

Council Request Update

July 28, 2016

Council Request 16-114 (Operational Plan Update)

Requested by: Councilmember Olson

Assigned to: CMO

Request: Request for an update from the City Manager on the operational plan.

Response: The City Manager will give Council an update on the operational plan at the September 12, 2016 Study Session.

Council Request 16-121 (Cost of Legal Opinion)

Requested by: Councilmember Barrentine

Assigned to: HR

Request: Request for the cost of the legal opinion provided to the City by Bob Widner.

Response: According to HR Manager Jayleen Schell, there was no fee for Bob Widner's legal opinion.

Council Request 16-122 (Tree Debate)

Requested by: Councilmember Barrentine

Assigned to: City Attorney

Request: Request to look into the tree that was discussed at the June 20 City Council meeting.

Response: According to Acting City Attorney Dugan Comer, the original opinion stands.

Council Request 16-135 (Kloewer FMLA leave request)

Requested by: Councilmember Olson

Assigned to: HR

Request: Request for Ken Kloewer's FMLA leave request and how it's being handled.

Response: According to HR Manager Jayleen Schell, due to HIPAA regulations, HR is unable to provide any personal information specific to an employee's FMLA-related status.

Council Request 16-137 (Safety of Mid-block Crossing)

Requested by: Mayor Jefferson

Assigned to: Public Works

Request: Request to look into the safety of a mid-block crossing at the 3400 block of Broadway.

Response: See attached response from Matrix Design Group.

Council Request 16-138 (Residual Testing 2011-2015)

Requested by: Councilmember Barrentine

Assigned to: Utilities

Request: Request for data on the testing of residuals from 2011-2015.

Response: The 2011 residuals results are attached. According to Water Production Superintendent Jason Clark, the residuals from 2012 and 2013 were not tested because the Allen Plant did not haul in those two years. In 2014 the test results were a composite of 2012 and 2013 (2014 results attached). The 2014 residuals were tested in 2016 and the results are attached. The 2015 residuals have not been tested as of yet. It will be tested in the last quarter of 2016 and will be scheduled to be removed in the first quarter of 2017.

Council Request 16-139 (iBake Business Application)

Requested by: Councilmember Martinez

Assigned to: FAS

Request: Request for iBake's business application.

Response: iBake's business application is attached.

Council Request 16-140 (Bike Share Program)

Requested by: Mayor Jefferson

Assigned to: Community Development

Request: Request to look into Zagster's bike share program and the cost to the City.

Response: Planner II John Voboril provides a response in the attached memo.

Council Request 16-141 (Police Facility Options)

Requested by: Councilmember Yates

Assigned to: CMO/Public Works

Request: Request for all the police facility options obtained by the City.

Response: Please see attached.

Council Request 16-142 (Table Tent Nameplates)

Requested by: Councilmember Olson

Assigned to: CMO

Request: Request for table tent nameplates for Study Sessions.

Response: Table tents with Councilmember names have been printed and can be used at the August 1 Study Session.

2016 COUNCIL REQUESTS

Number	Request Date	Request Type	Requested by	Request	Assigned To	Due Date	Follow-up Date	Date Completed
16-031	1/19/2016	I	Barrentine	Legal Opinion - EURA Council Representative	CAO	1/22/2016		2/2/2016
16-032	1/12/2016	I	Russell	City Ditch - Oxford Repairs	PW	1/14/2016		1/21/2016
16-033	1/25/2016	I	Barrentine	EEF/EMRF Funds and By-Laws	EEF/EMRF	1/29/2016	3/1/2016	3/1/2016
16-034	1/25/2016	I	Barrentine	Board & Commission Eligibility Study Session	CMO	1/29/2016		1/27/2016
16-035	1/25/2016	I	Olson	StrengthsFinder/Birkman Assessment Costs	CMO	1/29/2016		3/17/2016
16-036	2/1/2016	I	Jefferson	Background: ERC Preschool Discontinuation	PRL	2/4/2016		2/3/2016
16-037	2/1/2016	I	Martinez	Study Session: Recreational Marijuana	CMO	2/4/2016		2/3/2016
16-038	2/1/2016	I	Gillit	Study Session: Council policies/conduct	CMO	2/4/2016		2/3/2016
16-039	2/1/2016	I	Barrentine	Charter Review - Council Voting/Abstentions	CAO	2/4/2016		
16-040	2/1/2016	I	Olson	Study Session: Green Vehicle Policy Review	CMO/PW	2/4/2016		2/3/2016
16-041	2/1/2016	I	Yates	Background: Public Intoxication Ordinance	PD	2/4/2016		2/2/2016
16-042	2/1/2016	I	Russell	Sewer Issue - 3400 block South Broadway	CD	2/4/2016		2/3/2016
16-043	2/1/2016	I	Jefferson	Business Notification of Regulation Changes	CMO/ALL	2/4/2016		2/3/2016
16-044	2/1/2016	I	Martinez	Service Line Warranty Cancellation Letter	CMO	2/4/2016		2/24/2016
16-045	2/1/2016	I	Martinez	Clayton Elementary Street Conditions (snow)	PW	2/4/2016		2/23/2016
16-046	2/1/2016	I	Martinez	CityCenter Evening Meeting Security	PD/EEF	2/4/2016		3/21/2016
16-047	2/1/2016	I	Council	Citizen of the Century Selection Information	CMO	2/4/2016		2/3/2016
16-048	2/3/2016	I	Jefferson	Englewood Depot Snow Removal Inquiry	PR	2/5/2016		3/4/2016
16-049	2/9/2016	I	Yates	Construction Defects Ordinance	CAO	2/12/2016		2/12/2016
16-050	2/13/2016	I	Barrentine	Economic Development Incentives Inquiry	CD	2/16/2016		2/16/2016
16-051	2/16/2016	S	Barrentine	Mayor/Manager/Attorney Mtg. Audio	CMO	2/19/2016		2/19/2016
16-052	2/16/2016	S	Barrentine	Meeting Audio Solution	CMO/IT	2/19/2016		2/23/2016
16-053	2/16/2016	S	Olson	Simon Center Sexual Harrassment Claims	PD	2/19/2016		2/19/2016
16-054	2/16/2016	S	Barrentine	Paseo Fence Inquiry	CD	2/19/2016		2/19/2016
16-055	2/22/2016	I	Council	FunFest Follow-up	PRL	2/25/2016		2/24/2016
16-056	3/1/2016	I	Barrentine	Paseo Fence Inquiry - Follow-up	CD	3/3/2016		3/2/2016
16-057	3/3/2016	S	Jefferson	Floyd & Bannock Code/Crime Concerns	PD	3/4/2016		3/7/2016
16-058	3/14/2016	I	Jefferson	Cherokee Kivas Construction Project Update	CD	3/17/2016		3/17/2016
16-059	3/14/2016	I	Olson	OpenEnglewood Statistics	FAS	3/17/2016		3/15/2016
16-060	3/14/2016	I	Olson	Comp. Plan Clarification - Belleview/Broadway	CD	3/17/2016		3/17/2016
16-061	3/14/2016	I	Jefferson	Microphones - Community Room	CMO	3/17/2016		3/15/2016
16-062	3/14/2016	I	Jefferson	Denver Fire - Late-night Lights and Sirens	CMO/PW	3/17/2016		4/7/2016
16-063	3/16/2016	I	Gillit	S. Lipan Code Violations - Trash	PD	3/21/2016		3/23/2016
16-064	3/18/2016	I	Gillit	3398 W. Grand Ave. -Remodelling Permit	CD	3/22/2016		3/18/2016

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Number	Request Date	Request Type	Requested by	Request	Assigned To	Due Date	Follow-up Date	Date Completed
16-065	3/21/2016	I	Council	Inquiries re: Marijuana Social Clubs	CAO	3/24/2016		4/11/2016
16-066	3/21/2016	I	Olson	Revenue Comparison Chart	FAS	3/24/2016		3/30/2016
16-067	3/21/2016	I	Olson	Financial Report - Color Consistency	FAS	3/24/2016		3/30/2016
16-068	3/21/2016	I	Barrentine	Code Enforcement Stats - Last 12 years	PD	3/24/2016		3/31/2016
16-069	3/21/2016	I	Barrentine	Alta Cherry Hills - Map Corrections	CD	3/24/2016		3/30/2016
16-070	3/21/2016	I	Yates	City Ditch/Private Property Fencing	UT/PW	3/24/2016		4/18/2016
16-071	3/21/2016	I	Council	Economic Development Incentive Policy Update	CD	3/24/2016		3/24/2016
16-072	3/28/2016	I	Jefferson	ACE Business Survey Results to Council	CD	3/31/2016		3/29/2016
16-073	3/28/2016	I	Olson	Street Conditions - Xcel Energy Follow-up	PW	3/31/2016		4/1/2016
16-074	3/28/2016	I	Jefferson	Englewood Marketing Plan	CMO/CD	3/31/2016		3/30/2016
16-075	3/28/2016	I	Barrentine	Littleton Police Facility Renovation	CMO	3/31/2016		4/29/2016
16-076	3/29/2016	I	Olson	Economic Incentives Analysis	CD/FAS	3/31/2016		4/27/2016
16-077	4/5/2016	I	Olson	Equal Employment Opportunity- Job Posts, EEO La	FAS	4/8/2016		6/29/2016
16-078	4/5/2016	I	Olson	Cherokee Kivas - Meeting Update	BD/CMO/CA/CD	4/8/2016		4/11/2016
16-079	4/5/2016	I	Council	New Comp Plan - Arts & Crafts Home Preservation	CD	4/8/2016		4/6/2016
16-080	4/5/2016	I	Gillit	Checklist for building projects/remodels	BD	4/8/2016		4/7/2016
16-081	4/5/2016	I	Yates	Over-the-counter permitting for 10 most Common	BD	4/8/2016		4/7/2016
16-082	4/5/2016	I	Barrentine	Report of all EMRF expenses since 1999	FAS	4/8/2016		4/20/2016
16-083	4/6/2016	S	Jefferson	E-Notifications for Community Development NewsCommunications		4/8/2016		4/6/2016
16-084	4/7/2016	I	Gillit	4856 S. Lipan St. trailer parked illegally in front of a	PD	4/11/2016		4/7/2016
16-085	4/11/2016	I	Gillit	Status and type of tenant that will use space at Oxf	CD	4/14/2016		4/11/2016
16-086	4/11/2016	I	Jefferson	Englewood specific unemployment stats	CMO	4/15/2016		5/9/2016
16-087	4/11/2016	I	Olson	Impact of industrial development in a 1st tier subur	CD	4/15/2016		4/14/2016
16-088	4/11/2016	I	Olson	A primer sheet on the PUD process	CD	4/15/2016		4/14/2016
16-089	4/11/2016	I	Jefferson	Residential development positive/negative to a co	CD	4/15/2016		4/14/2016
16-090	4/11/2016	I	Council	Will TIF be generated from General Ironworks site?	CD/FAS	4/15/2016		5/4/2016
16-091	4/11/2016	I	Russell	Role of Council liaison to a Board/Commission	CMO	4/15/2016		4/27/2016
16-092	4/12/2016	I	Yates	What code requires the use of General Contractor	CD	4/15/2016		4/13/2016
16-093	4/12/2016	I	Yates	Cost to have SAFEbuilt run Building Department	CD/FAS	4/15/2016		5/4/2016
16-094	4/18/2016	I	Barrentine	Process of moving alternate to regular on B&Cs	CMO	4/21/2016		4/19/2016
16-095	4/18/2016	I	Yates	Provide the code that requires the use of General C	CD	4/21/2016		4/21/2016
16-096	4/21/2016	S	Jefferson	Get the lights working on gateway entry sign 2700 S	PR&L	4/26/2016		5/6/2016
16-097	4/25/2016	I	Russell	List of all zone changes in past 5 years	CD	4/28/2016		4/28/2016
16-098	4/25/2016	I	Barrentine	Unsafe tree 4898 S. Lincoln St.	CAO/PD	4/28/2016		6/9/2016
16-099	4/28/2016	I	Barrentine	Minutes from Council meeting re: Eminent domain	CD	5/3/2016		4/29/2016
16-100	4/28/2016	I	Barrentine	The process which established Englewood Housing	CAO/CMO	5/3/2016		

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Number	Request Date	Request Type	Requested by	Request	Assigned To	Due Date	Follow-up Date	Date Completed
16-101	5/9/2016	I	Yates	What kind of home improvements are ok without a	CD	5/12/2016		5/11/2016
16-102	5/9/2016	I	Barrentine	Look into a library fine	Library	5/12/2016		5/10/2016
16-103	5/11/2016	I	Barrentine	Does Downtown Development Authority still exist?	CD	5/16/2016		5/12/2016
16-104	5/11/2016	I	Barrentine	Does the special fund for collection of TIF still exist?	CD	5/16/2016		5/12/2016
16-105	5/11/2016	I	Barrentine	Why use a failed marketing concept from 1982 in pr	CD	5/16/2016		5/12/2016
16-106	5/11/2016	I	Barrentine	Do covenants mentioned on page 30 of Downtown	CD	5/16/2016		5/12/2016
16-107	5/11/2016	I	Barrentine	Does Medici have zoning in place? Is zoning consist	CD	5/16/2016		5/12/2016
16-108	5/11/2016	I	Barrentine	Was the permanent management structure on pag	CD	5/16/2016		5/12/2016
16-109	5/11/2016	I	Barrentine	Details on sales tax increment collected from Cinde	CD	5/16/2016		5/12/2016
16-110	5/11/2016	I	Barrentine	If TIF has expired, verify no funds, taxes or any incre	CD	5/16/2016		5/12/2016
16-111	5/13/2016	I	Yates	List the number of DUIs and fatalities by drivers co	PD	5/18/2016		5/16/2016
16-112	5/23/2016	I	Barrentine	Verbiage related to historic preservation removed f	CD	5/26/2016		5/26/2016
16-113	5/23/2016	I	Jefferson	P&Z examine lot coverage and bulk plane analysis	CD	5/26/2016		
16-114	5/23/2016	I	Olson	City Manager update on operational plan progress	CMO	5/26/2016		9/12/2016
16-115	5/23/2016	I	Barrentine	Analysis for housing in industrial areas and MU B1	CD	5/26/2016		5/26/2016
16-116	5/23/2016	I	Yates	What Kimco could do with their property under MU	CD	5/26/2016		5/26/2016
16-117	5/23/2016	I	Jefferson	City Manager analyze TIF issues related to General I	CMO/CD	5/26/2016		6/2/2016
16-118	5/31/2016	I	Gillit	Chicken waste and chicken odor in alley behind Aco	PD	6/6/2016		6/3/2016
16-119	6/6/2016	S	Jefferson	Add 2-board limit and 1-board limit for quasi-judicia	CMO	6/9/2016		6/7/2016
16-120	6/20/2016	I	Jefferson	Copy of Arapahoe County Strategic Plan and Scorec	CMO	6/23/2016		6/21/2016
16-121	6/20/2016	I	Barrentine	Cost of Bob Widner's legal opinion and post it on w	CMO	6/23/2016		7/26/2016
16-122	6/20/2016	I	Barrentine	Work on inaccuracies brought up 6/20 in tree debat	CAO	6/29/2016		7/26/2016
16-123	6/27/2016	I	Gillit	3398 W. Monmouth - weeds along the house	PD	6/30/2016		6/29/2016
16-124	6/27/2016	I	Barrentine	What ordinance allows the City to hang banners on	PW	6/30/2016		7/1/2016
16-125	6/27/2016	I	Barrentine	Condition of low voltage lighting focusing on Paseo	PW	6/30/2016		7/1/2016
16-126	6/27/2016	I	Barrentine	Who has control over lights/electrical at Paseo	PW	6/30/2016		7/1/2016
16-127	6/27/2016	I	Barrentine	Lifespan of improvements/Current cost of mainten	PW	6/30/2016		7/1/2016
16-128	6/27/2016	S	Barrentine	Speed reduced 3400 block of Broadway	PW	6/30/2016		7/1/2016
16-129	6/27/2016	S	Jefferson	Festive Lighting on Broadway all year	PW	6/30/2016		7/1/2016
16-130	6/27/2016	I	Barrentine	Cost of holiday lighting each year	P, R & L	6/30/2016		7/1/2016
16-131	6/27/2016	S	Barrentine	Work with Broadway businesses on improvements	PW	6/30/2016		7/1/2016
16-132	6/27/2016	I	Barrentine	How much BID funding was spent? How much is lef	FAS	6/30/2016		7/1/2016
16-133	6/29/2016	I	Gillit	RV parked on street at 4888 S. Lipan St.	PD	7/1/2016		7/1/2016
16-134	7/11/2016	I	Martinez	Current status of code issues at 4230 S. Galapago	PD	7/14/2016		7/21/2016
16-135	7/18/2016	I	Olson	Report of FMLA leave request for Ken Kloewer and	HR	7/27/2016		7/25/2016
16-136	7/18/2016	S	Olson	Townhall meeting on the Allen Plant and managem	CMO	7/27/2016		8/1/2016

