June 18, 2021

MEMORANDUM

FORMAL ACTION & RECOMMENDATION
MEETING OF 06-24-21

To: Conservation Commission/Inland Wetlands and Watercourses Agency

From: Tom Mocko, Environmental Planner

Re: **Application of Carrier Construction, LLC** (c/o Gino Carrier, President) for: **an inland wetlands and watercourses permit**; and **a recommendation to the Town Plan & Zoning Commission concerning final subdivision approval** – proposed **7-lot Subdivision of 1040 Main Street** – 7 frontage lots and some 650 feet of road construction on 9.3 acres – Residence AA Zone and Groundwater Protection (overlay) Zone 1 – Alter & Pearson, LLC – Davison Environmental, Soil and Wetland Scientist and Wildlife Biologist – Wolff Engineering, C.E.

PROPOSAL: To subdivide a vacant, 9.3 acre parcel (that previously was in agricultural use and excavated for sand and gravel) into 7 frontage building lots and construct a 650-foot long Town road from Main Street. Extensive excavation and mass regrading of the site are proposed in order to facilitate road construction and to re-shape the topographic irregularities that resulted from the past mining operations. The subdivision will be served by sanitary sewers, public MDC water supply, electricity, cable and, perhaps, natural gas. A larger conservation easement is now proposed to protect the site's wetlands and vernal pool. Stormwater management plans are progressing to satisfy the Engineering Department's requirements for detention (mitigation of peak discharges of runoff) and water quality mitigation.

UPDATE: We recently informally reviewed this project at our May 13, 2021 meeting. Since then plan revisions were made that further conserve the overall environmental integrity of the project site. Within your packet are the most recent submittals, including a memorandum (dated 5/27/21) from project attorney Meghan Hope that summarizes the revisions made. The noteworthy revisions include:

- Eliminating one building lot closest to the vernal pool, thus it is now a 7-lot subdivision;
- Increasing the proposed conservation easement area from 1.3 to 1.8 acres in size;
- Providing a detail of the footpath over the existing culvert (to be replaced), but perhaps using modified riprap in place of the proposed intermediate riprap for a softer look;
- Stabilizing the proposed long, steep cuts near Main Street using a more long-lived warm season grass seed mix; and
- Adding black oak and scarlet oak tree species to the list of potential street trees to plant.

GEI Consultants, Inc. were retained by the applicant to:

1. Conduct pesticide sampling of the site's soils (report is attached to this memorandum); and
2. Check for the presence of "significant geologic features" (e.g., an esker), in which none were identified as documented within GEI's May 21, 2021 letter Re: Geologic Assessment that is found within your packet materials.

The site's soils are assumed to represent "clean fill" by Regulations of Connecticut State Agencies (RCSA), even though some lead and arsenic residues were detected. There are no significant geological features, including an esker, on the site according to the assessment submitted.

The project engineer estimates that the proposed subdivision will result in approximately 48,250 cubic yards of surplus soil material on the site that will need to be trucked off the site. If 15 cubic yard dump trucks are used to export this surplus material, then that equates to some 3,200 truck trips from the site.

The site plans' details indicate that the road's catch basins will have 2-foot minimum depth sumps. Three-foot minimum depth sumps provide much improved sediment traps, and should be used for this project. A condition of approval requiring 3-foot (minimum catch basin sumps will be within the draft motions.

A warm season grass seed mix is specified for revegetating the proposed steep, critical excavated slopes for the new road; such seed mixes are advantageous for their longevity in providing permanent stabilization using plant materials. It should be further noted on the filed plans, that: the best seasonal time of year to seed warm season grasses is from mid-April through mid-May; and the preferred planting depth ranges from 1.5 to 2.0 incudes beneath the soil surface. Such aspects should also appear on the plans to guide their successful establishment.

Staff yet needs to consult with the project engineer to review the project's "nitrogen loading" calculations that are required due to the Groundwater Protection (overlay) Zone 1 for the site. It is expected that the project's calculated nitrogen loading will be below the regulatory threshold (10mg/l or ppm) due to the proposed connections to sanitary sewers and the relatively small lawn areas to be fertilized.

Immediately following this memorandum are:

a. The positive and supportive memorandum (dated 6/15/21 from the Town Engineer;
b. Selected excerpts from the revised, draft Drainage Calculations dated 5/27/21; and
c. GEI Consultants' letter (dated 4/15/21) regarding their findings from their pesticide sampling study of the site.

Draft approval motions for the issuance of a wetlands permit and a favorable recommendation to the Town Plan & Zoning Commission for subdivision approval will be emailed prior to the meeting.

TM:gfm

June 15, 2021

MEMORANDUM

To: Thomas Mocko, Environmental Planner
Conservation Commission

From: Daniel A. Pennington, P.E., Town Engineer / Manager of Physical Services

Re: 1040 Main Street
Proposed 7-Lot Subdivision

The Engineering Division has reviewed the plans and drainage calculations for the proposed 7-lot 1040 Main Street Subdivision prepared by Wolff Engineering last revised May 27, 2021 and offers the following comments:

1. The stormwater management report indicates that the proposed drainage system with associated detention pond will reduce peak stormwater flow rates from the project area for all storm events analyzed. Water quality treatment provided through detention pond storage and private roof infiltration systems is consistent with Town Standards.

