

Civil Engineering & Surveying Services

January 9, 2013

Mr. Dax J. Blake, P.E. - Administrator
Columbus Department of Public Utilities
Division of Sewerage and Drainage
910 Dublin Road
Columbus, Ohio 43215

Re: **Type III Variance Application: Lee's RV Storage Facility**
3850 & 3860 Scioto-Darby Creek Road

Dear Mr. Blake:

Since receipt of your letter, dated June 14, 2012, denying a variance from the SCPZ, we have been working on the items necessary for resubmission. We understand the City's need for the SCPZ and feel we now have a solution that will meet the City's criteria for granting the variance. Please refer to our first submission for information on the existing conditions and the alternates proposed.

We would first like to further demonstrate the specific circumstances applicable to the site such that strict adherence to the Manual will deprive the owner of reasonable use of the land resulting in substantial hardships as follows:

- The owners purchased this property in 2010 for \$75,000 dollars, it consists of .82 acres. This equates to approximately \$102,000 dollars per acre. They felt they paid a premium for this property because of its frontage on the road which is what they wanted. The intent of the frontage was to provide easy, visible and safe access to higher end customers who want to store their recreational vehicles in a heated, indoor environment. The owners currently have a mortgage on this property.
- The current SPCZ set back requirement of 150 feet renders the site unusable, since the lot is only 208 feet deep. With the setback from the road and the SPCZ, only about 25% of the lot would be available.
- In order to realize a minimum 8% return on the investment, a minimum of 24 bays (RV storage units) would be needed based on current RV indoor storage rates.
- The property owner north of the ditch has developed within the SCPZ, so some precedence has been established.
- The part of the SCPZ that the owners want to develop is currently existing gravel pavement. The actual existing natural ditch area would remain and the owners now have an agreement to mitigate another section of the ditch from the adjacent property, their neighbors, Universal Gymnastics, Inc.

Mr. Dax J. Blake, P.E.
January 9, 2013
Page Two.

In determining the proper mitigation, the owners hired Hull and Associates, Inc. to prepare the attached Surface Water Delineation Report which demonstrates the proposed QHEI/HHEI will exceed the existing QHEI/HHEI. An area of the adjacent property has sufficient room laterally to restore and designate an SCPZ at a mitigation ratio greater than the 1:1.5 as specified by the Columbus Stormwater Drainage Manual. Restoration activities would include planting native woody species.

Working with Hull & Associates, we have prepared the attached mitigation plan. From this plan, you can see that we are mitigating at a ratio of 1:1.63. As previously mentioned, this is based on using the Preferred Alternate Plan which keeps the existing ditch in place. We have attached that plan again for reference.

Please review this additional information and contact us with any questions or further comments. We appreciate your assistance in allowing for development of the property while protecting the natural stream.

Sincerely,
RAS Civil Engineering, LLC



Rickard Alan Sicker, P.E., P.S.
President

C: Jason Sanson – City of Columbus
Chad Holtzapfel – City of Columbus
Dennis Hecker – Owner
Glenn Hochstetler - Builder

Attachments

SURFACE WATER DELINEATION REPORT

**FOR:
STORAGE EXPANSION PROJECT**

**PREPARED FOR:
LEE'S RV AND BOAT STORAGE
3800 SCIOTO DARBY CREEK ROAD
HILLIARD, OH 43026**

**PREPARED BY:
HULL & ASSOCIATES, INC.
6397 EMERALD PARKWAY, SUITE 200
DUBLIN, OH 43016**

NOVEMBER 2012

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1.0 SUMMARY

A delineation of surface waters completed on a Site in the City of Columbus, Franklin County, Ohio (Site) identified one Ohio Modified Class II Stream and evaluated it using a Headwaters Habitat Evaluation Index (HHEI) at two locations; Stream 1 (on-site) and Stream 1A (upstream of site) (Figure 2).

Photographs taken during the delineation are located in Appendix A and Appendix B contains the Stream data sheets.

2.0 INTRODUCTION

Hull & Associates, Inc. (Hull) conducted a surface water delineation on a Site located on the west side of the City of Columbus, Franklin County, Ohio, on November 7, 2012. A Site location map is included as Figure 1. The purpose of the delineation was to determine the extent and quality of surface waters located on the Site that may be subject to regulation under Sections 404 and 401 of the Clean Water Act (1987, as amended) or the Ohio Isolated Wetland Permit Program.

This report contains a description of investigations conducted to determine the presence or absence of wetlands and streams, and to assess the value of surface waters found on the Site. The report includes: a summary of findings; a description of stream delineation criteria; a summary of resource materials used to plan and conduct field activities; a description of the stream delineated on the Site; and a description of the city of Columbus Stream Corridor Protection Zone.

A surface water delineation report is a necessary component of determining whether an entity must submit permit applications to the Ohio EPA for planned project activities. The USACE issues Clean Water Act (CWA) Section 404 permits, which are required for anyone who plans to discharge dredged or fill material into waters of the U.S.

3.0 DELINEATION CRITERIA

In stream delineation, the location and length of streams is determined from existing mapping information and/or via surveying streams in the field. Note that some streams too small to be included on U.S. Geological Survey (USGS) topographic maps may nevertheless be under CWA jurisdiction. Jurisdictional streams generally have a defined channel, an Ordinary High Water Mark and discernible bed and bank features, and may have other morphological features typical of streams including riffles and pools, meanders, and a floodplain.

The USACE has sole authority to verify delineations of surface waters and to determine whether water bodies are isolated or non-isolated. Verification occurs after review of a delineation report and a field visit by USACE staff. Delineations are valid for a period of five years from the date of the USACE delineation verification letter.

