BID 2020-05

for

OTSEGO COUNTY
ROYAL CREST MOTEL DEMOLITION

Date Issued: July 31, 2020

Date Due: Friday, August 21, 2020, by 1:00 pm local time

OTSEGO COUNTY
ROYAL CREST MOTEL DEMOLITION
OTSEGO COUNTY, MICHIGAN

TABLE OF CONTENTS

Advertisement For Bids	AD1
Instructions to Bidders	IB1-6
Bid Form	BF1-4
Attachment A	NCA1
Attachment B	BI1
Engineer Table of Contents, Specifications, and Drawings	1-27
Appendices A, B, C, D	1-131
Otsego County Administrative Policy Manual	1-9

ADVERTISEMENT FOR BIDS

OTSEGO COUNTY
ROYAL CREST MOTEL DEMOLITION

Gaylord, Michigan

BID 2020-05

1. Sealed Bids for the Otsego County Royal Crest Motel Demolition will be received by Otsego County Administration, 225 West Main Suite 203, Gaylord, Michigan 49735, until 1:00 pm local time, on Friday, August 21, 2020. Bids will be opened and publicly read aloud in Room 100 at that time.

2. The full bid package will be available on-line at http://www.otsegocountymi.gov/general-information/bids-and-proposals/ beginning Friday, July 31, 2020. Hard copies of the Bid Documents are available upon request, starting July 31, 2020, at the Otsego County Administration Office, 225 West Main, Suite 203, Gaylord, Michigan 49735. Phone: 989-731-7520.

3. A mandatory pre-bid/site walk-through will be held at 10:00 am, Monday, August 17, 2020, at the Project Site.

4. Any questions must be received by the end of business day on Wednesday, August 19, 2020. All questions related to the Demolition and Disposal of the former Royal Crest Motel are to be directed to Chris Churches at cchurches@otsegocountymi.gov or (989) 731-7515.

5. The principal items of work consist of the following:

   Demolish and dispose of the former Royal Crest Motel buildings complete at 803 South Otsego Avenue, Gaylord, Michigan 49735.

6. The intent of Otsego County is to award one (1) Contract for the entire project.

7. Bids shall remain firm and shall not be withdrawn for a period of ninety (90) calendar days after bid opening.

8. The County of Otsego reserves the right to accept, reject or negotiate any or all bids to waive or not waive informalities or irregularities in the bids or bidding procedures and to accept any bid determined by the County to be in the best interest of the County, regardless of price. Vendors located in Otsego County receive a 5% cost variance for low bid determination.

INSTRUCTIONS TO BIDDERS

ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:

A. Bidder-The individual or entity who submits a Bid directly to OWNER.

B. OWNER-The owner of this project is Otsego County.

C. ENGINEER-The engineer is **C2AE, 123 W. Main Street, Suite 200, Gaylord, Michigan 49735. Attention: Kevin Makarewicz**.

D. Issuing Office-The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered. The issuing office is **Otsego County Administration, 225 W. Main Street, Suite 203, Gaylord, Michigan 49735**.

E. Successful Bidder-The lowest responsible Bidder submitting a responsive Bid to whom OWNER (on the basis of OWNER'S evaluation as hereinafter provided) makes an award.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

2.01 Complete hard copy sets of the Bidding Documents may be obtained from the Issuing Office upon request. The Complete set of Bidding Documents is available online at http://www.otsegocountymi.gov/general-information/bids-and-proposals/

2.02 Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 OWNER in making copies of Bidding Documents available on the above terms does so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

ARTICLE 3 - QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, within five days of OWNER'S request Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for by the OWNER.

3.02 Bidders will be required to execute a Noncollusion Affidavit of Prime Bidder Statement (page NCA-1) and include the affidavit with this Bid.

ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 On request, OWNER will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.02 It is the responsibility of each Bidder before submitting a Bid to:

A. Examine and carefully study the Bidding Documents, including any Addenda and the other related data identified in the Bidding Documents;

B. Visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work; Site visits shall be coordinated through Chris Churches, cchurches@otsegocountymi.gov or (989) 731-7515 and shall take place during the week of Monday, August 17, 2020.

C. Become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the Work;

D. Agree at the time of submitting its Bid that no further examination, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;

E. Correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

F. Promptly give ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by ENGINEER is acceptable to Bidder; and

G. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.03 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by ENGINEER are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 - PRE-BID CONFERENCE

5.01 A mandatory pre-bid conference will be held beginning at 10 a.m., Monday, August 17, 2020 at the Project Site.

ARTICLE 6 - SITE AND OTHER AREAS

6.01 The Site is identified in the Bidding Documents. All additional lands and access thereto required or temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by OWNER unless otherwise provided in the Bidding Documents.

ARTICLE 7 - INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to ENGINEER in writing. Interpretations or clarifications considered necessary by ENGINEER in response to such

questions will be issued by Addenda mailed or delivered to all parties recorded by ENGINEER as having received the Bidding Documents, as well as posted online with the Complete Bidding Document. Questions must be received by the end of business day, Wednesday, August 19, 2020, in order to be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by OWNER and ENGINEER.

ARTICLE 8 - BID SECURITY

8.01 A Bid security is required in the amount of 10% of the bid amount.

ARTICLE 9 - CONTRACT TIMES

9.01 The number of days within which, or the dates by which, the Work is to be (a) Substantially Completed and (b) also completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 - LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, are set forth in the Bid Form.

ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in the General Conditions.

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 The identity of certain Subcontractors, Suppliers, individuals, or entities are required to be submitted to OWNER within twenty-four (24) hours after the bid opening time and date. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, OWNER may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, in which case apparent Successful Bidder shall submit an acceptable substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and OWNER may consider such price adjustment in evaluating Bids and making the contract award.

12.02 If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptable after the Effective Date of the Agreement as provided in paragraph 6.06 of the General Conditions.

12.03 CONTRACTOR shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom CONTRACTOR has reasonable objection.

ARTICLE 13 - PREPARATION OF BID

13.01 The Bid form is included with the Bidding Documents. Additional copies may be obtained from the OWNER.

13.02 All blanks on the Bid form shall be completed by printing in ink or by typewriter and the Bid signed. A Bid price shall be indicated for each Bid item and alternative listed therein.

13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown below the signature.

13.06 A Bid by an individual shall show the Bidder's name and official address.

13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid form. The official address of the joint venture must be shown below the signature.

13.08 All names shall be typed or printed in ink below the signatures.

13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid form.

13.10 The address and telephone number for communications regarding the Bid shall be shown.

13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder's state contractor license number for the state of the Project, if any, shall also be shown on the Bid form.

ARTICLE 14 - BASIS OF BID; EVALUATION OF BIDS

14.01 Lump Sum

A. Bidders shall submit a Bid on a lump sum basis for the base Bid and include a separate price for each option described in the Bidding Documents as provided for in the Bid form. The price for each option will be the amount added or deleted from the base Bid if OWNER selects the alternate. In the evaluation of Bids, options will be applied in any order or combination as determined by the Owner.

ARTICLE 15 - SUBMITTAL OF BID

15.01 Each prospective Bidder is furnished one copy of the Bidding Documents with one separate unbound copy each of the Bid form. The unbound copy of the Bid form is to be completed and submitted with the Bid security and the following data:

A. Attachment A Noncollusion Affidavit of Prime Bidder

B. Attachment B Bidder Information

15.02 Attachment C Subcontractor Information shall be submitted within twenty-four (24) hours after the Bid opening date and time as indicated in Article 12 of these Instructions to Bidders.

15.03 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to:

OTSEGO COUNTY ADMINISTRATION
225 West Main, Suite 203
Gaylord, Michigan 49735

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

16.02 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 - OPENING OF BIDS

17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and options, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid form, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 - AWARD OF CONTRACT

19.01 OWNER reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. OWNER further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible. OWNER may also reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder. OWNER also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, OWNER will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

19.04 In evaluating Bidders, OWNER will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in Article 12 - Subcontractors, Suppliers and others of these Instruction to Bidders.

19.05 OWNER may conduct such investigations as OWNER deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.

19.06 If the Contract is to be awarded, OWNER will award the Contract to the Bidder whose Bid is in the best interests of the Project.

ARTICLE 20 – FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

20.01 Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment Is a Stipulated Sum.

ARTICLE 21 – PERFORMANCE BOND AND PAYMENT BOND

21.01 Performance and payment bonds will not be required.

ARTICLE 22 - SIGNING OF AGREEMENT

22.01 When OWNER gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER. Within fifteen (15) days thereafter, OWNER shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

BID FORM

PROJECT IDENTIFICATION: OTSEGO COUNTY
ROYAL CREST MOTEL DEMOLITION

DELIVER BID TO: Otsego County Administration
225 West Main, Suite 203
Gaylord, MI 49735

1.01 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

2.01 Bidder accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for ninety (90) calendar days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.

3.01 In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged.

Addendum No. ___, ___, ___, ___,

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.

D. Bidder has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities).

E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.

I. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.

J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

4.01 Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Division A – Building Base Lump Sum Bid

For the Otsego County Royal Crest Motel Demolition. Complete with all appurtenance, as specified herein and as shown on the plans, the Bidder agrees to perform all of the work of this Contract for the following lump sum bid price.

Total Lump Sum Bid Price: $_____

Total bid amount in words

_____Dollars and _____cents.

6.01 Bidder agrees to have all work completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions on or before Thursday, December 31, 2020.

7.01 The following documents are attached to and made a condition of this Bid:

A. Required Bid security

B. Noncollusion Affidavit of Prime Bidder (Attachment A)

C. Bidder Information (Attachment B)

SUBMITTED on _____, 2020.

State Contractor License No. _____. (If applicable)

If Bidder is:

An Individual

Name (typed or printed):_____

By:_____(SEAL)
(Individual's signature)

Doing business as: _____

Business address:_____

_____

Phone No._____ Fax No._____

A Partnership

Partnership Name:_____(SEAL)

By:_____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed):_____

Business address:_____

_____

Phone No._____ Fax No._____

A Corporation

Corporation Name:_____(SEAL)

State of Incorporation:_____

Type (General Business, Professional, Service, Limited Liability):_____

By:_____
(Signature -- attach evidence of authority to sign)

Name (typed or printed):_____

Title:_____ (CORPORATE SEAL)

Attest_____
(Signature of Corporate Secretary)

Business address:_____

_____

Phone No._____ Fax No._____

Date of Qualification to do business is _____

Attachment A
Noncollusion Affidavit of Prime Bidder

State of:_____

County of:_____

_____, being first duly sworn, deposes and says that:

(1) He/She is the_____of_____, the Bidder that has submitted the attached Bid;

(2) He/She is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham bid;

(4) Neither the said Bidder nor any of its officers, partners, owners agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, either directly or indirectly, with any other Bidder, firm, or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement, or collusion or communication or conference with any other Bidder, firm, or person to fix the price or prices in the attached bid or that of any other Bidder, or, to fix any overhead, profit, or cost element of the bid price or the bid price or prices in the attached bid or that of any other Bidder, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against Bay Mills Township or any person interested in the proposed Contract.

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties of interest, including this affiant.

Signed By:

_____
(Title)

Subscribed and sworn to before me this_____day

of_____, 2020

_____

_____

My Commission Expires: _____

Attachment B
Bidder Information

GENERAL

The Bidder must complete the following:

A. Active Projects -

	Year Began	Owner	Contract Price	Project Description
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____

B. Completed Similar Projects -

	Year Began	Owner	Contract Price	Project Description
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____

C. Bidder's approximate bonding capacity as of August 21, 2020.

D. Name of Bidder's superintendent who will be responsible for the project -

1. _____ (Two alternate names are acceptable)

1. General Experience

_____

_____

123 W. Main St. Suite 200
Gaylord, MI 49735
O: 989.732.8131
www.c2ae.com

OTSEGO COUNTY
ROYAL CREST MOTEL DEMOLITION

TABLE OF CONTENTS

Division	Section Title	Pages
DIVISION 01 – GENERAL REQUIREMENTS		
01410	SOIL COMPACTION AND TESTING	3
01560	SPECIAL CONTROLS	2
DIVISION 02 – EXISTING CONDITIONS		
02110	SITE PREPARATION	5
02211	SITE EARTHWORK	4
02901	RESTORATION AND CLEAN-UP	2
02936	TOPSOILING AND SEEDING	4
024116	STRUCTURE DEMOLITION	8

END OF TABLE OF CONTENTS

SECTION 01410 - SOILS COMPACTION AND TESTING

PART 1 GENERAL

1.01 WORK INCLUDED: The work covered by this section of the specifications consists of furnishing all plant, labor, equipment and materials in connection with SOILS COMPACTION AND TESTING.

1.02 RELATED WORK: The Contractor shall compact all bedding, backfill, fills, and embankments to the percentage of maximum unit weight specified herein. All compaction operations shall be performed utilizing suitable methods and equipment specifically designed for earth compaction. Rollers shall be of a standard design and in general shall be vibratory, rubber tire or smooth steel drum for granular materials and kneading type (sheep's foot) for non-granular materials. All operations shall be performed such that they do not damage or displace any pipes, utilities or structures. Compaction by flooding or jetting shall not be allowed. Attention is directed to SECTION 01560 - SPECIAL CONTROLS.

1.03 DEFINITIONS

A. GRANULAR MATERIALS: Soils having a loss by washing of 15 percent or less.

B. NON-GRANULAR MATERIALS: Soils having a loss by washing of more than 15 percent.

C. LOSS BY WASHING: Materials finer than a No. 200 sieve as determined by ASTM C117.

D. MAXIMUM UNIT WEIGHT: Maximum dry pounds per cubic foot at the optimum moisture content as determined by the following standard tests:
   1. Modified Proctor: AASHTO 180, Method C, shall be used for granular and non-granular materials at structures as noted in Part D of the appended table.
   2. Standard Proctor: AASHTO T-99 as modified by MDOT shall be used for soils having a loss by wash greater than 15%.
   3. Michigan Cone: The MDOT "Method of Test for the Compaction and Density of Soils (Granular)" shall be used for granular materials.

E. OPTIMUM MOISTURE CONTENT: Shall be the percent moisture of the soil at which the maximum unit weight is obtained by the above tests.

F. LIFT: Shall be the vertical measure of a soil layer when measured loose.

PART 2 PRODUCTS

2.01 MATERIALS: Shall be as specified herein, and as noted on the plans. The Contractor shall notify the Engineer of the source of materials at least three days prior to their use to allow for testing of samples.

PART 3 EXECUTION

3.01 COMPACTION AND TESTING

A. MOISTURE CONTENT: All material shall be at or near the optimum moisture content when compacted. Unless modified by the Engineer, the allowable moisture range shall be as follows:
   1. Granular soils: -3% to +2% above the optimum
   2. Non-granular soils: -1% to +3% above the optimum

   In the event the moisture content of the material exceed these limits, the material shall be allowed to dry or be dried by discing or harrowing. In the event that the moisture content is too low to obtain the required densities when compacted, water shall be added to increase the moisture content to the optimum.

B. TESTING: Moisture and in-place density tests will be made on the compacted fill by the engineer at each lift and recorded in accordance to table 0140-3. The costs of tests which meet the specifications will be paid by the Owner. The costs of failing tests will be paid by the Contractor and said costs will be deducted from sums due the Contractor. The Contractor may elect to perform additional testing at his own expense for his own purposes, however, the Engineer's decision of the suitability of materials and compliance with specifications shall be final.

C. TABLE OF COMPACTION OPERATIONS AND REQUIREMENTS: The appended table lists requirements for minimum in-place densities and maximum lifts for various compaction operations, material classifications, and locations. The lift thickness, moisture content, type of equipment, number of passes, and weight and speed of equipment shall be adjusted to product the required compaction density with consistent results.

D. SUBSIDENCE AND SETTLEMENT: The Contractor shall be responsible to conduct all compaction operations in such a manner to avoid objectionable soil settlement. Irrespective of compaction tests results, excessive soil settlement any resulting structure or pavement damage shall be repaired by the Contractor.

TABLE OF COMPACTION OPERATIONS AND REQUIREMENTS

COMPACTION OPERATION	MATERIAL CLASSIFI-CATION (1)	MAX. LIFT LOOSE MEASURE	MIN IN-PLACE DENSITY % MAX UNIT WEIGHT
A. EMBANKMENTS:			
1. General	(3)	9"-12" (4)(6)	95%
2. Under utility structures	Granular	12" (6)	97%
BITUMINOUS SURFACE:			
1. Subgrade	Existing Material	9"-18" (5)	95%
2. Aggregate Base Course	As Specified	3"-6"	98%

NOTES:

(1) Specific material requirements shall be as specified herein or shown on the drawings.

(2) For pipes of 8 inch O.D. and less, maximum lift shall be one-half of the pipe O.D.

(3) Material as designated on the drawings or as approved by the Engineer, with exception that frost heave material, as defined in MDOT Specification 2.08.10d may not be used in top 3 feet of embankment below subgrade.

(4) 9" for non-granular, 12" for granular materials.

(5) Depth of lift indicated is below excavation at which compaction is required provided a base course is required. If a base course is not required, compacted depth shall be 18".

(6) The maximum depth of lift for hydraulic compactors which may be allowed by the Engineer will vary depending upon the compaction equipment utilized by the Contractor. The maximum depth of lift shall not exceed 50% (percent) of the maximum compaction lift stated in the compaction equipment manufacturers data sheet, provided the Contractor can demonstrate that the required density has been achieved throughout the depth of the lift.

END OF SECTION 01410

SECTION 01560 - SPECIAL CONTROLS

PART 1 GENERAL

1.01 WORK INCLUDED

The work covered by this section of the specifications pertains to SPECIAL CONTROLS.

1.02 SPECIFICATIONS BY REFERENCE

Where reference is made in the specifications to standards of any technical society, association, governmental agency, etc., said specifications or standards shall apply and be binding as though fully repeated therein and are to be considered as a part of these specifications.

1.03 RELATED WORK

The Contractor shall conduct his work in a manner to prevent air, water, and noise pollution by establishing adequate controls during the construction operations. All controls shall be in accordance with the applicable laws of the State of Michigan.

A. AIR POLLUTION: The open burning of combustible wastes from clearing and grubbing operations and of waste construction materials will be permitted only with prior approval by the City. The Contractor shall dispose of all such wastes at sanitary landfill(s) licensed by the Michigan Department of Environmental Quality.

1. Dust Control: The Contractor shall maintain all traveled areas in a safe, dust-free conditions at all times. To accomplish this, the Contractor shall remove any tracked materials such as much, dirt, etc. from construction and haul roads, furnish and apply chloride treatment to temporary roads, furnish and install temporary road patches or surface, or any other approved methods or systems.

B. WATER POLLUTION: The Contractor will be required to perform all construction operations in a manner that will conform to the requirements of Act 347, Soil Erosion and Sedimentation Control Act. The Contractor shall also be required to perform all work in conformance with the requirements of Act 346, Inland Lakes and Streams. The permits for construction will be obtained by the Owner.

C. NOISE POLLUTION: The Contractor shall exercise judgment in the conduct of operations which by nature result in excessive noise. All such operations shall take place during reasonable daylight periods, which are defined at 7:00 a.m. through 6:00 p.m. unless otherwise stated in the governing municipal ordinance, or authorized by the Owner.

D. CONSTRUCTION DEBRIS: All construction debris shall be removed from the construction site(s) at regular intervals and disposed of at solid waste landfill(s) licensed by the Michigan Department of Environmental Quality.

E. HOUSEKEEPING: The project work areas shall be maintained in a neat and clean conditions.

1.04 VEHICULAR AND PEDESTRIAN TRAFFIC CONTROL

The Contractor shall be responsible for providing, installing, and maintaining vehicular and pedestrian traffic control signs, lights, and barricades in conjunction with construction operations. Vehicular traffic control measures shall be in accordance with the Michigan Manual of Uniform Traffic Control Devices.

A. STREET CLOSING: No street or roadway may be closed to traffic without prior written permission of the City of Gaylord.

B. EXISTING TRAFFIC CONTROL SIGNS: Existing traffic control signs which conflict with construction operations may be temporarily removed. The Contractor shall provide traffic control for the duration of the sign displacement and signs shall be replaced in the proper location immediately after construction operations adjacent to the sign locations are completed.

END OF SECTION

SECTION 02110 - SITE PREPARATION

PART 1 GENERAL

1.01 WORK INCLUDED

The work covered by this section of the specifications consists of furnishing all plant, labor, equipment and materials in connection with SITE PREPARATION.

1.02 RELATED WORK

A. REQUIREMENTS: All work shall be carried on in a neat and satisfactory manner and interference with flow of traffic shall be kept to a minimum.

B. RELATED SECTIONS: Including, but not limited to:

1. SECTION 01410 - SOILS COMPACTION AND TESTING
2. SECTION 01560 - SPECIAL CONTROLS
3. SECTION 02223 - BEDDING AND BACKFILLING FOR UTILITY SYSTEMS

PART 2 PRODUCTS - This section not used.

PART 3 EXECUTION

3.01 CLEARING

Shall consist of cutting, removing from the ground, and disposing of trees, stumps, brush, shrubs, and other vegetation occurring within the project site which interfere with excavation, embankment or clear vision, or are otherwise noted on the construction drawings to be removed and includes the preservation from injury or defacement of all vegetation and objects designated to remain. Any trees or shrubs that are designated to be saved but are damaged by the Contractor's operations shall be repaired or replaced by the Contractor, as directed by the Engineer, at not additional cost to the Owner.

3.02 TREE AND STUMP REMOVAL

Shall consist of removing trees or stumps where called for on the plans or directed by the Engineer, or of removing stumps which are shown on the plans as trees occurring within the project site and shall include cutting such trees, removing their stumps and roots from the ground or chipping the stumps and properly disposing of the material. Where removal of a stump may result in damage to existing utilities, the stump shall be removed by chipping to a depth of at least one foot below the finished ground surface. Other stumps may be removed by chipping when approved by the Engineer. The Contractor shall comply with requirements of the Michigan Act 72 of the Public Acts of 1945 and requirements of the Michigan Act 72 and regulations of the Michigan Department of Agriculture in regard to Dutch Elm diseased trees.

3.03 REMOVING MISCELLANEOUS STRUCTURES

Shall consist of removing pavement surface and base course, curb and gutter, sidewalk, manholes and catch basins, salvaging or disposing of the resulting materials, and backfilling the resulting excavations.

A. PAVEMENT, CURB AND GUTTER, SIDEWALK REMOVAL: Shall be to existing joints or a sawed joint. The sawed joint shall be cut with a concrete saw to a depth sufficient to cut the steel or, if the concrete is unreinforced, at least 3 inches. If the concrete has been covered with bituminous material, the depth of cut shall be sufficient to cut the steel or penetrate at least 3 inches into unreinforced concrete. The use of a crane and ball type pavement breaker will not be permitted within 50 feet of the pavement or other concrete structure that is to remain in place. Sufficient removal shall be made to provide for proper grades and connections in the new work.

B. MANHOLE, CATCH BASIN AND INLET REMOVAL: In removing manholes, catch basins and inlets, any live sewer connected to them shall be rebuilt and properly reconnected through the removal areas, and service shall be maintained, as directed by the Engineer, during such construction operations. Unless otherwise noted, removal of the structures shall include the cost of removing the connecting pipes or sewers. Where the existing sewer or pipes are to be abandoned in place, the existing sewer or pipe shall be bulkheaded at the trench or structure wall. The cost of the bulkhead(s) shall be included in the cost of the structure removal or abandonment.

3.04 ADJUSTING UTILITY CASTINGS AND COVERS

Shall include all manholes, catch basins, valve vaults, valve boxes, etc., publicly or privately owned, which are located in the project site. All work shall be done in accordance with the structure Owner's requirements.

A. MANHOLE OR CATCH BASIN CASTING: Adjusting the casting shall apply where the elevation of the casting is lowered by the height of the available adjusting brick or rings or raised to a maximum of 15 inches of brick and block adjustment. This adjustment shall be done by one of the following methods:

1. Masonry Adjustment: Existing castings shall be adjusted to the proper elevation by removing the castings, and setting them to the required elevation by supporting them on a concrete collar or on masonry, so constructed as to hold them firmly in place. The adjacent pavement, curb, or curb and gutter shall be replaced to the original elevation, conditions and kind of construction, unless otherwise provided.

2. Adjusting Rings: Existing covers may be adjusted to the proper elevation by inserting an Engineer approved, variable adjustable casting into the existing frame. The adjustable casting shall be capable of diameter adjustment as well as height adjustment.

B. WATER VALVE BOXES: Shall be adjusted by chipping sufficient adjacent pavement or other material, adjusting the casting, and replacing pavement or other material. Water valve boxes which cannot be adjusted properly shall be replaced with a new screw type adjustable valve box to be furnished by the Owner and installed by the Contractor.

C. MONUMENT BOXES: Shall be adjusted to the proper elevation by placing an approved cast iron ring to support the cover at the correct elevation, or by removing or chipping sufficient adjacent pavement or other material to remove the casting, raising it to the proper elevation, and supporting it on Class B concrete.

3.05 REMOVE AND REPLACE MANHOLE OR CATCH BASIN CASTINGS

Shall be where called for on the plans or in the specifications. The Contractor shall remove existing castings, install new castings of the style noted on the plans or in the specifications, and adjust the new castings to the proper elevation. The old castings remain the property of the Owner and shall be delivered by the Contractor to a location designated by the Owner.

3.06 RECONSTRUCTING MANHOLES OR CATCH BASINS

Reconstruction of manholes or catch basins shall apply to where castings cannot be adjusted to the proper elevation due to the absence or present of sufficient adjusting brick or rings on the manhole structure. The manhole or catch basin structure shall be constructed by one of the following methods:

A. Precast Structure: If the manhole is constructed of precast concrete sections, the top section(s) shall be removed and replaced with a precast concrete section(s) of such height as to allow for the proposed casting adjustment.

B. Manhole Block or Brick: If the manhole is constructed of manhole block or brick, remove sufficient rows of block or brick in order to construct the manhole to the proper grade for casting adjustment.

3.07 BITUMINOUS SURFACE REMOVAL

Shall consist of removing a bituminous surface from a rigid base or removing a bituminous surface from an aggregate base without the removal of the aggregate base. The method of removing the bituminous surface shall be approved by the Engineer. The removal of a bituminous surface and the aggregate base will be classed as Earth Excavation, except when the bituminous surface is more than 5 inches in thickness. The removal of bituminous surface will be paid for as Removing Pavement.

3.08 DISPOSAL OF MATERIALS

Materials salvaged during the construction of the project shall become the property of the Contractor unless otherwise shown on the plans or in the proposal. Materials reserved for use by the Owner shall be removed without damage to the material and stored outside the limits of construction at the location and in the manner approved by the Owner. Materials that become the property of the Contractor shall be removed from the project before acceptance of the project. Broken concrete which is matted together by steel reinforcement and all other waste material shall be disposed in conformance with SECTION 01560 - SPECIAL CONTROLS.

3.09 RESTORATION OF DISTURBED STRUCTURES

Existing structures, including pavement, curb and gutter, sidewalk and other miscellaneous structures, disturbed or damaged as a result of site preparation operations shall be restored or replaced to their original condition by the Contractor at no additional cost to the Owner.

3.10 BACKFILLING

All trenches, holes and pits resulting from the breaking down or removal of foundations and miscellaneous structures within the project site shall be backfilled in conformance with SECTION 02223 Paragraph 2.02 - BACKFILL MATERIAL and compacted in conformance with SECTION 01410 - SOILS COMPACTION AND TESTING.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 02211 - SITE EARTHWORK

PART 1 GENERAL

1.01 WORK INCLUDED

The work covered by this section of the specifications consists of furnishing all plant, labor, equipment, and materials in connection with SITE EARTHWORK.

1.02 RELATED WORK

A. REQUIREMENTS: All work shall be carried on in a neat and satisfactory manner and interference with flow of traffic shall be kept to a minimum.

B. RELATED SECTIONS: Including, but not limited to:

1. SECTION 01410 - SOILS COMPACTION AND TESTING
2. SECTION 01560 - SPECIAL CONTROLS

C. COORDINATION WITH OTHER CONTRACTORS: Certain portions of the work may require completion of construction under other contracts prior to commencing work under this section. The Contractor shall coordinate his work and schedule with other contractors to result in complying with the contract completion date.

PART 2 PRODUCTS

2.01 SUBBASE AND SUBGRADE UNDERCUTTING

Shall conform to MDOT Granular Material Class II.

2.02 EMBANKMENT MATERIAL

Materials utilized for embankment construction shall be approved by the Engineer. In general, any natural material which can be compacted to the required density, contains no organic material, and has a maximum unit weight of at least 95 pounds per cubic foot may be used. Materials containing more than 50 percent silt or any frozen material will not be allowed. Silt is defined as material having a particle size of 0.074 to 0.0005 mm.

PART 3 EXECUTION

3.01 SITE EARTHWORK

Work performed under this section shall consist of constructing earth grades by excavating soil or rock and by placing embankments of fills. This work shall include the salvaging and stockpiling of selected material, disposing of surplus or unsuitable material, trimming the earth grade, and maintaining the work in a finished condition until acceptance.

A. SITE PREPARATION: Undesirable material shall be removed from the grading limits and salvaged or disposed of as specified herein or as shown on the plans.

1. Removing Topsoil: Before removing topsoil, all vegetation of a height greater than one foot shall be reduced to a height of approximately 6 inches and all such vegetation and all brush, stones, rocks, and any other objectionable litter or foreign materials shall be removed from the site and disposed of in conformance with SECTION 01560 - SPECIAL CONTROLS. Equipment and methods of operations shall be such as to avoid the lifting of subsoil. If soil or weather conditions are unsuitable, the Contractor shall cease and resume removing topsoil upon orders from the Engineer.

    a. Embankment Areas: Where the embankment is to be 5 feet or less in height to the pavement surface, the topsoil shall be stripped from the area within limits of 1 on 1 slopes spreading outward from the finished shoulders. For embankments upon which a structure is to be built, the topsoil shall be stripped from an area within limits of 1 on 1 slopes spreading outward in all directions from the bottom of structure footing. The depth of the topsoil to be removed shall be as shown on the plans or as directed by the Engineer.

    b. Cut Areas: Topsoil shall be removed within the grading limits.

2. Salvaging Topsoil: The topsoil may be stockpiled outside the limits of construction or used as shown on the plans or as directed by the Engineer. Topsoil stockpiles shall be located and shaped so as to avoid placing around trunks and over root areas of trees to be preserved or in drainage courses. The topsoil shall be kept separate from other excavated material.

3. Salvaging Other Materials: If provided on the plans or in the proposal, or if directed by the Engineer, old road surfacing of gravel, crushed stone, or selected excavated materials, shall be removed from the designated areas for use in such items as earth shoulders, salvaged approaches, temporary roadway surfacing or other items requiring the use of such materials. Reasonable care shall be exercised in removing and handling the designated materials to prevent incorporation of foreign or undesirable material. When the salvaged material cannot be placed directly in the contemplated construction, the material shall be stored in stockpiles.

B. SUBGRADE UNDERCUTTING: Including backfilling, shall be performed to replace material susceptible to frost heaving or differential frost action and unstable soil conditions, as determined by the Engineer. Removing topsoil will not be part of subgrade undercutting. Excavation below subgrade in cut sections, at the transition from cut to fill sections, and any excavation other than peat excavation that may be required below the topsoil in fill sections will be classified as Subgrade Undercutting.

1. Limits of Subgrade Undercutting: After the subgrade has been constructed to the approximate grade, the Engineer will promptly inspect the grade to determine if any subgrade undercutting is required and determine the limits of such undercutting.

Where shallow fills are to be placed, the Engineer will inspect the fill area before any embankment is placed and determine the limits of the subgrade undercutting if any, before placing any embankment. All deposits of frost heave material within lines 2 feet outside the proposed surface, shall be removed to a depth as directed by the Engineer. Subgrade undercutting shall be performed within the limits established by the Engineer, and the excavated material shall become the property of the Contractor.

2. Backfilling of Subgrade Undercut Sections: Undercut sections shall be backfilled to the subgrade elevation with MDOT Granular Material Class II. The degree of compaction shall be in conformance with SECTION 01410 - SOILS COMPACTION AND TESTING.

C. WASTE MATERIAL AND DEBRIS: Of whatever nature shall be removed from the site at the Contractor's expense.

1. Excess Material: From excavation operations which is not required for fill or backfill may be spread at the site in spoil areas as shown on the plans.

2. Hazardous Waste: Should such waste material as defined by EGLE be encountered during construction, the Contractor shall immediately notify the Engineer. Removal and disposal of such materials from the site shall be considered a changed condition.

D. CONSTRUCTING EMBANKMENTS: Shall be done with approved materials as specified in paragraph 2.02. In addition, embankments shall be constructed with the maximum allowable lift and degree of compaction conforming to SECTION 01410 - SOILS COMPACTION AND TESTING. In general, embankment construction at outside air temperatures below 35°F. will not be allowed. If embankment construction is allowed under such conditions, the Contractor shall exclude frozen material from any portion of the embankment. Any frozen material on a partially completed fill shall be removed and disposed of prior to placing additional fill on the embankment.

E. BORROW: Material secured from locations outside the project site will be considered borrow excavation. The Contractor shall perform all work and provide all materials and equipment necessary to excavate, haul and place the borrow material. The Contractor will be held liable for all damages caused by his hauling operations and will be required to pay for such damages.

F. PREPARATION OF SUBGRADE SURFACE: Where the natural soils form the subbase, the subgrade shall be scarified and blended to a minimum depth of 6 inches to obtain uniformity across all lines of change in soil types. The subgrade shall be compacted in conformance with SECTION 01410 - SOILS COMPACTION AND TESTING.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 02901 - RESTORATION AND CLEAN-UP

PART 1 GENERAL

1.01 WORK INCLUDED

The work covered by this section of the specifications consists of furnishing all plant, labor, equipment, and materials in connection with RESTORATION AND CLEAN-UP.

1.02 RELATED WORK

A. REQUIREMENTS: The Contractor shall restore all areas disturbed by his construction operations to a condition equal to or better than the existing prior to construction and shall clean-up and haul away all construction debris and litter caused by his operation.

B. RELATED SECTIONS: Including, but not limited to:

1. SECTION 01560 - SPECIAL CONTROLS
2. SECTION 02231 - AGGREGATE BASE COURSE
3. SECTION 02513 - BITUMINOUS LEVELING/SURFACE COURSES
4. SECTION 02525 - CONCRETE CURB AND GUTTER
5. SECTION 02528 - CONCRETE SIDEWALK
6. SECTION 02936 - TOPSOILING AND SEEDING
7. SECTION 02938 - SODDING
8. SECTION 03001 - CONCRETE

1.03 CLEAN-UP

General rough grading and clean-up shall follow immediately after installation of utilities so that no more than 1,000 lineal feet of cleanup shall remain to be completed at any time during construction. The Contractor shall remove all equipment, debris, and waste material from the construction site and material and equipment storage areas prior to final inspection and after restoration.

PART 2 PRODUCTS - This section not used.

PART 3 EXECUTION

3.01 PERMANENT PAVEMENT

All street surfaces, driveways, curb and gutter and sidewalks removed or disturbed by construction operations shall be restored to their original condition, or better unless otherwise shown on the plans and/or details. Street base course and surfacing shall conform with SECTION 02231 - AGGREGATE BASE COURSE and SECTION 02513 - BITUMINOUS LEVELING/SURFACE COURSE. All concrete for restoration shall be air entrained Class A concrete conforming to SECTION 03001 - CONCRETE or SECTION 03300 - STRUCTURAL CONCRETE. All street, driveway and sidewalk crossings shall be restored immediately after completion of the crossing to

accommodate vehicular and pedestrian traffic. Temporary patching of pavements of bituminous base will be required in the event of final restoration is not anticipated within 5 days of the crossing construction.

3.02 MISCELLANEOUS STRUCTURES

Mail boxes, fences, culverts, ditches and other existing structures shall be resorted or replaced, as required, to original or better condition in a manner acceptable to the Engineer.

3.03 BOUNDARY MARKER REPLACEMENT

The Contractor shall have replaced by a Registered Land Surveyor, at his own expense, all section corners, property corners or boundary markers of any type or material that may be damaged or destroyed by his construction operation.

3.04 SEEDING

Lawn areas disturbed by the Contractor's construction operations shall be topsoiled and seeded in conformance with Section 02936, Topsoiling and Seeding. Prior to topsoil or seeding, rocks, sticks, roots larger than 2" in diameter, and other debris shall be removed from areas to be seeded. In general, lawn areas shall be all areas back of the curb unless otherwise designated on the plans or noted in the specifications.

3.05 SODDING

Areas designated on the drawings to be sodded shall be sodded in conformance with Section 02938, Sodding. The Contractor at his option may sod areas required or designated to be seeded.

3.06 PLANTINGS

Shrubs, other plantings, and trees removed during construction, other than those specifically designated to be removed, shall be replaced with new material equal to that removed. Replacement shall be with approved stock from a State-inspected nursery and shall carry a one year replacement guarantee.

END OF SECTION

SECTION 02936 - TOPSOILING AND SEEDING

PART 1 GENERAL

1.01 WORK INCLUDED: The work covered by this section of the specifications consists of furnishing all plant, labor, equipment, and materials in connection with TOPSOILING AND SEEDING.

1.02 RELATED WORK

A. REQUIREMENTS: The Contractor shall topsoil, grade, fertilize, seed and mulch lawn and other designated areas disturbed by construction operations. Attention is directed to Section 01560 - SPECIAL CONTROLS.

PART 2 PRODUCTS

2.01 TOPSOIL: Any topsoil necessary to complete the work over and above the topsoil stockpiled during construction operations shall be furnished by the Contractor. Topsoil shall be free from brush, objectionable weeds or other litter. Additional topsoil shall consist of loose, friable loamy topsoil without admixture of subsoil or refuse, and approved by the Engineer prior to spreading.

2.02 SEED: All seed to be used shall be labeled in accordance with the U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act and shall be in accordance with the State seed rules and regulations. Seed certificates or tags from the seed bags shall be submitted to the Engineer. Seed shall conform to MDOT Section 816 for roadside and Class A mixtures.

2.03 FERTILIZERS: Chemical fertilizer shall be standard commercial grade with packaging clearly marked in accordance with applicable Federal laws. Bulk fertilizer may be used when certified delivery slips are furnished by the Contractor.

2.04 MULCH BLANKET: A straw erosion control blanket shall be used in all seeded areas and shall meet the approval of the Engineer. The mulch blanket shall be Rhino Erosion King straw blanket by Rhino Seed & Landscape Supply, or similar approved equal.

PART 3 EXECUTION

3.01 PREPARATION OF SEED BED

A. GRADING: Grades on areas to be seeded shall be maintained in a true and even condition. Where the grades are not defined, they shall be established by the Contractor to blend with existing adjacent grades without irregularities and shall provide for proper drainage.

B. FINISHING: All large clogs, lumps, and rocks over 1" in diameter, brush, roots, stumps, litter, or other foreign matter shall be raked up and removed from the area and disposed of by the Contractor.

C. PLACING TOPSOIL: The surface of the subgrade immediately prior to being covered with topsoil shall be raked or otherwise loosened to a depth of not less than 3". The topsoil shall be evenly spread over the areas by blade graders, or other approved methods, to a depth of at least 3 inches. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of low places and pockets where water will stand. Topsoil shall not be placed when the subgrade is in a condition detrimental to seeding or proper grading.

C. APPLICATION OF FERTILIZER: Fertilizer shall be distributed uniformly over the areas to be seeded at a rate which will provide 240 pounds per acre of chemical fertilizer nutrients, in equal proportions of nitrogen, phosphoric acid and potash and shall be incorporated into the soil to a depth of at least 3 inches by Brillion seeding or other acceptable methods.

D. CLEAN-UP: After completion of the above operations, the surface shall be cleared of stones, roots, brush, wire, grade stakes and other objects that might be a hindrance to maintenance operations.

3.02 SEEDING

A. SEEDING REQUIREMENTS: MDOT Class A seed mixture shall be used on all lawn areas. MDOT Roadside seed mixture shall be used for areas disturbed by construction and not defined as lawn area. No seeding shall be done until the Engineer has inspected the seed containers.

B. SEEDING: Prior to seeding, the topsoil shall be disked, harrowed, or otherwise loosened to a depth of 3 inches minimum. Seed shall be placed by the Brillion seeding method or hyrdoseeding, unless approved otherwise. Seeding shall be accomplished between the period of April 15 into the fall as long as weather conditions permit seed bed preparation. Seeding rate shall be Class A: 220#/A, Roadside: 200#/A.

C. COMPACTING: Immediately after seeding, the entire area shall be compacted by means of a cultipacker, roller or approved equipment weighing 60 to 90 pounds per linear foot of roller. The final rolling shall be a right angles to slopes to prevent water erosion.

3.03 MULCHING: Mulch blanket shall be applied over seed and fertilizer using staples, wood pegs, or other acceptable methods per the blanket manufacturer's recommendations.

3.04 ESTABLISHMENT OF SEEDED AREAS: The Contractor shall be responsible for the proper care of the seeded area during the period when the grass is becoming established, and shall be responsible for a total grass cover. The acceptance must be demonstrated by the results.

A. WATERING: The seed bed for lawn areas shall be given one watering immediately after placement sufficient to wet at least two (2) inches of the seed bed. Additional watering at the same rate shall be accomplished at five (5) day intervals for a period of five (5) weeks, or a total of eight applications of water. In case of rain, the Contractor shall obtain approval of the Engineer to omit an application of water or re-schedule the watering interval. After the five week period, maintenance of the seeded areas will be assumed by the Owner or respective property owners. The Contractor will not be held responsible for any mowing of seeded areas.

B. REPAIR: If any time prior to the end of the five (5) week period during which the Contractor is responsible for watering of the seeded areas, the ground is displaced due to subsidence, or sliding or gullying on sloped areas, the Contractor shall repair and re-seed the damaged areas at his expense.

C. WEEDS: After the grass has become established and it appears to have more than 10% weeds, the Contractor shall spray with an approved herbicide.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 024116 - STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of buildings.
2. Removing below-grade construction.
3. Disconnecting, capping or sealing, and removing site utilities.
4. All demolished items become the property of the Contractor.

B. Related Requirements:

1. Section 02110 "Site Preparation" for site clearing and removal of above- and below-grade site improvements not part of building demolition.
2. Section 02211 “Site Earthwork” for other project requirements.
3. Drawing sheets for additional project requirements.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and store for Contractor removal and disposal from the site. Include fasteners or brackets needed for reattachment elsewhere.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Royal Crest Motel, Otsego County.

1. Inspect and discuss condition of construction to be demolished.
2. Review structural load limitations of existing structures.
3. Review and finalize building demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review and finalize protection requirements.
5. Review procedures for noise and dust control.
6. Review procedures for protection of adjacent buildings.
7. Review items to be salvaged and returned to Owner.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For refrigerant recovery technician.

B. Engineering Survey: See Section 3.1.C this specification section for information.

C. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property for environmental protection. Indicate proposed locations and construction of barriers.

1. Adjacent Buildings: Detail special measures proposed to protect adjacent buildings to remain including means of egress from those buildings.

D. Schedule of Building Demolition Activities: Indicate the following:

1. Detailed sequence of demolition work, with starting and ending dates for each activity.
2. Temporary interruption of utility services.
3. Shutoff and capping of utility services.

E. Predemolition Photographs or Video: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by salvage and demolition operations. Comply with Section 013233 "Photographic Documentation." Submit before the Work begins.

F. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.7 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

1.8 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

1.9 FIELD CONDITIONS

A. Buildings to be demolished will be vacated and their use discontinued before start of the Work.

B. Buildings immediately adjacent to demolition area will be occupied. Conduct building demolition so operations of occupied buildings will not be disrupted.