2. The long-term maintenance plan and schedule for the proposed detention pond should be moved to Sheet 5 of 17. The Town's current MS4 Permit tracking table should also be added to this sheet.

3. Iron pins are required for corners of all proposed conservation and drainage easements and should be indicated on Sheet 4 of 17 and on other relevant plans. The proposed right-of-way width should also be dimensioned on this sheet.

4. The proposed riprap aprons depicted on Sheet 5 of 17 do not match the dimensions indicated in the details. These should be drawn to scale to avoid confusion during construction.

5. The proposed limits of clearing should be more clearly depicted on Sheet 5 of 17. Existing significant trees shown on this plan should be identified for protection or removal as appropriate.

6. The footing drain and roof drain for Lot 1 should be re-directed to the adjacent catch basin in a manner that avoids the steep slope area to the extent possible.

7. Some form of visual screening should be considered to the rear of Lot 3 at a point just outside of the proposed drainage easement given proximity to the abutting stormwater detention pond.

8. Proposed catch basins #3 and #7 as well as proposed manhole #1 should be labeled as "Over 10' Deep" on Sheet 6 of 17 and constructed to ConnDOT standards for structures of this depth.

9. Shop drawings depicting the proposed methods of trench shoring and dewatering shall be prepared by a CT Licensed Professional Engineer and submitted to the Engineering Division for review prior to construction of the proposed storm drainage installation between CB#3 and MH#1 which has maximum depths of approximately 20 feet.

10. Test borings are recommended along the section of proposed storm drainage between CB#3 and MH#1 to verify soil and groundwater conditions and facilitate the proper design of shoring and dewatering.

11. The Modified Riprap Apron detail and Footpath Culvert detail on Sheet 13 of 17 should depict and refer to the Town Standard concrete footing for culvert ends (Plate 24) as shown on Sheet 16 of 17.

12. Concrete sidewalk should be installed at a 1 foot offset from the proposed street line per Town Standards.

13. The proposed sidewalk ramp at the cul-de-sac should be labeled as "Sidewalk Ramp per Town of Glastonbury Standards".

14. The location of a proposed street name sign per Town of Glastonbury Standards should be depicted on Sheet 6 of 17.

"Proposed 7 Lot Subdivision"

1040 Main Street
Glastonbury, Connecticut

Revised

Draft Drainage Calculations

Prepared For

Carrier Construction, Inc.
P.O. Box 1842
Bristol, CT 06010-1842

Submitted To:

The Town of Glastonbury

Prepared By:

Civil Engineers
Cornerstone Professional Park, Suite C101
39 Sherman Hill Road
Woodbury, CT 06798
Tel.: 203.263.7447
Fax: 203.263.0060
Email: ron@wolffengineering.com
www.wolffengineering.com

Date: May 27, 2021

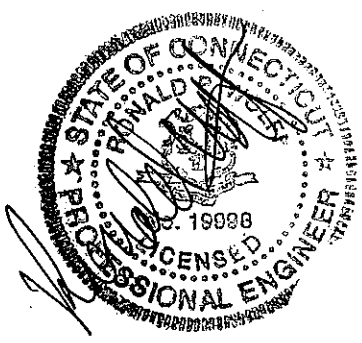

TABLE OF CONTENTS

1.0 PROJECT DESCRIPTION

This project consists of the subdivision of an existing 9.3 acre parcel currently known as #1040 Main Street into 7 Lots. The subject parcel is located on the east side of Main Street, across from Southgate Drive. The proposed development is located in the Residence AA and Groundwater Protection Zone 1 zoning districts.

2.0 EXISTING CONDITIONS

The existing parcel is primarily wooded. There is a steep upward slope that begins approximately 20 feet east of Main Street and extends to a north/south ridge. The property then gradually slopes down to the northeast corner of the property. There are two wetland areas on the property, as well as a vernal pool that is located in the southeast corner of the property.

3.0 PROPOSED CONDITIONS

It is proposed to develop the parcel into 7 residential building lots. The proposed road is 650 feet long and 22 feet wide, and will have curbing along each gutter. The proposed roadway drainage system consists of Type "C" catch basins and a sediment structure connected with reinforced concrete pipe, with 15" diameter minimum pipe size. Runoff from the proposed roadway, building lots, and driveways will be directed to the proposed stormwater/water quality basin. Roof leader drains are proposed to be directed into underground stormwater infiltration chambers. The stormwater basin was designed to provide a zero increase in runoff for the 2, 10, 25, and 100-year storm events assuming zero infiltration into the basin floor (conservative). An underdrain is proposed to drain the basin following storm events. The following table summarizes the pre and post development flows for the watershed that is being routed through the stormwater management area:

DRAINAGE SUMMARY				
CONDITION	FLOW (CFS)			
	2 Year	10 Year	25 Year	100 Year
Existing Conditions at Analysis Point	0.02	0.88	2.62	7.06
Discharge From Stormwater Management Area	0.00	0.71	2.13	5.30
Proposed Flow at Analysis Point	0.02	0.88	2.58	6.53
Change in Flow at Analysis Point	0.00	0.00	-0.04	-0.53

All of the proposed flows and design calculations for the proposed drainage system and stormwater basins are attached to this document.

