Stratford Army Engine Plant
Restoration Advisory Board (RAB)
Meeting May 10, 2000

The Stratford Army Engine Plant (SAEP) which is proceeding with closure action under provisions of the Base Realignment and Closure Act (BRAC) of 1995 will hold a Restoration Advisory Board (RAB) on May 10, 2000 at 7p.m. in Room 22, Stratford Army Engine Plant. The meeting is open to the public. Parking is in the West Lot and entry through the main guard station.

Stratford Army Engine Plant
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AGENDA

1. Welcome, opening remarks, introductions, announcements, old business.

2. General discussion of Remedial Investigation Report.

3. Open forum, next meeting, adjourn.

For additional information call the SAEP BRAC office (John Burleson) at 385-4316 or Jim Otto, RAB Community Co-Chairperson at Redacted - Privacy Act'.

RAB MEETING – MAY 10, 2000
SIGN-IN SHEET

Redacted - Privacy Act

T. Morrison (URS)

M. McGill (URS)

Redacted - Privacy Act

J. Otto

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J. Burleson

D. Gallo

Redacted - Privacy Act

STRATFORD ARMY ENGINE PLANT
RESTORATION ADVISORY BOARD (RAB)

MEETING MINUTES

May 10, 2000

The SAEP Restoration Advisory Board conducted a Regular Meeting on Thursday, May 10, 2000 at 7:00 p.m. in Room 22 of the Stratford Army Engine Plant, 550 Main St., Stratford CT, pursuant to notice duly given.

Call to Order: The meeting was called to order at 7:10 p.m.
Presiding: John Burleson and Jim Otto, Community Chairmen
In Attendance:
Redacted - Privacy Act Redacted - Privacy Act
T. Morrison, M. McGill, Redacted - Privacy Act
Redacted - Privacy Act

1. Welcome, Opening Remarks, Introductions, Announcements, Old Business: J. Burleson welcomed Todd Morrison of URSG-Woodward Clyde.

2. Remedial Investigation Report: T. Morrison and M. McGill presented update of Remedial Investigation, which included the following areas of discussion:

°Geology
°Groundwater Flow
°Groundwater Contaminants
°Remedial Investigation Report (draft completed, current ongoing review by Army and ACE)

M. McGill reported that information is due from Sikorsky Aircraft regarding groundwater quality in west parking lot (to be included in RI report).

Also reported on arsenic contamination in ground water outside of production area. Chromium plume located under Building 2 (35').

Redacted - Privacy Act reported that May 26th report will include analysis and review of Alternative 4 for causeway remediation. Further discussion regarding source of west parking lot contamination; monitoring of VOCs contamination; development of causeway for recreational/park area; comparison of erosion control alternatives as they relate to cost incurred by town for future maintenance.

3. Ecological Risk Assessment:
°Currently under review by Army
°Revisiting a number of items
°Final draft due 7/27/00 (including comments)
°Some data was not included directly relating to human health risk assessment (per J. Burleson)
°Simultaneous review by EPA and DEP
°Public comments can be submitted anytime
°Indoor air quality issue will be further evaluated and included in subsequent assessment

4. Distribution of the following documents:
°SAEP Remedial Investigation Fact Sheet
°SAEP Environmental Newsletter
°SAEP Schedule of Upcoming Public Presentations

5. Next Meeting: Thursday, June 1, 2000.

6. Adjournment: There being no further business, the meeting adjourned at 8:30 p.m.

Respectfully submitted,

Debbie Gallo

Debbie Gallo
Recording Secretary

STRATFORD ARMY ENGINE PLANT

Schedule of Upcoming Public Presentations

Thur, June 1, 2000 - OU2 Groundwater EE/CA [Draft]

Thur, July 27, 2000 - Remedial Investigation Report [Final Draft]

Remedial Investigation Report will be available after June 16, 2000 for review and comments.

Update of Remedial Investigation Stratford Army Engine Plant Stratford, Connecticut