1. Provide not less than 72 hours' notice of activities that will affect operations of adjacent occupied buildings.
2. Maintain access to existing walkways, exits, and other facilities used by occupants of adjacent buildings.

   a. Do not close or obstruct walkways, exits, or other facilities used by occupants of adjacent buildings without written permission from authorities having jurisdiction.

C. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

1. Before building demolition, Owner will remove the following items:

   ~~a.~~ All items have been removed by the Owner.

D. Hazardous Materials: Present in buildings and structures to be demolished. A report on the presence of hazardous materials is in the Appendix ~~f~~or review and use. Examine report to become aware of locations where hazardous materials are present.

1. Hazardous material remediation is specified elsewhere in the Contract Documents.
~~2.~~ Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified by the EPA, Michigan EGLE and all other regulations.
3. Owner will provide material safety data sheets (if available) for materials that are known to be present in buildings and structures to be demolished because of building operations or processes performed there.

E. On-site storage or sale of removed items or materials is not permitted.

1.10 COORDINATION

A. Arrange demolition schedule so as not to interfere with operations of adjacent occupied buildings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

2.2 SOIL MATERIALS

A. Satisfactory Soils: Comply with requirements in Section 02211 " Site Earthwork"

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. The Demolition Contractor shall engage a Professional Engineer to perform an engineering survey of the condition of the existing buildings to be demolished and adjacent off-site buildings to remain, prior to demolition to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of the structures or adjacent structures (off-site that will remain) during demolition operations.

D. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.

E. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

F. Inventory and record the condition of items to be removed and salvaged.

3.2 PREPARATION

A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

B. Salvaged Items: Comply with the following:

1. Clean salvaged items of dirt and demolition debris.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to storage area designated by Owner.
5. Protect items from damage during transport and storage.

3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Utilities to be Disconnected: Locate, identify, disconnect, and seal or cap off utilities serving buildings and structures to be demolished.

1. Owner will arrange to shut off utilities when requested by Contractor.
2. Arrange to shut off utilities with utility companies.
3. If removal, relocation, or abandonment of utility services will affect adjacent occupied buildings, then provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.
4. Do not start demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.4 PROTECTION

A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations. Maintain exits from existing buildings.

B. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of demolition.

C. Existing Utilities to Remain: Maintain utility services to remain and protect from damage during demolition operations.

1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and authorities having jurisdiction.

a. Provide at least 72 hours' notice to occupants of affected buildings if shutdown of service is required during changeover.

D. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated. Comply with requirements in Section 015000 "Temporary Facilities and Controls."

1. Protect adjacent buildings and facilities from damage due to demolition activities.
2. Protect existing site improvements, appurtenances, and landscaping to remain.
3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
4. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
5. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
6. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
7. Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise, and dirt migration to occupied portions of adjacent buildings.

E. Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

3.5 DEMOLITION, GENERAL

A. General: Demolish indicated buildings completely. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
2. Maintain fire watch during and for at least 48 hours after flame-cutting operations.
3. Maintain adequate ventilation when using cutting torches.
4. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed trafficways if required by authorities having jurisdiction.
2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

C. Explosives: Use of explosives is not permitted.

3.6 DEMOLITION BY MECHANICAL MEANS

A. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.

B. Remove debris from elevated portions of the building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

1. Remove structural framing members and lower to ground by method suitable to minimize ground impact and dust generation.

C. Below-Grade Construction: Demolish foundation walls and other below-grade construction.

~~1.~~ Remove below-grade construction, including basements, foundation walls, pools, and footings completely.

D. Existing Utilities: Demolish and remove existing utilities and below-grade utility structures.

E. Hydraulic Elevator Systems: Demolish and remove elevator system, including cylinder, plunger, well assembly, steel well casing and liner, oil supply lines, and tanks.

3.7 SITE RESTORATION

A. Below-Grade Areas: Completely fill below-grade areas and voids resulting from building demolition operations according to backfill requirements in Section 02211 "Site Earthwork."

B. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

3.8 REPAIRS

A. Promptly repair damage to adjacent buildings caused by demolition operations.

3.9 DISPOSAL OF DEMOLISHED MATERIALS

~~A.~~ Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Do not burn demolished materials.

3.10 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

1. Clean roadways of debris caused by debris transport.

END OF SECTION 024116

THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK
WHITE BLACK

WE RECYCLE

GENERAL PLAN NOTES

1. UNDERGROUND UTILITIES
FOR THE PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174 OF 2013, THE CONTRACTOR SHALL CONTACT MISS DIG SYSTEM, INC. BY PHONE AT "811" OR "800-482-7171" OR VIA THE WEB AT EITHER elocate.missdig.org FOR SINGLE ADDRESS OR rte.missdig.org, A MINIMUM OF 3 BUSINESS DAYS PRIOR TO EXCAVATING, EXCLUDING WEEKENDS AND HOLIDAYS. ALL "MISS DIG" PARTICIPATING MEMBERS WILL BE THUS ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR FROM NOTIFYING UTILITY OWNERS WHO MAY NOT BE PART OF THE "MISS DIG" ALERT SYSTEM.

2. EXISTING UTILITIES
EXISTING UTILITY LINES, INCLUDING BUT NOT LIMITED TO GAS LINES, TELEPHONE LINES, WATER MAIN, CABLE TV, ELECTRIC, DATA LINES, STORM SEWER, FORCE MAINS, SANITARY SEWER AND OTHER UNDERGROUND UTILITIES MAY BE SHOWN IN PLAN VIEW OF THE CONSTRUCTION DRAWINGS ONLY, AND LOCATIONS ARE TO BE CONSIDERED INCOMPLETE. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES DURING THE CONSTRUCTION OF THIS PROJECT.

3. MONUMENT BOXES
ALL GOVERNMENT CORNERS AND PROPERTY IRONS SHALL BE PRESERVED, WHETHER SHOWN ON THE DRAWINGS OR NOT. WHERE NECESSARY, MONUMENT BOXES SHALL BE REPLACED, ADJUSTED, OR PLACED. ANY CORNERS OR IRONS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AND PAID FOR BY THE CONTRACTOR.

4. RIGHT-OF-WAY AND PROPERTY LINES
THE LOCATION OF RIGHT-OF-WAY LINES AND PROPERTY LINES SHOWN ON THE PLAN DRAWINGS ARE APPROXIMATE ONLY. ALL PROPERTY IRONS SHALL BE PROTECTED. ANY PROPERTY IRONS DISTURBED BY CONSTRUCTION, WHETHER SHOWN ON THE DRAWINGS OR NOT, SHALL BE RESET BY A REGISTERED SURVEYOR AT THE CONTRACTORS EXPENSE.

5. SOIL EROSION CONTROL FEATURES
PROVISIONS SHALL BE MADE FOR THE CONTROL OF SOIL EROSION ON SHOULDERS AND SLOPES BY MEANS OF SEEDING OR OTHER ACCEPTABLE MEANS AS PART OF THIS CONTRACT. INLET FILTERS SHALL BE PLACED AS NOTED ON THE PLANS AND/OR AT LOCATIONS AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL FULLY COMPLY WITH THE REQUIREMENTS OF PART 91 OF P.A. 451 OF 1994. PAYMENT FOR PROVIDING THE REQUIRED TEMPORARY SOIL EROSION CONTROLS SHALL BE INCLUDED IN THE LUMP SUM OF THE PROJECT. THE CONTRACTOR SHALL DETERMINE IF A SESC PERMIT IS REQUIRED FROM OTSEGO COUNTY. IF REQUIRED, THE CONTRACTOR SHALL APPLY FOR AND OBTAIN A SESC PERMIT FROM OTSEGO COUNTY. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ALL BONDS, INSURANCE, PERFORMANCE DEPOSITS, ETC NECESSARY AND TO OBTAIN ANY ADDITIONAL PERMITS NECESSARY FOR THIS WORK.

6. DEED OVERLAP/PROPERTY ENCROACHMENT
C2AE DID NOT COMPLETE TOPOGRAPHIC OR LEGAL SURVEYS AS PART OF THE SCOPE OF THEIR WORK. THE PLAN SHEET WAS DEVELOPED USING AN AERIAL PHOTO ONLY. PLEASE NOTE, OTSEGO COUNTY CONTRACTED WITH BRAND LAND SURVEYING, LLC TO COMPLETE A DRAFT CERTIFICATE OF SURVEY, DATED, APRIL 26, 2019. THIS "DRAFT" CERTIFICATE OF SURVEY INDICATES A DEED OVERLAP ALONG PORTIONS OF THE EAST PROPERTY LINE. SEE THE "DRAFT" DOCUMENTS THAT ARE INCLUDED IN THE PROJECT MANUAL FOR FURTHER INFORMATION. OTSEGO COUNTY WILL CORRECT THIS DEED OVERLAP SEPARATE FROM THIS PROJECT. ADDITIONALLY, A CERTIFICATE OF SURVEY WAS COMPLETED BY WADE-TRIM, DATED JUNE 15, 2007 WHICH ALSO DETAILS ENCROACHMENTS OF THE EXISTING BUILDINGS ONTO THE ADJACENT PROPERTY TO THE EAST. SEE THE "CERTIFICATE OF SURVEY" DOCUMENTS THAT ARE INCLUDED IN THE PROJECT MANUAL FOR INFORMATION DETAILING THE ENCROACHMENTS. OTSEGO COUNTY WILL OBTAIN A "TEMPORARY GRADING EASEMENT" FROM THE ADJACENT PROPERTY OWNERS TO COMPLETE THE DEMOLITION/RESTORATION WORK THAT IS PART OF THIS PROJECT.

7. NO TOPOGRAPHIC SURVEY COMPLETED AS PART OF THIS PROJECT
A TOPOGRAPHIC SURVEY WAS NOT COMPLETED AS PART OF THIS PROJECT. THE CONTRACTOR SHALL NOTE THAT ALL LOCATIONS AND AREAS ARE APPROXIMATE ONLY, AND HE SHALL MAKE HIS OWN INDEPENDENT JUDGEMENT AS TO THE DEMOLITION/REMOVAL QUANTITIES REQUIRED. THE CONTRACTOR SHALL COMPLETE ALL DEMOLITION AS NOTED ON THIS PLANS AND IN THE SPECIFICATIONS. CERTIFICATE OF SURVEYS (COMPLETED BY OTHERS) ARE DESCRIBED IN GENERAL NOTE #6 ABOVE.

8. REMOVAL LIMITS
REMOVAL LIMITS ARE SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL USE METHODS TO LIMIT CONSTRUCTION DISTURBANCE TO THE LIMITS INDICATED. DISTURBANCE OUTSIDE OF THE LIMITS SHOWN ON THE DRAWING SHALL BE RESTORED AT THE CONTRACTOR'S EXPENSE.

9. EXISTING STRUCTURES WITHIN ROADWAY RIGHTS-OF-WAY
UNLESS SPECIFICALLY NOTED FOR REMOVAL ON THE CONSTRUCTION PLANS, ALL POWER POLES, SIDEWALKS, DRIVES, TREES, FENCES AND OTHER APPURTENANCES SHALL BE PROTECTED. ALL SUCH ITEMS DAMAGED DURING THE COURSE OF CONSTRUCTION SHALL BE REPAIRED OR REPLACED, THE COSTS OF WHICH SHALL BE BORN BY THE CONTRACTOR.

10. PROTECTIVE FENCE
PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL INSTALL TEMPORARY PROTECTIVE FENCING AROUND THE ENTIRE PERIMETER OF THE SITE. ACCESS TO THE SITE SHALL BE RESTRICTED TO THE CONSTRUCTION ACCESS LOCATION ONLY.

11. DUST CONTROL
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING DUST ON THIS PROJECT THROUGH THE USE OF WATER TRUCKS OR DUST PALLIATIVE. DUST CONTROL SHALL BE INCLUDED IN THE LUMP SUMP PRICE FOR THE WORK. DUST SHALL BE CONTINUOUSLY CONTROLLED TO THE SATISFACTION OF THE ENGINEER.

12. PERMITS, MISC REQUIREMENTS AND DISPOSAL
THE CONTRACTOR IS RESPONSIBLE TO OBTAIN ANY/ALL PERMITS REQUIRED TO COMPLETE THE WORK. THE CONTRACTOR SHALL ALSO COMPLY WITH ANY/ALL REQUIREMENTS TO COMPLETE THE WORK, WHATEVER THOSE MAY BE. THE CONTRACTOR SHALL ALSO OBTAIN LANDFILL DISPOSAL APPROVAL PRIOR TO STARTING WORK.

13. RESTORATION
THE CONTRACTOR SHALL REMOVE AND STOCKPILE ANY/ALL TOPSOIL THAT WILL BE IMPACTED BY CONSTRUCTION FOR USE AT THE END OF DEMOLITION. THE CONTRACTOR SHALL THEN TOPSOIL AND SEED ALL DISTURBED AREAS AT THE COMPLETION OF THE PROJECT.

14. SALVAGING MATERIALS
ALL ITEMS AND/OR MATERIALS REMOVED FROM THE PROJECT SITE SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF PER MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES AND ENERGY (EGLE) REQUIREMENTS.

15. SITE INFORMATION
OTSEGO COUNTY HAS PREVIOUSLY HIRED OTHER PROFESSIONALS TO COMPLETE SITE INFORMATION RELATIVE TO THE PROJECT. PLEASE SEE THE INFORMATION CONTAINED IN THE APPENDIX OF THE PROJECT MANUAL/BID DOCUMENTS. PLEASE NOTE, AN EXISTING STRUCTURE CONDITION REPORT IS NOT AVAILABLE.

16. UTILITY SUPPORT
THE CONTRACTOR SHALL PROTECT ALL UTILITIES AND STRUCTURES ALONG THE PROJECT IN COMPLIANCE WITH THE UTILITY OWNERS REQUIREMENTS. SPECIFICALLY, PROTECT/SUPPORT ALL POWER POLES AS NECESSARY TO COMPLETE THE WORK. NO ADDITIONAL PAYMENT WILL BE MADE TO COMPLETE THE WORK..

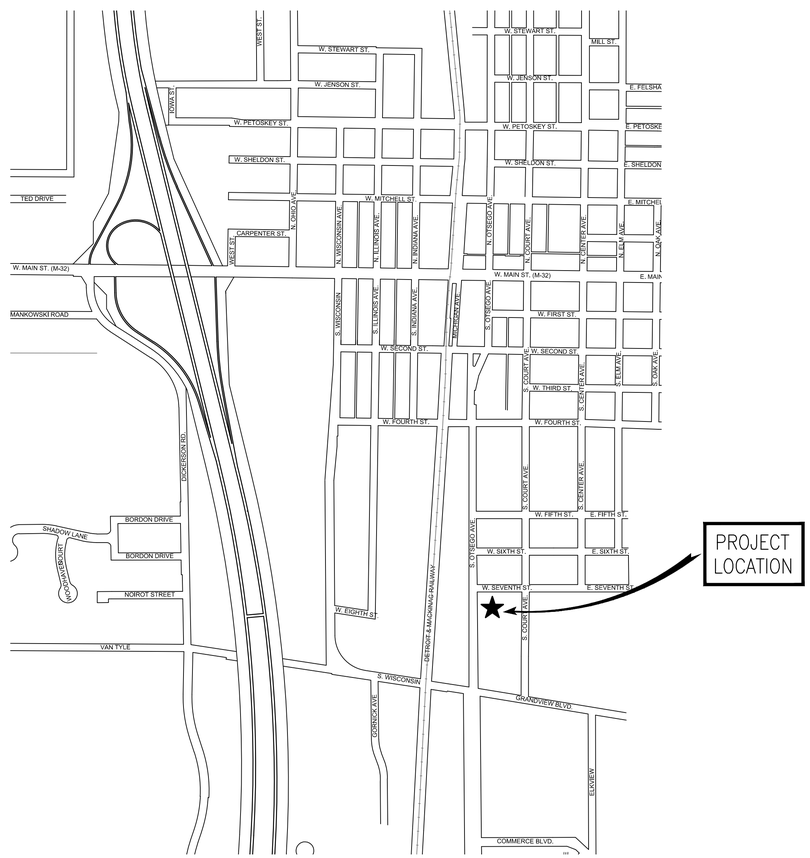
17. PRE-CONSTRUCTION VIDEO RECORD
THE CONTRACTOR SHALL PROVIDE A PRE-CONSTRUCTION AUDIO-VIDEO RECORD OF THE FULL & COMPLETE PROJECT AREA AND ALL ADJACENT STRUCTURES AND RIGHTS-OF-WAY. PROVIDE TWO (2) COPIES OF THIS AUDIO-VIDEO RECORD ON SEPARATE DVD'S TO THE ENGINEER PRIOR TO BEGINNING CONSTRUCTION. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE CONTRACT LUMP SUM.

18. BASIS FOR PAYMENT
ALL WORK FOR THIS PROJECT SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE AS NOTED ON THE BID FORM.

PUBLIC UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE AS OBTAINED ON OUR SURVEYS. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO IT'S ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

NAME OF OWNER	KIND OF UTILITY
DTE ENERGY GAS CONTACT: MR. MATT LOGAN PHONE: (231) 492-7479	GAS
CONSUMERS ENERGY CONTACT: MR. PHILLIP HASS PHONE: (231) 340-9179	ELECTRIC
CHARTER COMMUNICATIONS CONTACT: MR. STEVE THINEL PHONE: (231) 631-5725	CABLE TV
FRONTIER CONTACT: MR. CHUCK HARDIN PHONE: (989) 350-2837	TELEPHONE
MERIT CONTACT: MR. NICK ANDRUS PHONE: (989) 732-5475	FIBER OPTIC COMMUNICATION
EMPIRIC SOLUTIONS CONTACT: MR. TIM GREGORY PHONE: (231) 348-1035 x1008	UCMANN FIBER OPTIC CONDUIT
CITY OF GAYLORD CONTACT: MR. ED THOLL PHONE: (989) 732-5475	STORM SEWER SANITARY SEWER WATER

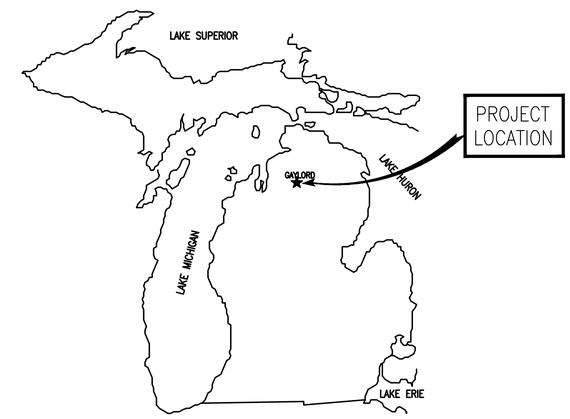


PROJECT MAP
NO SCALE

CONSTRUCTION PLANS FOR OTSEGO COUNTY

ROYAL CREST MOTEL DEMOLITION

GAYLORD, MICHIGAN
APRIL 2020



LOCATION MAP
NO SCALE

PLAN SHEET INDEX

- 1 CONSTRUCTION NOTES AND MISCELLANEOUS INFORMATION
- 2 PROPOSED DEMOLITION PLAN, NOTES AND DETAILS

TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH SECTION 812 OF THE 2012 MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AS AMENDED, SUPPLEMENTAL SPECIFICATIONS, AND AS HEREIN SPECIFIED WITHIN THE PLANS.

IT IS UNDERSTOOD THAT THE CONTRACTOR SHALL PERFORM ALL WORK UNDER THIS CONTRACT IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS, POLICIES, RULES AND STANDARDS OF THE MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ACT (MIOSHA), BEING ACT 154 OF THE PUBLIC ACTS OF 2013 AND AS AMENDED.

EXCEPT WHERE OTHERWISE INDICATED ON THE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED THEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2012 EDITION, AND THE CURRENT SUPPLEMENTAL SPECIFICATIONS.

c2ae architecture · engineering
www.c2ae.com

OTSEGO COUNTY:
ROYAL CREST MOTEL DEMOLITION
GAYLORD, MICHIGAN

CONSTRUCTION NOTES AND MISCELLANEOUS INFORMATION

REVISIONS

REV	DESCRIPTION	DATE
-		

PROJ. #: 190040

DATE: APRIL 2020

SHEET
1 of 2

ISSUED FOR BIDS

WE RECYCLE

THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK

WHITE BLACK

DEMOLITION KEY

1. THE CONTRACTOR SHALL LOCATE ALL EXISTING SANITARY SEWER SERVICES TO THE SITE. APPROXIMATE LOCATIONS ARE SHOWN ON THIS PLAN SHEET. ABANDON AND BULKHEAD (PER DETAIL) SERVICE PIPING AT THE RIGHT-OF-WAY LINE. REMOVE SERVICE/ALL PIPING/CLEANOUT, COMPLETE, ON THE ROYAL CREST PROPERTY. PAYMENT TO BE INCLUDED IN THE LUMP SUM PROJECT COST.

2. THE CONTRACTOR SHALL LOCATE ALL EXISTING WATER SERVICES TO THE SITE. APPROXIMATE LOCATIONS ARE SHOWN ON THIS PLAN SHEET. IT IS UNDERSTOOD THAT ALL WATER SERVICES HAVE BEEN SHUT OFF TO THE SITE EXCEPT FOR THE SERVICE TO THE EXISTING NORTHWEST BUILDING. THE CONTRACTOR SHALL CUT, CAP AND ABANDON ALL SERVICES AT THE RIGHT-OF-WAY LINE, BEHIND THE WATER SHUT OFF. REMOVE ALL WATER SERVICE PIPE AND MISCELLANEOUS APPURTENANCES, COMPLETE ON THE ROYAL CREST PROPERTY, COMPLETE. PAYMENT TO BE INCLUDED IN THE LUMP SUM PROJECT COST.

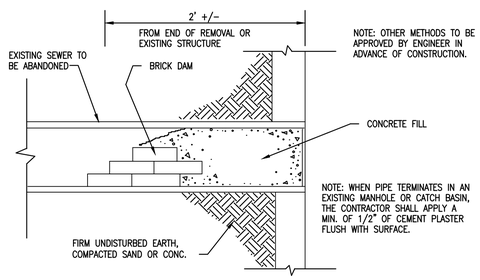
3. THE CONTRACTOR SHALL LOCATE AND EXPOSE THE WATER SERVICE CORPORATION STOP ON THE EXISTING WATER MAIN. CLOSE/SHUT OFF THE CORPORATION STOP, THEN REMOVE THE WATER SERVICE PIPING TO THE WEST, COMPLETE. ALSO REMOVE THE CURB STOP & BOX AT THE ROW LINE. PROTECT ALL EXISTING CONCRETE, TREES AND FENCING NOT NOTED FOR REMOVAL. PAYMENT FOR THIS WORK TO BE INCLUDED IN THE LUMP SUM PROJECT COST.

4. THE CONTRACTOR SHALL SALVAGE EXISTING TOPSOIL FOR REUSE. AT THE COMPLETION OF CONSTRUCTION, THE CONTRACTOR WILL PROVIDE AND INSTALL 3" TOPSOIL AND SEED ALL DISTURBED AREAS ON PRIVATE PROPERTY PER THE DRAWINGS AND SPECIFICATIONS.

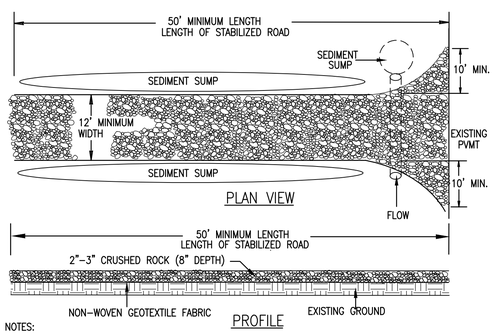
5. REMOVE EXISTING MOTEL SIGN, LIGHT, POSTS. LANDSCAPING AND ANY/ALL ASSOCIATED CONCRETE BASES, COMPLETE. ALSO REMOVE ANY/ALL ELECTRICAL CONDUIT/WIRING BACK TO EXISTING ELEC PANEL, COMPLETE.

6. REMOVE EXISTING LIGHT POST, CONCRETE BASE AND ANY/ALL ELECTRICAL CONDUIT/WIRING BACK TO EXISTING ELEC PANEL, COMPLETE.

7. THE CONTRACTOR SHALL REMOVE AND SALVAGE EXISTING FENCE AS REQUIRED TO COMPLETE THE CONCRETE REMOVAL ALONG THE PROPERTY LINE. SAWCUT EXISTING CONCRETE APPROXIMATELY 1 FT OUTSIDE OF THE EXISTING PROPERTY LINE, THEN REINSTALL EXISTING FENCE. IF THE EDGE IS DAMAGED PRIOR TO COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL SAWCUT THE CONCRETE AGAIN IF DIRECTED BY THE ENGINEER. THERE WILL BE NO ADDITIONAL PAYMENT FOR THIS WORK.

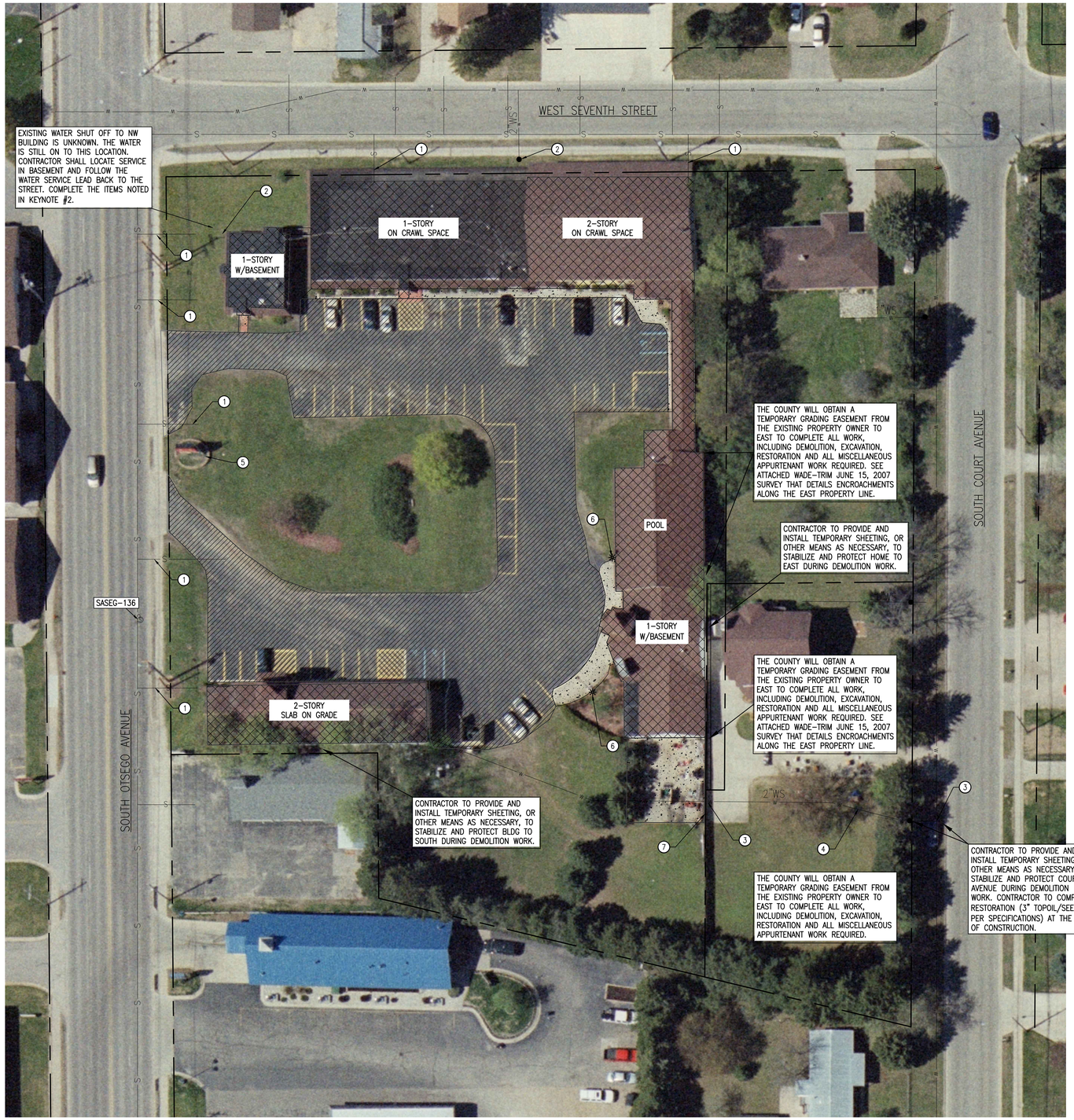


3 BULKHEAD DETAIL FOR ABANDONING SEWERS/WATER
SCALE: NONE



NOTES:
1. Establish stabilized construction entrance prior to the initiation of site construction activities.
2. Care should be taken to prevent material movement into adjacent wetlands/waterbodies.
3. Care should be taken to maintain existing roadside drainage via culvert installation, with sediment sump placed downflow of culvert.

2 STABILIZED CONSTRUCTION ACCESS DETAIL
SCALE: NONE



1 PROPOSED DEMOLITION PLAN
SCALE: 1"=30'

N

LEGEND

- REMOVE BUILDINGS COMPLETE
- REMOVE CONCRETE COMPLETE
- EXISTING HMA 'TO REMAIN IN PLACE AS IS.'

GENERAL DEMOLITION NOTES

1. THE SITE ADDRESS IS 803 SOUTH OTSEGO AVE, GAYLORD, MI 49735.

2. THE CONTRACTOR MUST INFORM THE NESHAP AGENCY OVERSEEING THE SITE IN WRITING WITH A NOTICE OF INTENT TO BEGIN THE DEMOLITION OF THE BUILDINGS A MINIMUM OF 10 DAYS PRIOR TO THE START OF ANY WORK.

3. VERMICULITE WAS FOUND IN SOME AREAS OF THE BUILDINGS, SEE THE ATTACHED REPORTS. VERMICULITE IS CONSIDERED ASBESTOS CONTAINING AND THUS A REGULATED ASBESTOS CONTAINING MATERIAL (ACM). AN APPROVED ASBESTOS ABATEMENT CONTRACTOR MUST BE USED TO COMPLETE THIS WORK.

4. SEE THE SPECIFICATIONS FOR ADDITIONAL BUILDING DEMOLITION REQUIREMENTS.

5. CONSTRUCTION ACCESS FOR THE SITE SHALL BE ESTABLISHED OFF OF SEVENTH STREET. THE CONTRACTOR SHALL COORDINATE THE LOCATION WITH OTSEGO COUNTY AND THE CITY OF GAYLORD. INSTALL THE STABILIZATION CONSTRUCTION ACCESS AT THAT LOCATION PER THE DETAIL ON THIS SHEET.

6. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN (FOR SAFE INGRESS/EGRESS TO THE SITE AND FOR PARTIAL CLOSURE OF THE SOUTH SIDE OF SEVENTH STREET DURING WORK NEAR THE SOUTH RIGHT-OF-WAY LINE) TO OTSEGO COUNTY, THE CITY OF GAYLORD AND THE GAYLORD POLICE DEPARTMENT FOR REVIEW AND APPROVAL.

7. PROTECT ALL EXISTING TREES ON THE SITE-TYPICAL.

8. THE EXISTING ELECTRIC AND NATURAL GAS UTILITIES HAVE BEEN DISCONNECTED BY OTSEGO COUNTY. THE CONTRACTOR SHALL REMOVE ALL REMAINING MISCELLANEOUS APPURTENANCES RELATED TO THE DISCONNECTED UTILITIES, COMPLETE.

9. DEMOLISH AND REMOVE FROM SITE COMPLETE, ALL BUILDINGS (INCLUDING ALL ELEC/HVAC/PLUMBING ITEMS), ALL UNDERGROUND CONCRETE, ALL SITE CONCRETE INCLUDING ANY CONCRETE CURB & GUTTER, ALL BUSHES, ALL LANDSCAPING, ALL DEBRIS LEFT ON THE SITE, DUMPSTERS, DUMPSTER SCREENING, AND ALL MISCELLANEOUS APPURTENANCES (WHETHER SHOWN ON THE PLAN OR NOT). ONLY EXISTING TREES SHALL BE PROTECTED AND ARE TO REMAIN. EXISTING HMA SHALL REMAIN IN PLACE 'AS IS.'

10. ALL SITE CONCRETE, UNDERGROUND FOUNDATIONS, AND FOOTING WALLS SHALL BE REMOVED FROM THE SITE, COMPLETE. THE DEMOLISHED SITE CONCRETE, CONCRETE FOUNDATION AND FOOTING MATERIALS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PER THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES AND ENERGY (EGLE) REQUIREMENTS. THE MATERIAL IS NOT ALLOWED TO BE USED AS BACKFILL MATERIAL.

11. ALL EXISTING HMA TO REMAIN IN PLACE 'AS IS.'

12. AFTER REMOVAL OF MATERIALS, THE CONTRACTOR SHALL BACKFILL ALL DEMOLISHED AREAS (HOLES) TO BRING ELEVATIONS UP TO MATCH THE AVERAGE FINISHED GRADE ELEVATION. ALL BACKFILL MATERIAL SHALL BE MDOT CLASS III GRANULAR MATERIAL COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM UNIT DENSITY. THEN PLACE 3" TOPSOIL AND SEED PER THE SPECIFICATIONS.

13. CONTRACTOR TO MAINTAIN ALL DEMOLITION OPERATIONS TO WITHIN THE COUNTY PROPERTY (ROYAL CREST) ONLY. UNDER NO CIRCUMSTANCES SHALL OPERATIONS BE EXTENDED INTO THE ADJACENT ROADWAY RIGHTS-OF-WAY.

14. THE CONTRACTOR SHALL COORDINATE WITH GAS, ELECTRIC, TELEPHONE AND CABLE COMPANIES FOR ANY DISCONNECTION AND ABANDONMENT REMAINING OF ALL EXISTING SERVICES. ALL COSTS ASSOCIATED WITH ABANDONING THESE SERVICES SHALL BE INCLUDED IN THE LUMP SUM PROJECT COST.

15. THE CONTRACTOR SHALL PROVIDE CLEANUP OPERATIONS ALONG AND ON ROADWAYS WHERE DIRT AND/OR DEBRIS HAVE BEEN DEPOSITED DUE TO CONSTRUCTION ACTIVITIES AND/OR RELATED WORK DURING THE ENTIRE CONSTRUCTION PHASE OF THE PROJECT. AS A MINIMUM, CLEANUP WILL BE PERFORMED ON A DAILY BASIS. ADDITIONAL CLEANUP WILL BE PERFORMED AS DEEMED NECESSARY BY THE ENGINEER.

16. THE CONTRACTOR SHALL INSTALL INLET PROTECTION, FABRIC DROPS (PER CURRENT MDOT SPECIFICATIONS) IN ALL EXISTING STORM SEWER CATCH BASIN STRUCTURES (ALONG EAST SIDE OF SOUTH OTSEGO & ALONG BOTH SIDES OF SEVENTH STREET) THAT ARE NEAR THE SITE AS DIRECTED BY THE ENGINEER (ESTIMATED 6 REQUIRED).

17. THE CONTRACTOR SHALL USE DEMOLITION TECHNIQUES THAT DO NOT CAUSE VISIBLE EMISSIONS-TYPICAL.

18. THE CONTRACTOR TO RESTORE ALL AREAS DISTURBED BY CONSTRUCTION WITH 3" TOPSOIL AND SEED/MULCH PER THE SPECIFICATIONS. ALL SLOPES ON THIS PROJECT SHALL BE CLASS A SLOPES FOR LAWN AREAS. THE SYMBOL FOR THE PERMANENT TURF SEED MIXTURE ON THIS PROJECT IS SYMBOL THM.

19. THE CONTRACTOR SHALL ATTEND THE MANDATORY PRE-BID SITE INSPECTION MEETING TO BECOME FAMILIAR WITH THE SITE AND THE SCOPE OF THE DEMOLITION WORK REQUIRED. THE MEETING WILL PROVIDE ACCESS TO ALL BUILDINGS SO TO DETERMINE AREAS WITH BASEMENTS/CRAWL SPACES, THE SIZE OF THE SWIMMING POOL, ETC. THE MEETING WITH BE HELD AS NOTED IN THE 'INFORMATION FOR BIDDER' SECTION OF THE BIDDING DOCUMENTS.

811 Know what's below. Call before you dig.

c2ae architecture · engineering
www.c2ae.com

OTSEGO COUNTY:
ROYAL CREST MOTEL DEMOLITION
GAYLORD, MICHIGAN

PROPOSED DEMOLITION PLAN, NOTES AND DETAILS

REVISIONS

REV	DESCRIPTION	DATE
-		

PROJ. #: 190040

DATE: APRIL 2020

SHEET
2 of 2

ISSUED FOR BIDS

APPENDIX A

Asbestos Survey & Lead Based Paint Sampling

September 10, 2019

Mr. Chris Churches
Otsego County
225 West Main Street
Gaylord, Michigan 49735

RE: Asbestos Survey & Lead-Based Paint Sampling
Former Royal Crest Motel Buildings
803 South Otsego Avenue
Gaylord, Michigan
Sagasser & Associates, Inc. Project #31902

Sagasser & Associates, Inc. has completed an asbestos survey and lead-based paint sampling of the former Royal Crest Motel buildings located at 803 South Otsego Avenue in Gaylord, Michigan (Site). The purpose of the asbestos survey and sampling was to determine the presence and percentage of asbestos mineral fibers in the identified suspect asbestos containing materials (SACM) in the building prior to renovation or demolition. The purpose of the lead-based paint (LBP) sampling was to determine if the paint contained concentrations of lead at levels above the regulatory criteria to provide for worker protection during renovation or demolition activities.

Authorization

Sagasser & Associates, Inc. received authorization for performance of the assessment as part of a Michigan Department of Environment, Great Lakes & Energy (EGLE) Brownfield Site Assessment Grant to the Otsego County.

Scope of Work

Sagasser & Associates, Inc. completed the sampling using the standard asbestos sampling protocol/techniques to minimize the creation of airborne fibers and standard sampling protocols for the collection of suspect samples. Sagasser & Associates, Inc. completed the following scope of work:

- Visually assessed the buildings located on the Site for suspect asbestos containing materials (SACM) and LBP.
- Collected thirty-nine (39) bulk samples of the SACM which were submitted to SanAir Technologies Laboratory (SanAir) for analysis by EPA Method #600/R-16/116- Polarized Light Microscopy (PLM).
- Collected five (5) composite paint samples from the exterior walls and trim and interior walls/garage doors.
- Prepared a concise letter report detailing the results of the sampling and locations of the ACM and the paint sampling results.

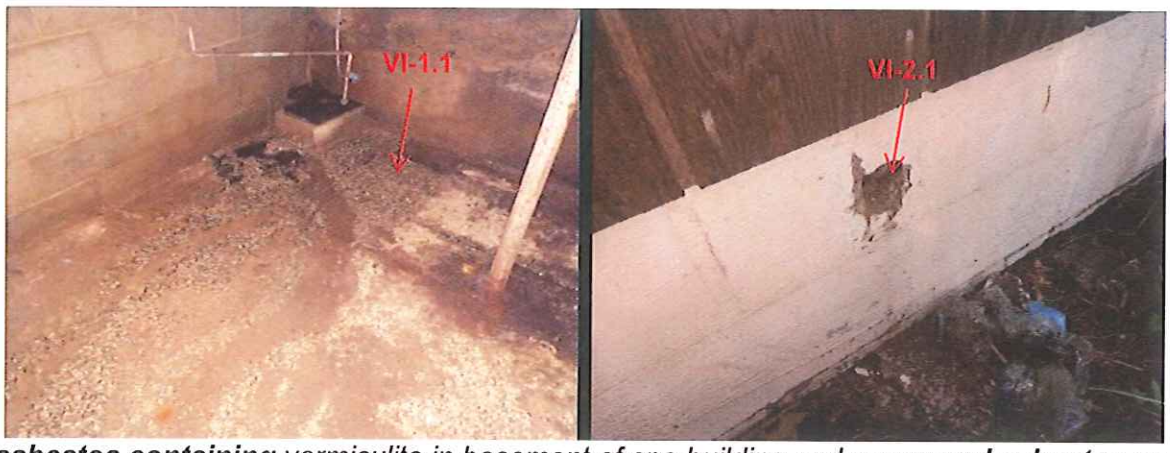
As per the National Emissions Standard for Hazardous Air Pollutants (NESHAP) regulations, 40 CFR; Part 61, Subpart M, prior to demolition or renovation of a building must be inspected for friable and non-friable ACM and the friable/potentially friable ACM must be removed to minimize the release of asbestos emissions during a demolition and/or renovation.

Asbestos Survey & Sampling

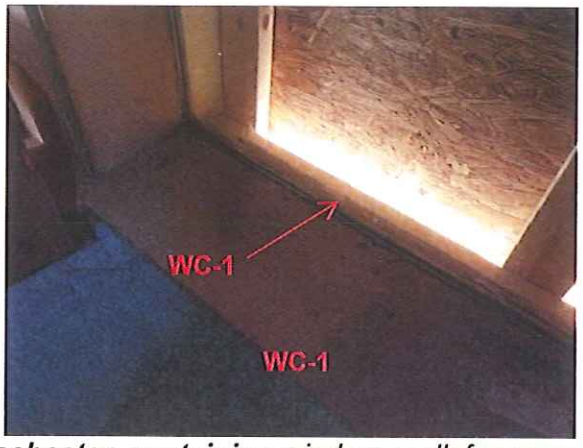
On July 30, 2019, Mr. Scot Egleston of Sagasser & Associates, Inc. completed an asbestos survey of the buildings which comprise the Royal Crest Motel. The buildings in the complex are comprised of the spa building, the north building, the east building and south building. Each building was visually assessed for SACM. Each homogeneous SACM type was touched to determine its friability.

The following building materials were identified as SACMs in the Site buildings: vermiculite insulation (2 types), fibrous drywall covering, drywall with texture material and joint compound, 2'x4' ceiling tiles, blown-in insulation (confirmatory sample), linoleum flooring/mastic, mortar, stucco, roof shingles and roofing material (membrane/flashing/tar). *See Table 1 for sample analytical results.*

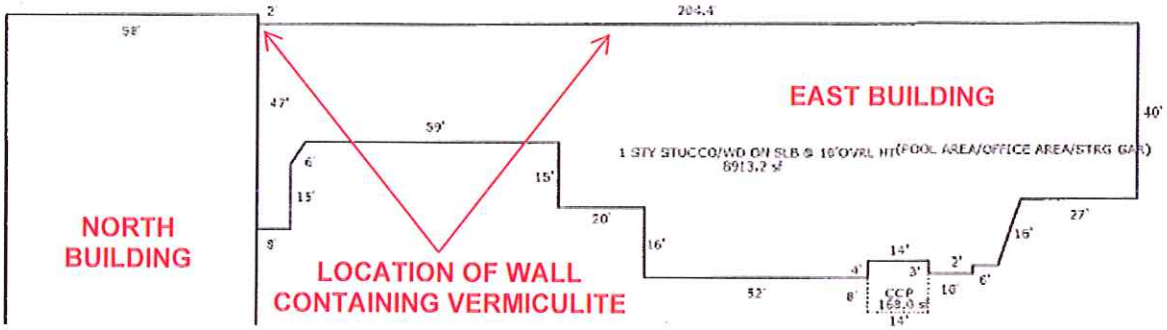
The below photographs depict the sampled materials or building materials.