4.0 METHODS

The SCS method was used to determine the peak discharge rates contributing to the stormwater management area. The rational method was used to calculate flow to each catch basin and the storm sewer system was sized and analyzed for the 10-year storm event using procedures outlined in Chapter 6 of the Drainage Manual for Hydrology and Chapter 11 for stormwater piping design. Soil types were obtained from NRCS soil mapping. Groundwater Recharge Volume calculations were performed in accordance with the 2004 Connecticut Stormwater Quality Manual Hydrologic Soil Group Approach.

END

GEI Consultants

April 15, 2021

Gino Carrier
Carrier Construction
161 Birch Street, Suite B
Southington, CT 06489

Consulting
Engineers and
Scientists

Re: Pesticide Sampling
1040 Main Street
South Glastonbury, CT

Dear Mr. Carrier:

GEI Consultants, Inc. (GEI) provided collection and analysis services of surficial soils primarily within the central portions of the property located at 1040 Main Street, South Glastonbury, CT (the Site). Based on historical aerial photos, the Site may have historically been utilized for agricultural purposes. Based on the potential of past agricultural usage GEI was retained to collect surficial soil samples for the analysis of lead, arsenic, and organochloride pesticides.

On April 5, 2021, a GEI environmental scientist collected a total of 6 surficial soil samples utilizing hand tools at the Site. The surficial soil samples were collected from a depth interval of 0-12" at each of the selected locations.

The collected soil samples were submitted to Phoenix Environmental laboratories of Manchester, CT for the analysis of total arsenic and total lead. In addition, two of the soil samples were also analyzed for organochlorine pesticides via EPA Method 8081.

Analytical results from the soil samples submitted for analysis did not detect the presence of any organochlorine pesticides. In addition, the analytical results of the lead and arsenic are not consistent with a profile for soil that is polluted as a result of the application of pesticides. A copy of laboratory analytical results is attached.

Based on the analytical results, the soil represented by the collected samples would be classified as clean fill in accordance with Section 22a-209-1 of the Regulations of Connecticut State Agencies (RCSA).

Sincerely,

GEI CONSULTANTS, INC.

Charles D. Brink, LEP
Senior Environmental Professional
cbrink@geiconsultant.com

Mark A. Franson, P.E., LEP
Senior Environmental Engineer
mfranson@geiconsultants.com

Enclosure: Laboratory Analytical Results

PHOENIX
Environmental Laboratories, Inc.

Thursday, April 08, 2021

Attn: Mr. Charles Brink
GEI Consultants
455 Winding Brook Drive
Suite 201
Glastonbury, CT 06033

Project ID: CARRIER BUILDERS
SDG ID: GCH92361
Sample ID#s: CH92361 - CH92366

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

Phyllis Shiller

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
UT Lab Registration #CT00007
VT Lab Registration #VT11301

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Sample Id Cross Reference

April 08, 2021

SDG I.D.: GCH92361

Project ID: CARRIER BUILDERS

Client Id	Lab Id	Matrix
SS-01	CH92361	SOIL
SS-02	CH92362	SOIL
SS-03	CH92363	SOIL
SS-04	CH92364	SOIL
SS-05	CH92365	SOIL
SS-06	CH92366	SOIL

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 08, 2021

FOR: Attn: Mr. Charles Brink
GEI Consultants
455 Winding Brook Drive
Suite 201
Glastonbury, CT 06033

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	PB	04/05/21	13:50
Location Code:	GEI	Received by:	LB	04/05/21	16:52
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	2101248				

