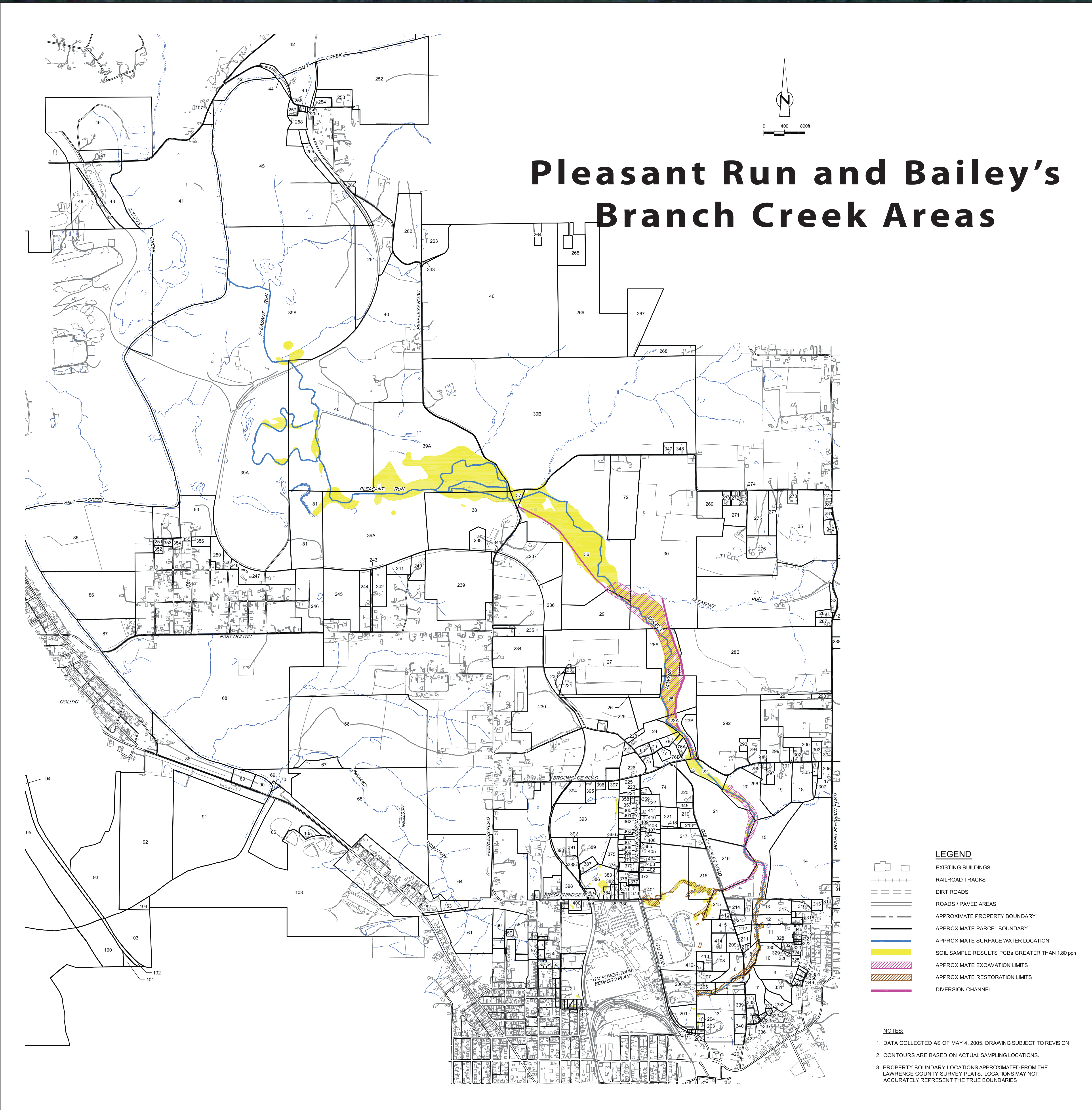




CERCLA Removal Action Status

- The yellow areas represent the areas requiring excavation as part of the Removal Action
- The red hatched areas represent areas in which excavation has been completed or is currently underway
- The brown hatched areas represent areas in which restoration has been completed or is currently underway.





RESTORATION

GM is committed to restoring the Bailey's Branch and Pleasant Run creek system in a manner that protects water quality and ecology of the area.

Vernal Ponds

- Small depressions near the stream channel collect rain water and stream flood waters. The water may remain for only hours or a few days.
- Temporary (intermittent) ponds provide habitat for plants and insects, which in turn attract other insects, birds and other small predator animals.
- Vernal ponds also provide important breeding habitat for frogs, toads, and salamanders.
- Provide for and support a greater ecological diversity in the creek valley.

Fascine Bundles

- Much of the Bailey's Branch Creek bank is protected from erosion by the roots of trees and shrubs and even grasses.
- Fascine Bundles are live roots and small branches, bundled together along the stream bank, that provide a quick start for the growth of this protective root mass structure. Even before the roots and branches sprout, the bundles provide some protection against erosion of the stream bank soil.
- Often used in combination with log habitat features, or log "stream flow deflectors".

Log Habitat Features

- The natural creek valley, before restoration, had remnant trunks and branches from fallen dead trees along its stream bank floor.
- Trunks or logs provided small local protection for plants and animals.
 - Small animals use the logs as perches.
 - Logs also provide a source of nutrients for plants and insects that live in the soil.
- Along the creek bank, and even across the creek, fallen logs provide protection against erosion. Where providing protection to the stream bank, log features are often used in combination with root wad features.
- Logs also are used to direct the flow of the creek around bends and meanders.

Root Wad Features

- "Root wad" features are simply tree stumps with substantial root structure still attached. Much of the creek bank is protected from erosion by the tree roots and these root wad features duplicate the larger stumps.
- Provide shelter and nutrients for plants, whose root mass will further protect the stream bank from erosion.
- Larger root wad features placed close to the water in the creek, provide shelter for fish from bird predators, and from the heat of the sun.
- Used to direct the flow of the creek around bends and meanders protecting the stream bank from erosion.
- Often used in combination with "live stakes" (plant rootings), log features and fascine bundles.