4.0 INVESTIGATION METHODS

4.1 General

Prior to visiting the Site, Hull compiled the following existing information about the Site:

- **United States Geological Survey (USGS) 7.5 Minute Topographic Map of Site.** This figure is included as Figure 1.
- **Natural Resources Conservation Service (NRCS) Soil Survey of Franklin County, Ohio** – The soil survey identifies one soil mapping unit on the Site:
 - **Kokomo silty clay loam (Ko):** This is a nearly level, very deep, very poorly drained soil. Typically the surface layer is silty clay loam about 9 inches thick. The surface layer has a high content of organic matter. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. The soil is not flooded and is ponded for a long duration. The top of seasonal high water table is at 6 inches. The soil contains a maximum amount of 35 percent calcium carbonate. The land capability classification is 2w. This soil is hydric.
- **United States Department of Interior National Wetlands Inventory (NWI) Maps** – These data provide an indication of the presence of wetland and open-water areas across the Site, as defined by the U.S. Fish and Wildlife Service (USFWS) classification system (Cowardin et al., 1979). The notation of a wetland on a NWI Map indicates that wetlands may occur or have occurred in the area. Often, those wetlands depicted on NWI maps are the wettest spots in a given area. NWI map information is used to supplement knowledge about a site and cannot take the place of field observations due to minimal ground truthing, map age, map scale, and wetland criteria that differ from USACE wetlands criteria.

There are no mapped NWI wetlands on the Site.

- **Locations and Drainage Areas of Streams** – Stream GIS coverage obtained from the National Streams Database was plotted for the Site. StreamStats, a US Geological Survey web program application, was used to determine the drainage area of each stream at its point of confluence with the next higher-order stream.

Hull used this preliminary information to perform screening of the Site to plan and focus on-site investigations.

4.2 Methods for Delineating and Evaluating Streams

Streams identified on US Geological Survey (USGS) topographic maps are generally found to be under the Clean Water Act jurisdiction of the USACE. Additional streams may be identified

in the field by the presence of a defined bed and bank and other stream morphological features. Suspected stream channels are examined upstream to identify the source of water and downstream to determine if the channel ends in a wetland, a confluence with another stream, a culvert inlet, or another fate.

Hull evaluates streams with a drainage area greater than one square-mile or exhibiting pools greater than 40 cm using the Ohio Qualitative Habitat Evaluation Index (QHEI) scoring method and it evaluates streams with a drainage area less than one square-mile using the Ohio Headwater Habitat Evaluation Index (HHEI). These methods yield a numerical score for the stream reach evaluated, which is then used to estimate the probable existing aquatic life use of each stream. When biotic evaluation of streams is necessary, Hull uses appropriate methods including the Index of Biotic Integrity (IBI) for larger streams and the Headwaters Macroinvertebrate Field Assessment Index (HMFBI) and Visual Encounter Survey (VES) for salamanders.

Scores from the HHEI are used to assign each headwater stream to one of the following aquatic life existing uses:

- Class I – **Lowest value category.** These streams are limited to intermittent or ephemeral streams with warm water conditions. They may contain ephemeral warm water communities, but are often dry for long periods of time.
- Class II – **Middle value category.** These streams are perennial or intermittent with warm water conditions. They generally contain species of animals that are adapted to warm water streams, including certain amphibians and pioneering fish species, along with invertebrates such as odonate larvae.
- Class III – **Highest value category.** These streams are perennial with cold water conditions, and are usually groundwater fed. They contain species of animals adapted to the year-round presence of cool water, including certain amphibians or fish species, along with insect larvae such as mayflies, stoneflies, and caddisflies. Subcategories of Class III headwater streams are recognized, including Class IIIA (which do not support cold-water adapted vertebrates or certain cold water adapted invertebrate taxa) and Class IIIB, which support both cold-water adapted vertebrate and invertebrate taxa.

5.0 DELINEATION RESULTS

5.1 Streams

Hull identified one stream on the Site and evaluated it in two locations (upstream of the Site and on-site) (Figure 2). Details are indicated on the following table:

Stream ID	Watershed Size (mi ²)*	HHEI Score [†]	Stream Name	8 Digit HUC	Designated Beneficial Use [§]	Existing Beneficial Use [†]	Flow Regime [†]	Photo No.
1	1.46	39	UT to Scioto River	05060001	None	Modified Class II	Ephemeral	1-4, 11-12
1A	0.94	42	UT to Scioto River	05060001	None	Modified Class II	Intermittent	5-8

[†] Subject to verification by Ohio EPA

[§] Ohio Administrative Code Chapter 3745-1

* Determined using USGS Stream Stats Web Program

5.1.1 Stream 1

Stream 1 is an unnamed tributary to the Scioto River with a drainage area of 1.46 square miles. No pools (plunge pools excluded) were greater than 40cm (15.75 in) in depth therefore Stream 1 was evaluated using the Ohio Headwater Habitat Evaluation Index (HHEI). Stream 1 does not have an assigned Aquatic Life Use designation and has not been monitored by Ohio EPA for aquatic life and chemical parameters. The HHEI score of 39 identifies it as a Modified Class II Primary Headwater Habitat (PHWH) intermittent stream. Substrates within the assessed reach consisted almost entirely of silt with small amounts of fine detritus and gravel. Wetland vegetation inhabited the entire bed of the evaluated 200 ft. reach of Stream 1 with the exception of a wide deep plunge pool from a concrete culvert running under a driveway to an adjacent property.

5.1.2 Stream 1A

Stream 1A is the upstream portion of Stream 1 evaluated approximately 250 ft. upstream. Stream 1A has a drainage area of 0.94 square miles. Stream 1A was evaluated using the Ohio Headwater Habitat Evaluation Index (HHEI) because it exhibited a moist channel and did not contain any pools (plunge pools excluded) greater than 40cm (15.75 in) in depth. Stream 1A does not have an assigned Aquatic Life Use designation and has not been monitored by Ohio EPA for aquatic life and chemical parameters. The HHEI score of 42 identifies it as a Modified

Class II Primary Headwater Habitat (PHWH) ephemeral stream. Substrates within the assessed reach consisted primarily of silt and gravel with lesser amounts of leafpack/woody debris, cobble, and artificial concrete boulders. Stream 1A had a moist channel throughout with the exception of the last 40 ft. of the evaluated reach. This portion of the stream was a wet channel lacking flow that originates from a concrete 12 in. culvert built into the north bank. Stream flow begins approximately 80 feet downstream of the end of the evaluated 200 ft. stream reach at the end of a culverted driveway crossing.

