CITY OF FORTUNA

ROHNER CREEK FLOOD CONTROL, SEISMIC AND HABITAT IMPROVEMENT PROJECT

Addendum No. 2

The purpose of this Addendum is to modify the Contract Documents for the subject project.

This Addendum, including attachments, shall become part of said Contract Documents.

Each bidder shall acknowledge receipt of this addendum in their bid proposal.

THE FOLLOWING ITEM REFERS TO THE NOTICE INVITING BIDS:

Item 1. CLARIFICATION: Questions regarding the approximate value of Phase A and Phase B for bid bond surety purposes have been received by prospect bidders. As stated in the Notice Inviting Bids, the available grant budget for Phase A and Phase B is approximately $5,000,000. Given separate bid bonds are required for each phase, an approximate budget proportion of 20/80 (A/B) could be assumed, but contractors should base their bonding on their actual bid amounts.

THE FOLLOWING ITEMS REFER TO PART 3 - TECHNICAL SPECIFICATIONS:

Item 2. REVISION: Add the following underlined sentence to Part 3.02 (A) of Section 31 11 00:

3.02 CLEARING AND GRUBBING

A. In winter 2016, vegetation clearing was conducted throughout much of the grading limits to avoid future impacts to nesting birds. Stumps, roots and some above ground loose woody debris and foliage remain in these previously cleared areas. Some clearing remains to be completed within the limits of grading. Contractor shall familiarize themselves with the limits of grading to determine the area of remaining vegetation clearing. For Phase B, during the winter 2017 the City will clear the re-growth of the vegetation previously cleared during the winter 2016 that might lead to issues with nesting birds. The Contractor will be responsible for clearing of vegetation that remains within the clearing limits.

Item 3. REVISION: Add the following paragraph (B) to PART 1 (1.01) of Section 31 10 13:

B. Available Background Information:

1. Some items shown on the plans to be removed, disposed and/or salvaged have been sampled and the results indicate the presence of lead and/or asbestos at levels requiring special handling. See attached report: *Limited Hazardous Materials Assessment Survey Report for the Rohner Creek Flood Control, Seismic and Habitat Improvement Project (GHD, July 2016).* Contractor shall handle and dispose of material according to this report and applicable Federal, State, and local regulations. Contractor handling and disposal costs shall be included in Bid Item No. 4.

Item 4. REVISION: The first paragraph of Part 3.03 (B) of Section 99 99 99 shall be changed to read:

A. Verification Test

Perform verification tests on sacrificial test nails at locations agreed upon by the Construction Manager. A total of 5% or a minimum of two verification tests shall be performed in each soil nail wall segment. Perform verification tests before installation of production nails to verify drilling and installation methods, nail pullout resistance, and design assumptions.

THE FOLLOWING ITEMS REFER TO THE PLANS:

Item 5. REVISION: Anywhere noted on the plans "to be removed" shall be revised to state "to be removed and properly disposed unless noted otherwise." Contractor disposal costs shall be included in Bid Item No. 4.

Item 6. REVISION: On sheet S001, under section "Soil Nails (Permanent Soil Nail Anchors)", note #4 shall be changed to read "Soil Nails bars shall comply with ASTM-A615, Grade 100 and shall be 1 inch in diameter."

Item 7. REVISION: On sheet S001, under section "Tie Backs (Prestress Soil Anchors", note #4 shall be changed to read "Tie Back bars shall comply with ASTM-A615 or A722."

ATTACHMENTS:

- Limited Hazardous Materials Assessment Survey Report for the Rohner Creek Flood Control, Seismic and Habitat Improvement Project – Bridge and Miscellaneous Assessment Survey Report (GHD, July 2016)

End of Addendum No. 2

July 6, 2016

Jeremy Svehla, P.E. Date

City of Fortuna

Rohner Creek Flood Control, Seismic and Habitat Improvements Project

Bridge and Miscellaneous Structures Limited Hazardous Material Assessment Survey Report

July 6, 2016

Executive summary

On June 16 and 17, 2016, GHD Inc. conducted a limited hazardous material assessment survey at the request of City of Fortuna (the City). The survey was conducted in association with the Rohner Creek Flood Control, Seismic and Habitat Improvements Project (project) on behalf of the City. The GHD assessment survey evaluated various site features and structures associated with four bridge crossings of Rohner Creek (project site) located in Fortuna, California.

The hazardous material survey included evaluation and collection of samples solely from the specific areas of the project site to be impacted by future site work as defined by the City. The project site survey included two components: a suspect asbestos material sampling survey and a suspect lead material sampling survey.

Plan-view schematics depicting the project site, Figures 1 and 2 – Project Site Sample Location Maps (Figures 1 and 2), is located in Appendix A. Figures 1 and 2 depict the extent of the project site sampling area and the approximate location of bulk samples collected for this survey.

Samples collected from the project site were reported to contain asbestos. As described in Table 2 Asbestos Laboratory Data and Quantification Summary located in Section 5, various homogeneous building materials sampled for this survey were reported by the analyzing laboratory to contain asbestos fibers via polarized light microscopy analysis methodology.

Photographs of the project site generally depicting the asbestos materials and/or associated homogeneous areas identified during this survey are located Appendix B. The asbestos laboratory analytical reports and associated chains of custody documentation produced in association with this sampling survey are located in Appendix C. Asbestos materials are subject to governmental regulations as summarized in Section 7 of this report.

Surface coatings generally representative of paint present at the project site were collected to evaluate specific painted project site features for the presence of lead. As summarized in Table 3 Lead Laboratory Data Summary located in Section 6, various sampled surface coatings were reported to contain lead. Given these data and the age of the structures, all surface coatings at the project site should be assumed to contain lead. Surface coatings at the project site should be understood to be subject to applicable governmental regulations concerning lead, including those summarized in Section 8 of this report. The lead laboratory analytical reports and associated chains of custody documentation produced in association with this sampling survey are located in Appendix D.

Certifications of key project personnel are included with this report in Appendix E. This report is subject to, and must be read in conjunction with the limitations and the assumptions and qualifications contained throughout the report.

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Appendices

1. Introduction

GHD Inc. (GHD) is pleased to provide the City of Fortuna (the City) with the following Bridge and Miscellaneous Structures Limited Hazardous Material Assessment Survey Report (report) produced in association with the Rohner Creek Flood Control, Seismic and Habitat Improvements Project (project). This report details the findings of a limited hazardous material assessment conducted in association with various site features and structures associated with four bridge crossings of Rohner Creek (project site) located in Fortuna, California. This section provides pertinent contextual information regarding the project.

The project site survey included two components: a suspect asbestos material sampling survey and a suspect lead material sampling survey. The asbestos survey consisted of the collection of suspect asbestos material bulk samples for the purpose of identifying Asbestos Containing Material (ACM), Asbestos Containing Construction Material (ACCM), and/or Regulated Asbestos Containing Material (RACM) at the project site. The lead survey consisted of the collection of surface coating bulk samples for the purpose of identifying Lead Containing Paint (LCP) and Lead Based Paint (LBP) at the project site.

1.1 Client

The following entity requested GHD to perform the survey described by this report and shall herein be defined as the client:

City of Fortuna

Public Works Department

621 11th Street

Fortuna, California 95540

1.2 Project Site Location

The project site is located in Fortuna, California and shall collectively be defined as the structures and site features described in Section 3.1.1 through Section 3.1.7. The project site is depicted on Figures 1 and 2 – Project Site Sample Location Maps (Figures 1 and 2) located in Appendix A– Figures. The project site location and existing conditions encountered during the assessment survey are further discussed in Section 3.1.

1.2.1 Air Quality Management District Jurisdiction

The asbestos survey described by this report was conducted in general compliance with the United States Environmental Protection Agency (USEPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements. The USEPA local authority with responsibility for administering the NESHAP regulations within the jurisdiction encompassing the project site is the North Coast Unified Air Quality Management District (NCUAQMD).

Impaction of RACM in quantities above specific size thresholds necessitates the submittal of a NESHAP notification and associated fee to the NCUAQMD. The NCUAQMD RACM quantity thresholds necessitating NESHAP notification are greater than, or equal to, 160 square feet, 260 linear feet and 35 cubic feet.

The NCUAQMD regulations stipulate that the project owner shall notify the NCUAQMD prior to the commencement of a project that impacts RACM in excess of the above-noted quantities. The following table, Table 1 Asbestos Regulatory Notifications, summarizes the agency notifications anticipated to be required for this project.

Table 1 Asbestos Regulatory Notifications

Governing Agency	Type of Notification	Anticipated Notification Requirements	Submittal Timeline
NCUAQMD	NESHAP Renovation/Demolition Notification	☑ **Notification is required** [1]	≥10 Business Days Prior to Work Start
Cal/OSHA	Temporary Worksite Notification	☑ **Notification is required** [2]	≥24 Hours Prior to Work Start

Notes:

- Cal/OSHA = California Department of Industrial Relations, Division of Occupational Safety and Health
- NCUAQMD = Local Air Quality Management District with jurisdiction over the project site
- USEPA = United States Environmental Protection Agency
- [1] = Assumption: Demolition work and/or impaction of RACM, in quantities equal to or greater than NCUAQMD thresholds is expected to occur during this project
- [2] = Assumption: asbestos-related work in excess of 100 square feet is expected to occur

Further discussion of USEPA NESHAP regulations is provided in Section 7.10.2.

2. Purpose of this Report

GHD, under contract with the Client, coordinated a survey to identify the presence of lead, ACM, ACCM, RACM and/or universal waste at the project site. The purpose of this report is to transmit to the Client the laboratory findings, observations, and recommendations resultant from the survey performed at the project site on June 16 and 17, 2016.

This report was prepared by GHD for the Client and may only be used and relied on by the Client for the purpose agreed between GHD and the Client as set out in this report and the established contracting documents. GHD otherwise disclaims responsibility to any person other than the Client arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible. The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared. The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

The opinions, conclusions, and recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points from the areas of the project site denoted in Figures 1 and 2 (Appendix A). Site conditions at other parts of the project site may be different from the site conditions found at the specific sample points. Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services, and vegetation. As a result, some relevant site features and conditions may not have been identified in this report, thus this report should not be used to evaluate the potential disturbance of suspect hazardous materials in association with unsurveyed area(s), structure(s), and/or future renovation or Infrastructure Improvement Projects.

Suspect ACM, suspect RACM, and/or Presumed Asbestos Containing Material (PACM) present at the project site that is not identified in this report shall be assumed to contain asbestos in a concentration of greater than one percent, unless such suspect material is sampled by a certified individual and determined by an accredited laboratory to be otherwise. Paint present onsite is presumed to contain lead, unless appropriately sampled, analyzed by an accredited laboratory and determined not to contain lead. Universal waste, or other potentially hazardous materials, may be present at the project site that is not identified herein, thus appropriate handling and disposal requirements should be adhered to when removing any potentially hazardous components or materials.

Site conditions (including the presence of hazardous substances and/or site contamination) may change after the date of this report. GHD does not accept responsibility arising from, or in connection with, change to the site conditions. GHD is not responsible for updating this report if the site conditions change.

2.1 Assumptions

The sampling survey performed at the project site is governed by the following assumptions that additionally define GHD's scope of work for this project:

1. The project included the sampling of suspect asbestos and lead containing materials associated with the project site, specifically the areas to be impacted during work planned in association with the Rohner Creek Flood Control, Seismic and Habitat Improvements Project as defined by the client and GHD's scope of work.
2. GHD did not collect samples from the following areas and/or materials, as materials were not safely accessible, components where to be removed prior to demolition and/or impaction of energized/pressurized systems would have been required to obtain sufficient quantity of material for laboratory analysis:
    a. Materials encased in concrete
    b. Underground areas, or areas below existing grade
    c. Electrical systems
    d. Pressurized water lines

3. Project Description

3.1 Project Site Description

The surveyed portions of the following structures shall be defined as the project site for the purpose of this report. The specific project site features surveyed in association with this project are shown on Figures 1 and 2 (Appendix A) and listed below. Photographs showing specific locations/components within the project site are provided in Appendix B– Photographs. Specific site features sampled for this survey are also described in the chain of custody documentation that accompanies the laboratory analytical reports located in Appendix C– Asbestos Analytical Data and Appendix D– Lead Analytical Data.

Note: the location stations (STA) noted in this report refer to the Rohner Creek Flood Control, Seismic and Habitat Improvements Project Bid Submittal Plans.

3.1.1 Stillman Way Bridge

Description: Bridge consisting of wooden roadway planks, wooden side rails, structural steel support trusses, no pilings and concrete approach ramps

Feature/Location: Existing bridge at STA 9+25

Address: 600 Stillman Way
Fortuna, California 95540

Demolition Figure: D102

3.1.2 Beech Street/Stillman Way Bridge

Description: Bridge consisting of wooden roadway planks, wooden side rails, wood and steel structural support trusses, no pilings and concrete approach ramps

Feature/Location: Existing bridge at southwest corner of intersection of Beech Street and Stillman Way at STA 13+20

Address: 1697 and 1701 Stillman Way
Fortuna, California 95540

Demolition Figure: D102

3.1.3 Beech Street Residence

Description: Greenhouse and garage addition constructed of wooden structural members, wooden exterior siding and built on concrete slab foundations

Feature/Location: Existing garage addition at STA 14+25
Existing greenhouse at STA 15+00

Address: 1709 Beech Street
Fortuna, California 95540

Figure reference: D102

3.1.4 Fortuna Boulevard – North Bridge

Description: Bridge consisting of metal roadway plates, wooden side rails, brick pedestals, structural support trusses, no pilings and concrete approach ramps

Feature/Location: Existing bridge at STA 16+50

Address: 460 North Fortuna Boulevard
Fortuna, California 95540

Demolition Figure: D103

3.1.5 Fortuna Boulevard – South Bridge

Description: Bridge consisting of wooden roadway planks, no side rails, wooden support trusses, wooden pilings and concrete approach ramps

Feature/Location: Existing bridge at STA 20+50

Address: 344 North Fortuna Boulevard
Fortuna, California 95540

Demolition Figure: D103

3.1.6 Outbuilding Debris Piles

Amalgamated debris piles consisting of miscellaneous remnant building materials, including: wood, concrete, metal and composite bituminous roofing materials.

Feature/Location: Existing outbuilding debris pile at STA 21+00 (344 North Fortuna Boulevard)
Existing outbuilding debris pile at STA S1+00 (360 North Fortuna Boulevard)
Existing outbuilding debris pile at STA 20+40 (344 North Fortuna Boulevard)

Address: Addresses as shown above, west of Rohner Creek, west of Fortuna Boulevard
Fortuna, California 95540

Demolition Figure: D103

3.1.7 Outbuilding/Shed

Description: Wooden outbuilding consisting of exposed wood framing, wooden exterior siding and compacted soil interior floor.