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16-137	7/18/2016	I	Jefferson	Public works respond to Letkomiller's concerns wit	PW	7/27/2016		7/26/2016
16-138	7/18/2016	I	Barrentine	Where is the data for testing the residuals from 201	Utilities	7/27/2016		7/25/2016
16-139	7/18/2016	I	Martinez	Original iBake business application	FAS	7/27/2016		7/27/2016
16-140	7/25/2016	I	Jefferson	Look into Zagster bike sharing program and cost to	CD	7/29/2016		7/27/2016
16-141	7/25/2016	I	Yates	All the options we already have looked at for PD fac	CMO & PW	7/29/2016		7/27/2016
16-142	7/25/2016	S	Olson	Table tents to stand upright during Study Sessions	CMO	7/29/2016		7/28/2016
16-143	7/27/2016	S	Gillit	Monmouth/Grand Overgrown Weeds/Grass	PD	8/1/2016		
16-144	7/27/2016	S	Gillit	S. Lipan Parking Concerns	PD	8/1/2016		
16-145	7/27/2016	S	Gillit	W. Belleview Overgrown Weeds/Grass	PD	8/1/2016		
16-146	7/27/2016	S	Gillit	Belleview/Broadway Code Violations Follow-up	PD	8/1/2016		

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TRAFFIC SAFETY MEMORANDUM

To: City of Englewood Public Works and Community Development
Englewood Civic Center
1000 Englewood Parkway
Englewood, CO 80110

From: David Kline, PE, PTOE

Date: June 1, 2016(Revised 7/27/2016)

Subject: 3400 South Broadway Traffic Safety Memo

INTRODUCTION

This technical memorandum documents the existing pedestrian crossings condition of South Broadway from Girard Street to Hampden Avenue in Englewood and identifies potential enhanced safety measures. This segment of South Broadway is defined as the Englewood Downtown District in the City of Englewood; Ready, Set, Action Master Plan. It connects the City Center District to the west and the Medical District to the east. In the middle of the important retail/commercial/entertainment area a proposed midblock crossing links the two adjacent districts and pedestrian access is important in reaching master plan and community goals.

South Broadway is a regional north/south arterial roadway connecting the City of Englewood with Denver and Littleton. With input from the City the corridor operation is collaboratively managed by the Denver Regional Council of Governments (DRCOG). DRCOG established regional traffic signal timing to support efficient progression of traffic. The Broadway/Girard and Broadway/Hampden intersections are controlled by traffic signals. This segment of South Broadway consists of four capacity travel lanes, two in each direction with a raised median. The median is sufficient in width to accommodate center turn lanes at the intersections.

To promote business development in the south 3400 Block of Broadway the City of Englewood has a desire to enhance the pedestrian crossing of Broadway. Currently pedestrians are able to cross through pedestrian traffic signal phases at the Girard Street and Hampden Avenue intersections. Midpoint to the block the City has constructed Paseo's or a pedestrian corridor between City owned public surface parking lot east and west of the Broadway corridor. The existing non-legal pedestrian crossing does not have curb ramps from the raised sidewalks to the roadway. Pedestrians choosing to cross, drop off the raised sidewalk navigate

through, on street parallel parking, cross two oncoming traffic lanes to a raised center median which serves as refuge between the opposing traffic. The pedestrian crossing movement continues across two oncoming traffic lanes then reaching parallel parking lanes, and finishing at the opposite side raised sidewalk. (See Figure 1)

WHAT IS THE LEGAL DEFINITION OF A CROSSWALK?

The 1992 Uniform Vehicle Code (Section 1-112) defines a crosswalk as:

- (a) *That part of a roadway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway measured from the curbs, or in the absence of curbs, from the edges of the traversable roadway; and in the absence of a sidewalk on one side of the roadway, the part of a roadway included within the extension of the lateral lines of the existing sidewalk at right angles to the centerline.*
- (b) *Any portion of a roadway at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface.* Thus, legal crosswalks exist at all public intersections where there is a sidewalk on at least one side of the street. The only way a crosswalk can exist at a midblock location is if it is marked. Furthermore, according to the *Manual on Uniform Traffic Control Devices (MUTCD)* (Section 3B-18), a crosswalk may be marked with paint, thermoplastic materials, and plastic tape, among other materials.

Specifically, crosswalks serve as the pedestrian right-of-way across a street. The level of connectivity between pedestrian facilities is directly related to the placement and consistency of street crossings.

MIDBLOCK TECHNICAL DOCUMENTS

The following publications are used by transportation engineers and planners in determining safety improvements given a variety of motor vehicle and pedestrian factors.

- Safety Effects of Marked Vs Unmarked Crosswalks at Uncontrolled Locations: FHWA-RD-01-075
Federal Highway Administration February 2002
- Improving Pedestrian Safety At Un-signalized Crossing: NCHRP Report 562
Transportation Research Board, 2006
- Manual on Uniform Traffic Control Devices, 2009 Edition: US Department of Transportation Federal Highway Administration

POTENTIAL CROSSWALK SAFETY MEASURES

To encourage safe pedestrian interaction with the motoring public at signalized intersection several measures can be taken. These measures included crosswalk marking, pedestrian traffic signal phase, curb extensions, additional all red timing to advance pedestrian movement, audible count down heads, intersection street lighting. At non-intersection crossings additional measures include enhanced signing, improved pedestrian/motorist sight lines with curb extensions and raised medians, and pavement markings. Below is a complete list of crosswalk safety treatments.

Advance Signing - Provides additional notification to drivers that a crosswalk is near.

Advance Stop/Yield Line and Sign - Vehicle stop/yield line is moved back from the crosswalk.

Median Refuge Island - Accessible pedestrian path within a raised median. An area in the middle of a roadway where a crossing pedestrian can take shelter from approaching traffic in either direction. In the context of these guidelines, the median refuge must include a raised median of some width. A median refuge allows a pedestrian to cross each direction of approaching traffic in a separate step. By using the refuge, the pedestrian must only find an acceptable gap in traffic for one approach direction at a time.

Curb Extension - Adjacent to crosswalks lengthened by the width of the parking lane. A roadway edge treatment where a curb line is bulged out toward the middle of the roadway to narrow the width of the street. Curb extensions are sometimes call “neckdowns”, and are often used at the location of a pedestrian crosswalk to minimize the distance and time that a crossing pedestrian must be in the roadway.

Markings and Crossing Signs - Standard crosswalk markings and pedestrian crossing signs, subject to MUTCD requirements. A pedestrian crossing are traditionally delineated by white crosswalk pavement markings (Continental Style).Marked crosswalks typically also are delineated by a variety of traffic signs. Marked crosswalks would also have curb ramps if there is curb and gutter in an area.

High-Visibility Signs and Markings - Warning devices placed at or in advance of the pedestrian.

Crosswalk Lighting - Street lighting applied at a pedestrian crossing to help approaching motorists see a crossing pedestrian. Crosswalk lighting is at a “vehicular scale” like normal street lighting rather than a “pedestrian scale” that is often used along a sidewalk.

Additional potential crossing treatments include:

- Roadway Narrowing,
- In-street Pedestrian Crossing Signs
- In-Roadway Warning Lights
- Pedestrian Crossing Flags
- Overhead Flashing Amber Beacons
- Pedestrian Crosswalk Signal
- Half Signal
- HAWK Beacon Signal
- Pedestrian Beacon
- Traffic Signal

THE BROADWAY/GIRARD INTERSECTION

This intersection is controlled by a traffic signal. The traffic signal includes a pedestrian crossing phase when activated through the use of a pedestrian push button mounted on the traffic signal pole. The crosswalk timing is based on a 3.5 feet/second crossing rate and includes a vehicle all red timing to promote pedestrian head start prior to the left turn yielding movement. Due to a southbound far side bus stop this intersection includes curb extensions on three of the four the quadrants to shorten the crossing distance. The intersection also has crosswalk pavement markings.

BROADWAY/ HAMPDEN INTERSECTION

Similarly, this intersection is controlled by a traffic signal. The traffic signal includes a pedestrian crossing phase when activated through the use of a pedestrian push button mounted on the traffic signal pole. The crosswalk timing is based on a 3.5 feet/second crossing rate and includes a vehicle all red timing to promote pedestrian head start prior to the vehicle left turn yielding movement. Due to a northbound far side bus stop this intersection includes curb extensions on three of the four the quadrants to shorten the crossing distance. The intersection also has crosswalk pavement markings.

3400 MID-BLOCK PEDESTRIAN CROSSING

The current pedestrian crossing between the Paseo's is not legal as defined by the in listed references since there no crosswalk markings. Crosswalk markings delineate pedestrian Right-Of-Way through the use of white crosswalk pavement markings or an enhanced preformed plastic pavement marking material. In most cases, marked crosswalks are best used in combination with other treatments such as curb extensions, raised crossing islands, enhanced traffic signs, and enhanced overhead lighting.

These crosswalk safety measure work best when an un-obstructive sight line between the pedestrian and the motorist is maintained. Sight lines distances are established based on the vehicular speed and vehicle stopping distance. The 2011 edition of the American Association State Highway Transportation Official (AASHTO) A Policy on Geometric Design of Highways and Street, Section 3.2.2 Stopping Sight Distance, cites that a design speed of 40 mph (30 mph posted speed) a distance of 155 feet is need. To meet this guideline no visual obstruction greater than 30 inches are allowed within a sight area. (See Figure No. 2)

POTENTIAL CROSSWALK SAFETY MEASURES

Pedestrian Crossing Treatment	Broadway At Girard Street	Broadway At Hampden Avenue	Mid-Block
Advance Signing			X
Advance Stop/Yield Line and Sign			
Median Refuge Island			X **
Curb Extension Curb	X	X *	X
High-Visibility Signs and Markings			X
Markings and Crossing Signs	X	X	X
Crosswalk Lighting	X	X	X
Roadway Narrowing			
In-street Pedestrian Crossing Signs			
In-Roadway Warning Lights			
Pedestrian Crossing Flags			
Overhead Flashing Amber Beacons			
Pedestrian Crosswalk Signal			
HAWK Beacon Signal			
Pedestrian Beacon			
Traffic Signal + Pedestrian Timing	X	X	

* One side only due to bus stop

** Median raised through the roadway crown

BROADWAY/ GIRARD and BROADWAY/ HAMPDEN INTERSECTIONS

These intersection have most of the recommended crosswalk safety measures in place, which includes curb extension where applicable, crosswalk pavement markings, street lighting, and a traffics signal with a pedestrian phase and timing plan that promotes safe pedestrian crossing. Additional measured not present include enhanced warning through the use of signing and motor vehicle stop lines may be added.

3400 MID-BLOCK PEDESTRIAN CROSSING

Since there is currently no legal crosswalks, pavement marking will need to be installed to create a legal ROW. In addition, to enhance the safety of the crossing the following crosswalk safety measure are recommended: 1) advanced signing , 2) median refuge, 3) curb extensions, 5) high visibility signs, and 6) enhanced street lighting. (See Figure 3)



SCALE: 1" = 100'

CITY OF ENGLEWOOD

3400 BROADWAY AVENUE ~ MIDBLOCK RAMP

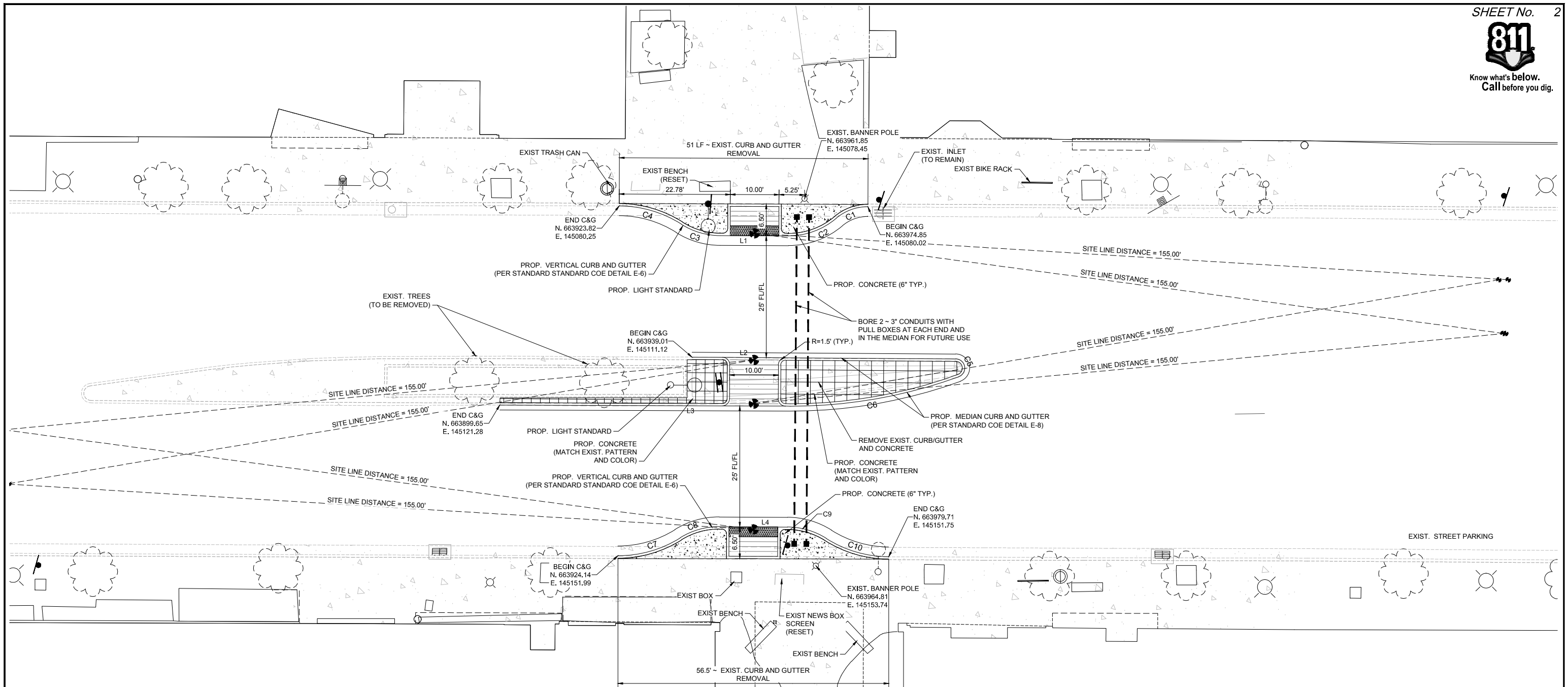


July 2016

FIGURE No. 01

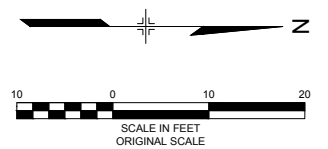


Know what's below.
Call before you dig.