6.0 STREAM CORRIDOR PROTECTION ZONE

The Columbus Stormwater Drainage Manual establishes a Stream Corridor Protection Zone (SCPZ) along all streams within the city limits. The size of the SCPZ is calculated on the basis of drainage area.

The SCPZ at the proposed location of new construction at 3800 Scioto Darby Creek Rd. Hilliard, OH is calculated as:

$$147 (DA)^{0.38}$$

Where DA is equal to the drainage area in square miles.

$$\text{SCPZ} = 147(1.46)^{0.38} = 169.7 \text{ feet}$$

The SCPZ is centered on the centerline of Stream 1. With a stream width of 14 ft. at the top of the bank, the SCPZ extends 78 ft. from the top of the bank on each side of the stream.

The ecological quality of the SCPZ is low, as it contains mainly herbaceous vegetation and has been maintained free of woody vegetation. On the north bank, a parking area was created at a time predating the Columbus Stormwater Drainage Manual. The stream itself has been impacted by sedimentation, erosion and hydrologic modification including straightening and elimination of floodplain.

Any impacts to the SCPZ may be adequately mitigated on an adjacent property located east of the subject property (Figure 2). The adjacent property has sufficient room laterally to restore and designate an SCPZ at a mitigation ratio of 1:1.5 as specified by the Columbus Stormwater Drainage Manual. Restoration activities would include planting native woody species.

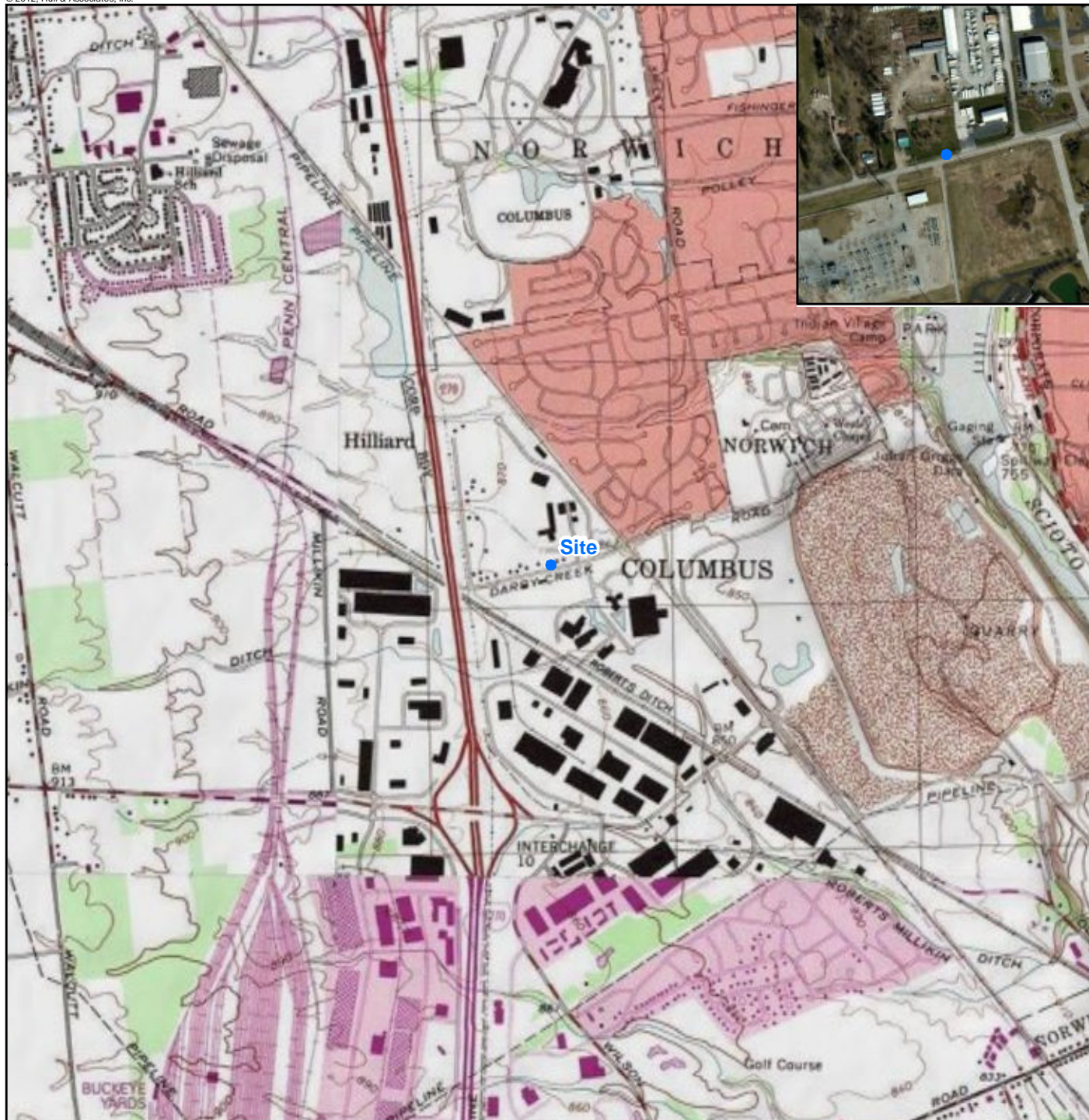
7.0 REPORT LIMITATIONS

The conclusions presented herein are based on the level of effort and investigative techniques defined under the Scope of Work. Hull & Associates, Inc. has conducted this investigation in a manner consistent with published guidance, sound ecological practices, and best professional judgment. No other warranty or guarantee, expressed or implied, is made. This report does not attempt to evaluate past or present compliance with Federal, State and Local environmental or land use laws and regulations. Furthermore, Hull & Associates, Inc. makes no guarantees regarding the completeness or accuracy of any information obtained in review of public or private files or previous investigations at the Site not conducted by Hull & Associates, Inc. The results of the surface water delineation and the surface water evaluation are subject to verification by the USACE and Ohio EPA, respectively.