Feature/Location: Existing outbuilding north of swale at S–3+00

Address: North of swale, west of Fortuna Boulevard
404 North Fortuna Boulevard
Fortuna, California 95540

Demolition Figure: D109

3.2 Survey Description

For the June 16 and 17, 2016 survey, the following number of bulk samples were collected from the project site and submitted under chain of custody to AmeriSci Laboratories (AmeriSci) located in Carson, California, for analysis via the referenced methodology:

- 51 bulk material samples were analyzed for asbestos content via polarized light microscopy (PLM) methodology, following USEPA method 600/R-93-116

- 10 bulk material samples were analyzed for lead content via flame atomic absorption spectrometry (AAS) methodology, following USEPA method 3050B/7420

The June 16 and 17, 2016 project site sampling survey was performed on behalf of the City. The onsite surveys were conducted by GHD. The survey scope of work associated with this report included solely the suspect hazardous materials located at the project site which are planned to be impacted during the renovation and/or demolition of the project site structures/features as defined by GHD's scope of work for this survey. The sampling survey methodology employed at the project site is further described in Section 4.

Multiple samples were taken of some materials found to be distributed throughout the sampling area per USEPA regulatory guidance. See Figures 1 and 2 located in Appendix A for the approximate location of bulk samples collected at the project site.

Photographs of the project site generally depicting the homogeneous areas of ACM identified during this survey are located in Appendix B. Samples were submitted via overnight shipment to AmeriSci for analysis of asbestos or lead content. AmeriSci analytical data is provided in Appendix C and Appendix D.

Key project certified personnel included the following State of California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Certified Asbestos Consultant (CAC) and California Department of Public Health (CDPH) Lead Inspector/Assessor (I/A):

1. GHD onsite sampling technician: Scott Harris, CAC and CDPH I/A
2. GHD report review: Misha Schwarz, CAC and CDPH I/A

This report was produced by GHD for the City. This report was authored by Mr. Harris and was reviewed by Mr. Schwarz. Copies of the applicable professional certifications for key project personnel are included with this report in Appendix E– Certifications for Key Personnel.

4. Survey Methodology

The following sampling protocol generally describes the sampling methodology employed for the asbestos and lead sampling surveys conducted at the project site. Representative suspect asbestos-containing and lead-containing materials were collected in general accordance with NESHAP sampling guidelines as enforced by NCUAQMD. The following list summarizes the sampling procedures utilized:

1. Suspect ACM and lead-containing surface coatings were visually identified at the project site.
2. Suspect ACM was categorized into homogeneous materials. A homogeneous material is defined as being uniform in texture, color, and date of application.
3. A sampling scheme was developed based upon the location and quantity of the identified homogeneous materials. Sample numbers were recorded on associated chain of custody documentation.
4. Bulk samples were collected using appropriate sampling tools.
5. Samples were placed in leak-tight containers and labeled with a unique numerical identifier, or sample number.

6. The general location and sample number of each bulk sample was denoted on a corresponding project site plan-view diagram.
7. Friability, the susceptibility of the dry material to be crumbled, pulverized or reduced to a powder using hand pressure, was determined for each sampled suspect ACM.
8. The sample number, collection location and a description of the physical attributes of each bulk sample were recorded on a Chain of Custody form which accompanied each sample set to the analyzing laboratory.
9. Decontamination of sampling tools was employed to prevent the spread of secondary contamination to subsequent bulk samples.
10. The bulk samples were submitted under chain of custody to AmeriSci for analysis of asbestos content via PLM analysis following USEPA method 600/R-93-116 or analysis of lead content via Atomic Absorption Spectrometry (AAS) via USEPA Method 3050B/7000B:

5. Findings for Asbestos

Materials collected as part of the June 16 and 17, 2016 asbestos sampling survey were reported by the analyzing laboratory to contain asbestos fibers via PLM analysis. The homogeneous materials present at the project site and listed in this section are regulated by the USEPA and/or Cal/OSHA as a result of the identified asbestos content.

The materials sampled at the project site and reported to contain asbestos are described in Table 2 Asbestos Laboratory Data and Quantification Summary (Table 2) located on the subsequent pages. Table 2 denotes the physical description, the approximate location, estimated quantity and the laboratory-identified asbestos concentration for each of the sampled materials. Materials that are homogeneous to those denoted in Table 2 shall be assumed to contain an equivalent amount of asbestos as that reported in Table 2. Photographs of the project site generally depicting the homogeneous areas of ACM identified during this survey are located in Appendix B.

Material reported to contain greater than one percent asbestos by weight (therefore meeting the definition of ACM or RACM), is characterized according to USEPA asbestos material category. Material reported to contain asbestos in any detectable concentrations is regulated by Cal/OSHA and, thus, was assigned a Cal/OSHA asbestos work designation. See Section 7 for further asbestos regulatory discussion, including information on USEPA materials categories and Cal/OSHA work class descriptions.

Table 2 Asbestos Laboratory Data and Quantification Summary

City of Fortuna Rohner Creek Flood Control, Seismic and Habitat Improvements Project

Sample Number(s)	Material Description	Location	Asbestos %/Type	Estimated Quantity*	USEPA Material Category**	Cal/OSHA Work Class	Projected Waste Designation**
8411414-3	Paint (green/grey) + mastic (black) (layers of material inseparable)	Bridge at STA 9+25 (600 Stillman Way) – Underside of bridge on steel	3% Chrysotile	500[1]	RACM	Class II	Non- Hazardous Asbestos Waste
8411414-30	Woven fibrous sheeting (light grey	Outbuilding debris pile at STA 20+40 (east-center debris pile) – Sampled at center-northeast	35% Chrysotile	4 SF[2] (observed quantity)	RACM	Class II	Non- Hazardous Asbestos Waste
8411414-38	Bituminous (tar) roofing felt (black)	Outbuilding north of swale at S–3+00 (northwest shed) – Roof	15% Chrysotile	360 SF[3]	Category I Nonfriable ACM	Class II	Non- Hazardous Asbestos Waste
8411414-39	Roof penetration mastic (black)	Outbuilding north of swale at S–3+00 (northwest shed) – Roof	4% Chrysotile	Included with Above Quantity	Category I Nonfriable ACM	Class II	Non- Hazardous Asbestos Waste
8411414-40	Bituminous (tar) roofing felt (black)	Outbuilding north of swale at S–3+00 (northwest shed) – Roof	15% Chrysotile	Included with Above Quantity	Category I Nonfriable ACM	Class II	Non- Hazardous Asbestos Waste

[1] = Quantity estimate is derived from the surface area of the structural steel components associated with the underside of the bridge. Estimate assumes the distribution of inseparable paint and mastic throughout the surface area of the steel bridge components.

[2] = Quantity estimate is derived from the amount of observed material at the sampling location (northeastern quadrant of the debris pile). The entire debris pile was not investigated for this survey. Additional material may be present within unassessed sections of the debris pile. The entire debris pile should be inspected by properly trained and licensed personnel for material homogeneous to that described above.

[3] = Quantity estimate is derived from the exterior surface area of the outbuilding/shed roof.

Table 2 Asbestos Laboratory Data and Quantification Summary

City of Fortuna Rohner Creek Flood Control, Seismic and Habitat Improvements Project

Sample Number(s)	Material Description	Location	Asbestos %/Type	Estimated Quantity*	USEPA Material Category**	Cal/OSHA Work Class	Projected Waste Designation**
8411414-51	Skim coat (beige) associated with exterior paint (cream)	Garage addition at STA 14+25 (1709 Beech Street) – Garage addition exterior perimeter walls, sampled at southwest window	<1% Chrysotile	500 SF[4]	Assume Category II Nonfriable ACM	Recommend Class II	Non- Hazardous Asbestos Waste

Notes:

- Work impacting material homogeneous (visually similar) to that denoted in Table 2 shall be understood to impact asbestos.
- Station locations refer to project bid submittal plans.

Annotations:

- * =The quantities provided are estimates of the amount of material within GHD's survey scope. The quantities are estimates only and the actual amount of material to be removed should be verified by the contractor prior to bid.
- ** =USEPA Category I and II nonfriable ACM that remains nonfriable during impaction shall be characterized as non-hazardous asbestos-containing waste. USEPA RACM shall be characterized as a non- RCRA California hazardous waste. The waste designation denoted herein assumes that nonfriable material will not become friable due to contractor removal practices. If nonfriable ACM is rendered friable (such as via the use mechanical removal means/methods), then such material shall be reclassified as RACM.

Acronyms:

- ACM = Asbestos Containing Material
- ACCM = Asbestos Containing Construction Material
- Cal/OSHA = California Department of Industrial Relations, Division of Occupational Safety and Health
- RACM = Regulated Asbestos Containing Material
- RCRA = Resource Conservation and Recovery Act
- SF = Square feet
- STA = Station
- USEPA = United States Environmental Protection Agency

[4] = Quantity estimate is derived from the surface area of the three exterior perimeter walls associated with the garage addition to be demolished. Estimate does not include the south wall of the main garage (north interior wall of the garage addition) which is to remain.

Suspect asbestos materials sampled at the project site are described in the laboratory analytical report and chain of custody documentation included in Appendix C. The documentation in Appendix C denotes the physical description, the approximate location and the laboratory-identified asbestos concentration for each of the sampled materials. Materials that were not determined to contain asbestos above the laboratory detection limit via PLM analysis are noted in Appendix C as nondetect (ND), or no asbestos detected (NAD). Materials denoted as ND or NAD on the laboratory analytical report are not subject to regulation by USEPA as ACM or RACM. Additionally, the ND/NAD materials are not characterized by Cal/OSHA as ACM or ACCM and are not assigned a Cal/OSHA asbestos work class designation.

Worker protection, training, and material handling requirements as defined by Title 8, Section 1529 of the California Code of Regulations (8 CCR 1529) shall govern work impacting materials denoted in Table 2. GHD recommends that materials reported to contain detectable concentrations of asbestos (Category I and II ACM, RACM, ACCM and/or Presumed ACM) should be removed by a licensed abatement contractor prior to future work at the project site potentially affecting such materials. GHD recommends that interior Cal/OSHA Class II asbestos abatement work be performed within sealed, negatively-pressurized regulated area containments. Exterior work impacting nonfriable ACM should be performed using Cal/OSHA Class II work protocols. Surfacing material and thermal system insulation should be removed using Cal/OSHA Class I work protocols regardless of material location.

6. Findings for Lead

Numerous surface coatings (paint) collected from the project site during the June 16 and 17, 2016 limited surface coating bulk sampling survey were reported to contain lead by the analyzing laboratory. The analyzing laboratory, AmeriSci, examined each sample using USEPA Method 3050B/7420. The materials at the project site reported to contain lead are described in Table 3 Lead Laboratory Data Summary (Table 3) located on the subsequent page. Table 3 provides the physical description, the approximate location, sample substrate and the identified lead content for each of the sampled materials.

Material reported to contain detectable levels of lead is subject to regulation by Cal/OSHA, thus the surface coatings denoted in Table 3 are subject to specific worker protection and disposal regulations as summarized in Section 8. As the concentration of lead reported by the laboratory is generally above 90 ppm, most of the samples meet the regulatory definition of Lead Containing Paint (LCP). Additionally, some surface coatings were reported to contain lead in a concentration greater than 5,000 parts per million (ppm), thereby exceeding the regulatory definition of Lead Based Paint (LBP). Surface coatings that meet or exceed the LBP regulatory threshold of 5,000 ppm are subject to governmental LBP rules.

Based on the laboratory data and age of the site, all surface coatings at the project site should be understood to contain lead at LBP regulatory levels. The regulatory requirements governing the specific lead materials are summarized in Table 3 based on the amount of lead reported in each sample. The general lead regulatory environment is further discussed in Section 8.

Table 3 Lead Laboratory Data Summary

Rohner Creek Flood Control, Seismic and Habitat Improvements Project

Sample Number	Sample Description	Color	Substrate	Sample Location	Lead Content (% by weight)	Triggers Compliance with Cal/OSHA 1532.1	Classified as Lead Based Paint (LBP)
8411414-Pb-1	Paint	Grey	Metal	Bridge at STA 9+25 (600 Stillman Way) - Structural steel beam at underside at northeast section	3.2% (32,000 ppm)	Yes	Yes
8411414-Pb-2	Paint	Grey/Green	Metal	Bridge at STA 16+50 (Fortuna Boulevard – North) - Bridge plate (Underside)	<0.01% (<100 ppm)	No	No
8411414-Pb-3	Paint	Brown	Metal	Bridge at STA 16+50 (Fortuna Boulevard – North) - I beam (Underside)	11% (110,000 ppm)	Yes	Yes
8411414-Pb-4	Paint	Cream	Wood	Bridge at STA 20+50 (Fortuna Boulevard – South) – Piling at northwest corner	7.3% (73,000 ppm)	Yes	Yes
8411414-Pb-5	Paint	Yellow/Silver	Metal	Outbuilding debris pile at STA 21+00 (southeast debris pile)- southwest comer	0.092% (920 ppm)	Yes	No
8411414-Pb-6	Paint	Tan/Black	Wood	Outbuilding debris pile at STA 20+40 (east-center debris pile) - northwest comer	5.5% (55,000 ppm)	Yes	Yes
8411414-Pb-7	Paint	Off-White	Wood	Garage addition at STA 14+25 (1709 Beech Street) – Horizontal siding at southwest section	7.0% (70,000 ppm)	Yes	Yes
8411414-Pb-8	Paint	White	Wood	Greenhouse at STA 15+00 (1709 Beech Street) - Vertical siding at southwest section	0.56% (5,600 ppm)	Yes	Yes

Table 3 Lead Laboratory Data Summary

Rohner Creek Flood Control, Seismic and Habitat Improvements Project

Sample Number	Sample Description	Color	Substrate	Sample Location	Lead Content (% by weight)	Triggers Compliance with Cal/OSHA 1532.1	Classified as Lead Based Paint (LBP)
8411414-Pb-9	Paint	Blue	Wood	Greenhouse at STA 15+00 (1709 Beech Street) - Window frame at southwest section	0.60% (6,000 ppm)	Yes	Yes
8411414-3 (Pb)	Paint	Green/Grey	Metal	Bridge at STA 9+25 (600 Stillman Way) - Underside of bridge on steel	1.3% (13,000 ppm)	Yes	Yes

Notes:
- Parts per million (ppm) is equivalent to milligrams per kilogram (mg/kg)
- Station locations refer to project bid submittal plans.