Presented to

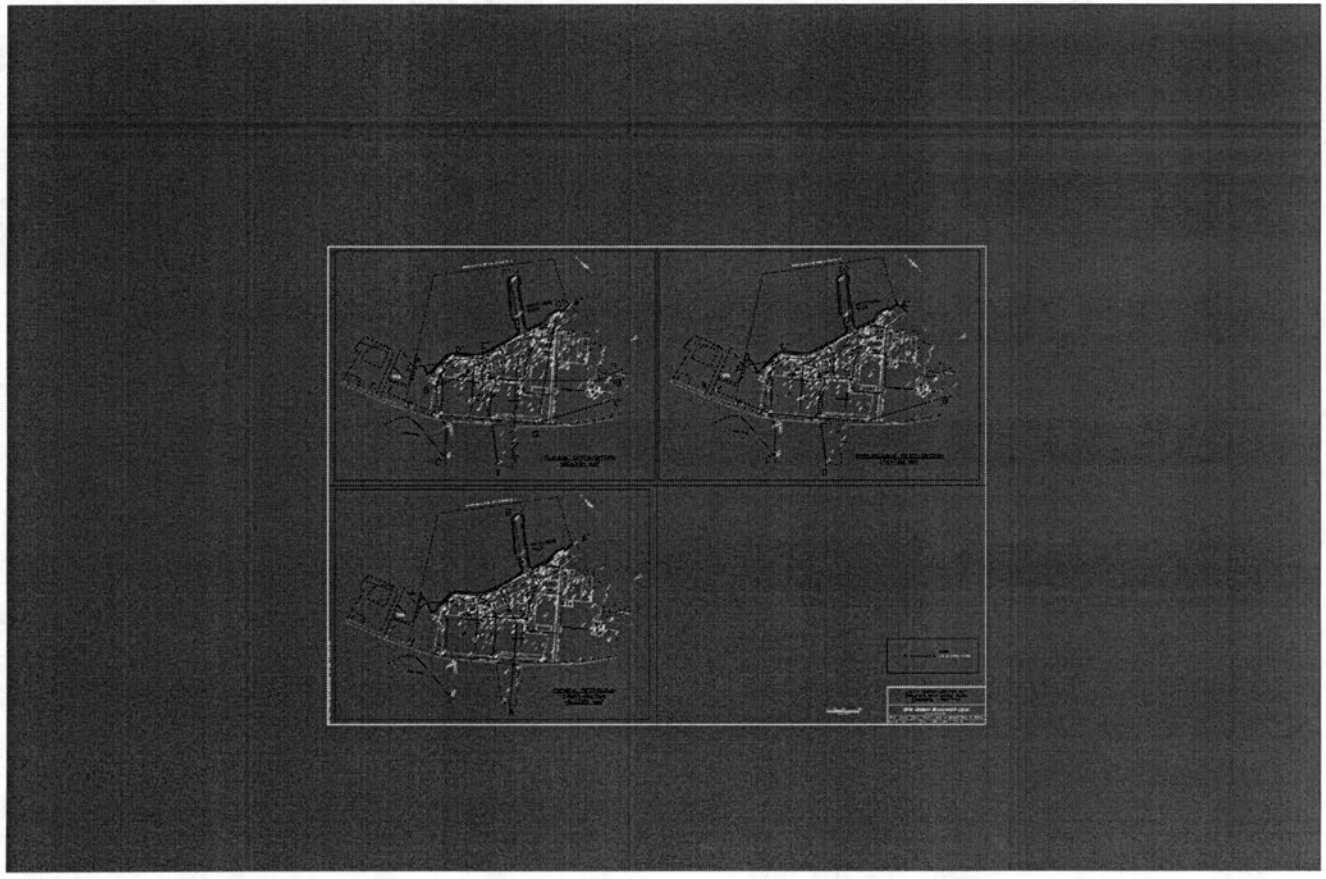
Base Realignment Closure Team

May 10, 2000

Discussion Items

I. Geology
II. Groundwater Flow
III. Groundwater Contaminants
IV. Remedial Investigation Report

Site Plan

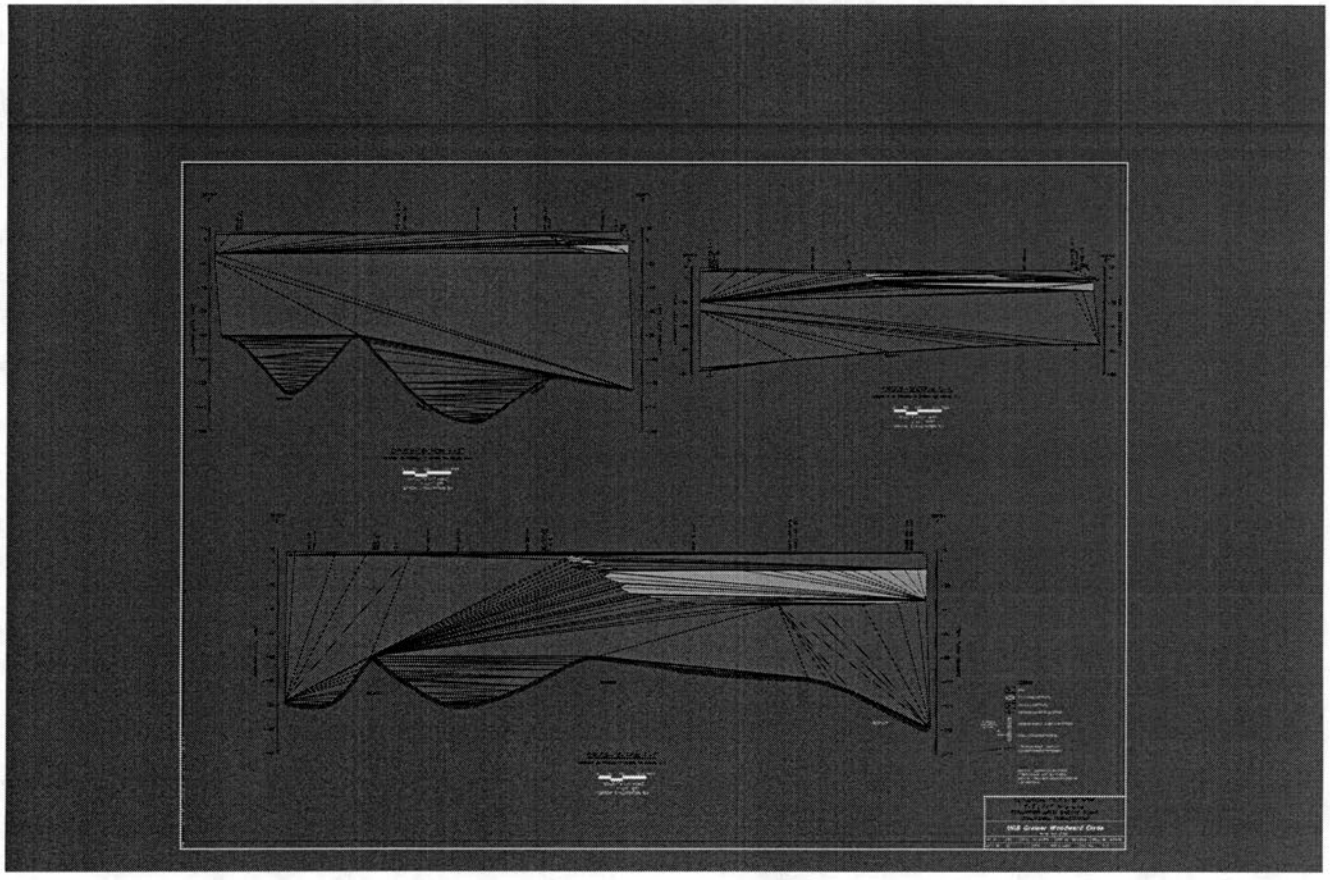


URS Greiner Woodward Clyde

Site Stratigraphy

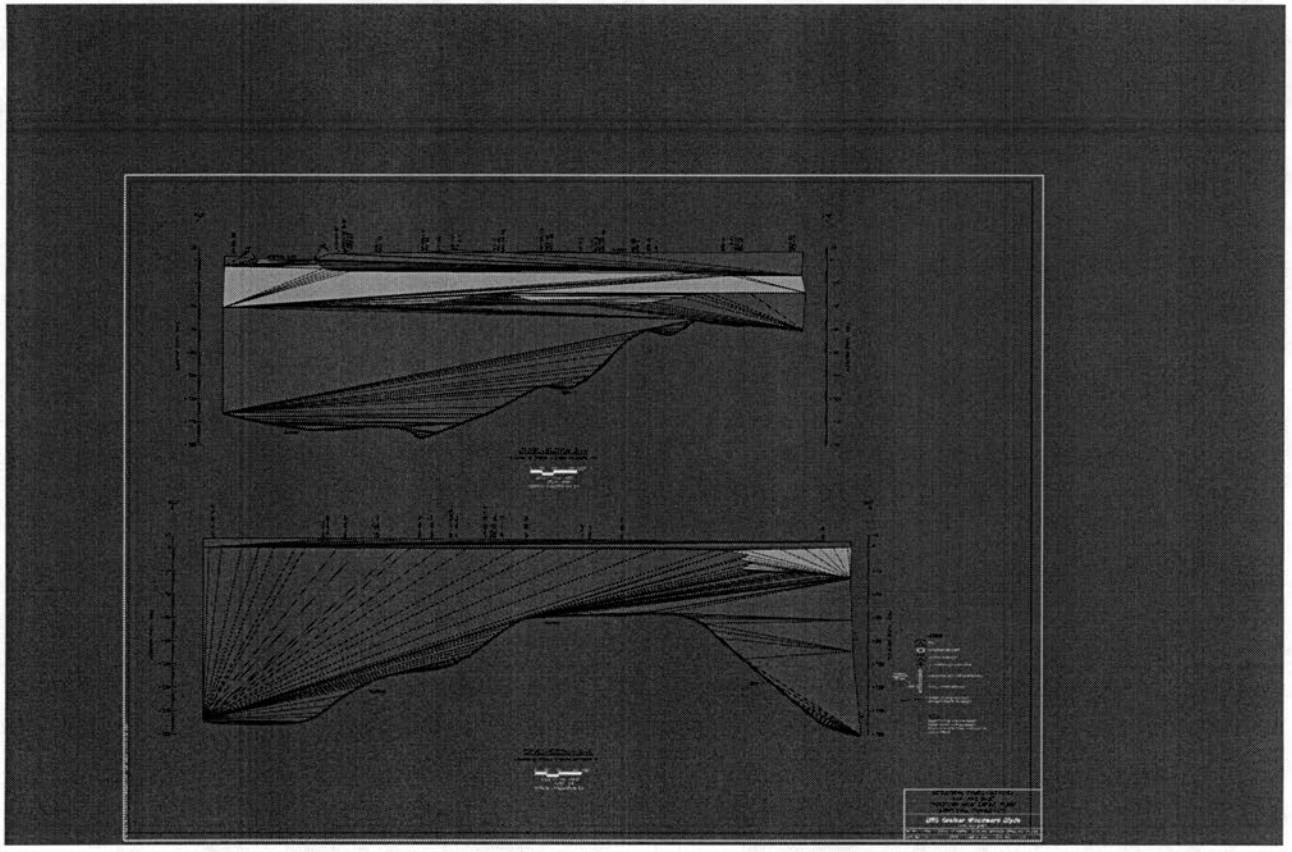
- Fill
- Estuarine Silt
- Peat
- Glacial Deposits
- Bedrock