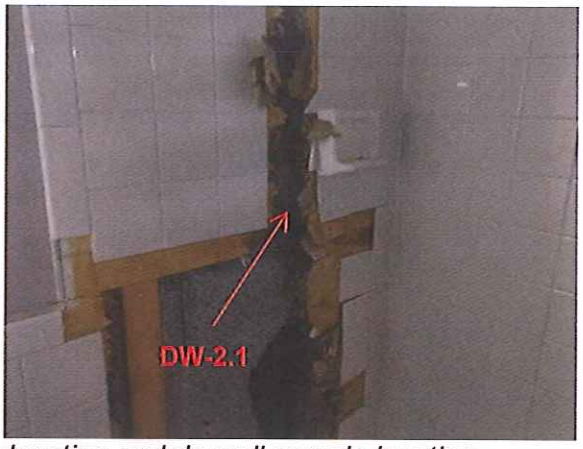


*View of **asbestos containing** vermiculite in basement of spa building and **presumed asbestos containing** vermiculite in block wall of connector hallway.*

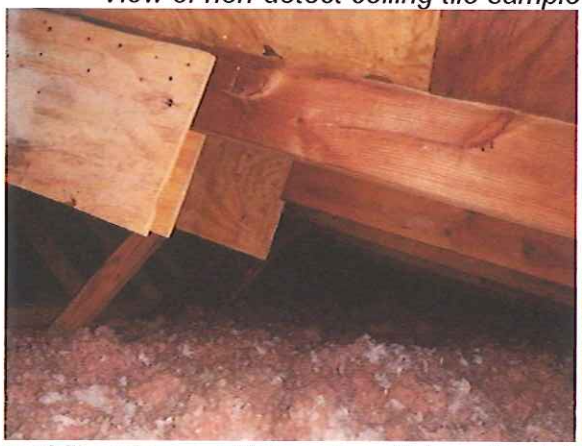
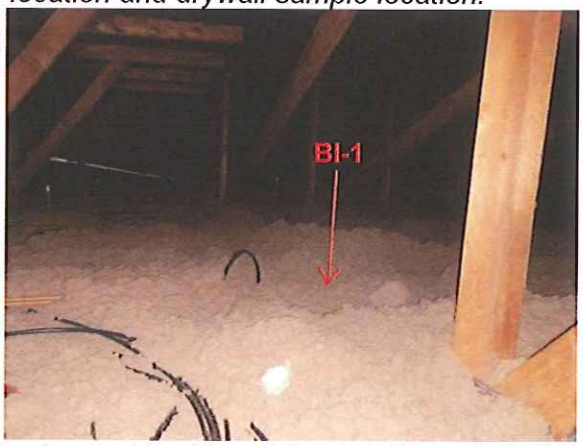


*View of **asbestos containing** window caulk from spa building.*

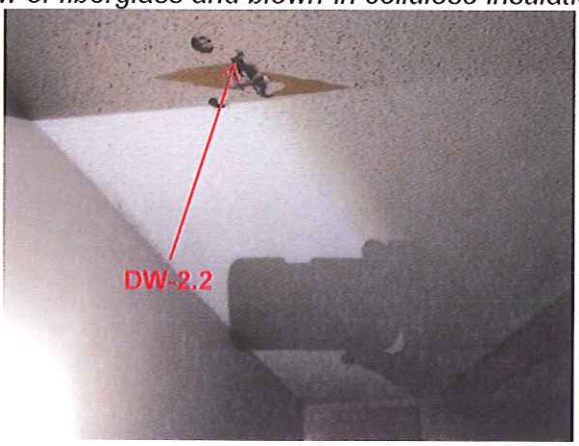




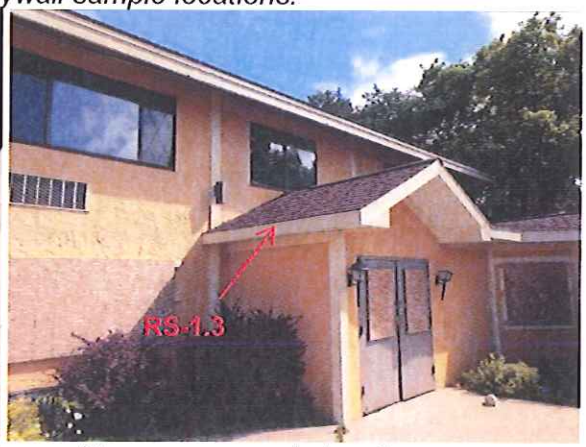
View of non-detect ceiling tile sample location and drywall sample location.

View of fiberglass and blown-in cellulose insulation located in attics of Subject Property buildings.



View of non-detect drywall sample locations.



View of non-detect linoleum flooring and tar paper sample locations.

View of non-detect spa roofing material sample location and Styrofoam insulation in block wall of north building.

Asbestos Analytical Results & Estimated Area

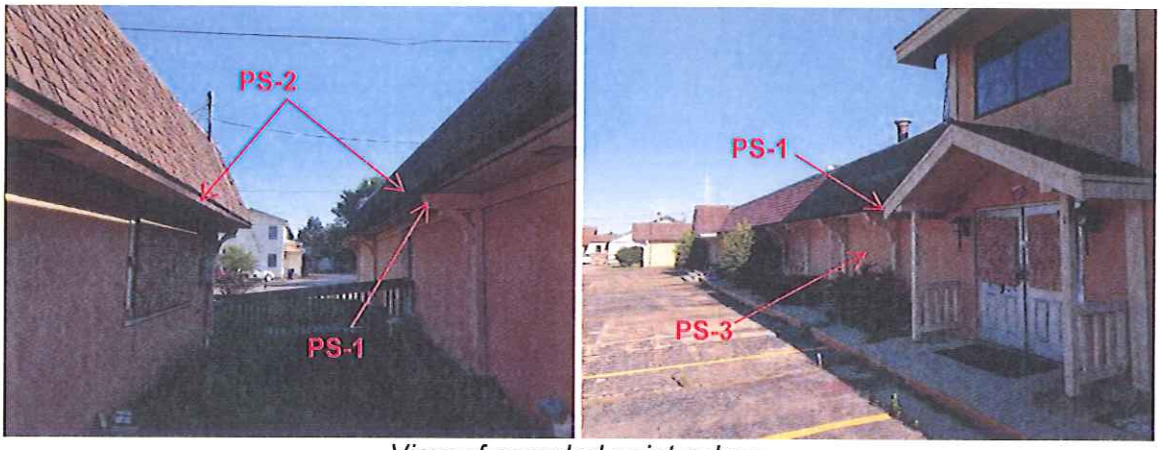
The sample of the vermiculite insulation located in the basement of the spa building was determined to contain less than 1% asbestos. Approximately 100 square feet of the basement has a scattering of the vermiculite. fine vermiculite insulation found on the ~65 feet of the east block footer wall (4-5 block high) of the connector hallway was found not to contain asbestos. EGLE views all vermiculite insulation as asbestos containing.

The window caulk of the front windows of the spa building was determined to contain 2% asbestos. It is estimated that approximately 2-square feet of the non-friable caulk is present in the building.

The following building materials were determined not to contain or be considered asbestos containing: fibrous drywall covering, drywall with texture material and joint compound, 2'x4' ceiling tiles, blown-in insulation, linoleum flooring/mastic, mortar, stucco, roof shingles and roofing material. *A copy of the laboratory analytical report is attached.*

Lead-Based Paint Sampling

On July 30, 2019, Mr. Scot Egleston of Sagasser & Associates, Inc. completed the sampling of the various colors of paint on the storage garage building to determine if it was lead-based. Three (3) colors of paint were identified on the building. The black/charcoal colored paint was found on the exterior walls. The garage doors and trim of the building were painted brown. The interior walls and interior of the garage doors were painted beige.



View of sampled paint colors.

View of sampled paint colors.

Paint Sample Analytical Results

The following details the paint sample lead analytical results:

PS-1 – <92.2 parts per million (ppm) – Exterior Trim - Yellow
PS-2 – 101.1 ppm – Exterior Trim - Brown
PS-3 – 230.2 ppm – Building Exterior – Yellow
PS-4 – <96.9 ppm – Interior Door Jams – Cream
PS-5 – <97.4 ppm Interior Lobby Walls – Cream

The Housing & Urban Development (HUD) definition of lead-based paint is 0.5% by weight / 1.0 mg/cm^2 / 5,000 ppm. All of the paint samples were below the HUD limit.

A copy of the laboratory analytical report is attached.

Conclusions

Sagasser & Associates, Inc. has completed an asbestos survey and lead-based paint sampling of the Royal Crest Motel buildings located 803 South Otsego Avenue in Gaylord, Michigan.

The combined identified types of vermiculite insulation exceed the threshold level (160 ft^2) of regulated ACM. Per EGLE guidelines, the vermiculite is considered asbestos containing an is thereby a regulated ACM.

The identified window caulk is considered a Category II non-friable ACM. A Category II non-friable ACM with a low probably of becoming crumbled, pulverized or reduced to powder during demolition is not required to be removed or stripped prior to demolition.

The NESHAP agency overseeing the Site must be notified in writing of the intention to demolish 10 days prior to the demolition.

The lead exposure limits as set by Housing & Urban Development (HUD) are 5,000 ppm. All of the paint samples collected fall below that limit and are not considered lead-based paint.

Closing

Sagasser & Associates, Inc. sincerely appreciated the opportunity to provide our consulting services. If you have any questions regarding the contents of this report or require additional information, please contact our office at your convenience.

Respectfully Submitted,

Sagasser & Associates, Inc.

Scot Egleston
Environmental Scientist
(Accreditation Number - A16147)

Kevin D. Sagasser, P.E.
Senior Project Engineer

Attachment

Laboratory Analytical Reports

Limitations and Exceptions

Sagasser & Associates, Inc. has performed the proposed scope of services using due care in accordance with good and customary practices, as ordinarily exercised by other reputable members of the profession under similar circumstances. Maps and sketches are provided for informational purposes and should not be considered surveys or engineering studies.

No sampling of metal, wood, materials identified as fiberglass or foam insulation, or materials not typically identified as suspect asbestos containing was conducted. Additionally, no sampling of any electrical wiring/ components was conducted and should be presumed to contain asbestos if identified. Sagasser & Associates, Inc. collected three samples of each identified miscellaneous materials and instructed the laboratory to analyze each sample set to the first positive samples. Thereby, not all of the bulk samples collected and submitted for laboratory analysis were analyzed and Sagasser & Associates, Inc. makes no representation as to the asbestos content of untested samples.

Additionally, areas/materials deemed to be not accessible without involving significant demolition activities and/or compromising the structural integrity of the building, were hidden, or unsafe were not assessed and Sagasser & Associates, Inc. makes no representation as to the presence or absence of asbestos containing materials in those areas/materials.

TABLE 1
Asbestos Bulk Sample Analytical Results
Royal Crest Motel Buildings
803 South Otsego Avenue, Gaylord, Michigan
Sagasser & Associates, Inc. Project #31902

Sample I.D.	Sample Description	Sample/Material Location	Asbestos Content (%)	Asbestos Type	Friable (Yes/No)
VI-1.1*	**Vermiculite**	**Floor - Basement**	**<1%**	**Actinolite**	**Yes**
VI-2.1*	**Fine Vermiculite**	**East Wall - Inside Concrete Block - Connector Hallway**	-	N/A	**Yes**
FBT-1.1	Fiberous Covering Drywall	Spa Building Interior Walls	-	N/A	N/A
WC-1.1	**Window Caulk**	**Spa Building - Front Windows**	**2%**	**Chrysotile**	**No**
WC-1.2		**Spa Building - Front Windows**	Not analyzed		
WC-1.3		**Spa Building - Front Windows**			
TP-1.1	Tar Paper	Spa Building - Mansard Roof	-	N/A	N/A
TP-1.2	Tar Paper	Main Building - Roof	-	N/A	N/A
CT-1.1	2'x4' Ceiling Tiles	Spa Building - Ceiling	-	N/A	N/A
CT-1.2			-	N/A	N/A
CT-1.3			-	N/A	N/A
DW-1.1	Drywall	Spa Building Interior Walls	-	N/A	N/A
DW-1.2			-	N/A	N/A
DW-1.3			-	N/A	N/A
DW-2.1	Drywall	South Building - Second Floor Bathroom	-	N/A	N/A
	Joint Compound		-	N/A	N/A
	Mastic		-	N/A	N/A
DW-2.2	Drywall	South Building - Second Floor Ceiling	-	N/A	N/A
	Joint Compound		-	N/A	N/A
DW-2.3	Drywall	South Building - First Floor Room	-	N/A	N/A
	Joint Compound		-	N/A	N/A
DW-3.1	Drywall	Main Building - Breakfast Area	-	N/A	N/A
	Texture		-	N/A	N/A
DW-3.2	Drywall	Main Building - Pool Room	-	N/A	N/A
	Joint Compound		-	N/A	N/A
	Texture		-	N/A	N/A
DW-3.3	Drywall	North Building - Entry Wall	-	N/A	N/A
	Texture		-	N/A	N/A
DW-3.4	Drywall	North Building - Second Floor Bathroom	-	N/A	N/A
	Texture		-	N/A	N/A
DW-3.5	Drywall	**North Buidling - First Floor Bedoom**	-	N/A	N/A
	Texture		**<1%**	**Chrysotile**	**No**
DW-3.6	Drywall	North Building - First Floor Hallway	-	N/A	N/A
	Texture		-	N/A	N/A

TABLE 1
Asbestos Bulk Sample Analytical Results
Royal Crest Motel Buildings
803 South Otsego Avenue, Gaylord, Michigan
Sagasser & Associates, Inc. Project #31902

Sample I.D.	Sample Description	Sample/Material Location	Asbestos Content (%)	Asbestos Type	Friable (Yes/No)
BI-1.1	Blown-In Insulation	Main Building - Breakfast Area	-	N/A	N/A
LF-1.1	Linoeum Flooring	Office	-	N/A	N/A
	Yellow Mastic		-	N/A	N/A
LF-1.2	Linoeum Flooring	Office	-	N/A	N/A
	Yellow Mastic		-	N/A	N/A
LF-1.3	Linoeum Flooring	Office	-	N/A	N/A
	Yellow Mastic		-	N/A	N/A
SW-1.1	Mortar	Spa Building - Exterior Wall	-	N/A	N/A
	Stucco		-	N/A	N/A
SW-1.2	Mortar	Main Building - Exterior Wall	-	N/A	N/A
	Stucco		-	N/A	N/A
SW-1.3	Mortar	Main Building - Exterior Wall	-	N/A	N/A
	Stucco		-	N/A	N/A
SW-2.1	Mortar	South Building - Exterior Wall	-	N/A	N/A
	Stucco		-	N/A	N/A
SW-2.2	Mortar	South Building - Exterior Wall	-	N/A	N/A
	Stucco		-	N/A	N/A
SW-2.3	Mortar	South Building - Exterior Wall	-	N/A	N/A
	Stucco		-	N/A	N/A
RS-1.1	Roof Shingle	Spa Building - Roof	-	N/A	N/A
RS-1.2		South Building - Roof	-	N/A	N/A
RS-1.3		Main Building - Roof	-	N/A	N/A
RM-1.1	Roofing Material	Roof Memebrane	-	N/A	N/A
RM-1.2		Roof Flashing	-	N/A	N/A
RM-1.3		Tar	-	N/A	N/A

Notes:

1.) Building material samples collected on 30 JUL 19.
2.) Building material samples analyzed on 12 AUG 19.
3.) Samples analyzed by EPA Method 600.
4.) Regulatory limit for ACM: >1% content.
5.) - No asbestos present indicates </= to 1%.
6.) N/A - Not Applicable
7.) * - EGLE views all vermiculite as an ACM.

SanAir Technologies Laboratory

The Identification Specialists

Analysis Report prepared for Sagasser & Associates, Inc.

Report Date: 8/12/2019

Project Name: Royal Crest

Project #: 31902

SanAir ID#: 19038573

1551 Oakbridge Dr. Suite B I Powhatan, Virginia 23139-8061
888.895.1177 I 804.897.1177 I fax: 804.897.0070 I IAQ@SanAir.com I SanAir.com

SanAir ID Number
19038573
FINAL REPORT
8/12/2019 8:36:37 AM

Name: Sagasser & Associates, Inc.
Address: 699 South Wisconsin Avenue
Gaylord, MI 49735
Phone: 989-732-5800

Project Number: 31902
P.O. Number:
Project Name: Royal Crest
Collected Date: 8/1/2019
Received Date: 8/5/2019 10:54:00 AM

Dear Scot Egleston,

We at SanAir would like to thank you for the work you recently submitted. The 5 sample(s) were received on Monday, August 05, 2019 via FedEx. The final report(s) is enclosed for the following sample(s): PS-1, PS-2, PS-3, PS-4, PS-5.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

Abisola Kasali
Metals Laboratory Director
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Analysis on Test Family AA
- Disclaimers and Additional Information

Sample conditions:
- 5 samples in Good condition.

SanAir Technologies Laboratory

SanAir ID Number
19038573
FINAL REPORT
8/12/2019 8:36:37 AM

Name: Sagasser & Associates, Inc.
Address: 699 South Wisconsin Avenue
Gaylord, MI 49735
Phone: 989-732-5800

Project Number: 31902
P.O. Number:
Project Name: Royal Crest
Collected Date: 8/1/2019
Received Date: 8/5/2019 10:54:00 AM

Analyst: Ortega, David
Test Method: SW846/M3050B/7000B

Lead Paint Analysis

PAINT Sample	Description	µg Pb In Sample	Sample Size (grams)	Calculated RL	Sample Results	Sample Results
19038573 - 1	PS-1	< 10	0.1085	92.2	<92.2	<0.009 %
	Exterior Trim-Yellow				µg/g (ppm)	By Weight
19038573 - 2	PS-2	10	0.1016	98.4	101.1	0.010 %
	Exterior Trim-Brown				µg/g (ppm)	By Weight
19038573 - 3	PS-3	< 10	0.1101	90.8	<90.8	<0.009 %
	Building Exterior-Yellow				µg/g (ppm)	By Weight
19038573 - 4	PS-4	< 10	0.1032	96.9	<96.9	<0.010 %
	Interior Door Jams-Cream				µg/g (ppm)	By Weight
19038573 - 5	PS-5	< 10	0.1027	97.4	<97.4	<0.010 %
	Interior Lobby Walls-Cream				µg/g (ppm)	By Weight

Method Reporting Limit <10 µg/0.1 g paint

Signature: Date: 8/6/2019

Reviewed: Date: 8/6/2019

SanAir ID Number
19038573
FINAL REPORT
8/12/2019 8:36:37 AM

Name: Sagasser & Associates, Inc.
Address: 699 South Wisconsin Avenue
Gaylord, MI 49735
Phone: 989-732-5800

Project Number: 31902
P.O. Number:
Project Name: Royal Crest
Collected Date: 8/1/2019
Received Date: 8/5/2019 10:54:00 AM

Disclaimer

SanAir Technologies Laboratory, Inc. participates in the Environmental Lead Accreditation Program (ELAP) administered by AIHA-LAP, LLC (Lab ID162952). Refer to our accreditation certificate or www.aihaaccreditedlabs.org for an up to date list of the Fields of Testing for which we are accredited. SanAir also participates in the State of New York's DOH-ELAP (Lab Id 11983), and has met the EPA's NLLAP program standards.

Final reports cannot be reproduced, except in full, without written authorization from SanAir Technologies Laboratory, Inc. SanAir is not responsible for sample collection or interpretation made by others. This report does not constitute endorsement by AIHA-LAP, LLC and/or any other U.S. governmental agencies; and may not be accredited by every local, state or federal regulatory agency. SanAir Technologies Laboratory, Inc only assures the precision and accuracy of the data it generates and assumes no responsibility for errors or biasing that occur during collection prior to SanAir's receipt of the sample(s). SanAir's Method Detection Limits (MDL) and Reporting Limits (RL) have been derived using various materials meeting each accrediting agencies' standards. All quality control results are acceptable unless otherwise noted. Results are not corrected for blanks.

Lead Exposure Limits

	Paint
0.5% by weigh	HUD definition of lead based paint
1.0 mg/cm^2	
5000 ppm	

SanAir Technologies Laboratory
1551 Oakbridge Dr STE B
Powhatan, VA 23139
804.897.1177 / 888.895.1177
Fax 804.897.0070
sanair.com

Metals & Lead Chain of Custody

Form 70, Revision 10, 05/18/18

SanAir ID Number: 19038573

Company: Sagasser & Associates, Inc.	Project #: 31902	Phone #: 9897325800
Address: 699 South Wisconsin Avenue	Project Name: Royal Crest	Phone #:
City, St., Zip: Gaylord, MI 49735	Date Collected: 01 AUG 19	Fax #:
Samples Collected By: Scot Egleston	P.O. Number:	Email: segleston@sagasser-associates.com
Account #: 3463	U.S. State Collected in: MI	Email:

Matrix Types

- [ ] Air (ug/m³)
- [ ] Wipe (ug/ft²)
- [x] Paint [ ] Soil [ ] Bulk (ug/g or ppm)
- [ ] Other:

Metals Analysis Types

- [x] Total Concentration of Lead
- [ ] Total Concentration of RCRA 8 Metals
- [ ] TCLP for Lead
- [ ] TCLP for RCRA 8 Metals
- [ ] ICP-total concentration of metals (please list metals):

Turn Around Time				
	Same Day [ ]	1 Day [ ]	2 days [ ]	3 Days [ ]
	4 Days [ ]	Standard (5 day) [ ]	Other Test: [ ]	

Sample #	Collection Date & Time	Sample Identification/Location	Flow Rate	Start Time	Stop Time	Volume (L) Area (Sq ft)
PS-1	01 AUG 19	Exterior Trim - Yellow				
PS-2		Exterior Trim - Brown				
PS-3		Building Exterior - Yellow				
PS-4		Interior Door Jams - Cream				
PS-5		Interior Lobby Walls - Cream				

Special Instructions:

Relinquished by	Date	Time	Received by	Date	Time
Scot Egleston	01 AUG 19	1600	FEDEX		
				AUG 05 2019	8:50 am

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST will be logged in the next business day. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the 3hr TAT or a minimum charge of $150. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Standard Overnight FedEx shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

Page 1 of 1

SanAir Technologies Laboratory

The Identification Specialists

Analysis Report prepared for Sagasser & Associates, Inc.

Report Date: 8/12/2019

Project Name: Royal Crest

Project #: 31902

SanAir ID#: 19038823

NVLAP TESTING

NVLAP LAB CODE 200870-0

1551 Oakbridge Dr. Suite B I Powhatan, Virginia 23139-8061
888.895.1177 I 804.897.1177 I fax: 804.897.0070 I IAQ@SanAir.com I SanAir.com

SanAir ID Number
19038823
FINAL REPORT
8/12/2019 5:46:15 PM

Name: Sagasser & Associates, Inc.
Address: 699 South Wisconsin Avenue
Gaylord, MI 49735
Phone: 989-732-5800

Project Number: 31902
P.O. Number:
Project Name: Royal Crest
Collected Date: Not Provided on COC
Received Date: 8/5/2019 8:50:00 AM

Dear Scot Egleston,

We at SanAir would like to thank you for the work you recently submitted. The 37 sample(s) were received on Monday, August 05, 2019 via FedEx. The final report(s) is enclosed for the following sample(s): VI-1.1, VI-2.1, FBT-1.1, DW-1.1, DW-1.2, DW-1.3, WC-1.1, WC-1.2, WC-1.3, TP-1.1, CT-1.1, CT-1.2, CT-1.3, BI-1.1, LF-1.1, LF-1.2, LF-1.3, DW-3.1, DW-3.2, DW-3.3, DW-3.4, DW-3.5, DW-3.6, SW-1.1, SW-1.2, SW-1.3, SW-2.1, SW-2.2, SW-2.3, DW-2.1, DW-2.2, DW-2.3, RS-1.1, RS-1.2, RS-1.3, TP-1.2, Rm-1.1.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

Sandra Sobrino

Sandra Sobrino
Asbestos & Materials Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

Sample conditions:
- 37 samples in Good condition.

SanAir Technologies Laboratory

SanAir ID Number
19038823
FINAL REPORT
8/12/2019 5:46:15 PM

Name: Sagasser & Associates, Inc.
Address: 699 South Wisconsin Avenue
Gaylord, MI 49735
Phone: 989-732-5800

Project Number: 31902
P.O. Number:
Project Name: Royal Crest
Collected Date: Not Provided on COC
Received Date: 8/5/2019 8:50:00 AM

Analyst: Roseblock, Mary | Cameron, Dennis | Tallert, Jonathan

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
VI-1.1 / 19038823-001 Vermiculite/Spa Basement	Gold Non-Fibrous Heterogeneous		100% Other	< 1% Actinolite
VI-2.1 / 19038823-002 Vermiculite/Connector Hallway	Gold Non-Fibrous Homogeneous		100% Other	None Detected
FBT-1.1 / 19038823-003 Fibrous Covering/Drywall/Spa	Various Fibrous Homogeneous	60% Glass	40% Other	None Detected
DW-1.1 / 19038823-004 Drywall/Spa Building	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
DW-1.2 / 19038823-005 Drywall/Spa Building	Brown Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
DW-1.3 / 19038823-006 Drywall/Spa Building	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
WC-1.1 / 19038823-007 Window Caulk/Spa	Various Non-Fibrous Homogeneous		98% Other	2% Chrysotile
WC-1.2 / 19038823-008 Window Caulk/Spa				Not Analyzed
WC-1.3 / 19038823-009 Window Caulk/Spa				Not Analyzed
TP-1.1 / 19038823-010 Tar Paper/Spa	Black Fibrous Homogeneous	60% Cellulose	40% Other	None Detected

Analyst: Mary E Roseblock

Approved Signatory:

Analysis Date: 8/12/2019

Date: 8/12/2019

SanAir Technologies Laboratory

SanAir ID Number
19038823
FINAL REPORT
8/12/2019 5:46:15 PM

Name: Sagasser & Associates, Inc.
Address: 699 South Wisconsin Avenue
Gaylord, MI 49735
Phone: 989-732-5800

Project Number: 31902
P.O. Number:
Project Name: Royal Crest
Collected Date: Not Provided on COC
Received Date: 8/5/2019 8:50:00 AM

Analyst: Roseblock, Mary | Cameron, Dennis | Tallert, Jonathan

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
CT-1.1 / 19038823-011 2x4 Ceiling Tile/Spa	White Fibrous Homogeneous	60% Cellulose 30% Glass	10% Other	None Detected
CT-1.2 / 19038823-012 2x4 Ceiling Tile/Spa	White Fibrous Homogeneous	60% Cellulose 30% Glass	10% Other	None Detected
CT-1.3 / 19038823-013 2x4 Ceiling Tile/Spa	White Fibrous Homogeneous	60% Cellulose 30% Glass	10% Other	None Detected
BI-1.1 / 19038823-014 Blown-Insulation/Attic	Beige Fibrous Homogeneous	90% Cellulose	10% Other	None Detected
LF-1.1 / 19038823-015 Linoleum Flooring/Office, Linoleum	Yellow Non-Fibrous Heterogeneous	30% Cellulose	70% Other	None Detected
LF-1.1 / 19038823-015 Linoleum Flooring/Office, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
LF-1.2 / 19038823-016 Linoleum Flooring/Office, Linoleum	Yellow Non-Fibrous Heterogeneous	30% Cellulose	70% Other	None Detected
LF-1.2 / 19038823-016 Linoleum Flooring/Office, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
LF-1.3 / 19038823-017 Linoleum Flooring/Office, Linoleum	Yellow Non-Fibrous Heterogeneous	30% Cellulose	70% Other	None Detected
LF-1.3 / 19038823-017 Linoleum Flooring/Office, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: Mary E Roseblock

Approved Signatory:

Analysis Date: 8/12/2019

Date: 8/12/2019

SanAir ID Number
19038823
FINAL REPORT
8/12/2019 5:46:15 PM

Name: Sagasser & Associates, Inc.
Address: 699 South Wisconsin Avenue
Gaylord, MI 49735
Phone: 989-732-5800

Project Number: 31902
P.O. Number:
Project Name: Royal Crest
Collected Date: Not Provided on COC
Received Date: 8/5/2019 8:50:00 AM

Analyst: Roseblock, Mary | Cameron, Dennis | Tallert, Jonathan

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic Appearance	Components % Fibrous	% Non-fibrous	Asbestos Fibers
DW-3.1 / 19038823-018 Drywall/Main Bldg, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
DW-3.1 / 19038823-018 Drywall/Main Bldg, Texture	White Non-Fibrous Homogeneous		100% Other	None Detected
DW-3.2 / 19038823-019 Drywall/Main Bldg, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
DW-3.2 / 19038823-019 Drywall/Main Bldg, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
DW-3.2 / 19038823-019 Drywall/Main Bldg, Texture	White Non-Fibrous Homogeneous		100% Other	None Detected
DW-3.3 / 19038823-020 Drywall/Main Bldg, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
DW-3.3 / 19038823-020 Drywall/Main Bldg, Texture	White Non-Fibrous Homogeneous		100% Other	None Detected
DW-3.4 / 19038823-021 Drywall/Main Bldg, Drywall	Brown Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
DW-3.4 / 19038823-021 Drywall/Main Bldg, Texture	White Non-Fibrous Homogeneous		100% Other	None Detected
DW-3.5 / 19038823-022 Drywall/Main Bldg, Drywall	Brown Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected

Analyst: Mary E Roseblock
Approved Signatory: [signature]

Analysis Date: 8/12/2019
Date: 8/12/2019

SanAir Technologies Laboratory

SanAir ID Number
19038823
FINAL REPORT
8/12/2019 5:46:15 PM

Name: Sagasser & Associates, Inc.
Address: 699 South Wisconsin Avenue
Gaylord, MI 49735
Phone: 989-732-5800

Project Number: 31902
P.O. Number:
Project Name: Royal Crest
Collected Date: Not Provided on COC
Received Date: 8/5/2019 8:50:00 AM

Analyst: Roseblock, Mary | Cameron, Dennis | Tallert, Jonathan

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
DW-3.5 / 19038823-022 Drywall/Main Bldg, Texture	White Non-Fibrous Homogeneous		100% Other	< 1% Chrysotile
DW-3.6 / 19038823-023 Drywall/Main Bldg, Drywall	Brown Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
DW-3.6 / 19038823-023 Drywall/Main Bldg, Texture	White Non-Fibrous Homogeneous		100% Other	None Detected
SW-1.1 / 19038823-024 Stucco/Spa Bldg, Mortar	Grey Non-Fibrous Homogeneous		100% Other	None Detected
SW-1.1 / 19038823-024 Stucco/Spa Bldg, Stucco	White Non-Fibrous Homogeneous		100% Other	None Detected
SW-1.2 / 19038823-025 Stucco/Main Bldg, Mortar	Grey Non-Fibrous Homogeneous		100% Other	None Detected
SW-1.2 / 19038823-025 Stucco/Main Bldg, Stucco	White Non-Fibrous Homogeneous		100% Other	None Detected
SW-1.3 / 19038823-026 Stucco/Main Bldg, Mortar	Grey Non-Fibrous Homogeneous		100% Other	None Detected
SW-1.3 / 19038823-026 Stucco/Main Bldg, Stucco	White Non-Fibrous Homogeneous		100% Other	None Detected
SW-2.1 / 19038823-027 Stucco-South Bldg, Mortar	Grey Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: Mary E Roseblock

Approved Signatory:

Analysis Date: 8/12/2019

Date: 8/12/2019

SanAir Technologies Laboratory

SanAir ID Number
19038823
FINAL REPORT
8/12/2019 5:46:15 PM

Name: Sagasser & Associates, Inc.
Address: 699 South Wisconsin Avenue
Gaylord, MI 49735
Phone: 989-732-5800

Project Number: 31902
P.O. Number:
Project Name: Royal Crest
Collected Date: Not Provided on COC
Received Date: 8/5/2019 8:50:00 AM

Analyst: Roseblock, Mary | Cameron, Dennis | Tallert, Jonathan

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
SW-2.1 / 19038823-027 Stucco-South Bldg, Stucco	White Non-Fibrous Homogeneous		100% Other	None Detected
SW-2.2 / 19038823-028 Stucco-South Bldg, Mortar	Grey Non-Fibrous Homogeneous		100% Other	None Detected
SW-2.2 / 19038823-028 Stucco-South Bldg, Stucco	White Non-Fibrous Homogeneous		100% Other	None Detected
SW-2.3 / 19038823-029 Stucco-South Bldg, Mortar	Grey Non-Fibrous Homogeneous		100% Other	None Detected
SW-2.3 / 19038823-029 Stucco-South Bldg, Stucco	White Non-Fibrous Homogeneous		100% Other	None Detected
DW-2.1 / 19038823-030 Drywall-South Bldg, Drywall	Beige Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
DW-2.1 / 19038823-030 Drywall-South Bldg, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
DW-2.1 / 19038823-030 Drywall-South Bldg, Mastic	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
DW-2.2 / 19038823-031 Drywall-South Bldg, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
DW-2.2 / 19038823-031 Drywall-South Bldg, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: Mary E. Roseblock

Approved Signatory:

Analysis Date: 8/12/2019

Date: 8/12/2019

SanAir Technologies Laboratory

SanAir ID Number
19038823
FINAL REPORT
8/12/2019 5:46:15 PM

Name: Sagasser & Associates, Inc.
Address: 699 South Wisconsin Avenue
Gaylord, MI 49735
Phone: 989-732-5800

Project Number: 31902
P.O. Number:
Project Name: Royal Crest
Collected Date: Not Provided on COC
Received Date: 8/5/2019 8:50:00 AM

Analyst: Roseblock, Mary | Cameron, Dennis | Tallert, Jonathan

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
DW-2.3 / 19038823-032 Drywall-South Bldg, Drywall	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
DW-2.3 / 19038823-032 Drywall-South Bldg, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
RS-1.1 / 19038823-033 Roof Shingle/Spa	Various Non-Fibrous Heterogeneous	15% Cellulose	85% Other	None Detected
RS-1.2 / 19038823-034 Roof Shingle/South Bldg	Various Non-Fibrous Heterogeneous	15% Cellulose	85% Other	None Detected
RS-1.3 / 19038823-035 Roof Shingle/Main Bldg	Various Non-Fibrous Heterogeneous	15% Cellulose	85% Other	None Detected
TP-1.2 / 19038823-036 Tar Paper/South Wall Main Bldg	Black Fibrous Homogeneous	50% Cellulose	50% Other	None Detected
Rm-1.1 / 19038823-037 Roofing Material/Spa, Roof Membrane	Black Non-Fibrous Homogeneous		100% Other	None Detected
Rm-1.1 / 19038823-037 Roofing Material/Spa, Roof Flashing	Black Non-Fibrous Heterogeneous	5% Synthetic	95% Other	None Detected
Rm-1.1 / 19038823-037 Roofing Material/Spa, Tar	Black Non-Fibrous Homogeneous	2% Cellulose	98% Other	None Detected

Analyst: Mary E Roseblock

Approved Signatory:

Analysis Date: 8/12/2019

Date: 8/12/2019

Disclaimer

The final report cannot be reproduced, except in full, without written authorization from SanAir. Fibers smaller than 5 microns cannot be seen with this method due to scope limitations. The accuracy of the results is dependent upon the client's sampling procedure and information provided to the laboratory by the client. SanAir assumes no responsibility for the sampling procedure and will provide evaluation reports based solely on the sample and information provided by the client. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Samples are held for a period of 60 days.

For NY state samples, method EPA 600/M4-82-020 is performed.

Polarized- light microscopy is not consistently reliable in detecting asbestos in floor covering and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos containing.

Asbestos Certifications
NVLAP lab code 200870
City of Philadelphia: ALL-460
PA Department of Environmental Protection Number: 68-05397
California License Number: 2915
Colorado License Number: AL-23143
Connecticut License Number: PH-0105
Massachusetts License Number: AA000222
Maine License Number: LB-0075
New York ELAP lab ID: 11983
Rhode Island License Number: AAL-126
Texas Department of State Health Services License Number: 300440
Commonwealth of Virginia 3333000323
Washington State License Number: C989
West Virginia License Number: LT000566
Vermont License: AL166318

Revision Date: 11/30/2017

SanAir Technologies Laboratory

1551 Oakbridge Dr. STE B
Powhatan, VA 23139
804.897.1177 / 888.895.1177
Fax 804.897.0070
sanair.com

Asbestos Chain of Custody
Form 140, Rev 2, 5/18 18

SanAir ID Number: 19058023

Company: Sagasser & Associates, Inc.	Project #: 31902	Collect by: Scot Egleston
Address: 699 South Wisconsin Avenue	Project Name: Royal Crest	Phone #: 989-732-5800
City, St., Zip: Gaylord, MI 49735	Date Collected:	Fax #:
State of Collection: MI Account#: 3463	P.O. Number:	Email: segleston@sagasser-as

Bulk

ABB	PLM EPA 600/R-93/116	✓
	Positive Stop ✓	
ABEPA	PLM EPA 400 Point Count	
ABB1K	PLM EPA 1000 Point Count	
ABBEN	PLM EPA NOB**	
ABBCH	TEM Chatfield**	
ABBTM	TEM EPA NOB**	
ABQ	PLM Qualitative	

** Available on 24-hr. to 5-day TAT

Air

ABA	PCM NIOSH 7400	
ABA-2	OSHA w/ TWA*	
ABTEM	TEM AHERA	
ABATN	TEM NIOSH 7402	
ABT2	TEM Level II	
Other:		

New York ELAP

ABEPA2	NY ELAP 198.1	
ABENY	NY ELAP 198.6 PLM NOB	
ABBNY	NY ELAP 198.4 TEM NOB	

Soil

ABSE	PLM EPA 600/R-93/116 (Qual.)	

Vermiculite & Soil

ABSP	PLM CARB 435 (LOD <1%)	
ABSP1	PLM CARB 435 (LOD 0.25%)	
ABSP2	PLM CARB 435 (LOD 0.1%)	

Dust

ABWA	TEM Wipe ASTM D-6480	
ABDMV	TEM Microvac ASTM D-5755	

Water

ABHE	EPA 100.2	

Matrix	Other	

Turn Around Times	3 HR (4 HR TEM)	6 HR (8HR TEM)	12 HR	24 HR
	2 Days	3 Days	4 Days	✓ 5 Days

Special Instructions

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start – Stop Time*	
V1-1.1	Vermiculite / SPA Basement					
V1-2.1	Vermiculite / Connector Hallway					
FBT-1.1	Fiberous covering / Drywall / SPA					
DW-1.1	Drywall / SPA Building					
DW-1.2	↓					
DW-1.3	↓					
WC-1.1	Window caulk / SPA					
WC-1.2	↓					
WC-1.3	↓					
TP-1.1	Tar paper / SPA					
CT-1.1	2x4 ceiling tile / SPA					
CT-1.2	↓					

Relinquished by	Date	Time	Received by	Date	Time
Scot Egleston	01AUG19	1600	FEDEX		
				AUG 05 2019	9:50am

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST will be logged in the next business day. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the 3hr TAT or a minimum charge of $150. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Standard Overnight FedEx shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

1903842 2 Form 140, Revision 1, 1/20/2017

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start – Stop Time*	
CT-1.3	2x4 ceiling tile / SPA					
BI-1.1	Blown-in insulation / Attic					
LF-1.1	linoleum flooring / office					
LF-1.2	↓					
LF-1.3	↓					
DW-3.1	Drywall / main bldg					
DW-3.2	↓					
DW-3.3	↓					
DW-3.4	↓					
DW-3.5	↓					
DW-3.6	↓					
SW-1.1	Stucco - SPA Bldg					
SW-1.2	Stucco - ~~South~~ Main Bldg					
SW-1.3	Stucco - main Bldg					
SW-2.1	Stucco - South Bldg					
SW-2.2	↓					
SW-2.3	↓					
DW-2.1	Drywall - South bldg					
DW-2.2	↓					
DW-2.3	↓					
RS-1.1	Roof Shingle / SPA					
RS-1.2	Roof Shingle / South Bldg					
RS-1.3	Roof Shingle / main Bldg					
TP-1.2	Tar Paper / South wall main Bldg					
RM-1.1	roofing material / SPA					

Special Instructions	

Relinquished by	Date	Time	Received by	Date	Time
Scott Gleason	01 AUG 19	1600	FEDEX	AUG 05 2019	9:30am

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST will be logged in the next business day. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the 3hr TAT or a minimum charge of $150. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Standard Overnight FedEx shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

Page 2 of 2

APPENDIX B

Phase II Environmental Site Assessment

Phase II Environmental Site Assessment
Former Royal Crest Motel
803 South Otsego Avenue
Gaylord, Michigan

PREPARED BY

Sagasser & Associates, Inc.
699 South Wisconsin
Gaylord, Michigan

Project #31902
December 2019

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 PURPOSE 1
1.2 TERMS & CONDITIONS 1
1.3 SCOPE OF WORK 1

2.0 SITE DESCRIPTION 2

3.0 PHASE I ENVIRONMENTAL SITE ASSESSMENT 2

4.0 PHASE II ENVIRONMENTAL SITE ASSESSMENT ACTIVITIES & ANALYTICAL RESULTS 2

5.0 FINDINGS 4

6.0 CLOSING 4

7.0 LIMITATIONS AND EXCEPTIONS 5

8.0 QUALIFICATIONS 6

FIGURES

Figure 1 Site Location Diagram
Figure 2 Low Level Aerial Photograph with Soil Boring Locations
Site Survey with Soil Boring Locations

APPENDICES

Appendix A Photographs
Appendix B Soil Boring Logs
Appendix C Laboratory Analytical Report
Appendix D Ground Penetrating Radar Report

1.0 INTRODUCTION

Sagasser & Associates, Inc. has completed a Phase II Environmental Site Assessment (Phase II) of the former Royal Crest Motel located at 803 South Otsego Avenue in Gaylord, Michigan. The Subject Property is in the Southeast ¼ of Section 4, Township 30 North, Range 3 West, Gaylord, Bagley Township, Otsego County, Michigan (Subject Property).

1.1 PURPOSE

The purpose of the Phase II Environmental Site Assessment was to evaluate the potential environmental impact to the Subject Property from the recognized environmental condition (REC) identified in Sagasser & Associates, Inc. Phase I Environmental Site Assessment (Phase I) report, dated July 2019.

1.2 AUTHORIZATION

Sagasser & Associates, Inc. received authorization for performance of the assessment as part of a Michigan Department of Environment, Great Lakes & Energy Brownfield Site Assessment Grant to the Otsego County.

1.3 SCOPE OF WORK

Sagasser & Associates, Inc. completed the Phase II Environmental Site Assessment using due care in accordance with customary practices, as ordinarily exercised by other reputable members of the profession under similar circumstances. Sagasser & Associates, Inc. completed the following scope of work:

- Sagasser & Associates, Inc. personnel provided oversight for the advancement fifteen (15) soil borings utilizing a Geoprobe® for the collection of soil and groundwater samples to assess the documented historical soil and groundwater impacts from the former UST systems on the Subject Property. Borings were also advanced in areas with identified disturbed soils/areas of fill in several locations on the parcel to assess for impacts related to the general historical usage of the parcel.

- Field screened the soils utilizing a photoionization detector (PID) for evidence of impacts.

- Submitted fourteen (14) soil samples, one (1) duplicate, one (1) field blank & two (2) groundwater samples for select laboratory analysis for the following parameters:

  - Full List Volatile Organic Compounds (VOCs) – EPA Method 8260
  - Polynuclear Aromatic Hydrocarbons (PNAs) – EPA Method 8270
  - Lead (Pb) – EPA Method 6020

- Reviewed and compared the analytical results to the established Residential Part 213 Risk-Based Screening Levels (RBSLs)/Part 201 Generic Cleanup Criteria & Screening Levels.

The sampling activities completed as part of this assessment were conducted following systematic methods and procedures. The laboratory analyses were performed on the select samples collected, and represent the characteristics at those select sample locations at the time collected. No representation can be made concerning the future quality of these locations, or the quality of other areas of the Subject Property. No sampling and/or analysis of drinking water, building materials, surface water or air was performed as part of this specific assessment task and Sagasser & Associates, Inc. makes no representation or warranty concerning their quality.