"Roughback" Exposed Stone Stream Banks

- Roughbacks are large rock slabs obtained from a quarry, and are used to build up and or stabilize the creek banks where there were bedrock outcrops. Roughbacks also are used where root wad and log features are not strong enough to provide protection against erosion.
- These bare rock patches are sometimes used on stream bends and meanders and where the creek has cut along the valley hillsides.
- Portions of the upper reaches of Bailey's Branch Creek have banks formed of bedrock or shale outcroppings.

Pool Riffle Sequences

- Riffles are shallow, fast moving areas whereas pools are deeper, slow flowing areas of a stream.
- Floods along Bailey's Branch Creek naturally cause the sand, rock and gravel to sort, forming short steep riffles over the rock and gravels, with pools formed over the sands and gravels. As well, large rocks left behind, that the creek can not move even in floods, also create riffles, with pools dammed up behind. In places, Bailey's Branch Creek ran directly on the bedrock, with little or no gravel or sand over the bedrock.
- These features are highly irregular, reflecting the constantly changing slope of the creek and form by themselves over years of stream action.
- These complex geomorphological features will restore themselves, in a stable way, by providing the creek with adequate sizes and quantities of sands, rock and gravels.
- "Pools and riffles" occur all along Bailey's Branch Creek, down to the Broomsage Road crossing.
- Rock vortex weir and waterfall features are installed to encourage the formation of pool riffle sequences.

Rock Vortex Weirs

- A pile of larger rocks placed across the stream.
- Used to restore the riffle sequences that were created in nature by the large rocks that the creek could not move.
- Can be formed with a slight bend so as to direct the flow back towards the center of the channel.

Waterfalls

- Small waterfalls, along the upper portions of Bailey's Branch Creek vary from being a few inches high to being several feet high. Cascades are formed, where the stream flows directly over a series ledges in the bedrock. Waterfalls are being restored using the bedrock where possible or using "roughbacks" where the excavation was deep.
- Aeration of the stream, which increases the dissolved oxygen in the water, occurs from the resulting turbulent flow of water over waterfalls and cascades. Dissolved oxygen is important for aquatic animal life.