8.0 REFERENCES

- City of Columbus Department of Public Utilities, Division of Sewerage and Drainage, 2012. Stormwater and Drainage Manual.
- Ohio Environmental Protection Agency, Division of Surface Water, 2012. Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams (HHEI). Columbus, Ohio.
- U.S. Army Corps of Engineers, 1999. Standard Operating Procedures for the Regulatory Program.
- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2006. Franklin County Hydric Soils List. <http://soildatamart.nrcs.usda.gov/Survey.aspx?County=OH049> Department of Agriculture, Soil Resources.

FIGURES



Legend

● Site Location

Source: The topographic map was acquired through the USGS Topographic Map web service. Topo quadrangle date not provided.

The aerial photo in the inset was acquired through the Microsoft Virtual Earth Aerial Photography web service. Aerial photography date not provided.

0 500 1,000 2,000 Feet
1:24,000



Hull
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Dublin, Ohio 43016

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Lee's RV and Boat Rental
Storage Expansion Project

Site Location Map

3800 Scioto Darby Creek Rd.
Columbus, Franklin County, Ohio 43026

Date:

November 2012

File Name:

LRV001_01_Fig01_SiteLoc.mxd

Edited: 11/13/2012 By: lpeluchette

Figure

1



Lee's RV and Boat Rental

Stream 1A

Stream 1

Legend

- Potential SCPZ Mitigation Area
- Proposed Construction Area
- Streams

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November 2012

Lee's RV and Boat Rental
Storage Expansion Project

Figure

Surface Water Delineation Map

2

3800 Scioto Darby Creek Rd.
Columbus, Franklin County, Ohio

APPENDIX A

Photographs



Photo 1 – Photo of Stream 1 facing East looking downstream.



Photo 2 – Photo of plunge pool from culverted driveway on Stream 1 facing West looking upstream.



Photo 3 – Photo showing substrate and flow in Stream 1.



Photo 4 – Photo showing wetland vegetation throughout bed of Stream 1 facing East.



Photo 5 - Photo of Stream 1A looking upstream facing West.



Photo 6 – Photo of Stream 1A looking downstream facing East.



Photo 7 – Photo showing 12 inch culvert on the North bank of Stream 1A . Stream 1A becomes intermittent from this point.



Photo 8 – Photo of pool in Stream 1A on West side of culverted driveway on adjacent property facing East.



Photo 9 – Photo showing floodplain on the North side of Stream 1A; a landscaping business



Photo 10 – Over-all photo of the property facing South.



Photo 11 – View of Stream 1 in August showing wetland vegetation throughout bed.



Photo 12 – View of Stream 1 bed consisting of wetland vegetation in August.

APPENDIX B

HHEI and Stream Cross-Section Data Sheets



Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3):

39

SITE NAME/LOCATION LRV001 SITE NUMBER RIVER BASIN Scioto DRAINAGE AREA (mi²) 1.46
 LENGTH OF STREAM REACH (ft) Stream 1 LAT. 40.0120 LONG. 83.1151 RIVER CODE RIVER MILE
 DATE 11-7-12 SCORER K. Hershey-Hill COMMENTS

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY
 MODIFICATIONS ditched

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	<u>80</u>
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	<u>10</u>
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)	<u>10</u>	<input type="checkbox"/> CLAY or HARDPAN (0 pt)	
<input type="checkbox"/> GRAVEL (2-64 mm) (9 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0

(A)

6

(B)

3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40

9

A + B

Pool Depth Max = 30

15

Bankfull Width Max = 30

15

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

<input type="checkbox"/> > 30 centimeters (20 pts)	<input checked="" type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (30 pts)	<input type="checkbox"/> < 5 cm (5 pts)
<input type="checkbox"/> > 10 - 22.5 cm (25 pts)	<input type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS 4" = 10 cm

MAXIMUM POOL DEPTH (centimeters):

10

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

<input type="checkbox"/> > 4.0 meters (> 13') (30 pts)	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") (15 pts)
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') (25 pts)	<input type="checkbox"/> < 1.0 m (< 3' 3") (5 pts)
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") (20 pts)	

COMMENTS 4' 6"

AVERAGE BANKFULL WIDTH (meters)

4.5

feet

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	None

COMMENTS

FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

☒ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score NA (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Northwest Columbus NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Franklin Township / City: Columbus

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 11-2-12 Quantity: <1"

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) N If not, please explain: disturbed, floodplain on both sides disturbed (ditched)

Additional comments/description of pollution impacts: parking lot on N side, fill dirt pile on S side

