** 12.27
	150mm (6in) / hr-30 min	SLR*** 13.98
ECTC Method 3 Shear Resistance	Shear at 20 min soil loss	1.84 lb/ft²
ECTC Method 4 Germination	Light seed, Fescue; 21 day incubation	37% Improvement

* Bench scale tests should not be used for design purposes.

** Soil Loss Ratio – Soil Loss (bare Soil)/Soil Loss with RECP= U/C-factor

*** The preceding test data excerpts were reproduced with the permission of AASHTO, however, this does not constitute endorsement or approval of the product by AASHTO

Slope Performance Design Values*:

Property	Test Method			Value
Manning's n	Calculated			.029
C-Factors	ASTM D6459			
	Slope Length (L)	≤ 3:1	3:1 – 2:1	≥ 2:1
	< 50 ft (15m)	0.016	0.019	NA
	50 ft – 100 ft	0.013	0.017	NA
	> 100 ft (30 m)	0.010	0.100	NA

*Large Scale Results Obtained by 3 Party GAI Accredited Testing Lab, not a Laboratory

Channel Performance Design Values*:

Property	Test Method	Value
Unvegetated Shear Stress	ASTM D6460	1.73 lb/ft² (83 Pa)
Unvegetated Velocity	ASTM D6460	6.0 ft/s (1.8 m/s)
Vegetated Shear Stress	NA	NA
Vegetated Velocity	NA	NA

*Large Scale Results Obtained by 3 Party GAI Accredited Testing Lab, not a Laboratory

Caveat: While approximations believed to be accurate are given for the information of the purchaser, Carthage Mills disclaims any and all express and implied, or statutory warranties, warranties of merchantability, and/or fitness for a particular purpose, or arising from a course of dealing or usage of trade as to any data, materials, or information furnished herewith. This document should not be construed as engineering advice.

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Cincinnati, OH 45242
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Since 1958: America's *First* Geotextile Company

STRAW WATTLES MATERIAL PROPERTIES AND SPECIFICATIONS

Approved 7/18/16
Bo Hansen

MATERIAL PROPERTIES AND SPECIFICATIONS

ENVIRO STRAW

STRAW WATTLES

SPECIFICATIONS

Wattles are made with 100% clean, Certified Weed Free Wheat Straw Fiber matrix and are bound into a tight tubular roll of specific length and diameter. When Wattles are placed on the face of slopes or channels they intercept stormwater runoff, reduce its hydraulic energy, release the runoff as sheet flow, and provide removal of sediment from the runoff. wattles are flexible and conform to the soil surface and are installed and secured by staking.

Specified Expected Values			
Diameter	10 ft (3.0M) length	20 ft (6.0 m) length	25 ft (7.6m) length
9 in (0.23m)			35.0 lbs (15.9 kg) 1.4 lbs/ft (2.1 kh/m) (+/- 10%)
12 in (0.31 m)		50.0 lbs (22.7 kg) 2.5 lbs/ft (3.7 kg/m) (+/- 10%)	
18 in (0.46m)	35.0 lbs (15.9 kg) 3.5 lbs/ft (5.2 kg/m) (+/- 10%)		

Compostion		
Fill Fiber	100% Clean, Certified Weed Free Straw	
Netting	0.50" x 0.50" Heavy Duty synthetic	
Configuration	cylindrical with Closed Ends	
End Closure	Hog Ring or Tied	

*all values shown measured at the time of manufacture.

Please call For 18" Wattles

Each wattle is manufactured under strict quality contol programs to insure a consistent product.

Greg Thompson
Operations Manager
ENVIRO STRAW
PO BOX 406
Rigby, ID 83442
info@enviro-straw.com

ENVIRO STRAW

Effective: 01/01/2015

RE: Certificate of Conformance, ENVIRO-STRAW Straw Wattle

To Whom It May Concern,
This letter certifies that the product marketed as ENVIRO-STRAW Straw Wattle is manufactured by ENVIRO-STRAW, and is subject to ENVIRO-STRAW's strict Quality Control Measures. Each product is carefully inspected before leaving the manufacturing site to ensure that it meets the buyer's specifications and to confirm that the product is free of defects. For proper installation, please refer to the instructions included with your Straw Wattle. Questions regarding this product may be directed to info@enviro-straw.com.

