



GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

FLOODPLAIN ANALYSIS REPORT
FOR
PROPOSED PICKLEBALL COURTS
MACOBY CREEK PARK



PREPARED BY
GILMORE & ASSOCIATES, INC.

A handwritten signature in blue ink, appearing to read 'D. N. Leh'.

April 2024

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Gilmore & Associates, Inc.
Building on a Foundation of Excellence
www.gilmore-assoc.com

NARRATIVE

The following is an analysis of the impact the construction of the proposed pickleball courts to be constructed in Macoby Creek Park will have on the floodplain of the Macoby Creek.

Background

Macoby Creek Park is located on Flood Insurance Rate Map (FIRM) Panel 38G. Based on the latest panel dated March 2, 2016 the 100 year Base Flood Elevation (BFE) at Macoby Creek Park is 314.50'.

Methodology

Based on LIDAR topography, Gilmore & Associates (G&A) generated a cross section through the Macoby Creek Park at the location of the proposed pickleball courts. We then computed the cross-sectional area of fill to be placed in the flood plain. We then divided this area by the approximate width of the floodplain to determine an anticipated increase in the 100 year flood elevation.

Conclusion

Based on G&A's analysis, the expected 100-year BFE will increase from 314.50' to 314.83' through the pickleball court area after construction. Section 240-9.A(2) of the Upper Hanover Township Floodplain Management Ordinance limits the allowable increase in the BFE to one (1) foot. Being as the anticipated increase in the BFE is 0.33', the project will be compliant with this section.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) Zone 18. **Horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

NGS Information Services
National Geodetic Survey, NOAA
Silver Spring Metro Center 3
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov/>.

BASE MAP SOURCE: Road centerlines were obtained in digital spatial data format from the Delaware Valley Regional Planning Commission. County and township/borough boundaries were downloaded from the Pennsylvania Spatial Data Access website. 2002 and 2005 digital orthophotographs were provided by the Delaware Valley Regional Planning Commission. Streamlines were digitized based on the orthophotos. Adjustments were made to specific base map features to align them to 1"=200' scale orthophotos.

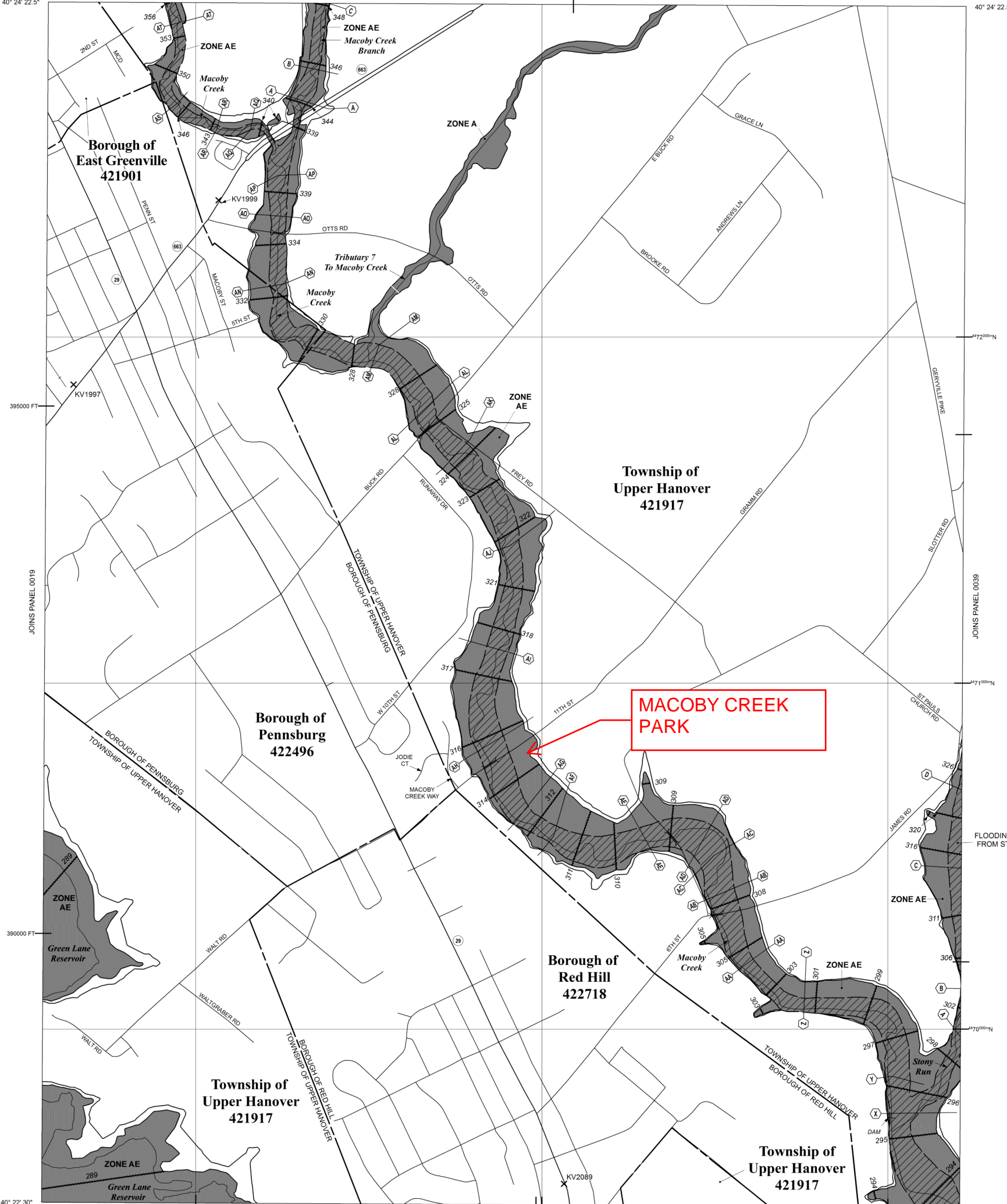
Based on updated topographic information, this map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables may reflect stream channel distances that differ from what is shown on the map. Also, the road to floodplain relationships for unrevised streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at <http://msc.fema.gov/>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/business/nfip>.