CURVE TABLE							
CURVE #	LENGTH	RADIUS	DELTA	CHORD DIRECTION	CHORD LENGTH	BEGINNING NORTHING	BEGINNING EASTING
C1	7.07	10.00	40.54	S20° 31' 14"E	6.93	663974.85	145080.02
C2	10.61	15.00	40.54	N20° 31' 14"W	10.39	663958.63	145086.09
C3	8.43	15.00	32.20	N15° 50' 58"E	8.32	663936.63	145083.88
C4	13.49	24.00	32.20	S15° 50' 58"W	13.31	663936.63	145083.88
C5	5.26	1.89	159.60	S79° 43' 31"W	3.72	663993.79	145114.70
C6	35.29	100.00	20.22	N10° 21' 47"W	35.11	663959.25	145121.02
C7	13.49	24.00	32.20	N16° 21' 18"W	13.31	663924.14	145151.99
C8	8.43	15.00	32.20	S16° 21' 18"E	8.32	663944.89	145145.90
C9	8.43	15.00	32.20	S15° 50' 58"W	8.32	663966.90	145148.11
C10	13.49	24.00	32.20	N15° 50' 58"E	13.31	663966.90	145148.11

LINE TABLE				
LINE #	LENGTH	DIRECTION	BEGINNING NORTHING	BEGINNING EASTING
L1	14.00	S0° 15' 10.04"E	663958.63	145086.09
L2	54.12	S0° 04' 33.93"E	663993.12	145111.05
L3	59.60	N0° 15' 10.04"W	663899.65	145121.28
L4	14.00	S0° 15' 10.04"E	663958.89	145145.84



REFERENCE DRAWINGS			
No.	DATE	DESCRIPTION	BY
COMPUTER FILE MANAGEMENT			
FILE NAME: R:\16.860.001 (3400 Broadway Mid Block)\Dwg\Exhibits\Fig02 HC.dwg			
CTB FILE: ---			
PLOT DATE: 7/28/2016 7:32 AM			
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.			

PREPARED BY:

AN EMPLOYEE-OWNED COMPANY

FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 16.860.001

3400 SOUTH BROADWAY MID BLOCK

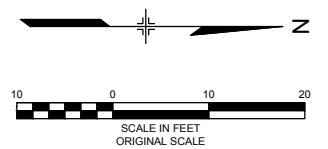
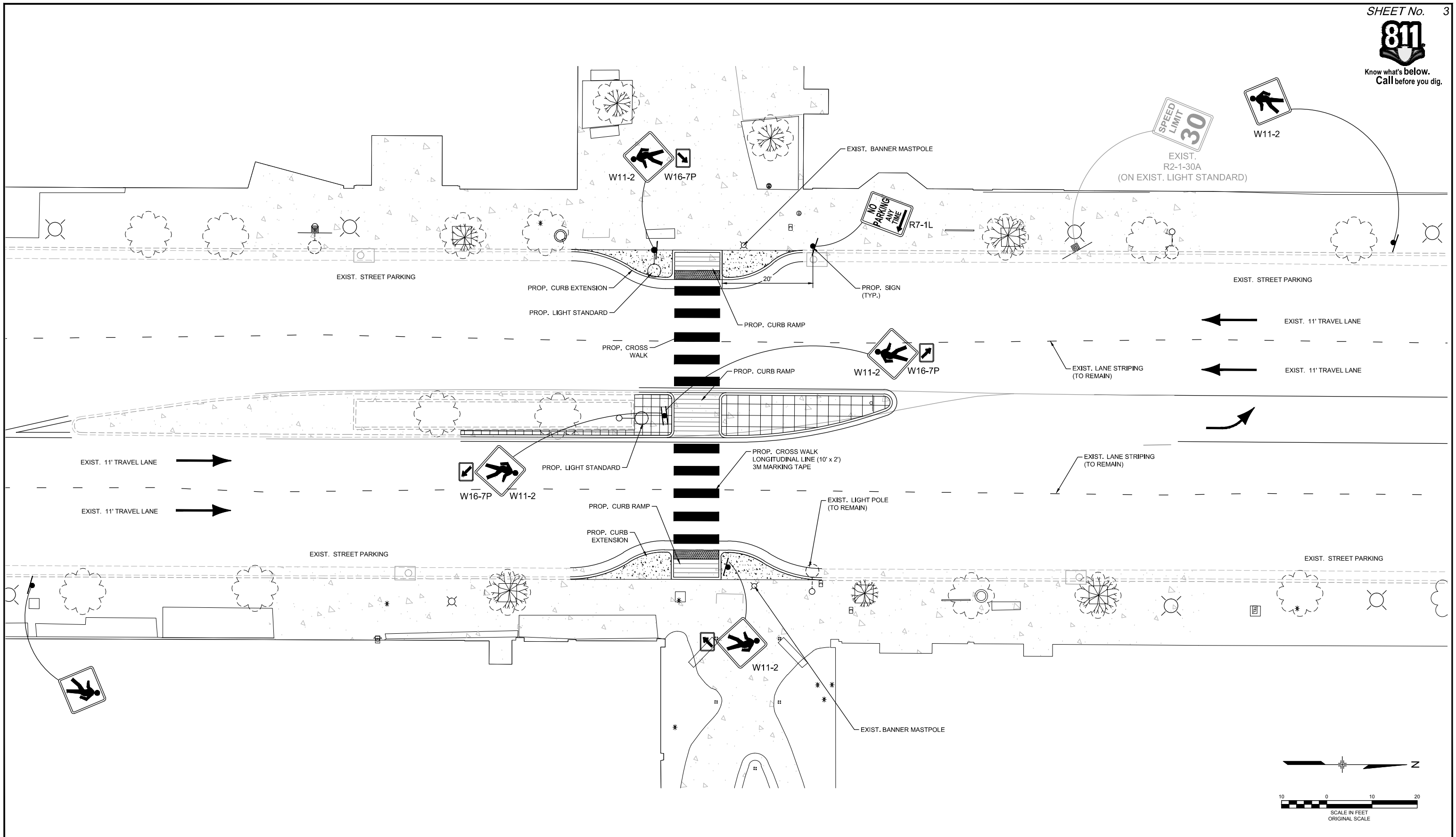
CITY OF ENGLEWOOD

FIGURE 02

DESIGNED BY: FRD	SCALE: HORIZ 1"=10'	DATE ISSUED: APRIL 2016	DRAWING No. FIG02
CHECKED BY: DK	VERT. 1"=5'	SHEET 2 OF 3	



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Call before you dig.



REFERENCE DRAWINGS			
No.	DATE	DESCRIPTION	BY
X-860-EX-BASE			
X-860-PR-BASE			
COMPUTER FILE MANAGEMENT			
FILE NAME: R:\16.860.001 (3400 Broadway Mid Block)\Dwg\Exhibits\Fig03 SS01.dwg			
CTB FILE: ---			
PLOT DATE: 7/28/2016 7:22 AM			
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FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 16.860.001

3400 SOUTH BROADWAY MID BLOCK			
CITY OF ENGLEWOOD			
FIGURE 03			
DESIGNED BY: FRD	SCALE: HORIZ 1"=10'	DATE ISSUED: APRIL 2016	DRAWING No. FG03
CHECKED BY: DK	VERT. 1"=5'	SHEET 3 OF 3	

January 03, 2012

Report to:
Jason Clark
City Of Englewood
1500 West Layton Avenue
Englewood, CO 80110

Bill to:
Jason Clark
City Of Englewood
1500 West Layton Avenue
Englewood, CO 80110

Project ID: Rads/Sludge+TCLP-MTLS
ACZ Project ID: L91914

Jason Clark:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on November 16, 2011. This project has been assigned to ACZ's project number, L91914. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L91914. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after February 03, 2012. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than \$10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

Tony Antalek has reviewed and approved this report.



City Of Englewood

January 03, 2012

Project ID: Rads/Sludge+TCLP-MTLS

ACZ Project ID: L91914

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 4 sludge samples from City Of Englewood on November 16, 2011. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L91914. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

Sample Analysis

These samples were analyzed for inorganic and radiochemistry parameters. The individual methods are referenced on both the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures. In addition the following has been noted with this specific project:

1. The Gross Alpha and Beta analyses were qualified with the ACZ 'N1' flag due to blank contamination. However, as the sample concentrations were > 10X the blank contamination, the data was accepted.

City Of Englewood

Project ID: Rads/Sludge+TCLP-MTLS
 Sample ID: A

ACZ Sample ID: **L91914-01**
 Date Sampled: 11/15/11 09:30
 Date Received: 11/16/11
 Sample Matrix: Sludge

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP							11/21/11 20:16	jjc

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (TCLP)	M6010B ICP		U	*	mg/L	0.06	0.3	11/22/11 17:56	jjc
Barium (TCLP)	M6010B ICP	1.120		*	mg/L	0.003	0.02	11/22/11 17:56	jjc
Cadmium (TCLP)	M6010B ICP		U	*	mg/L	0.005	0.02	11/22/11 17:56	jjc
Chromium (TCLP)	M6010B ICP		U	*	mg/L	0.01	0.05	11/22/11 17:56	jjc
Lead (TCLP)	M6010B ICP		U	*	mg/L	0.04	0.2	11/22/11 17:56	jjc
Mercury (TCLP)	M7470 CVAA		U	*	mg/L	0.0002	0.001	11/29/11 13:52	erf
Selenium (TCLP)	M6010B ICP		U	*	mg/L	0.06	0.3	11/22/11 17:56	jjc
Silver (TCLP)	M6010B ICP		U	*	mg/L	0.01	0.03	11/22/11 17:56	jjc
Uranium, total (3050)	M6020 ICP-MS	251		*	mg/Kg	1	5	12/20/11 16:05	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Solids	SM2540B	27.30		*	%	0.01	0.1	12/13/11 19:01	cra

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS							12/15/11 23:30	bsu
TCLP Metal Extraction	M1311							11/20/11 1:00	brd/ndj

City Of Englewood

Project ID: Rads/Sludge+TCLP-MTLS
Sample ID: B

ACZ Sample ID: **L91914-02**
Date Sampled: 11/15/11 09:30
Date Received: 11/16/11
Sample Matrix: *Sludge*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP							11/21/11 21:07	jjc

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (TCLP)	M6010B ICP		U	*	mg/L	0.1	0.6	11/28/11 19:27	jjc
Barium (TCLP)	M6010B ICP	1.150		*	mg/L	0.003	0.02	11/22/11 18:08	jjc
Cadmium (TCLP)	M6010B ICP		U	*	mg/L	0.005	0.02	11/22/11 18:08	jjc
Chromium (TCLP)	M6010B ICP		U	*	mg/L	0.01	0.05	11/22/11 18:08	jjc
Lead (TCLP)	M6010B ICP		U	*	mg/L	0.04	0.2	11/22/11 18:08	jjc
Mercury (TCLP)	M7470 CVAA		U	*	mg/L	0.0002	0.001	11/29/11 14:01	erf
Selenium (TCLP)	M6010B ICP		U	*	mg/L	0.06	0.3	11/22/11 18:08	jjc
Silver (TCLP)	M6010B ICP		U	*	mg/L	0.01	0.03	11/22/11 18:08	jjc
Uranium, total (3050)	M6020 ICP-MS	410		*	mg/Kg	1	5	12/20/11 16:11	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Solids	SM2540B	44.00		*	%	0.01	0.1	12/13/11 22:17	cra

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS							12/16/11 4:00	bsu
TCLP Metal Extraction	M1311							11/20/11 13:24	brd/ndj

City Of Englewood

Project ID: Rads/Sludge+TCLP-MTLS
 Sample ID: C

ACZ Sample ID: **L91914-03**
 Date Sampled: 11/15/11 09:30
 Date Received: 11/16/11
 Sample Matrix: Sludge

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP							11/21/11 21:59	jjc

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (TCLP)	M6010B ICP		U	*	mg/L	0.06	0.3	11/22/11 18:14	jjc
Barium (TCLP)	M6010B ICP	1.110		*	mg/L	0.003	0.02	11/22/11 18:14	jjc
Cadmium (TCLP)	M6010B ICP		U	*	mg/L	0.005	0.02	11/22/11 18:14	jjc
Chromium (TCLP)	M6010B ICP		U	*	mg/L	0.01	0.05	11/22/11 18:14	jjc
Lead (TCLP)	M6010B ICP		U	*	mg/L	0.04	0.2	11/22/11 18:14	jjc
Mercury (TCLP)	M7470 CVAA		U	*	mg/L	0.0002	0.001	11/29/11 14:05	erf
Selenium (TCLP)	M6010B ICP		U	*	mg/L	0.06	0.3	11/22/11 18:14	jjc
Silver (TCLP)	M6010B ICP		U	*	mg/L	0.01	0.03	11/22/11 18:14	jjc
Uranium, total (3050)	M6020 ICP-MS	169		*	mg/Kg	1	5	12/20/11 16:17	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Solids	SM2540B	22.60		*	%	0.01	0.1	12/14/11 1:33	cra

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS							12/16/11 5:30	bsu
TCLP Metal Extraction	M1311							11/21/11 1:48	brd/ndj

City Of Englewood

Project ID: Rads/Sludge+TCLP-MTLS
Sample ID: D-COMPOSITE

ACZ Sample ID: **L91914-04**
Date Sampled: 11/15/11 09:30
Date Received: 11/16/11
Sample Matrix: *Sludge*