Sincerely,

Greg Thompson
Operations Manager
ENVIRO STRAW

IDAHO STATE DEPARTMENT OF AGRICULTURE
P.O. Box 790, Boise, Idaho 83701 (208) 332-8692

NWF No. ID/ 15 , BB , 034
(Year) (County) (Inspection Number)

NOXIOUS WEED FREE
FORAGE AND STRAW CERTIFICATION PROGRAM

INSPECTION CERTIFICATE

This is to certify that the forage or straw has been inspected in accordance with the Idaho State Department of Agriculture NWFF&S Certification Rules. The crop has been mutually identified between the grower and agent and has been found to be free of the specific noxious weed list listed below. Based on a reasonable inspection, the crop appears to be free of listed weed materials that would be capable of propagation. However, this certification does not constitute a warranty.

Indicate one of the following:

____ Idaho State Noxious Weed Free: Forage and straw inspected for weeds designated by the director as noxious as defined in Section 22-2402(15), Idaho Code, and determined to be free of such weeds. (bale tags only)

X North American Noxious Weed Free: Forage and straw inspected for, and determined to be free of, weeds designated as noxious by the director as defined in Section 22-2402(15) Idaho Code and noxious weeds listed on the North American Weed List. (8-21-07) (color-coded twine or bale tags)

County agency: County name, address, phone Bonneville Co. Weed Control, Idaho Falls, Idaho 83401, 529-1391

Grower: Name, address, phone Thiele Brow LLC, 220-0[illegible] 2550 S, 45 W, Idaho Falls, Ida. 83401

Legal description of property being inspected or field number: Field #1 S+W of 17th S, 45W / 50A Field #2 East of 2550 S, 45W, wheat land, 10 A

Cutting (circle one): First Second Third Fourth

Forage/Straw type: Barley Straw

# of acres inspected 250 # of acres certified 250

Package / bale size 3 x 4 x 8

Number of bales or tonnage 700 bales

Bale tag numbers (if applicable) 113820 to 113919

Comments Straw remanufactured into woodlea

Certification Agent Terry Hamilton (Signature) Inspection Date 8/3/15

Certified Representative

Title/Agency Idaho State Dept of Agr Phone (208) 520-0863

WHITE – Grower PINK & YELLOW – Agent (Rev. 2-20-15)

EROSION CONTROL BLANKETS

EAST COAST EROSION BLANKETS

610-488-8496 Facility: PA eastcoasterosion.com

Item #: ECS-2B

100 SQYD STRAW DOUBLE BIO

Size: 100 SQYD (Width: 8 FT Length: 112.5 FT)

Lot #: 33340

Qty: 1

Installation Guide

Product Information

UNROLL

EAST COAST EROSION BLANKETS

610-488-8496
Facility: PA
eastcoasterosion.com

Item #: ECP-2 10

100 SQYD POLY 10 OZ DOUBLE NET 8' X 112.5'

Size: 100 SQYD (Width: 8 FT Length: 112.5 FT)

Lot #: 102648

Qty: 1

Installation Guide

Product Information

UNROLL

COAST EROSION BLANKETS

496 Facility: PA eastcoasterosion.com

CS-2B

STRAW DOUBLE BIO

0 SQYD (Width: 8 FT Length: 112

Lot #: 33315

Qty: 1

Guide

Product Information

UNROLL

TOPS 35502

BONDED FIBER MATRIX MATERIALS

HYDROSTRAW® BONDED FIBER MATRIX - CERTIFICATE OF COMPLIANCE

CERTIFICATE OF COMPLIANCE

Patents Pending

Manufacturer: HydroStraw, LLC · 3676 W 9000N Rd · Manteno, IL 60950
Toll Free: 800-545-1755 · Fax: 815-468-7450 · www.hydrostraw.com · info@hydrostraw.com

HydroStraw, LLC certifies that HydroStraw® BFM contains the following properties and characteristics

DESCRIPTION-
HydroStraw® Bonded Fiber Matrix is designed to be more cost effective than blankets and cost less to apply per acre than conventional BFM mulches on difficult sites, slopes and adverse soil conditions where extra erosion prevention is needed.

The product includes long natural fibers for maximum matrix entanglement for improved performance.

The combination of fiber entanglement in conjunction with our cross linked high-strength polymer binders produce great erosion prevention and vegetation establishment.