Geologic Cross Sections



URS Greiner Woodward Clyde

Geologic Cross Sections



URS Greiner Woodward Clyde

Shallow Groundwater Flow

- General flow is from west to east and southeast
- West side flow is to northwest
- Horizontal gradient varies across site from 0.0001 ft/ft to 0.002 ft/ft
- Silt layer influences groundwater flow

Shallow Groundwater Elevation Contours

URS Greiner Woodward Clyde

Deep Groundwater Flow

- General flow is from west to east
- Low gradient in areas of deeper bedrock
- Steeper gradients in areas of shallow bedrock

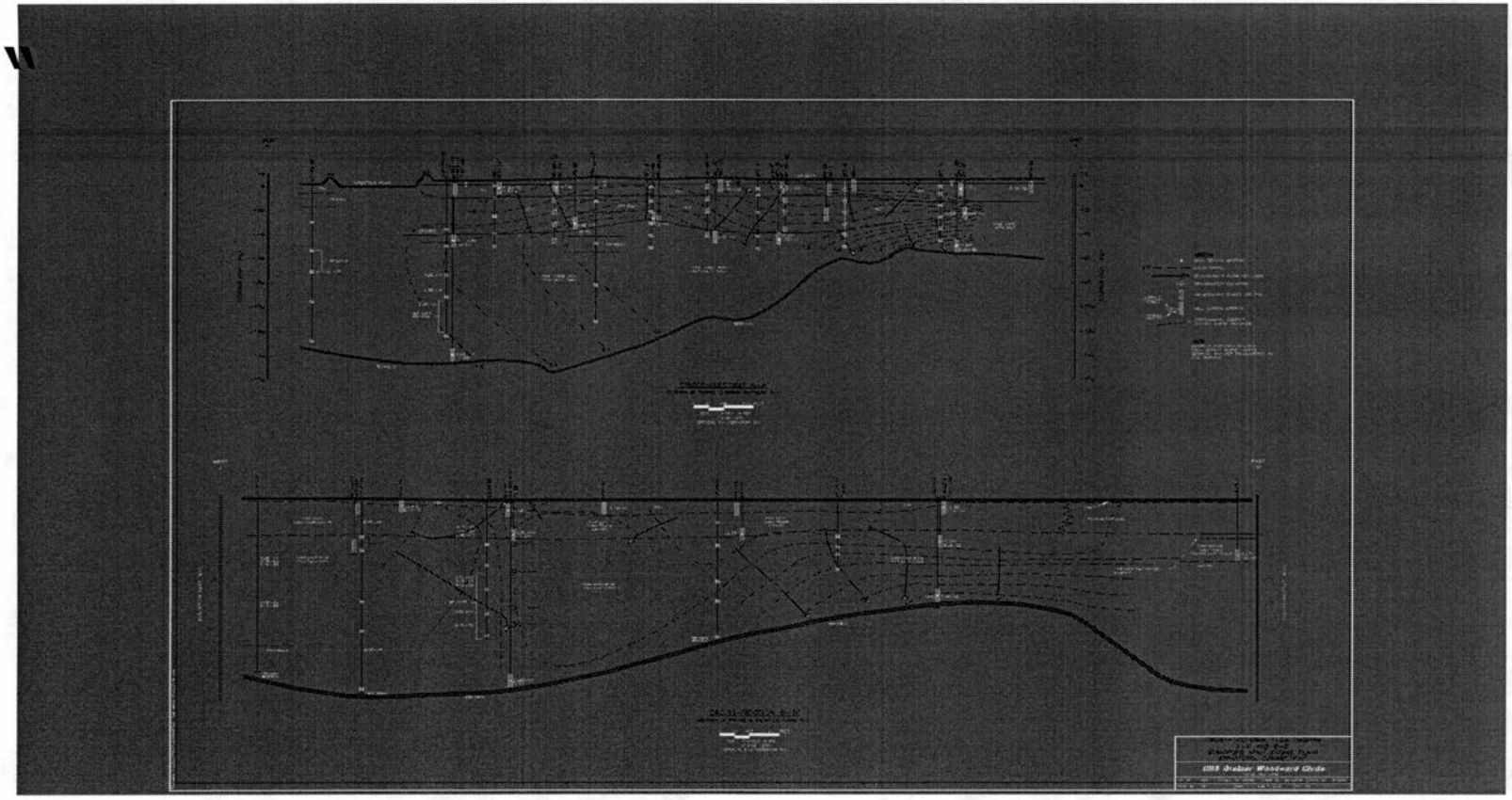
Deep Groundwater Elevation Contours

URS Greiner Woodward Clyde

Groundwater Vertical Flow

- Silt layer is low permeability zone
- Acts as a confining layer between shallow and deep aquifer along river
- Groundwater velocity ranges from 1 ft/yr to 145 ft/yr