VERNAL PONDS



FASCINE BUNDLES



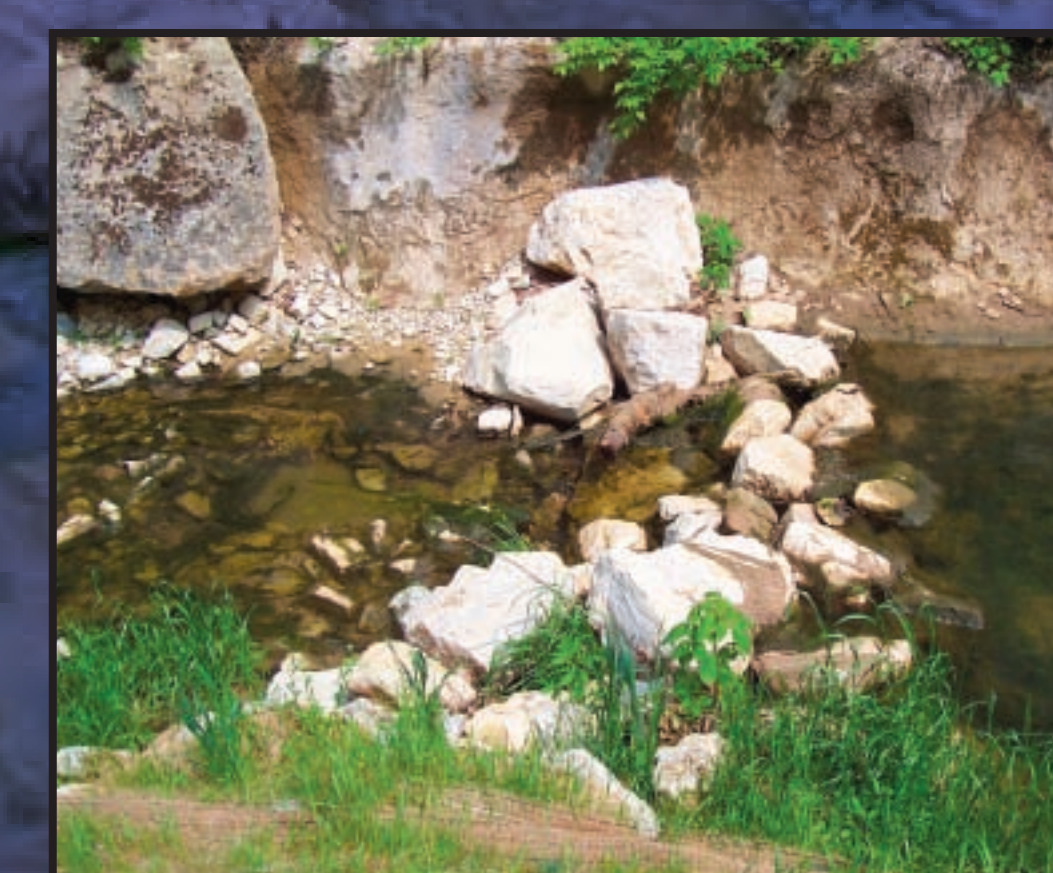
LOG HABITAT
FEATURE



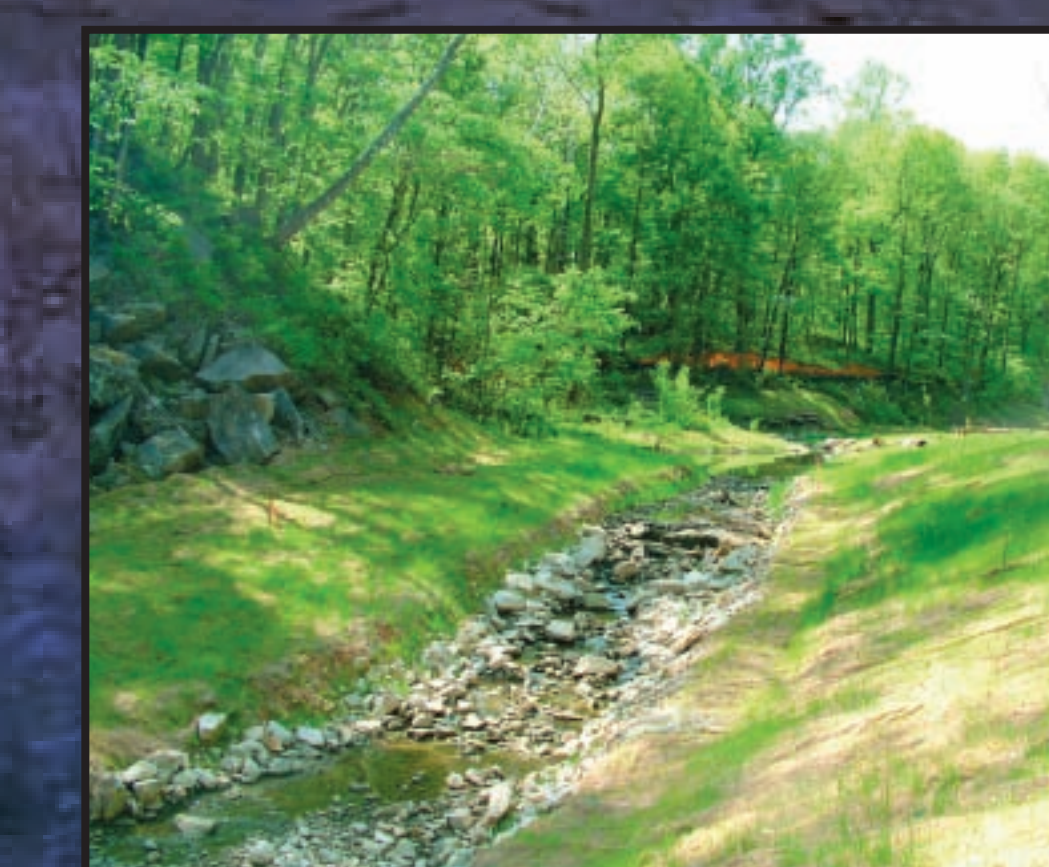
ROOT WAD



ROUGHBACKS



ROCK WEIR



WATERFALL



Excavation and loading soil material into off-road trucks for transportation within the excavation area.



Soil material placed into staging areas is covered until sample results confirm the appropriate location for transport.



Soil material is loaded into lined, on road trucks for shipment. Plastic sheeting and a tarp are used to cover the material prior to transport.

Unloading soil material containing <50 ppm PCBs into the East Plant Area.



Loading soil material containing ≥50 ppm PCBs into on-road trucks for placement in a permitted landfill.



To ensure that there is no track out of potentially contaminated soil, wheel wash stations have been installed at exits from staging and grading areas. Wheels are thoroughly washed and the water is collected for treatment.



CRA monitors truck traffic on a daily basis. Trucks are checked for their adherence to traffic laws, courtesy to local traffic, and effectiveness of truck washing.



Besides the tarping of on-road trucks and covering of material in staging areas, water trucks have also been used to reduce the amount of dust generated from traffic on dirt roads.

Street sweepers work throughout the day along the truck traffic routes cleaning up the everyday soil material which cars and trucks track out from parking lots and property entrance ways not associated with the project.



The Importance of Wetlands

Our Wetlands

Wetlands can be found in nearly every county and climatic zone in the United States. Wetlands help regulate water levels within watersheds; improve water quality; reduce flood and storm damages; provide important fish and wildlife habitat; and support hunting, fishing, and other recreational activities. More than half of America's and 85% Indiana's original wetlands have been destroyed by filling in these areas to support development and agricultural uses.

Some wetlands are dry most of the year like this wetland forest and prairie.

What is a Wetland?

Wetlands are areas where water covers the soil, or is present either at or near the surface of the soil for varying periods of time during the year, including during the growing season.

Indeed, wetlands are found from the tundra to the tropics and on every continent except Antarctica. Even wetlands that appear dry at times for significant parts of the year -- such as vernal pools -- often provide critical habitat for wildlife adapted to breeding exclusively in these areas. Wetlands can be wooded like floodplain swamps or lack trees entirely like a cattail marsh. But all wetlands share one trait; they are wet for a least part of the year.

Nature and Wetlands

Wetlands are among the most productive and diverse ecosystems in the world, comparable to rain forests and coral reefs. Wetlands can be thought of as "biological supermarkets." They provide great volumes of food that attracy many different animal species. Wetlands play an integral role in the ecology of the watershed. Scientists are beginning to realize that atmospheric maintenance may be an additional wetlands function.

Some wetlands are flooded all the time like this marsh.

People and Wetlands

As stormwater runoff passes through a wetland, it acts as a filter to remove excess nutrients and pollutants and reduce sediment that would clog waterways and affect fish and amphibian egg development. Wetlands also act almost like a sponge, soaking up and retaining excess water before releasing it back slowly over time. The bottomland hardwood-riparain wetlands along the MIssissippi River once stored at least 60 days of floodwater. Now they store water for only 12 days because most have been filled or drained. Wetland plants along the edges of streams and lakes protect the shoreline and streambanks against erosion.

These plants protect the shorelines from eroding by holding the soil in place with their roots, absorbing the energy of waves, and breaking up the flow of stream or river currents. Also, more than one-third of the United States' threatened and endangered species live only in wetlands. Wetlands have recreational, historical, scientific, and cultural values. More than half of all U.S. adults (98 million) hunt, fish, birdwatch or photograph wildlife.

Indiana's Wetlands

Estimated wetlands (circa 1780s)	5,600,000 acres
Existing wetlands (1980)	813,000 acres
Percent of surface area in wetlands (circa 1780s)	24.1%
Percent of surface area in wetlands (1980)	3.5%
Percent of wetlands lost	85%

Source: Indiana Department of Environmental Management



Some wetlands are moist all the time from ground water like this floodplain marsh.



Other wetlands are only wet after heavy rain like this vernal pool.



General Motors Corporation (GM) Communications Becki Akers

1-866-223-0856

NORTH JACKSON STREET OPEN HOUSE

June 10, 2004 3:00 to 7:00 pm

EVENTS

- Tour renovated homes on for sale by local realtors.
- Visit the Information Booth *(The booth is located on the south entrance via Breckenridge Road)*
- Guided bus tour of the city

GM Powertrain Bedford Plant invites you to a...