HydroStraw® Bonded Fiber Matrix in field tests has shown that the annually renewable heat and mechanically treated straw fibers in this product improves seeds germination and vegetation establishment. Research has shown that vegetation is many times better than temporary mulches in erosion prevention. Thereby the ultimate goal is creating an environment for rapid vegetation establishment with seed friendly straw fibers.

HydroStraw® Bonded Fiber Matrix consists of annually renewable heat and mechanically treated straw fibers, environmentally safe, fibers that are biodegradable and a non-toxic green colorant to aid in application.

Field tests have shown HydroStraw® mulch protects soil and enhances seed germination and vegetation establishment as the fibers bio-degrades. (V.E.M. Vegetation Establishment Mulch)

Physical Characteristics	
Toxicity	Non-Toxic
Applied Color	Green
Sufrace Tension	Material will evenly disperse and suspend when agitated in water
Absorbancy	When sprayed uniformly at the recommended rate, the mulch fibers form an absorbent mulch cover which will allow percolation of water and increased water infiltration to the underlying soil matrix
Solubility	Mulch Fibers are non water soluble
PH	06.8 +/- 0.5
Average Fiber Length	1/2" +/- 1/4"

Packaging and Shipping Data	
Bag Size	11.5" x 17" x 25"
Bag Weight	50 lbs. - Compressed Bales
Pallet	40 bags (52W x 45D x 96H)
Full Truck	22 Pallets, 880 Bales
Packaging	Moisture resistant packaging

Composition	
Heat & Mechanically Treated (HMT™) - Straw	68.0% +/- 1.0%
Natural Fibers	12.0% +/- 1.0%
Moisture	10.0% +/- 1.0%
Proprietary Tackifiers	10.0% +/- 1.0%

Mixture Rates	
Hose Work	60 lbs per 100 gallons
Tower Work	75 lbs per 100 gallons

WARRANTY
HydroStraw, LLC warrants that its products are free from defects and will perform as stated in this literature. If our product does not meet products specifications, notice of failure must be received within 15 days of failure. HydroStraw, LLC will not warrant that the product will perform under unlimited circumstances that are caused by soil conditions, installation, and/or weather variables.

Slope Gradient/Condition	lb/acre
≤ 3:1	3,000 lbs/ac
≤ 2:1	3,500 lbs/ac
≤ 1:1	4,500 lbs/ac
Soil Moisture Retention	2,000 - 3,500 lbs/ac

MATERIAL SAFETY DATA SHEET

Last Updated May 21, 2010

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: **HydroStraw® Bonded Fiber Matrix Formulation** CAS Number: Mixture

Product Use: Vegetation establishment erosion control mulch for hydraulic seeding, a blown straw alternative, and an ADC alternative.

Product Description: Hydraulically applied mulch with a specially formulated composition of annually renewable straw fiber, (V.E.M.) Vegetation Establishment Mulch™, natural fibers for fiber matrix entanglement, and proprietary binder. Load More Spray More, Use Less Water.

Company Identification: **HydroStraw, LLC**
3676 W. 9000 N. Rd.
Manteno, IL 60950 USA
(800) 545-1755 Toll Free (For product information)
(815) 468-3610
(815) 468-7450 Fax
info@hydrostraw.com
www.hydrostraw.com

2. COMPOSITION / INFORMATION ON INGREDIENTS

CONTAINING: HAZARDOUS AND/OR REGULATED COMPONENTS

Ingredients	Percentage	Hazardous
Heat & Mechanically Treated (HMT)™ - Straw	68.0%	Non-Hazardous
Natural Fibers	12.0%	Non-Hazardous
Moisture	10.0%	Non-Hazardous
Proprietary Tackifiers	10.0%	Non-Hazardous

This product is not considered hazardous under the criteria of Federal OSHA Hazard Communication Standard 29CFR 1910.1220.

California Prop 65: This product does not contain an ingredient(s), above the safe harbor limits, which are known to the state of California to cause cancer, birth defects, or other reproductive harm.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION! THIS PRODUCT MAY BE COMBUSTIBLE IF EXPOSED TO TEMPERATURES OVER 180°F. DUST FROM THIS PRODUCT MAY IRRITATE SKIN, EYES AND UPPER RESPIRATORY SYSTEM.

POTENTIAL HEALTH EFFECTS

ROUTES OF ENTRY: Inhalation, eye contact, and skin contact.

TARGET ORGANS: Respiratory System.

INHALATION: Occasional mild irritation of nose and throat may occur from inhalation of dusts at levels greater than 10 mg/m³.