2.0 SITE DESCRIPTION

The Subject Property is located at the southeast corner of South Otsego Avenue and West 7th Street and is indicated as having a parcel identification number of Tax I.D.#101-104-000-0475-05. Three (3) structures are located on the Subject Property. The structures are comprised of the north motel building with connecting hallway, pool, motel office, the south motel building; and a sauna/spa/game room building and represent a combined square footage of 22,000 ft^2.

Historical information indicates that the Subject Property was a vacant field until the 1940s when a gasoline (filling) and service station and tourist cabins were built. The Gay-Sego gasoline/service station operated from the 1950s to the late 1980s. The original Gay-Sego motel building was constructed in the 1960s with the north and south motel buildings constructed in the 1970s. The original motel building was demolished in the late 1980s followed by the construction of the new motel office, residence, and pool. The former service station building was converted to the motel office and then to a spa/sauna/gameroom. The Subject Property buildings are presently vacant.

3.0 PHASE I ENVIRONMENTAL SITE ASSESSMENT

Sagasser & Associates, Inc. completed a Phase I Environmental Site Assessment of the Subject Property in July 2019. The assessment had revealed no evidence of recognized environmental conditions (RECs) in connection with the Subject Property except the following:

- The historical usage of the Subject Property as a gasoline station/service garage and documented soil/groundwater impacts which exceed the Part 213 Risk-Based Screening Levels. A Baseline Environmental Assessment (BEA) was prepared for a previous owner in 2003.

- The presence of 55-gallon drums of unknown contents.

4.0 PHASE II ENVIRONMENTAL SITE ASSESSMENT ACTIVITIES & ANALYTICAL RESULTS

The Phase II assessment activities were performed by Sagasser & Associates, Inc. personnel on November 6, 2019, to assess if the historical usage as a gasoline/service station and overall usage had impacted the Subject Property. Sagasser & Associates, Inc. subcontracted Alluvial Earth for the use of a Geoprobe® for direct-push soil borings and sample collection. The soil and groundwater samples were appropriately preserved, stored on ice, and submitted to Eurofins/TestAmerica in Brighton, Michigan, under standard chain-of-custody protocol for analysis. The following details the assessment activities and laboratory analytical results for the samples collected. *See Figure 2 and attached survey for soil boring locations. Note: SG-1 is labeled as B-10 and the remainder of the boring locations are numbered sequentially after that on the survey.*

The soil boring logs are presented as Appendix B & the laboratory analytical report is presented as Appendix C.

<u>Soil Borings B-1 through B-3</u>

Soil borings B-1 through B-3 were located along the west side of the spa building (former service station) in the approximate vicinity of the former dispenser island(s). The soils encountered during boring advancement were comprised of fine to medium sand with varying amounts of fine gravel to 20 feet below ground surface (bgs). The soils were field screened with a PID and slightly elevated PID readings were recorded. The slightly elevated readings were attributed to heating up the baggies of soils in the truck due to frigid conditions prior to field screening. No obvious odors or staining were noted/observed in the soils.

A heated empty baggie was screened with the PID which identified similar slightly elevated readings. Soil samples were collected from soil boring B-1 at 2.5', boring B-2 at 5', and boring B-3 at 5'. The soil samples were analyzed for VOC, PNAs, and lead. The analytical results for B-1, B-2 & B-3 were reported as non-detect for all VOCs and PNAs and below the Statewide Background Default Level for lead. *See Photographs 1, 2, 3 & 15 for views of boring locations.*

Soil Borings B-4 through B-10 & SG-1

Soil borings B-4 through B-10 were advanced within and around the perimeter of the former UST basin as identified by GPR. The soils encountered during boring advancement were comprised of fine to medium sand with varying amounts of fine gravel from just below the surface to 25 feet bgs. The soils were field screened with a PID and slightly elevated PID readings were recorded which again is attributed to the plastic baggies. Soil samples were collected from each of the borings at the following depths: B-4-10', B-5-15', B-6-15', B-7-15', B-8-15' & B-9-15'. The analytical results for the soil samples were non-detect for all VOCs and PNAs and below the Statewide Background Default Level for lead. Soil gas sample points were installed in soil borings B-5 & B-7 at a depth of 5 feet bgs. Soil boring SG-1 was advanced to a depth of 5 feet bgs at the northwest corner of the former spa building specifically for the installation of a soil gas sample point. A soil sample was collected from 5 feet bgs which was non-detect for VOCs & PNAs and below the Statewide Background Default Levels for lead.

Soil boring B-10 was blind drilled to 90 feet bgs to assess for groundwater impacts in the vicinity of the former UST basin. Groundwater was measured at ~72 feet bgs, a shallower depth than anticipated based on historical data. A temporary well was installed and groundwater samples were collected from two intervals, 74'-79' & 85'-90' to assess both a shallow and deeper aquifer depths. The groundwater samples were collected utilizing a Waterra to low flow hand purge the temporary well. The groundwater samples were submitted for laboratory analysis of VOC, PNAs, and dissolved lead (only the 74'-79' sample interval). The groundwater analytical results from B-10-74'-79' were non-detect for all VOCs, PNAs, and lead. The groundwater results for B-10-85'-90' were non-detect for all VOCs and PNAs excepting a low concentration of acetone [25 parts per billion (ppb)]. The acetone is attributed to a laboratory artifact and is also well below all cleanup criteria. *See Photographs 4 through 10 & 16 for views of boring locations.*

Soil Borings B-11 through B-14

Soil borings B-11 through B-14 were advanced in the parking areas within the motel area. The borings were advanced within areas identified by GPR with disturbed soils/areas of fill. The soil borings were advanced to 10-15 feet bgs with soils being comprised of fine to medium sand with occasional coarse gravel. The soils were field screed with a PID and no elevated readings were record. No staining or obvious odors were observed/noted in the soils during field screening and characterization. No recovery of soils was encountered in select intervals of two borings. Soil samples were collected from 15 feet bgs in B-11, 10 feet bgs in B-12, 5 feet bgs in B-13, and 10 feet bgs in B-14. The analytical results for the soil samples were non-detect for all VOCs and PNAs and below the Statewide Background Default Level for lead. *See Photographs 11 through 14 for views of boring locations B-11 through B-14.*

5.0 FINDINGS

The purpose of the Phase II Environmental Site Assessment was to evaluate the potential environmental impact to the Subject Property from the recognized environmental condition, the historical usage of the as a former gasoline/service station with identified soil and groundwater impacts, and the overall historical usage of the property as detailed in the July 2019 Phase I report prepared by Sagasser & Associates, Inc.

Based on the results of the Phase II assessment activities to assess the former UST systems, it does not appear that soil and groundwater impacts remain on the Subject Property. During the advancement of the soil borings, no elevated PID readings, stained soils, or obvious odors were noted. The analytical results for all of the soil samples collected from the former dispenser areas and UST basin were non-detect for all parameters. The two groundwater samples, a shallow and deep, were non-detect for petroleum VOCs and dissolved lead.

The observed soil conditions and analytical results for the soil borings advanced within the disturbed soils/areas of fill within the parking areas on the Subject Property did not identify any impacts.

Based on the results of the Phase II assessment activities, no further assessment activities of the UST systems and disturbed soils/areas of fill appear warranted at this time.

6.0 CLOSING

Sagasser & Associates, Inc. sincerely appreciated the opportunity to provide our services. In the event that questions arise regarding the contents of this report or if you should need any further assistance, please feel free to contact us.

Respectfully submitted,
Sagasser & Associates, Inc.

Scot Egleston

Scot Egleston
Senior Environmental Scientist

Kevin D. Sagasser, P.E.
Senior Project Engineer

7.0 LIMITATIONS AND EXCEPTIONS

Sagasser & Associates, Inc. has performed the scope of work using due care in accordance with good and customary practices, as ordinarily exercised by other reputable members of the profession under similar circumstances. The nature of the services performed inevitably results in uncertainties with respect to exact contaminant conditions and/or subsurface characteristics, and certain interpolations and assumptions are often necessary. Therefore, Sagasser & Associates, Inc. makes no warranty or guarantee, expressed or implied, with respect to the services performed.

The sampling activities completed as part of this assessment were conducted following systematic methods and procedures. The laboratory analyses were performed on the select samples collected, and represent the characteristics at those select sample locations at the time collected. No representation can be made concerning the future quality of these locations, or the quality of other areas of the Subject Property. No sampling or analysis of surface water, drinking water or air was performed and Sagasser & Associates, Inc. makes no representation or warranty concerning their quality.

This report has been prepared for the exclusive use of the Client and the Client's representatives. Maps and sketches are provided for informational purposes and should not be considered surveys or engineering studies.

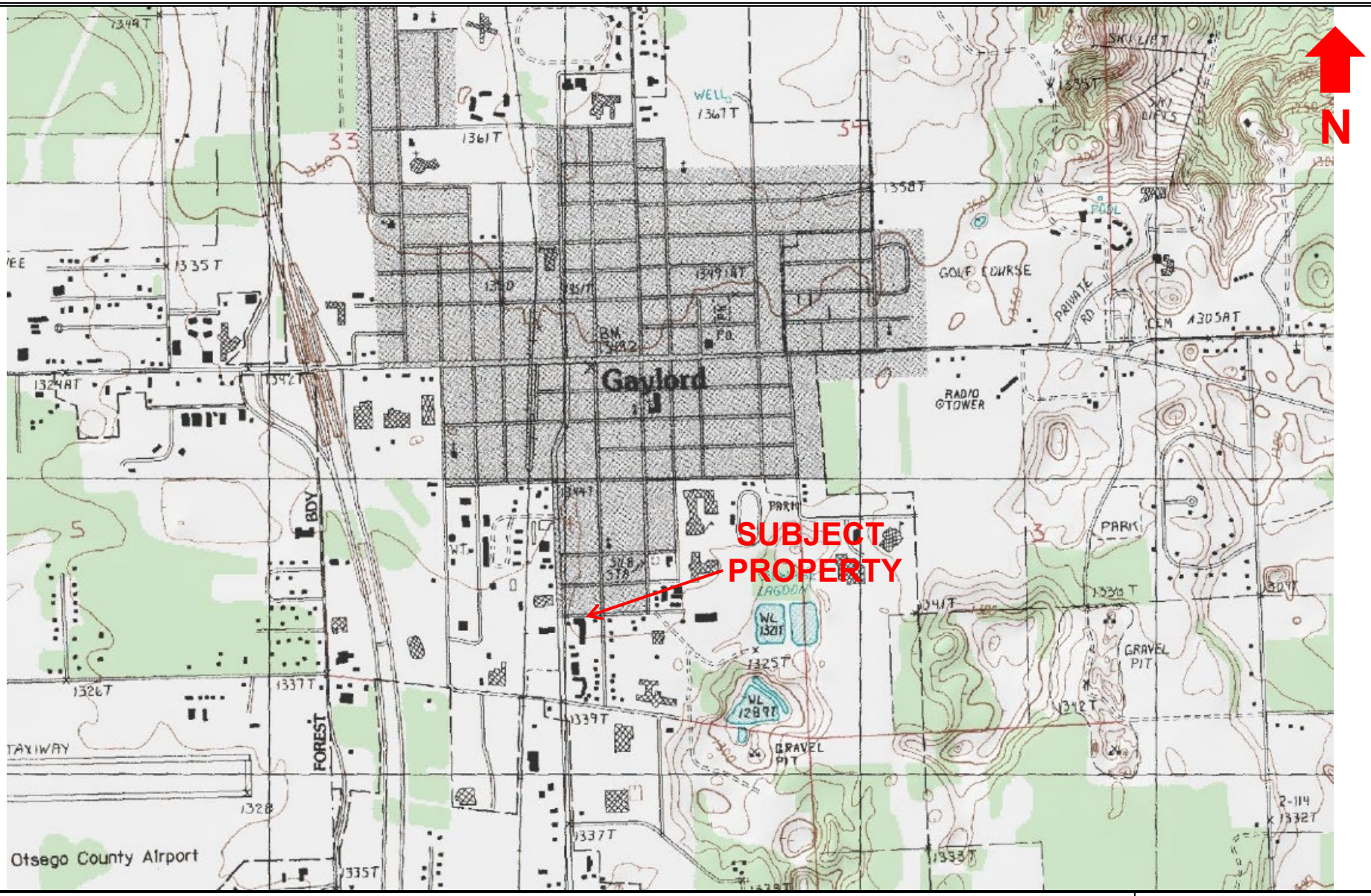
Sagasser & Associates, Inc. conclusions and recommendation are based on the data gathered at the date of this report. In the event additional information is obtained subsequent to the report submittal, it will be submitted, intact, for the Client's review. Sagasser & Associates, Inc. accepts no liability for information obtained subsequent to report submittal. The conclusions and recommendations are based on Sagasser & Associates, Inc. interpretation of the data gathered. Sagasser & Associates, Inc. recommends that legal counsel be consulted regarding potential liabilities and/or determination of responsible parties with respect to the findings of this report.

8.0 QUALIFICATIONS

Personnel at Sagasser & Associates, Inc. have completed numerous environmental assessment and remediation projects ranging in scope from hydrogeologic investigations to spill prevention, control and countermeasure (SPCC) plans. Sagasser & Associates, Inc. personnel have completed specific training courses in performing Phase I Environmental Site Assessments and Phase II Preliminary Contamination Assessments, and have completed hundreds of Phase I site assessments throughout the country.

The assessment was completed by Scot Egleston under the direction of Kevin D. Sagasser, P.E. Mr. Sagasser has over thirty years of diversified experience in the environmental field, primarily in environmental consulting and engineering. He has significant experience in development and performance of various environmental site investigations such as Phase I site assessments, preliminary contamination assessments, non-intrusive geophysical surveys, and hydrogeologic/remedial investigations. He has supervised and managed numerous site investigation projects, underground storage tank closures and soil/ground water contaminant remediation programs. Mr. Egleston is working as an environmental scientist with Sagasser & Associates, Inc. He has Bachelor's of Science degrees in Environmental Science and Zoology with twenty-three years of experience in environmental consulting.

FIGURES



SITE LOCATION DIAGRAM		FIGURE 1
Sagasser & Associates, Inc. *Environmental Assessment & Consulting Services*	FORMER ROYAL CREST MOTEL 803 SOUTH OTSEGO AVENUE GAYLORD, MICHIGAN	PROJECT: 31902 DATE: DEC 2019

	SITE PLAN – BORING LOCATIONS	**Figure 2**
Sagasser & Associates, Inc. ***Environmental Assessment and Consulting Services***	**Former Royal Crest Motel** **803 South Otsego Avenue** **Gaylord, Otsego County, Michigan**	**Project #31902** **DECEMBER 2019**

APPENDIX A

PHOTOGRAPHS

PHOTO NO. 1: View of soil boring location B-1 looking southerly.

PHOTO NO. 2: View of soil boring location B-2 looking southerly.

Photograph by:	**Scot Egleston**
Date:	**November 6, 2019**

PHOTO NO. 3: View of soil boring location B-3 looking southerly.

PHOTO NO. 4: View of soil boring location B-4 looking southerly.

Photograph by:	**Scot Egleston**
Date:	**November 6, 2019**

PHOTO NO. 5: View of soil boring location B-5 looking southeasterly.

PHOTO NO. 6: View of soil boring location B-6 looking northeasterly.

Photograph by:	**Scot Egleston**
Date:	**November 6, 2019**

PHOTO NO. 7: View of soil boring location B-7 looking easterly.

PHOTO NO. 8: View of soil boring location B-9 looking southeasterly.

Photograph by:	**Scot Egleston**
Date:	**November 6, 2019**

PHOTO NO. 9: View of soil boring location SG-1.

PHOTO NO. 10: View of soil boring location B-10.

Photograph by:	**Scot Egleston**
Date:	**November 6, 2019**

PHOTO NO. 11: View of soil boring location B-11 looking easterly.

PHOTO NO. 12: View of soil boring location B-12 looking easterly.

Photograph by:	**Scot Egleston**
Date:	**November 6, 2019**

PHOTO NO. 13: View of soil boring location B-13 looking northerly.

PHOTO NO. 14: View of soil boring location B-14 looking easterly.

Photographs by:	**Scot Egleston**
Date:	**November 6, 2019**

PHOTO NO. 15: View of soil boring locations collected in former dispenser island location.

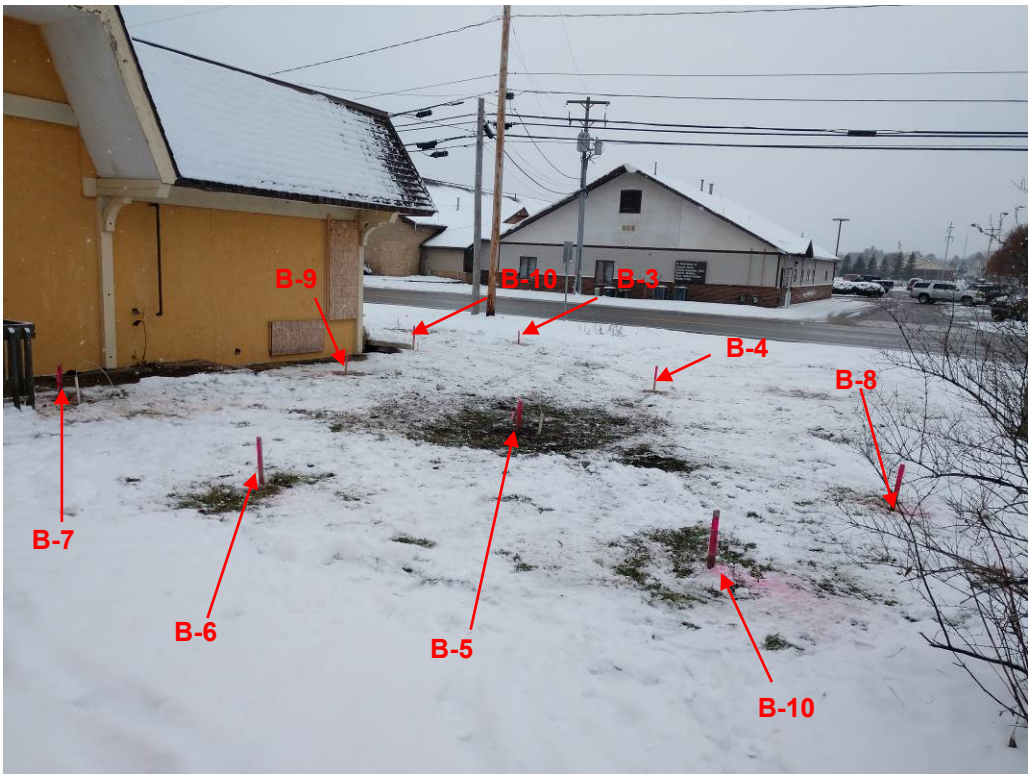


PHOTO NO. 16: View of soil boring locations at former UST basin location.

Photographs by:	**Scot Egleston**
Date:	**November 6, 2019**

APPENDIX B

SOIL BORING LOGS

SOIL BORING LOG

BORING NO:	B-1
SHEET 1 OF 2	
PROJECT NO:	31902

DATE: 06 NOV 19	PROJECT NAME: Former Royal Crest Motel	

BORINGLOCATION PLAN: ↑ N

See Figure 2

Note: Not to Scale

SEC: 4 TWN: 30N RGE: 3W LAT: LONG:

DRILLING CO: Alluvial Earth

DRILL CREW: Ryan & Ron

DRILLING/TRENCHING METHOD: Geoprobe

GROUNDWATER LEVELS

DATE	ACTUAL TIME	DEPTH BLS

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
			TOPSOIL			
1			fine to medium SAND, light yellowish brown dark yellowish brown with fine gravel moderate brown	7		
2		50%	moderate yellowish orange			Soil sample B-1 collected from 2.5 feet bgs @ 1006
3				3		
4						
5			with fine gravel, greyish orange			
6			no gravel	2		
7		50%				
8			with fine gravel, dusky brown	2		
9			no gravel, mottled moderate brown/pale yellowish brown			
10			light yellowish brown			
11			with fine gravel	6		
12			no gravel with fine to coarse gravel			
13		50%	no gravel, very pale orange			
14				5		
15			with fine gravel			

PREPARED BY: Scot Egleston

Sagasser & Associates, Inc.

SOIL BORING LOG - 2

BORING NO:	B-1
SHEET 2 OF 2	
PROJECT NO:	31902

DATE	06 NOV 19	PROJECT NAME:	Former Royal Crest Motel

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
15						
16			with fine gravel	4		
17		50%	light yellowish brown			
18						
19			moderate yellowish brown with fine gravel, light yellowish brown	4		
20			End of Boring 20 feet bgs			
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

PREPARED BY: Scot Egleston

SOIL BORING LOG

BORING NO:	B-2
SHEET 1 OF 1	
PROJECT NO:	31902

DATE: 06 NOV 19	PROJECT NAME: Former Royal Crest Motel	

BORINGLOCATION PLAN: ↑ N

See Figure 2

Note: Not to Scale

SEC: 4 TWN: 30N RGE: 3W LAT: LONG:

DRILLING CO: Alluvial Earth

DRILL CREW: Ryan & Ron

DRILLING/TRENCHING METHOD: Geoprobe

GROUNDWATER LEVELS

DATE	ACTUAL TIME	DEPTH BLS

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
			TOPSOIL			
1			fine to medium SAND with fine gravel, dusky brown			
2		40%		10		
3			stone			
4			grayish orange			
5			with fine gravel, greyish orange			Soil sample B-2 collected from 5 feet bgs @ 1027
6			no gravel	10		
7		50%				
8				8		
9						
10			very pale orange			
			with fine gravel			
11			no gravel	8		
12			light yellowish brown			
		50%	with fine gravel			
13			no gravel, light yellowish brown			
14				7		
15			End of Boring @ 15 feet bgs			

PREPARED BY: Scot Egleston

Sagasser & Associates, Inc.

SOIL BORING LOG

BORING NO:	B-3
SHEET 1 OF 2	
PROJECT NO:	31902

DATE: 06 NOV 19	PROJECT NAME: Former Royal Crest Motel	

BORINGLOCATION PLAN: ↑ N

See Figure 2

Note: Not to Scale

SEC: 4 TWN: 30N RGE: 3W LAT: LONG:

DRILLING CO: Alluvial Earth

DRILL CREW: Ryan & Ron

DRILLING/TRENCHING METHOD: Geoprobe

GROUNDWATER LEVELS

DATE	ACTUAL TIME	DEPTH BLS

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
			TOPSOIL			
1			fine to medium SAND with fine gravel, dusky brown			
2			with some silt			
		40%	moderate brown	10		
3			occasional coarse gravel			
			dark yellowish orange			
4			light yellowish brown			
5			with fine & coarse gravel, pale yellowish brown			Soil sample B-3 collected from 5 feet bgs @ 1027
6						
7		40%		13		
8						
9						
10			light yellowish brown			
11			with fine gravel	12		
12			with fine gravel			
		50%				
13						
14				8		
15			End of Boring @ 15 feet bgs			

PREPARED BY: Scot Egleston

Sagasser & Associates, Inc.

SOIL BORING LOG

BORING NO:	B-4
SHEET 1 OF 2	
DATE: 06 NOV 19	PROJECT NAME: Former Royal Crest Motel
PROJECT NO:	31902

BORINGLOCATION PLAN: ↑ N

See Figure 2

Note: Not to Scale

SEC: 4 TWN: 30N RGE: 3W LAT: LONG:

DRILLING CO: Alluvial Earth

DRILL CREW: Ryan & Ron

DRILLING/TRENCHING METHOD: Geoprobe

GROUNDWATER LEVELS

DATE	ACTUAL TIME	DEPTH BLS

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
			TOPSOIL			
			fine to medium SAND with fine to medium gravel, light yellowish brown			
1			dark yellowish brown	7		
2		40%				
3			light yellowish brown	3		
4						
5			moderate brown			
6			light yellowish brown			
7		10%		8		
8						
9						
10						Soil sample B-4 collected at 10 feet bgs @ 1125
11				2		
12						
13		50%	with fine gravel	2		
14						
15						

PREPARED BY: Scot Egleston

Sagasser & Associates, Inc.

SOIL BORING LOG - 2

BORING NO:	B-4
SHEET 2 OF 2	
PROJECT NO:	31902

DATE	06 NOV 19	PROJECT NAME:	Former Royal Crest Motel

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
15						
			with occasional fine-medium gravel, grayish orange			
16						
17						
		40%		3		
18						
19			moderate yellowish brown			
			with occasional fine-medium gravel, grayish orange			
20						
21						
22						
		50%		2		
23						
24			with fine gravel			
25			End of Boring 25 feet bgs			
26						
27						
28						
29						
30						
31						

PREPARED BY: Scot Egleston

SOIL BORING LOG

BORING NO:	B-5
SHEET 1 OF 2	
PROJECT NO:	31902

DATE: 06 NOV 19	PROJECT NAME: Former Royal Crest Motel	

BORINGLOCATION PLAN: ↑ N

See Figure 2

Note: Not to Scale

SEC: 4 TWN: 30N RGE: 3W LAT: LONG:

DRILLING CO: Alluvial Earth

DRILL CREW: Ryan & Ron

DRILLING/TRENCHING METHOD: Geoprobe

GROUNDWATER LEVELS

DATE	ACTUAL TIME	DEPTH BLS

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
			TOPSOIL			
1			fine to medium SAND, dusky brown			
2		40%		1		
3						
4			grayish orange			
5			with fine to coarse gravel, light yellowish brown			
6						
7		40%		1		
8						
9			no gravel			
10			very pale orange			
11			with fine to medium gravel			
12				1		
13		50%	with fine to medium gravel			
14			light yellowish brown			
15						Soil sample B-5 collected at 15 feet bgs @ 1205

PREPARED BY: Scot Egleston

Sagasser & Associates, Inc.

SOIL BORING LOG - 2

BORING NO:	B-5
SHEET 2 OF 2	
PROJECT NO:	31902

DATE	06 NOV 19	PROJECT NAME:	Former Royal Crest Motel

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
15						
			very pale orange			
16						
17		50%		1		
18						
19						
20						
21						
22		50%		1		
23						
24			with fine gravel			
25			End of Boring 25 feet bgs			
26						
27						
28						
29						
30						
31						

PREPARED BY: Scot Egleston

SOIL BORING LOG

BORING NO:	B-6
SHEET 1 OF 2	
PROJECT NO:	31902

DATE: 06 NOV 19	PROJECT NAME: Former Royal Crest Motel	

BORINGLOCATION PLAN: ↑ N

See Figure 2

Note: Not to Scale

SEC: 4 TWN: 30N RGE: 3W LAT: LONG:

DRILLING CO: Alluvial Earth

DRILL CREW: Ryan & Ron

DRILLING/TRENCHING METHOD: Geoprobe

GROUNDWATER LEVELS

DATE	ACTUAL TIME	DEPTH BLS

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
			TOPSOIL			
			fine to medium SAND, dusky brown			
1						
2						
		40%	moderate yellowish brown	1		
3			light yellowish orange			
4			with occasional coarse gravel, moderate yellowish brown			
5			with fine to medium gravel, light yellowish brown			
6			pale yellowish brown			
7		40%		1		
8						
9						
10			light yellowish brown, no gravel			
11			pale yellowish brown			
12				1		
13		50%	with fine to medium gravel, light yellowish brown			
14						
15						Soil sample B-6 collected at 15 feet bgs @ 1205

PREPARED BY: Scot Egleston

SOIL BORING LOG - 2

BORING NO:	B-6
SHEET 2 OF 2	
PROJECT NO:	31902

DATE	06 NOV 19	PROJECT NAME:	Former Royal Crest Motel

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
15						
16						
17		50%	with fine gravel	1		
18			no gravel			
19			with fine gravel			
20			no gravel			
21						
22		50%	with fine to medium gravel	<1		
23			no gravel			
24			with fine to medium gravel, pale yellowish brown			
25			End of Boring 25 feet bgs			
26						
27						
28						
29						
30						
31						

PREPARED BY: Scot Egleston

SOIL BORING LOG

BORING NO:	B-7
SHEET 1 OF 2	
PROJECT NO:	31902

DATE: 06 NOV 19	PROJECT NAME: Former Royal Crest Motel	
BORINGLOCATION PLAN: ↑ N	SEC: 4 TWN: 30N RGE: 3W	LAT: LONG:
See Figure 2	DRILLING CO: Alluvial Earth	
	DRILL CREW: Ryan & Ron	
	DRILLING/TRENCHING METHOD: Geoprobe	
Note: Not to Scale		

GROUNDWATER LEVELS

DATE	ACTUAL TIME	DEPTH BLS

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
			TOPSOIL			
			fine to medium SAND, light yellowish brown			
1						
2		40%	dark yellowish brown	<1		
3			light yellowish orange			
4						
5			light yellowish brown			
6						
7		25%	with fine to coarse gravel	<1		
8						
9						
10			light yellowish brown, no gravel			
11			pale yellowish brown			
12			with fine to medium gravel, light yellowish brown			
13		50%	no gravel	2		
14			with fine to medium gravel, light yellowish brown			
15			no gravel			Soil sample B-7 collected at 15 feet bgs @ 1230

PREPARED BY: Scot Egleston

Sagasser & Associates, Inc.

SOIL BORING LOG - 2

BORING NO:	B-7
SHEET 2 OF 2	
PROJECT NO:	31902

DATE	06 NOV 19	PROJECT NAME:	Former Royal Crest Motel

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
15						
16			with fine to medium gravel, light yellowish brown			
			no gravel			
17		50%		<1		
18			with fine gravel			
19						
20			with occassional coarse gravel			
21						
22		50%		<1		
23						
24			with fine gravel			
25			End of Boring 25 feet bgs			
26						
27						
28						
29						
30						
31						

PREPARED BY: Scot Egleston

SOIL BORING LOG

BORING NO:	B-8
SHEET 1 OF 2	
PROJECT NO:	31902

DATE: 06 NOV 19	PROJECT NAME: Former Royal Crest Motel	

BORINGLOCATION PLAN: ↑ N

See Figure 2

Note: Not to Scale

SEC: 4 TWN: 30N RGE: 3W LAT: LONG:

DRILLING CO: Alluvial Earth

DRILL CREW: Ryan & Ron

DRILLING/TRENCHING METHOD: Geoprobe

GROUNDWATER LEVELS

DATE	ACTUAL TIME	DEPTH BLS

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
1		10%	TOPSOIL	<1		
			fine to medium SAND, dusky brown			
2						
3						
4			light yellowish brown			
5		50%	fine to coarse GRAVEL with sand	<1		
6			fine to medium SAND with fine to medium gravel, light yellowish brown			
7						
8						
9						
10		50%	no gravel	2		
11						
12						
13						
14			with fine gravel			
15						Soil sample B-8 collected at 15 feet bgs @ 1256

PREPARED BY: Scot Egleston

SOIL BORING LOG - 2

BORING NO:	B-8
SHEET 2 OF 2	
PROJECT NO:	31902

DATE	06 NOV 19	PROJECT NAME:	Former Royal Crest Motel

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
15						
			light yellowish brown with fine to medium gravel, darker			
16						
17						
		50%		<1		
18			with fine to coarse gravel, darker			
19						
20						
21			with fine gravel			
22						
		50%		<1		
23						
24			no gravel			
25			End of Boring 25 feet bgs			
26						
27						
28						
29						
30						
31						

PREPARED BY: Scot Egleston

SOIL BORING LOG

BORING NO:	B-9
SHEET 1 OF 2	

DATE: 06 NOV 19	PROJECT NAME: Former Royal Crest Motel	PROJECT NO: 31902

BORINGLOCATION PLAN: ↑ N

See Figure 2

Note: Not to Scale

SEC: 4 TWN: 30N RGE: 3W LAT: LONG:

DRILLING CO: Alluvial Earth

DRILL CREW: Ryan & Ron

DRILLING/TRENCHING METHOD: Geoprobe

GROUNDWATER LEVELS

DATE	ACTUAL TIME	DEPTH BLS

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
			TOPSOIL			
1			fine to medium SAND, dusky brown			
2		40%		<1		
3						
4						
5			moderate yellowish brown			
			with fine gravel, pale yellowish brown			
6						
7			no gravel			
		40%		<1		
8						
9			light yellowish brown			
10						
11			with fine gravel			
			no gravel			
12			with fine gravel			
		40%	no gravel	2		
13						
14			with fine gravel			
15						Soil sample B-9 collected at 15 feet bgs @ 1320

PREPARED BY: Scot Egleston

SOIL BORING LOG - 2

BORING NO:	B-9
SHEET 2 OF 2	
PROJECT NO:	31902

DATE	06 NOV 19	PROJECT NAME:	Former Royal Crest Motel

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
15						
			light yellowish brown			
16			with fine to medium gravel, darker			
17			no gravel			
		50%		<1		
18						
			with fine gravel, darker			
19						
20			no gravel			
21						
			with fine gravel, darker			
22						
		50%		<1		
23			with occassional coarse gravel			
24						
			no gravel			
25			End of Boring 25 feet bgs			
26						
27						
28						
29						
30						
31						

PREPARED BY: Scot Egleston

SOIL BORING LOG

BORING NO:	B-10 (SG-1)
SHEET 1 OF 1	
PROJECT NO:	31902

DATE: 06 NOV 19	PROJECT NAME: Former Royal Crest Motel	
BORINGLOCATION PLAN: ↑ N	SEC: 4 TWN: 30N RGE: 3W	LAT: LONG:
See Figure 2	DRILLING CO: Alluvial Earth	
	DRILL CREW: Ryan & Ron	
	DRILLING/TRENCHING METHOD: Geoprobe	
Note: Not to Scale		

GROUNDWATER LEVELS

DATE	ACTUAL TIME	DEPTH BLS

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
1		50%	ASPHALT fine to medium SAND with occassional coarse gravel, dark yellowish brown	<1		
2			dusky brown			
3			moderate yellowish orange light yellowish orange	<1		
4			dark yellowish orange			Soil sample SG-1 collected at 5 feet bgs @ 1330
5			End of Boring @ 5 feet bgs			
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

PREPARED BY: Scot Egleston

SOIL BORING LOG

BORING NO:	B-10
SHEET 1 OF 1	
PROJECT NO:	31902

DATE: 06 NOV 19	PROJECT NAME: Former Royal Crest Motel	
BORINGLOCATION PLAN: ↑ N	SEC: 4 TWN: 30N RGE: 3W LAT: LONG:	
	DRILLING CO: Alluvial Earth	
	DRILL CREW: Ryan & Ron	
See Figure 2	DRILLING/TRENCHING METHOD: Geoprobe	
	GROUNDWATER LEVELS	
	DATE	ACTUAL TIME / DEPTH BLS
Note: Not to Scale		

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
1						
2			Blind drilled to 90 feet bgs for the collection of groundwater samples. Collected groundwater samples from 74'-79' & 85'-90' bgs.			Groundwater samples B-10-74'-79' collected at 1455 and B-10-85'-90' collected at 1435.
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

PREPARED BY: Scot Egleston

SOIL BORING LOG

BORING NO:	B-11
SHEET 1 OF 1	

DATE: 06 NOV 19	PROJECT NAME: Former Royal Crest Motel	PROJECT NO: 31902

BORINGLOCATION PLAN: ↑ N

See Figure 2

Note: Not to Scale

SEC: 4 TWN: 30N RGE: 3W LAT: LONG:

DRILLING CO: Alluvial Earth

DRILL CREW: Ryan & Ron

DRILLING/TRENCHING METHOD: Geoprobe

GROUNDWATER LEVELS

DATE	ACTUAL TIME	DEPTH BLS

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
1		25%	ASPHALT fine to medium SAND, moderate brown grayish orange moderate brown light yellowish brown	<1		
5–6		0%	NO RECOVERY			
10–15		25%	fine to medium SAND with occassional coarse gravel, light yellowish brown with fine gravel	<1		Soil sample B-11 collected at 15 feet bgs @ 1518
15			End of Boring 15 feet bgs			

PREPARED BY: Scot Egleston

Sagasser & Associates, Inc.

SOIL BORING LOG

BORING NO:	B-12
SHEET 1 OF 1	

DATE: 06 NOV 19	PROJECT NAME: Former Royal Crest Motel	PROJECT NO: 31902

BORINGLOCATION PLAN: ↑ N

See Figure 2

Note: Not to Scale

SEC: 4 TWN: 30N RGE: 3W LAT: LONG:

DRILLING CO: Alluvial Earth

DRILL CREW: Ryan & Ron

DRILLING/TRENCHING METHOD: Geoprobe

GROUNDWATER LEVELS

DATE	ACTUAL TIME	DEPTH BLS

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
			ASPHALT			
			fine to medium SAND, dark yellowish brown			
1			light yellowish brown			
2			with some clay, dark yellowish brown			
		60%	dark yellowish orange	<1		
3			light yellowish orange			
4						
5			light yellowish brown			
6						
7			with coarse gravel no gravel			
		50%		<1		
8						
9						Soil sample B-12 collected at 10 feet bgs @ 1530
10			End of Boring @ 10 feet bgs			
11						
12						
13						
14						
15						

PREPARED BY: Scot Egleston

SOIL BORING LOG

BORING NO:	B-13
SHEET 1 OF 1	

DATE: 06 NOV 19	PROJECT NAME: Former Royal Crest Motel	PROJECT NO: 31902

BORINGLOCATION PLAN: ↑ N

See Figure 2

Note: Not to Scale

SEC: 4 TWN: 30N RGE: 3W LAT: LONG:

DRILLING CO: Alluvial Earth

DRILL CREW: Ryan & Ron

DRILLING/TRENCHING METHOD: Geoprobe

GROUNDWATER LEVELS

DATE	ACTUAL TIME	DEPTH BLS

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
			ASPHALT			
			fine to medium SAND, dusky brown			
1						
2		60%		<1		
3						
			light yellowish brown			
4			moderate yellowish brown			
			light yellowish brown			
5						Soil sample B-13 collected at 5 feet bgs @ 1550
6						
7		0%				
8						
9						
10						
11						
12		0%				
13						
14						
15			End of Boring @ 15 feet bgs			

PREPARED BY: Scot Egleston

Sagasser & Associates, Inc.

SOIL BORING LOG

BORING NO:	B-14
SHEET 1 OF 1	
PROJECT NO:	31902

DATE: 06 NOV 19	PROJECT NAME: Royal Crest Motel	
BORINGLOCATION PLAN: ↑ N	SEC: 4 TWN: 30N RGE: 3W	LAT: LONG:
See Figure 2	DRILLING CO: Alluvial Earth	
	DRILL CREW: Ryan & Ron	
	DRILLING/TRENCHING METHOD: Geoprobe	
Note: Not to Scale		

GROUNDWATER LEVELS

DATE	ACTUAL TIME	DEPTH BLS

DEPTH	TIME (MILITARY)	RECOVERY	DESCRIPTION	FID ☐ PID ■ (PPM)	USCS	REMARKS
			ASPHALT			
			fine to medium SAND with occassional coarse gravel, dark yellowish brown			
1						
2			dusky brown			
		50%	moderate yellowish orange	<1		
3			light yellowish orange			
4						
			moderate brown			
5			no gravel, light yellowish brown			
6						
7			with coarse gravel no gravel			
		50%		<1		
8						
9						Soil sample B-14 collected at 10 feet bgs @ 1640
10			End of Boring @ 10 feet bgs			
11						
12						
13						
14						
15						

PREPARED BY: Scot Egleston

APPENDIX C

LABORATORY ANALYTICAL REPORT

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Tel: (810)229-2763

Laboratory Job ID: 190-21518-1
Client Project/Site: Royal Crest

For:
Sagasser & Associates Inc
699 South Wisconsin Avenue
Gaylord, Michigan 49735

Attn: Scot Egleston

Sue Schafer

Authorized for release by:
11/19/2019 7:11:09 AM

Sue Schafer, Project Manager II
(810)229-2763
sue.schafer@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Sample Summary 3
Case Narrative 4
Client Sample Results 6
QC Sample Results 44
Definitions/Glossary 57
Chain of Custody 58

Sample Summary

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
190-21518-1	B-1-2.5'	Soil	11/06/19 10:06	11/08/19 10:11	
190-21518-2	B-2-5'	Soil	11/06/19 10:27	11/08/19 10:11	
190-21518-3	B-3-5'	Soil	11/06/19 10:40	11/08/19 10:11	
190-21518-4	B-4-10'	Soil	11/06/19 11:25	11/08/19 10:11	
190-21518-5	B-5-15'	Soil	11/06/19 11:42	11/08/19 10:11	
190-21518-6	B-6-15'	Soil	11/06/19 12:05	11/08/19 10:11	
190-21518-7	B-7-15'	Soil	11/06/19 12:30	11/08/19 10:11	
190-21518-8	B-8-15'	Soil	11/06/19 12:56	11/08/19 10:11	
190-21518-9	B-9-15'	Soil	11/06/19 13:20	11/08/19 10:11	
190-21518-10	B-11-15'	Soil	11/06/19 15:18	11/08/19 10:11	
190-21518-11	B-12-10'	Soil	11/06/19 15:30	11/08/19 10:11	
190-21518-12	B-13-5'	Soil	11/06/19 15:50	11/08/19 10:11	
190-21518-13	B-14-10'	Soil	11/06/19 16:40	11/08/19 10:11	
190-21518-14	SG-1-5'	Soil	11/06/19 13:30	11/08/19 10:11	
190-21518-15	Duplicate	Soil	11/06/19 00:00	11/08/19 10:11	
190-21518-16	Field Blank	Soil	11/06/19 13:35	11/08/19 10:11	
190-21518-17	B-10-85'-90'	Ground Water	11/06/19 14:35	11/08/19 10:11	
190-21518-18	B-10-74'-79'	Ground Water	11/06/19 14:55	11/08/19 10:11	

Job ID: 190-21518-1

Laboratory: Eurofins TestAmerica, Michigan

Narrative

Job Narrative
190-21518-1

Comments
No additional comments.

Receipt
The samples were received on 11/8/2019 10:11 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.6º C.

GC/MS VOA
Method 5035: This terra core was received with a low methanol volume. B-14-10' (190-21518-13) and was prepped from a bulk jar that was taken from the sample receiving refrigerator.
Both sets of data are reported.