Acronyms:
- Cal/OSHA = California Department of Industrial Relations, Division of Occupational Safety and Health
- LBP = Lead Based Paint = Paint containing lead in a concentration of greater than or equal to 5,000 ppm or 0.5 percent by weight
- ppm = Parts per million (laboratory units of measurement)
- STA = Station
- USEPA = United States Environmental Protection Agency

Materials that are homogeneous to those denoted in Table 3 shall be assumed to contain an equivalent amount of lead as that reported in Table 3. Surface coatings present at the project site not sampled for this survey should be assumed to contain lead above LBP thresholds.

Cal/OSHA regulates worker impaction of paint containing any detectable quantity of lead, thus work impacting LBP, LCP and/or presumed lead material triggers compliance with applicable regulations, including 8 CCR 1532.1. Given the age of the structures and the findings for LCP and LBP, work at the project site affecting painted coatings shall be understood to trigger compliance with applicable lead regulations, including the rules summarized in Section 8.

7. Regulatory Overview for Asbestos

Work at the project site is understood to include the planned impaction of known and/or suspected asbestos material(s) as listed in Table 2 located in Section 5. As such, work at the project site is subject to regulation by governmental agencies and standards, including those denoted in this section.

7.1 Code of Federal Regulations

The following is a summary list of United States governmental regulations concerning asbestos:

1. 29 Code of Federal Regulations (CFR) 1926.1101, Asbestos (including all mandatory appendices)
2. 40 CFR 61, Subpart A and Subpart M USEPA NESHAP
3. 40 CFR Parts 261, 265, and 268, Hazardous Waste Management
4. 40 CFR Part 763 – Asbestos Emergency Hazard Emergency Response Act (AHERA)
5. 49 CFR Parts 172, 173, 178, 179, Hazardous Material Transportation

7.2 California Code of Regulations

The following is a summary list of State of California governmental regulations concerning asbestos:

1. 8 CCR Division 1, Chapter 4, Construction Safety Orders
2. 8 CCR Article 2.5, Registration of Asbestos Work, Sections 341.6–341.14
3. 8 CCR Section 1529, Asbestos
4. 8 CCR Section 5144, Respiratory Protection
5. 22 CCR Division 4.5, Environmental Health Standards for Management of Hazardous Waste
6. California Environmental Protection Agency (Cal/EPA), California Air Resource Board (CARB), Final Regulation Order, Section 93105, Asbestos Airborne Toxic Control Measures for Construction, Grading, Quarrying, and Surface Mining Operations

7.3 Definitions

For the purpose of this report, the following definitions will apply to the discussion of hazardous materials contained herein.

1. Abatement – Hazardous materials related construction undertaken for the purpose of eliminating or reducing existing recognized hazardous materials related hazards as adapted

from 29 Code of Federal Regulations (CFR), Part 1903 Inspections, Citation and Proposed Penalties, Standard 1903.19 Abatement Verification (29CFR1903.19), Subsection (b)(1).

2. ACM – A material determined to contain greater than one percent asbestos by weight as defined by the Title 8 California Code of Regulations (CCR), Subchapter 4, Construction Safety Orders, Article 4. Dusts, Fumes, Mists, Vapors, and Gases, Section 1529 (8CCR 1529), Subsection (b).
3. ACCM – A construction material determined to contain detectable levels of asbestos fibers in concentrations of greater than 0.1 percent asbestos by weight as defined by Chapter 3.2 of the California Occupational Safety and Health Regulations, Subchapter 2, Regulations of the Division of Occupational Safety and Health, Article 2.5. Registration--Asbestos- Related Work, Section 341.6(c).
4. Containment – Protective physical barriers and associated means and methods used to contain airborne contaminant dust within the abatement work area and prevent contamination of surfaces and grounds below and adjacent to areas where a hazardous material is being disturbed.
5. Hazardous Material – Substance with properties that can cause injury or illness to humans or adversely impact living organisms in the environment under certain conditions. Hazardous materials include both organic and inorganic chemicals and chemical compounds. Includes any substance on the list of hazardous substances prepared by the Director, California Department of Industrial Relations, pursuant to Labor Code Section 6382 and also known as the Director's List For this project, hazardous materials include, but are not limited to asbestos and lead.
6. Hazardous Waste – Waste material that is listed or meets the criteria for hazardous waste as set forth in CCR, Title 22, Division 4.5 and Article 9. at minimum, with regard to asbestos, the following shall be considered to be hazardous wastes with respect to this section:
    a. Nonfriable Asbestos Containing Material (Category I and II) rendered friable during demolition or renovation
    b. Regulated Asbestos Containing Material

7.4 Nonfriable Asbestos Containing Material

Friability is a qualitative measure of a material's affinity for producing airborne asbestos fibers (dust). A material that, when dry, can be crumbled, pulverized or reduced to powder using hand pressure is classified as friable according to USEPA regulations. Nonfriable materials are those that do not meet the above-definition of friable.

Nonfriable materials are classified by the USEPA into the following categories:

1. Category I Nonfriable – Any asbestos containing gasket, packing, resilient floor covering, or asphalt roofing product that contains greater than one percent asbestos as determined by PLM, that, when dry cannot be crumbled, pulverized, or reduced to a powder using hand pressure.
2. Category II Nonfriable – Any material, excluding Category I nonfriable ACM, that contains greater than one percent asbestos as determined by PLM, that, when dry cannot be crumbled, pulverized, or reduced to a powder using hand pressure.

If a nonfriable material is impacted with mechanical means (power tools, abrasive mechanical means, etc.) such material shall no longer be classified as nonfriable and shall instead be classified as RACM. A nonfriable material that has been significantly damaged may also be classified as friable, if the damaged material can be reduced to powder or crumbled using hand pressure.

7.5 Regulated Asbestos Containing Material

A material is regulated by the USEPA as RACM if it conforms to one or more of the following:

1. It is a friable ACM
2. It is a Category I or II ACM that has become friable
3. It is a Category I ACM that will be subject to mechanical impaction
4. It is a Category II ACM that has a high probability of becoming friable during the course of demolition or renovation activities that are expected to impact the material

Abatement of RACM that is Thermal System Insulation (TSI) or surfacing material requires Class I abatement methods as defined by the Occupational Safety and Health Administration (OSHA) and Cal/OSHA. RACM that is not TSI or surfacing material requires Class II abatement methods as defined by OSHA and Cal/OSHA. Class I and Class II abatement methods are described below. Materials identified in this report as USEPA RACM will require disposal as a non-Resource Conservation and Recovery Act (RCRA) California hazardous asbestos waste, if disposed of in California.

While the USEPA does not regulate material determined by PLM laboratory analysis using point count 400 methodology to contain less than one percent asbestos, some Cal/OSHA regulations apply to material determined to contain any detectable amount of asbestos.

Pursuant to NESHAP regulations, nonfriable materials are not classified as RACM if removed essentially intact using hand methods and not made “friable” during removal. The use of mechanical means to remove or impact nonfriable ACM will render that material friable, thus mechanically-impacted materials shall be considered RACM and subject to handling and disposal requirements governing RACM.

Asbestos containing material that meets the USEPA definition of RACM, if present in quantities greater than the NCUAQMD quantity thresholds denoted above, must be removed from the project site prior to demolition. Additionally, Category I and Category II ACM that is associated with a fire-damaged structure must be classified as RACM, per USEPA regulation.

7.6 Cal/OSHA Work Classes

Cal/OSHA regulates material containing asbestos at any detectable level, thus worker protection, material handling, material labelling, and material disposal protocols per California Code of Regulations (CCR), Title 8, Section 1529 (8 CCR 1529) apply to impaction of any material determined to contain asbestos above the laboratory detection limit. Impaction of material determined to contain asbestos in concentrations of less than one percent by weight (ACCM and <0.1%) is categorized by Cal/OSHA as unclassified work.

Cal/OSHA regulates worker exposure to airborne asbestos by instituting work practice, notification, training, and personal protective equipment requirements for employers and employees. In an effort to mitigate worker exposure to airborne asbestos fibers, Cal/OSHA mandates specific material containerization and work practices when workers impact materials containing asbestos at any

detectable level. Cal/OSHA categorizes asbestos related work into four work classes as described below and defined in 8 CCR 1529.

7.6.1 Class I Work

Class I asbestos work consists of activities involving the removal of asbestos-containing TSI, asbestos-containing surfacing material, or PACM. TSI includes pipe, pipe fitting, duct, boiler, and flue asbestos-containing insulation. Surfacing material includes sprayed-on or troweled-on asbestos-containing fire proofing, acoustical plaster or decorative plaster. PACM is TSI or surfacing material installed prior to 1981. PACM is presumed to contain asbestos and must be handled according to Class I work protocols unless sampled and determined by PLM analysis to contain no detectable asbestos fibers. Class I abatement work is subject to OSHA and Cal/OSHA regulations. Class I work must be conducted within a regulated negative-pressure containment equipped with a three-stage decontamination chamber that includes an operable shower. Class I work must be performed by properly trained and protected workers using appropriate means and methods as described by 8 CCR 1529.

7.6.2 Class II Work

Class II asbestos work means activities involving the impaction and removal of ACM, which is not TSI or surfacing material, and results in more than one bag of waste materials. This includes but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics. Class II work must be conducted within a regulated area containment and must be performed by properly trained and protected workers using appropriate means and methods as described by 8 CCR 1529.

7.6.3 Class III Work

Class III asbestos work means activities involving the repair and maintenance operations, where ACM, including TSI, surfacing ACM and/or PACM, is likely to be disturbed. Class III asbestos removal operations are limited to work that generates no more waste than that which can fit into one 60 inch by 60 inch (60” x 60”) waste bag. Class III work must be conducted within a regulated area containment by properly trained and protected workers using appropriate means and methods described by 8 CCR 1529.

7.6.4 Class IV Work

Class IV asbestos work means maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities. Class IV work must be conducted by properly trained and protected workers using appropriate means and methods described by 8 CCR 1529.

7.7 Asbestos Containing Construction Material

Materials reported by laboratory analysis to contain detectable concentrations of asbestos fibers of less than one percent by weight are not regulated by the USEPA as ACM or RACM and are not governed by NESHAP regulations. While not regulated by the USEPA, materials containing less than one percent asbestos by weight are regulated by Cal/OSHA as ACCM and are subject to Cal/OSHA employee protection, waste labeling, and handling protocols. Employees impacting materials containing detectable levels of asbestos fibers, but in concentrations less than one

percent asbestos by weight, must adhere to work practices and methods of compliance as mandated by Cal/OSHA and described in 8 CCR 1529.

7.8 Exposure Limits for Asbestos

Employers must monitor the air their workers are breathing to determine the airborne concentration of asbestos fibers present in the work environment during the various shifts and while performing various tasks. Phase contract microscopy (PCM) sampling cassettes and low-volume air pumps are worn by employees during their work shift, typically for a period of eight hours. The PCM cassettes are analyzed by a laboratory and an exposure is determined, measured in asbestos fibers per cubic centimeter of air (fibers/cc), extrapolated across the eight hour work shift. The eight hour exposure is known as a time-weighted average (TWA).

The following exposure limits must be adhered to for employee protection to establish appropriate protective measures and controls when impacting material containing asbestos:

Table 4 Cal/OSHA Airborne Exposure Limits for Asbestos

Material	Excursion Limit (Short Term Exposure Limit)	Permissible Exposure Limit (PEL) 8 hr TWA
Asbestos	1.0 fibers/cc as measured over 30 minutes	0.1 fibers/cc over an 8 hour TWA

Notes:

- Permissible Exposure Limit (PEL): Employer must ensure no employee is exposed above this level based on an 8 hour TWA. When employee expose levels meet or exceed the PEL, administrative, engineering and work practice controls must be implemented. Respiratory protection and other protective measures are required pending feasible engineering controls. Other training, monitoring, and medical surveillance requirements apply for exposure levels exceeding PEL.
- Short Term Exposure Limit (STEL): Short term exposure is measured over 30 minutes during periods of maximum expected exposure operations and is also known as the Excursion Limit

The Contractor should conduct representative breathing zone personal air monitoring of its employees, including a minimum of 25 percent of the crew, once each shift and repeated daily or until a negative exposure assessment, as derived in accordance with 8 CCR 1529 (f)(2)(C) can be established. A negative exposure assessment (NEA) is documented proof that a given activity will not expose employees to lead in concentrations above the PEL. A NEA may be established by maintaining initial air monitoring from the beginning of a project that is representative of work employees will be performing during the entire project showing exposure below the PEL or Short Term Exposure Limit (STEL).

Workers should wear personal air sampling devices for the full duration of their shift (eight hours). At least one sample should be collected representing each position/job classification in each work area of the project site. If exposures are determined to be above the PEL or STEL, appropriate worker protections should be instituted per 8 CCR 1529. Exposure monitoring should document the source of lead emissions.

Until an employee exposure assessment is completed and it has been determined and documented that the employee is not exposed above the PEL, the Contractor should treat the employee as if the employee were exposed above the PEL and should implement employee protective measures per 8 CCR 1529. Monitoring should be conducted by an individual experienced and knowledgeable about the methods of air monitoring in compliance with applicable regulatory standards.

7.9 Requirements for Asbestos Impaction

7.9.1 Asbestos Administrative Controls

Employers must establish a written hazard communication (HAZCOM) training program and train their employees to the hazards to which they are exposed. A HAZCOM program should be implemented for employees who will impact asbestos. If exposure monitoring shows worker airborne exposure to asbestos above the PEL, or above the excursion limit, then additional training and worker certification is necessary.

Supervisors who oversee asbestos work shall have completed 40 hours of USEPA Asbestos Hazard Emergency Response Act (AHERA)-accredited supervisor training. Employees interacting with asbestos must have a level of training appropriate for the class of asbestos work, ranging from two hours (HAZCOM) to 32 hours (AHERA-accredited Worker). At no time should suspected or known asbestos material be drilled, cut, sanded, scraped, or otherwise disturbed by untrained personnel.

Asbestos disturbance and/or removal operations must be conducted by a Cal/OSHA-registered and State-licensed asbestos removal contractor. Contractor registration with Cal/OSHA is required if greater than 100 square feet of ACM, RACM, or ACCM are disturbed by a contractor within a one year period of time. Employers whose employees disturb asbestos must file a written Report of Use of Regulated Carcinogens (Report of Use) form with Cal/OSHA. A Report of Use form must be filed with Cal/OSHA by employers whose workers disturb material containing greater than 0.1 percent asbestos. Disturbance of asbestos and/or abatement operations should be supervised by a Competent Person, as defined by 8 CCR 1529, who is trained, knowledgeable and qualified in the techniques of asbestos abatement.