Laboratory Data

SDG ID: GCH92361
Phoenix ID: CH92361

Project ID: CARRIER BUILDERS
Client ID: SS-01

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Arsenic	3.63	0.84	mg/Kg	1	04/06/21	EK	SW6010D
Lead	88.5	0.42	mg/Kg	1	04/06/21	EK	SW6010D
Percent Solid	74		%		04/05/21	AN	SW846-%Solid
Soil Extraction for Pesticide	Completed				04/05/21	L/A	SW3545A
Total Metals Digest	Completed				04/05/21	C/AG/BF	SW3050B
Pesticides							
4,4' -DDD	ND	8.8	ug/Kg	2	04/06/21	CG	SW8081B
4,4' -DDE	ND	8.8	ug/Kg	2	04/06/21	CG	SW8081B
4,4' -DDT	ND	8.8	ug/Kg	2	04/06/21	CG	SW8081B
a-BHC	ND	8.8	ug/Kg	2	04/06/21	CG	SW8081B
Alachlor	ND	8.8	ug/Kg	2	04/06/21	CG	SW8081B
Aldrin	ND	4.4	ug/Kg	2	04/06/21	CG	SW8081B
b-BHC	ND	8.8	ug/Kg	2	04/06/21	CG	SW8081B
Chlordane	ND	44	ug/Kg	2	04/06/21	CG	SW8081B
d-BHC	ND	8.8	ug/Kg	2	04/06/21	CG	SW8081B
Dieldrin	ND	4.4	ug/Kg	2	04/06/21	CG	SW8081B
Endosulfan I	ND	8.8	ug/Kg	2	04/06/21	CG	SW8081B
Endosulfan II	ND	8.8	ug/Kg	2	04/06/21	CG	SW8081B
Endosulfan sulfate	ND	8.8	ug/Kg	2	04/06/21	CG	SW8081B
Endrin	ND	8.8	ug/Kg	2	04/06/21	CG	SW8081B
Endrin aldehyde	ND	8.8	ug/Kg	2	04/06/21	CG	SW8081B
Endrin ketone	ND	8.8	ug/Kg	2	04/06/21	CG	SW8081B
g-BHC	ND	1.8	ug/Kg	2	04/06/21	CG	SW8081B
Heptachlor	ND	8.8	ug/Kg	2	04/06/21	CG	SW8081B
Heptachlor epoxide	ND	8.8	ug/Kg	2	04/06/21	CG	SW8081B
Methoxychlor	ND	44	ug/Kg	2	04/06/21	CG	SW8081B
Toxaphene	ND	180	ug/Kg	2	04/06/21	CG	SW8081B

Project ID: CARRIER BUILDERS
Client ID: SS-01

Phoenix I.D.: CH92361

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% DCBP	70		%	2	04/06/21	CG	30 - 150 %
% DCBP (Confirmation)	53		%	2	04/06/21	CG	30 - 150 %
% TCMX	70		%	2	04/06/21	CG	30 - 150 %
% TCMX (Confirmation)	63		%	2	04/06/21	CG	30 - 150 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

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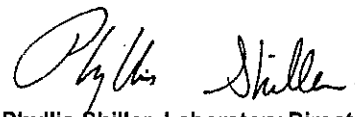

Phyllis Shiller, Laboratory Director
April 08, 2021
Reviewed and Released by: Rashmi Makol, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 08, 2021

FOR: Attn: Mr. Charles Brink
GEI Consultants
455 Winding Brook Drive
Suite 201
Glastonbury, CT 06033

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	PB	04/05/21	14:40
Location Code:	GEI	Received by:	LB	04/05/21	16:52
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	2101248				

Laboratory Data

SDG ID: GCH92361
Phoenix ID: CH92362

Project ID: CARRIER BUILDERS
Client ID: SS-02

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Arsenic	1.41	0.74	mg/Kg	1	04/06/21	EK	SW6010D
Lead	89.0	0.37	mg/Kg	1	04/06/21	EK	SW6010D
Percent Solid	87		%		04/05/21	AN	SW846-%Solid
Total Metals Digest	Completed				04/05/21	C/AG/BF	SW3050B

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

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Phyllis Shiller, Laboratory Director
April 08, 2021
Reviewed and Released by: Rashmi Makol, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 08, 2021

FOR: Attn: Mr. Charles Brink
GEI Consultants
455 Winding Brook Drive
Suite 201
Glastonbury, CT 06033

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	PB	04/05/21	14:45
Location Code:	GEI	Received by:	LB	04/05/21	16:52
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	2101248				

Laboratory Data

SDG ID: GCH92361
Phoenix ID: CH92363

Project ID: CARRIER BUILDERS
Client ID: SS-03

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Arsenic	2.84	0.82	mg/Kg	1	04/06/21	EK	SW6010D
Lead	30.4	0.41	mg/Kg	1	04/06/21	EK	SW6010D
Percent Solid	79		%		04/05/21	AN	SW846-%Solid
Total Metals Digest	Completed				04/05/21	C/AG/BF	SW3050B

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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Phyllis Shiller, Laboratory Director
April 08, 2021
Reviewed and Released by: Rashmi Makol, Project Manager

PHOENIX

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587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 08, 2021

FOR: Attn: Mr. Charles Brink
GEI Consultants
455 Winding Brook Drive
Suite 201
Glastonbury, CT 06033

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	PB	04/05/21	14:55
Location Code:	GEI	Received by:	LB	04/05/21	16:52
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	2101248				