Method 8260B: Surrogate recovery for the following sample was outside the upper control limit: B-14-10' (190-21518-13). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8260B: The laboratory control sample (LCS) for analytical batch 240-411253 recovered outside control limits for the following analyte: Cyclohexane. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data has been reported. B-10-85'-90' (190-21518-17), B-10-74'-79' (190-21518-18) and (LCS 240-411253/4)

Method 8260B: The laboratory control sample (LCS) for analytical batch 240-411253 recovered outside control limits for the following analyte: Ethylene dibromide. This has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed. B-10-85'-90' (190-21518-17), B-10-74'-79' (190-21518-18) and (LCS 240-411253/4)

Method 8260B: The laboratory control sample (LCS) analyzed in batch 240-411253 was below the recovery control criteria for multiple analyte(s): This variance only affects results measured above the reporting limit. A MRL standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. This demonstrates the analyte reporting limit is valid, and it is acceptable to report ND results (non-detects). The samples associated with the LCS were non-detects for the affected analytes; therefore, the results were reported. The following samples are impacted: B-10-85'-90' (190-21518-17), B-10-74'-79' (190-21518-18) and (LCS 240-411253/4)

Method 8260B: The pH of the sample(s) was greater than 2. The samples were analyzed within the normal 14 day holding time; however, experimental evidence suggests that some aromatic compounds in wastewater samples, notably, Benzene, Toluene, and Ethylbenzene are susceptible to biological degradation if samples are not preserved to a pH of 2.
B-10-85'-90' (190-21518-17) and B-10-74'-79' (190-21518-18)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-410213.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

Job ID: 190-21518-1 (Continued)

Laboratory: Eurofins TestAmerica, Michigan (Continued)

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-1-2.5'

Date Collected: 11/06/19 10:06
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-1

Matrix: Soil
Percent Solids: 89.9

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1300		1300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Benzene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Bromoform	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Bromomethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
2-Butanone (MEK)	<1300		1300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Carbon disulfide	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Carbon tetrachloride	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Chlorobenzene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Chlorodibromomethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Chloroethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Chloroform	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Chloromethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
cis-1,2-Dichloroethene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
cis-1,3-Dichloropropene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Cyclohexane	<650		650		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
1,2-Dibromo-3-Chloropropane	<650		650		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
1,2-Dichlorobenzene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
1,3-Dichlorobenzene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
1,4-Dichlorobenzene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Dichlorobromomethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Dichlorodifluoromethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
1,1-Dichloroethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
1,2-Dichloroethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
1,1-Dichloroethene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
1,2-Dichloropropane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Ethylbenzene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
1,2-Dibromoethane (EDB)	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
2-Hexanone	<1300		1300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Isopropylbenzene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Methyl acetate	<1600		1600		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Methylcyclohexane	<650		650		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Methylene Chloride	<650		650		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
2-Methylnaphthalene	<1600		1600		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
4-Methyl-2-pentanone (MIBK)	<1300		1300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Methyl tert-butyl ether	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
m-Xylene & p-Xylene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Naphthalene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
o-Xylene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Styrene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
1,1,2,2-Tetrachloroethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Tetrachloroethene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Toluene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
trans-1,2-Dichloroethene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
trans-1,3-Dichloropropene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
1,2,4-Trichlorobenzene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
1,1,1-Trichloroethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
1,1,2-Trichloroethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Trichloroethene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Trichlorofluoromethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-1-2.5'

Date Collected: 11/06/19 10:06
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-1

Matrix: Soil
Percent Solids: 89.9

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<330		330	ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
1,2,4-Trimethylbenzene	<330		330	ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
1,3,5-Trimethylbenzene	<330		330	ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Vinyl chloride	<330		330	ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1
Xylenes, Total	<650		650	ug/Kg	☼	11/11/19 18:30	11/12/19 16:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*51 - 124*	*11/11/19 18:30*	*11/12/19 16:11*	*1*
Dibromofluoromethane (Surr)	*96*		*49 - 122*	*11/11/19 18:30*	*11/12/19 16:11*	*1*
1,2-Dichloroethane-d4 (Surr)	*115*		*47 - 136*	*11/11/19 18:30*	*11/12/19 16:11*	*1*
Toluene-d8 (Surr)	*113*		*55 - 123*	*11/11/19 18:30*	*11/12/19 16:11*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1
Acenaphthylene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1
Anthracene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1
Benzo[a]anthracene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1
Benzo[a]pyrene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1
Benzo[b]fluoranthene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1
Benzo[g,h,i]perylene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1
Benzo[k]fluoranthene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1
Chrysene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1
Dibenz(a,h)anthracene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1
Fluoranthene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1
Fluorene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1
Indeno[1,2,3-cd]pyrene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1
2-Methylnaphthalene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1
Naphthalene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1
Phenanthrene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1
Pyrene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*80*		*35 - 120*	*11/14/19 09:48*	*11/17/19 15:25*	*1*
2-Fluorophenol (Surr)	*76*		*26 - 120*	*11/14/19 09:48*	*11/17/19 15:25*	*1*
Nitrobenzene-d5 (Surr)	*76*		*28 - 120*	*11/14/19 09:48*	*11/17/19 15:25*	*1*
Phenol-d5 (Surr)	*83*		*28 - 120*	*11/14/19 09:48*	*11/17/19 15:25*	*1*
Terphenyl-d14 (Surr)	*93*		*39 - 120*	*11/14/19 09:48*	*11/17/19 15:25*	*1*
2,4,6-Tribromophenol (Surr)	*41*		*10 - 120*	*11/14/19 09:48*	*11/17/19 15:25*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**2500**		390	ug/Kg	☼	11/11/19 14:00	11/13/19 21:15	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**89.9**		0.1	%			11/11/19 16:08	1
Percent Moisture	**10.1**		0.1	%			11/11/19 16:08	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-2-5'

Date Collected: 11/06/19 10:27
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-2

Matrix: Soil
Percent Solids: 90.1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1200		1200		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Benzene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Bromoform	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Bromomethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
2-Butanone (MEK)	<1200		1200		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Carbon disulfide	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Carbon tetrachloride	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Chlorobenzene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Chlorodibromomethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Chloroethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Chloroform	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Chloromethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
cis-1,2-Dichloroethene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
cis-1,3-Dichloropropene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Cyclohexane	<590		590		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
1,2-Dibromo-3-Chloropropane	<590		590		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
1,2-Dichlorobenzene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
1,3-Dichlorobenzene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
1,4-Dichlorobenzene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Dichlorobromomethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Dichlorodifluoromethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
1,1-Dichloroethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
1,2-Dichloroethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
1,1-Dichloroethene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
1,2-Dichloropropane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Ethylbenzene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
1,2-Dibromoethane (EDB)	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
2-Hexanone	<1200		1200		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Isopropylbenzene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Methyl acetate	<1500		1500		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Methylcyclohexane	<590		590		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Methylene Chloride	<590		590		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
2-Methylnaphthalene	<1500		1500		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
4-Methyl-2-pentanone (MIBK)	<1200		1200		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Methyl tert-butyl ether	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
m-Xylene & p-Xylene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Naphthalene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
o-Xylene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Styrene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
1,1,2,2-Tetrachloroethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Tetrachloroethene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Toluene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
trans-1,2-Dichloroethene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
trans-1,3-Dichloropropene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
1,2,4-Trichlorobenzene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
1,1,1-Trichloroethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
1,1,2-Trichloroethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Trichloroethene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Trichlorofluoromethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-2-5'

Date Collected: 11/06/19 10:27
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-2

Matrix: Soil
Percent Solids: 90.1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<300		300	ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
1,2,4-Trimethylbenzene	<300		300	ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
1,3,5-Trimethylbenzene	<300		300	ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Vinyl chloride	<300		300	ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1
Xylenes, Total	<590		590	ug/Kg	☼	11/11/19 18:30	11/12/19 16:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*51 - 124*	*11/11/19 18:30*	*11/12/19 16:36*	*1*
Dibromofluoromethane (Surr)	*87*		*49 - 122*	*11/11/19 18:30*	*11/12/19 16:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*108*		*47 - 136*	*11/11/19 18:30*	*11/12/19 16:36*	*1*
Toluene-d8 (Surr)	*102*		*55 - 123*	*11/11/19 18:30*	*11/12/19 16:36*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1
Acenaphthylene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1
Anthracene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1
Benzo[a]anthracene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1
Benzo[a]pyrene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1
Benzo[b]fluoranthene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1
Benzo[g,h,i]perylene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1
Benzo[k]fluoranthene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1
Chrysene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1
Dibenz(a,h)anthracene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1
Fluoranthene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1
Fluorene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1
Indeno[1,2,3-cd]pyrene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1
2-Methylnaphthalene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1
Naphthalene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1
Phenanthrene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1
Pyrene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 15:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*81*		*35 - 120*	*11/14/19 09:48*	*11/17/19 15:50*	*1*
2-Fluorophenol (Surr)	*77*		*26 - 120*	*11/14/19 09:48*	*11/17/19 15:50*	*1*
Nitrobenzene-d5 (Surr)	*83*		*28 - 120*	*11/14/19 09:48*	*11/17/19 15:50*	*1*
Phenol-d5 (Surr)	*86*		*28 - 120*	*11/14/19 09:48*	*11/17/19 15:50*	*1*
Terphenyl-d14 (Surr)	*100*		*39 - 120*	*11/14/19 09:48*	*11/17/19 15:50*	*1*
2,4,6-Tribromophenol (Surr)	*52*		*10 - 120*	*11/14/19 09:48*	*11/17/19 15:50*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**1700**		360	ug/Kg	☼	11/11/19 14:00	11/13/19 21:26	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**90.1**		0.1	%			11/11/19 16:08	1
Percent Moisture	**9.9**		0.1	%			11/11/19 16:08	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-3-5'

Date Collected: 11/06/19 10:40
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-3

Matrix: Soil
Percent Solids: 85.4

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1300		1300		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Benzene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Bromoform	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Bromomethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
2-Butanone (MEK)	<1300		1300		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Carbon disulfide	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Carbon tetrachloride	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Chlorobenzene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Chlorodibromomethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Chloroethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Chloroform	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Chloromethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
cis-1,2-Dichloroethene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
cis-1,3-Dichloropropene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Cyclohexane	<660		660		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
1,2-Dibromo-3-Chloropropane	<660		660		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
1,2-Dichlorobenzene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
1,3-Dichlorobenzene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
1,4-Dichlorobenzene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Dichlorobromomethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Dichlorodifluoromethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
1,1-Dichloroethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
1,2-Dichloroethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
1,1-Dichloroethene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
1,2-Dichloropropane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Ethylbenzene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
1,2-Dibromoethane (EDB)	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
2-Hexanone	<1300		1300		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Isopropylbenzene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Methyl acetate	<1600		1600		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Methylcyclohexane	<660		660		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Methylene Chloride	<660		660		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
2-Methylnaphthalene	<1600		1600		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
4-Methyl-2-pentanone (MIBK)	<1300		1300		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Methyl tert-butyl ether	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
m-Xylene & p-Xylene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Naphthalene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
o-Xylene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Styrene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
1,1,2,2-Tetrachloroethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Tetrachloroethene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Toluene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
trans-1,2-Dichloroethene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
trans-1,3-Dichloropropene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
1,2,4-Trichlorobenzene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
1,1,1-Trichloroethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
1,1,2-Trichloroethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Trichloroethene	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Trichlorofluoromethane	<330		330		ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-3-5'

Date Collected: 11/06/19 10:40
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-3

Matrix: Soil
Percent Solids: 85.4

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<330		330	ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
1,2,4-Trimethylbenzene	<330		330	ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
1,3,5-Trimethylbenzene	<330		330	ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Vinyl chloride	<330		330	ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1
Xylenes, Total	<660		660	ug/Kg	☼	11/11/19 18:30	11/12/19 17:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*51 - 124*	*11/11/19 18:30*	*11/12/19 17:00*	*1*
Dibromofluoromethane (Surr)	*87*		*49 - 122*	*11/11/19 18:30*	*11/12/19 17:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*108*		*47 - 136*	*11/11/19 18:30*	*11/12/19 17:00*	*1*
Toluene-d8 (Surr)	*104*		*55 - 123*	*11/11/19 18:30*	*11/12/19 17:00*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1
Acenaphthylene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1
Anthracene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1
Benzo[a]anthracene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1
Benzo[a]pyrene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1
Benzo[b]fluoranthene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1
Benzo[g,h,i]perylene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1
Benzo[k]fluoranthene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1
Chrysene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1
Dibenz(a,h)anthracene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1
Fluoranthene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1
Fluorene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1
Indeno[1,2,3-cd]pyrene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1
2-Methylnaphthalene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1
Naphthalene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1
Phenanthrene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1
Pyrene	<310		310	ug/Kg	☼	11/14/19 09:48	11/17/19 16:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*73*		*35 - 120*	*11/14/19 09:48*	*11/17/19 16:15*	*1*
2-Fluorophenol (Surr)	*71*		*26 - 120*	*11/14/19 09:48*	*11/17/19 16:15*	*1*
Nitrobenzene-d5 (Surr)	*75*		*28 - 120*	*11/14/19 09:48*	*11/17/19 16:15*	*1*
Phenol-d5 (Surr)	*79*		*28 - 120*	*11/14/19 09:48*	*11/17/19 16:15*	*1*
Terphenyl-d14 (Surr)	*87*		*39 - 120*	*11/14/19 09:48*	*11/17/19 16:15*	*1*
2,4,6-Tribromophenol (Surr)	*47*		*10 - 120*	*11/14/19 09:48*	*11/17/19 16:15*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**3400**		400	ug/Kg	☼	11/11/19 14:00	11/13/19 21:28	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**85.4**		0.1	%			11/11/19 16:08	1
Percent Moisture	**14.6**		0.1	%			11/11/19 16:08	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-4-10'

Date Collected: 11/06/19 11:25
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-4

Matrix: Soil
Percent Solids: 94.1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Benzene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Bromoform	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Bromomethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
2-Butanone (MEK)	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Carbon disulfide	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Carbon tetrachloride	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Chlorobenzene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Chlorodibromomethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Chloroethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Chloroform	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Chloromethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
cis-1,2-Dichloroethene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
cis-1,3-Dichloropropene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Cyclohexane	<550		550		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
1,2-Dibromo-3-Chloropropane	<550		550		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
1,2-Dichlorobenzene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
1,3-Dichlorobenzene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
1,4-Dichlorobenzene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Dichlorobromomethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Dichlorodifluoromethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
1,1-Dichloroethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
1,2-Dichloroethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
1,1-Dichloroethene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
1,2-Dichloropropane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Ethylbenzene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
1,2-Dibromoethane (EDB)	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
2-Hexanone	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Isopropylbenzene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Methyl acetate	<1400		1400		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Methylcyclohexane	<550		550		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Methylene Chloride	<550		550		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
2-Methylnaphthalene	<1400		1400		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
4-Methyl-2-pentanone (MIBK)	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Methyl tert-butyl ether	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
m-Xylene & p-Xylene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Naphthalene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
o-Xylene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Styrene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
1,1,2,2-Tetrachloroethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Tetrachloroethene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Toluene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
trans-1,2-Dichloroethene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
trans-1,3-Dichloropropene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
1,2,4-Trichlorobenzene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
1,1,1-Trichloroethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
1,1,2-Trichloroethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Trichloroethene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Trichlorofluoromethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-4-10'

Date Collected: 11/06/19 11:25
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-4

Matrix: Soil
Percent Solids: 94.1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<270		270	ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
1,2,4-Trimethylbenzene	<270		270	ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
1,3,5-Trimethylbenzene	<270		270	ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Vinyl chloride	<270		270	ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1
Xylenes, Total	<550		550	ug/Kg	☼	11/11/19 18:30	11/12/19 17:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*51 - 124*	*11/11/19 18:30*	*11/12/19 17:25*	*1*
Dibromofluoromethane (Surr)	*87*		*49 - 122*	*11/11/19 18:30*	*11/12/19 17:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*110*		*47 - 136*	*11/11/19 18:30*	*11/12/19 17:25*	*1*
Toluene-d8 (Surr)	*107*		*55 - 123*	*11/11/19 18:30*	*11/12/19 17:25*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1
Acenaphthylene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1
Anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1
Benzo[a]anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1
Benzo[a]pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1
Benzo[b]fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1
Benzo[g,h,i]perylene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1
Benzo[k]fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1
Chrysene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1
Dibenz(a,h)anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1
Fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1
Fluorene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1
Indeno[1,2,3-cd]pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1
2-Methylnaphthalene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1
Naphthalene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1
Phenanthrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1
Pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 16:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*81*		*35 - 120*	*11/14/19 09:48*	*11/17/19 16:41*	*1*
2-Fluorophenol (Surr)	*78*		*26 - 120*	*11/14/19 09:48*	*11/17/19 16:41*	*1*
Nitrobenzene-d5 (Surr)	*83*		*28 - 120*	*11/14/19 09:48*	*11/17/19 16:41*	*1*
Phenol-d5 (Surr)	*84*		*28 - 120*	*11/14/19 09:48*	*11/17/19 16:41*	*1*
Terphenyl-d14 (Surr)	*95*		*39 - 120*	*11/14/19 09:48*	*11/17/19 16:41*	*1*
2,4,6-Tribromophenol (Surr)	*41*		*10 - 120*	*11/14/19 09:48*	*11/17/19 16:41*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**6700**		360	ug/Kg	☼	11/11/19 14:00	11/13/19 21:35	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**94.1**		0.1	%			11/11/19 16:08	1
Percent Moisture	**5.9**		0.1	%			11/11/19 16:08	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-5-15'

Date Collected: 11/06/19 11:42
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-5

Matrix: Soil
Percent Solids: 97.3

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1000		1000		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Benzene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Bromoform	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Bromomethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
2-Butanone (MEK)	<1000		1000		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Carbon disulfide	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Carbon tetrachloride	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Chlorobenzene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Chlorodibromomethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Chloroethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Chloroform	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Chloromethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
cis-1,2-Dichloroethene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
cis-1,3-Dichloropropene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Cyclohexane	<510		510		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
1,2-Dibromo-3-Chloropropane	<510		510		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
1,2-Dichlorobenzene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
1,3-Dichlorobenzene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
1,4-Dichlorobenzene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Dichlorobromomethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Dichlorodifluoromethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
1,1-Dichloroethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
1,2-Dichloroethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
1,1-Dichloroethene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
1,2-Dichloropropane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Ethylbenzene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
1,2-Dibromoethane (EDB)	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
2-Hexanone	<1000		1000		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Isopropylbenzene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Methyl acetate	<1300		1300		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Methylcyclohexane	<510		510		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Methylene Chloride	<510		510		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
2-Methylnaphthalene	<1300		1300		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
4-Methyl-2-pentanone (MIBK)	<1000		1000		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Methyl tert-butyl ether	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
m-Xylene & p-Xylene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Naphthalene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
o-Xylene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Styrene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
1,1,2,2-Tetrachloroethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Tetrachloroethene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Toluene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
trans-1,2-Dichloroethene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
trans-1,3-Dichloropropene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
1,2,4-Trichlorobenzene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
1,1,1-Trichloroethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
1,1,2-Trichloroethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Trichloroethene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Trichlorofluoromethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-5-15'

Date Collected: 11/06/19 11:42
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-5

Matrix: Soil
Percent Solids: 97.3

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<260		260	ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
1,2,4-Trimethylbenzene	<260		260	ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
1,3,5-Trimethylbenzene	<260		260	ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Vinyl chloride	<260		260	ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1
Xylenes, Total	<510		510	ug/Kg	☼	11/11/19 18:30	11/12/19 17:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*51 - 124*	*11/11/19 18:30*	*11/12/19 17:50*	*1*
Dibromofluoromethane (Surr)	*92*		*49 - 122*	*11/11/19 18:30*	*11/12/19 17:50*	*1*
1,2-Dichloroethane-d4 (Surr)	*113*		*47 - 136*	*11/11/19 18:30*	*11/12/19 17:50*	*1*
Toluene-d8 (Surr)	*107*		*55 - 123*	*11/11/19 18:30*	*11/12/19 17:50*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1
Acenaphthylene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1
Anthracene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1
Benzo[a]anthracene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1
Benzo[a]pyrene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1
Benzo[b]fluoranthene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1
Benzo[g,h,i]perylene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1
Benzo[k]fluoranthene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1
Chrysene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1
Dibenz(a,h)anthracene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1
Fluoranthene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1
Fluorene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1
Indeno[1,2,3-cd]pyrene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1
2-Methylnaphthalene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1
Naphthalene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1
Phenanthrene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1
Pyrene	<270		270	ug/Kg	☼	11/14/19 09:48	11/17/19 17:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*86*		*35 - 120*	*11/14/19 09:48*	*11/17/19 17:06*	*1*
2-Fluorophenol (Surr)	*80*		*26 - 120*	*11/14/19 09:48*	*11/17/19 17:06*	*1*
Nitrobenzene-d5 (Surr)	*87*		*28 - 120*	*11/14/19 09:48*	*11/17/19 17:06*	*1*
Phenol-d5 (Surr)	*90*		*28 - 120*	*11/14/19 09:48*	*11/17/19 17:06*	*1*
Terphenyl-d14 (Surr)	*103*		*39 - 120*	*11/14/19 09:48*	*11/17/19 17:06*	*1*
2,4,6-Tribromophenol (Surr)	*55*		*10 - 120*	*11/14/19 09:48*	*11/17/19 17:06*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**620**		340	ug/Kg	☼	11/11/19 14:00	11/13/19 21:38	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**97.3**		0.1	%			11/11/19 16:08	1
Percent Moisture	**2.7**		0.1	%			11/11/19 16:08	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-6-15'

Date Collected: 11/06/19 12:05
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-6

Matrix: Soil
Percent Solids: 93.1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Benzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Bromoform	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Bromomethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
2-Butanone (MEK)	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Carbon disulfide	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Carbon tetrachloride	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Chlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Chlorodibromomethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Chloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Chloroform	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Chloromethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
cis-1,2-Dichloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
cis-1,3-Dichloropropene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Cyclohexane	<560		560		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
1,2-Dibromo-3-Chloropropane	<560		560		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
1,2-Dichlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
1,3-Dichlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
1,4-Dichlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Dichlorobromomethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Dichlorodifluoromethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
1,1-Dichloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
1,2-Dichloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
1,1-Dichloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
1,2-Dichloropropane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Ethylbenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
1,2-Dibromoethane (EDB)	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
2-Hexanone	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Isopropylbenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Methyl acetate	<1400		1400		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Methylcyclohexane	<560		560		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Methylene Chloride	<560		560		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
2-Methylnaphthalene	<1400		1400		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
4-Methyl-2-pentanone (MIBK)	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Methyl tert-butyl ether	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
m-Xylene & p-Xylene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Naphthalene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
o-Xylene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Styrene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
1,1,2,2-Tetrachloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Tetrachloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Toluene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
trans-1,2-Dichloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
trans-1,3-Dichloropropene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
1,2,4-Trichlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
1,1,1-Trichloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
1,1,2-Trichloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Trichloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Trichlorofluoromethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-6-15'

Date Collected: 11/06/19 12:05
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-6

Matrix: Soil
Percent Solids: 93.1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<280		280	ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
1,2,4-Trimethylbenzene	<280		280	ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
1,3,5-Trimethylbenzene	<280		280	ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Vinyl chloride	<280		280	ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1
Xylenes, Total	<560		560	ug/Kg	☼	11/11/19 18:30	11/12/19 18:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*51 - 124*	*11/11/19 18:30*	*11/12/19 18:15*	*1*
Dibromofluoromethane (Surr)	*78*		*49 - 122*	*11/11/19 18:30*	*11/12/19 18:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*47 - 136*	*11/11/19 18:30*	*11/12/19 18:15*	*1*
Toluene-d8 (Surr)	*104*		*55 - 123*	*11/11/19 18:30*	*11/12/19 18:15*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1
Acenaphthylene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1
Anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1
Benzo[a]anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1
Benzo[a]pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1
Benzo[b]fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1
Benzo[g,h,i]perylene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1
Benzo[k]fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1
Chrysene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1
Dibenz(a,h)anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1
Fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1
Fluorene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1
Indeno[1,2,3-cd]pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1
2-Methylnaphthalene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1
Naphthalene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1
Phenanthrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1
Pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*79*		*35 - 120*	*11/14/19 09:48*	*11/17/19 17:31*	*1*
2-Fluorophenol (Surr)	*74*		*26 - 120*	*11/14/19 09:48*	*11/17/19 17:31*	*1*
Nitrobenzene-d5 (Surr)	*79*		*28 - 120*	*11/14/19 09:48*	*11/17/19 17:31*	*1*
Phenol-d5 (Surr)	*84*		*28 - 120*	*11/14/19 09:48*	*11/17/19 17:31*	*1*
Terphenyl-d14 (Surr)	*91*		*39 - 120*	*11/14/19 09:48*	*11/17/19 17:31*	*1*
2,4,6-Tribromophenol (Surr)	*38*		*10 - 120*	*11/14/19 09:48*	*11/17/19 17:31*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**800**		390	ug/Kg	☼	11/11/19 14:00	11/13/19 21:40	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**93.1**		0.1	%			11/11/19 16:08	1
Percent Moisture	**6.9**		0.1	%			11/11/19 16:08	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-7-15'

Date Collected: 11/06/19 12:30
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-7

Matrix: Soil
Percent Solids: 93.2

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Benzene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Bromoform	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Bromomethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
2-Butanone (MEK)	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Carbon disulfide	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Carbon tetrachloride	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Chlorobenzene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Chlorodibromomethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Chloroethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Chloroform	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Chloromethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
cis-1,2-Dichloroethene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
cis-1,3-Dichloropropene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Cyclohexane	<570		570		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
1,2-Dibromo-3-Chloropropane	<570		570		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
1,2-Dichlorobenzene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
1,3-Dichlorobenzene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
1,4-Dichlorobenzene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Dichlorobromomethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Dichlorodifluoromethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
1,1-Dichloroethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
1,2-Dichloroethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
1,1-Dichloroethene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
1,2-Dichloropropane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Ethylbenzene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
1,2-Dibromoethane (EDB)	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
2-Hexanone	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Isopropylbenzene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Methyl acetate	<1400		1400		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Methylcyclohexane	<570		570		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Methylene Chloride	<570		570		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
2-Methylnaphthalene	<1400		1400		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
4-Methyl-2-pentanone (MIBK)	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Methyl tert-butyl ether	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
m-Xylene & p-Xylene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Naphthalene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
o-Xylene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Styrene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
1,1,2,2-Tetrachloroethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Tetrachloroethene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Toluene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
trans-1,2-Dichloroethene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
trans-1,3-Dichloropropene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
1,2,4-Trichlorobenzene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
1,1,1-Trichloroethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
1,1,2-Trichloroethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Trichloroethene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Trichlorofluoromethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-7-15'

Date Collected: 11/06/19 12:30
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-7

Matrix: Soil
Percent Solids: 93.2

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<290		290	ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
1,2,4-Trimethylbenzene	<290		290	ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
1,3,5-Trimethylbenzene	<290		290	ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Vinyl chloride	<290		290	ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1
Xylenes, Total	<570		570	ug/Kg	☼	11/11/19 18:30	11/12/19 18:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*51 - 124*	*11/11/19 18:30*	*11/12/19 18:39*	*1*
Dibromofluoromethane (Surr)	*81*		*49 - 122*	*11/11/19 18:30*	*11/12/19 18:39*	*1*
1,2-Dichloroethane-d4 (Surr)	*107*		*47 - 136*	*11/11/19 18:30*	*11/12/19 18:39*	*1*
Toluene-d8 (Surr)	*104*		*55 - 123*	*11/11/19 18:30*	*11/12/19 18:39*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1
Acenaphthylene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1
Anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1
Benzo[a]anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1
Benzo[a]pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1
Benzo[b]fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1
Benzo[g,h,i]perylene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1
Benzo[k]fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1
Chrysene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1
Dibenz(a,h)anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1
Fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1
Fluorene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1
Indeno[1,2,3-cd]pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1
2-Methylnaphthalene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1
Naphthalene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1
Phenanthrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1
Pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 17:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*78*		*35 - 120*	*11/14/19 09:48*	*11/17/19 17:56*	*1*
2-Fluorophenol (Surr)	*76*		*26 - 120*	*11/14/19 09:48*	*11/17/19 17:56*	*1*
Nitrobenzene-d5 (Surr)	*79*		*28 - 120*	*11/14/19 09:48*	*11/17/19 17:56*	*1*
Phenol-d5 (Surr)	*85*		*28 - 120*	*11/14/19 09:48*	*11/17/19 17:56*	*1*
Terphenyl-d14 (Surr)	*92*		*39 - 120*	*11/14/19 09:48*	*11/17/19 17:56*	*1*
2,4,6-Tribromophenol (Surr)	*39*		*10 - 120*	*11/14/19 09:48*	*11/17/19 17:56*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**880**		360	ug/Kg	☼	11/11/19 14:00	11/13/19 21:42	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**93.2**		0.1	%			11/11/19 16:08	1
Percent Moisture	**6.8**		0.1	%			11/11/19 16:08	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-8-15'

Date Collected: 11/06/19 12:56
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-8

Matrix: Soil
Percent Solids: 93.5

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Benzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Bromoform	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Bromomethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
2-Butanone (MEK)	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Carbon disulfide	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Carbon tetrachloride	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Chlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Chlorodibromomethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Chloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Chloroform	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Chloromethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
cis-1,2-Dichloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
cis-1,3-Dichloropropene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Cyclohexane	<560		560		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
1,2-Dibromo-3-Chloropropane	<560		560		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
1,2-Dichlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
1,3-Dichlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
1,4-Dichlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Dichlorobromomethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Dichlorodifluoromethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
1,1-Dichloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
1,2-Dichloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
1,1-Dichloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
1,2-Dichloropropane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Ethylbenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
1,2-Dibromoethane (EDB)	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
2-Hexanone	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Isopropylbenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Methyl acetate	<1400		1400		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Methylcyclohexane	<560		560		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Methylene Chloride	<560		560		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
2-Methylnaphthalene	<1400		1400		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
4-Methyl-2-pentanone (MIBK)	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Methyl tert-butyl ether	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
m-Xylene & p-Xylene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Naphthalene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
o-Xylene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Styrene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
1,1,2,2-Tetrachloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Tetrachloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Toluene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
trans-1,2-Dichloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
trans-1,3-Dichloropropene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
1,2,4-Trichlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
1,1,1-Trichloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
1,1,2-Trichloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Trichloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Trichlorofluoromethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-8-15'

Date Collected: 11/06/19 12:56
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-8

Matrix: Soil
Percent Solids: 93.5

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<280		280	ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
1,2,4-Trimethylbenzene	<280		280	ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
1,3,5-Trimethylbenzene	<280		280	ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Vinyl chloride	<280		280	ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1
Xylenes, Total	<560		560	ug/Kg	☼	11/11/19 18:30	11/12/19 19:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*51 - 124*	*11/11/19 18:30*	*11/12/19 19:04*	*1*
Dibromofluoromethane (Surr)	*91*		*49 - 122*	*11/11/19 18:30*	*11/12/19 19:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*114*		*47 - 136*	*11/11/19 18:30*	*11/12/19 19:04*	*1*
Toluene-d8 (Surr)	*107*		*55 - 123*	*11/11/19 18:30*	*11/12/19 19:04*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1
Acenaphthylene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1
Anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1
Benzo[a]anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1
Benzo[a]pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1
Benzo[b]fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1
Benzo[g,h,i]perylene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1
Benzo[k]fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1
Chrysene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1
Dibenz(a,h)anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1
Fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1
Fluorene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1
Indeno[1,2,3-cd]pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1
2-Methylnaphthalene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1
Naphthalene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1
Phenanthrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1
Pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 18:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*79*		*35 - 120*	*11/14/19 09:48*	*11/17/19 18:22*	*1*
2-Fluorophenol (Surr)	*78*		*26 - 120*	*11/14/19 09:48*	*11/17/19 18:22*	*1*
Nitrobenzene-d5 (Surr)	*79*		*28 - 120*	*11/14/19 09:48*	*11/17/19 18:22*	*1*
Phenol-d5 (Surr)	*86*		*28 - 120*	*11/14/19 09:48*	*11/17/19 18:22*	*1*
Terphenyl-d14 (Surr)	*95*		*39 - 120*	*11/14/19 09:48*	*11/17/19 18:22*	*1*
2,4,6-Tribromophenol (Surr)	*47*		*10 - 120*	*11/14/19 09:48*	*11/17/19 18:22*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**680**		290	ug/Kg	☼	11/11/19 14:00	11/13/19 21:44	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**93.5**		0.1	%			11/11/19 16:08	1
Percent Moisture	**6.5**		0.1	%			11/11/19 16:08	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-9-15'

Date Collected: 11/06/19 13:20
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-9

Matrix: Soil
Percent Solids: 92.0

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Benzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Bromoform	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Bromomethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
2-Butanone (MEK)	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Carbon disulfide	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Carbon tetrachloride	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Chlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Chlorodibromomethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Chloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Chloroform	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Chloromethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
cis-1,2-Dichloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
cis-1,3-Dichloropropene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Cyclohexane	<570		570		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
1,2-Dibromo-3-Chloropropane	<570		570		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
1,2-Dichlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
1,3-Dichlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
1,4-Dichlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Dichlorobromomethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Dichlorodifluoromethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
1,1-Dichloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
1,2-Dichloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
1,1-Dichloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
1,2-Dichloropropane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Ethylbenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
1,2-Dibromoethane (EDB)	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
2-Hexanone	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Isopropylbenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Methyl acetate	<1400		1400		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Methylcyclohexane	<570		570		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Methylene Chloride	<570		570		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
2-Methylnaphthalene	<1400		1400		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
4-Methyl-2-pentanone (MIBK)	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Methyl tert-butyl ether	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
m-Xylene & p-Xylene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Naphthalene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
o-Xylene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Styrene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
1,1,2,2-Tetrachloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Tetrachloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Toluene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
trans-1,2-Dichloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
trans-1,3-Dichloropropene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
1,2,4-Trichlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
1,1,1-Trichloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
1,1,2-Trichloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Trichloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Trichlorofluoromethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-9-15'

Date Collected: 11/06/19 13:20
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-9

Matrix: Soil
Percent Solids: 92.0

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<280		280	ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
1,2,4-Trimethylbenzene	<280		280	ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
1,3,5-Trimethylbenzene	<280		280	ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Vinyl chloride	<280		280	ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1
Xylenes, Total	<570		570	ug/Kg	☼	11/11/19 18:30	11/12/19 19:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*51 - 124*	*11/11/19 18:30*	*11/12/19 19:29*	*1*
Dibromofluoromethane (Surr)	*90*		*49 - 122*	*11/11/19 18:30*	*11/12/19 19:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*115*		*47 - 136*	*11/11/19 18:30*	*11/12/19 19:29*	*1*
Toluene-d8 (Surr)	*106*		*55 - 123*	*11/11/19 18:30*	*11/12/19 19:29*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1
Acenaphthylene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1
Anthracene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1
Benzo[a]anthracene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1
Benzo[a]pyrene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1
Benzo[b]fluoranthene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1
Benzo[g,h,i]perylene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1
Benzo[k]fluoranthene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1
Chrysene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1
Dibenz(a,h)anthracene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1
Fluoranthene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1
Fluorene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1
Indeno[1,2,3-cd]pyrene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1
2-Methylnaphthalene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1
Naphthalene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1
Phenanthrene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1
Pyrene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 18:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*82*		*35 - 120*	*11/14/19 09:48*	*11/17/19 18:47*	*1*
2-Fluorophenol (Surr)	*76*		*26 - 120*	*11/14/19 09:48*	*11/17/19 18:47*	*1*
Nitrobenzene-d5 (Surr)	*83*		*28 - 120*	*11/14/19 09:48*	*11/17/19 18:47*	*1*
Phenol-d5 (Surr)	*86*		*28 - 120*	*11/14/19 09:48*	*11/17/19 18:47*	*1*
Terphenyl-d14 (Surr)	*98*		*39 - 120*	*11/14/19 09:48*	*11/17/19 18:47*	*1*
2,4,6-Tribromophenol (Surr)	*51*		*10 - 120*	*11/14/19 09:48*	*11/17/19 18:47*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**1400**		390	ug/Kg	☼	11/11/19 14:00	11/13/19 21:46	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**92.0**		0.1	%			11/11/19 16:08	1
Percent Moisture	**8.0**		0.1	%			11/11/19 16:08	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-11-15'

Date Collected: 11/06/19 15:18
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-10

Matrix: Soil
Percent Solids: 89.9

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1200		1200		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Benzene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Bromoform	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Bromomethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
2-Butanone (MEK)	<1200		1200		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Carbon disulfide	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Carbon tetrachloride	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Chlorobenzene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Chlorodibromomethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Chloroethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Chloroform	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Chloromethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
cis-1,2-Dichloroethene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
cis-1,3-Dichloropropene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Cyclohexane	<610		610		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
1,2-Dibromo-3-Chloropropane	<610		610		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
1,2-Dichlorobenzene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
1,3-Dichlorobenzene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
1,4-Dichlorobenzene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Dichlorobromomethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Dichlorodifluoromethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
1,1-Dichloroethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
1,2-Dichloroethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
1,1-Dichloroethene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
1,2-Dichloropropane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Ethylbenzene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
1,2-Dibromoethane (EDB)	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
2-Hexanone	<1200		1200		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Isopropylbenzene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Methyl acetate	<1500		1500		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Methylcyclohexane	<610		610		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Methylene Chloride	<610		610		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
2-Methylnaphthalene	<1500		1500		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
4-Methyl-2-pentanone (MIBK)	<1200		1200		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Methyl tert-butyl ether	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
m-Xylene & p-Xylene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Naphthalene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
o-Xylene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Styrene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
1,1,2,2-Tetrachloroethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Tetrachloroethene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Toluene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
trans-1,2-Dichloroethene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
trans-1,3-Dichloropropene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
1,2,4-Trichlorobenzene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
1,1,1-Trichloroethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
1,1,2-Trichloroethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Trichloroethene	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Trichlorofluoromethane	<300		300		ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-11-15'

Date Collected: 11/06/19 15:18
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-10

Matrix: Soil
Percent Solids: 89.9

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<300		300	ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
1,2,4-Trimethylbenzene	<300		300	ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
1,3,5-Trimethylbenzene	<300		300	ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Vinyl chloride	<300		300	ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1
Xylenes, Total	<610		610	ug/Kg	☼	11/11/19 18:30	11/12/19 19:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*51 - 124*	*11/11/19 18:30*	*11/12/19 19:53*	*1*
Dibromofluoromethane (Surr)	*84*		*49 - 122*	*11/11/19 18:30*	*11/12/19 19:53*	*1*
1,2-Dichloroethane-d4 (Surr)	*111*		*47 - 136*	*11/11/19 18:30*	*11/12/19 19:53*	*1*
Toluene-d8 (Surr)	*103*		*55 - 123*	*11/11/19 18:30*	*11/12/19 19:53*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1
Acenaphthylene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1
Anthracene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1
Benzo[a]anthracene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1
Benzo[a]pyrene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1
Benzo[b]fluoranthene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1
Benzo[g,h,i]perylene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1
Benzo[k]fluoranthene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1
Chrysene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1
Dibenz(a,h)anthracene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1
Fluoranthene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1
Fluorene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1
Indeno[1,2,3-cd]pyrene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1
2-Methylnaphthalene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1
Naphthalene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1
Phenanthrene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1
Pyrene	<300		300	ug/Kg	☼	11/14/19 09:48	11/17/19 19:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*78*		*35 - 120*	*11/14/19 09:48*	*11/17/19 19:12*	*1*
2-Fluorophenol (Surr)	*72*		*26 - 120*	*11/14/19 09:48*	*11/17/19 19:12*	*1*
Nitrobenzene-d5 (Surr)	*79*		*28 - 120*	*11/14/19 09:48*	*11/17/19 19:12*	*1*
Phenol-d5 (Surr)	*85*		*28 - 120*	*11/14/19 09:48*	*11/17/19 19:12*	*1*
Terphenyl-d14 (Surr)	*87*		*39 - 120*	*11/14/19 09:48*	*11/17/19 19:12*	*1*
2,4,6-Tribromophenol (Surr)	*33*		*10 - 120*	*11/14/19 09:48*	*11/17/19 19:12*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**1300**		320	ug/Kg	☼	11/11/19 14:00	11/13/19 21:49	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**89.9**		0.1	%			11/11/19 16:08	1
Percent Moisture	**10.1**		0.1	%			11/11/19 16:08	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-12-10'

Date Collected: 11/06/19 15:30
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-11

Matrix: Soil
Percent Solids: 92.9

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1200		1200		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Benzene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Bromoform	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Bromomethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
2-Butanone (MEK)	<1200		1200		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Carbon disulfide	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Carbon tetrachloride	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Chlorobenzene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Chlorodibromomethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Chloroethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Chloroform	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Chloromethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
cis-1,2-Dichloroethene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
cis-1,3-Dichloropropene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Cyclohexane	<580		580		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
1,2-Dibromo-3-Chloropropane	<580		580		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
1,2-Dichlorobenzene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
1,3-Dichlorobenzene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
1,4-Dichlorobenzene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Dichlorobromomethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Dichlorodifluoromethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
1,1-Dichloroethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
1,2-Dichloroethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
1,1-Dichloroethene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
1,2-Dichloropropane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Ethylbenzene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
1,2-Dibromoethane (EDB)	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
2-Hexanone	<1200		1200		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Isopropylbenzene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Methyl acetate	<1400		1400		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Methylcyclohexane	<580		580		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Methylene Chloride	<580		580		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
2-Methylnaphthalene	<1400		1400		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
4-Methyl-2-pentanone (MIBK)	<1200		1200		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Methyl tert-butyl ether	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
m-Xylene & p-Xylene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Naphthalene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
o-Xylene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Styrene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
1,1,2,2-Tetrachloroethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Tetrachloroethene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Toluene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
trans-1,2-Dichloroethene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
trans-1,3-Dichloropropene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
1,2,4-Trichlorobenzene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
1,1,1-Trichloroethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
1,1,2-Trichloroethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Trichloroethene	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Trichlorofluoromethane	<290		290		ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-12-10'

Date Collected: 11/06/19 15:30
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-11

Matrix: Soil
Percent Solids: 92.9

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<290		290	ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
1,2,4-Trimethylbenzene	<290		290	ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
1,3,5-Trimethylbenzene	<290		290	ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Vinyl chloride	<290		290	ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1
Xylenes, Total	<580		580	ug/Kg	☼	11/11/19 18:30	11/12/19 20:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*51 - 124*	*11/11/19 18:30*	*11/12/19 20:18*	*1*
Dibromofluoromethane (Surr)	*78*		*49 - 122*	*11/11/19 18:30*	*11/12/19 20:18*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*47 - 136*	*11/11/19 18:30*	*11/12/19 20:18*	*1*
Toluene-d8 (Surr)	*103*		*55 - 123*	*11/11/19 18:30*	*11/12/19 20:18*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1
Acenaphthylene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1
Anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1
Benzo[a]anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1
Benzo[a]pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1
Benzo[b]fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1
Benzo[g,h,i]perylene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1
Benzo[k]fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1
Chrysene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1
Dibenz(a,h)anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1
Fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1
Fluorene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1
Indeno[1,2,3-cd]pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1
2-Methylnaphthalene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1
Naphthalene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1
Phenanthrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1
Pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 19:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*78*		*35 - 120*	*11/14/19 09:48*	*11/17/19 19:37*	*1*
2-Fluorophenol (Surr)	*72*		*26 - 120*	*11/14/19 09:48*	*11/17/19 19:37*	*1*
Nitrobenzene-d5 (Surr)	*78*		*28 - 120*	*11/14/19 09:48*	*11/17/19 19:37*	*1*
Phenol-d5 (Surr)	*82*		*28 - 120*	*11/14/19 09:48*	*11/17/19 19:37*	*1*
Terphenyl-d14 (Surr)	*90*		*39 - 120*	*11/14/19 09:48*	*11/17/19 19:37*	*1*
2,4,6-Tribromophenol (Surr)	*49*		*10 - 120*	*11/14/19 09:48*	*11/17/19 19:37*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**5300**		330	ug/Kg	☼	11/11/19 14:00	11/13/19 21:51	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**92.9**		0.1	%			11/11/19 16:08	1
Percent Moisture	**7.1**		0.1	%			11/11/19 16:08	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-13-5'

Date Collected: 11/06/19 15:50
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-12

Matrix: Soil
Percent Solids: 93.7

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Benzene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Bromoform	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Bromomethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
2-Butanone (MEK)	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Carbon disulfide	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Carbon tetrachloride	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Chlorobenzene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Chlorodibromomethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Chloroethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Chloroform	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Chloromethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
cis-1,2-Dichloroethene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
cis-1,3-Dichloropropene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Cyclohexane	<540		540		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
1,2-Dibromo-3-Chloropropane	<540		540		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
1,2-Dichlorobenzene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
1,3-Dichlorobenzene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
1,4-Dichlorobenzene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Dichlorobromomethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Dichlorodifluoromethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
1,1-Dichloroethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
1,2-Dichloroethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
1,1-Dichloroethene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
1,2-Dichloropropane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Ethylbenzene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
1,2-Dibromoethane (EDB)	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
2-Hexanone	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Isopropylbenzene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Methyl acetate	<1400		1400		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Methylcyclohexane	<540		540		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Methylene Chloride	<540		540		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
2-Methylnaphthalene	<1400		1400		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
4-Methyl-2-pentanone (MIBK)	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Methyl tert-butyl ether	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
m-Xylene & p-Xylene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Naphthalene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
o-Xylene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Styrene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
1,1,2,2-Tetrachloroethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Tetrachloroethene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Toluene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
trans-1,2-Dichloroethene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
trans-1,3-Dichloropropene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
1,2,4-Trichlorobenzene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
1,1,1-Trichloroethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
1,1,2-Trichloroethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Trichloroethene	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Trichlorofluoromethane	<270		270		ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-13-5'