A specialty certification for asbestos (C-22 – Asbestos Abatement and/or ASB – Asbestos Certification) is required by the California Contractors' State License Board (CSLB) for contractors who disturb greater than 100 square feet of asbestos in a year. Some exceptions for specific materials exist, thus CSLB rules should be consulted if release from certification requirements is sought.

7.9.2 Work Practice Controls

Asbestos abatement should be performed by persons trained, qualified, licensed, and equipped to perform asbestos abatement. Employees must never be exposed to airborne asbestos above the PEL, thus specific administrative controls, work practice controls and personal protective equipment (PPE) protocols must be implemented by the employer. Whole-body coverings (including hood and foot-coverings), gloves, and HEPA cartridge-equipped respirators are the standard PPE utilized for asbestos work in most circumstances. The remainder of this section consists of a brief summary of selected work practices required when impacting materials containing asbestos.

A regulated area is required to be established using signage and/or barrier tape around a work area where asbestos is to be impacted if there is a "reasonable possibility" that airborne concentrations of asbestos will exceed the PEL (8 CCR 1529). A regulated area is also required for all Class I, II and III work. Regulated areas shall be demarcated "in a manner that minimized the number of persons within the area and protects persons outside the area from exposure to airborne asbestos" (8 CCR 1529). Access to regulated areas shall be limited to properly trained and protected workers.

The use of wet methods (water) to mitigate emissions of airborne dust is required whenever material containing asbestos is disturbed. The goal of using wet methods is to achieve no visible emissions of asbestos-related dust.

Vacuum cleaners equipped with High Efficiency Particulate Filters (HEPA) must be used by employees impacting material containing asbestos in detectable quantities and must also be used to address associated dust and debris. Material containing asbestos in detectable quantities may not be impacted by non-HEPA-equipped sanders, grinders, saws, or other abrasive power tools. Material containing asbestos (including associated dust and debris) may not be addressed using compressed air, dry sweeping, or dry shovelling.

Material containing asbestos in detectable quantities must be “promptly” containerized in leak tight containers. Prompt cleanup generally is understood to mean that material should not be left un-containerized (unpackaged or outside of a disposal bin) after any work stoppage such as scheduled breaks and the end of any work shift. Waste containers containing ACM or RACM must be labeled in accordance with Cal/OSHA labeling requirements.

7.10 Asbestos Work Notifications

7.10.1 Cal/OSHA Temporary Worksite Notification

For abatement activities which will involve asbestos-related work of at least 100 square or linear feet, written notification must be made to Cal/OSHA. Such written notification to Cal/OSHA must be submitted to the Cal/OSHA office exercising regulatory authority over the project at least 24 hours prior to the start of asbestos impaction work. Incidents, such as employees exposed over the PEL without a respirator, must be reported to Cal/OSHA within 15 days of the incident.

7.10.2 NESHAP Renovation or Demolition Notification

The USEPA NESHAP regulations are authorized by Section 112 of the Clean Air Act (published in 40 Code of Federal Regulations Parts 61 and 63) and specify work practices for asbestos to be followed during demolitions and renovations of all structures. The regulations require the owner of the building, or the building operator, to notify a USEPA delegated authority before any work that meets the definition of a demolition or renovation operation. A NESHAP notice must be supplied to the NCUAQMD at least 10 working days prior to the planned commencement of load-bearing structure impaction and/or structure demolitions.

A completed and signed NESHAP renovation/demolition notification form is required to be submitted to the NCUAQMD in association with disturbance of RACM in quantities greater than the notification thresholds denoted in Section 1.2.1. The submittal of a NESHAP renovation/demolition notification is also necessitated for all work meeting the NESHAP definition of a demolition. A demolition is defined by NESHAP as the impaction or unweighting of one or more structural members. A NESHAP demolition and renovation notification form required by the NCUAQMD for this project as noted in Table 1 located in Section 1.2.1.

The contact information for the NCUAQMD is provided below:

707 L Street

Eureka, California 95501

Phone: (707) 443-30931

7.11 Asbestos Disposal Requirements

Category I and Category II nonfriable ACM should be disposed of as asbestos-containing waste in California. Friable ACM (RACM), including nonfriable material that has become or will be rendered friable, should be disposed of in California as non-Resource Conservation and Recovery Act (non-RCRA) hazardous waste. Impacting nonfriable ACM with mechanical means will render such material friable and reclassify the material as RACM.

If point count laboratory analysis (Point Count 400) shows that a given material contains less than one percent asbestos, then such material is not considered a hazardous waste by USEPA, or the California Department of Toxic Substances Control (DTSC). Asbestos material containing less than one percent asbestos is not subject to Cal/OSHA asbestos waste labeling requirements. Waste materials containing less than one percent asbestos may generally be disposed of as construction debris in many California landfills and at many municipal transfer stations; however the acceptance criteria of each facility may differ. The waste acceptor should be contacted, and their individual acceptance-criteria abided by, prior to waste transport and disposal.

8. Regulatory Overview for Lead

Work at the project site is understood to meet the Cal/OSHA definition of construction work [1532.1(a)] and includes the planned impaction of known lead containing surface coatings, thus, is subject to regulation by governmental agencies and standards, including those denoted below.

8.1 Code of Federal Regulations (CFR)

1. 29 CFR 1926, Construction Standards
2. 40 CFR Parts 261, 265, and 268, Hazardous Waste Management
3. 40 CFR Part 745, Lead: Identification of Dangerous Levels of Lead
4. 40 CFR Part 745, Subpart E Lead Renovation, Repair and Painting Program
5. 49 CFR Parts 172, 173, 178, 179, Hazardous Material Transportation

8.2 California Code of Regulations (CCR)

1. 8 CCR Division 1, Chapter 4, Construction Safety Orders
2. 8 CCR 1532.1, Lead in Construction
3. 8 CCR 1537, Welding, Cutting, and Heating of Coated Metals
4. 8 CCR 1531, Respiratory Protection
5. 17 CCR Division 1, Chapter 8, Accreditation/Certification, and Work Practices in Lead–Related Construction
6. 22 CCR Division 4.5, Environmental Health Standards for Management of Hazardous Waste

8.3 Lead Based Paint

The USEPA, CDPH and Cal/OSHA define Lead Based Paint (LBP) as a surface coating containing lead in a concentration of equal to or greater than 0.5 percent by weight, 5,000 milligrams per kilogram (mg/kg), 5,000 ppm, or 1.0 milligram per square centimeter (mg/cm^2).

8.4 Lead Containing Paint

The United States Consumer Product Safety Commission defines lead containing paint (LCP) as a surface coating containing lead in a concentration of equal to or greater than 0.009 percent by weight or 90 ppm (90 mg/kg).

8.5 Trigger Tasks and Lead Impaction Activities

Cal/OSHA regulates worker impaction of material containing any detectable quantity of lead, thus such work triggers compliance with applicable regulations, including 8 CCR 1532.1. For Cal/OSHA, "lead" means metallic lead, all inorganic lead compounds and organic lead soaps.

Specific construction tasks, known as Trigger Tasks, when performed on material(s) known to contain detectable quantities of lead, should be understood to expose employees above the lead PEL and thus necessitate specific employee protection measures per 8 CCR 1532.1. A Trigger Task or Activity is defined herein as a construction operation, process or task specifically identified by the Cal/OSHA lead standard (8 CCR 1532.1) as a potential lead exposure hazard requiring certain protective measures to be implemented prior to obtaining the results of an initial exposure assessment.

Performing a Trigger Task should be understood to expose employees above the Permissible Exposure Limit (PEL) and should thus necessitate employee protection measures, including the following: wearing of respirators and protective clothing, action level training (at a minimum) and initial employee biological medical monitoring (blood tests), until personal air sampling proves otherwise. Untrained and/or unprotected workers should not perform trigger tasks. Specific trigger tasks and their expected resultant airborne exposure levels are described below.

8.5.1 Trigger Task I

The following trigger task I activities are expected to create airborne lead concentrations of 50 to 500 micrograms per cubic meter of air ($\mu g/m^3$):

1. Manual demolition
2. Paint preparation (scraping and sanding)
3. Using heat guns
4. Using HEPA-filtered equipment
5. Debris clean-up

8.5.2 Trigger Task II

The following trigger task II activities are expected to create airborne lead concentrations of 500 to 2,500 $\mu g/m^3$:

1. Lead mortar work
2. Lead burning

3. Rivet busting
4. Use of non-HEPA-filtered equipment
5. Dry abrasive blast debris clean-up or containment movement

8.5.3 Trigger Task III

The following trigger task II activities are expected to create airborne lead concentrations of greater than 2,500 µg/m^3:

1. Welding
2. Abrasive blasting
3. Torch cutting/burning

8.6 Competent Person Designation

The Contractor shall designate, in writing, one or more individuals as Competent Persons(s) when tasking individuals to perform work at the project site that may impact lead containing surface coatings. Written designation shall certify that each designated Competent Person has the appropriate training and knowledge required of a Competent Person under Article 6 of the construction Safety Orders, Title 8, California Code of Regulations.

8.7 Personal Air Monitoring

The Contractor should conduct worker breathing zone exposure monitoring (also known as personal air monitoring) to determine the airborne concentration of lead present within the work environment as required by Cal/OSHA per 8 CCR 1532.1. Air monitoring of Contractor personnel performing lead impaction work is required by Cal/OSHA and is the obligation of the Contractor. The contractor is responsible for providing daily Cal/OSHA compliance monitoring as per 8 CCR 1532.1 (Lead). The Contractor shall monitor workers for lead exposure.

Air monitoring should continue for each task for the duration of the project, unless a negative exposure assessment is achieved. The following airborne concentrations should dictate which administrative practices, work practices and PPE are required:

Table 5 Cal/OSHA Airborne Exposure Limits for Lead

Material	Action Level (AL) (8-hr TWA)	Permissible Exposure Limit (PEL) (8-hr TWA)
Lead	30 µg/m^3	50 µg/m^3

Notes:

- µg/m^3 = Micrograms per cubic meter of air
- 8-hr TWA = Eight hour time-weighted average
- Action Limit (AL): When employee exposure levels exceed the AL, specific administrative, engineering and work practice controls must be implemented.
- Permissible Exposure Limit (PEL): Employer must ensure no employee is exposed above this level based on an 8 hour TWA. When employee exposure levels exceed the PEL, all applicable administrative, engineering and work practice controls must be implemented. Respiratory protection and other protective measures are required pending feasible engineering controls. Other training, monitoring, and medical surveillance requirements apply for exposure levels exceeding PEL.

The contractor should conduct representative breathing zone personal air monitoring of its employees (25% of crew) during each shift. Air monitoring should be repeated daily or until a NEA showing airborne lead exposure below the PEL or Action Level (AL), as derived in accordance with and 8 CCR 1532.1 (d) can be established. Monitoring should be conducted by an individual experienced and knowledgeable about the methods of air monitoring and in accordance with 8 CCR 1532.1. If exposures are determined to be above the action level, appropriate worker protections should be instituted per 8 CCR 1532.1. Exposure monitoring should document the source of lead emissions.

Until an employee exposure assessment is completed and it has been determined and documented that the employee is not exposed above the PEL, the Contractor should treat the employee as if the employee were exposed above the PEL and should implement employee protective measures per 8 CCR 1532.1, if any Trigger Tasks are to be performed.

8.8 Personnel Training

Individuals engaged in lead–related construction work activities should attend lead hazard training appropriate to their assignments. All training for other lead–related construction activities should be in accordance with the worker training provisions in the Cal/OSHA and CDPH lead regulations.

Employees, including crew leaders, supervisors, and any other Contractor personnel or agents who may be exposed to airborne concentrations of lead must have received at a minimum: lead awareness training (HAZCOM) as required by Cal/OSHA 8 CCR 1532.1. If air monitoring demonstrates an exposure above the AL or PEL for lead, the Contractor should maintain documentation that employees receiving this exposure level have received Action Level training if exposed above Action Level. The Contractor should maintain documentation affirming that employees have appropriate CDPH lead worker certification if exposed above PEL while working at a public building.

8.8.1 Hazard Communication Training

All workers should receive lead hazard communication (HAZCOM) training prior to the commencement of work that may disturb painted surfaces known or presumed to contain lead at the project site. Such training must be documented in writing and such documentation retained

onsite for review. At a minimum, training should include the content of 8 CCR 1532.1, as well as the following:

1. Locations and presence of lead containing material at the project site
2. Potential hazards of lead exposure
3. Purpose and meaning of warning signage
4. Isolation (using signage and barrier tape) of identified lead debris
5. Required procedures and training necessary to impact lead containing material and prohibited practices regarding lead containing material at the project site
6. Specific nature of operations which could expose employees to lead
7. Purpose, proper selection, fitting, use, and limitations of respirators
8. Purpose and a description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant)
9. Content of the Contractor Lead Compliance Plan
10. Proper use/restrictions on chelating agents

8.8.2 Action Level Training

The Action Level (AL) is an established airborne contaminate level that when met or exceeded, certain protective health and safety measures are triggered per 8 CCR 1532.1 (l) (2). For lead, the AL is an exposure of 30 micrograms per cubic meter of air ($\mu g/m^3$) of airborne lead as an 8-hour TWA.

The Contractor should provide training for all workers who may be exposed to lead in excess of the AL or PEL in accordance with Title 8 CCR 1532.1, Subsection (l), Parts (1) and (2) Awareness Training. Contractor should maintain documentation that employees receiving this exposure level have received Action Level training if exposed above Action Level.

The Contractor should itself establish, or have site personnel attend, an Action Level Training program. Such a training program should comply with the HAZCOM training standards listed in Section 8.8.1 and additionally assure that each employee is trained in the following:

1. The content of 8 CCR 1532.1 and its appendices
2. The engineering controls and work practices associated with the employee's job assignment including training of employees
3. The contents of any compliance plan and the location of regulated areas in effect
4. Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used except under the direction of a licensed physician
5. The employee's right of access to records under CCR Section 3204

8.9 Medical Surveillance Compliance

Use only workers trained and medically qualified for the assigned lead work and respirator usage for trigger tasks or other work known or reasonably expected to generate airborne exposures to lead in excess of the Action Level (AL) or PEL.

Contractor employees shown to be exposed above the AL or PEL, and/or engaged in Trigger Tasks in the absence of a NEA, must be medically-qualified to do so and have the appropriate medical examinations as specified in 8 CCR 1532.1. Medically-qualified should mean that the worker who performs trigger tasks, or other lead-related construction tasks likely to exceed the AL or PEL, has received, at minimum, lead biological monitoring and medical evaluation for use of respiratory protection in accordance with 8 CCR 1532.1(j).