Laboratory Data

SDG ID: GCH92361
Phoenix ID: CH92364

Project ID: CARRIER BUILDERS
Client ID: SS-04

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Arsenic	3.36	0.84	mg/Kg	1	04/06/21	EK	SW6010D
Lead	22.5	0.42	mg/Kg	1	04/06/21	EK	SW6010D
Percent Solid	78		%		04/05/21	AN	SW846-%Solid
Soil Extraction for Pesticide	Completed				04/05/21	L/E	SW3545A
Total Metals Digest	Completed				04/05/21	C/AG/BF	SW3050B
Pesticides							
4,4' -DDD	ND	8.4	ug/Kg	2	04/06/21	CG	SW8081B
4,4' -DDE	ND	8.4	ug/Kg	2	04/06/21	CG	SW8081B
4,4' -DDT	ND	8.4	ug/Kg	2	04/06/21	CG	SW8081B
a-BHC	ND	8.4	ug/Kg	2	04/06/21	CG	SW8081B
Alachlor	ND	8.4	ug/Kg	2	04/06/21	CG	SW8081B
Aldrin	ND	4.2	ug/Kg	2	04/06/21	CG	SW8081B
b-BHC	ND	8.4	ug/Kg	2	04/06/21	CG	SW8081B
Chlordane	ND	42	ug/Kg	2	04/06/21	CG	SW8081B
d-BHC	ND	8.4	ug/Kg	2	04/06/21	CG	SW8081B
Dieldrin	ND	4.2	ug/Kg	2	04/06/21	CG	SW8081B
Endosulfan I	ND	8.4	ug/Kg	2	04/06/21	CG	SW8081B
Endosulfan II	ND	8.4	ug/Kg	2	04/06/21	CG	SW8081B
Endosulfan sulfate	ND	8.4	ug/Kg	2	04/06/21	CG	SW8081B
Endrin	ND	8.4	ug/Kg	2	04/06/21	CG	SW8081B
Endrin aldehyde	ND	8.4	ug/Kg	2	04/06/21	CG	SW8081B
Endrin ketone	ND	8.4	ug/Kg	2	04/06/21	CG	SW8081B
g-BHC	ND	1.7	ug/Kg	2	04/06/21	CG	SW8081B
Heptachlor	ND	8.4	ug/Kg	2	04/06/21	CG	SW8081B
Heptachlor epoxide	ND	8.4	ug/Kg	2	04/06/21	CG	SW8081B
Methoxychlor	ND	42	ug/Kg	2	04/06/21	CG	SW8081B
Toxaphene	ND	170	ug/Kg	2	04/06/21	CG	SW8081B

Project ID: CARRIER BUILDERS
Client ID: SS-04

Phoenix I.D.: CH92364

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% DCBP	55		%	2	04/06/21	CG	30 - 150 %
% DCBP (Confirmation)	55		%	2	04/06/21	CG	30 - 150 %
% TCMX	66		%	2	04/06/21	CG	30 - 150 %
% TCMX (Confirmation)	57		%	2	04/06/21	CG	30 - 150 %

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Phyllis Shiller, Laboratory Director
April 08, 2021
Reviewed and Released by: Rashmi Makol, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 08, 2021

FOR: Attn: Mr. Charles Brink
GEI Consultants
455 Winding Brook Drive
Suite 201
Glastonbury, CT 06033

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	PB	04/05/21	15:02
Location Code:	GEI	Received by:	LB	04/05/21	16:52
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	2101248				

Laboratory Data

SDG ID: GCH92361
Phoenix ID: CH92365

Project ID: CARRIER BUILDERS
Client ID: SS-05

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Arsenic	3.21	0.78	mg/Kg	1	04/06/21	EK	SW6010D
Lead	45.5	0.39	mg/Kg	1	04/06/21	EK	SW6010D
Percent Solid	80		%		04/05/21	AN	SW846-%Solid
Total Metals Digest	Completed				04/05/21	C/AG/BF	SW3050B

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
April 08, 2021
Reviewed and Released by: Rashmi Makol, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 08, 2021

FOR: Attn: Mr. Charles Brink
GEI Consultants
455 Winding Brook Drive
Suite 201
Glastonbury, CT 06033

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	PB	04/05/21	15:15
Location Code:	GEI	Received by:	LB	04/05/21	16:52
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	2101248				

Laboratory Data

SDG ID: GCH92361
Phoenix ID: CH92366

Project ID: CARRIER BUILDERS
Client ID: SS-06

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Arsenic	2.35	0.78	mg/Kg	1	04/06/21	EK	SW6010D
Lead	24.6	0.39	mg/Kg	1	04/06/21	EK	SW6010D
Percent Solid	81		%		04/05/21	AN	SW846-%Solid
Total Metals Digest	Completed				04/05/21	C/AG/BF	SW3050B

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
April 08, 2021
Reviewed and Released by: Rashmi Makol, Project Manager

PHOENIX

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QA/QC Report

April 08, 2021

QA/QC Data

SDG I.D.: GCH92361

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 569679 (mg/kg), QC Sample No: CH91240 (CH92361, CH92362, CH92363, CH92364, CH92365, CH92366)													
ICP Metals - Soil													
Arsenic	BRL	0.67	3.25	3.04	NC	86.3	83.0	3.9	80.1			75 - 125	35
Lead	BRL	0.33	36.9	40.7	9.80	86.7	85.6	1.3	83.7			75 - 125	35

Comment:

Additional Criteria: LCS acceptance range is 80-120% MS acceptance range 75-125%.