INGESTION: Not a normal route of entry. Small amounts swallowed are not likely to cause effects; swallowing larger amounts may cause gastrointestinal symptoms.

SKIN CONTACT: Straw dust may cause mild mechanical irritation to skin.

EYE CONTACT: Straw dust may cause mild mechanical irritation to eyes.

CHRONIC EXPOSURE: None known
AGGRAVATION OF PRE-EXISTING CONDITIONS: Individuals with pre-existing respiratory disorders may aggravate the condition by inhalation of dust.

4. FIRST AID MEASURES

INHALATION FIRST AID: Prolonged exposure to dust levels in excess of regulatory limits should always be avoided. If irritation or difficulty breathing occurs, remove victim to fresh air and provide oxygen if necessary. If not breathing, give artificial respiration, preferably mouth to mouth. Get medical attention if difficulty persists.
SKIN CONTACT FIRST AID: Wash with soap and water after handling.
EYE CONTACT FIRST AID: If contact with eyes, flush with fresh water for several minutes. If irritation persists seek medical attention.
INGESTION FIRST AID: If swallowed, rinse mouth with water and give four glasses of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if needed.
NOTE TO PHYSICIANS: Treat symptoms

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES: Combustible
AUTO IGNITION TEMPERATURE: No data
FLASH POINT: No data
FLAMMABLE LIMITS IN AIR, % by Volume: lel: NE; uel: NE.
EXTINGUISHING MEDIA: Water or other standard media. Same as a wood or straw fire.
FIRE & EXPLOSION HAZARDS: May be combustible above 180°F.
SPECIAL INFORMATION:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. ACCIDENTAL RELEASE MEASURES

SPILL CLEAN-UP PROCEDURES:
Vacuum, shovel or sweep up mulch and place in containers for reuse, recycling or disposal. Always dispose of waste materials in accordance with all local, state and federal regulations.

7. HANDLING AND STORAGE

RECOMMENDED STORAGE CONDITIONS: Store in a cool, dry well-ventilated location away from heat or ignition sources. Insure packaging is in good condition for outside storage.
HANDLING (PERSONNEL): Handle in accordance with good industrial hygiene and safety practices.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

AIRBORNE EXPOSURE LIMITS: See Section 2 above.
Dust:

-OSHA Permissible Exposure Limit (PEL): 10 mg/m³ (TWA)

VENTILATION SYSTEM: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits.

PERSONAL RESPIRATORS (NIOSH APPROVED): Required if the exposure limit is exceeded or engineering controls are not feasible. Always use a NIOSH approved respirator. A fabric respirator or a face piece respirator with dust cartridges will generally provide adequate protection.

SKIN PROTECTION: Wear gloves of leather, plastic, or rubber when loading tanks.

EYE PROTECTION: Wear safety glasses in high dust areas or when filling tanks..

GOOD HYGIENE CONDITIONS: Wash with soap and water before meals and at the end of each work shift. Good practices require amounts of any chemical be removed from the skin as soon as practical, especially before eating or smoking.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR: Negligible
SPECIFIC GRAVITY: NE (Water =1)
pH: 6.80
COLOR: Green
AUTO IGNITION TEMPERATURE: Not Established

10. STABILITY AND REACTIVITY

STABILITY: Stable under ordinary conditions of use and storage.
CONDITIONS TO AVOID: Heat, flame ignition sources.
HAZARDOUS POLYMERIZATION: Will not occur
INCOMPATIBILITY WITH OTHER MATERIALS: None
HAZARDOUS DECOMPOSITION: None

11. TOXICOLOGICAL INFORMATION

Toxicological Data:
No Data Available

Cancer Lists

	—NTP Carcinogen—		
Ingredient	Known	Anticipated	IARC Category
All ingredients	No	No	None

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE:
This material is expected to have a low environmental impact.

ENVIRONMENTAL TOXICITY:
This material is not expected to be toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:
Recover, reclaim or recycle when practical.
Dispose of material in accordance with federal, state and local requirements.

MATERIAL SAFETY DATA SHEET

Last Updated May 21, 2010

14. TRANSPORTATION INFORMATION

This Product is not regulated by the U.S. Department of Transportation.