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP							11/21/11 22:24	jjc

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (TCLP)	M6010B ICP		U	*	mg/L	0.06	0.3	11/22/11 18:20	jjc
Barium (TCLP)	M6010B ICP	0.636		*	mg/L	0.003	0.02	11/22/11 18:20	jjc
Cadmium (TCLP)	M6010B ICP		U	*	mg/L	0.005	0.02	11/22/11 18:20	jjc
Chromium (TCLP)	M6010B ICP		U	*	mg/L	0.01	0.05	11/22/11 18:20	jjc
Lead (TCLP)	M6010B ICP		U	*	mg/L	0.04	0.2	11/22/11 18:20	jjc
Mercury (TCLP)	M7470 CVAA		U	*	mg/L	0.0002	0.001	11/29/11 14:07	erf
Selenium (TCLP)	M6010B ICP		U	*	mg/L	0.1	0.6	11/28/11 19:39	jjc
Silver (TCLP)	M6010B ICP		U	*	mg/L	0.01	0.03	11/22/11 18:20	jjc
Uranium, total (3050)	M6020 ICP-MS	347		*	mg/Kg	1	5	12/20/11 16:19	msh

Soil Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Solids	SM2540B	44.70		*	%	0.01	0.1	12/14/11 4:49	cra

Soil Preparation

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS							12/16/11 7:00	bsu
TCLP Metal Extraction	M1311							11/21/11 8:00	brd/ndj

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>Lower</i>	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
<i>MDL</i>	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit, typically 5 times the MDL.
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>Upper</i>	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>AS</i>	Analytical Spike (Post Digestion)	<i>LCSWD</i>	Laboratory Control Sample - Water Duplicate
<i>ASD</i>	Analytical Spike (Post Digestion) Duplicate	<i>LFB</i>	Laboratory Fortified Blank
<i>CCB</i>	Continuing Calibration Blank	<i>LFM</i>	Laboratory Fortified Matrix
<i>CCV</i>	Continuing Calibration Verification standard	<i>LFMD</i>	Laboratory Fortified Matrix Duplicate
<i>DUP</i>	Sample Duplicate	<i>LRB</i>	Laboratory Reagent Blank
<i>ICB</i>	Initial Calibration Blank	<i>MS</i>	Matrix Spike
<i>ICV</i>	Initial Calibration Verification standard	<i>MSD</i>	Matrix Spike Duplicate
<i>ICSAB</i>	Inter-element Correction Standard - A plus B solutions	<i>PBS</i>	Prep Blank - Soil
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBW</i>	Prep Blank - Water
<i>LCSSD</i>	Laboratory Control Sample - Soil Duplicate	<i>PQV</i>	Practical Quantitation Verification standard
<i>LCSW</i>	Laboratory Control Sample - Water	<i>SDL</i>	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

- (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
- (2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
- (3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
- (4) EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
- (5) Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995 & 20th edition (1998).

Comments

- (1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
- (3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

City Of Englewood

ACZ Project ID: **L91914**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L91914-01	WG314097	Arsenic (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Barium (TCLP)	M6010B ICP	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
		Cadmium (TCLP)	M6010B ICP	LA	Recovery for target analyte in the control sample (LCS or LFB) exceeded the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Chromium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Lead (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG314255	Mercury (TCLP)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG314097	Selenium (TCLP)	M6010B ICP	LA	Recovery for target analyte in the control sample (LCS or LFB) exceeded the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Silver (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG315569	Uranium, total (3050)	M6020 ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020 ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
			M6020 ICP-MS	RL	Recovery for either the LCS or LCS duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
			M6020 ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

City Of Englewood

ACZ Project ID: **L91914**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L91914-02	WG314158	Arsenic (TCLP)	M6010B ICP	DB	Sample required dilution due to low bias result.
			M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG314097	Barium (TCLP)	M6010B ICP	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
		Cadmium (TCLP)	M6010B ICP	LA	Recovery for target analyte in the control sample (LCS or LFB) exceeded the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Chromium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Lead (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Mercury (TCLP)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG314097	Selenium (TCLP)	M6010B ICP	LA	Recovery for target analyte in the control sample (LCS or LFB) exceeded the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			M6010B ICP	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [< MDL].
			M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG315569	Uranium, total (3050)	M6020 ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
			M6020 ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
			M6020 ICP-MS	RL	Recovery for either the LCS or LCS duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
			M6020 ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

City Of Englewood

ACZ Project ID: **L91914**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L91914-03	WG314097	Arsenic (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Barium (TCLP)	M6010B ICP	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
		Cadmium (TCLP)	M6010B ICP	LA	Recovery for target analyte in the control sample (LCS or LFB) exceeded the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Chromium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	Lead (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).	
	WG314255	Mercury (TCLP)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG314097	Selenium (TCLP)	M6010B ICP	LA	Recovery for target analyte in the control sample (LCS or LFB) exceeded the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			M6010B ICP	VC	CCV recovery was above the acceptance limits. Target analyte was not detected in the sample [< MDL].
		Silver (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
WG315569	Uranium, total (3050)	M6020 ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.	
		M6020 ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.	
		M6020 ICP-MS	RL	Recovery for either the LCS or LCS duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.	
		M6020 ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.	

City Of Englewood

ACZ Project ID: **L91914**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L91914-04	WG314097	Arsenic (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Barium (TCLP)	M6010B ICP	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
		Cadmium (TCLP)	M6010B ICP	LA	Recovery for target analyte in the control sample (LCS or LFB) exceeded the acceptance criteria. Target analyte was not detected in the sample [< MDL].
			M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Chromium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Lead (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG314255	Mercury (TCLP)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG314158	Selenium (TCLP)	M6010B ICP	DB	Sample required dilution due to low bias result.
			M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG314097	Silver (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
WG315569	Uranium, total (3050)	M6020 ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.	
		M6020 ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.	
		M6020 ICP-MS	RL	Recovery for either the LCS or LCS duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.	
			M6020 ICP-MS	ZH	Serial Dilution exceeded the acceptance criteria. Matrix interference [physical or chemical] is suspected.

City Of EnglewoodProject ID: Rads/Sludge+TCLP-MTLS
Sample ID: A
Locator:ACZ Sample ID: **L91914-01**
Date Sampled: 11/15/11 9:30
Date Received: 11/16/11
Sample Matrix: SludgeGross Alpha & Beta (3050)
M9310

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	12/30/11 0:04		140	12	1.8	pCi/g	*	thf
Gross Beta	12/30/11 0:04		170	7.7	3.5	pCi/g	*	thf

Radium 226 + Alpha Emitting Radium Isotopes (3050)
M9315

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 + Alpha	12/27/11 15:51		3.2	0.5	0.67	pCi/g		thf

Radium 228 (3050)
M9320

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228 (3050)	12/22/11 14:18		4.4	1.8	4.5	pCi/g		mtb

City Of Englewood

Project ID: Rads/Sludge+TCLP-MTLS

Sample ID: B

Locator:

ACZ Sample ID: **L91914-02**

Date Sampled: 11/15/11 9:30

Date Received: 11/16/11

Sample Matrix: *Sludge*

Gross Alpha & Beta (3050)

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	12/30/11 0:05		140	13	2.3	pCi/g	*	thf
Gross Beta	12/30/11 0:05		190	8.7	4	pCi/g	*	thf

Radium 226 + Alpha Emitting Radium Isotopes (3050)

Prep Method:

M9315

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 + Alpha	12/27/11 15:53		3.7	0.5	0.58	pCi/g		thf

Radium 228 (3050)

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228 (3050)	12/22/11 14:18		3.2	1.5	3.3	pCi/g		mtb

City Of Englewood

Project ID: Rads/Sludge+TCLP-MTLS

Sample ID: C

Locator:

ACZ Sample ID: **L91914-03**

Date Sampled: 11/15/11 9:30

Date Received: 11/16/11

Sample Matrix: Sludge

Gross Alpha & Beta (3050)

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	12/30/11 0:07		100	9.3	1.6	pCi/g	*	thf
Gross Beta	12/30/11 0:07		120	6.2	3.2	pCi/g	*	thf

Radium 226 + Alpha Emitting Radium Isotopes (3050)

Prep Method:

M9315

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 + Alpha	12/27/11 15:54		2.5	0.5	0.78	pCi/g		thf

Radium 228 (3050)

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228 (3050)	12/22/11 14:18		2.6	2.2	4.6	pCi/g		mtb

City Of Englewood

Project ID: Rads/Sludge+TCLP-MTLS

Sample ID: D-COMPOSITE

Locator:

ACZ Sample ID: **L91914-04**

Date Sampled: 11/15/11 9:30

Date Received: 11/16/11

Sample Matrix: Sludge

Gross Alpha & Beta (3050)

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	12/30/11 0:08		88	8.2	1.5	pCi/g	*	thf
Gross Beta	12/30/11 0:08		120	5.4	2.6	pCi/g	*	thf

Radium 226 + Alpha Emitting Radium Isotopes (3050)

Prep Method:

M9315

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 + Alpha	12/27/11 15:56		2.4	0.38	0.49	pCi/g		thf

Radium 228 (3050)

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228 (3050)	12/22/11 14:18		2.4	1.3	3.5	pCi/g		mtb

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Error(+/-)	Calculated sample specific uncertainty
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
LCL	Lower Control Limit, in % (except for LCSS, mg/Kg)
LLD	Calculated sample specific Lower Limit of Detection
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RER	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
UCL	Upper Control Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

DUP	Sample Duplicate	MS/MSD	Matrix Spike/Matrix Spike Duplicate
LCSS	Laboratory Control Sample - Soil	PBS	Prep Blank - Soil
LCSW	Laboratory Control Sample - Water	PBW	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
R	Poor spike recovery accepted because the other spike in the set fell within the given limits.
T	High Replicate Error Ratio (RER) accepted because sample concentrations are less than 10x the MDL.
U	No nuclides detected above the Lower Limit of Detection (LLD)
V	High blank data accepted because sample concentration is 10 times higher than blank concentration
X	QC is out of control. See Case Narrative.
Z	Poor spike recovery is accepted because sample concentration is four times greater than spike concentration.

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater, 19th edition (1995) & 20th edition (1998).
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click: <http://www.acz.com/public/extquallist.pdf>

City Of Englewood

ACZ Project ID: **L91914**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L91914-01	WG315855	Gross Alpha	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M9310	N1	See Case Narrative.
			M9310	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Gross Beta	M9310	N1	See Case Narrative.
L91914-02	WG315855	Gross Alpha	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M9310	N1	See Case Narrative.
			M9310	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Gross Beta	M9310	N1	See Case Narrative.
L91914-03	WG315855	Gross Alpha	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M9310	N1	See Case Narrative.
			M9310	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Gross Beta	M9310	N1	See Case Narrative.
L91914-04	WG315855	Gross Alpha	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M9310	N1	See Case Narrative.
			M9310	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
		Gross Beta	M9310	N1	See Case Narrative.

City Of Englewood

ACZ Project ID: **L91914**

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Total Solids

SM2540B

City Of Englewood
 Rads/Sludge+TCLP-MTLS

ACZ Project ID: L91914
 Date Received: 11/16/2011 09:30
 Received By: ksj
 Date Printed: 11/16/2011

Receipt Verification

	YES	NO	NA	
1) Does this project require special handling procedures such as CLP protocol?			X	
2) Are the custody seals on the cooler intact?	X			
3) Are the custody seals on the sample containers intact?			X	
4) Is there a Chain of Custody or other directive shipping papers present?	X			
5) Is the Chain of Custody complete?	X			
6) Is the Chain of Custody in agreement with the samples received?	X			
7) Is there enough sample for all requested analyses?	X			
8) Are all samples within holding times for requested analyses?	X			
9) Were all sample containers received intact?	X			
10) Are the temperature blanks present?				X
11) Are the trip blanks (VOA and/or Cyanide) present?				X
12) Are samples requiring no headspace, headspace free?				X
13) Do the samples that require a Foreign Soils Permit have one?				X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr)
3502	2.6	17

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

City Of Englewood
 Rads/Sludge+TCLP-MTLS

ACZ Project ID: L91914
 Date Received: 11/16/2011 09:30
 Received By: ksj
 Date Printed: 11/16/2011

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y < 2	YG < 2	B < 2	O < 2	T > 12	N/A	RAD	ID
L91914-01	A									X		<input type="checkbox"/>
L91914-02	B									X		<input type="checkbox"/>
L91914-03	C									X		<input type="checkbox"/>
L91914-04	D-COMPOSITE									X		<input type="checkbox"/>

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: ksj



Laboratories, Inc.

L91914

CHAIN OF CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Name: City of Englewood
Company: City of Englewood
E-mail: JClank@Englewoodgov.org

Address: 1500 W. Layton Ave
Englewood CO 80110
Telephone: 303-762-2650

Name: Jason E Clank
Company: City of Englewood

E-mail: JClank@Englewoodgov.org
Telephone: 303-762-2650

Name: Jason E Clank
Company: City of Englewood
E-mail: JClank@Englewoodgov.org

Address: 1500 W. Layton Ave
Englewood, CO 80110
Telephone: 303-762-2650

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES NO

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes No

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: Jason Clank - 5th Degree
Sampler's site Information
State CO Zip code 80110 Time Zone MT

PRODUCT IDENTIFICATION

Quote #: BO 26708
Project/PO #: Road / Sludge + Telp - MT/LS
Reporting state for compliance testing: NO
Check box if samples include NRC licensed material?

Table with columns: # of Containers, Sludge, Telp-MT/LS, Gross, Almond Beta, Radium 226, Uranium Total. Rows A, B, C, D-Composite.

MATRIX IDENTIFICATION

Table with columns: Matrix, Date, Time, Location, etc. Row: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

Matrix SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

Blank area for additional notes or signatures.

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

Table with columns: Date, Time, Location, etc. Row: 11-15-11/12:00, LEO, 11-16-11 9:30

Vertical text: L91914 Chain of Custody

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

April 30, 2014

Report to:

Jason Clark
City Of Englewood
1500 West Layton Avenue
Englewood, CO 80110

Bill to:

Jason Clark
City Of Englewood
1500 West Layton Avenue
Englewood, CO 80110

Project ID: RADCHEM CLP MTLs

ACZ Project ID: L17691

Jason Clark:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 09, 2014. This project has been assigned to ACZ's project number, L17691. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L17691. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after May 30, 2014. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

Max Janicek has reviewed and approved this report.



ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

City Of Englewood

Project ID: RADCHEM CLP MTL5
Sample ID: A-11

ACZ Sample ID: L17691-01
Date Sampled: 04/04/14 10:00
Date Received: 04/09/14
Sample Matrix: Sludge

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP								04/28/14 11:19	aeb

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (TCLP)	M6010B ICP	1		U	*	mg/L	0.04	0.2	04/29/14 9:43	aeb
Barium (TCLP)	M6010B ICP	1	1.330			mg/L	0.003	0.02	04/29/14 9:43	aeb
Cadmium (TCLP)	M6010B ICP	1		U	*	mg/L	0.005	0.02	04/29/14 9:43	aeb
Chromium (TCLP)	M6010B ICP	1		U	*	mg/L	0.01	0.05	04/29/14 9:43	aeb
Lead (TCLP)	M6010B ICP	1		U	*	mg/L	0.03	0.2	04/29/14 9:43	aeb
Mercury (TCLP)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	04/25/14 12:04	mfm
Selenium (TCLP)	M6010B ICP	1		U	*	mg/L	0.05	0.3	04/29/14 9:43	aeb
Silver (TCLP)	M6010B ICP	1		U	*	mg/L	0.01	0.03	04/29/14 9:43	aeb
Uranium, total (3050)	M6020 ICP-MS	2000	235			mg/Kg	0.2	1	04/28/14 20:45	pmc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Solids	SM2540B	1	68.0		*	%	0.01	0.1	04/11/14 0:38	cdb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								04/22/14 20:27	spl
TCLP Metal Extraction	M1311								04/23/14 22:04	ekm

City Of Englewood

Project ID: RADCHEM CLP MTLs
 Sample ID: B-12

ACZ Sample ID: L17691-02
 Date Sampled: 04/04/14 10:00
 Date Received: 04/09/14
 Sample Matrix: Sludge

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP								04/28/14 11:41	aeb

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (TCLP)	M6010B ICP	1		U	*	mg/L	0.04	0.2	04/29/14 9:46	aeb
Barium (TCLP)	M6010B ICP	1	1.060			mg/L	0.003	0.02	04/29/14 9:46	aeb
Cadmium (TCLP)	M6010B ICP	1		U	*	mg/L	0.005	0.02	04/29/14 9:46	aeb
Chromium (TCLP)	M6010B ICP	1		U	*	mg/L	0.01	0.05	04/29/14 9:46	aeb
Lead (TCLP)	M6010B ICP	1		U	*	mg/L	0.03	0.2	04/29/14 9:46	aeb
Mercury (TCLP)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	04/25/14 12:06	mfm
Selenium (TCLP)	M6010B ICP	1		U	*	mg/L	0.05	0.3	04/29/14 9:46	aeb
Silver (TCLP)	M6010B ICP	1		U	*	mg/L	0.01	0.03	04/29/14 9:46	aeb
Uranium, total (3050)	M6020 ICP-MS	1000	175			mg/Kg	0.1	0.5	04/28/14 20:50	pmc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Solids	SM2540B	1	61.90		*	%	0.01	0.1	04/11/14 3:21	cdb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								04/22/14 13:27	spl
TCLP Metal Extraction	M1311								04/23/14 23:50	ekm

City Of Englewood

Project ID: RADCHEM CLP MTLs
 Sample ID: C-13

ACZ Sample ID: L17691-03
 Date Sampled: 04/04/14 10:00
 Date Received: 04/09/14
 Sample Matrix: Sludge

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP								04/28/14 12:03	aeb

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (TCLP)	M6010B ICP	1		U	*	mg/L	0.04	0.2	04/29/14 9:49	aeb
Barium (TCLP)	M6010B ICP	1	1.060			mg/L	0.003	0.02	04/29/14 9:49	aeb
Cadmium (TCLP)	M6010B ICP	1		U	*	mg/L	0.005	0.02	04/29/14 9:49	aeb
Chromium (TCLP)	M6010B ICP	1		U	*	mg/L	0.01	0.05	04/29/14 9:49	aeb
Lead (TCLP)	M6010B ICP	1		U	*	mg/L	0.03	0.2	04/29/14 9:49	aeb
Mercury (TCLP)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	04/25/14 12:09	mfm
Selenium (TCLP)	M6010B ICP	1		U	*	mg/L	0.05	0.3	04/29/14 9:49	aeb
Silver (TCLP)	M6010B ICP	1		U	*	mg/L	0.01	0.03	04/29/14 9:49	aeb
Uranium, total (3050)	M6020 ICP-MS	2000	205			mg/Kg	0.2	1	04/28/14 20:56	pmc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Solids	SM2540B	1	68.70		*	%	0.01	0.1	04/11/14 6:04	cdb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								04/22/14 15:04	spl
TCLP Metal Extraction	M1311								04/24/14 1:36	ekm

**Inorganic Analytical
 Results**

City Of Englewood

Project ID: RADCHEM CLP MTLs
 Sample ID: COMPOSITE

ACZ Sample ID: L17691-04
 Date Sampled: 04/04/14 10:00
 Date Received: 04/09/14
 Sample Matrix: Sludge

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP								04/28/14 12:26	aeb

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (TCLP)	M6010B ICP	1		U	*	mg/L	0.04	0.2	04/29/14 9:56	aeb
Barium (TCLP)	M6010B ICP	1	1.180			mg/L	0.003	0.02	04/29/14 9:56	aeb
Cadmium (TCLP)	M6010B ICP	1		U	*	mg/L	0.005	0.02	04/29/14 9:56	aeb
Chromium (TCLP)	M6010B ICP	1		U	*	mg/L	0.01	0.05	04/29/14 9:56	aeb
Lead (TCLP)	M6010B ICP	1		U	*	mg/L	0.03	0.2	04/29/14 9:56	aeb
Mercury (TCLP)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	04/25/14 12:11	mfm
Selenium (TCLP)	M6010B ICP	1		U	*	mg/L	0.05	0.3	04/29/14 9:56	aeb
Silver (TCLP)	M6010B ICP	1		U	*	mg/L	0.01	0.03	04/29/14 9:56	aeb
Uranium, total (3050)	M6020 ICP-MS	1000	175			mg/Kg	0.1	0.5	04/28/14 20:59	pmc

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Solids	SM2540B	1	67.90		*	%	0.01	0.1	04/11/14 8:47	cdb

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								04/22/14 15:36	spl
TCLP Metal Extraction	M1311								04/24/14 3:23	ekm

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>Lower</i>	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
<i>MDL</i>	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit, typically 5 times the MDL.
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>Upper</i>	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>AS</i>	Analytical Spike (Post Digestion)	<i>LCSWD</i>	Laboratory Control Sample - Water Duplicate
<i>ASD</i>	Analytical Spike (Post Digestion) Duplicate	<i>LFB</i>	Laboratory Fortified Blank
<i>CCB</i>	Continuing Calibration Blank	<i>LFM</i>	Laboratory Fortified Matrix
<i>CCV</i>	Continuing Calibration Verification standard	<i>LFMD</i>	Laboratory Fortified Matrix Duplicate
<i>DUP</i>	Sample Duplicate	<i>LRB</i>	Laboratory Reagent Blank
<i>ICB</i>	Initial Calibration Blank	<i>MS</i>	Matrix Spike
<i>ICV</i>	Initial Calibration Verification standard	<i>MSD</i>	Matrix Spike Duplicate
<i>ICSAB</i>	Inter-element Correction Standard - A plus B solutions	<i>PBS</i>	Prep Blank - Soil
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBW</i>	Prep Blank - Water
<i>LCSSD</i>	Laboratory Control Sample - Soil Duplicate	<i>POV</i>	Practical Quantitation Verification standard
<i>LCSW</i>	Laboratory Control Sample - Water	<i>SDL</i>	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

- (1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
- (2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
- (3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
- (4) EPA SW-846. Test Methods for Evaluating Solid Waste.
- (5) Standard Methods for the Examination of Water and Wastewater.

Comments

- (1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
- (3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
- (5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

City Of Englewood

ACZ Project ID: L17691

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION	
L17691-01	WG363081	Arsenic (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).	
		Cadmium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).	
		Chromium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).	
		Lead (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).	
	WG362931	Mercury (TCLP)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).	
	WG363081	Selenium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).	
		Silver (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).	
	WG362121	Total Solids	SM2540B	Q6	Sample was received above recommended temperature.	
	L17691-02	WG363081	Arsenic (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
			Cadmium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
Chromium (TCLP)			M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).	
Lead (TCLP)			M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).	
WG362931		Mercury (TCLP)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).	
WG363081		Selenium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).	
		Silver (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).	
WG362121		Total Solids	SM2540B	Q6	Sample was received above recommended temperature.	

City Of Englewood

ACZ Project ID: L17691

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L17691-03	WG363081	Arsenic (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Cadmium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Chromium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Lead (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG362931	Mercury (TCLP)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG363081	Selenium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Silver (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
WG362121	Total Solids	SM2540B	Q6	Sample was received above recommended temperature.	
L17691-04	WG363081	Arsenic (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Cadmium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Chromium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Lead (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG362931	Mercury (TCLP)	M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG363081	Selenium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Silver (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
WG362121	Total Solids	SM2540B	Q6	Sample was received above recommended temperature.	

City Of Englewood

Project ID: RADCHEM CLP MTLs

Sample ID: A-11

Locator:

ACZ Sample ID: L17691-01

Date Sampled: 04/04/14 10:00

Date Received: 04/09/14

Sample Matrix: Sludge

Gross Alpha & Beta (3050)

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	04/24/14 0:04		93	13	3.2	pCi/g		jrd
Gross Beta	04/24/14 0:04		140	10	6.5	pCi/g		jrd

Radium 226 + Alpha Emitting Radium Isotopes (3050)

Prep Method:

M9315

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 + Alpha	04/23/14 11:12		4	0.87	1.5	pCi/g		nco

Radium 228 (3050)

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228 (3050)	04/24/14 13:26		1	1.1	1.1	pCi/g	*	gdr

City Of Englewood

Project ID: RADCHEM CLP MTLs

Sample ID: B-12

Locator:

ACZ Sample ID: L17691-02

Date Sampled: 04/04/14 10:00

Date Received: 04/09/14

Sample Matrix: Sludge

Gross Alpha & Beta (3050)

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	04/24/14 0:05		89	9.6	1.9	pCi/g		jrd
Gross Beta	04/24/14 0:05		91	7.2	4.8	pCi/g		jrd

Radium 226 + Alpha Emitting Radium Isotopes (3050)

Prep Method:

M9315

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 + Alpha	04/23/14 11:14		5.3	1.1	1.7	pCi/g		nco

Radium 228 (3050)

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228 (3050)	04/24/14 13:26		1.4	1.2	1.2	pCi/g	*	gdr

City Of Englewood

Project ID: RADCHEM CLP MTLs
 Sample ID: C-13
 Locator:

ACZ Sample ID: L17691-03
 Date Sampled: 04/04/14 10:00
 Date Received: 04/09/14
 Sample Matrix: Sludge

Gross Alpha & Beta (3050)
 M9310

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	04/24/14 0:07		75	11	3.1	pCi/g		jrd
Gross Beta	04/24/14 0:07		130	10	6.5	pCi/g		jrd

Radium 226 + Alpha Emitting Radium Isotopes (3050)
 M9315

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 + Alpha	04/23/14 11:15		5	1.1	2	pCi/g		nco

Radium 228 (3050)
 M9320

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228 (3050)	04/24/14 13:26		1.5	1.2	1.2	pCi/g	*	gdr

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

RadioChemistry Analytical Results

City Of Englewood

Project ID: RADCHEM CLP MTL5
Sample ID: COMPOSITE
Locator:

ACZ Sample ID: L17691-04
Date Sampled: 04/04/14 10:00
Date Received: 04/09/14
Sample Matrix: Sludge

Gross Alpha & Beta (3050)
M9310

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	04/24/14 0:08		99	12	2.9	pCi/g		jrd
Gross Beta	04/24/14 0:08		93	8.5	6.5	pCi/g		jrd

Radium 226 + Alpha Emitting Radium Isotopes (3050)
M9315

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 + Alpha	04/23/14 11:17		4.9	1.1	1.8	pCi/g		nco

Radium 228 (3050)
M9320

Prep Method:

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228 (3050)	04/24/14 13:26		0.71	2.5	2.6	pCi/g	*	gdr

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>REER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor.
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Matrix Spikes	Determines sample matrix interferences, if any.

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
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Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater.
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis.
- (2) Preparation method: "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click:

<http://www.acz.com/public/extquallist.pdf>

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

RadChem Extended Qualifier Report

City Of Englewood

ACZ Project ID: L17691

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L17691-01	WG362981	Radium 228 (3050)	M9320	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L17691-02	WG362981	Radium 228 (3050)	M9320	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L17691-03	WG362981	Radium 228 (3050)	M9320	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
L17691-04	WG362981	Radium 228 (3050)	M9320	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.

City Of Englewood

ACZ Project ID: L17691

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Total Solids

SM2540B

Sample Receipt

City Of Englewood
 RADCHEM CLP MTLs

ACZ Project ID: L17691
 Date Received: 04/09/2014 09:45
 Received By: mtb
 Date Printed: 4/9/2014

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?			X
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody complete and accurate?	X		
7) Were any changes made to the Chain of Custody prior to ACZ receiving the samples?		X	
8) Is the sampler attestation statement signed?	X		

Samples/Containers

	YES	NO	NA
9) Are all containers intact and with no leaks? L17691-02 Container B1451770 (SJ INORG): This container was received broken and but contents were contained in bubble bag. The sample was placed in a ziplock bag.		X	
10) Are all labels on containers and are they intact and legible?	X		
11) Do the sample labels and Chain of Custody match for Sample ID, Date, and Time?	X		
12) For preserved bottle types, was the pH checked and within limits?			X
13) Is there sufficient sample volume to perform all requested work?	X		
14) Is the custody seal intact on all containers?			X
15) Are samples that require zero headspace acceptable?			X
16) Are all sample containers appropriate for analytical requirements?	X		
17) Is there an Hg-1631 trip blank present?			X
18) Is there a VOA trip blank present?			X
19) Were all samples received within hold time?	X		

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/Hr)	Custody Seal Intact?
1865	9.8	12	N/A

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

**Sample
Receipt**

City Of Englewood
RADCHEM CLP MTLs

ACZ Project ID: L17691
Date Received: 04/09/2014 09:45
Received By: mtb
Date Printed: 4/9/2014

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

February 29, 2016

Report to:

Dave Chapman
City of Englewood
1500 W Layton Ave
Englewood, CO 80110

Bill to:

Dave Chapman
City of Englewood
1500 W Layton Ave
Englewood, CO 80110

Project ID:

ACZ Project ID: L28839

Dave Chapman:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 04, 2016. This project has been assigned to ACZ's project number, L28839. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L28839. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after March 30, 2016. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

Max Janicek has reviewed and approved this report.