PHOENIX

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QA/QC Report

April 08, 2021

QA/QC Data

SDG I.D.: GCH92361

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 569684 (ug/Kg), QC Sample No: CH91907 2X (CH92361, CH92364)										
Pesticides - Soil										
4,4' -DDD	ND	1.7	88	75	16.0	89	82	8.2	40 - 140	30
4,4' -DDE	ND	1.7	87	70	21.7	90	84	6.9	40 - 140	30
4,4' -DDT	ND	1.7	73	63	14.7	81	80	1.2	40 - 140	30
a-BHC	ND	1.0	80	69	14.8	79	78	1.3	40 - 140	30
Alachlor	ND	3.3	NA	NA	NC	NA	NA	NC	40 - 140	30
Aldrin	ND	1.0	90	76	16.9	87	86	1.2	40 - 140	30
b-BHC	ND	1.0	82	68	18.7	79	75	5.2	40 - 140	30
Chlordane	ND	33	94	79	17.3	95	89	6.5	40 - 140	30
d-BHC	ND	3.3	85	70	19.4	87	83	4.7	40 - 140	30
Dieldrin	ND	1.0	92	76	19.0	90	84	6.9	40 - 140	30
Endosulfan I	ND	3.3	91	64	34.8	88	84	4.7	40 - 140	30 r
Endosulfan II	ND	3.3	90	75	18.2	89	82	8.2	40 - 140	30
Endosulfan sulfate	ND	3.3	83	79	4.9	84	81	3.6	40 - 140	30
Endrin	ND	3.3	68	58	15.9	69	65	6.0	40 - 140	30
Endrin aldehyde	ND	3.3	60	49	20.2	65	71	8.8	40 - 140	30
Endrin ketone	ND	3.3	77	63	20.0	74	67	9.9	40 - 140	30
g-BHC	ND	1.0	90	75	18.2	85	82	3.6	40 - 140	30
Heptachlor	ND	3.3	86	73	16.4	85	84	1.2	40 - 140	30
Heptachlor epoxide	ND	3.3	78	63	21.3	76	74	2.7	40 - 140	30
Methoxychlor	ND	3.3	73	68	7.1	76	71	6.8	40 - 140	30
Toxaphene	ND	130	NA	NA	NC	NA	NA	NC	40 - 140	30
% DCBP	63	%	72	58	21.5	68	63	7.6	30 - 150	30
% DCBP (Confirmation)	61	%	73	61	17.9	74	71	4.1	30 - 150	30
% TCMX	61	%	70	59	17.1	65	70	7.4	30 - 150	30
% TCMX (Confirmation)	64	%	75	62	19.0	69	75	8.3	30 - 150	30

r = This parameter is outside laboratory RPD specified recovery limits.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
April 08, 2021

Thursday, April 08, 2021

Criteria: None

State: CT

Sample Criteria Exceedances Report

GCH92361 - GEI

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this exceedance report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

REASONABLE CONFIDENCE PROTOCOL
LABORATORY ANALYSIS QA/QC CERTIFICATION FORM

Laboratory Name: Phoenix Environmental Labs, Inc. ***Client:*** GEI Consultants

Project Location: CARRIER BUILDERS ***Project Number:***

Laboratory Sample ID(s): CH92361-CH92366 ***Sampling Date(s):*** 4/5/2021

List RCP Methods Used (e.g., 8260, 8270, et cetera) 6010, 8081

1	**For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the CT DEP method-specific Reasonable Confidence Protocol documents?**	☑ Yes ☐ No
1A	**Were the method specified preservation and holding time requirements met?**	☑ Yes ☐ No
1B	***VPH and EPH methods only:*** **Was the VPH or EPH method conducted without significant modifications (see section 11.3 of respective RCP methods)**	☐ Yes ☐ No ☑ NA
2	**Were all samples received by the laboratory in a condition consistent with that described on the associated Chain-of-Custody document(s)?**	☑ Yes ☐ No
3	**Were samples received at an appropriate temperature (< 6 Degrees C)?**	☑ Yes ☐ No ☐ NA
4	**Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents acheived? See Section: PEST Narration.**	☐ Yes ☑ No
5	**a) Were reporting limits specified or referenced on the chain-of-custody?** **b) Were these reporting limits met?**	☐ Yes ☑ No ☑ Yes ☐ No
6	**For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?**	☐ Yes ☑ No
7	**Are project-specific matrix spikes and laboratory duplicates included in the data set?**	☐ Yes ☑ No

Notes: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A or 1B is "No", the data package does not meet the requirements for "Reasonable Confidence". This form may not be altered and all questions must be answered.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete.

Authorized Signature: Rashmi Makol **Position:** Project Manager

Printed Name: Rashmi Makol **Date:** Thursday, April 08, 2021

Name of Laboratory Phoenix Environmental Labs, Inc.

This certification form is to be used for RCP methods only.

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

RCP Certification Report

April 08, 2021

SDG I.D.: GCH92361

SDG Comments

Metals Analysis:
The client requested a site specific list of elements which is shorter than the 6010 RCP list.