Vertical Groundwater Flow



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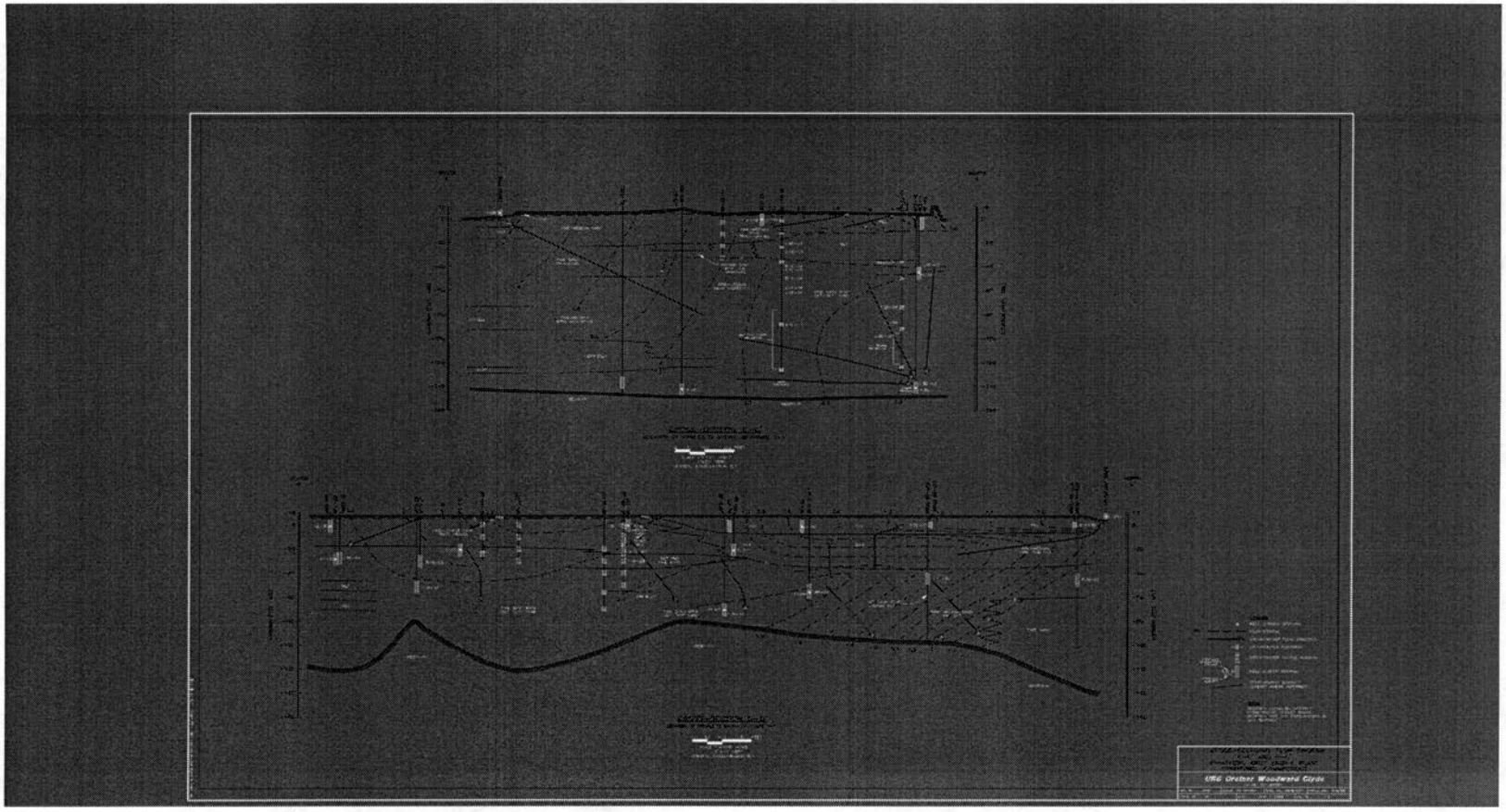
Vertical Groundwater Flow

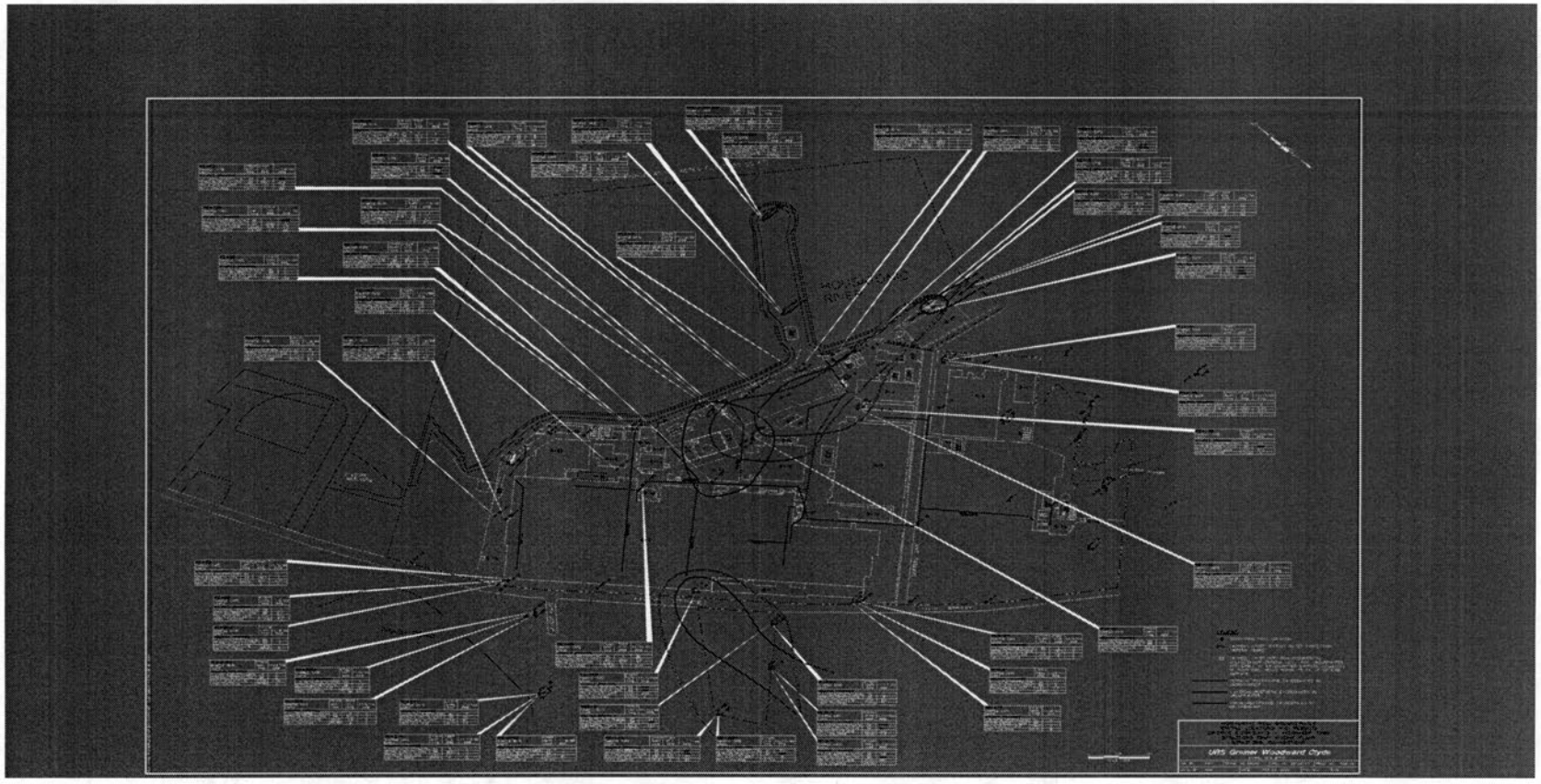


URS Greiner Woodward Clyde

Inorganic Groundwater Contaminants

- 1,1-DCE, PCE, TCE, and 1,1,1-TCA exceedances detected
- Two TCE hotspots detected (110,000 ppb to 830,000 ppb)
- 1,1,1-TCA hotspot beneath Building 2 (62,000 ppb to 280,000 ppb)

