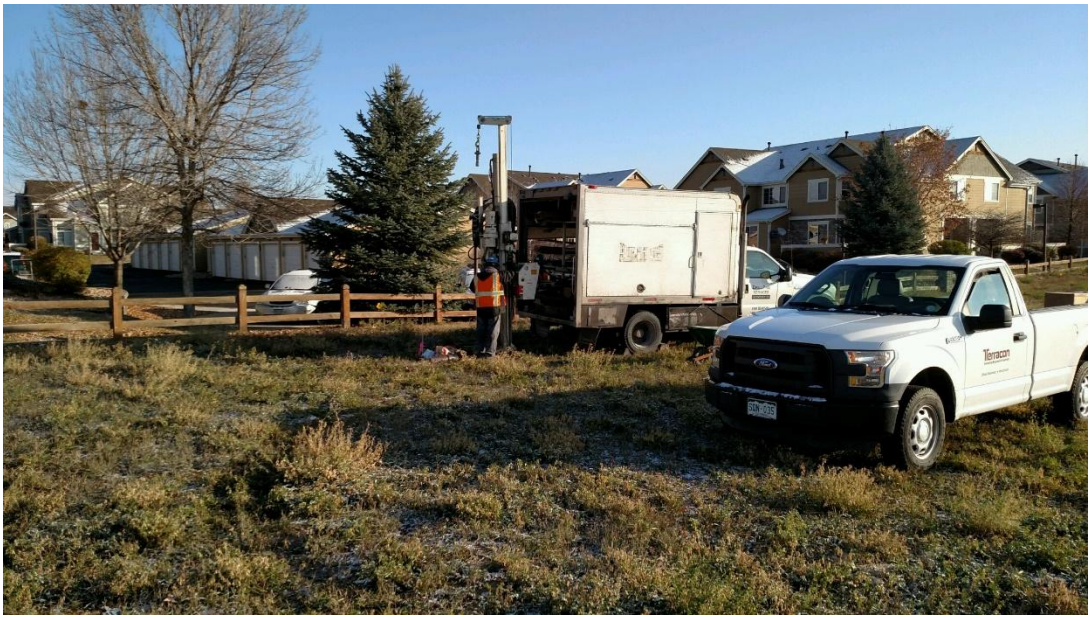
Historical Document Review Report

Maruyama #1 Oil and Gas Well Site
Longmont, Colorado

December 22, 2017
Terracon Project No. 22177045



Prepared for:
City of Longmont
Longmont, Colorado

Prepared by:
Terracon Consultants, Inc.
Longmont, Colorado

December 22, 2017

City of Longmont
385 Kimbark Street
Longmont, Colorado 80501

Attn: Mr. Jason Elkins
P: (303) 651-8310
E: Jason.Elkins@longmontcolorado.gov

Re: Historical Document Review
Maruyama #1 Oil and Gas Well Site
Longmont, Colorado
Terracon Project No. 22177045

Dear Mr. Elkins:

Terracon Consultants, Inc. (Terracon) is pleased to submit our report of Historical Document Review activities completed at the site referenced above, to accompany the Limited Soil, Groundwater, and Soil Gas Investigation Report dated December 14, 2017. Terracon conducted the document review in general accordance with our proposal (P22177045), dated October 26, 2017.

Terracon appreciates this opportunity to provide environmental consulting services to The City of Longmont. Should you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,
Terracon Consultants, Inc.

Michael J. Skridulis
Project Manager

Derek A. Brown, P.E.
Environmental Department Manager

TABLE OF CONTENTS

1.0 SITE DESCRIPTION

Site Name	Maruyama #1 O&G Well Site
Site Location	500 Deerwood Drive, Longmont, Colorado

A Topographic Map showing the site location is included as Exhibit 1 and a Site Diagram is included as Exhibit 2 (from Investigation Report) in Appendix A.

2.0 SCOPE OF SERVICES

In 2012, Terracon was retained by the City of Longmont (COL) to assess seventeen plugged and abandoned oil and gas wells located within the City of Longmont limits. The objective of the 2012 assessment was to provide information concerning the plugging and abandoning of 17 O&G wellheads located within the City of Longmont and to assess the potential presence of surficial soil impacts, methane and other gasses in the subsurface near the surveyed well locations. Results of this investigation were issued in Terracon's Research Summary Report, dated February 6, 2013.