BIOTIC EVALUATION

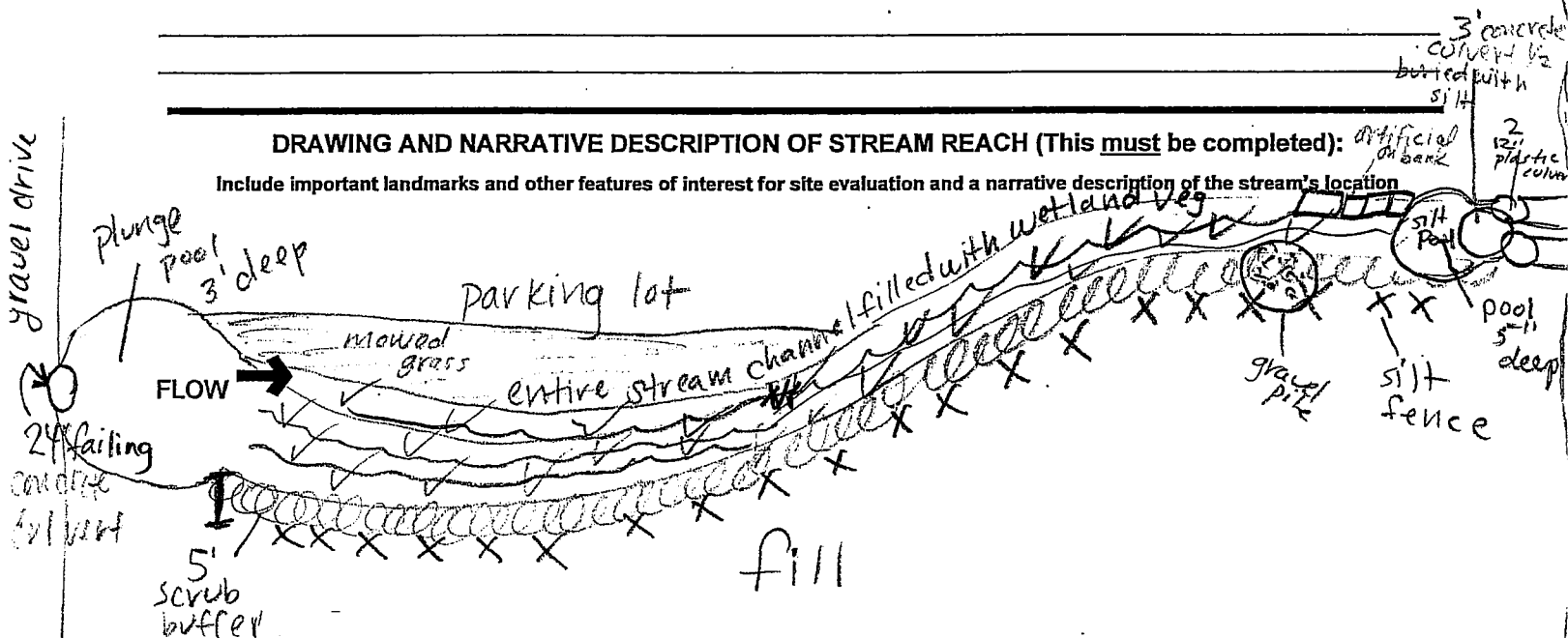
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) Y Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: (2 Frog)

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

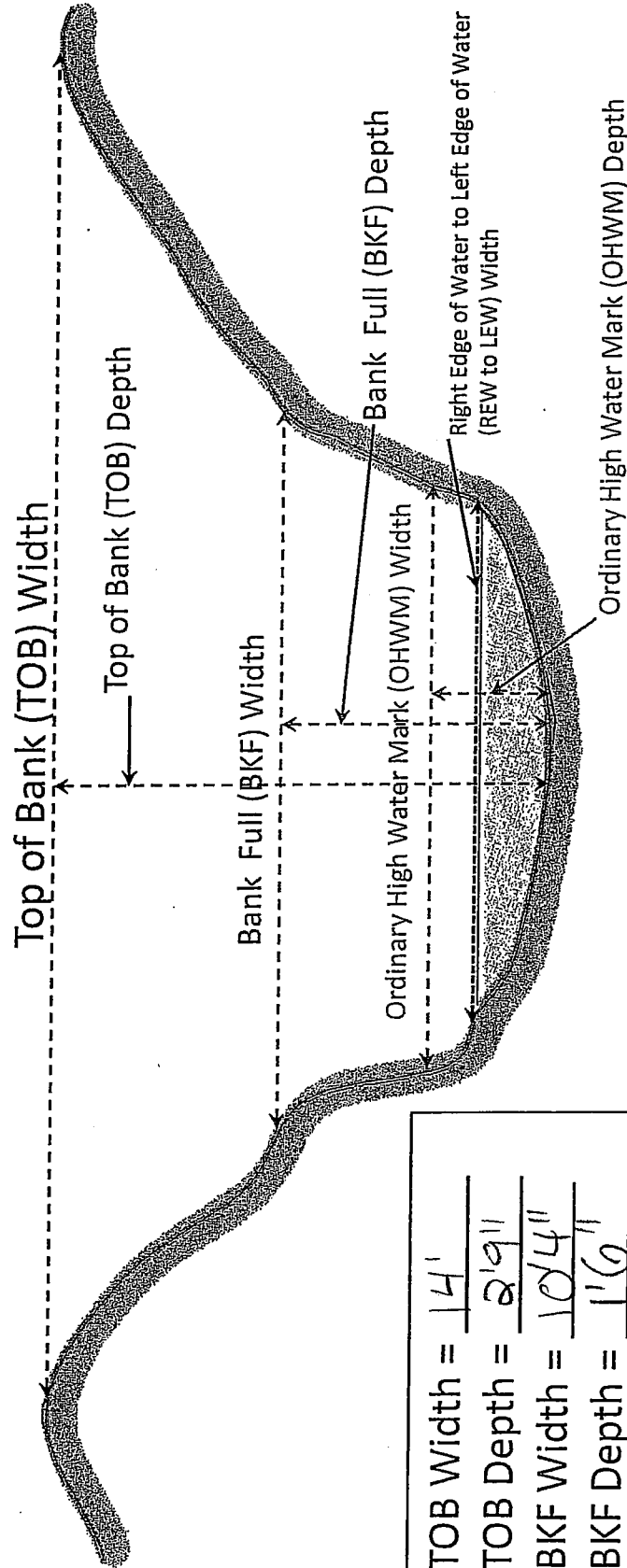


11-7-12

LRV003

Stream I Cross Section Dimensions

Stream Name: UT to Scioto River



TOB Width =	<u>14'</u>
TOB Depth =	<u>2'9"</u>
BKF Width =	<u>10'4"</u>
BKF Depth =	<u>1'6"</u>
OHWM Width =	<u>8'6"</u>
OHWM Depth =	<u>6"</u>
REW to LEW =	<u>4'6"</u>

Yes or No Existing Structure at
Proposed Crossing Location/
Possible Proposed Boring
Location



Primary Headwater Habitat Evaluation Form

Mod class II

HHEI Score (sum of metrics 1, 2, 3):

42

SITE NAME/LOCATION CRV001 - Lee's RV & Boat

SITE NUMBER Stream 1A RIVER BASIN Saidto River

DRAINAGE AREA (mi²) 1.46

LENGTH OF STREAM REACH (ft) 200 LAT. 40.0124 LONG. 83.1159 RIVER CODE _____ RIVER MILE _____

DATE 11-7-12 SCORER K. Hershey-Hill COMMENTS _____

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

MODIFICATIONS: None

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pt]	<u>40</u>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<u>15</u>
<input type="checkbox"/> BEDROCK [16 pt]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<u>10</u>	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<u>30</u>	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]		<input type="checkbox"/> ARTIFICIAL [3 pts]	<u>5</u>