Organic Contaminants



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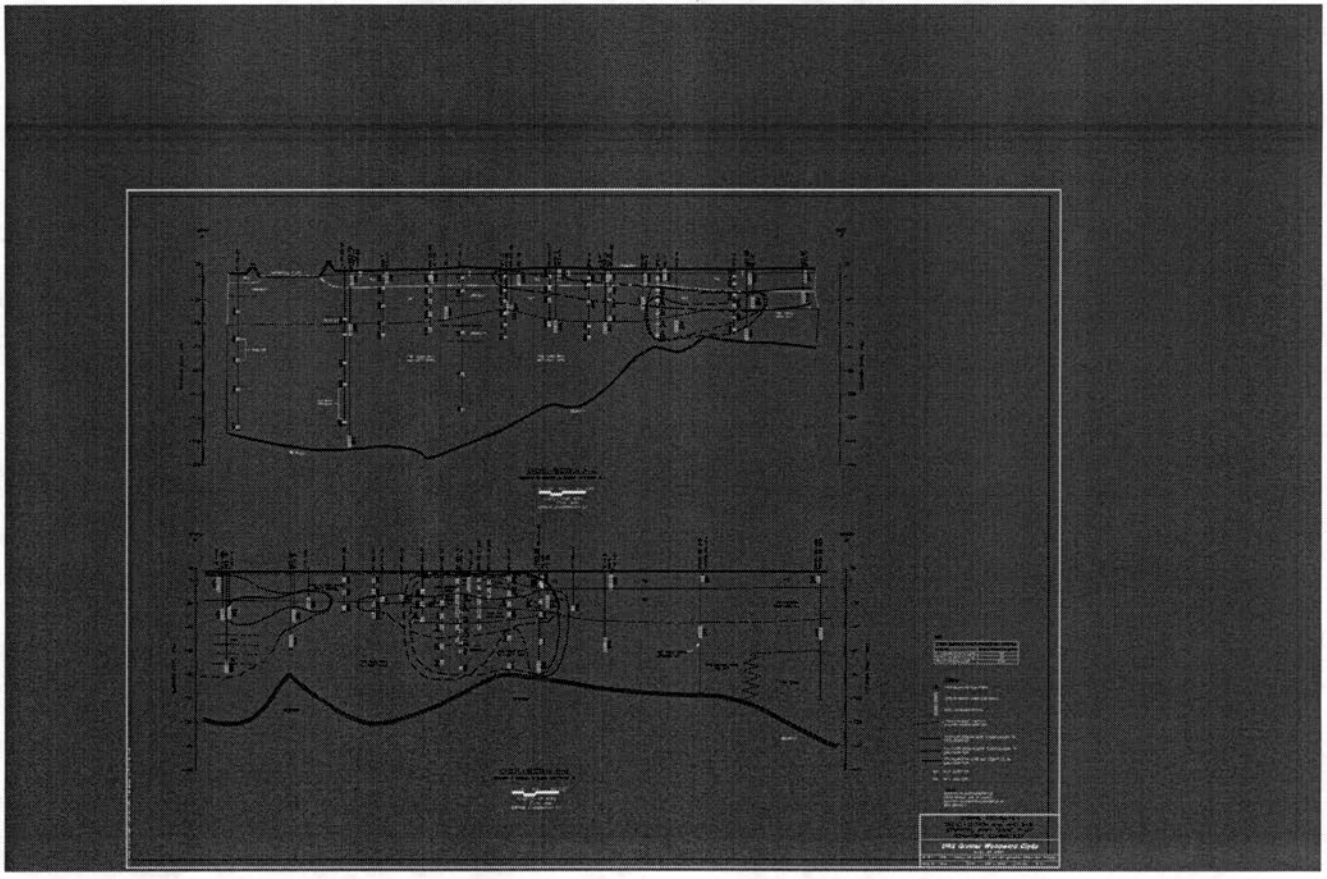
Organic Contaminants



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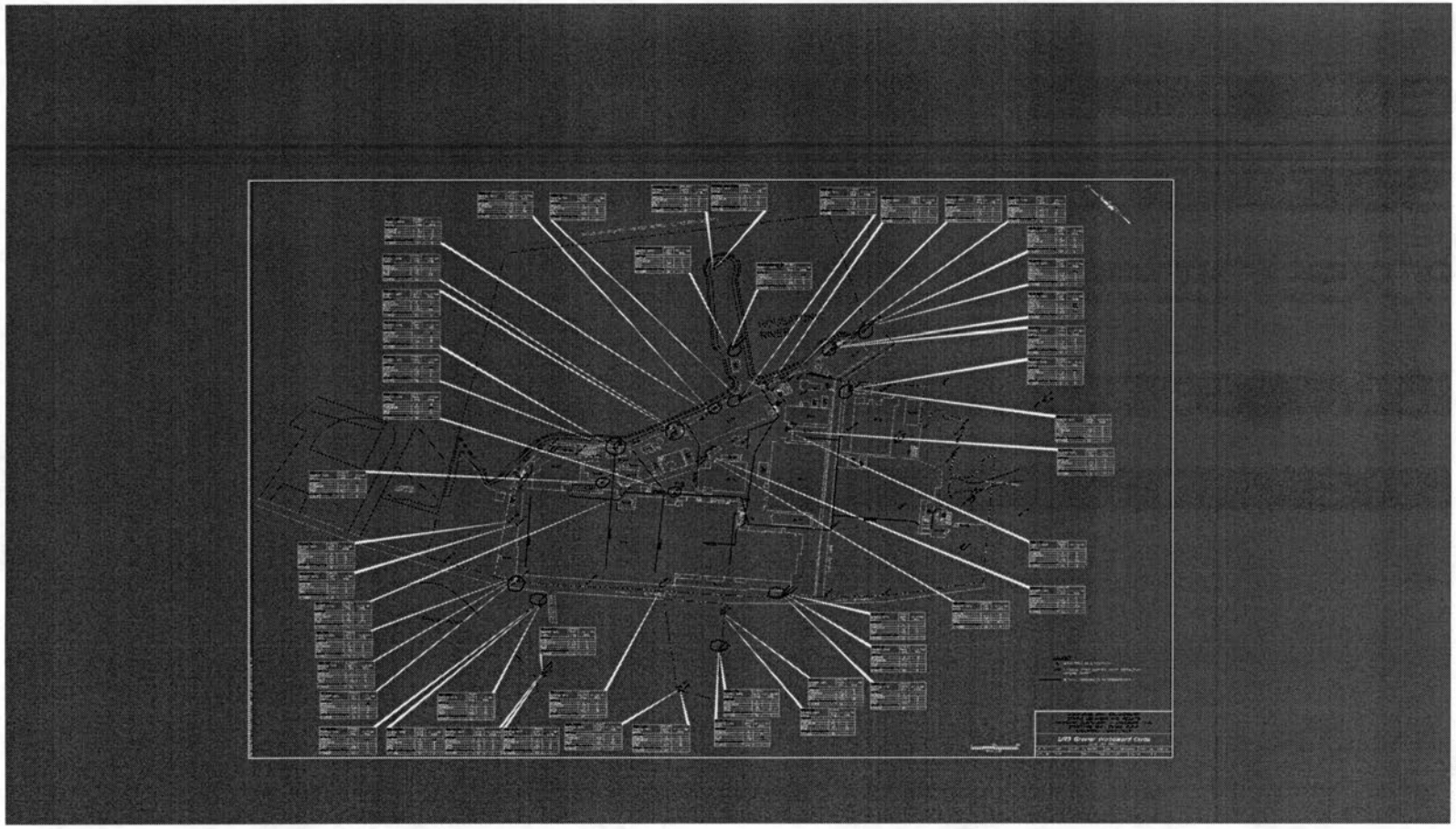
Organic Groundwater Contaminants