On May 2, 2017, the Colorado Oil and Gas Conservation Commission (COGCC) issued a statewide Notice to Operators (NTO) directing operators to inspect their inventory of existing flowlines and verify that any existing flowline not in active use, regardless of when it was installed or taken out of service, is abandoned pursuant to COGCC Rule 1103. Terracon performed soil, groundwater, and soil gas investigation activities at the site for the City of Longmont as detailed in the Investigation Report, dated December 14, 2017.

The objective of the document review was to provide historical information concerning former operations and to assess any concern pertaining to sensitive receptors with relation to the former well location of the Maruyama #1 O&G well located within the City of Longmont.

2.1 Reliance

This report has been prepared for the exclusive use of the City of Longmont, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of the City of Longmont and Terracon. Any unauthorized distribution or reuse is at the City of Longmont's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, report, and Terracon's Master Services Agreement (MSA) with the City of Longmont. The limitation of liability defined in the terms and conditions of the MSA is the aggregate limit of Terracon's liability to the City of Longmont and all relying parties unless otherwise agreed in writing.

2.2 Background Evaluation

As outlined in Terracon's Research Summary Report, dated February 6, 2013, drilling of the Maruyama #1 well (API Number 05-013-06099) was reported as starting on January 16, 1982, and the well was reportedly drilled to 7,250' bgs. Surface casing was set at 240' bgs.

Plugging and abandonment was reportedly started on August 27, 1999. A cement plug was reported to be placed across perforations which isolates the perforations and prevents flow up the casing from the formation. The production casing was reportedly cut and the loose pipe recovered. A cement plug was placed above the casing cut. Cement plugs were reported to be placed across the surface casing shoe and at the surface.

The water well search using the Colorado Department of Water Resources (DWR) online database indicated one water well within a 1,000-foot radius of the wellsite. A domestic well registered to Victor Peppler (Permit No. 34642) was constructed in 1968. This well is located cross-gradient to the former Maruyama wellhead location to the southeast. This well is assumed to be abandoned based on new housing development in the area, although there are no additional well records available through DWR.

The land use of the wellsite during drilling and plugging activities was reported as agricultural. Currently, the wellsite is in open space within the Fox Meadows Subdivision and is zoned as Residential Planned Unit Development with a proposed elementary school. There are new townhomes built near the former well location with the closest residences approximately 80-feet to the northwest and northeast of the former Maruyama wellhead location. A storm sewer has been installed immediately to the north of the former wellhead location and services the townhome complex.