City Of Englewood
 Project ID:
 Sample ID: A

ACZ Sample ID: L28839-01
 Date Sampled: 01/22/16 12:45
 Date Received: 02/04/16
 Sample Matrix: Sludge

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP								02/18/16 10:53	aeb

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (TCLP)	M6010B ICP	1		U	*	mg/L	0.04	0.2	02/19/16 12:13	aeb
Barium (TCLP)	M6010B ICP	1	0.953		*	mg/L	0.003	0.02	02/19/16 12:13	aeb
Cadmium (TCLP)	M6010B ICP	1		U	*	mg/L	0.005	0.02	02/19/16 12:13	aeb
Chromium (TCLP)	M6010B ICP	1		U	*	mg/L	0.01	0.05	02/19/16 12:13	aeb
Lead (TCLP)	M6010B ICP	1		U	*	mg/L	0.03	0.2	02/19/16 12:13	aeb
Mercury (TCLP)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	02/20/16 13:36	pta
Selenium (TCLP)	M6010B ICP	1		U	*	mg/L	0.05	0.3	02/19/16 12:13	aeb
Silver (TCLP)	M6010B ICP	1		U	*	mg/L	0.01	0.03	02/19/16 12:13	aeb
Uranium, total (3050)	M6020 ICP-MS	4980	352		*	mg/Kg	0.5	2	02/25/16 12:28	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Solids	SM2540B	1	33.8	H	*	%	0.1	0.5	02/05/16 12:50	rbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								02/09/16 4:04	bcc
TCLP Metal Extraction	M1311								02/15/16 15:24	jjo

City Of Englewood

Project ID:

Sample ID: B

ACZ Sample ID: L28839-02

Date Sampled: 01/22/16 12:45

Date Received: 02/04/16

Sample Matrix: Sludge

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP								02/18/16 11:51	aeb

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (TCLP)	M6010B ICP	1		U	*	mg/L	0.04	0.2	02/19/16 12:20	aeb
Barium (TCLP)	M6010B ICP	1	0.910		*	mg/L	0.003	0.02	02/19/16 12:20	aeb
Cadmium (TCLP)	M6010B ICP	1		U	*	mg/L	0.005	0.02	02/19/16 12:20	aeb
Chromium (TCLP)	M6010B ICP	1		U	*	mg/L	0.01	0.05	02/19/16 12:20	aeb
Lead (TCLP)	M6010B ICP	1		U	*	mg/L	0.03	0.2	02/19/16 12:20	aeb
Mercury (TCLP)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	02/20/16 13:41	pta
Selenium (TCLP)	M6010B ICP	1		U	*	mg/L	0.05	0.3	02/19/16 12:20	aeb
Silver (TCLP)	M6010B ICP	1		U	*	mg/L	0.01	0.03	02/19/16 12:20	aeb
Uranium, total (3050)	M6020 ICP-MS	5000	239		*	mg/Kg	0.5	3	02/25/16 12:32	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Solids	SM2540B	1	30.3	H	*	%	0.1	0.5	02/05/16 12:50	rbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								02/09/16 6:27	bcc
TCLP Metal Extraction	M1311								02/15/16 20:03	jjo

City Of Englewood
 Project ID:
 Sample ID: C

ACZ Sample ID: L28839-03
 Date Sampled: 01/22/16 12:45
 Date Received: 02/04/16
 Sample Matrix: Sludge

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP								02/18/16 13:18	aeb

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (TCLP)	M6010B ICP	1		U	*	mg/L	0.04	0.2	02/19/16 12:30	aeb
Barium (TCLP)	M6010B ICP	1	1.120		*	mg/L	0.003	0.02	02/19/16 12:30	aeb
Cadmium (TCLP)	M6010B ICP	1		U	*	mg/L	0.005	0.02	02/19/16 12:30	aeb
Chromium (TCLP)	M6010B ICP	1		U	*	mg/L	0.01	0.05	02/19/16 12:30	aeb
Lead (TCLP)	M6010B ICP	1		U	*	mg/L	0.03	0.2	02/19/16 12:30	aeb
Mercury (TCLP)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	02/20/16 13:47	pta
Selenium (TCLP)	M6010B ICP	1		U	*	mg/L	0.05	0.3	02/19/16 12:30	aeb
Silver (TCLP)	M6010B ICP	1		U	*	mg/L	0.01	0.03	02/19/16 12:30	aeb
Uranium, total (3050)	M6020 ICP-MS	5000	242		*	mg/Kg	0.5	3	02/25/16 12:35	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Solids	SM2540B	1	53.9	H	*	%	0.1	0.5	02/05/16 12:50	rbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								02/09/16 8:50	bcc
TCLP Metal Extraction	M1311								02/16/16 3:01	jjo

City Of Englewood
 Project ID:
 Sample ID: COMPOSITE

ACZ Sample ID: L28839-04
 Date Sampled: 01/22/16 12:45
 Date Received: 02/04/16
 Sample Matrix: Sludge

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M3010A ICP								02/18/16 13:47	aeb

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Arsenic (TCLP)	M6010B ICP	1		U	*	mg/L	0.04	0.2	02/19/16 12:33	aeb
Barium (TCLP)	M6010B ICP	1	1.110		*	mg/L	0.003	0.02	02/19/16 12:33	aeb
Cadmium (TCLP)	M6010B ICP	1		U	*	mg/L	0.005	0.02	02/19/16 12:33	aeb
Chromium (TCLP)	M6010B ICP	1		U	*	mg/L	0.01	0.05	02/19/16 12:33	aeb
Lead (TCLP)	M6010B ICP	1		U	*	mg/L	0.03	0.2	02/19/16 12:33	aeb
Mercury (TCLP)	M7470 CVAA	1		U	*	mg/L	0.0002	0.001	02/20/16 13:49	pta
Selenium (TCLP)	M6010B ICP	1		U	*	mg/L	0.05	0.3	02/19/16 12:33	aeb
Silver (TCLP)	M6010B ICP	1		U	*	mg/L	0.01	0.03	02/19/16 12:33	aeb
Uranium, total (3050)	M6020 ICP-MS	995	195		*	mg/Kg	0.1	0.5	02/24/16 19:31	msh

Soil Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Solids	SM2540B	1	53.5	H	*	%	0.1	0.5	02/05/16 12:50	rbt

Soil Preparation

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Digestion - Hot Plate	M3050B ICP-MS								02/09/16 16:00	bcc
TCLP Metal Extraction	M1311								02/16/16 5:21	ijo

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %
<i>Lower</i>	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
<i>MDL</i>	Method Detection Limit Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5) Allows for instrument and annual fluctuations.
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit. Synonymous with the EPA term "minimum level"
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>Upper</i>	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>AS</i>	Analytical Spike (Post Digestion)	<i>LCSWD</i>	Laboratory Control Sample - Water Duplicate
<i>ASD</i>	Analytical Spike (Post Digestion) Duplicate	<i>LFB</i>	Laboratory Fortified Blank
<i>CCB</i>	Continuing Calibration Blank	<i>LFM</i>	Laboratory Fortified Matrix
<i>CCV</i>	Continuing Calibration Verification standard	<i>LFMD</i>	Laboratory Fortified Matrix Duplicate
<i>DUP</i>	Sample Duplicate	<i>LRB</i>	Laboratory Reagent Blank
<i>ICB</i>	Initial Calibration Blank	<i>MS</i>	Matrix Spike
<i>ICV</i>	Initial Calibration Verification standard	<i>MSD</i>	Matrix Spike Duplicate
<i>ICSAB</i>	Inter-element Correction Standard - A plus B solutions	<i>PBS</i>	Prep Blank - Soil
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBW</i>	Prep Blank - Water
<i>LCSSD</i>	Laboratory Control Sample - Soil Duplicate	<i>PQV</i>	Practical Quantitation Verification standard
<i>LCSW</i>	Laboratory Control Sample - Water	<i>SDL</i>	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure
Duplicates	Verifies the precision of the instrument and/or method
Spikes/Fortified Matrix	Determines sample matrix interferences, if any
Standard	Verifies the validity of the calibration

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity
H	Analysis exceeded method hold time pH is a field test with an immediate hold time
L	Target analyte response was below the laboratory defined negative threshold
U	The material was analyzed for, but was not detected above the level of the associated value The associated value is either the sample quantitation limit or the sample detection limit

Method References

(1)	EPA 600/4-83-020 Methods for Chemical Analysis of Water and Wastes, March 1983
(2)	EPA 600/R-93-100 Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993
(3)	EPA 600/R-94-111 Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994
(4)	EPA SW-846 Test Methods for Evaluating Solid Waste.
(5)	Standard Methods for the Examination of Water and Wastewater.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis
(4)	An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result
(5)	If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click: <http://www.acz.com/public/extquallist.pdf>

City Of Englewood

ACZ Project ID: **L28839**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L28839-01	WG398868	Arsenic (TCLP)	M5010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Banum (TCLP)	M5010B ICP	BA	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 20X the concentration in the method blank.
		Cadmium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Chromium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Lead (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG398749	Mercury (TCLP)	M7470 CVAA	O6	Sample was received above recommended temperature.
			M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
	WG398868	Selenium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			Silver (TCLP)	M6010B ICP	RA
	WG399180	Uranium, total (3050)	M6020 ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
M6020 ICP-MS			RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.	
WG398221	Total Solids	SM2540B	H3	Sample was received and analyzed past holding time.	
		SM2540B	O6	Sample was received above recommended temperature.	

City Of Englewood

ACZ Project ID: L28839

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L28839-02	WG398868	Arsenic (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Barium (TCLP)	M6010B ICP	BA	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 20X the concentration in the method blank.
		Cadmium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Chromium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Lead (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
WG398749	Mercury (TCLP)		M7470 CVAA	Q6	Sample was received above recommended temperature
			M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
WG398868	Selenium (TCLP)		M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			Silver (TCLP)	M6010B ICP	RA
WG399180	Uranium, total (3050)		M6020 ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable
			M6020 ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample
WG398221	Total Solids		SM2540B	H3	Sample was received and analyzed past holding time
			SM2540B	Q6	Sample was received above recommended temperature

City Of Englewood

ACZ Project ID: L28839

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L28839-03	WG398868	Arsenic (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Barium (TCLP)	M6010B ICP	BA	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 20X the concentration in the method blank.
		Cadmium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Chromium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Lead (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
WG398749	Mercury (TCLP)		M7470 CVAA	Q5	Sample was received above recommended temperature
			M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
WG398868	Selenium (TCLP)		M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
			Silver (TCLP)	M6010B ICP	RA
WG399180	Uranium, total (3050)		M6020 ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable
			M6020 ICP-MS	RD	For a solid matrix, the duplicate RPD (spike or matrix) exceeded the control limit, which is attributable to the non-homogeneity of the sample.
WG398221	Total Solids		SM2540B	H3	Sample was received and analyzed past holding time
			SM2540B	Q6	Sample was received above recommended temperature

City Of Englewood

ACZ Project ID: L28839

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L28839-04	WG398868	Arsenic (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Barium (TCLP)	M6010B ICP	BA	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 20X the concentration in the method blank.
		Cadmium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Chromium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Lead (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
WG398749	Mercury (TCLP)		M7470 CVAA	Q6	Sample was received above recommended temperature.
			M7470 CVAA	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
WG398868	WG398868	Selenium (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
		Silver (TCLP)	M6010B ICP	RA	Relative Percent Difference (RPD) was not used for data validation because the concentration of the duplicated sample is too low for accurate evaluation (< 10x MDL).
WG399139		Uranium, total (3050)	M6020 ICP-MS	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
WG398221		Total Solids	SM2540B	H3	Sample was received and analyzed past holding time
			SM2540B	Q6	Sample was received above recommended temperature.

City Of Englewood

Project ID:

Sample ID: A

Locator:

ACZ Sample ID: L28839-01

Date Sampled: 01/22/16 12:45

Date Received: 02/04/16

Sample Matrix: Sludge

Gross Alpha & Beta (3050)

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	02/16/16 0:04		130	13	2.6	pCi/g	*	kls
Gross Beta	02/16/16 0:04		250	11	5.2	pCi/g	*	kls

Radium 226 + Alpha Emitting Radium Isotopes (3050)

Prep Method:

M9315

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 + Alpha	02/23/16 0:02		4.8	1.3	2.7	pCi/g		mhm

Radium 228 (3050)

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228 (3050)	02/29/16 10:09		5	1.2	0.86	pCi/g		tjr

City Of Englewood

Project ID:

Sample ID: B

Locator:

ACZ Sample ID: L28839-02

Date Sampled: 01/22/16 12:45

Date Received: 02/04/16

Sample Matrix: Sludge

Gross Alpha & Beta (3050)

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	02/16/16 0:05		69	8.6	2	pCi/g	*	kls
Gross Beta	02/16/16 0:05		190	8.8	4	pCi/g	*	kls

Radium 226 + Alpha Emitting Radium Isotopes (3050)

Prep Method:

M9315

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 + Alpha	02/23/16 0:04		6.1	1.6	3.1	pCi/g		mhm

Radium 228 (3050)

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228 (3050)	02/29/16 10:09		6.8	1.3	0.91	pCi/g		tjr

City Of Englewood

Project ID:

Sample ID: C

Locator:

ACZ Sample ID: L28839-03

Date Sampled: 01/22/16 12:45

Date Received: 02/04/16

Sample Matrix: Sludge

Gross Alpha & Beta (3050)

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	02/16/16 0:07		48	6.1	1.5	pCi/g	*	kls
Gross Beta	02/16/16 0:07		110	5.7	2.8	pCi/g	*	kls

Radium 226 + Alpha Emitting Radium Isotopes (3050)

Prep Method:

M9315

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 + Alpha	02/23/16 0:05		4.3	1.2	2.4	pCi/g		mhm

Radium 228 (3050)

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228 (3050)	02/29/16 10:09		4.4	1.3	1.1	pCi/g		tjr

City Of Englewood

Project ID:

Sample ID: COMPOSITE

Locator:

ACZ Sample ID: L28839-04

Date Sampled: 01/22/16 12:45

Date Received: 02/04/16

Sample Matrix: Sludge

Gross Alpha & Beta (3050)

Prep Method:

M9310

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Gross Alpha	02/16/16 0 08		60	5.7	1	pCi/g	*	kls
Gross Beta	02/16/16 0 08		98	4.5	2	pCi/g	*	kls

Radium 226 + Alpha Emitting Radium Isotopes (3050)

Prep Method:

M9315

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 226 + Alpha	02/23/16 0 07		5.9	1.5	3	pCi/g		mhm

Radium 228 (3050)

Prep Method:

M9320

Parameter	Measure Date	Prep Date	Result	Error(+/-)	LLD	Units	XQ	Analyst
Radium 228 (3050)	02/29/16 10 09		5.9	1.2	0.85	pCi/g		tjr

Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Error(+/-)</i>	Calculated sample specific uncertainty
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %
<i>LCL</i>	Lower Control Limit, in % (except for LCSS, mg/Kg)
<i>LLD</i>	Calculated sample specific Lower Limit of Detection
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
<i>RER</i>	Relative Error Ratio, calculation used for Dup. QC taking into account the error factor
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>UCL</i>	Upper Control Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>DUP</i>	Sample Duplicate	<i>MS/MSD</i>	Matrix Spike/Matrix Spike Duplicate
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBS</i>	Prep Blank - Soil
<i>LCSW</i>	Laboratory Control Sample - Water	<i>PBW</i>	Prep Blank - Water

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method procedure
Control Samples	Verifies the accuracy of the method, including the prep procedure
Duplicates	Verifies the precision of the instrument and/or method
Matrix Spikes	Determines sample matrix interferences, if any

ACZ Qualifiers (Qual)

H	Analysis exceeded method hold time.
---	-------------------------------------

Method Prefix Reference

M	EPA methodology, including those under SDWA, CWA, and RCRA
SM	Standard Methods for the Examination of Water and Wastewater
D	ASTM
RP	DOE
ESM	DOE/ESM

Comments

- (1) Solid matrices are reported on a dry weight basis
- (2) Preparation method "Method" indicates preparation defined in analytical method.
- (3) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations
- (4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.

For a complete list of ACZ's Extended Qualifiers, please click

<http://www.acz.com/public/extquallist.pdf>

City Of Englewood

ACZ Project ID: **L28839**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L28839-01	WG398750	Gross Alpha	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable
		Gross Beta	M9310	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample
L28839-02	WG398750	Gross Alpha	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable
		Gross Beta	M9310	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample
L28839-03	WG398750	Gross Alpha	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable
		Gross Beta	M9310	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample
L28839-04	WG398750	Gross Alpha	M9310	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable
		Gross Beta	M9310	RC	For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample

City Of Englewood

ACZ Project ID: L28839

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Total Solids

SM2540B

City Of Englewood

ACZ Project ID: L28839
 Date Received: 02/04/2016 14:44
 Received By: ddp
 Date Printed: 2/4/2016

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?			X
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		X	

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? ¹			X
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?		X	

Some parameters were received past hold time.