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock 10

(A) 12

(B) 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS Only plunge pools

MAXIMUM POOL DEPTH (centimeters):

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input checked="" type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS _____

AVERAGE BANKFULL WIDTH (meters)

ft

HHEI Metric Points

Substrate
Max = 40

17

A + B

Pool Depth
Max = 30

0

Bankfull
Width
Max=30

25

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Wide >10m
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Narrow <5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS _____

FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

- FLOW REGIME** (At Time of Evaluation) (Check ONLY one box):

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS _____

- SINUOSITY** (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

☒ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Northwest Columbus NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
 County: Franklin Township / City: Columbus

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 11-2-12 Quantity: <1"
 Photograph Information: _____
 Elevated Turbidity? (Y/N): N Canopy (% open): 20% - honeysuckle, some trees
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____
 Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
 Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

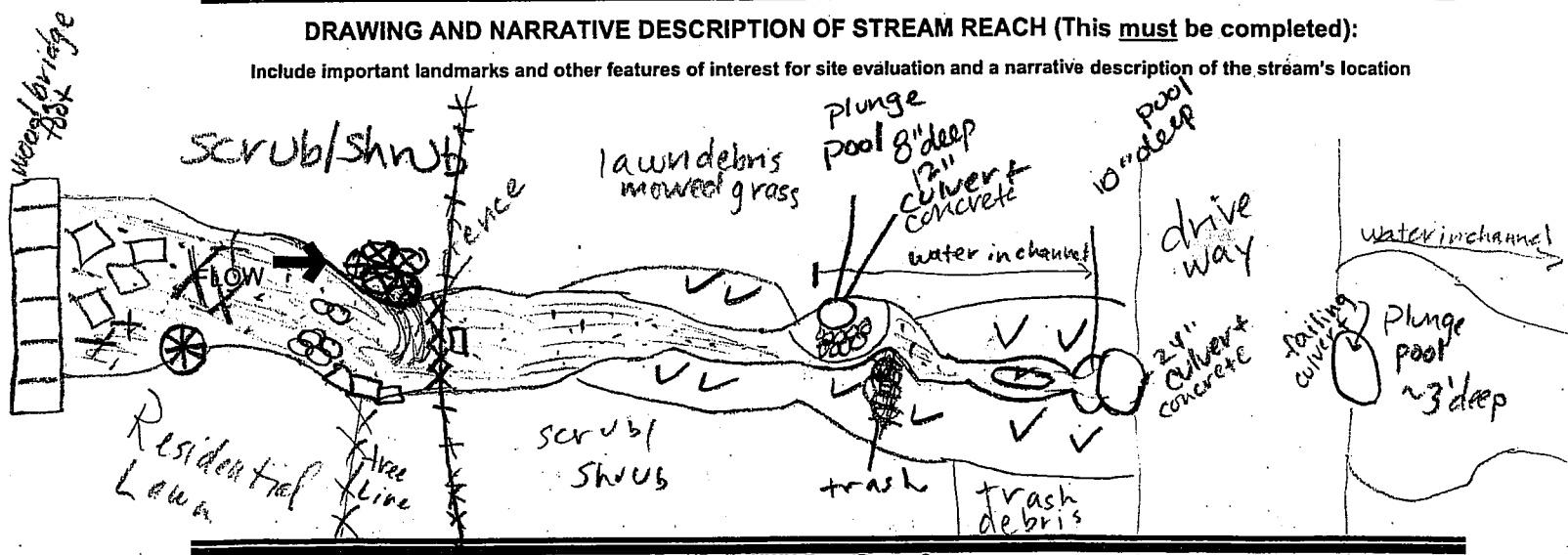
Additional comments/description of pollution impacts: parking lot run-off, adjacent to a landscaping business → possible nutrient enrichment

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
 Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N
 Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N
 Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



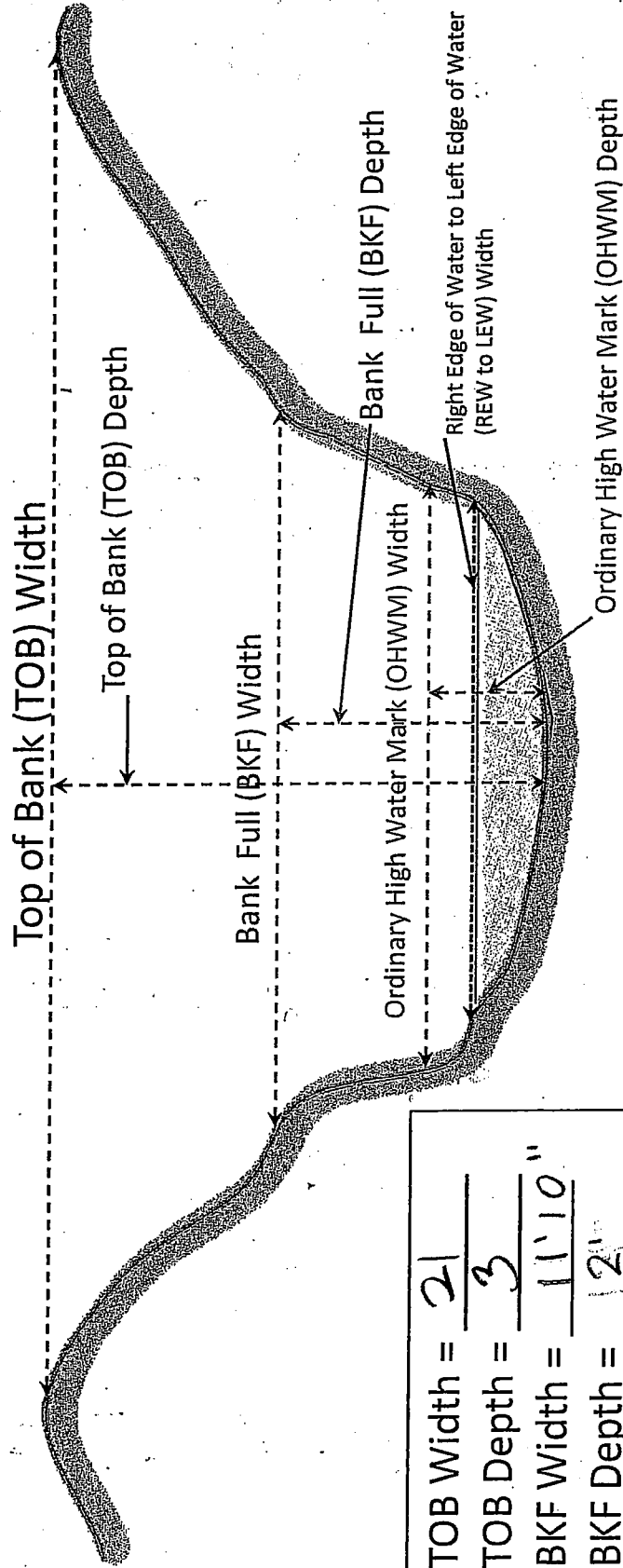
☐ = artificial
 ○ = gravel ○● = cobble ○○○ = silt XXX = woody debris ○● + tree = veg over