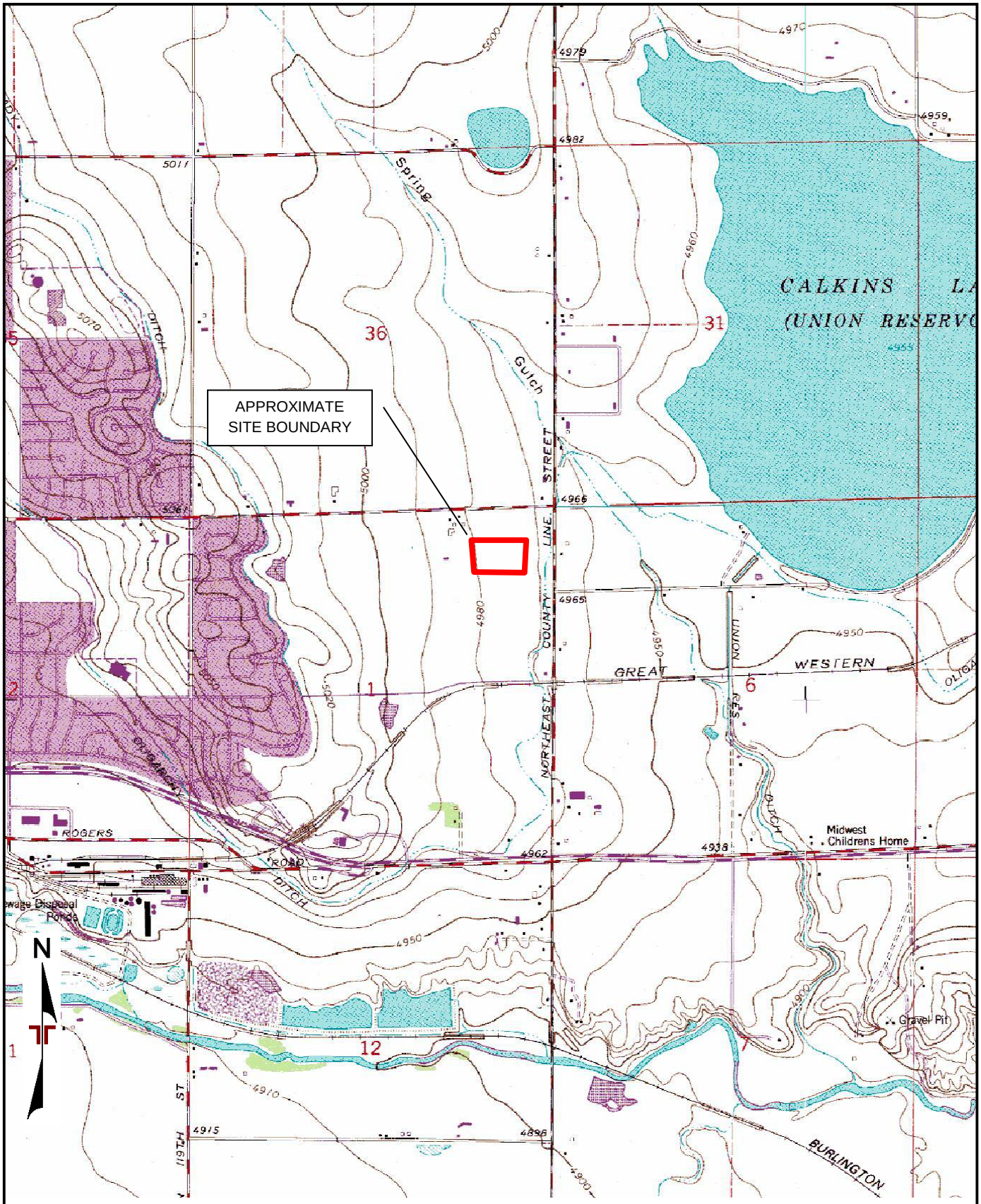
3.0 CONCLUSIONS

Based on observations conducted during site investigation activities and a review of the online COGCC database documentation, no other site conditions or sensitive receptors were noted.