Chain of Custody Related Remarks

The 'Relinquished By' field on the COC was not completed. Left a message for Dave Chapman on 2/4/16.

Client Contact Remarks

Shipping Containers

Cooler Id	Temp (°C)	Temp Criteria (°C)	Rad (µR/Hr)	Custody Seal Intact?
3024	8.6	<=6.0	14	Yes

Was ice present in the shipment container(s)?

No - Wet or gel ice was not present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria

City Of Englewood

ACZ Project ID: L28839
Date Received: 02/04/2016 14:44
Received By: ddp
Date Printed: 2/4/2016

¹ The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na₂S₂O₃ preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).



Laboratories, Inc. L28839

CHAIN of CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Report to:

Name: DAVE CHAPMAN
Company: CITY OF ENGLEWOOD
E-mail: dchapman@englewoodgov.org

Address: 1500 W. LAYTON AVE.
ENGLEWOOD CO 80110
Telephone: 303-762-2650

Copy of Report to:

Name:
Company:

E-mail:
Telephone:

Invoice to:

Name: SAME
Company:
E-mail:

Address:
Telephone:

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES NO

Are samples for SDWA Compliance Monitoring? Yes No

Sampler's Name: NATHAN DEVEAUX Sampler's Site Information State CO Zip code 80110 Time Zone MTN
*Sampler's Signature: [Signature]

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	RADCHEM	TCLP													
A	1/22/16 1245 PM	SL	2	✓	✓													
B	1/22/16 1245 PM	SL	2	✓	✓													
C	1/22/16 1245 PM	SL	2	✓	✓													
COMPOSITE	1/22/16 1245 PM	SL	2	✓	✓													

Matrix SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
			<u>2/4/16 1444</u>

L28839 Chain of Custody

Account: ENGLEWOOD/City Of Englewood
Bottle Order: BO34542

Bill to Account: Bill to ACZ
Ship Date Requested: 12/03/2015
Request Placed at: 12/02/2015 09:49
Service Requested: UPS Ground

Sampling supplies

PACK	Qty	ACZ ID	Type	Description
	1	COC	Chain of Custody	Chain of Custody, 1 for 10 samples
	2	SEAL	Custody Seal	Custody seals for cooler, two for each cooler.
	1	RETURN	Return Address	Return Address label, one for each cooler.
	8	LABELS	Sample Labels	ACZ supplied labels for sample containers

ACZ Coolers

PACK	Qty	ACZ ID	Size	Weight	UPS Tracking Number
	1	3024	Medium	10	1Z8101300375077047

Quote number: RADCHEM+TCLP City of Englewood Dry Alum Sludge
Sample Quantity: 4 ACZ is responsible for necessary sample filtering

PACK	Qty	Type	Size	Filter/Raw/Preserve	Instructions
	2	SJ INORG	8 OZ	Raw	Soil analyses - Completely fill jar with a homogeneous sample.

Prepared By/Date _____

mjj

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Menus [open](#)Site
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**CITY OF ENGLEWOOD, COLORADO**

New Form 08-22-2014 Final

[263442]
LJMC LLC3995 S. Broadway
Englewood, CO
9546758455

Due: 04/21/2015 Current Time : 04/13/2015 Late: NO

BUSINESS OWNERSHIP: *TYPE OF OWNERSHIP Sole Proprietorship Corporation Partnership Other**BUSINESS INFORMATION:**

NAME OF COMPANY: * LJMC LLC

DOING BUSINESS AS: * IBAKE Englewood

BUSINESS LOCATION:

Street * 3995 S. Broadway City * Englewood State * Colorado Zip * 80110

MAILING ADDRESS:

Street * 3995 S. Broadway City * Englewood State * Colorado Zip * 80110

BUSINESS CONTACT INFORMATION:

EMAIL ADDRESS: * BUSINESS WEBSITE:

LOCAL BUSINESS PHONE: * HOME OFFICE PHONE:

All businesses must complete the Owner, President or Partner below (first line) . Corporations should complete all applicable officer, owner, director or holder of 10% of the Shares of Stock or more.

OWNERS/OFFICERS OF BUSINESS:

NAME	POSITION	HOME ADDRESS	CITY	STATE	ZIP	PHONE	BIRTHDAY
Craig Fuchs	Owner, President or Partner		Aurora	CO	80017		
Marty Fuchs	V. President or Partner		Aurora	CO	80017		
	Secretary/ Treasurer						
	Colo. Registered Agent **						
	Local Manager						

First day of business in jurisdiction *
05/01/2015

If purchased, Date Taxpayer Acquired the Business

Former Owner (N/A If None) :

Former Business Name (N/A If None) :

N/A

N/A

Former Licence Number (N/A if none)

Former Business Street Address (N/A if None)

N/A

N/A

Colorado State Sales Tax Number

FEIN/SSN Number *:

Colorado Secretary of State ID

How many years has this company been in business?

Have You conducted business in the City before?

Yes No

Does your business have any other locations within this jurisdiction?

Yes No

Do you have another branch / location outside this jurisdiction?

Yes No

BUSINESS TYPE: *

Do you sell Retail items? *

Yes No

Are you a Contractor? *

Yes No

Do you sell Wholesale Items? *

Yes No

Do you provide Services? *

Yes No

Do you conduct any Manufacturing or Processing? *

Yes No

Do you offer any Other types of business products / services that are not indicated above? *

Yes No

PRODUCTS SOLD: *

List the type(s) of products being sold *

hats, shirts, photographs, cigarettes, pipes, other forms of tobacco (i.e. chewing, e-cigs, etc)

SERVICES PROVIDED: *

List the type(s) of services being provided *

N/A

DOES YOUR BUSINESS UTILIZE ANY HAZARDOUS, TOXIC OR FLAMMABLE MATERIALS? *

NO

IF SO, DESCRIBE

Total Square Footage * 4006

Retail Square Footage

Leased Owned

Do you make deliveries into the city? *

Yes No

FILING FREQUENCY - PLEASE CHECK APPROPRIATE BOX FOR ESTIMATED TAX DUE: *

Monthly Quarterly Annually

\$100 / Month or more file monthly \$50-\$99 / month file quarterly Under \$50 / month file annually

***LICENSE ISSUED ONLY IF ALL APPLICABLE INFORMATION IS COMPLETE**
****Corporations doing business in the State of Colorado are required to have a Colorado Registered Agent per C.R.S. 7-105-101.**
PLEASE INCLUDE A PHOTO COPY OF THE OWNER'S DRIVER'S LICENSE

I, the undersigned, am aware that all business processes and associated structural and building conditions are subject to inspection by various city code enforcement divisions and that structural upgrading and compliance with the City adopted codes may be required as a condition to operating a business within the City of Englewood.

NONCOMPLIANCE WITH CITY ADOPTED CODES MAY RESULT IN THE CITY PURSUING FORMAL LEGAL ACTION SUCH AS A DISTRAINT WARRANT, A SUMMONS AND COMPLAINT FILED THROUGH THE MUNICIPAL COURT, A TAX LIEN OR LICENSE REVOCATION.

Name (as electronic signature) *	Title *	Date *
<input type="text" value="Craig J Fuchs"/>	<input type="text" value="President/CEO"/>	<input type="text" value="04/11/2015 14:10:03"/>

Audit Log (4)



CITY OF ENGLEWOOD, COLORADO

New Form 08-22-2014 Final

[263442]
LJMC LLC
 3995 S. Broadway
 Englewood, CO
 9546758455

Audit Logs

Category	Date	User	Note
	Apr 13, 2015 2:00 pm MDT	Craig Fuchs	Businesstask Status changed from "10" to "50" Is Locked changed from "0" to "1" Period Date changed from "0000-00-00" to "N/A" Date Completed changed from "" to "20150413" Completed Userid changed from "" to "8264"
	Apr 13, 2015 2:00 pm MDT	Craig Fuchs	Businesstask Status changed from "10" to "50" Is Locked changed from "0" to "1" Period Date changed from "0000-00-00" to "N/A" Date Completed changed from "" to "20150413" Completed Userid changed from "" to "8264"
	Apr 11, 2015 2:14 pm MDT	Craig Fuchs	Period Date changed from "" to "N/A"
	Apr 11, 2015 2:10 pm MDT	Craig Fuchs	Id changed from "" to "45617826" Businesstaskid changed from "" to "45617826" Active changed from "" to "1" Taskid changed from "" to "2028" Task Type changed from "" to "1" Tasktypekey changed from "" to "2012" Businesstask Status changed from "" to "10" Businessworkflowid changed from "" to "104538" Businessid changed from "" to "12442" Name changed from "" to "New Form 08-22-2014 Final" Description changed from "" to "Form: New Form 08-22-2014 Final" Alias changed from "" to "new_form_08-22-2014_final" Date Due changed from "" to "20150421" Date Created changed from "" to "20150411" Created Userid changed from "" to "8264" Sortorder changed from "" to "1000" Uniqueid changed from "" to "d63aefd69b6be8c3118236dbd8c4cfd2"

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Audit Log (2)



CITY OF ENGLEWOOD, COLORADO

New Business Application (2 of 2)

[263442]

LJMC LLC

3995 S. Broadway
Englewood, CO
9546758455

Due: 04/21/2015 Current Time : 04/13/2015 Late: NO

PLEASE INDICATE CATEGORIES THAT APPLY: *

BUSINESS CATEGORY

- | | | |
|--|---|---|
| <input type="checkbox"/> Default | <input type="checkbox"/> Department Store | <input type="checkbox"/> Mail Order House |
| <input type="checkbox"/> Limited Price Variety Store | <input type="checkbox"/> Merchandise Vending Machine | <input type="checkbox"/> Direct Selling Organizations |
| <input checked="" type="checkbox"/> Misc Gen Merchandise Store | <input type="checkbox"/> New & Used Auto Dealer | <input type="checkbox"/> Used Only Auto Dealer |
| <input type="checkbox"/> Tire, Battery, Accessory Dealer | <input type="checkbox"/> Gasoline Service Station | <input type="checkbox"/> Mobile Home & Trailer Dealer |
| <input type="checkbox"/> Misc Aircraft, Marine, Auto | <input type="checkbox"/> Auto Leasing Companies | <input type="checkbox"/> Auto Parts & Supplies |
| <input type="checkbox"/> Auto Repair | <input type="checkbox"/> Grocery Store | <input type="checkbox"/> Meat & Fish Market |
| <input type="checkbox"/> Fruit & Vegetable Market | <input type="checkbox"/> Candy, Nut & Confectionery Store | <input type="checkbox"/> Dairy Products Store |
| <input type="checkbox"/> Retail Bakeries | <input checked="" type="checkbox"/> Misc Food Store | <input type="checkbox"/> Restaurant |
| <input type="checkbox"/> Fast Food Restaurant | <input type="checkbox"/> Drinking Place | <input type="checkbox"/> Restaurant Supply/Equipment |
| <input type="checkbox"/> Ice Cream/Fast Food | <input type="checkbox"/> Mens/Boys Clothing | <input type="checkbox"/> Women's Ready-To-Wear |
| <input type="checkbox"/> Women's Accessory & Specialty | <input type="checkbox"/> Children's & Infants Wear | <input type="checkbox"/> Family Clothing Store |
| <input type="checkbox"/> Shoe Stores | <input type="checkbox"/> Custom Tailors | <input type="checkbox"/> Furriers and Fur Shops |
| <input checked="" type="checkbox"/> Misc Apparel & Accessory | <input type="checkbox"/> Furniture/Home Furnishings | <input type="checkbox"/> Household Appliance Store |
| <input type="checkbox"/> | <input type="checkbox"/> Carpet, Draperies | <input type="checkbox"/> Appliance |

Electronic/Radio/TV/Stereo

- Transportation
- Sanitary Services
- Antique & Secondhand Store
- Farm & Garden Supply Store
- Toys
- Pet Stores

- Photography/Photo Stores
- Misc Specialty Retail Store
- Leasing Companies
- Lumber & Other Bldg Materials
- Electrical Supply Stores

- Signs
- Hotel

- Trailer Court

- Health Care Services
- Optometry Services
- Insurance Agencies

- Cleaning/Maintenance Services
- Mortuaries
- Shoe Repair
- Miscellaneous Personal Serv
- Space Engineering
- Pawn/Auto Pawn

- Communications
- Drug Store
- Book & Stationery Store
- Jewelry Store
- Medical Supplies
- Music/Record Stores
- Gift/Curio Stores
- Banks, Savings & Loans
- Real Estate
- Heating & Plumbing Equipment
- Hardware Stores

- Glass Dealers
- Motel

- Accountants/Accounting Service
- Dentist/Dental Services
- Attorneys/Legal Services
- Real Estate Agencies

- Financial/Investment Services
- Information Services
- Arcades/Amusement Places
- Contract Construction
- Non Classifiable

Repair

- Electric & Gas
- Liquor Store
- Sporting Goods & Bicycle Store
- Fuel & Ice Dealer
- Office Supplies
- Florists/Flower Stores
- Video Store

- Finance Companies
- Insurance
- Paint & Wallpaper Stores
- Farm Equipment Stores
- Manufacturing
- Boarding House
- Physicians

- Veterinary Services
- Dry Cleaners/Laundries
- Styling Salons/Barber Shops
- Car Wash

- Lawn Care Services
- Fitness/Martial Arts Studios
- Management Firms
- Fire Arms-Shooting Range



Position: Ln 1, Ch 18 Total: Ln 24, Ch 910



TO: Mayor Jefferson and Council Members

THRU: Eric Keck, City Manager
Brad Power, Community Development Director

FROM: John Voboril, Planner II

DATE: July 29, 2016

SUBJECT: Council Request 16-140: Bike Share Program

The Cities of Fort Collins and Westminster have recently established bike sharing programs through contracts with Zagster, a niche bicycle sharing service provider. Zagster focuses its services on small markets that do not make financial or operational sense for traditional kiosk-based providers such as B Cycle. Rather than using expensive kiosk stations, Zagster bicycles are equipped with traditional bicycle locks that are accessible using a code that is issued to a rider using a cell phone. The Zagster system is not intended to provide the same density of stations that kiosk-based systems would, and this also helps to keep costs lower. The Zagster system is essentially a hybrid cross between a bicycle library and a traditional kiosk-based system.

Fort Collins previously had run a bicycle library system out of a central location in Downtown Fort Collins. The library system required staffing to check the bicycles out and perform routine maintenance. Because there was only one location to check out the bicycles, users essentially had to make a return trip to the same location to turn the bicycle back in. The Zagster system allows for multiple stations (13) that do not require staffing, as the bicycles are checked out using cell phones. This gives riders more places to pick up and turn in bicycles. When contracting with Zagster, Cities do not purchase any equipment, and do not provide any operational management, or maintenance. Zagster owns the equipment and is responsible for operational management and maintenance.

Zagster's service pricing depends on the scale of the system desired (one bicycle = \$1,800 per year). The City of Westminster's initial system includes five stations with 32 bicycles, 3 hand cycles, and three trike bikes. On May 9, 2016, the Westminster City Council approved a one year contract with Zagster for the amount of \$82,750.00 with an additional contingency of \$30,000.00 for three potential new stations, with a two year optional renewal at the same yearly price. Both Fort Collins and Westminster have relied on the use of corporate branding of individual stations to cover some of the costs of the service. The Westminster system came about from demand from the Westin and Marriot Hotels, as well as the Westminster Chamber of Commerce. Saint Anthony North is also a sponsor.