11-7-12

LRV002

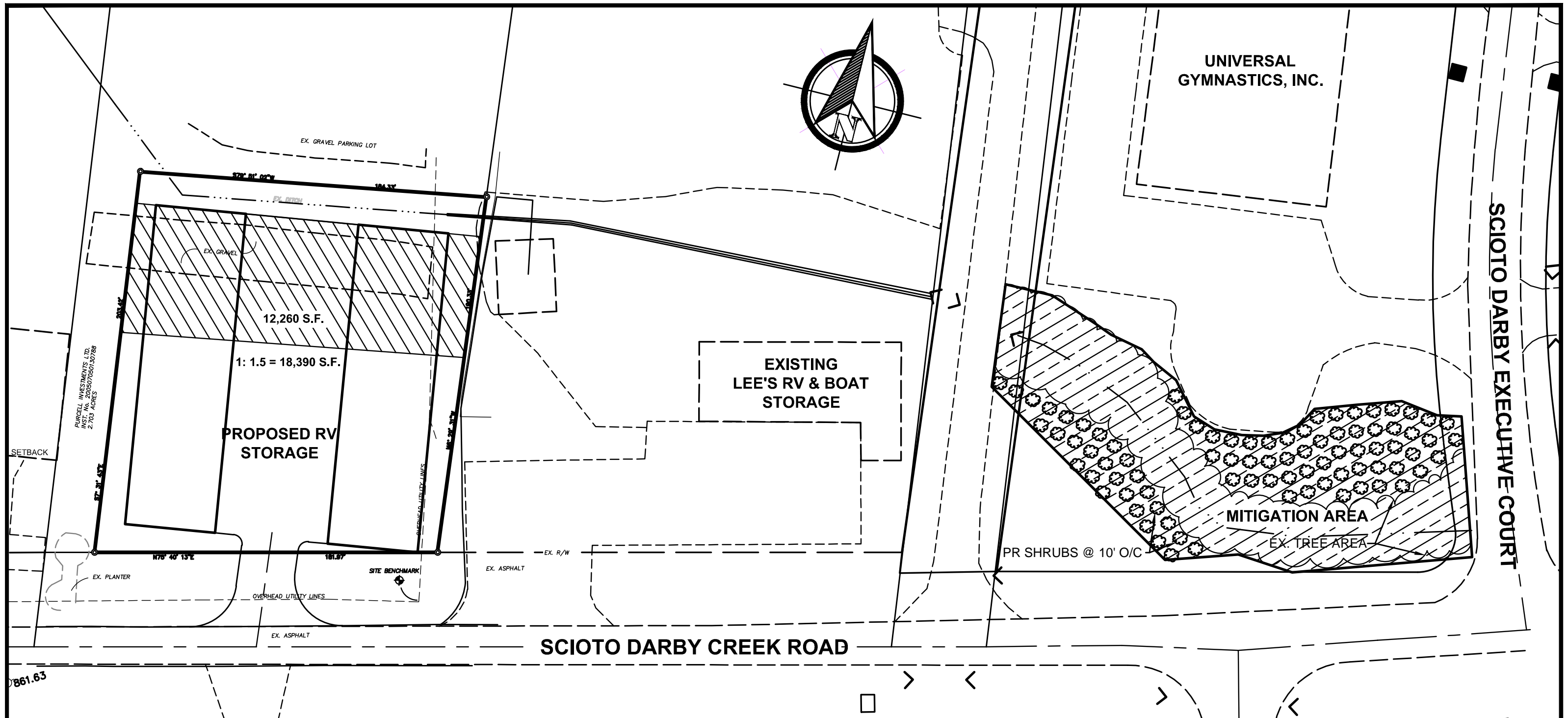
Stream 1A Cross Section Dimensions

Stream Name: UT to Scioto River



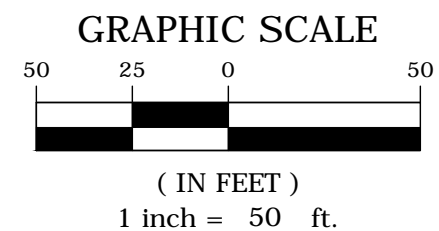
TOB Width = 21
TOB Depth = 3
BKF Width = 11' 10"
BKF Depth = 2'
OHWM Width = 11'
OHWM Depth = 1' 4"
REW to LEW = dry

Yes or No Existing Structure at
Proposed Crossing Location/
Possible Proposed Boring
Location



NOTES:

- ① AREA TO MITIGATE 12,260 S.F.
1 : 1.5 = 12,260 X 1.5 = 18,390 S.F. (0.42 ACRES)
MITIGATION AREA = 20,043 S.F.
- ② REMOVE INVASIVE SHRUBS:
-AUTUMN OLIVE
-GLOSSY BUCKTHORN
REMOVAL CONSISTS OF CUTTING DOWN AND SPRAYING STUMP WITH HERBICIDE (ESTIMATED 20-30 SHRUBS)
- ③ IN CURRENT LAWN AREA
- PLANT NATIVE UPLAND SHRUBS ON 10-FOOT CENTERS.
EXAMPLES: CORNUS DRUMMONDII
VIBURNUM PRUNIFOLIUM
VIBURNUM ACENIFOLIUM
- MAINTAIN AREAS AROUND SHRUBS BY MOWING UNTIL FULLY ESTABLISHED, THEN ABANDON THE AREA / NO MORE MOWING.