APPENDIX A – EXHIBITS

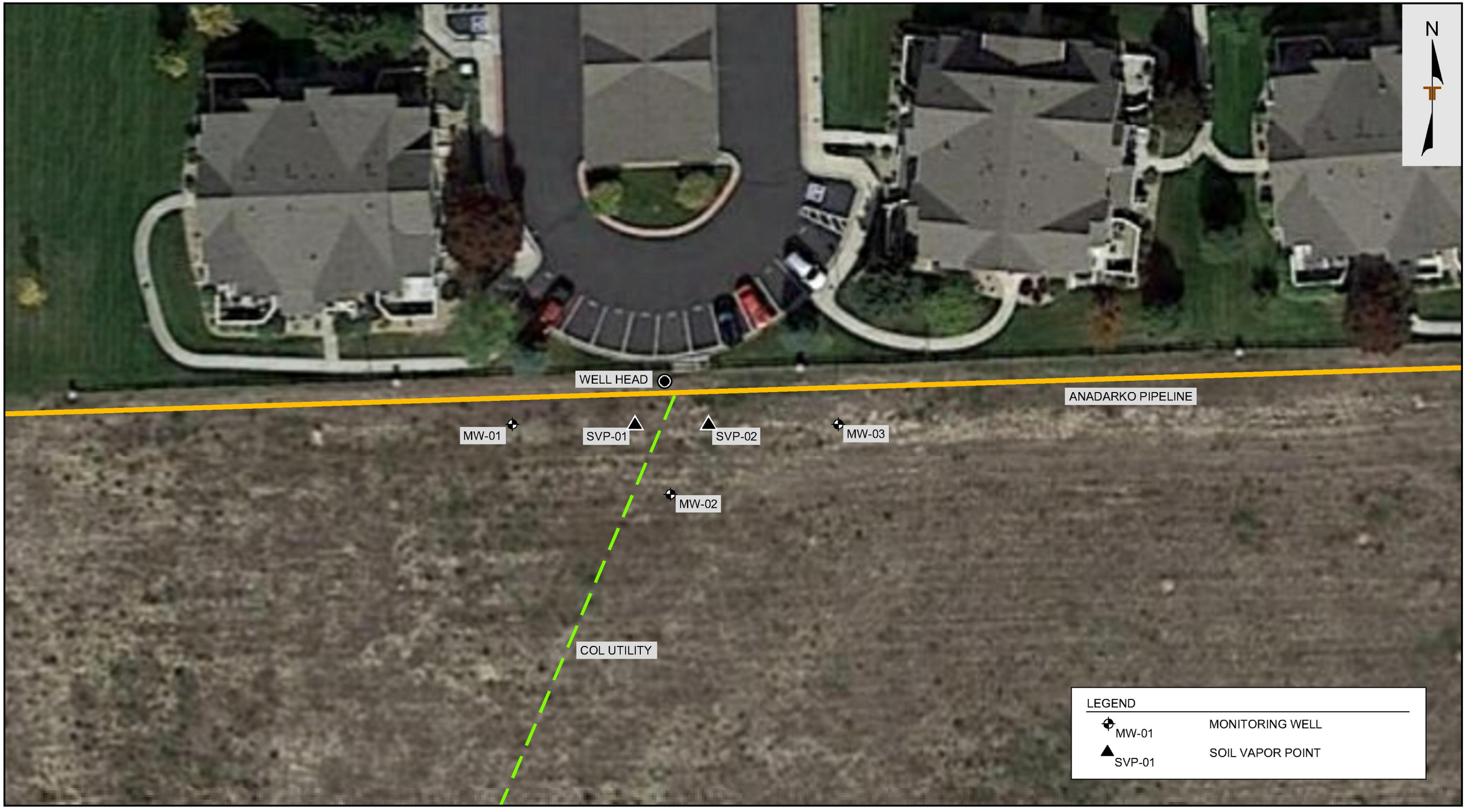
Exhibit 1 – Topographic Map

Exhibit 2 – Site Diagram



TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY
QUADRANGLES INCLUDE: LONGMONT, CO (1/1/1979).

Project Manager: MJS	Project No. 22177045	Terracon 1242 Bramwood Pl Longmont, CO 80501-6100	TOPOGRAPHIC MAP	Exhibit
Drawn by: MJS	Scale: 1"=2,000'		Maruyama #1 O&G Well Site Investigation City of Longmont Longmont, CO	1
Checked by: DAB	File Name: 22177045			
Approved by: JCG	Date: 12/14/2017			



0 15' 30' 60'

DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND IS NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

Project Mngr:	MJS
Drawn By:	CPD
Checked By:	MJS
Approved By:	DAB

Project No.	22177045
Scale:	AS-SHOWN
File No.	22177045.DWG
Date:	12.11.2017

Terracon
Consulting Engineers and Scientists
1242 BRAMWOOD PLACE LONGMONT, CO 80501
PH. (303) 776-3921 FAX. (303) 776-4041

SITE DIAGRAM

MARUYAMA #1
CITY OF LONGMONT
LONGMONT, COLORADO

EXHIBIT No.

2

APPENDIX B – RECEPTOR WORKSHEET

Receptor Worksheet
Maruyama #1 Oil and Gas Well

Lease:	Maruyama
Well Number:	#1
API Number:	05-013-06099
Operator	Top Operating Company

Sensitive Receptor Detail

Receptor	Distance	Gradient[2]	Direction	Type of Receptor	Comments
Surface Water Body:	.75 mile	Down-Gradient	East, Northeast	Reservoir	Union Reservior
Surface Water Body:	<.5 mile	Up-Gradient	West, Southwest	Pond/Lake	Fox Hill Golf Club
Surface Water Body:	1.25 mile	Cross-Gradient	South	Creek	St. Vrain Creek
Structure:	.35 mile	Cross-Gradient	North	School	Trail Ridge Middle School
Structure:	.19 mile	Cross-Gradient	South	Daycare - Playdough's Academy	1741 Whitefeather Drive, Longmont, CO
Structure:	80 feet	Cross-Gradient	Northeast, Northwest	Residential Homes	Residential Neighborhood
Structure:	.8 mile	Up-Gradient	Northwest	School	Fall River Elementary School
Buried Utilities:	10 feet	Cross-Gradient	North	Public Utility - Sewer, Water	City of Longmont Utility
Water Well[1]:	1,000 feet	Cross-Gradient	Southeast	Domestic Well (installed 1968)	Assumed abandoned, no records

1) Water well information obtained from the Colorado Department of Water Resources online database.
2) Site specific gradient determined from Terracon's Limited Soil, Groundwater, and Soil Gas Investigation (December 14, 2017).
* Additional site and receptor information obtained from Colorado Oil and Gas Conservation Commission (COGCC) online database.