15. REGULATORY INFORMATION

FEDERAL REGULATORY STATUS

Federal, State & International Regulations - Part 1

Ingredient	-SARA 302- RQ	TPQ	List	-SARA 313- Chemical Catalog
All ingredients	NO	NO	NO	NO

Federal, State & International Regulations - Part 2

Ingredient	CERCLA	-RCRA- 261.33	-TSCA- 8(d)
All ingredients	NO	NO	NO

SARA 311/312: Acute: Yes Chronic: No Fire: Yes Pressure: No
Reactivity: No (Pure / Liquid)
PROP 65 - WARNING:
THIS PRODUCT DOES NOT CONTAIN A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.
RCRA 40 CFR: None

16. OTHER INFORMATION

Prepared By: Paul Eigbrett (MSDS Authoring Services) Part Number: 081310HB

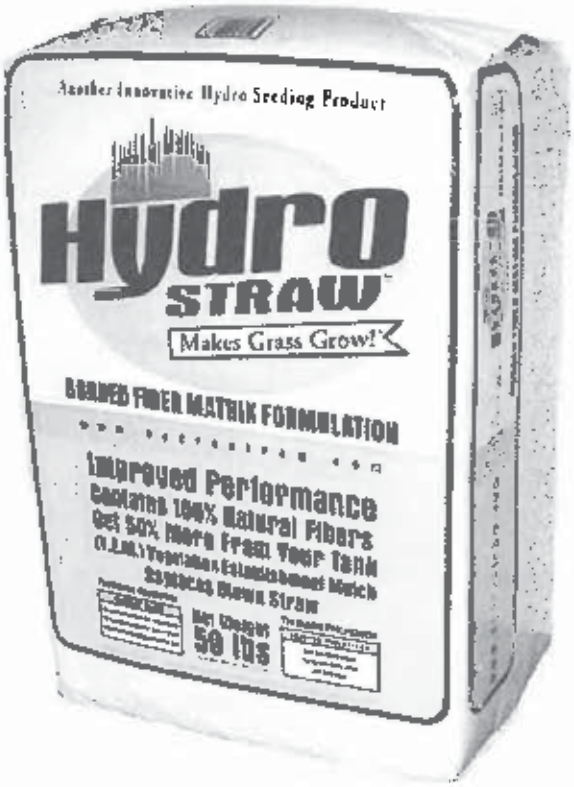
ADDITIONAL INFORMATION:

The data in this Material Safety Data Sheet relates only to the specific material designated herein. It does not relate to use in combination with any other material or in any process. This Material Safety Data Sheet (MSDS) has been reviewed to fully comply with the guidance contained in the ANSI MSDS standard (ANSI Z400.1-2004)

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

MATERIAL SAFETY DATA SHEET

Last Updated May 21, 2010



END OF MSDS

PART 1: GENERAL

1.1 SUMMARY

A. This section specifies the use of HydroStraw® Bonded Fiber Matrix as an allowable Bonded Fiber Matrix for use in temporary cover by mulch, temporary cover by seeding or permanent cover by seeding applications. Do not use HydroStraw® Bonded Fiber Matrix as a channel liner or for areas receiving concentrated flow.

B. Related Sections: Other Specification Sections, which directly relate to the work of this Section may include, but are not limited to the following:

1. *Section XXXXX – EARTHWORK*
2. *Section XXXXX – LANDSCAPING*
3. *Section XXXXX – SITE STABILIZATION*
4. *Section XXXXX – SEEDING, FERTILIZING, AND MULCH*

1.2 APPLICATIONS

Use HydroStraw® Bonded Fiber Matrix to provide extra protection on difficult sites where slopes (≤ 1:1), soil conditions or weather require additional erosion prevention ability. Use HydroStraw® Bonded Fiber Matrix when the site requires immediate erosion protection as a result of enhanced vegetation establishment.

A. USE AS A BLOWN STRAW REPLACEMENT with hydraulically applied straw conversion.

Replace the recommended blown straw rate per acre with the recommended HydroStraw® rate per acre less the hydraulically applied fibers for seed, fertilizer and tackifiers application. Table 1 is an example:

Table 1: HydroStraw® Bonded Fiber Matrix Replacement

Example Blown Straw Specification		HydroStraw Recommendation	
Wood Fiber seed and fertilizer	500 lbs	HydroStraw seed and fertilizer	1,000 lbs
Blown Straw	**4,000 lbs**	HydroStraw	3,000 lbs
Wood Fiber tackifier application	500 lbs	HydroStraw	-0- lbs
TOTAL Fiber Pounds per acre:	5,000 lbs	TOTAL Fiber Pounds per acre:	**4,000 lbs**

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B. PRE BLENDED PRODUCT

HydroStraw® Bonded Fiber Matrix is a pre-blended product that eliminates the extra step and mess of field mixing of mulch components and additives and reduces additive break down by rain fall events.