Medical requirement for lead-related construction work compliance should include:

1. Documentation of medical surveillance examination by a licensed medical physician prior to commencement of onsite Lead–Related Construction “trigger task” work. Documentation should include baseline blood lead levels. The baseline blood lead should have been within 30 days in advance of starting work.
2. Documentation from physician that all employees or agents who may be exposed to airborne lead in excess of background levels have received medical examination to determine whether they are physically capable of working while wearing the respirator required without suffering adverse health effects in accordance with 8 CCR 153. Medical exams should have been performed not more than 12 months prior to the completion of Contractor work at the project site. Biological monitoring records documenting employee blood lead level test results should be kept for 30 years. The Contractor must be aware of and provide information to the examining physician about unusual conditions in the workplace environment (e.g., high temperatures, humidity, chemical contaminants) that may impact on the employee’s ability to perform work activities.
3. Documentation that each employee required to wear respirators has passed a respirator fit test within the past 12 months and has been assigned an individual respirator based on the fit teStreet
4. Methods, procedures and plan for monitoring employee airborne lead exposure as required by Cal/OSHA during lead component removal, clean-up and surface preparation activities. Methods and procedures, at a minimum, should comply with requirements outlined in 8 CCR 1532.1 Lead. Include Name, address and certification information for laboratory to be used for air sample analysis.

8.10 Requirements for Lead Impaction

Surface coatings (paint) applied to interior and exterior surfaces at the project site have been reported and/or are assumed to contain lead. Employers whose employees perform impaction of surface coatings at the project site should monitor their employees for airborne lead exposure and institute necessary employee protection precautions per the Cal/OSHA lead standard (8 CCR 1532.1) when conducting work at the project site.

As required by 8 CCR 1532.1, employees performing work at the project site, including foreman, supervisor, and any other company personnel or agents who may be exposed to any airborne concentrations of lead, should receive training which includes, at a minimum, Lead Awareness training, also known as lead HAZCOM training.

If air monitoring demonstrates an employee exposure to lead above 30 micrograms per cubic meter of air (µg/m^3), a threshold known as the Cal/OSHA Action Level, or 50 µg/m^3, a threshold known as the PEL, the employer must maintain documentation that employees receiving such exposure(s) have received Action Level training (if exposed above the Action Level or PEL) and have appropriate CDPH certification. It should be noted that CDPH certification is applicable if employees are exposed above the PEL in a building generally accessible to the public as defined by 17 CCR, Division 1, Chapter 8, Article 1.

Employee protection measures are mandated by Cal/OSHA when workers impact lead and the scope and magnitude of these measures are generally dependent on the amount of lead present in the air. At a minimum, work impacting lead must include the following protocols:

1. Establishment of a regulated work area (posting of warning signage)
2. Establishment of hygiene controls (hand washing facilities)
3. Use of wet methods (water) to mitigate airborne dust generation
4. Use of HEPA filter-equipped vacuums and tools
5. Use of PPE, including respirators, as appropriate

9. Conclusion

As described in Section 5, the asbestos material identified in Table 2 is subject to governmental regulations, including those summarized in Section 7. Suspect asbestos not identified in this report that may be discovered during future site work should be assumed to contain asbestos, unless appropriately sampled and determined to be non-asbestos by an accredited laboratory.

As described in Section 6, surface coatings present at the project site were reported to contain lead. All surface coatings at the project site should be assumed to contain lead and should be understood to be subject to applicable governmental LBP regulations, including those summarized in Section 8.

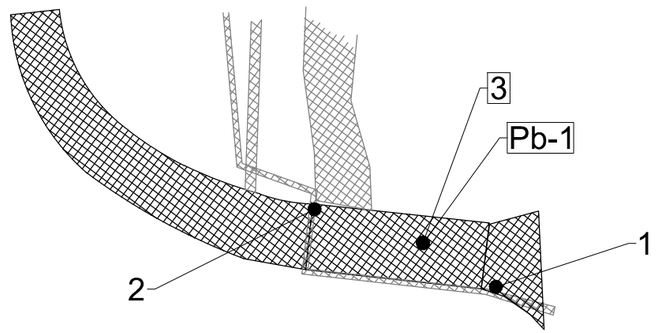
It is recommended that this report be provided to contractors and personnel who may conduct work at the project site potentially impacting the hazardous materials described herein. It is required that contractors be notified of known or suspect ACM, ACCM, RACM, LCP and LBP within their work area. It is recommended that the City maintain copies of this report for as long as the hazardous materials identified herein are present at the project site.

Appendices

Appendix A – Figures

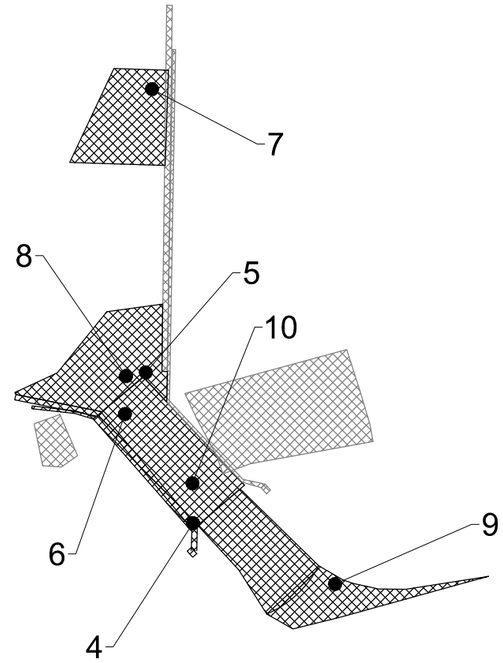
Rohner Creek Flood Control, Seismic and Habitat Improvements Project Site Figure(s) Denoting Bridge and Miscellaneous Structures Limited Hazardous Material Assessment Survey Report Bulk Sample Locations

APPROX.



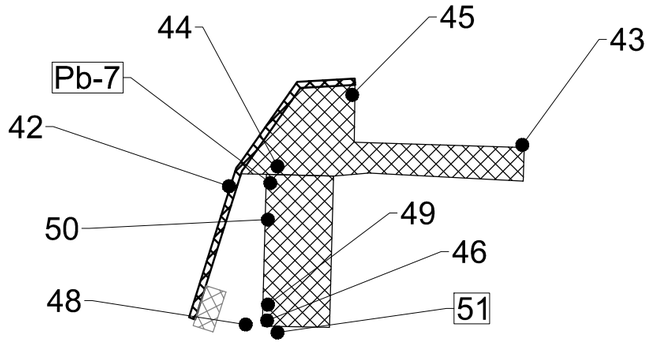
1 BRIDGE @ STA 9+25 (600 STILLMAN WAY)
NTS

APPROX.

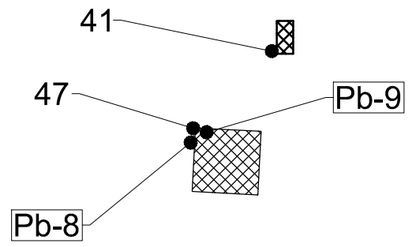


2 BRIDGE @ STA 13+20 (1697 & 1701 STILLMAN WAY)
NTS

APPROX.



3 GARAGE ADDITION @ STA 14+25 (1709 BEECH ST.)
NTS



APPROX.

4 GREENHOUSE @ STA 15+00 (1709 BEECH ST.)
NTS

SHEET GENERAL NOTES

1. DRAWING IS NOT TO SCALE.
2. ALL LOCATIONS SHOWN ARE APPROXIMATE.

LEGEND

- # — GHD SAMPLE 8411414-# = LOCATION OF BULK SAMPLE COLLECTED FOR ASBESTOS ANALYSIS
- [#] — SAMPLE DETERMINED TO CONTAIN ASBESTOS
- Pb# — GHD SAMPLE 8411414-Pb# = LOCATION OF PAINT SAMPLE COLLECTED FOR LEAD ANALYSIS
- [Pb#] — SAMPLE DETERMINED TO CONTAIN LEAD

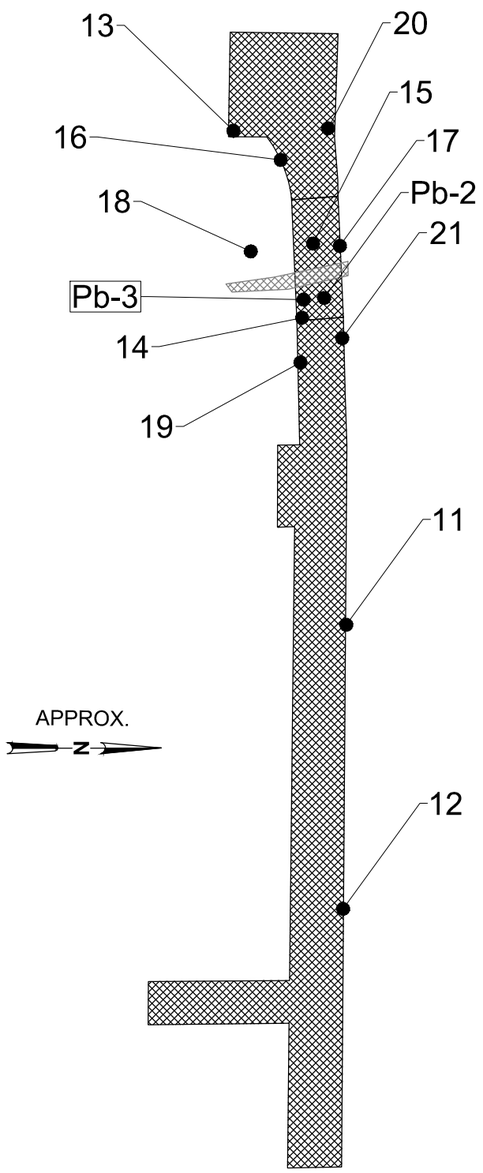
No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
-	-		-			-

GHD Inc.
718 Third Street Eureka California 95501 USA
T 1 707 443 8326 F 1 707 444 8330
W www.ghd.com

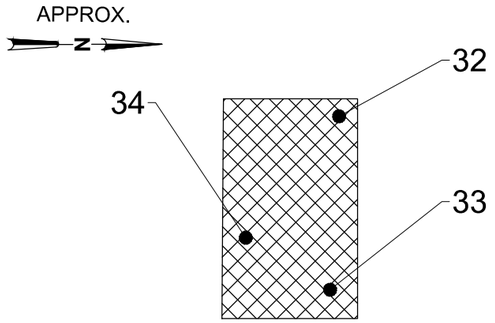
Drawn	BKW	Designer	BKW
Drafting Check	SH	Design Check	SH
Approved (Project Director)			
Date			
Scale	NTS	This Drawing shall not be used for Construction unless Signed and Sealed For Construction	

Client CITY OF FORTUNA
Project ROHNER CREEK FLOOD CONTROL, SEISMIC, & HABITAT IMPROVEMENTS PROJECT
Title PROJECT SITE SAMPLE LOCATION MAP
Contract No. 8411414.65
Original Size Ansi D
Drawing No: FIGURE 1
Sht 1 of 2
Rev: 0

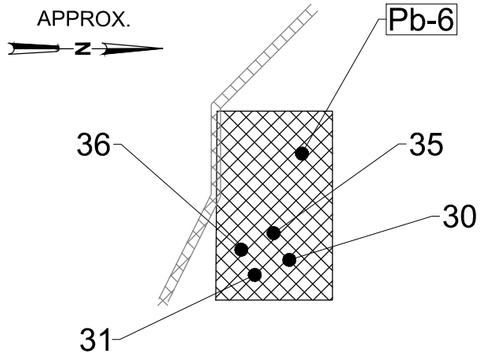
Plot Date: 6 July 2016 - 3:35 PM Plotted by: Brittany White
Cad File No: \\ghdnet\ghd\US\Eureka\Projects\Legacy\Projects\61054 City of Fortuna\8411414 Rohner\Creek Flood PH2\04-Technical Work\60 Construction Administration\65 Pre Bid and Bid Period Assistance\Hazmat\CAD\Sheets\8411414-Demo_Plans_Figures.dwg



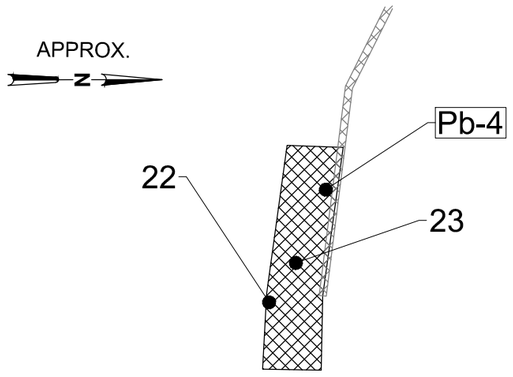
5 **BRIDGE @ STA 16+50 (FORTUNA BLVD-NORTH)**
NTS



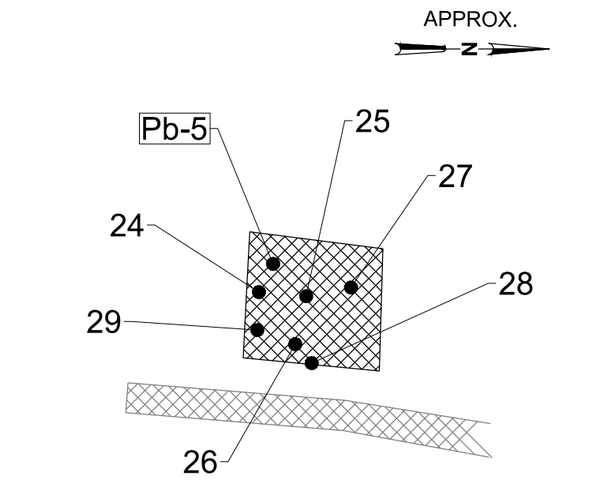
6 **OUTBUILDING N. OF SWALE @ STA S1+00**
NTS



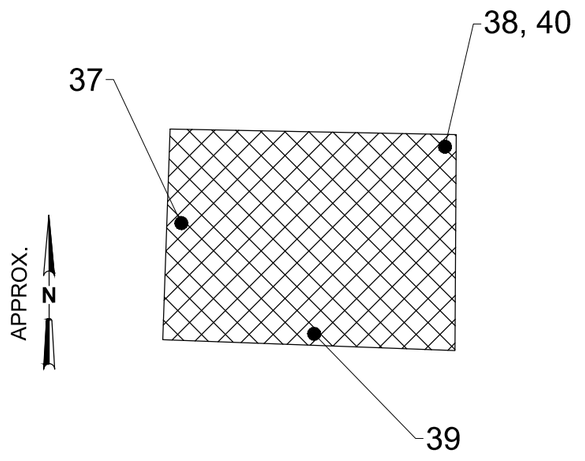
7 **OUTBUILDING W. OF CREEK @ STA 20+40**
NTS