TO: Honorable Mayor and Members of the City Council

FROM: Eric A. Keck, City Manager

DATE: 25 July 2016

SUBJECT: CR 16-141 Police Department Facility Alternatives

Many conversations and studies have been performed to examine the construction of a new Safety Services building. Staff analysis of this matter indicates that a 2006 Safety Services Facility Master Plan process was the beginning of a concerted push to have a new building constructed. Public Works has provided a copy of their studies and work that was performed internally on this matter.

As part of the analysis of the Englewood Civic Center, one alternative for the building's usage did involve the potential of moving the Police Department into the facility. Bill Alton, Real Estate Director for CRE USA, analyzed this proposed use of space and it was determined that it would be very difficult, if not impossible, to move the PD into the Civic Center. This conclusion was largely predicated upon the need for honoring our agreement with the RTD for public parking in the garage and parking deck. We would not have been able to provide secured parking and access within the garage for the Police to move in without interrupting our agreement with RTD. Modification of the parking arrangement with RTD would be extremely difficult as there are few alternatives. Further complications for this proposal identified by Mr. Alton were the need to relocate the Library and ancillary support services such as the print shop and facilities storage from the main floor of the Civic Center to accommodate the Police Department. A Library of comparable size would cost the City roughly \$4.75 million. The cost of retrofitting the main floor for the PD would have cost the City roughly \$1.75 million. The main driving factor for dismissing the viability of the Civic Center, however, was the issue of parking and restricted access for just the Police Department personnel.

The analysis performed by Mr. Alton was concluded in early 2016.

Should you have any questions, please do not hesitate to contact me.



City of Englewood

Facility Assessment Report

FOR

City of Englewood
Police Station

3615 South Elati Street

Rick Kahm – Public Works Director

Dave Henderson – Deputy Public Works Director

Michael Hogan – Facilities Manager

April 17, 2014

EXECUTIVE SUMMARY

The existing City of Englewood Police Operations Facilities is in need of repair and or potential improvements to bring it to current industry standards and codes. The purpose of the Facility Assessment was to evaluate the building envelope and all building systems for maintenance and or upgrade opportunities. Public Works surveyed multiple General Contractors, Estimators, and Architects who build and remodel Police stations generating a sample of projects completed within the last two years including cost, layout and building size.

The study found that the Police facility is currently operating in a safe code compliant fashion related to its age and is fully operational. The facility is in need some immediate repairs to building systems. These repairs are currently in process or deferred maintenance and include HVAC, exterior lighting, and roofing repairs. The Police station has multiple opportunities for improvement, potential remodel or replacement.

The potential cost for improving or remodeling the current structures square footage would range from \$4,800,000 – \$5,800,000. The actual costs within the range would be determined by the scope of the remodel or upgrades. Remodeling is not recommended by public works as the current structure was built in 1972 and is smaller than the current requirements for comparable facilities and the base electrical, HVAC, and facility space plan are obsolete by today's industry standards.

In addition to the potential remodeling option the city has the opportunity to replace the facility. Replacement of the building with facilities compliant with current industry standards would range in cost from \$8,250,000 to \$9,000,000. The actual cost of the station is determined by the scope of the new facility including such factors as architectural design, façade type, fixtures, and finishes. The replacement station for the Police Department would need to be approximately 5,900 sq. / ft. larger to accommodate the new industry standards and growth approximately 29,500 sq. / ft.

If city management pursues action related to these facilities further study by consultants will be needed to inspect and analyze the overall structural condition of this facility and provide recommended upgrades, assess accessibility, current building code, and upgrade/compliance recommendations. They will also evaluate mechanical and electrical systems for current code related upgrades.

PURPOSE AND SCOPE

The city manager's office requested that Public Works provide an evaluation of the Police facilities. This evaluation was performed by Public Works Staff and reported on as follows. There are several provisions to this report that include the following:

- The Facility Assessments and the accompanying cost information including the pricing provided is based on industry standards obtained by research and industry experience. Consultants including architects, engineers, and contractors will be needed to provide detailed scope of the various needs and more definite cost information.
- The costs reported in the report are not definitive or absolute.
- The costs are based on comparisons with recently constructed facilities and industry experts.
- The report is intended to identify the buildings current condition, as well as facility needs, requests, and potential priorities. No recommendations are provide or implied in the report.
- It is anticipated the Facility Assessment would assist management as a tool to help determine a course of action regarding the facilities.

The existing facilities are in need of repair and or potential improvements to bring them to current standards and codes. The purpose of the Facility Assessment is to evaluate building envelope and all general building systems for maintenance and or upgrade opportunities to existing systems.

Further study by consultants will inspect and analyze the overall structural condition of this facility with recommended upgrades, assess accessibility, current building code related items and provide upgrade/compliance recommendations. They will also evaluate Mechanical and Electrical systems for current code related recommended upgrades.

All facilities covered in this report are currently operating in a safe code compliant fashion related to their age and are fully operational.

POLICE STATION

Built 1972 – 32,104 Square Foot Total – Police Use Approximately 23,604 Square Foot

New Construction Costs – Based on 30,000 sq. / ft. Central Station

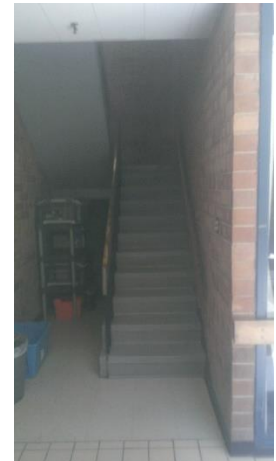
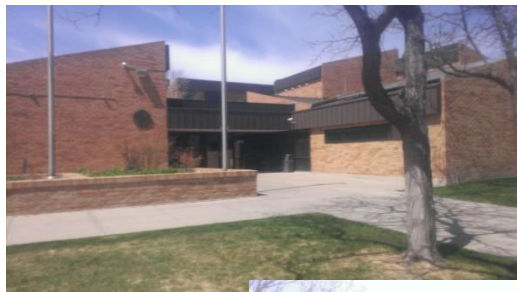
\$ 9,000,000 (30,000 sq. / ft. at \$300 per sq. / ft.)

Approximate Remodel Costs

\$ 4,815,600 (32,104 sq. / ft. at \$150 per sq. / ft. Remolded)

1. Fence – Need Secure Parking Area
2. Paint – Various areas need painting – Should be done every 5-7 Years
3. Carpet – Needs replaced various locations throughout
4. Skylight Repair – Needs replaced and drywall repairs
5. Sign – Weather damaged needs resigned and painted
6. Exterior Lighting – Not adequate and needs upgraded and replaced
7. Blinds – Need replaced - Broken
8. Interior Architecture – Airflow issues due to vaulted ceilings needs addressed
9. Kitchen Break room Remodel
10. Appliances – Replace and upgrade to commercial grade
11. Furniture Office – Replace various office furniture
12. Security – Re-key building and add card access doors and security
13. Locker Room Remodel
14. Generator – Need Full building Generator Backup and Upgrades
15. Stairwells and Bathrooms – ADA Upgrades
16. HVAC Units – Installed 2001 – 13 years old – 12 years useful life
17. Electrical – Upgrades needed to support new equipment and operations
18. Roofing – Tile and Flat Roofs need replaced

“An effective police agency evolves to meet the ever-changing needs and demands of the community it serves. Unfortunately, many police agencies are housed in facilities that, while built for long-term service, have become inadequate for actual departmental functions. Since most community’s will only design and build a new police facility every 40-50 years few police administrators and local architects know the challenge of planning, designing, and constructing a new police facility, a task that can be both frustrating and expensive if some basic guidelines are not followed.” (International Assoc. of Chiefs of Police)



APPENDIX

DATA DERIVED FROM:



Golden Triangle Construction



Cost Management and Estimating



Commercial Architects



RS Means Construction Data

District Police Facility	Weather Normalized, Source Energy Use Intensity (EUI) (kBtu/sq ft*)	Total Floor Space (sq ft.)	Total GHG Emissions (MtCO ₂ e)	Site Electric Use (kWh)	Site Natural Gas Use (therms)	Energy Cost US \$ (per sq ft)
MPD 1st District Sub Station	273	10,017	131	198,880	5,168	\$3.67
MPD 2nd District Station	900	36,852	1,520	2,759,502	16,199	\$4.62
MPD 3rd District Sub Station	297	13,793	194	238,400	13,228	\$3.76
MPD 3rd District Station	544	38,852	972	1,708,800	15,713	\$3.90
MPD 4th District Station	393	45,013	817	1,386,300	18,132	\$4.27
MPD 5th District Station	370	36,888	635	1,045,920	16,360	\$4.00
MPD 6th District Station	391	37,935	692	1,035,040	28,828	\$4.52
MPD 7th District Station	248	43,190	492	868,050	7,705	\$2.69
MPD ROC North	237	41,300	476	597,300	31,042	\$3.18



Johnstown Police Facility

Location: Johnstown, Colorado

Description: 9,900 sf New Police Station.

Contract Amount: \$1,529,356

Completion Date: **May 19, 2003**

Spence, Webster, Conners - Us Department of Justice. Guidelines for starting and operating a new police department. Retrieved at www.cops.usdoj.gov/Publications/e0506066GuidelinesFinal.pdf

Rocheleau. M (August 1, 2012) Retrieved From:

http://www.boston.com/yourtown/news/roxbury/2011/08/new_175m_police_station_opens.html

MEMORANDUM

TO: Rick Kahm, Director of Public Works
John Collins, Police Chief

FROM: Dave Henderson, Deputy Public Works Director

DATE: September 5, 2014

SUBJECT: POLICE/FIRE FACILITY ESTIMATE

Provided below are very preliminary cost estimates and data to construct a new joint Police/Fire facility:

Existing Police/Fire Complex

Police	23,604 sf
Fire	<u>8,500 sf</u>
Total	32,104 sf

Preliminary Estimated Square Footage for new facility (50 yr life)

Police (say 25% larger)	30,000 sf
Fire (from internal facility report)	<u>25,000 sf</u>
Total	55,000 sf

Preliminary Cost Estimate

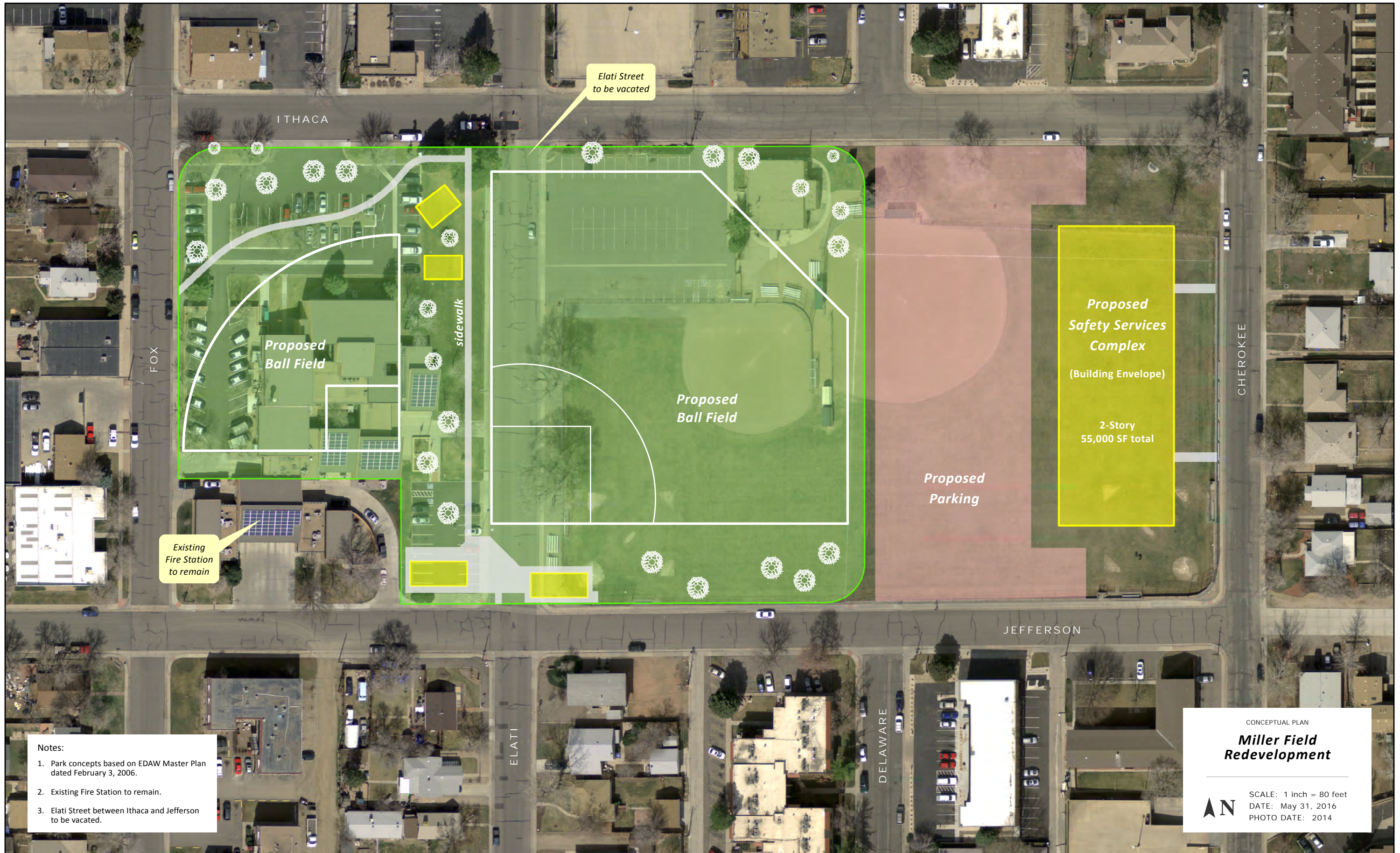
Building	55,000 sf @ \$300/sf	\$16,500,000
FF&E	55,000 sf @ \$35/sf	1,925,000
Site Work and Parking (170 stalls)		1,100,000
Soft Costs	15% of Construction	<u>2,929,000</u>
	Total Estimate	\$22,454,000*

* Estimate does not include costs to acquire a site. A minimum of 3.5 acres is required.

Another option is to build a new Fire Facility and remodel the existing P/F Complex for Police.

New Fire Facility	25,000 sf @ \$300	\$7,500,000
FF&E	lump sum estimate	1,000,000
Remodel Existing	32,104 sf @ \$150	4,800,000
Soft Costs	15% of Construction	<u>1,800,000</u>
	Total Estimate	\$15,100,000

/dh



- Notes:
1. Park concepts based on EDAW Master Plan dated February 3, 2006.
 2. Existing Fire Station to remain.
 3. Elati Street between Ithaca and Jefferson to be vacated.

CONCEPTUAL PLAN
Miller Field Redevelopment

SCALE: 1 inch = 80 feet
 DATE: May 31, 2016
 PHOTO DATE: 2014