GENERAL INFORMATION SESSION

Thursday, October 28, 2004
Open 6:30 to 9:00 pm
at the GMU

Open 6:30 to 9:00 pm
at the GM Powertrain Bedford Plant
105 GM Drive, Bedford, Indiana

Come out, visit our booths and learn the latest about our ongoing cleanup. Talk one-on-one with representatives from GM, CRA and officials from State and Federal agencies

INFORMATION BOOTHS TO INCLUDE:

- ❖ United States Environmental Protection Agency
- ❖ Health Effects Institute

- ◆ Information by Agency for Protection Agency (U.S. EPA) & Indiana Department of Environmental Management (IDEM)
- ◆ On-Site Cleanup: Resource Conservation and Disease Registry (ATSDR) and Indiana State Department of Health (ISDH)
- ◆ Off-Site Cleanup: Resource Conservation and Disease Registry (ATSDR) and Indiana State Department of Health (ISDH)
- ◆ Property Issues
- ◆ Community Relations Information



**Worldwide Facilities Group
Remediation Team**

July 27, 2004

Association
Name
Address
State

Dear Neighbor,

GM Powertrain is holding a general information session on **Thursday, August 5, 2004**, 6:30 p.m., to provide an update on ongoing environmental investigation and cleanup activities at and near the Bedford plant. The meeting will be held at the plant, which is located at 105 GM Drive. We plan to publicize the information session through the local media.

We will review information covered at previous information sessions that you may have attended. We will provide an overview of the project and share information concerning the investigation and cleanup efforts. There also will be an opportunity for questions and answers.

As part of our community outreach efforts, we want everyone in the community to have an opportunity to stay informed in regards to the project. In addition to these general information sessions, we will continue to provide updates through our web page (<http://www.bedfordpowertraincorrectiveaction.com>), fact sheets and other regular communications.

Sincerely,

PE Ford
Paul Ford
Production Manager
GM Bedford Powertrain

Pontiac Centerpoint Campus - Central • 2000 Centerpoint Parkway • Mail Code 483-520-190 • Pontiac, MI 48341-3147
FAX (248) 753-5829



Truck Traffic Issues Coordinator
Ms. Shelly Gould • 1-812-279-0977

Web Site
www.GMBedfordCorrectiveAction.com

Project Fact Sheets

- Project Fact Sheet 1 - May 24, 2001
- Project Fact Sheet 2 - July 16, 2001
- Project Fact Sheet 3 - February 10, 2002
- Project Fact Sheet 4 - September 9, 2002
- Project Fact Sheet 5 - February 12, 2003
- Project Fact Sheet 6 - August 11, 2003
- Project Fact Sheet 7 - January 20, 2004
- Project Fact Sheet 8 - May 28, 2004
- Project Fact Sheet 9 - October 28, 2004
- Project Fact Sheet 10 - March 8, 2005
- Project Fact Sheet 11 - May 25, 2005
- Project Fact Sheet 12 - September 30, 2005