8 **BRIDGE @ STA 20+50 (FORTUNA BLVD-SOUTH)**
NTS



9 **OUTBUILDING W. OF CREEK @ STA 21+00**
NTS



10 **OUTBUILDING N. OF SWALE @ STA S+00**
NTS

SHEET GENERAL NOTES

1. DRAWING IS NOT TO SCALE.
2. ALL LOCATIONS SHOWN ARE APPROXIMATE.

LEGEND

- # — GHD SAMPLE 8411414-# = LOCATION OF BULK SAMPLE COLLECTED FOR ASBESTOS ANALYSIS
- # — SAMPLE DETERMINED TO CONTAIN ASBESTOS
- Pb# — GHD SAMPLE 8411414-Pb# = LOCATION OF PAINT SAMPLE COLLECTED FOR LEAD ANALYSIS
- Pb# — SAMPLE DETERMINED TO CONTAIN LEAD

No	Revision	Note: * indicates signatures on original issue of drawing or last revision of drawing	Drawn	Job Manager	Project Director	Date
-	-		-			-

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W www.ghd.com

Drawn BKW		Designer BKW	
Drafting Check SH		Design Check SH	
Approved (Project Director) Date			
Scale NTS	This Drawing shall not be used for Construction unless Signed and Sealed For Construction		

Client CITY OF FORTUNA
Project ROHNER CREEK FLOOD CONTROL, SEISMIC, & HABITAT IMPROVEMENTS PROJECT
Title **PROJECT SITE SAMPLE LOCATION MAP**
Contract No. 8411414.65
Original Size Ansi D
Drawing No: **FIGURE 2**
Sht 2 of 2
Rev: 0

Plot Date: 6 July 2016 - 3:36 PM
Plotted by: Brittany White
Cad File No: \\ghdnet\ghd\US\Eureka\Projects\Legacy\Projects\10\54 City of Fortuna\8411414 Rohner Creek Flood PH2&4-Technical Work\60 Construction Administration\65 Pre Bid and Bid Period Assistance\Hazmat\CAD\Sheets\8411414-Demo_Plans_Figures.dwg

Appendix B – Photographs

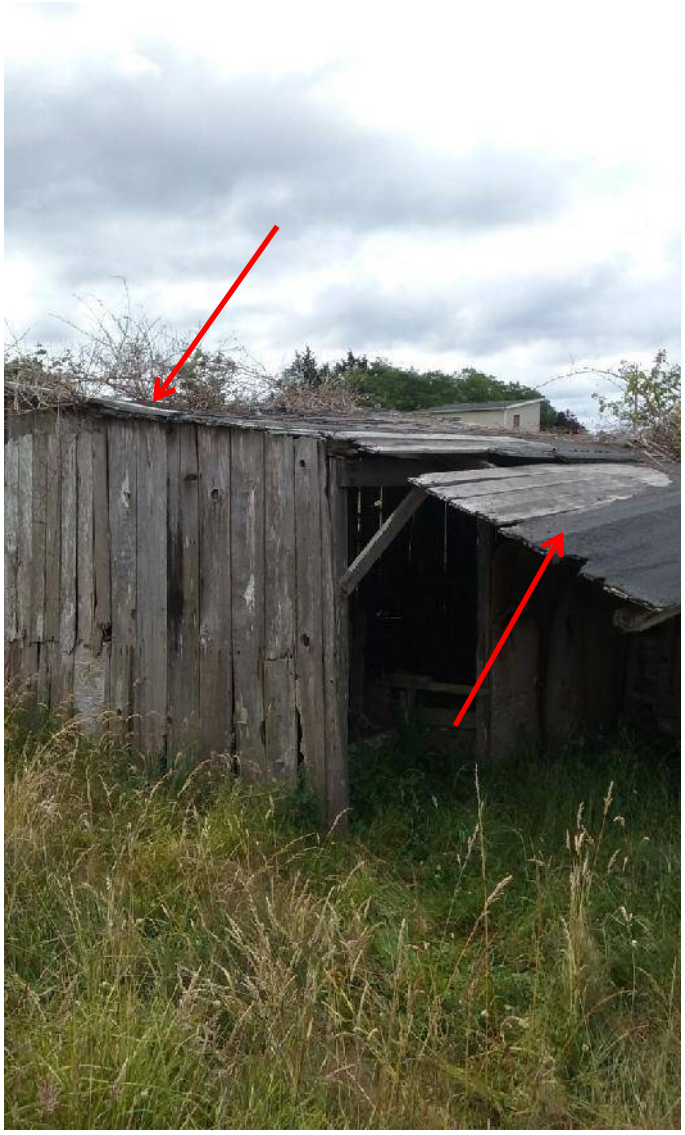
City of Fortuna Rohner Creek Flood Control, Seismic and Habitat Improvements Project Site Photographs

Site Photographs

The following photographs generally depict the materials reported to contain asbestos as a result of the City of Fortuna Rohner Creek Flood Control, Seismic and Habitat Improvements Project survey described by this report.

Photograph 1 – Paint (typical, indicated by red arrow) reported to contain asbestos located at existing bridge at STA 9+25.

Photograph 2 – Fibrous sheeting remnant (typical, indicated by red arrow) reported to contain asbestos located at outbuilding debris pile at STA 20+40.



Photograph 3 – Roofing material (typical, indicated by red arrows) reported to contain asbestos located at outbuilding north of swale at S–3+00.

Photograph 4 – Location of skim coat (typical, indicated by red arrow) reported to contain asbestos located at garage addition at STA 14+25.

Appendix C – Asbestos Analytical Data

Rohner Creek Flood Control, Seismic and Habitat Improvements Project Bridge and Miscellaneous Structures Limited Hazardous Material Assessment Survey Report Asbestos (PLM) Laboratory Analytical Data and Associated GHD Chains of Custody Documentation

AmeriSci Los Angeles
24416 S. Main Street, Ste 308
Carson, California 90745
TEL: (310) 834-4868 • FAX: (310) 834-4772

PLM Bulk Asbestos Report

GHD
Attn: Scott Harris
718 3rd Street

Eureka, CA 95501

Date Received 06/22/16 **AmeriSci Job #** 916061693
Date Examined 06/28/16 **P.O. #**
Page 1 **of** 13
RE: 8411414.65; Fortuna Bridge Demo

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
8411414-1	916061693-01	*No*	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / 600 Stillman Bridge - North Ramp			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-2	916061693-02	*No*	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / 600 Stillman Bridge - South Ramp			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Cement **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-3	916061693-03	*Yes*	3 % (by CVES) by Paola Ducoing on 06/28/16
Location: Paint (Grn/Grey) / 600 Stillman Bridge - Underside On Steel			
Analyst Description: Green/Black, Heterogeneous, Non-Fibrous, Paint/Mastic **Asbestos Types:** Chrysotile 3.0 % **Other Material:** Non-fibrous 97 %			
8411414-4	916061693-04	*No*	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / 1697 Beech Bridge - Southeast Foundation			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-5	916061693-05	*No*	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / 1697 Beech Bridge - NW Ramp			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

8411414.65; Fortuna Bridge Demo

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
8411414-6	916061693-06	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / 1697 Beech Bridge - NW Bank Stabilizer			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-7	916061693-07	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / 1697 Beech Bridge - SE Foundation			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-8	916061693-08	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / 1697 Beech Bridge - West Driveway Pad			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-9	916061693-09	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Asphalt (Black) / 1697 Beech Bridge - SE Ramp			
Analyst Description: Black, Heterogeneous, Non-Fibrous, Cementitious, Asphalt **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-10	916061693-10	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Paint (Black/Grey) / 1697 Beech Bridge - Underside (H. Beam) @ Ctr.			
Analyst Description: Black, Homogeneous, Non-Fibrous, Paint **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-11	916061693-11	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / Fortuna Blvd. North - Driveway Ctr. N.			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

8411414.65; Fortuna Bridge Demo

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
8411414-12	916061693-12	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / Fortuna Blvd. North - Driveway E. N.			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-13	916061693-13	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / Fortuna Blvd. North - West Driveway Pad			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-14	916061693-14	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / Fortuna Blvd. North - E. Foundation			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-15	916061693-15	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / Fortuna Blvd. North - E. Bank Stabilizer			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-16	916061693-16	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / Fortuna Blvd. North - SW Curb			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-17	916061693-17	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / Fortuna Blvd. North - W. Foundation			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

8411414.65; Fortuna Bridge Demo

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
8411414-18	916061693-18	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / Fortuna Blvd. North - W. Bank Stabilizer			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-19	916061693-19	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / Fortuna Blvd. North - E. Approach Ramp			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-20	916061693-20L1	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) & Exp. Joint (Wht) / Fortuna Blvd. North - W. Approach / Driveway			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-20	916061693-20L2	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) & Exp. Joint (Wht) / Fortuna Blvd. North - W. Approach / Driveway			
Analyst Description: Yellow, Homogeneous, Non-Fibrous, Expansion Joint **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-21	916061693-21.1	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Brick (Red/Orange) & Mortar (Grey) / Fortuna Blvd. North - NE Column			
Analyst Description: Red, Homogeneous, Non-Fibrous, Brick **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-21	916061693-21.2	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Brick (Red/Orange) & Mortar (Grey) / Fortuna Blvd. North - NE Column			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Mortar **Asbestos Types:** **Other Material:** Non-fibrous 100 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

8411414.65; Fortuna Bridge Demo

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
8411414-22	916061693-22	*No*	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) / Fortuna Blvd. South / E. Ramp			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete			
Asbestos Types:			
Other Material: Non-fibrous 100 %			
8411414-23	916061693-23	*No*	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Comp. Shingle Traction Strip (Black) / Fortuna Blvd. South - Bridge Beam @ Ctr.			
Analyst Description: Black, Heterogeneous, Fibrous, Shingle			
Asbestos Types:			
Other Material: Fibrous glass 15 %, Non-fibrous 85 %			
8411414-24	916061693-24L1	*No*	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Shingle Roofing (Black) / Southeast Debris Pile - S. Ctr.			
Analyst Description: Black/Green, Heterogeneous, Fibrous, Roofing Shingle			
Asbestos Types:			
Other Material: Cellulose 35 %, Non-fibrous 65 %			
8411414-24	916061693-24L2	*No*	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Shingle Roofing (Black) / Southeast Debris Pile - S. Ctr.			
Analyst Description: Black, Heterogeneous, Fibrous, Roofing			
Asbestos Types:			
Other Material: Cellulose 45 %, Non-fibrous 55 %			
8411414-24	916061693-24L3	*No*	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Shingle Roofing (Black) / Southeast Debris Pile - S. Ctr.			
Analyst Description: Black, Homogeneous, Non-Fibrous, Mastic			
Asbestos Types:			
Other Material: Non-fibrous 100 %			
8411414-25	916061693-25L1	*No*	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Shingle Roofing & Mastic (Black) / Southeast Debris Pile - S. Ctr.			
Analyst Description: Black, Heterogeneous, Fibrous, Roofing			
Asbestos Types:			
Other Material: Cellulose 35 %, Non-fibrous 65 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

8411414.65; Fortuna Bridge Demo

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
8411414-25	916061693-25L2	*No*	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Shingle Roofing & Mastic (Black) / Southeast Debris Pile - S. Ctr.			
Analyst Description: Black, Homogeneous, Non-Fibrous, Mastic **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-26	916061693-26L1	*No*	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Shingle Roof (Debris) / Southeast Debris - SE Corner			
Analyst Description: Black, Heterogeneous, Fibrous, Roofing Shingle **Asbestos Types:** **Other Material:** Cellulose 35 %, Non-fibrous 65 %			
8411414-26	916061693-26L2	*No*	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Shingle Roof (Debris) / Southeast Debris - SE Corner			
Analyst Description: Black, Homogeneous, Non-Fibrous, Mastic **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-27	916061693-27	*No*	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Roofing Mastic (Black) / Southeast - Ctr. On Metal Flashing			
Analyst Description: Black, Homogeneous, Non-Fibrous, Roofing Mastic **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-28	916061693-28	*No*	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) Stem Wall / Southeast / SE Stem Wall			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-29	916061693-29L1	*No*	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Wall Paper (Lt. Grn / Tan) / Southeast - SE On Fiberboard			
Analyst Description: Green, Homogeneous, Non-Fibrous, Paint **Asbestos Types:** **Other Material:** Non-fibrous 100 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

8411414.65; Fortuna Bridge Demo

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
8411414-29	916061693-29L2	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Wall Paper (Lt. Grn / Tan) / Southeast - SE On Fiberboard			
Analyst Description: Brown/White, Heterogeneous, Fibrous, Paper **Asbestos Types:** **Other Material:** Cellulose 90 %, Non-fibrous 10 %			
8411414-30	916061693-30	***Yes***	35 % (by CVES) by Paola Ducoing on 06/28/16
Location: Woven Fiberous Sheeting (Lt. Grey) / Center - East Debris Pile - Ctr. NE			
Analyst Description: Light Grey, Heterogeneous, Fibrous, Fibrous Material **Asbestos Types:** Chrysotile 35.0 % **Other Material:** Cellulose 40 %, Non-fibrous 25 %			
8411414-31	916061693-31	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: CMU Block (Grey) / Center - East Debris Pile - SE			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, CMU **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-32	916061693-32L1	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Roofing Material (Black / Grn Brn) / Northwest Debris Pile - NW			
Analyst Description: Multi-Colored/Black, Heterogeneous, Fibrous, Roofing Shingle **Asbestos Types:** **Other Material:** Cellulose 35 %, Non-fibrous 65 %			
8411414-32	916061693-32L2	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Roofing Material (Black / Grn Brn) / Northwest Debris Pile - NW			
Analyst Description: Black, Heterogeneous, Fibrous, Roofing Shingle **Asbestos Types:** **Other Material:** Cellulose 35 %, Non-fibrous 65 %			
8411414-33	916061693-33L1	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Roofing Material (Black / Grn Brn) / Northwest Debris Pile - NE			
Analyst Description: Multi-Colored/Black, Heterogeneous, Fibrous, Roofing Shingle **Asbestos Types:** **Other Material:** Cellulose 35 %, Non-fibrous 65 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