- Chromium, hexavalent chromium, arsenic, copper, cyanide, lead, and zinc exceedances detected
- With the exception of chromium, exceedances are randomly distributed

Inorganic Contaminants



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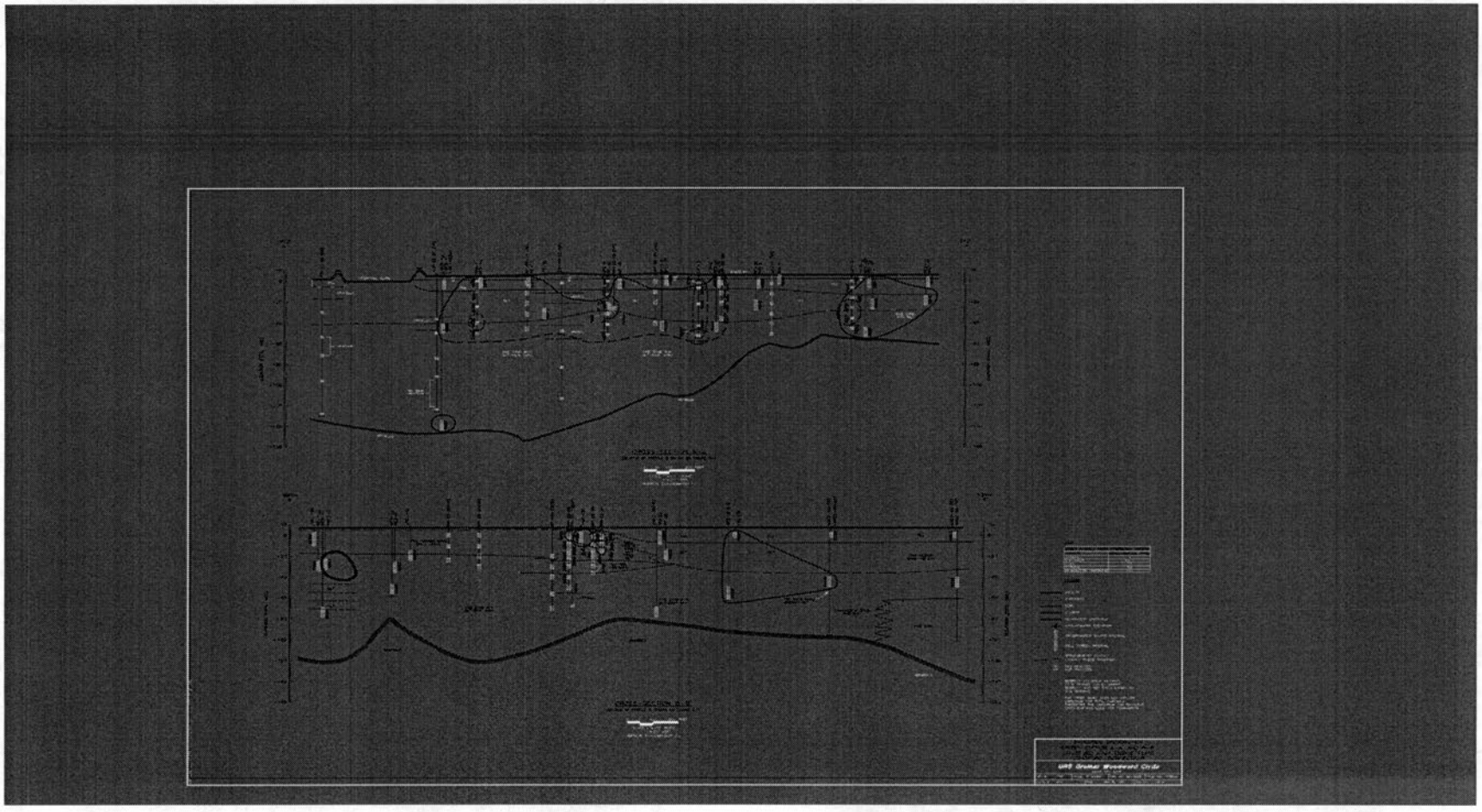
Inorganic Contaminants



URS Greiner Woodward Clyde

Remedial Investigation Report

- Draft Remedial Investigation Completed
- Currently ongoing U.S. Army and U.S. Army Corps of Engineer review

Ecological Risk Assessment - Stratford Army Engine Plant

Objective

- Use analytical data for soil, groundwater, sediment, biological tissue, solid phase toxicity testing, benthic macroinvertebrate community analyses, qualitative fish surveys, and surface water quality/chemistry to identify potential ecological risk for the Site

•Key Components

- Site Characterization
- Ecological Chemicals of Concern (ECOC)
  - Toxicity Data
- Conceptual Site Model
  - Exposure Pathways and Animal Receptors
  - Risk Questions

- Exposure Analysis
- Risk Characterization
- Uncertainties

Ecological Areas of Investigation

- Intertidal Mudflats
- Marine Basin
- Outfall 008 Drainage
- Causeway
- Reference Area