Date Collected: 11/06/19 15:50
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-12

Matrix: Soil
Percent Solids: 93.7

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<270		270	ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
1,2,4-Trimethylbenzene	<270		270	ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
1,3,5-Trimethylbenzene	<270		270	ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Vinyl chloride	<270		270	ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1
Xylenes, Total	<540		540	ug/Kg	☼	11/11/19 18:30	11/12/19 20:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*51 - 124*	*11/11/19 18:30*	*11/12/19 20:43*	*1*
Dibromofluoromethane (Surr)	*80*		*49 - 122*	*11/11/19 18:30*	*11/12/19 20:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*47 - 136*	*11/11/19 18:30*	*11/12/19 20:43*	*1*
Toluene-d8 (Surr)	*105*		*55 - 123*	*11/11/19 18:30*	*11/12/19 20:43*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1
Acenaphthylene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1
Anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1
Benzo[a]anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1
Benzo[a]pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1
Benzo[b]fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1
Benzo[g,h,i]perylene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1
Benzo[k]fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1
Chrysene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1
Dibenz(a,h)anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1
Fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1
Fluorene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1
Indeno[1,2,3-cd]pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1
2-Methylnaphthalene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1
Naphthalene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1
Phenanthrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1
Pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*62*		*35 - 120*	*11/14/19 09:48*	*11/17/19 20:03*	*1*
2-Fluorophenol (Surr)	*49*		*26 - 120*	*11/14/19 09:48*	*11/17/19 20:03*	*1*
Nitrobenzene-d5 (Surr)	*49*		*28 - 120*	*11/14/19 09:48*	*11/17/19 20:03*	*1*
Phenol-d5 (Surr)	*59*		*28 - 120*	*11/14/19 09:48*	*11/17/19 20:03*	*1*
Terphenyl-d14 (Surr)	*84*		*39 - 120*	*11/14/19 09:48*	*11/17/19 20:03*	*1*
2,4,6-Tribromophenol (Surr)	*55*		*10 - 120*	*11/14/19 09:48*	*11/17/19 20:03*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**3700**		290	ug/Kg	☼	11/11/19 14:00	11/13/19 21:53	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**93.7**		0.1	%			11/11/19 16:08	1
Percent Moisture	**6.3**		0.1	%			11/11/19 16:08	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-14-10'

Date Collected: 11/06/19 16:40
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-13

Matrix: Soil
Percent Solids: 94.6

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<2000		2000		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Benzene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Bromoform	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Bromomethane	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
2-Butanone (MEK)	<2000		2000		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Carbon disulfide	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Carbon tetrachloride	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Chlorobenzene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Chlorodibromomethane	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Chloroethane	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Chloroform	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Chloromethane	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
cis-1,2-Dichloroethene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
cis-1,3-Dichloropropene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Cyclohexane	<1000		1000		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
1,2-Dibromo-3-Chloropropane	<1000		1000		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
1,2-Dichlorobenzene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
1,3-Dichlorobenzene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
1,4-Dichlorobenzene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Dichlorobromomethane	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Dichlorodifluoromethane	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
1,1-Dichloroethane	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
1,2-Dichloroethane	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
1,1-Dichloroethene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
1,2-Dichloropropane	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Ethylbenzene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
1,2-Dibromoethane (EDB)	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
2-Hexanone	<2000		2000		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Isopropylbenzene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Methyl acetate	<2500		2500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Methylcyclohexane	<1000		1000		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Methylene Chloride	<1000		1000		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
2-Methylnaphthalene	<2500		2500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
4-Methyl-2-pentanone (MIBK)	<2000		2000		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Methyl tert-butyl ether	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
m-Xylene & p-Xylene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Naphthalene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
o-Xylene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Styrene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
1,1,2,2-Tetrachloroethane	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Tetrachloroethene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Toluene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
trans-1,2-Dichloroethene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
trans-1,3-Dichloropropene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
1,2,4-Trichlorobenzene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
1,1,1-Trichloroethane	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
1,1,2-Trichloroethane	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Trichloroethene	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Trichlorofluoromethane	<500		500		ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-14-10'

Date Collected: 11/06/19 16:40
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-13

Matrix: Soil
Percent Solids: 94.6

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<500		500	ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
1,2,4-Trimethylbenzene	<500		500	ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
1,3,5-Trimethylbenzene	<500		500	ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Vinyl chloride	<500		500	ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1
Xylenes, Total	<1000		1000	ug/Kg	☼	11/11/19 18:30	11/12/19 21:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*262*	*X*	*51 - 124*	*11/11/19 18:30*	*11/12/19 21:08*	*1*
Dibromofluoromethane (Surr)	*208*	*X*	*49 - 122*	*11/11/19 18:30*	*11/12/19 21:08*	*1*
1,2-Dichloroethane-d4 (Surr)	*283*	*X*	*47 - 136*	*11/11/19 18:30*	*11/12/19 21:08*	*1*
Toluene-d8 (Surr)	*288*	*X*	*55 - 123*	*11/11/19 18:30*	*11/12/19 21:08*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - RE

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1100		1100	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Benzene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Bromoform	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Bromomethane	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
2-Butanone (MEK)	<1100		1100	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Carbon disulfide	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Carbon tetrachloride	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Chlorobenzene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Chlorodibromomethane	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Chloroethane	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Chloroform	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Chloromethane	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
cis-1,2-Dichloroethene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
cis-1,3-Dichloropropene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Cyclohexane	<540		540	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
1,2-Dibromo-3-Chloropropane	<540		540	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
1,2-Dichlorobenzene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
1,3-Dichlorobenzene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
1,4-Dichlorobenzene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Dichlorobromomethane	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Dichlorodifluoromethane	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
1,1-Dichloroethane	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
1,2-Dichloroethane	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
1,1-Dichloroethene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
1,2-Dichloropropane	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Ethylbenzene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
1,2-Dibromoethane (EDB)	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
2-Hexanone	<1100		1100	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Isopropylbenzene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Methyl acetate	<1400		1400	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Methylcyclohexane	<540		540	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Methylene Chloride	<540		540	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
2-Methylnaphthalene	<1400		1400	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
4-Methyl-2-pentanone (MIBK)	<1100		1100	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Methyl tert-butyl ether	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
m-Xylene & p-Xylene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-14-10'

Date Collected: 11/06/19 16:40
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-13

Matrix: Soil
Percent Solids: 94.6

Method: 8260B - Volatile Organic Compounds (GC/MS) - RE (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
o-Xylene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Styrene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
1,1,2,2-Tetrachloroethane	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Tetrachloroethene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Toluene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
trans-1,2-Dichloroethene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
trans-1,3-Dichloropropene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
1,2,4-Trichlorobenzene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
1,1,1-Trichloroethane	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
1,1,2-Trichloroethane	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Trichloroethene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Trichlorofluoromethane	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
1,1,2-Trichloro-1,2,2-trifluoroethane	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
1,2,4-Trimethylbenzene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
1,3,5-Trimethylbenzene	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Vinyl chloride	<270		270	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1
Xylenes, Total	<540		540	ug/Kg	☼	11/11/19 19:37	11/13/19 14:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*51 - 124*	*11/11/19 19:37*	*11/13/19 14:59*	*1*
Dibromofluoromethane (Surr)	*80*		*49 - 122*	*11/11/19 19:37*	*11/13/19 14:59*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*47 - 136*	*11/11/19 19:37*	*11/13/19 14:59*	*1*
Toluene-d8 (Surr)	*95*		*55 - 123*	*11/11/19 19:37*	*11/13/19 14:59*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1
Acenaphthylene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1
Anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1
Benzo[a]anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1
Benzo[a]pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1
Benzo[b]fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1
Benzo[g,h,i]perylene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1
Benzo[k]fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1
Chrysene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1
Dibenz(a,h)anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1
Fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1
Fluorene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1
Indeno[1,2,3-cd]pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1
2-Methylnaphthalene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1
Naphthalene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1
Phenanthrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1
Pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*74*		*35 - 120*	*11/14/19 09:48*	*11/17/19 20:53*	*1*
2-Fluorophenol (Surr)	*73*		*26 - 120*	*11/14/19 09:48*	*11/17/19 20:53*	*1*
Nitrobenzene-d5 (Surr)	*79*		*28 - 120*	*11/14/19 09:48*	*11/17/19 20:53*	*1*
Phenol-d5 (Surr)	*82*		*28 - 120*	*11/14/19 09:48*	*11/17/19 20:53*	*1*

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-14-10'

Date Collected: 11/06/19 16:40
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-13

Matrix: Soil
Percent Solids: 94.6

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*95*		*39 - 120*	*11/14/19 09:48*	*11/17/19 20:53*	*1*
2,4,6-Tribromophenol (Surr)	*45*		*10 - 120*	*11/14/19 09:48*	*11/17/19 20:53*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**590**		340	ug/Kg	☼	11/11/19 14:00	11/13/19 21:56	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**94.6**		0.1	%			11/11/19 16:08	1
Percent Moisture	**5.4**		0.1	%			11/11/19 16:08	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: SG-1-5'

Date Collected: 11/06/19 13:30
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-14

Matrix: Soil
Percent Solids: 91.2

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Benzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Bromoform	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Bromomethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
2-Butanone (MEK)	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Carbon disulfide	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Carbon tetrachloride	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Chlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Chlorodibromomethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Chloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Chloroform	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Chloromethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
cis-1,2-Dichloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
cis-1,3-Dichloropropene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Cyclohexane	<560		560		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
1,2-Dibromo-3-Chloropropane	<560		560		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
1,2-Dichlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
1,3-Dichlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
1,4-Dichlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Dichlorobromomethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Dichlorodifluoromethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
1,1-Dichloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
1,2-Dichloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
1,1-Dichloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
1,2-Dichloropropane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Ethylbenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
1,2-Dibromoethane (EDB)	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
2-Hexanone	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Isopropylbenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Methyl acetate	<1400		1400		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Methylcyclohexane	<560		560		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Methylene Chloride	<560		560		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
2-Methylnaphthalene	<1400		1400		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
4-Methyl-2-pentanone (MIBK)	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Methyl tert-butyl ether	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
m-Xylene & p-Xylene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Naphthalene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
o-Xylene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Styrene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
1,1,2,2-Tetrachloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Tetrachloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Toluene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
trans-1,2-Dichloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
trans-1,3-Dichloropropene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
1,2,4-Trichlorobenzene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
1,1,1-Trichloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
1,1,2-Trichloroethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Trichloroethene	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Trichlorofluoromethane	<280		280		ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: SG-1-5'

Date Collected: 11/06/19 13:30
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-14

Matrix: Soil
Percent Solids: 91.2

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<280		280	ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
1,2,4-Trimethylbenzene	<280		280	ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
1,3,5-Trimethylbenzene	<280		280	ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Vinyl chloride	<280		280	ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1
Xylenes, Total	<560		560	ug/Kg	☼	11/11/19 18:30	11/12/19 21:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*51 - 124*	*11/11/19 18:30*	*11/12/19 21:32*	*1*
Dibromofluoromethane (Surr)	*88*		*49 - 122*	*11/11/19 18:30*	*11/12/19 21:32*	*1*
1,2-Dichloroethane-d4 (Surr)	*116*		*47 - 136*	*11/11/19 18:30*	*11/12/19 21:32*	*1*
Toluene-d8 (Surr)	*107*		*55 - 123*	*11/11/19 18:30*	*11/12/19 21:32*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1
Acenaphthylene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1
Anthracene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1
Benzo[a]anthracene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1
Benzo[a]pyrene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1
Benzo[b]fluoranthene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1
Benzo[g,h,i]perylene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1
Benzo[k]fluoranthene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1
Chrysene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1
Dibenz(a,h)anthracene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1
Fluoranthene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1
Fluorene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1
Indeno[1,2,3-cd]pyrene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1
2-Methylnaphthalene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1
Naphthalene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1
Phenanthrene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1
Pyrene	<290		290	ug/Kg	☼	11/14/19 09:48	11/17/19 21:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*69*		*35 - 120*	*11/14/19 09:48*	*11/17/19 21:18*	*1*
2-Fluorophenol (Surr)	*66*		*26 - 120*	*11/14/19 09:48*	*11/17/19 21:18*	*1*
Nitrobenzene-d5 (Surr)	*70*		*28 - 120*	*11/14/19 09:48*	*11/17/19 21:18*	*1*
Phenol-d5 (Surr)	*72*		*28 - 120*	*11/14/19 09:48*	*11/17/19 21:18*	*1*
Terphenyl-d14 (Surr)	*84*		*39 - 120*	*11/14/19 09:48*	*11/17/19 21:18*	*1*
2,4,6-Tribromophenol (Surr)	*43*		*10 - 120*	*11/14/19 09:48*	*11/17/19 21:18*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**1700**		300	ug/Kg	☼	11/11/19 14:00	11/13/19 22:02	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**91.2**		0.1	%			11/11/19 16:08	1
Percent Moisture	**8.8**		0.1	%			11/11/19 16:08	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: Duplicate

Date Collected: 11/06/19 00:00
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-15

Matrix: Soil
Percent Solids: 96.2

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Benzene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Bromoform	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Bromomethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
2-Butanone (MEK)	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Carbon disulfide	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Carbon tetrachloride	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Chlorobenzene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Chlorodibromomethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Chloroethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Chloroform	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Chloromethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
cis-1,2-Dichloroethene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
cis-1,3-Dichloropropene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Cyclohexane	<530		530		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
1,2-Dibromo-3-Chloropropane	<530		530		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
1,2-Dichlorobenzene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
1,3-Dichlorobenzene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
1,4-Dichlorobenzene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Dichlorobromomethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Dichlorodifluoromethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
1,1-Dichloroethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
1,2-Dichloroethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
1,1-Dichloroethene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
1,2-Dichloropropane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Ethylbenzene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
1,2-Dibromoethane (EDB)	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
2-Hexanone	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Isopropylbenzene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Methyl acetate	<1300		1300		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Methylcyclohexane	<530		530		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Methylene Chloride	<530		530		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
2-Methylnaphthalene	<1300		1300		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
4-Methyl-2-pentanone (MIBK)	<1100		1100		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Methyl tert-butyl ether	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
m-Xylene & p-Xylene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Naphthalene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
o-Xylene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Styrene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
1,1,2,2-Tetrachloroethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Tetrachloroethene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Toluene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
trans-1,2-Dichloroethene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
trans-1,3-Dichloropropene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
1,2,4-Trichlorobenzene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
1,1,1-Trichloroethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
1,1,2-Trichloroethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Trichloroethene	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Trichlorofluoromethane	<260		260		ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: Duplicate

Date Collected: 11/06/19 00:00
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-15

Matrix: Soil
Percent Solids: 96.2

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<260		260	ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
1,2,4-Trimethylbenzene	<260		260	ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
1,3,5-Trimethylbenzene	<260		260	ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Vinyl chloride	<260		260	ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1
Xylenes, Total	<530		530	ug/Kg	☼	11/11/19 18:30	11/12/19 21:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*51 - 124*	*11/11/19 18:30*	*11/12/19 21:57*	*1*
Dibromofluoromethane (Surr)	*79*		*49 - 122*	*11/11/19 18:30*	*11/12/19 21:57*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*47 - 136*	*11/11/19 18:30*	*11/12/19 21:57*	*1*
Toluene-d8 (Surr)	*100*		*55 - 123*	*11/11/19 18:30*	*11/12/19 21:57*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1
Acenaphthylene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1
Anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1
Benzo[a]anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1
Benzo[a]pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1
Benzo[b]fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1
Benzo[g,h,i]perylene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1
Benzo[k]fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1
Chrysene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1
Dibenz(a,h)anthracene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1
Fluoranthene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1
Fluorene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1
Indeno[1,2,3-cd]pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1
2-Methylnaphthalene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1
Naphthalene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1
Phenanthrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1
Pyrene	<280		280	ug/Kg	☼	11/14/19 09:48	11/17/19 20:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*79*		*35 - 120*	*11/14/19 09:48*	*11/17/19 20:28*	*1*
2-Fluorophenol (Surr)	*78*		*26 - 120*	*11/14/19 09:48*	*11/17/19 20:28*	*1*
Nitrobenzene-d5 (Surr)	*81*		*28 - 120*	*11/14/19 09:48*	*11/17/19 20:28*	*1*
Phenol-d5 (Surr)	*86*		*28 - 120*	*11/14/19 09:48*	*11/17/19 20:28*	*1*
Terphenyl-d14 (Surr)	*94*		*39 - 120*	*11/14/19 09:48*	*11/17/19 20:28*	*1*
2,4,6-Tribromophenol (Surr)	*41*		*10 - 120*	*11/14/19 09:48*	*11/17/19 20:28*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**1900**		350	ug/Kg	☼	11/11/19 14:00	11/13/19 22:05	2

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**96.2**		0.1	%			11/11/19 16:08	1
Percent Moisture	**3.8**		0.1	%			11/11/19 16:08	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: Field Blank

Lab Sample ID: 190-21518-16

Date Collected: 11/06/19 13:35
Matrix: Soil
Date Received: 11/08/19 10:11

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1000		1000		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Benzene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Bromoform	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Bromomethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
2-Butanone (MEK)	<1000		1000		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Carbon disulfide	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Carbon tetrachloride	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Chlorobenzene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Chlorodibromomethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Chloroethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Chloroform	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Chloromethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
cis-1,2-Dichloroethene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
cis-1,3-Dichloropropene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Cyclohexane	<500		500		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
1,2-Dibromo-3-Chloropropane	<500		500		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
1,2-Dichlorobenzene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
1,3-Dichlorobenzene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
1,4-Dichlorobenzene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Dichlorobromomethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Dichlorodifluoromethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
1,1-Dichloroethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
1,2-Dichloroethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
1,1-Dichloroethene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
1,2-Dichloropropane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Ethylbenzene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
1,2-Dibromoethane (EDB)	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
2-Hexanone	<1000		1000		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Isopropylbenzene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Methyl acetate	<1300		1300		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Methylcyclohexane	<500		500		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Methylene Chloride	<500		500		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
2-Methylnaphthalene	<1300		1300		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
4-Methyl-2-pentanone (MIBK)	<1000		1000		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Methyl tert-butyl ether	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
m-Xylene & p-Xylene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Naphthalene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
o-Xylene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Styrene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
1,1,2,2-Tetrachloroethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Tetrachloroethene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Toluene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
trans-1,2-Dichloroethene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
trans-1,3-Dichloropropene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
1,2,4-Trichlorobenzene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
1,1,1-Trichloroethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
1,1,2-Trichloroethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Trichloroethene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Trichlorofluoromethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 22:22	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: Field Blank

Lab Sample ID: 190-21518-16

Date Collected: 11/06/19 13:35
Matrix: Soil
Date Received: 11/08/19 10:11

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<250		250	ug/Kg		11/11/19 18:30	11/12/19 22:22	1
1,2,4-Trimethylbenzene	<250		250	ug/Kg		11/11/19 18:30	11/12/19 22:22	1
1,3,5-Trimethylbenzene	<250		250	ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Vinyl chloride	<250		250	ug/Kg		11/11/19 18:30	11/12/19 22:22	1
Xylenes, Total	<500		500	ug/Kg		11/11/19 18:30	11/12/19 22:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*51 - 124*	*11/11/19 18:30*	*11/12/19 22:22*	*1*
Dibromofluoromethane (Surr)	*91*		*49 - 122*	*11/11/19 18:30*	*11/12/19 22:22*	*1*
1,2-Dichloroethane-d4 (Surr)	*116*		*47 - 136*	*11/11/19 18:30*	*11/12/19 22:22*	*1*
Toluene-d8 (Surr)	*113*		*55 - 123*	*11/11/19 18:30*	*11/12/19 22:22*	*1*

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-10-85'-90'

Date Collected: 11/06/19 14:35
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-17

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**25**		10	ug/L			11/16/19 16:02	1
Benzene	<1.0		1.0	ug/L			11/16/19 16:02	1
Bromodichloromethane	<1.0		1.0	ug/L			11/16/19 16:02	1
Bromoform	<1.0		1.0	ug/L			11/16/19 16:02	1
Bromomethane	<1.0		1.0	ug/L			11/16/19 16:02	1
2-Butanone (MEK)	<10		10	ug/L			11/16/19 16:02	1
Carbon disulfide	<5.0		5.0	ug/L			11/16/19 16:02	1
Carbon tetrachloride	<1.0		1.0	ug/L			11/16/19 16:02	1
Chlorobenzene	<1.0		1.0	ug/L			11/16/19 16:02	1
Chloroethane	<1.0		1.0	ug/L			11/16/19 16:02	1
Chloroform	<1.0		1.0	ug/L			11/16/19 16:02	1
Chloromethane	<1.0		1.0	ug/L			11/16/19 16:02	1
cis-1,2-Dichloroethene	<1.0		1.0	ug/L			11/16/19 16:02	1
cis-1,3-Dichloropropene	<1.0		1.0	ug/L			11/16/19 16:02	1
Cyclohexane	<1.0	*	1.0	ug/L			11/16/19 16:02	1
Dibromochloromethane	<1.0	*	1.0	ug/L			11/16/19 16:02	1
1,2-Dibromo-3-Chloropropane	<1.0		1.0	ug/L			11/16/19 16:02	1
1,2-Dibromoethane (EDB)	<1.0	*	1.0	ug/L			11/16/19 16:02	1
1,2-Dichlorobenzene	<1.0		1.0	ug/L			11/16/19 16:02	1
1,3-Dichlorobenzene	<1.0		1.0	ug/L			11/16/19 16:02	1
1,4-Dichlorobenzene	<1.0		1.0	ug/L			11/16/19 16:02	1
Dichlorodifluoromethane	<1.0		1.0	ug/L			11/16/19 16:02	1
1,1-Dichloroethane	<1.0		1.0	ug/L			11/16/19 16:02	1
1,2-Dichloroethane	<1.0		1.0	ug/L			11/16/19 16:02	1
1,1-Dichloroethene	<1.0		1.0	ug/L			11/16/19 16:02	1
1,2-Dichloropropane	<1.0		1.0	ug/L			11/16/19 16:02	1
Ethylbenzene	<1.0		1.0	ug/L			11/16/19 16:02	1
2-Hexanone	<10		10	ug/L			11/16/19 16:02	1
Isopropylbenzene	<1.0		1.0	ug/L			11/16/19 16:02	1
Methyl acetate	<10		10	ug/L			11/16/19 16:02	1
Methylcyclohexane	<1.0		1.0	ug/L			11/16/19 16:02	1
Methylene Chloride	<5.0		5.0	ug/L			11/16/19 16:02	1
2-Methylnaphthalene	<5.0		5.0	ug/L			11/16/19 16:02	1
4-Methyl-2-pentanone (MIBK)	<10		10	ug/L			11/16/19 16:02	1
Methyl tert-butyl ether	<1.0		1.0	ug/L			11/16/19 16:02	1
m-Xylene & p-Xylene	<2.0		2.0	ug/L			11/16/19 16:02	1
Naphthalene	<1.0		1.0	ug/L			11/16/19 16:02	1
o-Xylene	<1.0		1.0	ug/L			11/16/19 16:02	1
Styrene	<1.0		1.0	ug/L			11/16/19 16:02	1
1,1,2,2-Tetrachloroethane	<1.0		1.0	ug/L			11/16/19 16:02	1
Tetrachloroethene	<1.0		1.0	ug/L			11/16/19 16:02	1
Toluene	<1.0		1.0	ug/L			11/16/19 16:02	1
trans-1,2-Dichloroethene	<1.0		1.0	ug/L			11/16/19 16:02	1
trans-1,3-Dichloropropene	<1.0	*	1.0	ug/L			11/16/19 16:02	1
1,2,4-Trichlorobenzene	<1.0		1.0	ug/L			11/16/19 16:02	1
1,1,1-Trichloroethane	<1.0		1.0	ug/L			11/16/19 16:02	1
1,1,2-Trichloroethane	<1.0	*	1.0	ug/L			11/16/19 16:02	1
Trichloroethene	<1.0		1.0	ug/L			11/16/19 16:02	1
Trichlorofluoromethane	<1.0		1.0	ug/L			11/16/19 16:02	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-10-85'-90'

Date Collected: 11/06/19 14:35
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-17

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<1.0		1.0	ug/L			11/16/19 16:02	1
1,2,4-Trimethylbenzene	<1.0		1.0	ug/L			11/16/19 16:02	1
1,3,5-Trimethylbenzene	<1.0		1.0	ug/L			11/16/19 16:02	1
Vinyl chloride	<1.0		1.0	ug/L			11/16/19 16:02	1
Xylenes, Total	<2.0		2.0	ug/L			11/16/19 16:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*47 - 134*		*11/16/19 16:02*	*1*
Dibromofluoromethane (Surr)	*118*		*78 - 129*		*11/16/19 16:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 130*		*11/16/19 16:02*	*1*
Toluene-d8 (Surr)	*99*		*69 - 122*		*11/16/19 16:02*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1
Acenaphthylene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1
Anthracene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1
Benzo[a]anthracene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1
Benzo[b]fluoranthene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1
Benzo[k]fluoranthene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1
Benzo[g,h,i]perylene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1
Benzo[a]pyrene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1
Chrysene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1
2-Methylnaphthalene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1
Dibenz(a,h)anthracene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1
Fluoranthene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1
Fluorene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1
Indeno[1,2,3-cd]pyrene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1
Naphthalene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1
Phenanthrene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1
Pyrene	<9.3		9.3	ug/L		11/11/19 09:41	11/14/19 09:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*81*		*46 - 120*	*11/11/19 09:41*	*11/14/19 09:34*	*1*
2-Fluorophenol (Surr)	*74*		*27 - 123*	*11/11/19 09:41*	*11/14/19 09:34*	*1*
2,4,6-Tribromophenol (Surr)	*78*		*33 - 120*	*11/11/19 09:41*	*11/14/19 09:34*	*1*
Nitrobenzene-d5 (Surr)	*76*		*46 - 120*	*11/11/19 09:41*	*11/14/19 09:34*	*1*
Phenol-d5 (Surr)	*67*		*23 - 120*	*11/11/19 09:41*	*11/14/19 09:34*	*1*
Terphenyl-d14 (Surr)	*83*		*53 - 120*	*11/11/19 09:41*	*11/14/19 09:34*	*1*

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-10-74'-79'

Date Collected: 11/06/19 14:55
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-18

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<10		10	ug/L			11/16/19 16:28	1
Benzene	<1.0		1.0	ug/L			11/16/19 16:28	1
Bromodichloromethane	<1.0		1.0	ug/L			11/16/19 16:28	1
Bromoform	<1.0		1.0	ug/L			11/16/19 16:28	1
Bromomethane	<1.0		1.0	ug/L			11/16/19 16:28	1
2-Butanone (MEK)	<10		10	ug/L			11/16/19 16:28	1
Carbon disulfide	<5.0		5.0	ug/L			11/16/19 16:28	1
Carbon tetrachloride	<1.0		1.0	ug/L			11/16/19 16:28	1
Chlorobenzene	<1.0		1.0	ug/L			11/16/19 16:28	1
Chloroethane	<1.0		1.0	ug/L			11/16/19 16:28	1
Chloroform	<1.0		1.0	ug/L			11/16/19 16:28	1
Chloromethane	<1.0		1.0	ug/L			11/16/19 16:28	1
cis-1,2-Dichloroethene	<1.0		1.0	ug/L			11/16/19 16:28	1
cis-1,3-Dichloropropene	<1.0		1.0	ug/L			11/16/19 16:28	1
Cyclohexane	<1.0	*	1.0	ug/L			11/16/19 16:28	1
Dibromochloromethane	<1.0	*	1.0	ug/L			11/16/19 16:28	1
1,2-Dibromo-3-Chloropropane	<1.0		1.0	ug/L			11/16/19 16:28	1
1,2-Dibromoethane (EDB)	<1.0	*	1.0	ug/L			11/16/19 16:28	1
1,2-Dichlorobenzene	<1.0		1.0	ug/L			11/16/19 16:28	1
1,3-Dichlorobenzene	<1.0		1.0	ug/L			11/16/19 16:28	1
1,4-Dichlorobenzene	<1.0		1.0	ug/L			11/16/19 16:28	1
Dichlorodifluoromethane	<1.0		1.0	ug/L			11/16/19 16:28	1
1,1-Dichloroethane	<1.0		1.0	ug/L			11/16/19 16:28	1
1,2-Dichloroethane	<1.0		1.0	ug/L			11/16/19 16:28	1
1,1-Dichloroethene	<1.0		1.0	ug/L			11/16/19 16:28	1
1,2-Dichloropropane	<1.0		1.0	ug/L			11/16/19 16:28	1
Ethylbenzene	<1.0		1.0	ug/L			11/16/19 16:28	1
2-Hexanone	<10		10	ug/L			11/16/19 16:28	1
Isopropylbenzene	<1.0		1.0	ug/L			11/16/19 16:28	1
Methyl acetate	<10		10	ug/L			11/16/19 16:28	1
Methylcyclohexane	<1.0		1.0	ug/L			11/16/19 16:28	1
Methylene Chloride	<5.0		5.0	ug/L			11/16/19 16:28	1
2-Methylnaphthalene	<5.0		5.0	ug/L			11/16/19 16:28	1
4-Methyl-2-pentanone (MIBK)	<10		10	ug/L			11/16/19 16:28	1
Methyl tert-butyl ether	<1.0		1.0	ug/L			11/16/19 16:28	1
m-Xylene & p-Xylene	<2.0		2.0	ug/L			11/16/19 16:28	1
Naphthalene	<1.0		1.0	ug/L			11/16/19 16:28	1
o-Xylene	<1.0		1.0	ug/L			11/16/19 16:28	1
Styrene	<1.0		1.0	ug/L			11/16/19 16:28	1
1,1,2,2-Tetrachloroethane	<1.0		1.0	ug/L			11/16/19 16:28	1
Tetrachloroethene	<1.0		1.0	ug/L			11/16/19 16:28	1
Toluene	<1.0		1.0	ug/L			11/16/19 16:28	1
trans-1,2-Dichloroethene	<1.0		1.0	ug/L			11/16/19 16:28	1
trans-1,3-Dichloropropene	<1.0	*	1.0	ug/L			11/16/19 16:28	1
1,2,4-Trichlorobenzene	<1.0		1.0	ug/L			11/16/19 16:28	1
1,1,1-Trichloroethane	<1.0		1.0	ug/L			11/16/19 16:28	1
1,1,2-Trichloroethane	<1.0	*	1.0	ug/L			11/16/19 16:28	1
Trichloroethene	<1.0		1.0	ug/L			11/16/19 16:28	1
Trichlorofluoromethane	<1.0		1.0	ug/L			11/16/19 16:28	1

Client Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Client Sample ID: B-10-74'-79'

Date Collected: 11/06/19 14:55
Date Received: 11/08/19 10:11

Lab Sample ID: 190-21518-18

Matrix: Ground Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	<1.0		1.0	ug/L			11/16/19 16:28	1
1,2,4-Trimethylbenzene	<1.0		1.0	ug/L			11/16/19 16:28	1
1,3,5-Trimethylbenzene	<1.0		1.0	ug/L			11/16/19 16:28	1
Vinyl chloride	<1.0		1.0	ug/L			11/16/19 16:28	1
Xylenes, Total	<2.0		2.0	ug/L			11/16/19 16:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*77*		*47 - 134*		*11/16/19 16:28*	*1*
Dibromofluoromethane (Surr)	*118*		*78 - 129*		*11/16/19 16:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 130*		*11/16/19 16:28*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*11/16/19 16:28*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1
Acenaphthylene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1
Anthracene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1
Benzo[a]anthracene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1
Benzo[b]fluoranthene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1
Benzo[k]fluoranthene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1
Benzo[g,h,i]perylene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1
Benzo[a]pyrene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1
Chrysene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1
2-Methylnaphthalene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1
Dibenz(a,h)anthracene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1
Fluoranthene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1
Fluorene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1
Indeno[1,2,3-cd]pyrene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1
Naphthalene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1
Phenanthrene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1
Pyrene	<9.6		9.6	ug/L		11/11/19 09:41	11/14/19 09:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*75*		*46 - 120*	*11/11/19 09:41*	*11/14/19 09:57*	*1*
2-Fluorophenol (Surr)	*68*		*27 - 123*	*11/11/19 09:41*	*11/14/19 09:57*	*1*
2,4,6-Tribromophenol (Surr)	*82*		*33 - 120*	*11/11/19 09:41*	*11/14/19 09:57*	*1*
Nitrobenzene-d5 (Surr)	*60*		*46 - 120*	*11/11/19 09:41*	*11/14/19 09:57*	*1*
Phenol-d5 (Surr)	*61*		*23 - 120*	*11/11/19 09:41*	*11/14/19 09:57*	*1*
Terphenyl-d14 (Surr)	*71*		*53 - 120*	*11/11/19 09:41*	*11/14/19 09:57*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	<1.0		1.0	ug/L		11/11/19 14:00	11/13/19 19:07	1

QC Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-410327/1-A
Matrix: Solid
Analysis Batch: 410440

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 410327

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<1000		1000		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Benzene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Bromoform	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Bromomethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
2-Butanone (MEK)	<1000		1000		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Carbon disulfide	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Carbon tetrachloride	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Chlorobenzene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Chloroethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Chloroform	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Chloromethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
cis-1,2-Dichloroethene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
cis-1,3-Dichloropropene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Cyclohexane	<500		500		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Chlorodibromomethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
1,2-Dibromo-3-Chloropropane	<500		500		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
1,2-Dichlorobenzene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
1,3-Dichlorobenzene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Dichlorobromomethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
1,4-Dichlorobenzene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Dichlorodifluoromethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
1,1-Dichloroethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
1,2-Dichloroethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
1,1-Dichloroethene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
1,2-Dichloropropane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
1,2-Dibromoethane (EDB)	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Ethylbenzene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
2-Hexanone	<1000		1000		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Isopropylbenzene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Methyl acetate	<1300		1300		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Methylcyclohexane	<500		500		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Methylene Chloride	<500		500		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
2-Methylnaphthalene	<1300		1300		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
4-Methyl-2-pentanone (MIBK)	<1000		1000		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Methyl tert-butyl ether	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
m-Xylene & p-Xylene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Naphthalene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
o-Xylene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Styrene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
1,1,2,2-Tetrachloroethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Tetrachloroethene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Toluene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
trans-1,2-Dichloroethene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
trans-1,3-Dichloropropene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
1,2,4-Trichlorobenzene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
1,1,1-Trichloroethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
1,1,2-Trichloroethane	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Trichloroethene	<250		250		ug/Kg		11/11/19 18:30	11/12/19 13:43	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-410327/1-A
Matrix: Solid
Analysis Batch: 410440

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 410327

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	<250		250	ug/Kg		11/11/19 18:30	11/12/19 13:43	1
1,1,2-Trichloro-1,2,2-trifluoroethane	<250		250	ug/Kg		11/11/19 18:30	11/12/19 13:43	1
1,2,4-Trimethylbenzene	<250		250	ug/Kg		11/11/19 18:30	11/12/19 13:43	1
1,3,5-Trimethylbenzene	<250		250	ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Vinyl chloride	<250		250	ug/Kg		11/11/19 18:30	11/12/19 13:43	1
Xylenes, Total	<500		500	ug/Kg		11/11/19 18:30	11/12/19 13:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*51 - 124*	*11/11/19 18:30*	*11/12/19 13:43*	*1*
Dibromofluoromethane (Surr)	*80*		*49 - 122*	*11/11/19 18:30*	*11/12/19 13:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*47 - 136*	*11/11/19 18:30*	*11/12/19 13:43*	*1*
Toluene-d8 (Surr)	*96*		*55 - 123*	*11/11/19 18:30*	*11/12/19 13:43*	*1*

Lab Sample ID: LCS 240-410327/2-A
Matrix: Solid
Analysis Batch: 410440

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 410327

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	2000	1510		ug/Kg		75	47 - 157
Benzene	1000	890		ug/Kg		89	75 - 120
Bromoform	1000	589		ug/Kg		59	44 - 131
Bromomethane	1000	<250		ug/Kg		16	10 - 158
2-Butanone (MEK)	2000	1570		ug/Kg		79	61 - 131
Carbon disulfide	1000	671		ug/Kg		67	33 - 144
Carbon tetrachloride	1000	761		ug/Kg		76	54 - 130
Chlorobenzene	1000	945		ug/Kg		95	79 - 120
Chloroethane	1000	<250		ug/Kg		13	10 - 159
Chloroform	1000	893		ug/Kg		89	74 - 120
Chloromethane	1000	754		ug/Kg		75	40 - 127
cis-1,2-Dichloroethene	1000	875		ug/Kg		88	76 - 120
cis-1,3-Dichloropropene	1000	840		ug/Kg		84	62 - 124
Cyclohexane	1000	884		ug/Kg		88	57 - 126
Chlorodibromomethane	1000	753		ug/Kg		75	60 - 121
1,2-Dibromo-3-Chloropropane	1000	618		ug/Kg		62	35 - 137
1,2-Dichlorobenzene	1000	927		ug/Kg		93	74 - 120
1,3-Dichlorobenzene	1000	952		ug/Kg		95	74 - 120
Dichlorobromomethane	1000	789		ug/Kg		79	63 - 121
1,4-Dichlorobenzene	1000	968		ug/Kg		97	74 - 120
Dichlorodifluoromethane	1000	618		ug/Kg		62	18 - 137
1,1-Dichloroethane	1000	855		ug/Kg		86	69 - 120
1,2-Dichloroethane	1000	991		ug/Kg		99	66 - 120
1,1-Dichloroethene	1000	833		ug/Kg		83	48 - 140
1,2-Dichloropropane	1000	887		ug/Kg		89	77 - 120
1,2-Dibromoethane (EDB)	1000	892		ug/Kg		89	73 - 126
Ethylbenzene	1000	957		ug/Kg		96	75 - 120
2-Hexanone	2000	1430		ug/Kg		72	54 - 135
Isopropylbenzene	1000	948		ug/Kg		95	74 - 120
Methyl acetate	2000	1560		ug/Kg		78	63 - 120

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-410327/2-A
Matrix: Solid
Analysis Batch: 410440

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 410327

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylcyclohexane	1000	923		ug/Kg		92	62 - 124
Methylene Chloride	1000	817		ug/Kg		82	48 - 142
4-Methyl-2-pentanone (MIBK)	2000	1420		ug/Kg		71	56 - 124
Methyl tert-butyl ether	1000	855		ug/Kg		85	66 - 120
m-Xylene & p-Xylene	1000	947		ug/Kg		95	76 - 120
Naphthalene	1000	767		ug/Kg		77	43 - 127
o-Xylene	1000	929		ug/Kg		93	76 - 120
Styrene	1000	944		ug/Kg		94	70 - 120
1,1,2,2-Tetrachloroethane	1000	932		ug/Kg		93	61 - 134
Tetrachloroethene	1000	916		ug/Kg		92	75 - 124
Toluene	1000	985		ug/Kg		98	76 - 120
trans-1,2-Dichloroethene	1000	909		ug/Kg		91	74 - 125
trans-1,3-Dichloropropene	1000	807		ug/Kg		81	58 - 120
1,2,4-Trichlorobenzene	1000	818		ug/Kg		82	56 - 120
1,1,1-Trichloroethane	1000	824		ug/Kg		82	60 - 126
1,1,2-Trichloroethane	1000	916		ug/Kg		92	78 - 120
Trichloroethene	1000	890		ug/Kg		89	75 - 123
Trichlorofluoromethane	1000	882		ug/Kg		88	33 - 152
1,1,2-Trichloro-1,2,2-trifluoroethane	1000	899		ug/Kg		90	58 - 144
1,2,4-Trimethylbenzene	1000	989		ug/Kg		99	69 - 122
1,3,5-Trimethylbenzene	1000	1030		ug/Kg		103	68 - 126
Vinyl chloride	1000	828		ug/Kg		83	39 - 140
Xylenes, Total	2000	1880		ug/Kg		94	77 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*87*		*51 - 124*
Dibromofluoromethane (Surr)	*82*		*49 - 122*
1,2-Dichloroethane-d4 (Surr)	*91*		*47 - 136*
Toluene-d8 (Surr)	*91*		*55 - 123*

Lab Sample ID: LCS 240-410327/4-A
Matrix: Solid
Analysis Batch: 410647

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 410327

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylnaphthalene	2000	1100	J	ug/Kg		55	50 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*81*		*51 - 124*
Dibromofluoromethane (Surr)	*76*		*49 - 122*
1,2-Dichloroethane-d4 (Surr)	*89*		*47 - 136*
Toluene-d8 (Surr)	*90*		*55 - 123*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 240-410327/3-A
Matrix: Solid
Analysis Batch: 410440

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 410327

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	2000	1530		ug/Kg		77	47 - 157	2	40
Benzene	1000	890		ug/Kg		89	75 - 120	0	40
Bromoform	1000	611		ug/Kg		61	44 - 131	4	40
Bromomethane	1000	<250		ug/Kg		16	10 - 158	3	40
2-Butanone (MEK)	2000	1730		ug/Kg		86	61 - 131	9	40
Carbon disulfide	1000	655		ug/Kg		66	33 - 144	2	40
Carbon tetrachloride	1000	746		ug/Kg		75	54 - 130	2	40
Chlorobenzene	1000	964		ug/Kg		96	79 - 120	2	40
Chloroethane	1000	<250		ug/Kg		10	10 - 159	22	40
Chloroform	1000	896		ug/Kg		90	74 - 120	0	40
Chloromethane	1000	742		ug/Kg		74	40 - 127	2	40
cis-1,2-Dichloroethene	1000	891		ug/Kg		89	76 - 120	2	40
cis-1,3-Dichloropropene	1000	846		ug/Kg		85	62 - 124	1	40
Cyclohexane	1000	853		ug/Kg		85	57 - 126	4	40
Chlorodibromomethane	1000	774		ug/Kg		77	60 - 121	3	40
1,2-Dibromo-3-Chloropropane	1000	675		ug/Kg		68	35 - 137	9	40
1,2-Dichlorobenzene	1000	951		ug/Kg		95	74 - 120	2	40
1,3-Dichlorobenzene	1000	971		ug/Kg		97	74 - 120	2	40
Dichlorobromomethane	1000	793		ug/Kg		79	63 - 121	0	40
1,4-Dichlorobenzene	1000	969		ug/Kg		97	74 - 120	0	40
Dichlorodifluoromethane	1000	560		ug/Kg		56	18 - 137	10	40
1,1-Dichloroethane	1000	861		ug/Kg		86	69 - 120	1	40
1,2-Dichloroethane	1000	983		ug/Kg		98	66 - 120	1	40
1,1-Dichloroethene	1000	820		ug/Kg		82	48 - 140	2	40
1,2-Dichloropropane	1000	885		ug/Kg		88	77 - 120	0	40
1,2-Dibromoethane (EDB)	1000	934		ug/Kg		93	73 - 126	5	40
Ethylbenzene	1000	965		ug/Kg		97	75 - 120	1	40
2-Hexanone	2000	1670		ug/Kg		83	54 - 135	15	40
Isopropylbenzene	1000	954		ug/Kg		95	74 - 120	1	40
Methyl acetate	2000	1690		ug/Kg		85	63 - 120	8	40
Methylcyclohexane	1000	876		ug/Kg		88	62 - 124	5	40
Methylene Chloride	1000	809		ug/Kg		81	48 - 142	1	40
4-Methyl-2-pentanone (MIBK)	2000	1560		ug/Kg		78	56 - 124	10	40
Methyl tert-butyl ether	1000	902		ug/Kg		90	66 - 120	5	40
m-Xylene & p-Xylene	1000	983		ug/Kg		98	76 - 120	4	40
Naphthalene	1000	822		ug/Kg		82	43 - 127	7	40
o-Xylene	1000	963		ug/Kg		96	76 - 120	4	40
Styrene	1000	977		ug/Kg		98	70 - 120	3	40
1,1,2,2-Tetrachloroethane	1000	997		ug/Kg		100	61 - 134	7	40
Tetrachloroethene	1000	949		ug/Kg		95	75 - 124	4	40
Toluene	1000	1010		ug/Kg		101	76 - 120	3	40
trans-1,2-Dichloroethene	1000	903		ug/Kg		90	74 - 125	1	40
trans-1,3-Dichloropropene	1000	846		ug/Kg		85	58 - 120	5	40
1,2,4-Trichlorobenzene	1000	800		ug/Kg		80	56 - 120	2	40
1,1,1-Trichloroethane	1000	841		ug/Kg		84	60 - 126	2	40
1,1,2-Trichloroethane	1000	992		ug/Kg		99	78 - 120	8	40
Trichloroethene	1000	877		ug/Kg		88	75 - 123	1	40
Trichlorofluoromethane	1000	829		ug/Kg		83	33 - 152	6	40