RAS CIVIL ENGINEERING, LLC

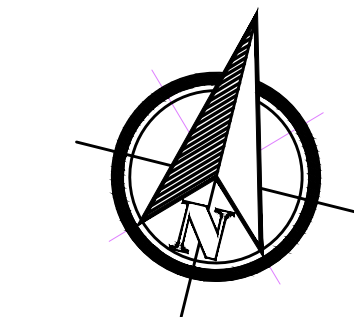
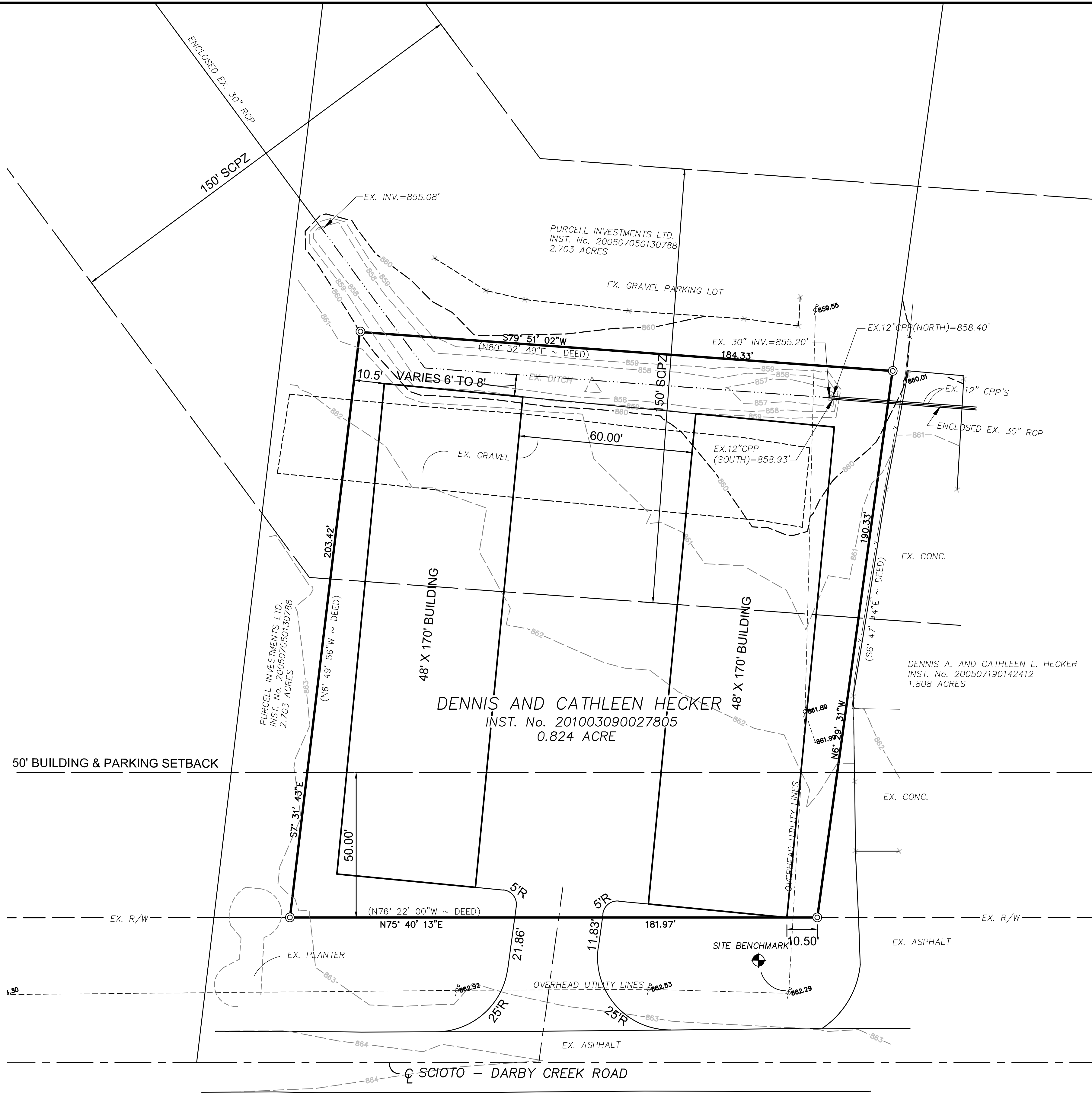
CIVIL ENGINEERING & SURVEYING SERVICES
4254 TULLER ROAD • DUBLIN • OHIO • 43017
614-581-8504 • RASLLC@AMERITECH.NET

3872 SCIOTO-DARBY CREEK ROAD ~ COLUMBUS, OHIO

**LEE'S RV STORAGE
MITIGATION PLAN**

SCALE: 1" = 50'

SHEET **1/1**



GRAPHIC SCALE
20 10 0 20
(IN FEET)
1 inch = 20 ft.

REVISIONS		
DATE	BY	DESCRIPTION



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COLUMBUS, OHIO
LEE'S RV STORAGE FACILITY
3872 SCIOTO-DARBY CREEK ROAD
PREFERRED ALTERNATE PLAN

JOB NO.:	12-014
DATE:	MAY, 2012
TIME:	
SCALE:	
HORIZONTAL:	1" = 20'
VERTICAL:	N/A
SHEET NO.:	1 / 1