C. HIGHER LOADING RATES

HydroStraw® Bonded Fiber Matrix performance is reduced by using lower than recommended mulch to water ratio. HydroStraw® formulation is designed for maximum performance with the following mulch to water mixture ratio:

RECOMMENDED HYDROSTRAW® BONDED FIBER MATRIX MIXTURE RATES

- 60 lbs per 100 Gallons for hose work
- 75 lbs per 100 Gallons for tower work

Higher loading rate reduces the amount of water required for the application of HydroStraw® Bonded Fiber Matrix.

D. VEGETATION ESTABLISHMENT

HydroStraw® Bonded Fiber Matrix includes long natural fibers for maximum matrix entanglement for improved performance. The combination of fiber entanglement in conjunction with cross linked high-strength polymer binders produce improved erosion prevention and vegetation establishment. The annually renewable straw fiber in HydroStraw® Bonded Fiber Matrix enhances vegetation establishment by aiding in moisture retention and compensating for seed to soil contact. Complete soil coverage is needed to improve moisture retention and improve seed germination. Low rain fall regions may consider higher HydroStraw® Bonded Fiber Matrix application rates to increase soil moisture retention to improve the establishment of vegetation.

1.3 SUBMITTALS

A. Submit the manufacturer's product data and installation instructions. This includes but is not limited to the required site preparation, list of required materials and required application rate(s).

B. Submit a letter from the manufacturer certifying that the hydraulic mulch fiber meets or exceeds all technical and packaging requirements.

C. Upon request, submit from the manufacturer a *Report of Straw Analysis* test demonstrating the straw contains no viable seed. Ensure the Report *of Straw*

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Analysis is prepared by registered seed technologist from an accredited ISTA laboratory and is made available per product lot numbers upon request. Samples are taken during the production to represent a uniform sample.

D. No material will be considered as an equivalent to the HydroStraw® Bonded Fiber Matrix material specified herein unless it meets all requirements of this specification, without exception. Manufacturers seeking to supply what they represent as equivalent material must submit records, data, independent test results, samples, certifications, and documentation deemed necessary by the ENGINEER to prove equivalency.

1.4 QUALITY ASSURANCE

A. At the time of delivery, provide the ENGINEER with the specific packing list containing complete identification, including but not limited to the following:

1. Manufacturer name and location.
2. Manufacturer telephone number and fax number.
3. Manufacturer's e-mail address and web address.
4. Hydraulic mulch name, model and/or serial number.
5. Certification that the specific Bonded Fiber Matrix meets the physical and performance criteria of this specification.

1.5 DELIVERY STORAGE AND HANDLING

A. Deliver all materials in moisture resistant factory labeled packages.

B. Store and handle HydroStraw® Bonded Fiber Matrix in strict compliance with the manufacturer's instructions and recommendations. Protect the packaged hydraulic mulch from damage from weather, excessive temperatures, and construction operations.

C. Clean all spills promptly.

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PART 2: PRODUCTS

2.1 ACCEPTABLE PRODUCTS & MANUFACTURER

A. HydroStraw® Bonded Fiber Matrix

HydroStraw, LLC
3676 W 9000N Road
Manteno, IL 60950
Toll Free: 800-545-1755
Fax: 815-468-7450
www.hydrostraw.com
info@hydrostraw.com

2.2 MATERIALS

A. All materials consist of HydroStraw® Bonded Fiber Matrix and conform to the composition requirements of Section 2.3.

2.3 COMPOSITION

The pre-packaged Bonded Fiber Matrix materials consists of a specially formulated composition of annually renewable straw fiber, long natural fibers for maximum fiber matrix entanglement, and cross linked high-strength polymer binders.