8411414.65; Fortuna Bridge Demo

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
8411414-33	916061693-33L2	***No***	NAD
Location: Composite Roofing Material (Black / Grn Brn) / Northwest Debris Pile - NE			(by CVES) by Paola Ducoing on 06/28/16
Analyst Description: Green/Black, Heterogeneous, Fibrous, Roofing			
Asbestos Types:			
Other Material: Fibrous glass 15 %, Non-fibrous 85 %			
8411414-34	916061693-34L1	***No***	NAD
Location: Composite Roofing Material (Black / Grn Brn) / Northwest Debris Pile - Ctr. S.			(by CVES) by Paola Ducoing on 06/28/16
Analyst Description: Green/Black, Heterogeneous, Fibrous, Roofing Shingle			
Asbestos Types:			
Other Material: Fibrous glass 20 %, Non-fibrous 80 %			
8411414-34	916061693-34L2	***No***	NAD
Location: Composite Roofing Material (Black / Grn Brn) / Northwest Debris Pile - Ctr. S.			(by CVES) by Paola Ducoing on 06/28/16
Analyst Description: Black, Heterogeneous, Fibrous, Roofing Shingle			
Asbestos Types:			
Other Material: Cellulose 45 %, Non-fibrous 55 %			
8411414-34	916061693-34L3	***No***	NAD
Location: Composite Roofing Material (Black / Grn Brn) / Northwest Debris Pile - Ctr. S.			(by CVES) by Paola Ducoing on 06/28/16
Analyst Description: Multi-Colored/Black, Heterogeneous, Fibrous, Roofing Shingle			
Asbestos Types:			
Other Material: Cellulose 35 %, Non-fibrous 65 %			
8411414-34	916061693-34L4	***No***	NAD
Location: Composite Roofing Material (Black / Grn Brn) / Northwest Debris Pile - Ctr. S.			(by CVES) by Paola Ducoing on 06/28/16
Analyst Description: Grey/Black, Heterogeneous, Fibrous, Roofing Shingle			
Asbestos Types:			
Other Material: Cellulose 35 %, Non-fibrous 65 %			
8411414-35	916061693-35L1	***No***	NAD
Location: Fibrous Panel (Brown) & Mastic (Black) / Center - East Debris Pile - Ctr. S.			(by CVES) by Paola Ducoing on 06/28/16
Analyst Description: White/Brown, Heterogeneous, Fibrous, Fibrous Panel			
Asbestos Types:			
Other Material: Cellulose 90 %, Non-fibrous 10 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

8411414.65; Fortuna Bridge Demo

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
8411414-35	916061693-35L2	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Fibrous Panel (Brown) & Mastic (Black) / Center - East Debris Pile - Ctr. S.			
Analyst Description: Black, Homogeneous, Non-Fibrous, Mastic **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-36	916061693-36L1	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Fibrous Panel (Brown) & Mastic (Black) / Center - East Debris Pile - S. Ctr.			
Analyst Description: White/Brown, Heterogeneous, Fibrous, Fibrous Panel **Asbestos Types:** **Other Material:** Cellulose 90 %, Non-fibrous 10 %			
8411414-36	916061693-36L2	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Fibrous Panel (Brown) & Mastic (Black) / Center - East Debris Pile - S. Ctr.			
Analyst Description: Black, Homogeneous, Non-Fibrous, Mastic **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-37	916061693-37L1	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Rolled Roofing (Black) / Northwest Shed - Roof @ W. Eave			
Analyst Description: Black, Heterogeneous, Fibrous, Roofing Shingle **Asbestos Types:** **Other Material:** Cellulose 35 %, Non-fibrous 65 %			
8411414-37	916061693-37L2	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Rolled Roofing (Black) / Northwest Shed - Roof @ W. Eave			
Analyst Description: Black, Heterogeneous, Fibrous, Roofing Paper **Asbestos Types:** **Other Material:** Cellulose 65 %, Non-fibrous 35 %			
8411414-38	916061693-38L1	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Rolled Roofing (Black) / Northwest Shed - Roof @ NE Corner			
Analyst Description: Black, Heterogeneous, Fibrous, Roofing Shingle **Asbestos Types:** **Other Material:** Cellulose 35 %, Non-fibrous 65 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

8411414.65; Fortuna Bridge Demo

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
8411414-38	916061693-38L2	***Yes***	15 % (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Rolled Roofing (Black) / Northwest Shed - Roof @ NE Corner			
Analyst Description: Black, Heterogeneous, Fibrous, Roofing Felt **Asbestos Types:** Chrysotile 15.0 % **Other Material:** Cellulose 10 %, Non-fibrous 75 %			
8411414-39	916061693-39L1	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Rolled Roofing (Black) / Northwest Shed - Roof @ S. Ctr.			
Analyst Description: Black, Heterogeneous, Fibrous, Roofing Shingle **Asbestos Types:** **Other Material:** Cellulose 35 %, Non-fibrous 65 %			
8411414-39	916061693-39L2	***Yes***	4 % (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Rolled Roofing (Black) / Northwest Shed - Roof @ S. Ctr.			
Analyst Description: Black, Homogeneous, Non-Fibrous, Mastic **Asbestos Types:** Chrysotile 4.0 % **Other Material:** Non-fibrous 96 %			
8411414-39	916061693-39L3	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Rolled Roofing (Black) / Northwest Shed - Roof @ S. Ctr.			
Analyst Description: Black, Heterogeneous, Fibrous, Roofing Shingle **Asbestos Types:** **Other Material:** Cellulose 35 %, Non-fibrous 65 %			
8411414-39	916061693-39L4	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Composite Rolled Roofing (Black) / Northwest Shed - Roof @ S. Ctr.			
Analyst Description: Black, Heterogeneous, Fibrous, Roofing Felt **Asbestos Types:** **Other Material:** Cellulose 65 %, Non-fibrous 35 %			
8411414-40	916061693-40	***Yes***	15 % (by CVES) by Paola Ducoing on 06/28/16
Location: Tar Roofing Felt (Black/Grey) / North-West Shed - Roof @ NE Corner			
Analyst Description: Black, Heterogeneous, Fibrous, Roofing Felt **Asbestos Types:** Chrysotile 15.0 % **Other Material:** Cellulose 10 %, Non-fibrous 75 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

8411414.65; Fortuna Bridge Demo

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
8411414-41	916061693-41	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Stone Mortar (Grey) / Beech Residence - Stone Counter			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Mortar **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-42	916061693-42	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Stone Mortar (Grey) / Beech Residence - Stone Wall			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Mortar **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-43	916061693-43	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) (Driveway) / Beech Residence - NW Driveway			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-44	916061693-44	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) (Driveway) / Beech Residence - S. Driveway			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-45	916061693-45.1	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete & Coating (Tan) (Pad) / Beech Residence - Driveway Pad @ Ctr.			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
8411414-45	916061693-45.2	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete & Coating (Tan) (Pad) / Beech Residence - Driveway Pad @ Ctr.			
Analyst Description: Tan, Heterogeneous, Non-Fibrous, Cementitious, Coating **Asbestos Types:** **Other Material:** Non-fibrous 100 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

8411414.65; Fortuna Bridge Demo

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
8411414-46	916061693-46	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) (Slab) / Beech Residence - Garage Add. Slab			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete			
Asbestos Types:			
Other Material: Non-fibrous 100 %			
8411414-47	916061693-47	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Concrete (Grey) (Slab) / Beech Residence - Green House Slab			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Concrete			
Asbestos Types:			
Other Material: Non-fibrous 100 %			
8411414-48	916061693-48.1	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Brick (Red) & Mortar (Grey) / Beech Residence - S. Walkway			
Analyst Description: Red, Homogeneous, Non-Fibrous, Brick			
Asbestos Types:			
Other Material: Non-fibrous 100 %			
8411414-48	916061693-48.2	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Brick (Red) & Mortar (Grey) / Beech Residence - S. Walkway			
Analyst Description: Grey, Heterogeneous, Non-Fibrous, Cementitious, Mortar			
Asbestos Types:			
Other Material: Non-fibrous 100 %			
8411414-49	916061693-49	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Window Putty (Off-White) / Beech Residence - Garage Addition SW Window			
Analyst Description: Off-White, Homogeneous, Non-Fibrous, Window Putty			
Asbestos Types:			
Other Material: Non-fibrous 100 %			
8411414-50	916061693-50	***No***	NAD (by CVES) by Paola Ducoing on 06/28/16
Location: Window Putty (Off-White) / Beech Residence - Garage Addition SW Window - Ctr. E. Window			
Analyst Description: Off-White, Homogeneous, Non-Fibrous, Window Putty			
Asbestos Types:			
Other Material: Non-fibrous 100 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

8411414.65; Fortuna Bridge Demo

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
8411414-51	916061693-51.1	*No*	NAD
Location: Exterior Paint (Cream) / Beech Residence - Garage Addition - SW Window - Exterior Horz. Siding			(by CVES) by Paola Ducoing on 06/28/16
Analyst Description: Beige/Yellow, Homogeneous, Non-Fibrous, Paint			
Asbestos Types:			
Other Material: Non-fibrous 100 %			
8411414-51	916061693-51.2	*Yes*	Trace (<1 %)
Location: Exterior Paint (Cream) / Beech Residence - Garage Addition - SW Window - Exterior Horz. Siding			(by CVES) by Paola Ducoing on 06/28/16
Analyst Description: Beige, Homogeneous, Non-Fibrous, Skim Coat			
Asbestos Types: Chrysotile <1. %			
Other Material: Non-fibrous 100 %			

Reporting Notes:

Analyzed By: Paola Ducoing ; Date Analyzed: 6/28/2016 6/28/16

*NAD = no asbestos detected; Detection Limit <1%; Reporting Limits: CVES = 1%, 400 Pt Ct = 0.25%, 1000 Pt Ct = 0.1%; NA = not analyzed; NA/PS = not analyzed / positive stop; NVA = No Visible Asbestos; PLM (polarized light microscopy) Bulk Asbestos Analysis by EPA 600/R-93/116, including requirements for EPA 600/M4-82-020 per 40 CFR 763 (NVLAP Lab #200346-0, CA ELAP lab #2322); Note: PLM is not consistently reliable in detecting asbestos in floor coverings and similar NOB materials. TEM is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos-containing in New York State (also see EPA Advisory for floor tile, FR 59, 146, 38970, 8/1/94). NIST Accreditation requirements mandate that this report must not be reproduced except in full with the approval of the laboratory. This PLM report relates ONLY to the items tested.

Reviewed By:

718 Third Street
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Fax: 707.444.8330
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91606 1693

CONTACT NAMES: **Scott Harris, Misha Schwarz**	DATE: 06/16/2016 - 06/17/16
CONTACT EMAIL: scott.harris@ghd.com, misha.schwarz@ghd.com	
JOB NUMBER: 8411414.65	SITE: FORTUNA BRIDGE DEMO
ANALYSIS METHOD: **PLM** (Please provide a result for all layers of material present) (AAS WHERE NOTED)	TURNAROUND TIME: Standard

BULK SAMPLE COLLECTION CHAIN OF CUSTODY

SAMPLE NUMBER	SAMPLE DESCRIPTION	LOCATION	MATERIAL TYPE	FRIABLE
8411414- 1	CONCRETE (GREY)	600 STILLMAN BRIDGE - ~~EAST~~ NORTH RAMP	MM	NF
2		- ~~WEST~~ SOUTH RAMP		
3*	PAINT (GRN/GREY)	- UNDERSIDE ON STEEL		F
4	CONCRETE (GREY)	1697 BEECH BRIDGE - ~~WEST~~ SOUTHEAST FOUNDATION	MM	NF
5		- NW RAMP		
6		- NW BANK STABILIZER		
7		- SE FOUNDATION		
8		- WEST DRIVEWAY PAD		
9	ASPHALT (BLACK)	- SE RAMP		
10	PAINT (BLACK/GREY)	- UNDERSIDE (H-BEAM) @ CTR	MM	F
11	CONCRETE (GREY)	FORTUNA BLVD. ~~BLVD~~ NORTH - DRIVEWAY CTR-N.		NF
12		- DRIVEWAY E. N.		
13		- WEST DRIVEWAY PAD		
14		- E. FOUNDATION		
15		- E. BANK STABILIZER		

NOTES: Material Type: Thermal System Insulation = TSI, Surfacing Material = SM, Miscellaneous Material = MM; Friability: Friable = F, Non-Friable = NF (may become F, if damaged)

Relinquished By: [signature] **Date/Time:** 6/21/16 TO FEDEX	**Received By:** [signature] **Date/Time:** 6/22/16 09.50
Relinquished By: **Date/Time:**	**Received By:** **Date/Time:**

* ANALYZE FOR ASBESTOS + LEAD (AAS)

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Eureka, California 95501
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916061693

CONTACT NAMES: **Scott Harris, Misha Schwarz**	DATE: 06/16/2012 - 06/17/2016
CONTACT EMAIL: scott.harris@ghd.com, misha.schwarz@ghd.com	
JOB NUMBER:	SITE:
ANALYSIS METHOD: **PLM** (Please provide a result for all layers of material present)	TURNAROUND TIME: Standard

BULK SAMPLE COLLECTION CHAIN OF CUSTODY

SAMPLE NUMBER	SAMPLE DESCRIPTION	LOCATION	MATERIAL TYPE	FRIABLE
8411414 - 16	CONCRETE (GREY)	FORTUNA BLVD NORTH - SW CURB	MM	NF
17		- W. FOUNDATION		
18		- W. BANK STABILIZER	MM	
19		- E. APPROACH RAMP		
20	CONCRETE (GREY) + EXP. JOINT (WHT)	- W. APPROACH / DRIVEWAY		
21	BRICK (RED/ORNGE) + MORTAR (GREY)	- NE COLUMN		
22	CONCRETE (GREY)	FORTUNA BLVD. SOUTH - E. RAMP	MM	NF
23	COMP. SHINGLE TRACTION STRIP (BLACK)	FORTUNA BLVD SOUTH - BRIDGE BEAM @ CTR		
24	COMPOSITE SHINGLE ROOFING (BLACK)	SOUTHEAST DEBRIS PILE - S. CTR		
25	+ MASTIC (BLACK)	- CTR		
26	(DEBRIS)	- SE CORNER		
27	ROOFING MASTIC (BLACK)	- CTR ON METAL FLASHING		
28	CONCRETE (GREY) STEM WALL	- SE STEM WALL	MM	
29	WALL PAPER (LT GRN/TAN)	- SE ON FIBERBOARD	F	
30	WOVEN FIBROUS SHEETING (LT. GREY)	CENTER-EAST DEBRIS PILE - CTR NE	MM	F

NOTES: Material Type: Thermal System Insulation = TSI, Surfacing Material = SM, Miscellaneous Material = MM; Friability: Friable = F, Non-Friable = NF (may become F, if damaged)