ICP Metals Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

ARCOS-2 04/05/21 08:01 Emily Kolominskaya, Chemist 04/05/21

CH92361, CH92362, CH92363, CH92364, CH92365, CH92366

The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 569679 (CH91240)

CH92361, CH92362, CH92363, CH92364, CH92365, CH92366

All LCS recoveries were within 75 - 125 with the following exceptions: None.
All LCSD recoveries were within 75 - 125 with the following exceptions: None.
All LCS/LCSD RPDs were less than 35% with the following exceptions: None.
Additional Criteria: LCS acceptance range is 80-120% MS acceptance range 75-125%.

PEST Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? No.

QC Batch 569684 (Samples: CH92361, CH92364): -----

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (Endosulfan I)

Instrument:

AU-ECD4 04/06/21-1 Chelsey Guerette, Chemist 04/06/21

CH92364 (2X)

The initial calibration (PS326AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PS326BI) RSD for the compound list was less than 20% except for the following compounds: None.
The Endrin and DDT breakdown does not exceed 15% except for the following compounds:None.
The Endrin and DDT breakdown does not exceed the maximum of 20% except for the following compounds:None.
The continuing calibration %D for the compound list was less than 20% except for the following compounds:
Samples: CH92364
Preceding CC 406B019 - d-BHC 27%H (20%)
Succeeding CC 406B033 - Aldrin 28%H (20%), d-BHC 28%H (20%)

AU-ECD7 04/06/21-1 Chelsey Guerette, Chemist 04/06/21

CH92361 (2X)

The initial calibration (PS0331AI) RSD for the compound list was less than 20% except for the following compounds: None.

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ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

RCP Certification Report

April 08, 2021

SDG I.D.: GCH92361

PEST Narration

The initial calibration (PS0331BI) RSD for the compound list was less than 20% except for the following compounds: None.
The Endrin and DDT breakdown does not exceed 15% except for the following compounds:None.
The Endrin and DDT breakdown does not exceed the maximum of 20% except for the following compounds:None.
The continuing calibration %D for the compound list was less than 20% except for the following compounds:None.

QC (Batch Specific):

Batch 569684 (CH91907)

CH92361, CH92364

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: Endosulfan I(34.8%)

Temperature Narration

The samples were received at 6.0C with cooling initiated.
(Note acceptance criteria for relevant matrices is above freezing up to 6°C)

Cooler: Yes [X] No [ ]
Coolant: IPK [ ] ICE [X] No [ ]

PHOENIX
Environmental Laboratories, Inc.

CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Temp 4.0 °C Pg 1 of 1

Data Delivery/Contact Options:
[ ] Fax:
[ ] Phone:
[ ] Email:

Customer: GEI Consultants Inc
Address: 455 Winding Brook Dr
Glastonbury CT

Project: Carrier Builders
Report to: chrine@geiconsultants.com
Invoice to: gei Payables@gei consultants.com
QUOTE #

Project P.O: 210128

This section MUST be completed with Bottle Quantities.

Sampler's Signature: Patrine Blessing Date: 4/5/21

Client Sample - Information - Identification

Matrix Code:
DW=Drinking Water GW=Ground Water SW=Surface Water WW=Waste Water
RW=Raw Water SE=Sediment SL=Sludge S=Soil SD=Solid W=Wipe OIL=Oil
B=Bulk L=Liquid X = _____(Other)

Analysis Request

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	Total Arsenic	Total Lead	Pesticides 8081	MS/MSD*	GL Amber 8 oz. w/H3PO4	Soil VOA Vials [ ] methanol [ ] H2O	GL Soil container ( ) oz	GL Soil container (8) oz	40 ml VOA Vial [ ] As is [ ] HCL	GL Amber 1000ml [ ] As is [ ] H2SO4	PL As is [ ] 250ml [ ] 500ml [ ] 1000ml	PL H2SO4 [ ] 250ml [ ] 500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle w/thio	Bacteria Bottle as is
92361	SS-01	S	4/5/21	1350	X	X	X	1				1								1
92362	SS-02	S	↓	1440	X	X		1				1								1
92363	SS-03	S		1445	X	X		1				1								1
92364	SS-04	S		1455	X	X	X	1				1								1
92365	SS-05	S		1502	X	X		1				1								1
92366	SS-06	S	↓	1515	X	X		1				1								1

Relinquished by:	Accepted by:	Date:	Time:
Patrine Blessing		4/5/21	1652

Comments, Special Requirements or Regulations:
Total Arsenic / Lead all samples
Organochlorine pesticides method 8081

Turnaround Time:
[ ] 1 Day*
[ ] 2 Days*
[ ] 3 Days*
[X] Standard
[ ] Other
* SURCHARGE APPLIES

*MS/MSD are considered site samples and will be billed as such in accordance with the prices quoted.