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 240-410327/3-A
Matrix: Solid
Analysis Batch: 410440

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 410327

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,2-Trichloro-1,2,2-trifluoroethane	1000	861		ug/Kg		86	58 - 144	4	40
1,2,4-Trimethylbenzene	1000	1000		ug/Kg		100	69 - 122	1	40
1,3,5-Trimethylbenzene	1000	1020		ug/Kg		102	68 - 126	1	40
Vinyl chloride	1000	792		ug/Kg		79	39 - 140	4	40
Xylenes, Total	2000	1950		ug/Kg		97	77 - 120	4	40

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*88*		*51 - 124*
Dibromofluoromethane (Surr)	*82*		*49 - 122*
1,2-Dichloroethane-d4 (Surr)	*91*		*47 - 136*
Toluene-d8 (Surr)	*92*		*55 - 123*

Lab Sample ID: LCSD 240-410327/5-A
Matrix: Solid
Analysis Batch: 410647

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 410327

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Methylnaphthalene	2000	1110	J	ug/Kg		55	50 - 134	1	40

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*83*		*51 - 124*
Dibromofluoromethane (Surr)	*78*		*49 - 122*
1,2-Dichloroethane-d4 (Surr)	*93*		*47 - 136*
Toluene-d8 (Surr)	*92*		*55 - 123*

Lab Sample ID: MB 240-411253/7
Matrix: Water
Analysis Batch: 411253

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<10		10	ug/L			11/16/19 13:52	1
Benzene	<1.0		1.0	ug/L			11/16/19 13:52	1
Bromoform	<1.0		1.0	ug/L			11/16/19 13:52	1
Bromomethane	<1.0		1.0	ug/L			11/16/19 13:52	1
2-Butanone (MEK)	<10		10	ug/L			11/16/19 13:52	1
Carbon disulfide	<5.0		5.0	ug/L			11/16/19 13:52	1
Carbon tetrachloride	<1.0		1.0	ug/L			11/16/19 13:52	1
Chlorobenzene	<1.0		1.0	ug/L			11/16/19 13:52	1
Chloroethane	<1.0		1.0	ug/L			11/16/19 13:52	1
Chloroform	<1.0		1.0	ug/L			11/16/19 13:52	1
Chloromethane	<1.0		1.0	ug/L			11/16/19 13:52	1
cis-1,2-Dichloroethene	<1.0		1.0	ug/L			11/16/19 13:52	1
cis-1,3-Dichloropropene	<1.0		1.0	ug/L			11/16/19 13:52	1
Cyclohexane	<1.0		1.0	ug/L			11/16/19 13:52	1
Dibromochloromethane	<1.0		1.0	ug/L			11/16/19 13:52	1
1,2-Dibromo-3-Chloropropane	<1.0		1.0	ug/L			11/16/19 13:52	1
1,2-Dichlorobenzene	<1.0		1.0	ug/L			11/16/19 13:52	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-411253/7
Matrix: Water
Analysis Batch: 411253

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	<1.0		1.0		ug/L			11/16/19 13:52	1
Bromodichloromethane	<1.0		1.0		ug/L			11/16/19 13:52	1
1,4-Dichlorobenzene	<1.0		1.0		ug/L			11/16/19 13:52	1
Dichlorodifluoromethane	<1.0		1.0		ug/L			11/16/19 13:52	1
1,1-Dichloroethane	<1.0		1.0		ug/L			11/16/19 13:52	1
1,2-Dichloroethane	<1.0		1.0		ug/L			11/16/19 13:52	1
1,1-Dichloroethene	<1.0		1.0		ug/L			11/16/19 13:52	1
1,2-Dichloropropane	<1.0		1.0		ug/L			11/16/19 13:52	1
1,2-Dibromoethane (EDB)	<1.0		1.0		ug/L			11/16/19 13:52	1
Ethylbenzene	<1.0		1.0		ug/L			11/16/19 13:52	1
2-Hexanone	<10		10		ug/L			11/16/19 13:52	1
Isopropylbenzene	<1.0		1.0		ug/L			11/16/19 13:52	1
Methyl acetate	<10		10		ug/L			11/16/19 13:52	1
Methylcyclohexane	<1.0		1.0		ug/L			11/16/19 13:52	1
Methylene Chloride	<5.0		5.0		ug/L			11/16/19 13:52	1
2-Methylnaphthalene	<5.0		5.0		ug/L			11/16/19 13:52	1
4-Methyl-2-pentanone (MIBK)	<10		10		ug/L			11/16/19 13:52	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			11/16/19 13:52	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			11/16/19 13:52	1
Naphthalene	<1.0		1.0		ug/L			11/16/19 13:52	1
o-Xylene	<1.0		1.0		ug/L			11/16/19 13:52	1
Styrene	<1.0		1.0		ug/L			11/16/19 13:52	1
1,1,2,2-Tetrachloroethane	<1.0		1.0		ug/L			11/16/19 13:52	1
Tetrachloroethene	<1.0		1.0		ug/L			11/16/19 13:52	1
Toluene	<1.0		1.0		ug/L			11/16/19 13:52	1
trans-1,2-Dichloroethene	<1.0		1.0		ug/L			11/16/19 13:52	1
trans-1,3-Dichloropropene	<1.0		1.0		ug/L			11/16/19 13:52	1
1,2,4-Trichlorobenzene	<1.0		1.0		ug/L			11/16/19 13:52	1
1,1,1-Trichloroethane	<1.0		1.0		ug/L			11/16/19 13:52	1
1,1,2-Trichloroethane	<1.0		1.0		ug/L			11/16/19 13:52	1
Trichloroethene	<1.0		1.0		ug/L			11/16/19 13:52	1
Trichlorofluoromethane	<1.0		1.0		ug/L			11/16/19 13:52	1
1,1,2-Trichloro-1,2,2-trifluoroethane	<1.0		1.0		ug/L			11/16/19 13:52	1
1,2,4-Trimethylbenzene	<1.0		1.0		ug/L			11/16/19 13:52	1
1,3,5-Trimethylbenzene	<1.0		1.0		ug/L			11/16/19 13:52	1
Vinyl chloride	<1.0		1.0		ug/L			11/16/19 13:52	1
Xylenes, Total	<2.0		2.0		ug/L			11/16/19 13:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*47 - 134*		*11/16/19 13:52*	*1*
Dibromofluoromethane (Surr)	*109*		*78 - 129*		*11/16/19 13:52*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 130*		*11/16/19 13:52*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*11/16/19 13:52*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-411253/4
Matrix: Water
Analysis Batch: 411253

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	12.6		ug/L		63	33 - 155
Benzene	10.0	9.71		ug/L		97	77 - 123
Bromoform	10.0	6.28		ug/L		63	47 - 133
Bromomethane	10.0	9.54		ug/L		95	48 - 144
2-Butanone (MEK)	20.0	13.9		ug/L		69	41 - 151
Carbon disulfide	10.0	8.59		ug/L		86	67 - 127
Carbon tetrachloride	10.0	11.7		ug/L		117	61 - 142
Chlorobenzene	10.0	9.66		ug/L		97	80 - 120
Chloroethane	10.0	11.4		ug/L		114	41 - 147
Chloroform	10.0	10.2		ug/L		102	74 - 127
Chloromethane	10.0	12.9		ug/L		129	46 - 148
cis-1,2-Dichloroethene	10.0	9.97		ug/L		100	75 - 124
cis-1,3-Dichloropropene	10.0	7.51		ug/L		75	68 - 128
Cyclohexane	10.0	14.5	*	ug/L		145	69 - 133
Dibromochloromethane	10.0	7.42	*	ug/L		74	75 - 120
1,2-Dibromo-3-Chloropropane	10.0	4.87		ug/L		49	34 - 136
1,2-Dichlorobenzene	10.0	8.93		ug/L		89	74 - 120
1,3-Dichlorobenzene	10.0	9.61		ug/L		96	74 - 120
Bromodichloromethane	10.0	8.61		ug/L		86	73 - 122
1,4-Dichlorobenzene	10.0	9.58		ug/L		96	75 - 120
Dichlorodifluoromethane	10.0	5.76		ug/L		58	35 - 137
1,1-Dichloroethane	10.0	12.1		ug/L		121	74 - 126
1,2-Dichloroethane	10.0	10.2		ug/L		102	66 - 129
1,1-Dichloroethene	10.0	8.96		ug/L		90	73 - 129
1,2-Dichloropropane	10.0	11.4		ug/L		114	79 - 127
1,2-Dibromoethane (EDB)	10.0	6.14	*	ug/L		61	73 - 120
Ethylbenzene	10.0	9.95		ug/L		99	80 - 120
2-Hexanone	20.0	14.1		ug/L		70	43 - 142
Isopropylbenzene	10.0	9.72		ug/L		97	73 - 123
Methyl acetate	20.0	17.4		ug/L		87	47 - 140
Methylcyclohexane	10.0	8.48		ug/L		85	64 - 123
Methylene Chloride	10.0	7.58		ug/L		76	63 - 134
4-Methyl-2-pentanone (MIBK)	20.0	16.7		ug/L		83	43 - 145
Methyl tert-butyl ether	10.0	6.81		ug/L		68	57 - 127
m-Xylene & p-Xylene	10.0	9.60		ug/L		96	79 - 121
Naphthalene	10.0	4.97		ug/L		50	28 - 130
o-Xylene	10.0	9.48		ug/L		95	75 - 123
Styrene	10.0	9.00		ug/L		90	75 - 121
1,1,2,2-Tetrachloroethane	10.0	4.92		ug/L		49	45 - 151
Tetrachloroethene	10.0	11.4		ug/L		114	70 - 125
Toluene	10.0	8.71		ug/L		87	79 - 122
trans-1,2-Dichloroethene	10.0	9.35		ug/L		93	74 - 130
trans-1,3-Dichloropropene	10.0	5.64	*	ug/L		56	64 - 120
1,2,4-Trichlorobenzene	10.0	8.08		ug/L		81	47 - 120
1,1,1-Trichloroethane	10.0	11.3		ug/L		113	65 - 141
1,1,2-Trichloroethane	10.0	6.79	*	ug/L		68	79 - 121
Trichloroethene	10.0	10.7		ug/L		107	71 - 121
Trichlorofluoromethane	10.0	11.0		ug/L		110	52 - 148

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-411253/4
Matrix: Water
Analysis Batch: 411253

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	11.6		ug/L		116	54 - 148
1,2,4-Trimethylbenzene	10.0	9.17		ug/L		92	66 - 129
1,3,5-Trimethylbenzene	10.0	8.86		ug/L		89	65 - 130
Vinyl chloride	10.0	10.4		ug/L		104	61 - 134
Xylenes, Total	20.0	19.1		ug/L		95	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*85*		*47 - 134*
Dibromofluoromethane (Surr)	*113*		*78 - 129*
1,2-Dichloroethane-d4 (Surr)	*89*		*75 - 130*
Toluene-d8 (Surr)	*95*		*69 - 122*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-410213/21-A
Matrix: Water
Analysis Batch: 410782

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 410213

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1
Acenaphthylene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1
Anthracene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1
Benzo[a]anthracene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1
Benzo[b]fluoranthene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1
Benzo[g,h,i]perylene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1
Benzo[a]pyrene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1
Benzo[k]fluoranthene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1
Chrysene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1
Dibenz(a,h)anthracene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1
Fluoranthene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1
Fluorene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1
Indeno[1,2,3-cd]pyrene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1
2-Methylnaphthalene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1
Naphthalene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1
Phenanthrene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1
Pyrene	<10		10	ug/L		11/11/19 09:41	11/14/19 06:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*88*		*46 - 120*	*11/11/19 09:41*	*11/14/19 06:00*	*1*
2-Fluorophenol (Surr)	*109*		*27 - 123*	*11/11/19 09:41*	*11/14/19 06:00*	*1*
Nitrobenzene-d5 (Surr)	*78*		*46 - 120*	*11/11/19 09:41*	*11/14/19 06:00*	*1*
Phenol-d5 (Surr)	*70*		*23 - 120*	*11/11/19 09:41*	*11/14/19 06:00*	*1*
2,4,6-Tribromophenol (Surr)	*59*		*33 - 120*	*11/11/19 09:41*	*11/14/19 06:00*	*1*
Terphenyl-d14 (Surr)	*99*		*53 - 120*	*11/11/19 09:41*	*11/14/19 06:00*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-410213/22-A
Matrix: Water
Analysis Batch: 410782

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 410213

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	32.0	25.6		ug/L		80	60 - 120
Acenaphthylene	32.0	25.4		ug/L		79	62 - 120
Anthracene	32.0	26.4		ug/L		82	60 - 120
Benzo[a]anthracene	32.0	28.0		ug/L		88	62 - 120
Benzo[b]fluoranthene	32.0	26.6		ug/L		83	64 - 120
Benzo[g,h,i]perylene	32.0	28.2		ug/L		88	63 - 120
Benzo[a]pyrene	32.0	25.5		ug/L		80	61 - 120
Benzo[k]fluoranthene	32.0	26.4		ug/L		83	63 - 120
Chrysene	32.0	28.7		ug/L		90	61 - 120
Dibenz(a,h)anthracene	32.0	26.2		ug/L		82	62 - 120
Fluoranthene	32.0	27.6		ug/L		86	62 - 120
Fluorene	32.0	25.9		ug/L		81	61 - 120
Indeno[1,2,3-cd]pyrene	32.0	25.3		ug/L		79	64 - 120
2-Methylnaphthalene	32.0	25.6		ug/L		80	58 - 120
Naphthalene	32.0	26.3		ug/L		82	57 - 120
Phenanthrene	32.0	26.6		ug/L		83	59 - 120
Pyrene	32.0	28.8		ug/L		90	61 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*92*		*46 - 120*
2-Fluorophenol (Surr)	*113*		*27 - 123*
Nitrobenzene-d5 (Surr)	*94*		*46 - 120*
Phenol-d5 (Surr)	*77*		*23 - 120*
2,4,6-Tribromophenol (Surr)	*109*		*33 - 120*
Terphenyl-d14 (Surr)	*103*		*53 - 120*

Lab Sample ID: MB 240-410860/20-A
Matrix: Solid
Analysis Batch: 411282

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 410860

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1
Acenaphthylene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1
Anthracene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1
Benzo[a]anthracene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1
Benzo[b]fluoranthene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1
Benzo[g,h,i]perylene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1
Benzo[a]pyrene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1
Benzo[k]fluoranthene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1
Chrysene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1
Dibenz(a,h)anthracene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1
Fluoranthene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1
Fluorene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1
Indeno[1,2,3-cd]pyrene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1
2-Methylnaphthalene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1
Naphthalene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1
Phenanthrene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1
Pyrene	<260		260	ug/Kg		11/14/19 09:48	11/17/19 14:34	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-410860/20-A
Matrix: Solid
Analysis Batch: 411282

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 410860

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	77		35 - 120	11/14/19 09:48	11/17/19 14:34	1
2-Fluorophenol (Surr)	73		26 - 120	11/14/19 09:48	11/17/19 14:34	1
Nitrobenzene-d5 (Surr)	80		28 - 120	11/14/19 09:48	11/17/19 14:34	1
Phenol-d5 (Surr)	81		28 - 120	11/14/19 09:48	11/17/19 14:34	1
2,4,6-Tribromophenol (Surr)	50		10 - 120	11/14/19 09:48	11/17/19 14:34	1
Terphenyl-d14 (Surr)	99		39 - 120	11/14/19 09:48	11/17/19 14:34	1

Lab Sample ID: LCS 240-410860/21-A
Matrix: Solid
Analysis Batch: 411282

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 410860

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	667	467		ug/Kg		70	45 - 120
Acenaphthylene	667	455		ug/Kg		68	45 - 120
Anthracene	667	555		ug/Kg		83	52 - 120
Benzo[a]anthracene	667	579		ug/Kg		87	52 - 120
Benzo[b]fluoranthene	667	548		ug/Kg		82	52 - 120
Benzo[g,h,i]perylene	667	522		ug/Kg		78	54 - 120
Benzo[a]pyrene	667	549		ug/Kg		82	50 - 120
Benzo[k]fluoranthene	667	572		ug/Kg		86	54 - 120
Chrysene	667	555		ug/Kg		83	53 - 120
Dibenz(a,h)anthracene	667	536		ug/Kg		80	50 - 120
Fluoranthene	667	580		ug/Kg		87	54 - 120
Fluorene	667	478		ug/Kg		72	48 - 120
Indeno[1,2,3-cd]pyrene	667	532		ug/Kg		80	52 - 120
2-Methylnaphthalene	667	472		ug/Kg		71	42 - 120
Naphthalene	667	452		ug/Kg		68	39 - 120
Phenanthrene	667	519		ug/Kg		78	50 - 120
Pyrene	667	574		ug/Kg		86	50 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	76		35 - 120
2-Fluorophenol (Surr)	74		26 - 120
Nitrobenzene-d5 (Surr)	81		28 - 120
Phenol-d5 (Surr)	82		28 - 120
2,4,6-Tribromophenol (Surr)	43		10 - 120
Terphenyl-d14 (Surr)	100		39 - 120

Lab Sample ID: 190-21518-14 MS
Matrix: Soil
Analysis Batch: 411282

Client Sample ID: SG-1-5'
Prep Type: Total/NA
Prep Batch: 410860

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	<290		730	550		ug/Kg	☼	75	41 - 120
Acenaphthylene	<290		730	537		ug/Kg	☼	74	39 - 120
Anthracene	<290		730	618		ug/Kg	☼	85	43 - 106
Benzo[a]anthracene	<290		730	610		ug/Kg	☼	84	32 - 120
Benzo[b]fluoranthene	<290		730	580		ug/Kg	☼	80	27 - 126

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 190-21518-14 MS
Matrix: Soil
Analysis Batch: 411282

Client Sample ID: SG-1-5'
Prep Type: Total/NA
Prep Batch: 410860

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[g,h,i]perylene	<290		730	566		ug/Kg	☼	78	29 - 122
Benzo[a]pyrene	<290		730	570		ug/Kg	☼	78	35 - 120
Benzo[k]fluoranthene	<290		730	559		ug/Kg	☼	77	39 - 120
Chrysene	<290		730	596		ug/Kg	☼	81	31 - 121
Dibenz(a,h)anthracene	<290		730	569		ug/Kg	☼	78	36 - 120
Fluoranthene	<290		730	615		ug/Kg	☼	84	30 - 125
Fluorene	<290		730	552		ug/Kg	☼	76	44 - 120
Indeno[1,2,3-cd]pyrene	<290		730	561		ug/Kg	☼	77	34 - 120
2-Methylnaphthalene	<290		730	542		ug/Kg	☼	74	10 - 133
Naphthalene	<290		730	518		ug/Kg	☼	71	30 - 120
Phenanthrene	<290		730	586		ug/Kg	☼	80	31 - 120
Pyrene	<290		730	591		ug/Kg	☼	81	28 - 122

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*79*		*35 - 120*
2-Fluorophenol (Surr)	*76*		*26 - 120*
Nitrobenzene-d5 (Surr)	*89*		*28 - 120*
Phenol-d5 (Surr)	*86*		*28 - 120*
2,4,6-Tribromophenol (Surr)	*61*		*10 - 120*
Terphenyl-d14 (Surr)	*91*		*39 - 120*

Lab Sample ID: 190-21518-14 MSD
Matrix: Soil
Analysis Batch: 411282

Client Sample ID: SG-1-5'
Prep Type: Total/NA
Prep Batch: 410860

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	<290		722	513		ug/Kg	☼	71	41 - 120	7	34
Acenaphthylene	<290		722	505		ug/Kg	☼	70	39 - 120	6	34
Anthracene	<290		722	582		ug/Kg	☼	81	43 - 106	6	32
Benzo[a]anthracene	<290		722	612		ug/Kg	☼	85	32 - 120	0	37
Benzo[b]fluoranthene	<290		722	559		ug/Kg	☼	77	27 - 126	4	40
Benzo[g,h,i]perylene	<290		722	542		ug/Kg	☼	75	29 - 122	4	40
Benzo[a]pyrene	<290		722	561		ug/Kg	☼	78	35 - 120	2	38
Benzo[k]fluoranthene	<290		722	569		ug/Kg	☼	79	39 - 120	2	37
Chrysene	<290		722	595		ug/Kg	☼	82	31 - 121	0	37
Dibenz(a,h)anthracene	<290		722	559		ug/Kg	☼	77	36 - 120	2	38
Fluoranthene	<290		722	591		ug/Kg	☼	82	30 - 125	4	31
Fluorene	<290		722	525		ug/Kg	☼	73	44 - 120	5	32
Indeno[1,2,3-cd]pyrene	<290		722	547		ug/Kg	☼	76	34 - 120	3	40
2-Methylnaphthalene	<290		722	528		ug/Kg	☼	73	10 - 133	3	40
Naphthalene	<290		722	503		ug/Kg	☼	70	30 - 120	3	40
Phenanthrene	<290		722	579		ug/Kg	☼	79	31 - 120	1	35
Pyrene	<290		722	578		ug/Kg	☼	80	28 - 122	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*73*		*35 - 120*
2-Fluorophenol (Surr)	*79*		*26 - 120*
Nitrobenzene-d5 (Surr)	*83*		*28 - 120*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 190-21518-14 MSD
Matrix: Soil
Analysis Batch: 411282

Client Sample ID: SG-1-5'
Prep Type: Total/NA
Prep Batch: 410860

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Phenol-d5 (Surr)	*83*		*28 - 120*
2,4,6-Tribromophenol (Surr)	*56*		*10 - 120*
Terphenyl-d14 (Surr)	*91*		*39 - 120*

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 240-410264/1-A ^2
Matrix: Solid
Analysis Batch: 410823

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 410264

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	<400		400		ug/Kg		11/11/19 14:00	11/13/19 21:11	2

Lab Sample ID: LCS 240-410264/2-A ^2
Matrix: Solid
Analysis Batch: 410823

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 410264

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lead			50000	48700		ug/Kg		97	80 - 120		

Lab Sample ID: 190-21518-1 MS
Matrix: Soil
Analysis Batch: 410823

Client Sample ID: B-1-2.5'
Prep Type: Total/NA
Prep Batch: 410264

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lead	2500		51000	51900		ug/Kg	☼	97	75 - 125		

Lab Sample ID: 190-21518-1 MSD
Matrix: Soil
Analysis Batch: 410823

Client Sample ID: B-1-2.5'
Prep Type: Total/NA
Prep Batch: 410264

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	2500		51000	51400		ug/Kg	☼	96	75 - 125	1	20

Lab Sample ID: MB 240-410255/1-A
Matrix: Water
Analysis Batch: 410823

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 410255

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	<1.0		1.0		ug/L		11/11/19 14:00	11/13/19 18:48	1

Lab Sample ID: LCS 240-410255/2-A
Matrix: Water
Analysis Batch: 410823

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 410255

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lead			500	442		ug/L		88	80 - 120		

QC Sample Results

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Method: Moisture - Percent Moisture

Lab Sample ID: 190-21518-7 DU
Matrix: Soil
Analysis Batch: 410266

Client Sample ID: B-7-15'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	93.2			94.5		%				1	20
Percent Moisture	6.8			5.5	F3	%				21	20

Definitions/Glossary

Client: Sagasser & Associates Inc
Project/Site: Royal Crest

Job ID: 190-21518-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits

General Chemistry

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Chain of Custody Record

380576

eurofins | Environment Testing TestAmerica

Address: _____

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TAL-8210

Client Contact	Project Manager: Scot Eglestn	Site Contact:	Date: 07 Nov 19	COC No:
Company Name: Sargasso & Associates Inc.	Tel/Email:	Lab Contact:	Carrier: UPS	1 of 1 COCs
Address: 689 South Wisconsin Ave	Analysis Turnaround Time			Sampler:
City/State/Zip: Gaylord MI 49735	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 989-732-5800	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Royal Crest	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
P O # 31902	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	8260-Full List VOCs	8270-PNAs	Lead	Sample Specific Notes:
B-1-2.5'	06NOV19	1006	G	Soil	2			✓	✓	✓	
B-2-5'		1027						✓	✓	✓	
B-3-5'		1040						✓	✓	✓	
B-4-10'		1125						✓	✓	✓	
B-5-15'		1142						✓	✓	✓	
B-6-15'		1205						✓	✓	✓	
B-7-15'		1230						✓	✓	✓	
B-8-15'		1256						✓	✓	✓	
B-9-15'		1320						✓	✓	✓	
B-11-15'		1518						✓	✓	✓	
B-12-10'		1530						✓	✓	✓	
B-13-5'		1550									

190-21518 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Scot Eglestn	SA Inc.	07 Nov 19 1300	[illegible]	ETAL MI	11/8/19 10:11
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Chain of Custody Record

380577

eurofins | Environment Testing TestAmerica

Address: _____

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TAL-8210

Client Contact	Project Manager:	Site Contact:	Date: 07 Nov 19	COC No:
Company Name: Sagasser & Associates INC	Tel/Email:	Lab Contact:	Carrier: UPS	2 of 2 COCs
Address: 699 South Wisconsin Ave	Analysis Turnaround Time			Sampler:
City/State/Zip: Gaylord MI 49735	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 989-732-5800	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Royal Crest	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
P O # 31982	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	8260-Full List VOC	8270 - PNAs	Pb	Sample Specific Notes:
B-14-10'	06Nov19	1640	G	Soil	2			✓	✓	✓	
SG-1-5'	↓	1330	G	↓	2			✓	✓	✓	
Duplicate	↓	—	G	↓	2			✓	✓	✓	
Field Blank	↓	1335	G	↓	1			✓			
B-10-85'-90'	↓	1435	G	H_2O	5			✓	✓		
B-10-74'-79'	↓	1455	G	H_2O	6			✓	✓	✓	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	SA/NC	07Nov19 1500	[signature]	ETAL ml	11/8/19 10:11
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

eurofins

Environment Testing
TestAmerica

Cooler/Sample Receipt

(AFTER HOURS receipt: complete grey areas. Place cooler in walk-in, place this form in Receiving in-box. Date/Time rec'd _____ Initials _____)

❑ SDS or Known Hazard Information Supplied by Client

❑ Discrepancies
❑ Short Hold
❑ Rush ❑24hr ❑2day ❑3day ❑5day ❑other _____

Client ID Sagasser & Associates
Work Order # 190-21518

Receipt evaluation performed by - Initials AMY Date 11/8/19 Time 10:11

Method of Shipment:
❑ Walk-In Client ❑ TestAmerica Field/Courier
❑ Other Client/3rd Party Courier _____
❑ Fed Ex Tracking # _____
☑ UPS Tracking # 1Z 1A4 71X 03 9071 0459
❑ Other Ground

Shipping Container Type:
☑ Cooler ❑ Box
❑ None ❑ Other _____

Packing Materials:
☑ Plastic Bags ☑ Foam
☑ Bubble Wrap ❑ Paper
❑ Packing Peanuts ❑ None
❑ Other _____

Custody Seals Intact:
☑ Yes 931341 ❑ No
❑ N/A (not used or required)

Cooling Materials:
☑ Ice (solid) ❑ Ice (Melted)
❑ Blue Ice ❑ None
❑ Other _____

Bacteriological Samples	Temp (°C) Corrected	Frozen	Received within 2 hours	Sample Flagged
		yes no	yes no	yes no

❑ Check if Additional Sheets Required

Receipt Temperatures

Thermometer ID	Observed (°C)	Corrected (°C)	Temp Blank	Sample Temp	Received on same day sampled?	Acceptable?*	Cooler ID	Note Affected Samples if temperature not acceptable
140252483			❑	❑	❑Yes ❑No	❑Yes ❑No		
140252476			❑	❑	❑Yes ❑No	❑Yes ❑No		
CP313207	4.5	4.6	❑	❑	❑Yes ❑No	❑Yes ❑No		

C.F.
+0.1

* Receipt temperatures are considered acceptable if the samples are received on the same day they were collected & show signs that the cooling process has started. Temperature acceptance for most tests is ≤6.0°C, but not frozen.

Receipt Questions**	Y	N	n/a	"No" answers require additional comment
COC present & TA receipt signature, date, & time properly documented?	✓			
Containers & labels in good condition? (unbroken, not leaking, appropriately filled, labels legible & attached)	✓			
Appropriate containers used & adequate volume provided?	✓			Preserved Bottles Checked with pH Strips* Yes No
Number of sample containers match COC?	✓			
Samples received within hold time?	✓			
Samples submitted for GRO and Volatiles analyses (8260, 624, 524) received without headspace?	✓			
Was a Trip Blank received with VOA samples?		✓		Field Blank Soil
Were the samples free of any questionable physical conformities? For example, field duplicates or multiple bottles of the same sample do not significantly vary in appearance (color, proportion of solids, etc.)	✓			
Were the COC, bottle labels and all other items free of all other discrepancies or issues that would need to be addressed with the Project Manager and/or Client?	✓			

** May not be applicable if samples are not for compliance testing

* Excludes FOG, Volatiles, TOC Vials

Client Contact Record
Contact via: ❑ Phone ❑ Email ❑ Other _____ Person Contacted: _____ Date/Time: _____
❑ Discrepancy allowance agreement is on record in the client project file
Discussion/Resolution

Any additional documentation and clarification from client must be noted in the narrative and/or scanned into the COC directory

Reviewed by PM Signature: [signature] Date 11/8/19

WI Page 1 of 1

WI No. DT-SOA-WI-0001-15
effective 06/11/12

Eurofins TestAmerica, Michigan
10448 Citation Drive Suite 200
Brighton, MI 48116
Phone: 810-229-2763 Fax: 810-229-0000

1.8/2.5

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schafer, Sue	Carrier Tracking No(s):	COC No: 190-25154.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: sue.schafer@testamericainc.com	State of Origin: Michigan	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 190-21518-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 11/14/2019			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Royal Crest	Project #: 19000073			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

C179
MS

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B/5035A_FM (MOD) TCL OLM03.1/4.2 Volatile Analyte L	Moisture	8270C/3540C (MOD) 8270C, Michigan PNAs, Sonication	6020/3050B (MOD) 6020, TAL Metals	8260B/5030B (MOD) 8260B,TCL OLM03.1/4.2 VOCs w/TMB	8270C/3510C PNA Analyte List	6020/3005A (MOD) 6020 Metals TAL	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
B-1-2.5' (190-21518-1)	11/6/19	10:06 Eastern		Solid			X	X	X	X				2	
B-2-5' (190-21518-2)	11/6/19	10:27 Eastern		Solid			X	X	X	X				2	
B-3-5' (190-21518-3)	11/6/19	10:40 Eastern		Solid			X	X	X	X				2	
B-4-10' (190-21518-4)	11/6/19	11:25 Eastern		Solid			X	X	X	X				2	
B-5-15' (190-21518-5)	11/6/19	11:42 Eastern		Solid			X	X	X	X				2	
B-6-15' (190-21518-6)	11/6/19	12:05 Eastern		Solid			X	X	X	X				2	
B-7-15' (190-21518-7)	11/6/19	12:30 Eastern		Solid			X	X	X	X				2	
B-8-15' (190-21518-8)	11/6/19	12:56 Eastern		Solid			X	X	X	X				2	
B-9-15' (190-21518-9)	11/6/19	13:20 Eastern		Solid			X	X	X	X				2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 11/8/19 1303	Company: TA	Received by:	Date/Time: 11-9-19 930	Company: ETAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :**
Canton Facility

Client EPA Michigan Site Name
Cooler Received on 11-9-19 Opened on 11-10-19 Cooler unpacked by: MM
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other
Receipt After-hours: Drop-off Date/Time Storage Location
TestAmerica Cooler # TA Foam Box Client Cooler Box Other
Packing material used: Bubble Wrap Foam Plastic Bag None Other
COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 1.8 °C Corrected Cooler Temp. 2.5 °C
   IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity Yes No
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
   -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC991818
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

18. SAMPLE CONDITION
Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION
Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):
VOA Sample Preservation - Date/Time VOAs Frozen:

WI-NC-099

Eurofins TestAmerica, Michigan
10448 Citation Drive Suite 200
Brighton, MI 48116
Phone: 810-229-2763 Fax: 810-229-0000

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schafer, Sue	Carrier Tracking No(s):	COC No: 190-25154.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: sue.schafer@testamericainc.com	State of Origin: Michigan	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 190-21518-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 11/14/2019			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Royal Crest	Project #: 19000073			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

C179 S59
MS C173

Special Instructions/Note:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B/5035A_FM (MOD) TCL OLM03.1/4.2 Volatile Analyte L	Moisture	8270C/3540C (MOD) 8270C, Michigan PNAs, Sonication	6020/3050B (MOD) 6020, TAL Metals	8260B/5030B (MOD) 8260B,TCL OLM03.1/4.2 VOCs w/o TMB	8270C/3510C PNA Analyte List	6020/3005A (MOD) 6020 Metals TAL	Total Number of containers
			Preservation Code:											
B-11-15' (190-21518-10)	11/6/19	15:18 Eastern		Solid			X	X	X	X				2
B-12-10' (190-21518-11)	11/6/19	15:30 Eastern		Solid			X	X	X	X				2
B-13-5' (190-21518-12)	11/6/19	15:50 Eastern		Solid			X	X	X	X				2
B-14-10' (190-21518-13)	11/6/19	16:40 Eastern		Solid			X	X	X	X				2
SG-1-5' (190-21518-14)	11/6/19	13:30 Eastern		Solid			X	X	X	X				2
Duplicate (190-21518-15)	11/6/19	Eastern		Solid			X	X	X	X				2
Field Blank (190-21518-16)	11/6/19	13:35 Eastern		Solid			X	X						1
B-10-85'-90' (190-21518-17)	11/6/19	14:35 Eastern		Water							X	X		5
B-10-74'-79' (190-21518-18)	11/6/19	14:55 Eastern		Water							X	X	X	6

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	11/8/19 1302	TA	[signature]	11-9-19 930	ETAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :**_____
Canton Facility

Client EPA Michigan Site Name_____ Cooler unpacked by: MM
Cooler Received on 11-9-19 Opened on 11-10-19
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other_____

Receipt After-hours: Drop-off Date/Time_____ Storage Location_____

TestAmerica Cooler # 14 Foam Box Client Cooler Box Other _____
Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. 1.8 °C Corrected Cooler Temp. 2.5 °C
   IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity_____ Yes No
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
   -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# **HC991818**
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes No
16. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s):_____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

APPENDIX D

GROUND PENETRATING RADAR REPORT

July 26, 2019

Kevin Sagasser
Sagasser & Associates, Inc.
699 South Wisconsin Avenue
Gaylord, MI 49735

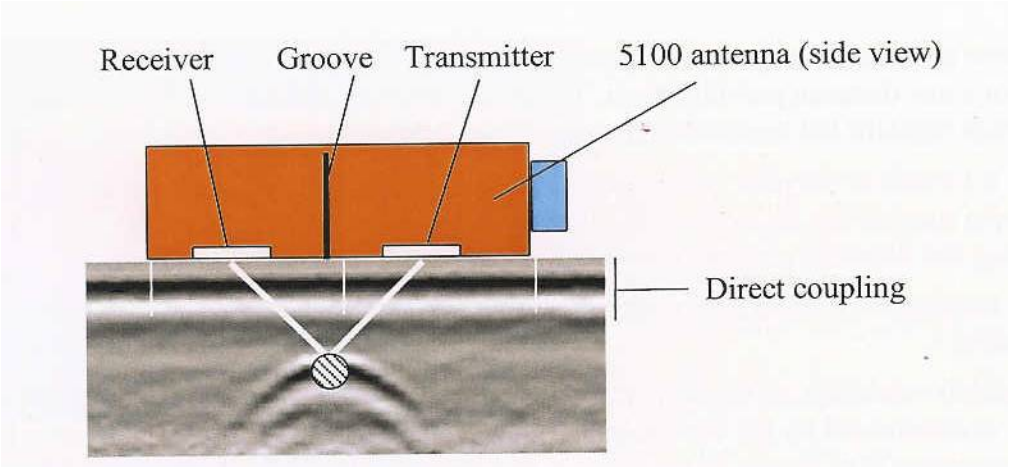
Survey Site: Royal Crest Motel-805 South Otsego Avenue-Gaylord, MI

Project Objective:

Utilize Ground Penetrating Radar and ElectroMagnetic locating to investigate for any evidence of remaining underground structures, evidence of removal of previously existing underground structures, evidence of remaining footings or debris from previously existing buildings, and location of underground utilities in the areas indicated in the drawing provided by Kevin Sagasser of Sagasser & Associates.

GPR Information and Background:

GPR has been used extensively in the past for geological and archeological exploration and mapping; however, it has only been since 2001 that GPR had the capability to image shallow targets. The system used for this project has the ability to image targets to a depth of 12 feet with an accuracy of ± 2 inches. The 400 MHz antenna broadcasts a microwave energy pulse of less than 1/6th watt at a rate of 100 ns. This energy pulse is timed as it propagates through a material noting when a return pulse arrives. The time and strength of the return pulse is captured and analyzed and interpreted graphically. This process is shown in the figure of a 1500 MHz antenna below.



Project Procedures:

Scans were completed every 5 feet in a grid pattern throughout the defined areas using Ground Penetrating Radar. Also, electromagnetic locating was used to verify locations of utilities found and/or find any utilities that were not discovered by the Ground Penetrating Radar. Any utilities, remaining underground storage tanks, septic areas, and significant soil debris were marked on site, photographed, and identified on the drawing attached to this report. Any utility with known origin or purpose was marked according to the MISS DIG standards listed below. Any unknown anomalies, remaining underground storage tanks, or unknown utilities were marked in pink.

Communication-Orange
Electric-Red
Sewer-Green or Brown
Gas-Yellow
Water-Blue

All data was collected on July 22, 2019.

Project Results:

There were no anomalies found indicative of remaining underground storage tanks. There were four areas of excavation/backfilled soils found scattered throughout the survey area. One of the excavation/backfilled areas was consistent with the documented underground storage tank removal area on the northwest corner of the property. The other three excavation/backfilled areas are from unknown sources or causes. These excavation areas were marked on site in white paint. The following utilities were marked on site: natural gas marked in yellow, sewer marked in green, communications in orange, and water marked in blue.

All results of the data collected are documented in the attached drawing and pictures of markings are also attached. The pictures attached have a number that corresponds with the drawing attached to give area of where the picture was taken.

Sincerely,

Nick Schwartz
Facility Management Consultants International
nick@facilitiescompliance.com
(616) 730-3331

Image 1 shows excavation/backfill area marked in white.

Image 2 shows excavation/backfill area marked in white paint.

Image 3 shows excavation/backfill area marked in white.

Image 4 shows excavation/backfill area marked in white.

Image 5 shows water marked in blue.

Image 6 shows natural gas marked in yellow and water in blue.

Image 7 shows natural gas marked in blue and excavation/backfill area in white.

Image 8 shows communications marked in orange and unknown marked in pink.

Image 9 shows communications marked in orange and natural gas in yellow.

Image 10 shows water marked in blue.

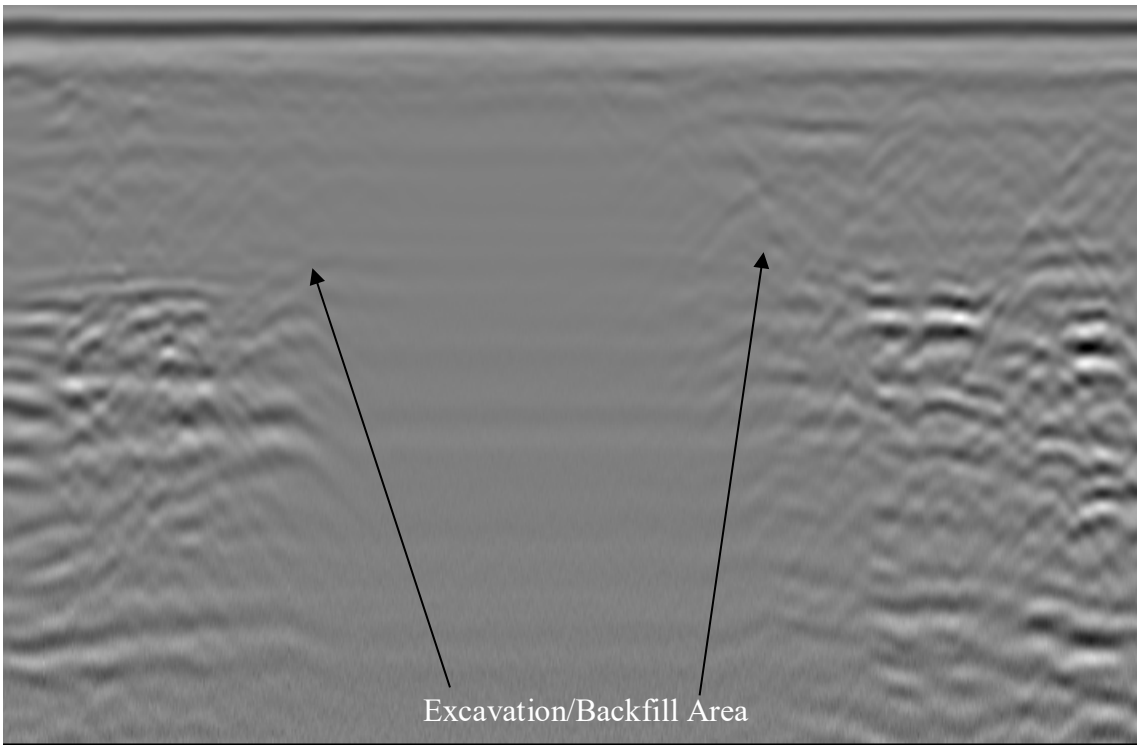
Image 11 shows sewer marked in green and communications in orange.