Public Information Repositories

• **Bedford Public Library**

1323 K Street
Bedford, Indiana
Tel: (812) 275-4471

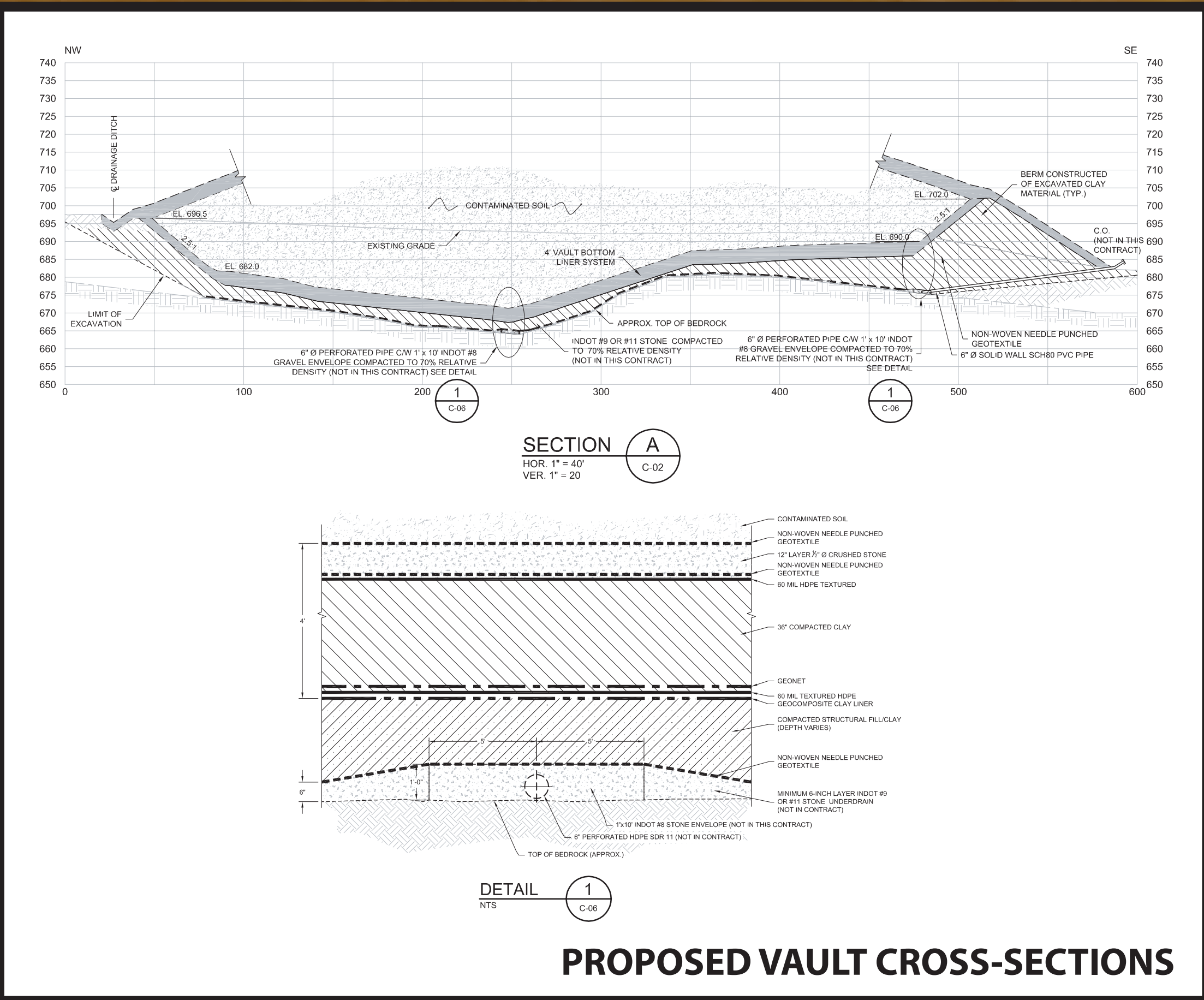
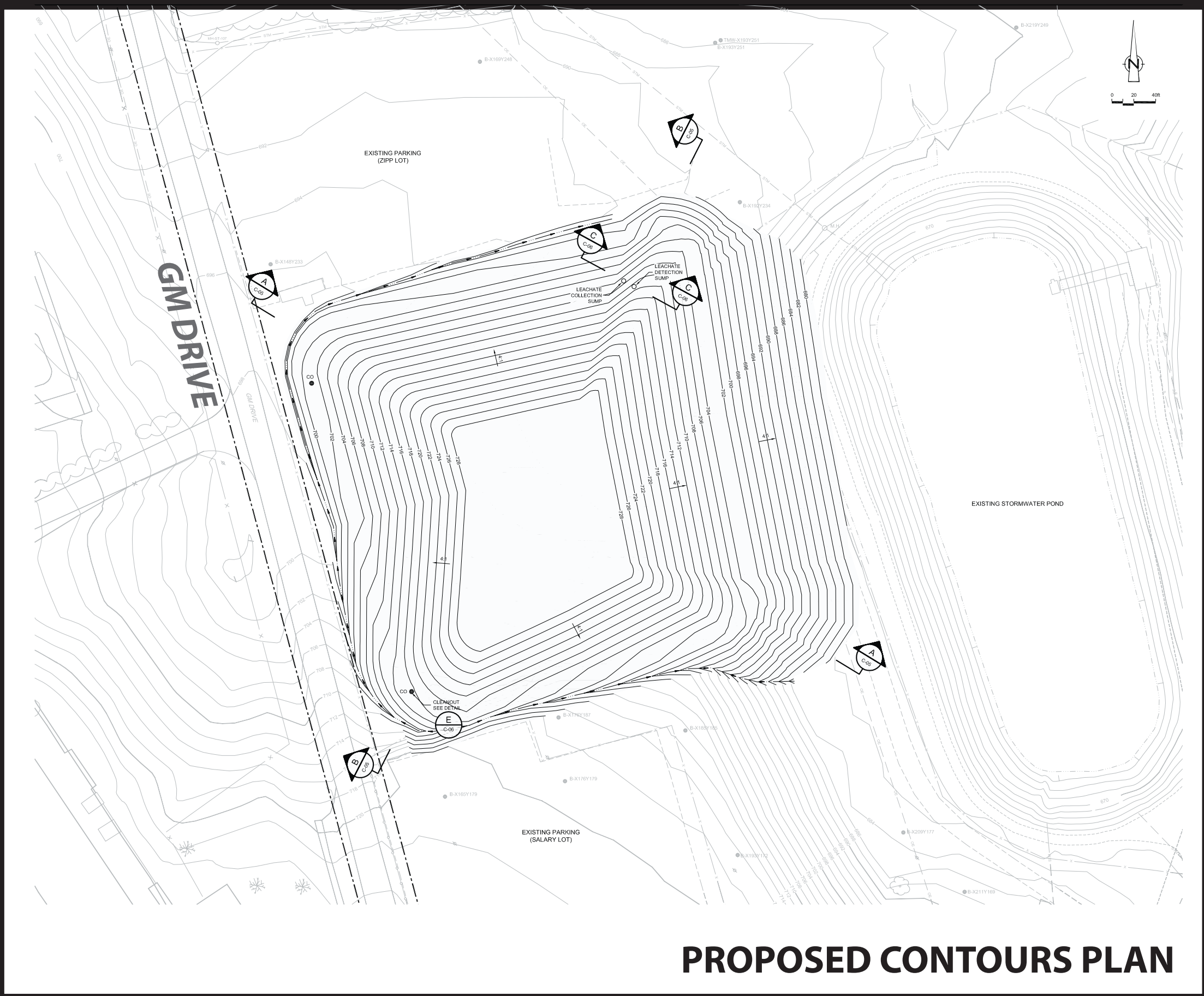
- **GM Bedford Powertrain Facility**
Visitors Entrance Lobby