RI
[ ] (Residential) Direct Exposure
[ ] (Comm/Industrial) Direct Exposure
[ ] GA Leachability
[ ] GB Leachability
[ ] GA-GW Objectives
[ ] GB-GW Objectives

CT
[X] RCP Cert
[ ] GW Protection
[ ] SW Protection
[ ] GA Mobility
[ ] GB Mobility
[ ] Residential DEC
[ ] I/C DEC
[ ] Other

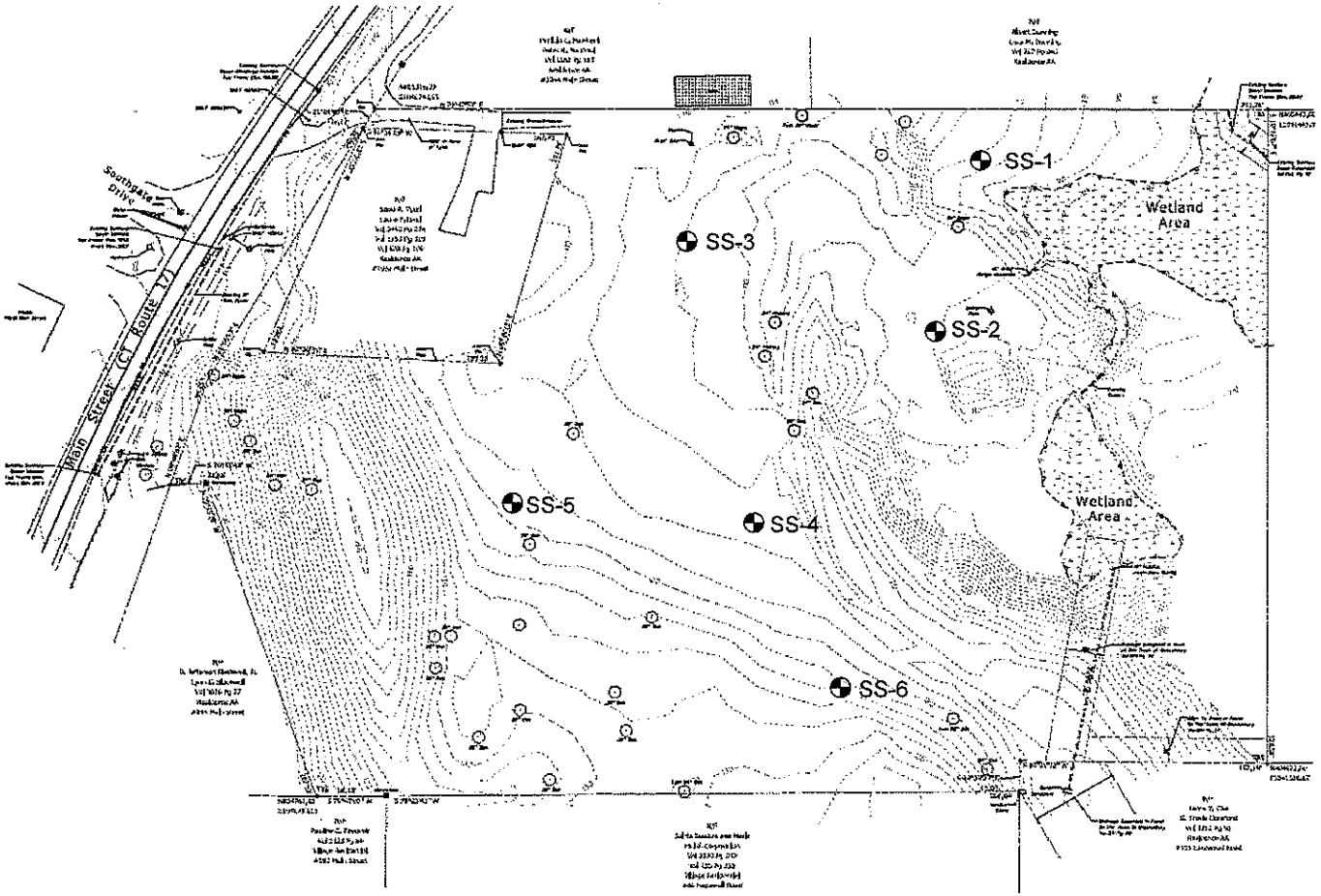
MA
[ ] MCP Certification
[ ] GW-1 [ ] MWRA eSMART
[ ] GW-2 [ ] S-1 10% CALC
[ ] GW-3
[ ] S-1 GW-1 [ ] S-1 GW-2 [ ] S-1 GW-3
[ ] S-2 GW-1 [ ] S-2 GW-2 [ ] S-2 GW-3
[ ] S-3 GW-1 [ ] S-3 GW-2 [ ] S-3 GW-3
[ ] SW Protection

State where samples were collected: CT

Data Format
[X] Excel
[X] PDF
[ ] GIS/Key
[ ] EQuIS
[ ] Other

Data Package
[ ] Tier II Checklist
[ ] Full Data Package*
[X] Phoenix Std Report
[ ] Other
* SURCHARGE APPLIES

PEL-126 REV. 06/20



LEGEND

PLAN

GRAPHIC SCALE

LEGEND

Sampling locations

SOURCE:

1. Existing Conditions Plan from Wolff Engineering

1040 Main Street
Glastonbury, Connecticut

Carrier Construction Inc
Bristol, Connecticut

GEI Consultants

SITE SAMPLING LOCATIONS

April 2021 Fig. 1