Environmental Media

- Surface Water
- Sediment
- Soil
- Biota

Sediment Screening Criteria

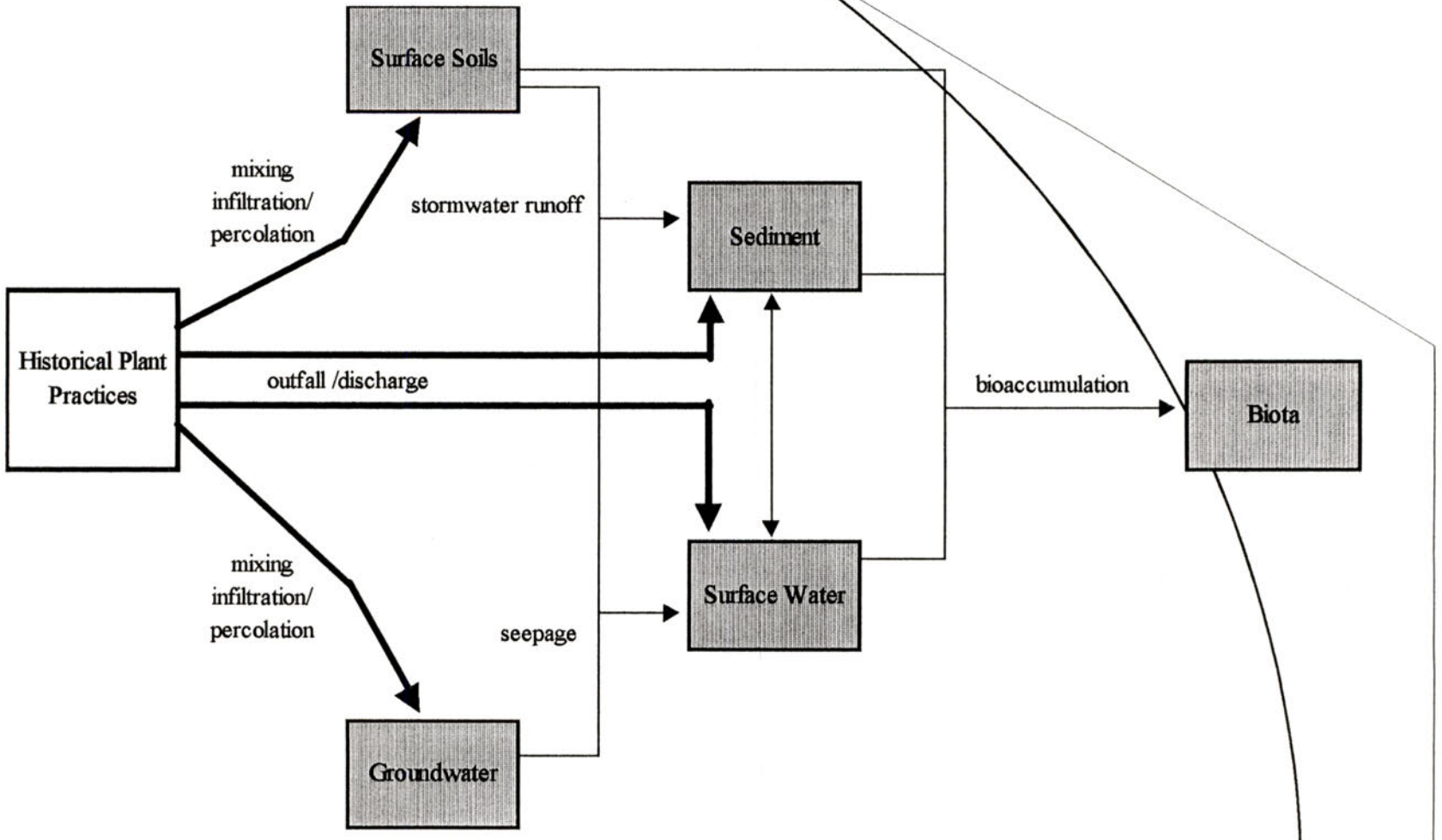
- Detection in at least one sample above the method or instrument detection limit
- Frequency of detection and estimated values
- Exceedances of reference location concentrations (TAL Metals)

- Chemical persistence, bioaccumulation potential, and toxicity
- Exceedances of environmental screening values

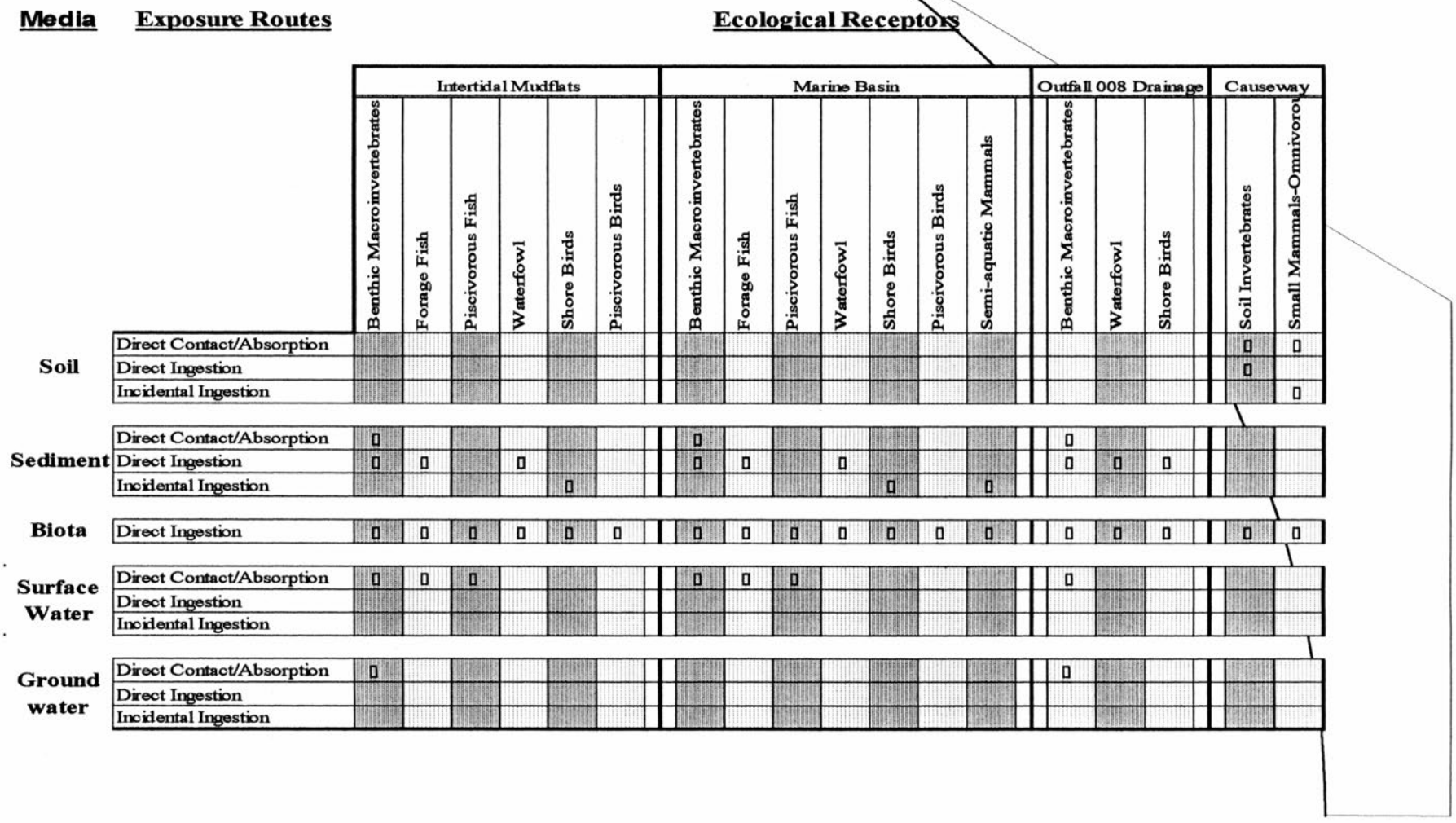
ECOCs at SAEP

Analyte Group	Intertidal Mudflats	Marine Basin	Outfall 008 Drainage
Metals	Cadmium Chromium Copper Lead Mercury Nickel Silver Zinc	Cadmium Chromium Copper Lead Mercury Nickel Zinc	Cadmium Chromium Copper Lead Mercury Nickel Silver Zinc
PCBs	Total PCBs	Total PCBs	Total PCBs
PAHs	Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene Chrysene Dibenz(a,h)anthracene Fluorene 2-methylnaphthalene Naphthalene Pyrene	Acenaphthylene Anthracene Benz(a)anthracene Benzo(a)pyrene Chrysene Fluorene Pyrene	Acenaphthylene Fluorene 2-methylnaphthalene