105 GM Drive
Bedford, Indiana
Tel: 1-866-223-0856

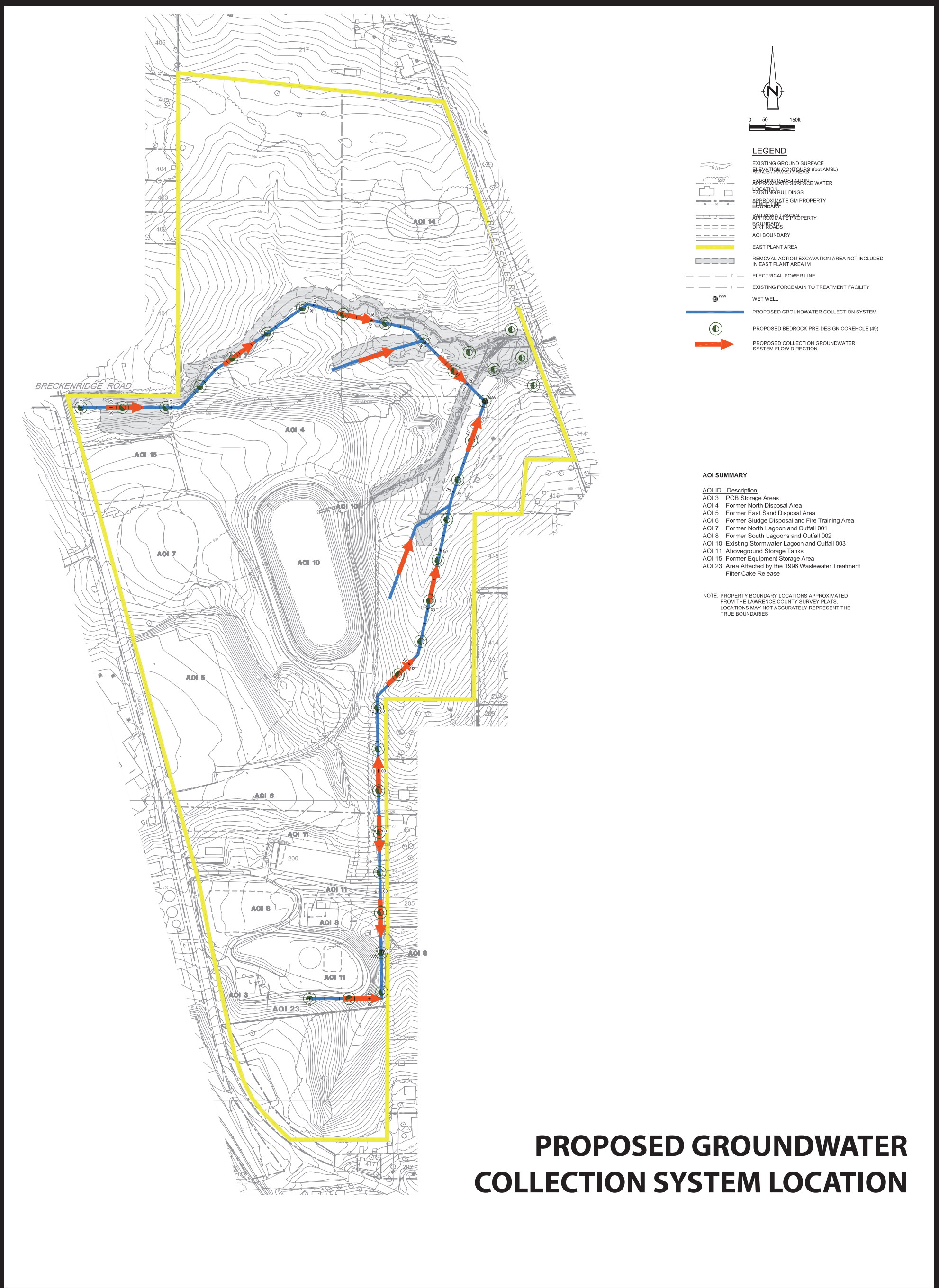
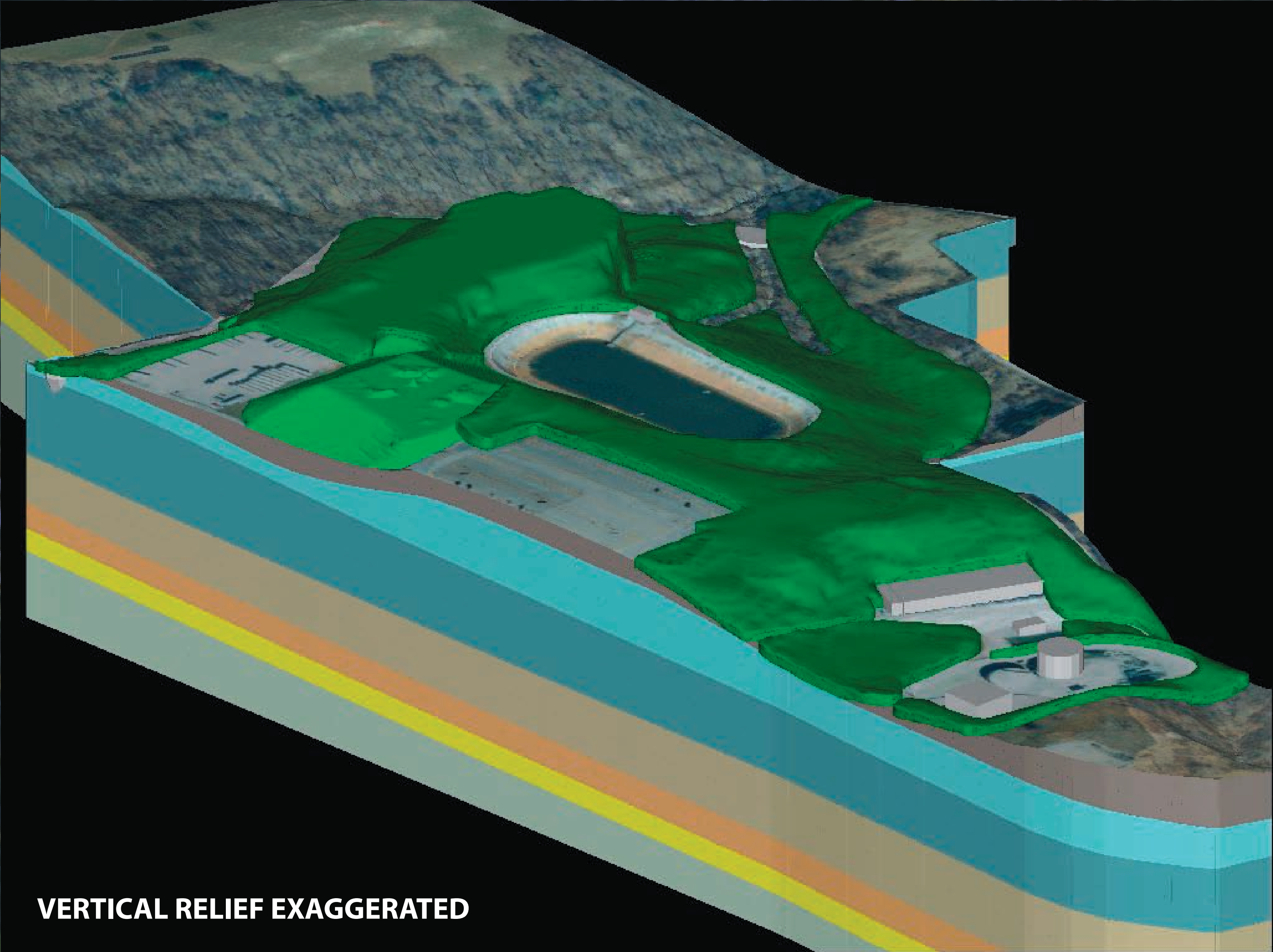
Community Liaison Panel Public Meetings