The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equalled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

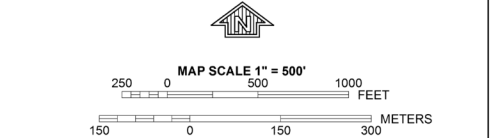
- OTHER FLOOD AREAS**
- ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- OTHER AREAS**
- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.
- COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**
- OTHERWISE PROTECTED AREAS (OPAs)**

- CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Base Flood Elevation line and value; elevation in feet*
- Base Flood Elevation value where uniform within zone; elevation in feet*

- * Referenced to the North American Vertical Datum of 1988
- Bridge
- Culvert
- Cross section line
- Transect line
- 87°07'45", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4276 000 M 1000-meter Universal Transverse Mercator grid values, zone 18
- 600000 FT 5000-foot grid ticks; Pennsylvania State Plane (South) coordinate system (FIPSZONE 3702); Lambert Conformal Conic projection
- DX5510 x Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index
EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
DECEMBER 19, 1996

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
MARCH 2, 1998 APRIL 21, 1999 AUGUST 9, 1999 OCTOBER 19, 2001
MARCH 2, 2016 - to add, change and delete Special Flood Hazard Areas; to reflect updated topographic information; to change, add Base Flood Elevations; and to incorporate previously issued Letters of Map Revision.
For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.
To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.



NFIP PANEL 0038G

FIRM FLOOD INSURANCE RATE MAP

MONTGOMERY COUNTY, PENNSYLVANIA (ALL JURISDICTIONS)