SAEP Site Pathways



Exposure Routes and Receptor Categories



Receptor Species

Receptor Categories		Key Species
Invertebrate Receptors	- Soil	Soil Invertebrates (collectively)
	- Sediment	Benthic Macroinvertebrates (collectively)
		Ribbed Mussel
Fish Receptors	- Forage	Mummichog
		Atlantic Silverside
	- Piscivorous	White Perch
Avifauna Receptors	- Waterfowl	Black Duck
	- Shore Bird	Piping Plover
	- Piscivorous Bird	Great Blue Heron
Mammal Receptors	- Terrestrial	White-footed Mouse
	- Semi-aquatic	Raccoon

Aquatic Habitat-Risk Questions

- Are ECOCs in the sediments present in concentrations that may cause adverse effects on benthic macroinvertebrate community structure?
- Will uptake of ECOCs by key aquatic receptor species represent doses that may cause adverse effects in growth, survival and reproductive success?

Aquatic Habitat-Measures of Effects

- Compare concentrations of ECOCs in sediments to background levels and ecotoxicity screening values for the protection of aquatic receptors by using the weight of evidence approach
- Compare dose rates of Site-related chemicals ingested in sediment and prey species with toxicity threshold data (NOAELs) for key wildlife receptor species

Terrestrial Habitat-Risk Questions

- Are ECOCs in the surface soils present in concentrations that may cause adverse effects to invertebrate community structure?
- Will uptake of ECOCs by key terrestrial receptor species represent doses that may cause adverse effects in growth, survival and reproductive success?

Terrestrial Habitat-Measures of Effects

- Compare concentrations of ECOCs in soils to direct contact ecotoxicity screening values for the protection of receptors by using the weight of evidence approach
- Compare dose rates of Site-related chemicals ingested in soil and prey species with toxicity threshold data (NOAELs) for key wildlife receptor species

Conclusions-Intertidal Mudflats

- Population-level risks to indigenous benthic macroinvertebrates in some nearshore stations
- No risks to omnivorous and piscivorous fishes and large wading birds which use the Intertidal Mudflats as forage areas.
- Slight potential for risk to small wading birds and waterfowl due to ingestion of sediments

Conclusions-Intertidal Mudflats

- Potential for accumulation and increased PCB body burdens exists for potential receptors which may ingest sediments when feeding in these areas.

Conclusions-Marine Basin

- Lowest sediment concentrations of most detected constituents
- Risks from Site constituents are not likely for benthic macroinvertebrates
- Risks from Site constituents are not likely for omnivorous and piscivorous fishes and large wading birds

Conclusions-Marine Basin

- Slight potential for risk to individual small wading birds and waterfowl due to incidental ingestion of sediments
- Slight potential for risk to individual small mammals such as the raccoon due to incidental ingestion of PCB-contaminated prey (particularly fish)

Conclusions-Outfall 008 Drainage

- Highest concentrations of constituents
- Population-level risks to indigenous benthic macroinvertebrates (eg., worms, scuds, snails)

- Slight potential for risk to small wading birds and waterfowl due to incidental ingestion of sediments

Conclusions-Causeway

- Potential risks to soil invertebrates which colonize the Causeway likely due to exposure to metals and PCBs.
- Potential risk to individual small mammals due to incidental ingestion of soils

Uncertainties

- Scientifically sound and technically defensible assumptions for the exposure evaluation.
- Limited to ingestion pathway
- Exposure concentrations were site averages

- No mitigative influences between the sediment and exposure points
- Use of surrogates for chemicals with no ecological screening value
- Food web model used assumptions
- Most conservative NOAEL & LOAELvalues

HHRA-Scope

- Potential risks were evaluated for construction worker, commercial fishermen, adult recreational receptors & child recreational receptors for specific pathways & PCOC

RESULTS- Tidal Flats

- Potential for unacceptable adverse health effects and excess cancer risks due to exposure to fish tissues and sediments

RESULTS-Main Site

- Adverse health effects and unacceptable excess cancer risks are unlikely to occur to the child recreational receptor exposed to surface soils at the main site.

- Unacceptable adverse health effects are possible for construction workers exposed to groundwater at the Main Site.

HHRA Uncertainties

- Throughout the HHRA, conservative assumptions were used that probably overestimate actual risks & result in an upper-bound estimate of potential risk.

QUESTIONS/COMMENTS
RAB MEETING - 10 MAY 2000

Jim Otto:

1. What is the cut-off date for all comments?
2. What will be the cut-off date for comments on the RI?
3. What is subject to public comments?

Redacted - Privacy Act

1. Are Operable Units separated by category?
2. Is the RI for the entire site?

Redacted - Privacy Act

1. Why wasn't Air Monitoring included originally?
2. Will there be a final report on the air at the next RAB meeting?

Redacted - Privacy Act

1. The report seems to concentrate on ingestion incidents. Why is that?
2. Has there been any evaluation of water migration? How long does it take to migrate naturally out of an area?

Redacted - Privacy Act

1. You speak of the flow from west to Frash Pond. Where is it beginning? Is it from the airport or the plant?

Redacted - Privacy Act

1. Were the sample filtered or nonfiltered?

Redacted - Privacy Act

1. How do you determine baserock?
2. Can a seismograph distinguish between bedrock and shellbed?
3. Can that testing give a false reading?

Redacted - Privacy Act

1. Meghan forwarded information that did not address Alternative 4.
2. What is the status of Alternative 1 opposed to Alternative 4?
3. What is the cost of Alternative 4 opposed to Alternative 1?
4. What is the difference between 4 and 1 regarding the cover?
5. Did Honeywell complete their portion of the cleanup on the Causeway?
6. Will the West Parking lot contamination data be available in the June report?
7. Is the plume of contamination from the degreasers at the Sikorsky hangars?

Redacted - Privacy Act

8. Who will do the long term monitoring of the VOC? If there are problems of migration, who is liable and who assumes responsibility for any cleanup required?
9. If there is proof of contamination and it is found that someone drilled holes to put in posts, etc., what happens as far as the responsibility is concerned?
10. Will restrictions be noted in the final report?
11. Has the town decided whether it wants grass or concrete?

Redacted - Privacy Act

1. After all results are in town will discuss top.

(Answer)

Redacted - Privacy Act

1. It will be to the town's advantage to know what the final answer is regarding the Causeway.

Redacted - Privacy Act

1. There will be a discussion with John B as to what is possible and agreeable to all.

(Answer)

Redacted - Privacy Act

1. How does erosion control compare to capping as far as maintenance of the Causeway is concerned?
2. Is it up to the Town to maintain the Causeway?
3. Will the Government oversee the maintenance?

Redacted - Privacy Act

1. URS does the testing. Who comes up with the remedies?

Redacted - Privacy Act

1. If removal is decided upon, where does the material go from the Causeway?