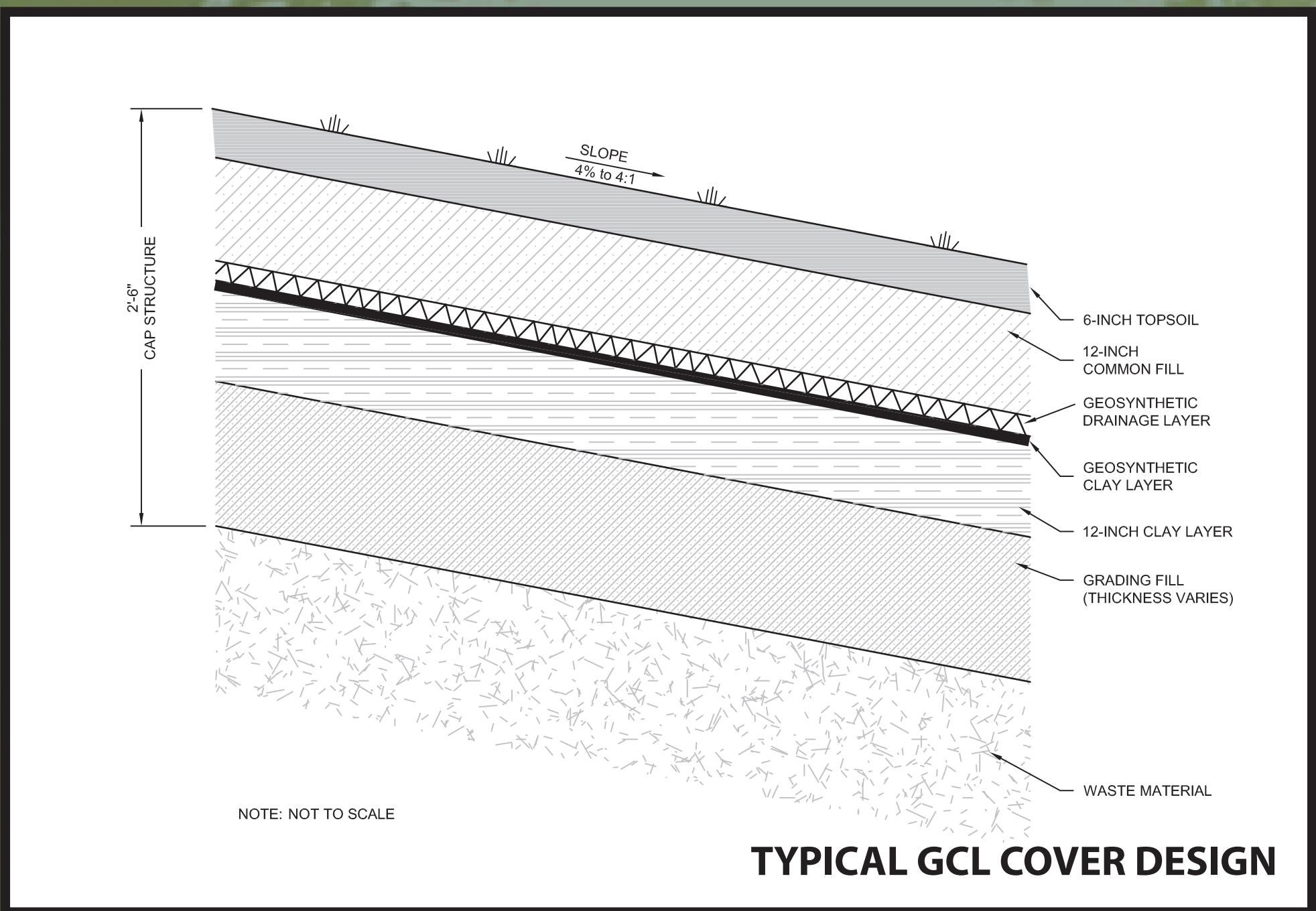
INTERIM MEASURE COMPONENTS
EAST PLANT AREA