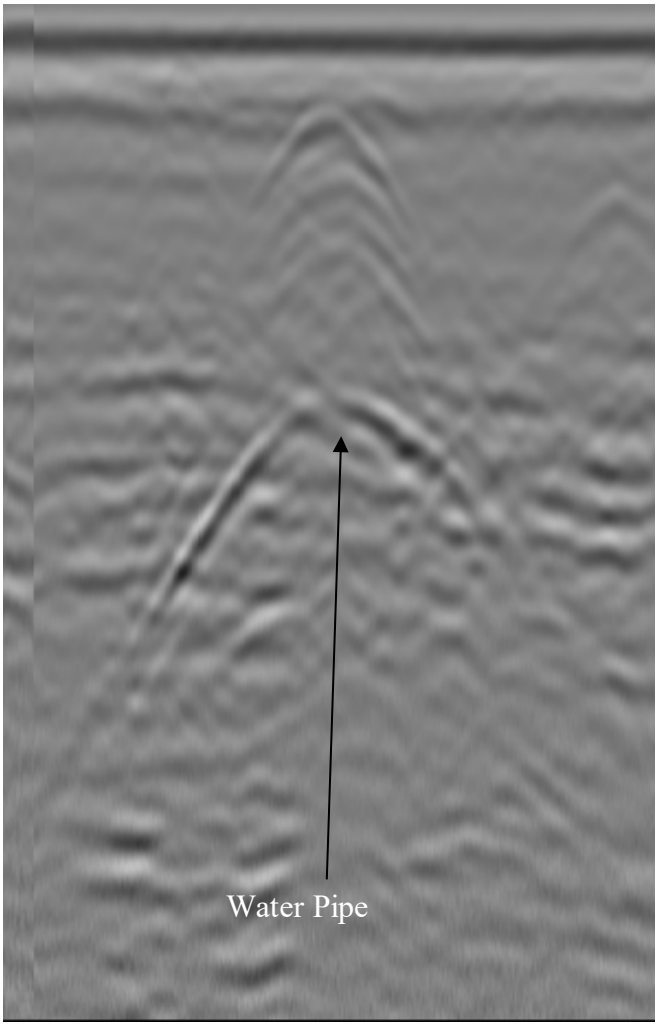
Image 12 shows communications marked in orange.

Image taken by drone footage after GPR survey was completed.

Image taken by drone footage after GPR survey was completed.

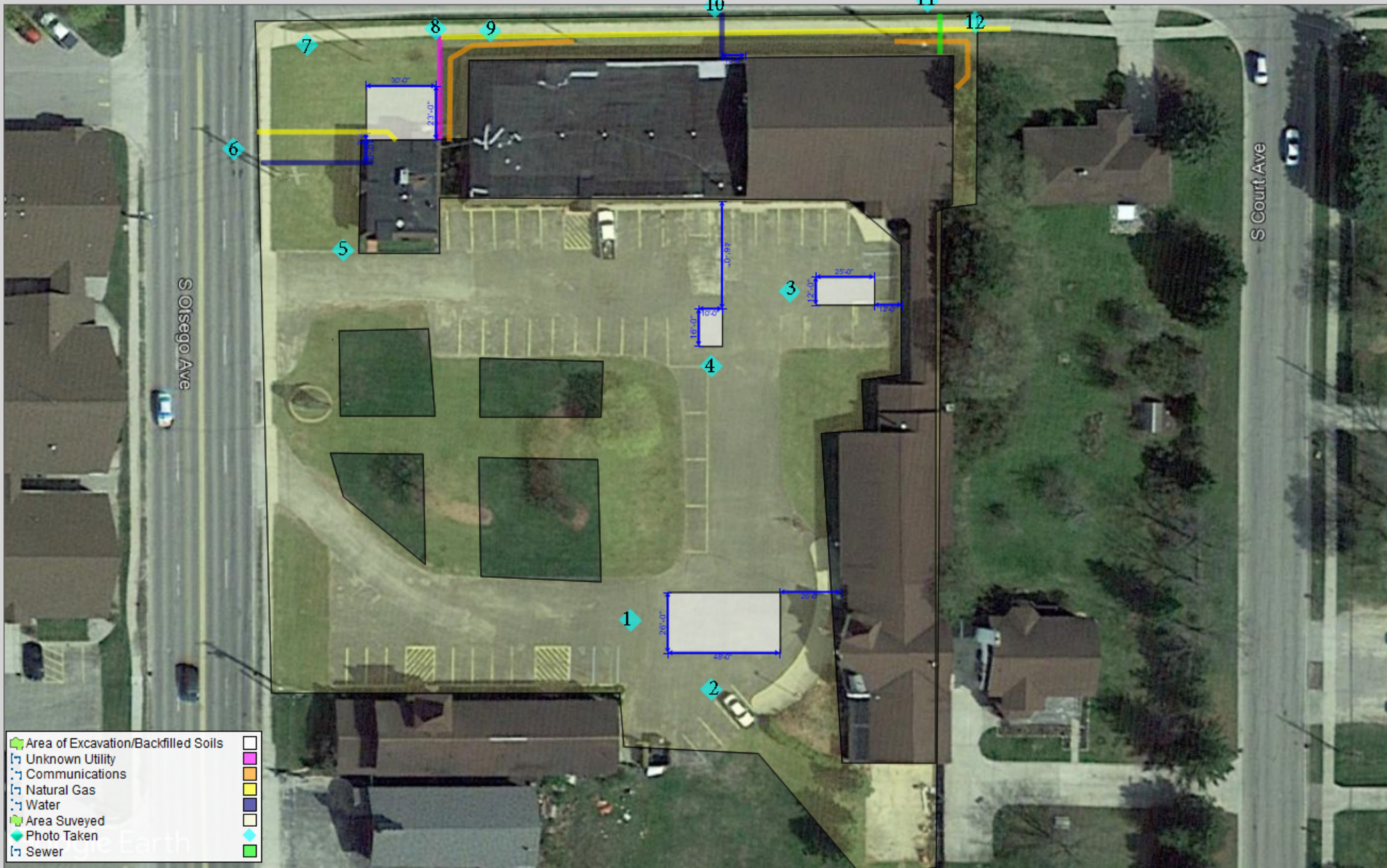
Raw Data Images:




Water Pipe

Manually Scaled

< unknown >



< unknown >

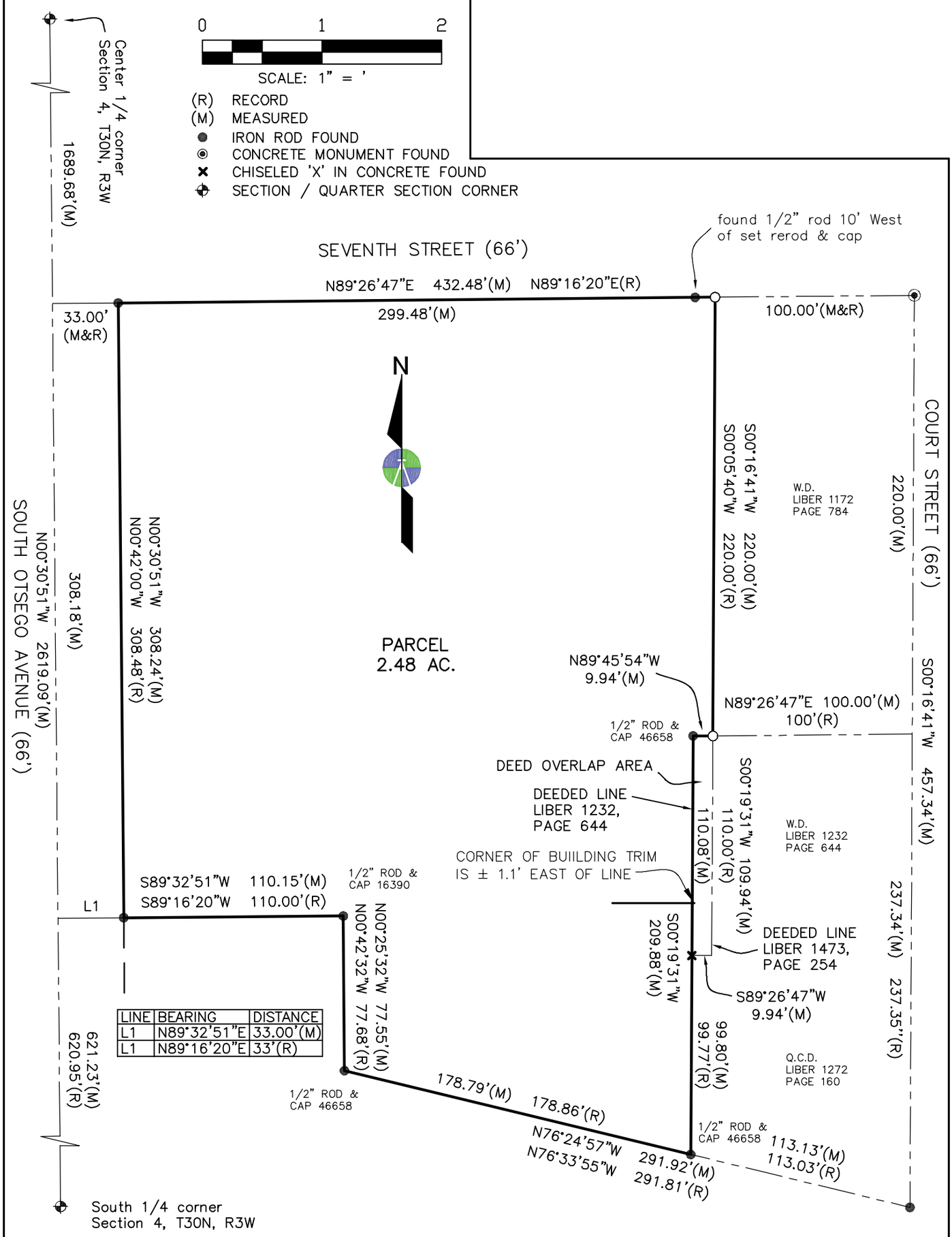
30'-0"
23'-0"
3'-0"
10'-0"
10'-0"
46'-0"
25'-0"
12'-0"
12'-0"
10'-0"
16'-0"
S Otsego
Area of Excavation/Backfilled Soils
Unknown Utility
Communications
Natural Gas
Water
Area Suveyed
Sewer

26'-0"
26'-0"
48'-0"
Area of Excavation/Backfilled Soils
Unknown Utility
Communications
Natural Gas
Water
Area Suveyed

APPENDIX C

Brand Land Surveying LLC 'Draft' Certificate of Survey

CERTIFICATE OF SURVEY



LINE	BEARING	DISTANCE
L1	N89°32'51"E	33.00'(M)
L1	N89°16'20"E	33'(R)

DRAFT

Brand Land Surveying LLC
Ronald C. Brand
Professional Surveyor No. 43046

Brand Land Surveying LLC
533 Greenfield Drive
Gaylord, Michigan 49735
989-732-8077
www.brandlandsurveying.com

MEASURED BEARINGS ARE BASED ON THE NAD83(2011) MICHIGAN CENTRAL STATE PLANE GRID.

MEASURED DISTANCES SHOWN ARE NAD 83 MICHIGAN CENTRAL ZONE STATE PLANE GRID IN INTERNATIONAL FEET. CONVERSION TO GROUND DISTANCE IS PERFORMED BY DIVIDING THE GRID DISTANCE BY THE COMBINED GRID FACTOR WHICH IS 0.999852052

CLIENT: C2AE

LOCATION:
Section 4, T30N, R3W
City of Gaylord
Otsego County

FLD. BK. 5158 PG. 12

DATE: 4/26/2019

SHEET 1 OF 2 FILE NO. 195063

D:\survey_data\SURVEY\T30N-R3W\04195063.dwg

CERTIFICATE OF SURVEY

Quit Claim Deed recorded at Liber 1473, Page 254, Otsego County Records.

The following lands situated in THE CITY OF GAYLORD, County of Otsego, and State of Michigan, to wit:

COMM AT THE S 1/4 CORNER OF SEC 4 AND PROCEEDING N0DEG42'00"W 620.95 FT ALG THE N-S 1/4 LINE AND N89DEG16'20"E 33 FT TO THE POB, TH N0DEG42'00"W 308.48 PT ALG THE E LINE OF OLD 27 SOUTH, TH N89DEG16'20"E, ALG THE SOUTH LINE OF SEVENTH ST, TO A PT THAT IS 100 FT WEST OF THE INTERSECTION OF THE S LINE OF SEVENTH ST AND THE WEST LINE OF COURT ST, TH S0DEG05'40"W 330. FT, TH N89DEG16'20"E 110.00 FT, TH S0DEG05'40"W 127.43 FT ALG THE W LINE OF COURT ST, TH N76DEG35'55"W 291.81 FT, TH N0DEG42'00"W 77.68 FT, TH S89DEG16'20"W 110.00 FT, TO THE POB EXCEPT PART OF THE SE 1/4 OF SEC 4, T30N R3W, CITY OF GAYLORD, COMM AT THE S 1/4 CORNER OF SEC 4, TH N00DEG42'00"W 929.51 FT, TH ALG THE N 1/4 LINE OF SEC 4, TH N89DEG16'01"E 322.51 FT ALG THE S LINE OF SEVENTH ST, TH S00DEG05'50"W 330.01 FT, TO THE POB, TH N89DEG16'01"E 110.02 FT, TH S00DEG06'06"W 127.35 FT, TH N76DEG36'23"W 113.03 FT, TH N00DEG05'50"E 99.77 FT TO THE POB.

The description above does not form a mathematically closed figure. It is this surveyors opinion, based on the language in the description, that the error is in the fifth line of the description where it reads "TH N89DEG16'20"E 110.00 FT". I believe this call is in error because previously in the description a point is called out that is 100 feet West of the West line of Court Street and the next call in the description indicates the line is along the West line of Court Street. I believe the erroneous call should be corrected to say "TH N89DEG16'20"E 100.00 FT".

The description is in harmony with parcels to the East described in Warranty Deed at Liber 1172, Page 784 and Quit Claim Deed at Liber 1272, Page 160, Otsego County Records.

The description overlaps the lands described in Warranty Deed at Liber 1232, Page 644, Otsego County Records, by approximately 10 feet. The reason for this overlap and the ownership of the 10 foot wide parcel of land is unknown to this surveyor at this time.

DRAFT

Brand Land Surveying LLC

Professional Surveyor No. 43046

Brand Land Surveying LLC
533 Greenfield Drive
Gaylord, Michigan 49735
989-732-8077
www.brandlandsurveying.com

CLIENT: C2AE

LOCATION:
Section 4, T30N, R3W
City of Gaylord
Otsego County

FLD. BK. 5158 PG. 12

DATE: 4/26/2019

SHEET 2 OF 2 FILE NO. 195063

D:\survey_data\SURVEY\T30N-R3W\04195063.dwg

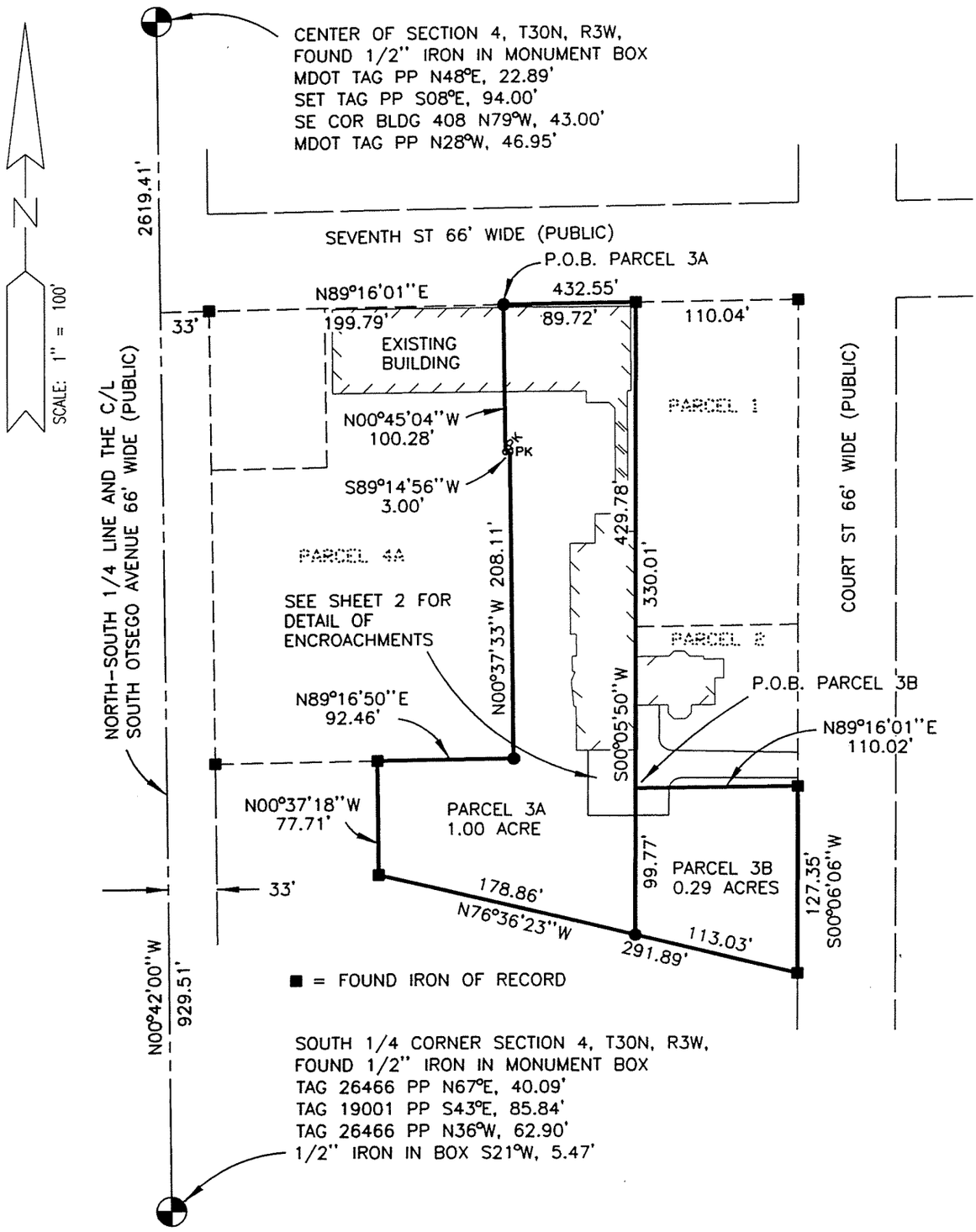
APPENDIX D

Wade-Trim Certificate of Survey

CERTIFICATE OF SURVEY

LEGEND:

1. ALL DIMENSIONS ARE IN FEET AND DECIMALS THEREOF.
2. "●" = 1/2" BARS WITH IDENTIFICATION CAPS HAVE BEEN SET UNLESS NOTED OTHERWISE.
3. ———— = DESCRIBED BOUNDARY LINE.
4. ALL BEARINGS ARE RELATIVE AND REFERENCED TO A PREVIOUS UNRECORDED SURVEY BY CARL ROBINSON, PS, JOB NO. 78162/3.



BOOK #:	PAGE #:	SEC. 4 , T30N , R3W
DRAWN BY: JSC	COMPUTED BY: ABC	JOB #: GSU6230-01G
CHECKED BY: SMJ	SURVEYED BY: ABC	SHEET: 1 OF 3

FOR:

TOM ZAMOYSKI

WADETRIM
271 West McCoy Road, P.O. Box 618
Gaylord, MI 49734
989.732.3584/800.968.4440
FAX: 989.732.6391
www.wadetrim.com Building relationships on a foundation of excellence

STATE OF MICHIGAN
JASON CAVERSON
PROFESSIONAL SURVEYOR
No. 46658
LICENSED PROFESSIONAL SURVEYOR

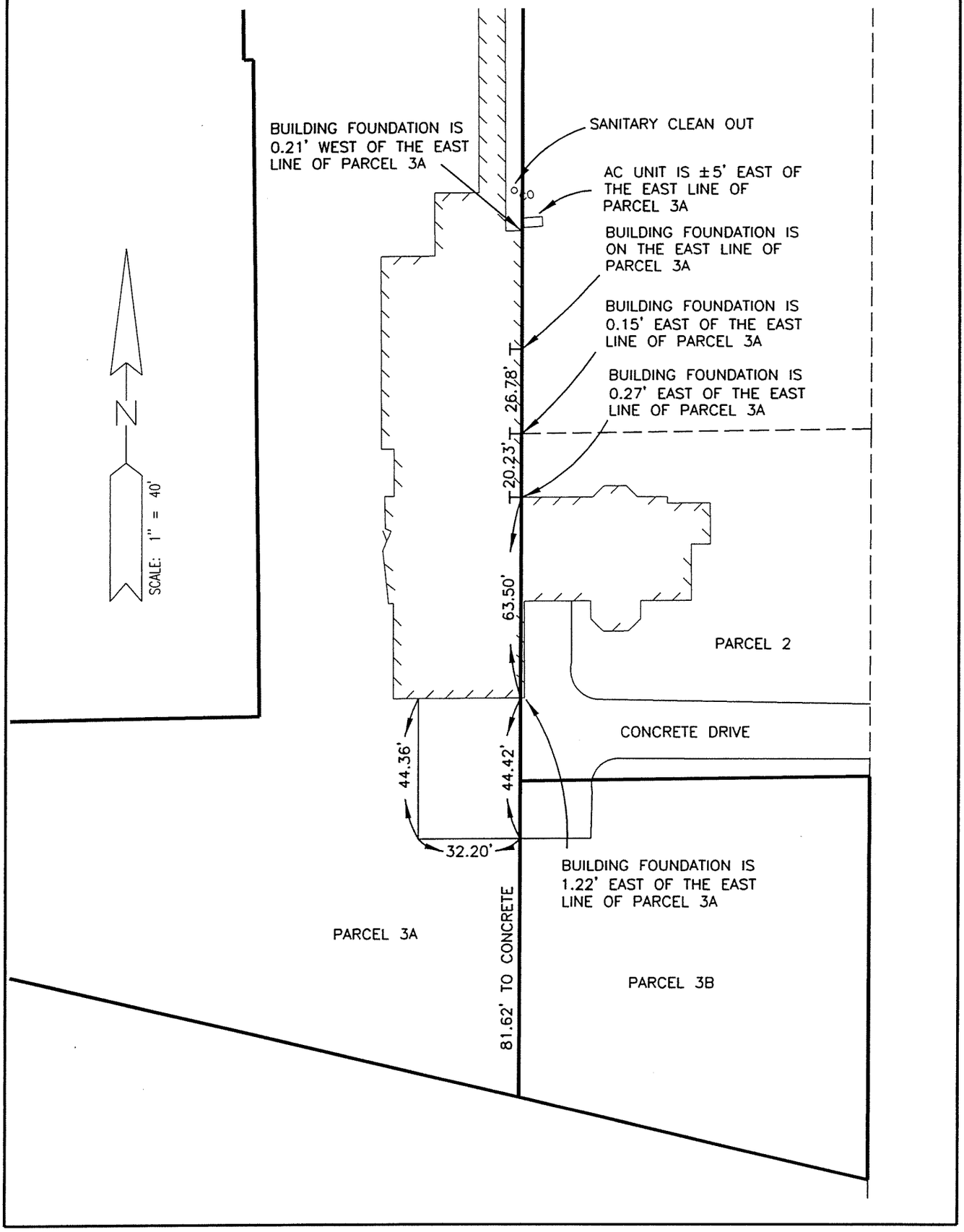
6-15-07

© Wade Trim Group, Inc.

AG 9602

CERTIFICATE OF SURVEY

ENCROACHMENT DETAIL



BOOK #:	PAGE #:	SEC. 4 , T30N , R3W
DRAWN BY: JSC	COMPUTED BY: ABC	JOB #: GSU6230-01G
CHECKED BY: SMJ	SURVEYED BY: ABC	SHEET: 2 OF 3

FOR:

TOM ZAMOYSKI

WADETRIM

271 West McCoy Road, P.O. Box 618
Gaylord, MI 49734
989.732.3584/800.968.4440
FAX: 989.732.6391
www.wadetrim.com Building relationships on a foundation of excellence

STATE OF MICHIGAN
JASON CAVERSON
PROFESSIONAL SURVEYOR
No. 46658
LICENSED PROFESSIONAL SURVEYOR

6-15-07

© Wade Trim Group, Inc.

AG 9602

CERTIFICATE OF SURVEY

PARCEL 3A

A parcel of land on part of the Southeast 1/4 of Section 4, T30N, R3W, City of Gaylord, Otsego County, Michigan, being described as: Commencing at the South 1/4 corner of said Section 4; thence N00°42'00''W, 929.51' along the North–South 1/4 line of said Section 4; thence N89°16'01''E, 232.79' along the South line of Seventh Street to the POINT OF BEGINNING; thence continuing N89°16'01''E, 89.72' along said South line; thence S00°05'50''W, 429.78'; thence N76°36'23''W, 178.86'; thence N00°37'18''W, 77.71'; thence N89°16'50''E, 92.46'; thence N00°37'33''W, 208.11'; thence S89°14'56''W, 3.00'; thence N00°45'04''W, 100.28 to the Point of Beginning, containing 1.00 acre.

PARCEL 3B

A parcel of land on part of the Southeast 1/4 of Section 4, T30N, R3W, City of Gaylord, Otsego County, Michigan, being described as: Commencing at the South 1/4 corner of said Section 4; thence N00°42'00''W, 929.51' along the North–South 1/4 line of said Section 4; thence N89°16'01''E, 322.51' along the South line of Seventh Street; thence S00°05'50''W, 330.01' to the POINT OF BEGINNING; thence N89°16'01''E, 110.02'; thence S00°06'06''W, 127.35' thence N76°36'23''W, 113.03'; thence N00°05'50''E, 99.77' to the Point of Beginning, containing 0.29 acres.

CERTIFICATE OF SURVEY:

I hereby certify to the parties named hereon that we have surveyed and divided into several parcels, at the direction of said parties, a tract of land (previously described as):

Land located in the City of Gaylord, Otsego County, Michigan being part of the SE 1/4 of Section 4, T30N, R3W, described as commencing at the South 1/4 corner of said Section 4 and proceeding N00°42'00''W 929.45' along the N & S 1/4 line; and N89°16'20''E, 232.81' along the South line of Seventh Street to the POINT OF BEGINNING; thence continuing N89°16'20''E, 89.55' along said South line; thence S00°05'40''W, 330.00'; thence N89°16'20''E, 110.00'; thence S00°05'40''W, 127.43' along the West line of Court Street; thence N76°35'55''W, 291.81'; thence N00°42'00''W, 77.68'; thence N89°16'20''E, 92.46'; thence N00°34'48''W, 208.20'; thence S89°15'15''W, 3.00'; thence N00°44'45''W, 100.28' to the Point of Beginning, containing 1.29 acres.

and that we have found or set, as noted hereon, permanent markers to all corners and angle points of the boundaries of said parcels; and that the more particular legal descriptions of said parcels are as designated hereon.

This survey complies with the requirements of P.A. 132 of 1970.

This survey was performed with an unadjusted error of closure of no greater than a ratio of 1 in 5,000.

Jason Caverson 6-15-07

Jason Caverson, PS — Date
Registration No. 46658

BOOK #:	PAGE #:	SEC. 4 , T30N , R3W
DRAWN BY: JSC	COMPUTED BY: ABC	JOB #: GSU6230-01G
CHECKED BY: SMJ	SURVEYED BY: ABC	SHEET: 3 OF 3

FOR:

TOM ZAMOYSKI

WADETRIM
271 West McCoy Road, P.O. Box 618
Gaylord, MI 49734
989.732.3584/800.968.4440
FAX: 989.732.6391
www.wadetrim.com Building relationships on a foundation of excellence

STATE OF MICHIGAN
JASON CAVERSON
PROFESSIONAL SURVEYOR
No. 46658
LICENSED PROFESSIONAL SURVEYOR

© Wade Trim Group, Inc.

AG 9602

COUNTY OF OTSEGO
Administrative Policy Manual

Policy No	Subject	Date Issued
500.01	**Purchasing**	4/13/04

Application

General Fund Functions
- ☒ General Fund Departments
- ☒ 46th Trial Court
- ☒ Other Jointly Governed Organizations

Special Revenue Functions
- ☒ Parks and Recreation
- ☐ Library
- ☐ Social Welfare (Family Independence Agency)
- ☐ Commission on Aging
- ☐ Other Special Revenue Funds

- ☒ Building Authority

Business-Type Functions
- ☒ Delinquent Tax Revolving
- ☒ Commissary
- ☒ Bus System
- ☒ Administrative Services
- ☒ Building and Grounds

Component Units
- ☐ University Center
- ☐ Road Commission
- ☐ Ambulance
- ☐ Sportsplex

- ☐ Other:

Revised
08/14/12

Applicable Forms

Contact Department	Contact Phone Number	Contact Fax Number	Contact E-Mail
Administration	989-731-7520	989-731-7529	rfrisch@otsegocountymi.gov

Summary

The purpose of this policy is to establish procedures for the purchase of all supplies, equipment, vehicles, and all construction or altering of County facilities for any department of the County of Otsego in a manner that maximizes the purchasing value of public funds in procurement. This policy includes capital leases on any such item as listed above. When the procurement involves the expenditure of federal or state assistance or contract funds, the procurement shall be conducted in accordance with any mandatory applicable federal or state laws and regulations. Nothing in this policy shall prevent any public agency from complying with the terms and conditions of any grant, gift or bequest that is otherwise consistent with law. Professional service contracts and contracts for specific, non-repetitive services are exempt from the requirements of this Policy with the exception of the requirements contained in Sections 2.18 and 2.19 of the Policy.

Procedures

1. Definitions

1.1 ***Capital Outlay Items*:** Non-expendable items itemized in the County's capital improvement budget/plan.

1.2 ***Competitive Bids:*** Prices received from vendors on items or services $10,001 or more. Competitive bids are received as sealed bids only and are opened at advertised public bid openings. The requirement for sealed competitive bids shall not apply to intergovernmental contracts, contracts for professional services, contracts for specific, non-repetitive services, or emergency repairs, or for the reauthorization of contracts, which have been previously approved by the Otsego County Board of Commissioners.

1.3 ***Expendable/Recurrent Supplies*:** Routine supplies needed to carry on the County's daily

business (i.e. food, medical supplies, office supplies). Expendable supplies are generally acquired using preferred vendors.

1.4 ***Final Approver:*** Person(s) designated to utilize the electronic purchasing system with the authority to convert requisitions to purchase orders.

1.5 ***Formal Bidding:*** Formal bidding procedure should be used for purchases from $5,001 to $10,000. It includes solicitation of written bids through the mail, e-mail, and facsimile.

1.6 ***Informal Bidding:*** Purchases of $501 to $5000 are subject to informal bidding. Informal bids (quotes) includes solicitation of written bids and may be solicited by telephone, personal contact, or in writing.

1.7 ***Public Bid Opening*****:** A place, date and time established to open competitive bids received on items and/or services being procured. Adequate public notice of the invitation for bids shall be given not less than 7 calendar days prior to the date set forth therein for the opening of bids. Such notice may include publication in a newspaper of general circulation within the County for a reasonable time prior to the bid opening.

1.8 ***Request for Proposal*** **(RFP):** A document issued by the County Administrator, which contains specifications and County bidding procedures for procurement of items and/or services. An RFP is sent out to vendors as a mechanism to solicit for competitive bids.

1.9 ***Request for Quotation*** **(RFQ):** A document (less formal than an RFP) issued by the County Administrator/Management Team Member, which contains specifications for the procurement of items and/or services. An RFQ is sent out to vendors as a mechanism to solicit for competitive quotes.

1.10 **Professional Service Contract:** A Contract for unique, technical, and/or infrequent functions performed by an independent contractor qualified by education, experience, and/or technical ability to provide services. In most cases, these services are of a specific project nature, and are not a continuing, ongoing responsibility of the institution.

1.11 **Service Contract:** an agreement whereby a contractor supplies time, effort and/or expertise instead of a good (tangible product).

2. POLICY: The County utilizes an electronic accounting system with a purchasing module that includes a requisition and purchase order system. Every purchase on behalf of the County (unless specifically exempted) shall require a requisition and purchase order. Except as otherwise specified herein, purchases / contracts will be awarded to a contractor or bidder based on price, record of performance, availability, dependability and experience. All purchases by contract, or otherwise, as herein authorized, will be in accordance with such appropriations as have been made by the Board of Commissioners for the support of the respective departments.

Procedures

It shall be unethical for any County employee to participate directly or indirectly in a procurement contract when (the County employee knows that) the County employee or any member of the County employee's immediate family has a financial interest pertaining to the procurement contract.

2.1 ***Basic Purchases:*** Items valued at $500 or less are considered basic purchases. There are not any bidding requirements for these purchases; however, the requisition and purchase order system must be utilized. Management Team Members or their designee(s) are authorized to draft requisitions and act as the final approver. The responsible party shall exercise reasonable scrutiny when expending funds under the $500 threshold.

2.2 ***Informal Bidding:*** Purchases of $501 to $5000 are subject to informal bidding. Individual employees, with approval of the County Administrator, may solicit informal bids as outlined below. Bids must be written. The County Administrator (their designee when absent) must act as final approver.

A. Bid Information: To insure fairness in, each vendor solicited should be given the same information. This information should include:

- Description of items to be purchased
- Special terms and/or specifications
- Desired delivery date

B. Record of Bids: All bids solicited shall be in writing and will be electronically recorded in the requisition "Post It" note window. Each record should contain:

- Bid Information
- Record of all bids
- Manager's explanation if lowest priced vendor not selected.

2.3 ***Formal Bidding*:** Purchases from $5,001 to $10,000 are subject to the formal bidding procedure. The respective department shall follow the formal bidding process. The Management Team Member must approve with the County Administrator or designee acting as the final approver. It includes solicitation of written quotations/bids through direct contact, public advertisement or any combination of the same.

A. The solicitation/advertisement must include the following:

- Identification of item(s) to be bid upon
- Location bids are to be submitted
- Date and time of bid deadline for submission
- Contact for further information
- Statement of County's rights to reject bids
- Contract compliance terms
- Product specifications

B. Record of Bids: All bids solicited shall be electronically recorded in the

requisition "Post It" note window. Each record should contain:

- Bid Information
- Record of all bids
- Department Head explanation if lowest priced vendor not selected.

2.4 ***Competitive Bidding:*** Purchases with an anticipated obligation of $10,001 or more are required to have sealed, competitive bidding and comply with Public Act 167 and 168 of 1993. Two (2) competitive bids are required for purchases of $10,001 or more. Professional services, contracts for specific, non-repetitive services, and intergovernmental contracts and emergency repairs, or reauthorization of contracts that have been previously approved are exempted from this policy. The inability to obtain two (2) competitive bids, upon due diligence, shall not prevent the County from awarding the bid. **A copy of all bid document material must be provided to the Administration Department.**

A. If a bid document must be prepared ($10,001 or more), it shall include:

- **Bid Reference Number as assigned by the Administration Department**
- Bid advertisement
- Bid preparation instructions
- Proposal
- Contract
- General conditions
- Special conditions
- General specifications
- Detailed specifications
- State or Federal guidelines (if necessary)

The County reserves the right to accept, reject or negotiate any or all bids, to waive or not waive informalities or irregularities in bids or bidding procedures, to rebid the project/purchase, and to accept any bid determined by the County to be in the best interest of the County, regardless of price. The reason for rejection may include past performance issues, and compatibility with existing equipment or software. Local Vendors, as defined below, are hereby granted a 5% cost variance for low bid determination.

A "local vendor" is defined as a business that has had a fixed office or distribution point located in and having a street address within the county for at least six months immediately prior to the issuance of the request for competitive bids (post office boxes do not qualify as a business address). In addition, the business must employ at least one full-time or two part-time employees whose primary residence is located within Otsego County, or if the business has no employees, shall be at least fifty percent owned by one or more persons whose primary residence(s) is located within Otsego County.

B. All bids shall be opened at the time, date and place specified, and the opening and inspection of all bids shall be made by the County Administrator. A complete

Procedures

summary of the bids, including the bidding firm's name, cost, qualifying data, and any other relevant information, shall be kept on file. Final approval, acceptance and selection of bids that are low bid and meet specifications shall be recommended by the County Administrator to the Board of Commissioners.

2.5 ***Expendable Supplies*:** For each expendable category of purchases, the County Administrator, with the assistance of the respective department staff (i.e. maintenance/jail food staff), will compile and maintain a list of preferred suppliers. Such lists will be reviewed and updated periodically. Typically one – three vendors will be listed to provide comparison pricing and selection options.

2.6 ***Open Purchase Orders*:** Open Purchase Orders shall be utilized for vendors that provide routine repetitive services. Open Purchase Orders may be opened and closed within any calendar month. Examples of authorized open purchase orders include: oil changes, car wash and other similar services.

2.7 ***Emergency Purchase Orders*:** In case of emergency needs, appropriate departments (maintenance, sheriff) are authorized to make emergency procurements of supplies, services or construction items when there exists a threat to public health, welfare or safety. Electronic access shall be provided to authorize the issuance of emergency purchase orders. Emergency procurements shall be made with such competition as is practicable under the circumstances and the cost shall not exceed $5,000. An emergency purchase of up to $10,000 may be made by the County Administrator without prior approval by the chair or vice-chair of the Board of Commissioners. The very nature of emergency expenditures may necessitate a significant financial decision without prior approval. All emergency expenditures in excess of $10,000 shall be reported to the Board of Commissioners, in writing, within three business days.

In the case of emergency repairs where delays may cause further damage to county property, the County Administrator is authorized to spend up to $10,000 without prior approval by the chair or Vice-Chair. Emergency repairs in excess of $10,000 may be made by the County Administrator with advanced authorization from the chair or vice-chair.

2.8 ***Cooperative Government Contracts*:** Bidding requirements shall be waived if the County is able to secure favorable prices on purchases by joining with other local governments, or participating with the State of Michigan or the Federal Government in purchasing. The County Administrator is authorized to enter into the necessary agreements or contracts on behalf of the County.

2.9 ***Exempted Purchases*:** Exempted purchases include maintenance agreement billings, utility billings, contracted service invoices, insurance payments, and other like services as noted in the Otsego County Payables Policy. The appropriate account number and signature of a Management Team member is required for exempted purchases, and shall appear across the invoice.

Procedures

2.10 ***Payment Procedure*:** The respective Management Team member will be responsible for inspection of all orders, upon receipt of the order and prior to the acceptance of the delivery. Upon acceptance of items, verification that the packing slip matches the purchase order must accompany the invoice in order to obtain payment. Whenever a department rejects any orders, the County Administrator shall be notified immediately and given the reason for the rejection.

2.11 ***Capital Leases*:** The process for bidding capital leases shall be similar to other purchases. Should the price of the purchase not be reasonably known prior to engaging the bidding process, the Formal Bidding Process shall be used.

2.12 ***Bid Specification Changes*:** All changes in bid specifications shall be reported to all known potential bidders. Such notification shall provide appropriate time for all such potential bidders to have adequate time to make adjustments to their bids.

2.13 ***Demo Models*:** Bidding requirements shall be waived if the County is able to secure favorable prices on purchases by purchasing a demonstration model.

2.14 **Rebidding:** Should it become necessary to rebid a project/purchase, the County Administrator may waive the newspaper posting requirement for Competitive Bids, with notification being given to the Budget & Finance Committee members.

2.15 Amending contracts on projects requiring bids: The County Administrator may approve minor amendments to capital project contracts up to an amount of $5,000, not to exceed more than 10% of the original contract amount. The County Administrator may approve minor amendments to capital project contracts up to an amount of $10,000, not to exceed 10% of the original contract amount, with pre-notification to the Budget & Finance Committee. Any contract amendment beyond the limits specified above requires approval by the Board of Commissioners.

2.16 ***Bond Requirements:*** Bid bonds are required for construction or repair projects in the amount of $100,000 or more. Bid bonds and performance bonds are required for construction or repair projects in the amount of $250,000 or more. Bid bonds shall be in the amount of 10% of the total contract price. Performance bonds will be in the amount of 100% of the total contract price. Bond requirements cannot be waived.

2.17 ***Lien Waivers:*** For construction or repair projects in the amount of $50,000 or more, the contractor is required to provide partial lien waivers, verifying all subcontractors and suppliers have been paid for their work to date, for payment requests beyond 25% of the total contract price. The final 10% of the contract price can be paid prior to receipt of lien waivers. The contractor will provide final lien waivers within 30 days of contract completion. In the event that a contractor does not provide the required lien waivers, the contract will not be eligible for future County projects without the consent of the County Infrastructure Committee.

Procedures

2.18 ***Insurance Requirements*:** All contractors and/or vendors are required to maintain the following Insurance:

A. Workers Compensation and Employers' Liability, Michigan Statutory Limits of Liability.
B. Commercial General Liability Insurance
C. Motor Vehicle Liability Coverage, and Michigan No-Fault Coverages including all owned, non-owned, and hired vehicles.
D. Otsego County will be named as Additional Insured on all insurance coverage, with the exception of Workers Compensation and Employers' Liability insurance.

Limits of Liability for General Liability, and Vehicle Liability shall be within the following guidelines based on contract amount:

- Projects up to $750,000: Minimum of $1,000,000 per occurrence and aggregate.
- Projects $750,001 to $1,750,000: Minimum of $2,000,000 per occurrence and aggregate.
- Projects $1,750,001 to $2,750,000: Minimum of $3,000,000 per occurrence and aggregate.
- The required amounts continue to escalate by adding $1,000,000 to the beginning and ending project range and to the minimum insurance requirement.
- A Waiver of Subrogation is required on the certificate of liability insurance.
- The certificate of liability insurance is required to have a 30-day notice of cancellation.

2.19 ***Professional Services Contracts Requirements*:** Professional Liability Coverage (Errors and Omissions) is required for all contracts for professional services such as architect, engineer, design firm or similar professions, and the medical professions, etc.

- In the event that services delivered either directly or indirectly involve or require professional services (e.g. architectural, engineering, medical), Professional Liability Coverage (Errors and Omissions) insurance coverage must be provided with a limit of liability of not less than $1,000,000 per occurrence and aggregate generally, and must further be in an amount to be equal to or greater than the total project cost.
- A Waiver of Subrogation is required on the certificate of liability insurance.

Procedures

- The certificate of liability insurance is required to have a 30-day notice of cancellation.

2.20 ***Other Contractor Insurance Requirements*:** For projects of over $250,000, all vendor insurance must be obtained through an insurance company that has a financial strength rating of A or better by a reputable insurance rating company such as A.M. Best.

2.21 ***Purchases on Behalf of Other Agencies*:** For purchases made by Otsego County while acting as a grant fiduciary on behalf of other agencies, Otsego County will allow Preferred Vendors at the written request of an authorized representative from the requesting agency.

2.22 ***Nepotism*:** A County employee or grant administrator may not hire a person related to him/her to do contractual work until approved by the County Administrator for compliance with the spirit of the County's Purchasing Policy and Nepotism Policy. For the purposes of this policy, "related" shall cover the following relationships:

1. Parent (natural, step, or in-law)
2. Child (natural or step)
3. Brother/sister (natural, step, or in-law)
4. Spouse
5. Grandparent
6. Legal Guardian

The County of Otsego will accept delivery of and authorize payment of only those services, supplies, merchandise or articles authorized for purchase, and acceptable under terms of the purchase agreement, in accordance with the procedures stated herein.

Payment for any services, supplies, merchandise or articles not authorized for purchase by the County Administrator and/or the Otsego County Board of Commissioners in accordance with the policies and procedures stated herein becomes the responsibility of the person or persons requesting such service, supplies, merchandise or article and the County may deny payment of the claim.

Any service being performed for the County that has not been authorized in accordance with the policies and procedures stated herein, shall be immediately discontinued and the original conditions restored at the expense of the person or persons requesting such service.

Payment in full for any service, supplies, merchandise or articles not acceptable for delivery or the use required, as put forth in the bid specifications or purchase agreement for such service, supplies, merchandise or articles, will be held in abeyance until such time as a replacement or replacements meeting the specifications put forth in the purchase agreement and acceptable for the use required are received.

Procedures

TABLE 1

Dollar Amount	Bidding Requirement	Final Approval
$0 - $500	None	Management Team Member or Designee
$501 - $5,000	Informal Bid	County Administrator
$5,001 - $10,000	Formal or Competitive Quote	County Administrator
$10,001 or more	Competitive Bids (2)	Board of Commissioners

Approvals (name and department)
Board of Commissioners April 13, 2004