PANEL 38 OF 451
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

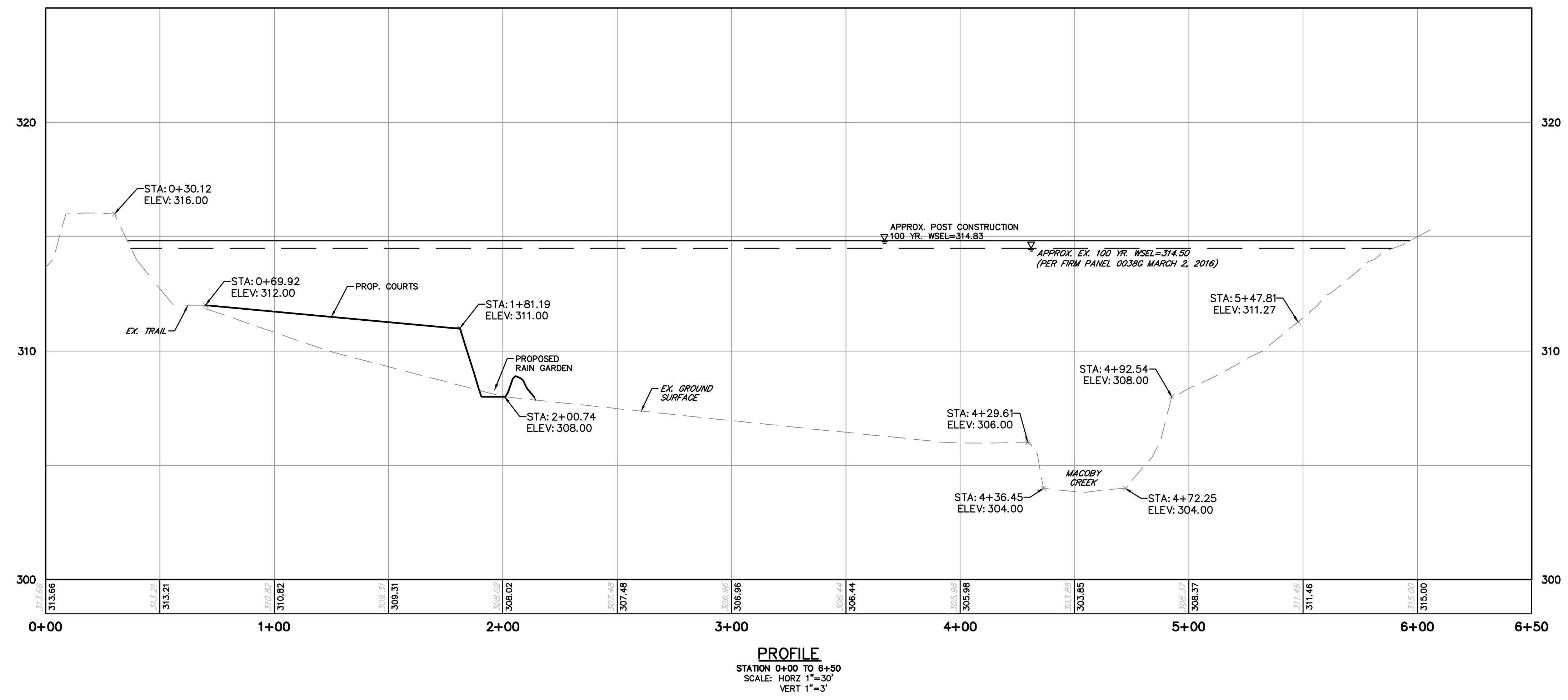
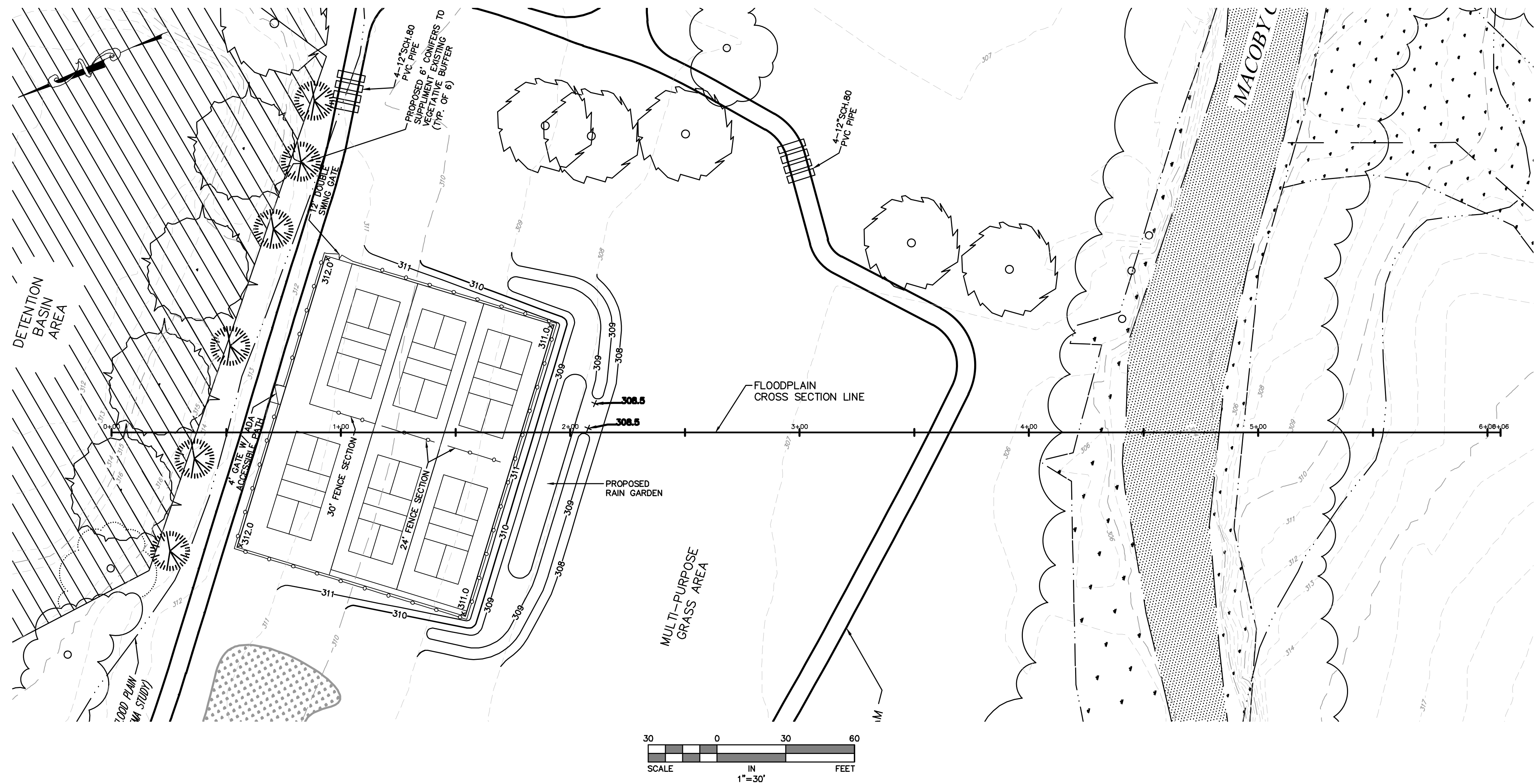
CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EAST GREENVILLE, BOR OF	421901	0038	G
PENNSBURG, BOR OF	422496	0038	G
RED HILL, BOR OF	422718	0038	G
UPPER HANOVER, TWP OF	421917	0038	G