LANDFILL VAULT DETAILS

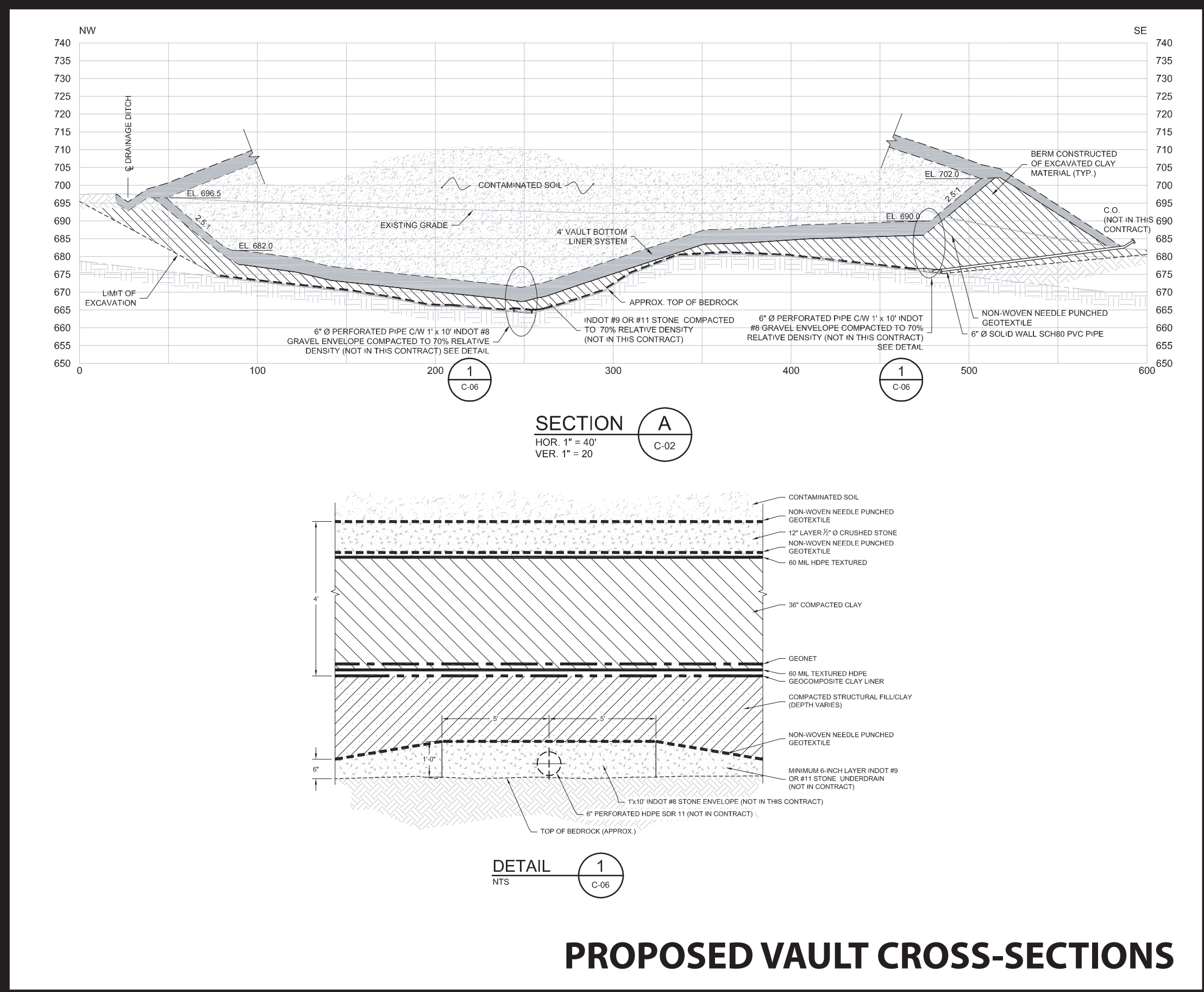
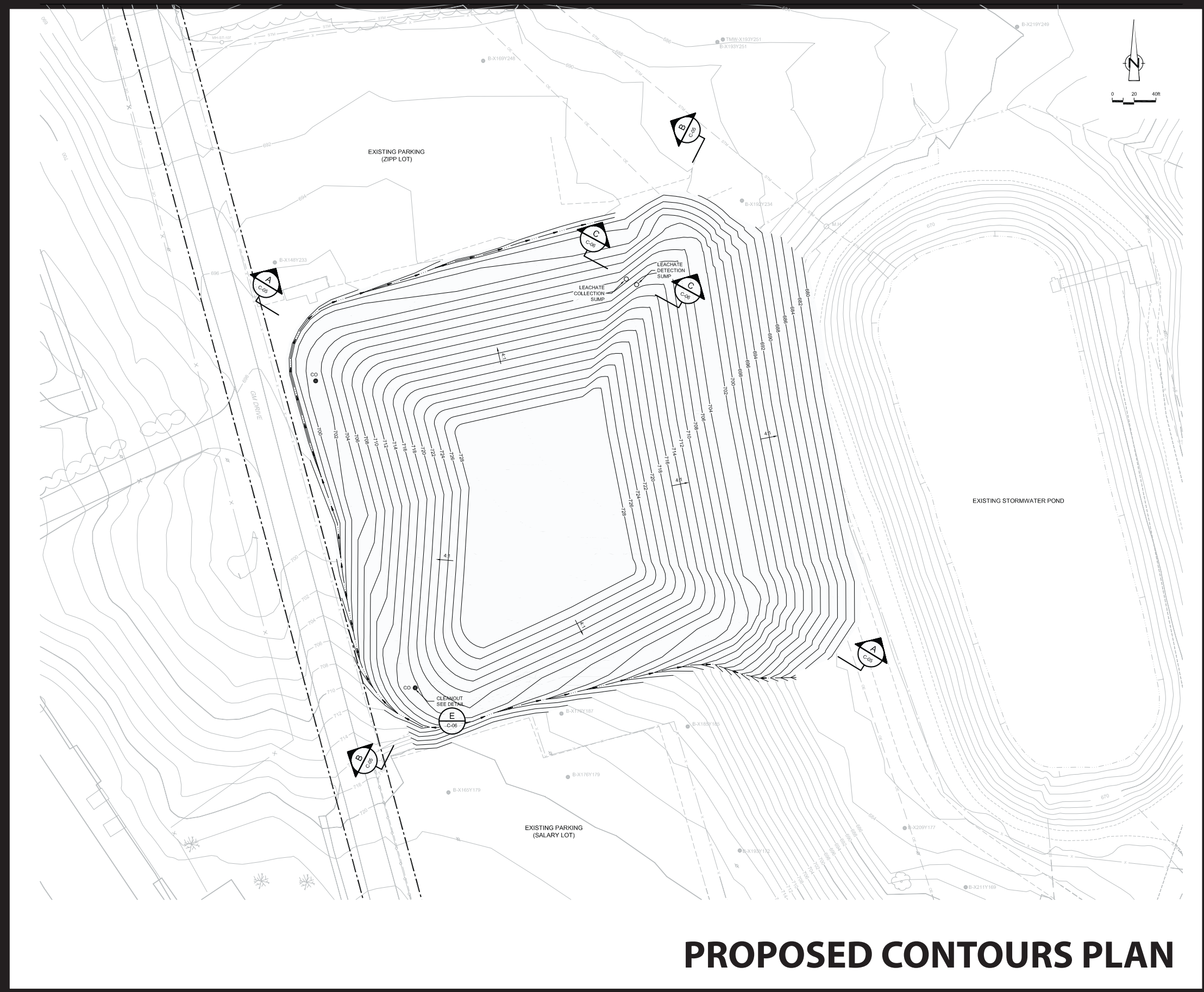


GROUNDWATER COLLECTION
SYSTEM DETAILS



COVER SYSTEM DETAILS

**LANDFILL VAULT
EAST PLANT AREA**



LANDFILL VAULT DETAILS



Vault Excavation



Vault Excavation



**High Density Polyethylene
(HDPE) Liner Placement**



**High Density Polyethylene
(HDPE) Liner Seaming**



**Placement of HDPE Liner as
Part of Vault Cap**



**Placement of Drainage
Layer over HDPE Liner**



**Placement of Clay Layer
of Vault Cap**



**Placement of Clay Layer of
Vault Cap**