A. The primary Bonded Fiber Matrix fiber is produced from annually renewable heat and mechanically treated straw fiber.

B. The primary Bonded Fiber Matrix tackifier is a cross linked high-strength polymer.

C. Bonded Fiber Matrix contains long natural fibers for maximum fiber matrix entanglement

D. All Bonded Fiber Matrix materials are free from plastic materials or other non bio-degradable substances.

E. Bonded Fiber Matrix is of such character that the fiber will disperse into uniform slurry when mixed with water.

F. Bonded Fiber Matrix is colored green, and does not stain concrete or other surfaces.

G. Bonded Fiber Matrix ingredients are free from growth or germination inhibiting ingredients.

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H. All Bonded Fiber Matrix components are pre-packaged by the manufacturer to assure both material performance and compliance with the minimum requirements of Table 2.

I. Under no circumstances is Bonded Fiber Matrix field mixing of additives or components accepted.

Table 2: Minimum HydroStraw® Bonded Fiber Matrix Requirements

Property	Requirement
Physical	
Organic Matter	100%
Toxicity	Non Toxic
Applied Color	Colored green and shall not stain concrete or other surfaces.
Surface Tension	Material evenly disperses and suspends when agitated in water.
Absorbency	When sprayed uniformly at the recommended rate, the mulch fibers form an absorbent mulch cover which allows percolation of water and increased water infiltration to the underlying soil matrix
Solubility	Mulch Fibers are non water soluble
pH	6.8 +/- 0.5
Average Fiber Length	1/2" +/- 1/4"
Composition	
Heat & Mechanically Treated (HMT™) - Straw	68.0% +/- 1.0%
Natural Fibers	12.0% +/- 1.0%
Moisture	10.0% +/- 1.0%
Proprietary Cross Linked Tackifiers	10.0% +/- 1.0%

2.4 PACKAGING

A. Ensure all products are packaged in the following manner:

1. Bag Size: 11.5"W x 17"D x 25"H
2. Bags Weight: 50 lb compressed bales
3. Packaging: Moisture resistant package protected
4. Pallet: 40 bags/pallet (52"W x 45"D x 96"H)

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PART 3: EXECUTION

3.1 EXAMINATION

A. Use HydroStraw® Bonded Fiber Matrix where all components are pre-packaged by the manufacturer to assure material performance.

B. Examine substrates and conditions before applying materials. Do not proceed with installation until unsatisfactory conditions are corrected. Apply hydraulic mulch to stable slopes that are constructed to divert runoff water away from the face of the slope, eliminating damage to the slope face caused by the surface flow from above the slope.

3.2 INSTALLATION

A. Use personnel or subcontractors experienced in the proper procedures for mixing and application of hydraulic mulch. Use personnel or subcontractors certified and trained by the manufacturer in the proper procedures for mixing and application of hydraulic mulch.

B. Strictly comply with the manufacturer's installation and mixing instructions shown in Table 3.

Table 3: HydroStraw® Bonded Fiber Matrix Mixture Rates

Mulch Fiber Weight (lbs)	Gallons of Water
60	100 (hose work)
75	100 (lower work)

C. Loading and Mixing Instructions

1. Start the flow of water into the tank.
2. Pre-wet hoses and prime the pump by running water through the lines.
3. Engage the agitator at ½ speed.
4. When applying seed and/or fertilizer, add to the tank when the water level reaches ¼ full.
5. **Load all HydroStraw® Bonded Fiber Matrix components before the tank reaches ¾ full. Do not hesitate to shut off water before this step is completed.**
6. Resume filling the tank with water until the tank is full.

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7. Set the engine to full throttle for approximately ½ minute. Then set the engine throttle to about ½ speed to begin hose application operations.

D. It is imperative to apply the mulch at the specified mixture rate: too wet of a mixture will cause the fibers to be buried into the soil and also dilutes the fiber binders reducing effectiveness.

E. Apply Bonded Fiber Matrix as a slurry solution by means of approved hydraulic seeding/mulching machines with appropriate nozzles for hydraulic mulch applications.

F. Apply Bonded Fiber Matrix at the specified rates per in Table 4 in a uniform manner.

Table 4: Minimum HydroStraw® Bonded Fiber Matrix Application Rates

Slope Gradient	lb/acres
S ≤ 3:1	3,000
3:1 < S ≤ 2:1	3,500
2:1 < S ≤ 1:1	4,500
Soil Moisture Retention	2,000 – 3,500

G. Ensure the Bonded Fiber Matrix application is uniform and even throughout the seeded area. Ensure the mulch is not bunched or clumped up on the site.