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER 42091C0038G
MAP REVISED

N:\shara\Municipal\Upper_Hanover_Twp\9991078 - General Engineering Services - Upper Hanover Township\Pickelball Courts\Production Drawings\Profile_Sht.dwg Layout: P&P Plotted By: Hfiskinger, on Thu Apr 18, 2024 at 2:10pm



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PA LAW REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL, BLAST OR DEMOLISH

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ENGINEERING & CONSULTING SERVICES
14 WEST MAIN STREET, SUITE 300, TRAPPE, PA 17388 • (717) 461-4848 • www.gilmore-associ.com

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REV.	DESCRIPTION	DATE	BY

MACOBY RUN PARK PICKLEBALL COURT PROJECT
UPPER HANOVER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA
FLOODPLAIN EXHIBIT



GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

PROJECT No.: 9991078

OWNERS INFO:
UPPER HANOVER TOWNSHIP
1704 PILLSBURY ROAD
EAST GREENVILLE, PA 18041
215-679-4401

MUNICIPAL FILE No.: -

TAX MAP PARCEL No.: -

TOTAL AREA: - AC. TOTAL LOTS: -

DATE: 04/18/24 SCALE: 1"=30'

DRAWN BY: TBF CHECKED BY: DNL

SHEET NO.: 2 OF 2

NOT APPROVED FOR CONSTRUCTION