Relinquished By: [signature] **Date/Time:** 6/21/16 TO FEDEX	**Received By:** DSOUZA **Date/Time:** 6/22/16 09.50
Relinquished By: **Date/Time:**	**Received By:** **Date/Time:**

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91606193

CONTACT NAMES: **Scott Harris, Misha Schwarz**

DATE: 6/16/16 - 6/17/16

CONTACT EMAIL: scott.harris@ghd.com, misha.schwarz@ghd.com

JOB NUMBER: 8411414.65

SITE: FORTUNA BRIDGE DEMO

ANALYSIS METHOD: **PLM** (Please provide a result for all layers of material present)

TURNAROUND TIME: Standard

BULK SAMPLE COLLECTION CHAIN OF CUSTODY

SAMPLE NUMBER	SAMPLE DESCRIPTION	LOCATION	MATERIAL TYPE	FRIABLE
8411414 - 31	CMU BLOCK (GREY)	CENTER-EAST DEBRIS PILE - SE	MM	NF
32	COMPOSITE ~~SHING~~ ROOFING MATERIAL (BLACK/GRN BRN)	NORTHWEST DEBRIS PILE - NW		
33		- NE		
34		- CTR. S		
35	FIBROUS PANEL (BROWN) + MASTIC (BLACK)	CENTER-EAST DEBRIS PILE - CTR. S		
36		- S. CTR		
37	COMPOSITE ROLLED ROOFING (BLACK)	NORTHWEST SHED - ROOF @ W. EAVE		
38		- ROOF @ NE CORNER		
39		- ROOF @ S. CTR		
40	TAR ROOFING FELT (BLACK/GREY)	- ROOF @ NE CORNER		
41	STONE MORTAR (GREY)	BEECH RESIDENCE - STONE COUNTER	MM	NF
42		- STONE WALL		
43	CONCRETE (GREY) (DRIVEWAY)	- NW DRIVEWAY		
44	(DRIVEWAY)	- S. DRIVEWAY		
45	+ COATING (TAN) (PAD)	- DRIVEWAY PAD @ CTR		

NOTES: Material Type: Thermal System Insulation = TSI, Surfacing Material = SM, Miscellaneous Material = MM; Friability: Friable = F, Non-Friable = NF (may become F, if damaged)

Relinquished By: **Date/Time:** 6/21/16 TO FEDEX	**Received By:** **Date/Time:** PSONEY 6/22/16 @ 9.50
Relinquished By: **Date/Time:**	**Received By:** **Date/Time:**

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9160611693

CONTACT NAMES: **Scott Harris, Misha Schwarz**

DATE: 6/16/16 - 6/17/16

CONTACT EMAIL: **scott.harris@ghd.com, misha.schwarz@ghd.com**

JOB NUMBER: 8411414.65

SITE: FORTUNA BRIDGE DEMO

ANALYSIS METHOD: **PLM** (Please provide a result for all layers of material present)

TURNAROUND TIME: Standard

BULK SAMPLE COLLECTION CHAIN OF CUSTODY

SAMPLE NUMBER	SAMPLE DESCRIPTION	LOCATION	MATERIAL TYPE	FRIABLE
B411414-46	CONCRETE (GREY) (SLAB)	BEECH RESIDENCE - GARAGE ADD. SLAB	MM	NF
47		- GREENHOUSE SLAB		
48	BRICK (RED) + MORTAR (GREY)	- S. WALKWAY		
49	WINDOW PUTTY (OFF-WHITE)	- GARAGE ADDITION SW WINDOW		
50		- CTR. E WINDOW		
51	EXTERIOR PAINT (CREAM)	- EXTERIOR HORZ. SIDING		
		N/A		

NOTES: Material Type: Thermal System Insulation = TSI, Surfacing Material = SM, Miscellaneous Material = MM; Friability: Friable = F, Non-Friable = NF (may become F, if damaged)

Relinquished By: **Date/Time:** 6/21/16 TO FEDEX	**Received By:** **Date/Time:** JBones 6/22/16 09.50
Relinquished By: **Date/Time:**	**Received By:** **Date/Time:**

Appendix D – Lead Analytical Data

Rohner Creek Flood Control, Seismic and Habitat Improvements Project Bridge and Miscellaneous Structures Limited Hazardous Material Assessment Survey Report Lead (AAS) Laboratory Analytical Data and Associated GHD Chains of Custody Documentation

AmeriSci Los Angeles
24416 S. Main Street, Ste 308
Carson, California 90745
TEL: (310) 834-4868 • FAX: (310) 834-4772

AmeriSci Job #: 416061375

Date Received: 06/22/16
Date Analyzed: 06/25/16

Lead Analysis Results

Paint

EPA Method 3050B/7000B

GHD

Eureka, CA

Job Site: 8411414.65; Fortuna Bridge Demo

AmeriSci # 416061375	Client Number	Sample Location	% Lead (w/w)	Lead Content (mg/kg = ppm)
01	8411414-Pb-1	600 Stillman Bridge - Struct NE Steel Beam @ Under Side / Paint / Metal / Grey	3.2	32,000
02	8411414-Pb-2	Main St. North - Bridge Plate (Under Side) / Paint / Metal / Grey / Green	<0.01	<100
03	8411414-Pb-3	Main St. North - I Beam (Under Side) / Paint / Metal / Brown / Orange	11	110,000
04	8411414-Pb-4	Main St. South - Piling @ NW / Paint / Wood / Cream	7.3	73,000
05	8411414-Pb-5	SE Debris - SW Corner / Paint / Metal / Yellow / Silver	0.092	920
06	8411414-Pb-6	Ctr. East Debris - NW Corner / Paint / Wood / Tan / Black	5.5	55,000
07	8411414-Pb-7	Garage Addition - Horz. Siding @ SW / Paint / Wood / Off-White	7.0	70,000
08	8411414-Pb-8	Greenhouse - Vert Siding @ SW / Paint / Wood / White	0.56	5,600
09	8411414-Pb-9	Greenhouse - Window Frame @ SW / Paint / Wood / Blue	0.60	6,000

AmeriSci Reporting Limit is 0.01%, or 100mg/kg prior to any dilutions due to high analyte concentrations or matrix interferences. AmeriSci does not correct sample results by the blank value. All analytical batch data met quality control criteria unless otherwise noted. CA ELAP No. 2322.

Reviewed by: _____

Analyzed by: _____
Minh Phung, Chemist [thu]

ELAP No: CA 2322

AmeriSci Los Angeles
24416 S. Main Street, Ste 308
Carson, California 90745
TEL: (310) 834-4868 • FAX: (310) 834-4772

AmeriSci Job #: 416061377

Date Received: 06/22/16
Date Analyzed: 06/25/16

Lead Analysis Results

Paint

EPA Method 3050B/7000B

GHD

Eureka, CA

Job Site: 8411414.65; Fortuna Bridge Demo

AmeriSci # 416061377	Client Number	Sample Location	% Lead (w/w)	Lead Content (mg/kg = ppm)
01	8411414-1	Paint (Grn/Grey) / 600 Stillman Bridge - Under Side On Steel	1.3	13,000

AmeriSci Reporting Limit is 0.01%, or 100mg/kg prior to any dilutions due to high analyte concentrations or matrix interferences. AmeriSci does not correct sample results by the blank value. All analytical batch data met quality control criteria unless otherwise noted. CA ELAP No. 2322.

Reviewed by: _____

Analyzed by: _____

Minh Phung, Chemist [thu]

ELAP No: CA 2322

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Fax: 707.444.8330
www.ghd.com

A1606375

CONTACT NAME: **Scott Harris**	DATE: 06/16/2016
CONTACT EMAIL: **scott.harris@ghd.com**	
JOB NUMBER: 8411414.65	SITE: FORTUNA BRIDGE DEMO
ANALYSIS METHOD(S): AAS	TURNAROUND TIME: Standard

SURFACE COATING SAMPLE CHAIN OF CUSTODY

SAMPLE NUMBER	SAMPLE LOCATION (Room Equivalent, Building Component)	MATERIAL	SUBSTRATE	COLOR	PEELING PAINT (%)
8411414-Pb-1	600 STILLMAN BRIDGE - STRUCT. NE STEEL BEAM @ UNDERSIDE	Paint	METAL	GREY/DK. RED	90
2	MAIN ST. NORTH - BRIDGE PLATE (UNDERSIDE)			GREY/GREEN	
3	- I BEAM (UNDERSIDE)			BROWN/ORANGE	
4	MAIN ST. SOUTH - PILING @ NW		WOOD	CREAM	
5	SE DEBRIS - SW CORNER		METAL	YELLOW/SILVER	
6	CTR. EAST DEBRIS - NW CORNER		WOOD	TAN/BLACK	
7	GARAGE ADDITION - HORZ. SIDING @ SW		WOOD	OFF-WHITE	
8	GREENHOUSE - VERT. SIDING @ SW		WOOD	WHITE	
9	- WINDOW FRAME @ SW		WOOD	BLUE	
~~10~~					
		N/A			

NOTES: Substrates: Brick, Concrete, Drywall, Metal, Plaster, Wood Sample Location (Wall ID): Wall at street address side is "A", others = B, C & D (labeled clockwise when facing front of structure

Relinquished By: **Date/Time:** 6/21/16 TO FEDEX	**Received By:** PBOWES **Date/Time:** 6/22/16 9.50
Relinquished By: **Date/Time:**	**Received By:** **Date/Time:**

718 Third Street
Eureka, California 95501
Tel: 707.443.8326
Fax: 707.444.8330
www.ghd.com

~~41606693~~

CONTACT NAMES: **Scott Harris, Misha Schwarz**

DATE: 06/16/2016 - 06/17/16

CONTACT EMAIL: scott.harris@ghd.com, misha.schwarz@ghd.com

JOB NUMBER: 84/14/4.65

SITE: FORTUNA BRIDGE DEMO

ANALYSIS METHOD: **PLM** (Please provide a result for all layers of material present) (AAS WHERE NOTED)

TURNAROUND TIME: Standard

BULK SAMPLE COLLECTION CHAIN OF CUSTODY 41606377

SAMPLE NUMBER	SAMPLE DESCRIPTION	LOCATION	MATERIAL TYPE	FRIABLE
84/14/4- 1	CONCRETE (GREY)	600 STILLMAN BRIDGE - ~~EAST~~ NORTH RAMP	MM	NF
2		- ~~WEST~~ SOUTH RAMP		
3 *	PAINT (GRN/GREY)	- UNDERSIDE ON STEEL		F
4	CONCRETE (GREY)	1697 BEECH BRIDGE - ~~WEST~~ SOUTHEAST FOUNDATION	MM	NF
5		- NW RAMP		
6		- NW BANK STABILIZER		
7		- SE FOUNDATION		
8		- WEST DRIVEWAY PAD		
9	ASPHALT (BLACK)	- SE RAMP		
10	PAINT (BLACK/GREY)	- UNDERSIDE (H-BEAM) @ CTR	MM	F
11	CONCRETE (GREY)	FORTUNA BLVD. ~~BRIDGE~~ NORTH - DRIVEWAY CTR-N.		NF
12		- DRIVEWAY E.N.		
13		- WEST DRIVEWAY PAD		
14		- E. FOUNDATION		
15		- E. BANK STABILIZER		

NOTES: Material Type: Thermal System Insulation = TSI, Surfacing Material = SM, Miscellaneous Material = MM; Friability: Friable = F, Non-Friable = NF (may become F, if damaged)

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Relinquished By: **Date/Time:**	**Received By:** **Date/Time:**

* ANALYZE FOR ASBESTOS & LEAD (AAS)

Appendix E – Certifications for Key Personnel

Copies of Professional Certifications for Key Project Personnel Pertinent to the Rohner Creek Flood Control, Seismic and Habitat Improvements Project Bridge and Miscellaneous Structures Limited Hazardous Material Assessment Survey Report

STATE OF CALIFORNIA
Edmund G. Brown, Jr. *Governor*

DEPARTMENT OF INDUSTRIAL RELATIONS
Division of Occupational Safety and Health
Asbestos Unit
2424 Arden Way, Suite 495
Sacramento, CA 95825-2417
(916) 574-2993 Office (916) 483-0572 Fax
http://www.dir.ca.gov/dirdatabases.html actu@dir.ca.gov

102084713C **347**

February 01, 2016

GHD
Scott S Harris
718 Third Street
Eureka **' CA 95501**

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

Please hold and do not send copies of your required AHERA refresher renewal certificates to our office until you apply for renewal of your certification.

Certificates must be kept current if you are actively working as a CAC or CSST. The grace period is only for those who are not actively working as an asbestos consultant or site surveillance technician.

Please contact our office at the above address, fax number or email; of any changes in your contact/mailing information within 15 days of the change.

Sincerely,

Jeff Ferrell
Senior Safety Engineer

Attachment: Certification Card

cc: File

Renewal – Card Attached (Revised 10/24/2012)


State of California Department of Public Health
Lead-Related Construction Certificate
Certificate Type
Expiration Date
Inspector/Assessor 11/26/2016
Project Monitor 11/26/2016
Scott S. Harris
ID #: 21408

STATE OF CALIFORNIA
Edmund G. Brown, Jr. *Governor*

DEPARTMENT OF INDUSTRIAL RELATIONS
Division of Occupational Safety and Health
Asbestos Unit
2424 Arden Way, Suite 495
Sacramento, CA 95825-2417
(916) 574-2993 Office (916) 483-0572 Fax
http://www.dir.ca.gov/dirdatabases.html actu@dir.ca.gov

704072151C **139**

April 07, 2016

GHD, Inc.
Misha B Schwarz
718 3rd Street
Eureka **' CA 95501**

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Please contact our office at the above address, fax number or email; of any changes in your contact/mailing information within 15 days of the change.

Sincerely,

Jeff Ferrell
Senior Safety Engineer

Attachment: Certification Card

cc: File

Renewal – Card Attached (Revised 10/24/2012)


State of California Department of Public Health
Lead-Related Construction Certificate
Certificate Type
Expiration Date
Inspector/Assessor 05/28/2017
Project Monitor 05/28/2017
Misha B. Schwarz
ID #: 7504

GHD

718 Third Street

T: 1 707 443 8326 F: 1 707 444 8330 E: eureka@ghd.com

G:\Legacy\Projects\01054 City of Fortuna\8411414 RohnerCreekFlood PH2\04-Technical Work\60 Construction Administration\65 Pre Bid and Bid Period Assistance\Hazmat\GHD SURVEY REPORT - ROHNER CREEK BRIDGES - 07062016.docx

Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
Rev 0	Scott Harris	Misha Schwarz		Scott Harris		7/6/2016

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