H. Avoid creating a "shadowing effect" on the site. Apply Bonded Fiber Matrix from opposing directions to the soil surface in successive layers, reducing the "shadow effect" to achieve maximum coverage of all exposed soil. Start Bonded Fiber Matrix applications on the windward side of the project.

I. Add seed, lime, and fertilizer as outlined in Section XXXXX *SEEDING, FERTILIZING, AND MULCH.*

J. Ensure seed to soil contact best management practices are utilized. Improved seed germination and establishment can be achieved by improving the seed to soil contact by drilling or broadcasting the seed application prior to HydroStraw® Bonded Fiber Matrix application.

Applying the seed (Hydroseeding) with HydroStraw® Bonded Fiber Matrix at a rate of 1,000 lbs or less per acre during a first pass application is another option. In this situation, the balance of the targeted HydroStraw® Bonded Fiber Matrix rate is applied during the second pass application to cover the seed and soil creating an ideal environment for seed germination and establishment.

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3.3 INSPECTION AND MAINTENANCE

A. Prepare a maintenance plan that includes the following:

1. Reapplication as directed by the ENGINEER to disturbed areas that require continued erosion control.
2. Maintenance of equipment to provide uniform application rates.
3. Rinsing all mixing and application equipment thoroughly with water to avoid formation of residues and appropriate discharge of rinse water.

B. Degradation can be expected to occur as a result of mechanical degradation, chemical degradation, biological hydrolysis, sunlight, salt, and temperature. Where necessary, reapply in accordance with the manufacturer's instructions. Reapplication is not required unless treated soils are disturbed or turbidity or water quality shows the need for an additional application. If treated soils are left undisturbed, the necessity of reapplication is determined by the ENGINEER.

C. Payment for the reapplication is not made unless the reapplication is approved by the ENGINEER.

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PART 4: ACCEPTANCE MEASUREMENT AND PAYMENT

4.1 ACCEPTANCE

Obtain acceptance and approval of HydroStraw® Bonded Fiber Matrix installation from the ENGINEER. When requested by the ENGINEER, ensure that a manufacturer's representative is on-site to oversee and approve the initial installation. Obtain a letter from the manufacturer approving the installation when requested by the ENGINEER.

4.2 MEASUREMENT

The quantity for the pay item HydroStraw® Bonded Fiber Matrix is the surface area covered by the hydraulic mulch applied at the recommended rate and is measured by the one-acre (acre) unit in-place, complete, and accepted. The installation may require written acceptance by the manufacturer's representative before acceptance for payment.

4.3 PAYMENT

Payment for HydroStraw® Bonded Fiber Matrix is full compensation for installing the hydraulic mulch as specified or directed by the ENGINEER and includes furnishing, applying, and maintaining the hydraulic mulch including testing and documentation of Quality Control and Quality Assurance programs and all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other terms of the Contract.

END OF SECTION

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SEED MIX

Seed Mixture: Smoky Canyon Mine Seed Mix

Lot # 1509-903-46292 Net Wt: 50L

Species	%Purity	Germ	Origin	Test
Regreen, Sterile Wheat Hybrid	36.46	96.00	WA	05/15
Brome, Mountain, Bromar	12.12	97.00	WA	09/15
Wheatgrass, Western, Rosana	9.18	94.00	WA	08/15
Small Burnet, Delar	7.34	91.00	OR	04/15
Wildrye, Blue, Arlington	4.89	90.00	WA	04/15
Wheatgrass, Slender, Revenue	4.84	95.00	CN	09/15
Wheatgrass, Thickspike, Critana	4.69	96.00	WA	08/15
Wildrye, Basin, Magnar	4.28	90.00	MT	05/15
Fescue, Rocky Mountain	3.56	97.00	CN	03/15
Orchardgrass, Paiute	2.36	97.00	OR	05/15
Bluegrass, Sherman Big	2.32	92.00	OR	04/15
Balsamroot, Arrowleaf	1.22	89.00	MT	08/15
Flax, Blue, Appar	1.22	98.00	WA	05/15
Penstemon, Rocky Mountain	1.21	93.00	OR	05/15
Clover, Ladino	1.19	92.00	OR	03/15
Yarrow, Western White	0.24	97.00	OR	06/15
Goldeneye, Showy	0.24	91.00	UT	06/15

Crop 0.08
Weed 0.03
Inert 2.53
Noxious: NONE FOUND

AMS 730

Jacklin Seed Co
5300 West Riverbend Ave
Post Falls, ID 83854

TOPS 35502