DNR Indiana Department of Natural Resources

DIVISION OF WATER

INFIP – What The Public Doesn't Know

Indiana Floodplain Information Portal

How the DNR DOW create and maintain the INFIP App

INFIP portal with Point of Interest and link to generated report

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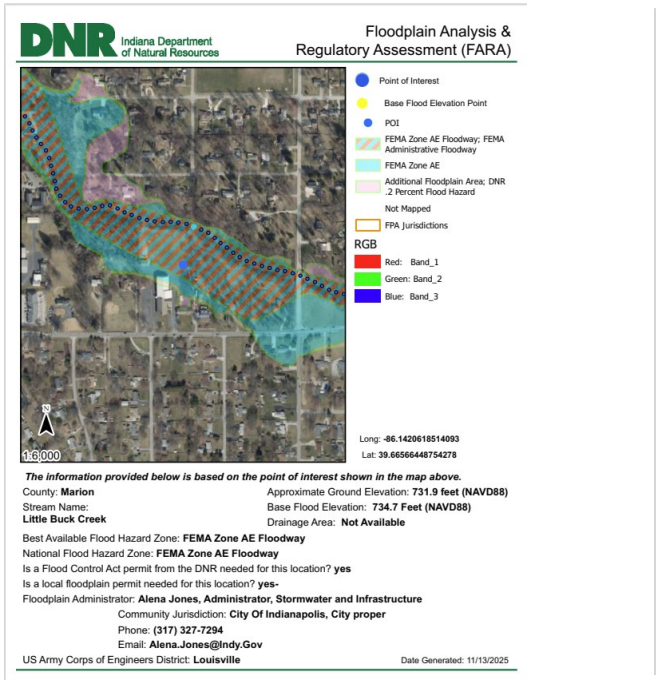
Purpose of INFIP

- To build public trust
  - The portal creates ease and timeliness for getting detailed regulatory information.
  - Provides a point of contact for local Floodplain Administrator with current contact information
  - Streamlines access to requesting further information about point of interest
- DNR Division of Water
  - Improves standard operating procedures by reducing the number of public inquiries via using the self-service option.
    - The portal generates a Floodplain Analysis & Regulatory Assessment (FARA).
  - Creates a queue when further information is needed by the requestor for a specific point on the map and allows engineers to keep turn-around time under the agency's regulatory 120 days response time.
  - Keeps agency spending down
    - The GIS team is able to build and troubleshoot as needed. We also work with our previous partners to make required changes, without contracting out.



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Floodplain Analysis & Regulatory Assessment (FARA)

Point of Interest
Base Flood Elevation Point
POI
FEMA Zone AE Floodway; FEMA Administrative Floodway
FEMA Zone AE
Additional Floodplain Area; DNR .2 Percent Flood Hazard
Not Mapped
FPA Jurisdictions
RGB
Red: Band_1
Green: Band_2
Blue: Band_3

1:6,000

Long: -86.1420618514093
Lat: 39.66566448754278

The information provided below is based on the point of interest shown in the map above.

County: **Marion**
Stream Name: **Little Buck Creek**
Approximate Ground Elevation: **731.9 feet (NAVD88)**
Base Flood Elevation: **734.7 Feet (NAVD88)**
Drainage Area: **Not Available**

Best Available Flood Hazard Zone: **FEMA Zone AE Floodway**
National Flood Hazard Zone: **FEMA Zone AE Floodway**
Is a Flood Control Act permit from the DNR needed for this location? **yes**
Is a local floodplain permit needed for this location? **yes-**
Floodplain Administrator: **Alena Jones, Administrator, Stormwater and Infrastructure**
Community Jurisdiction: **City Of Indianapolis, City proper**
Phone: **(317) 327-7294**
Email: **Alena.Jones@Indy.Gov**
US Army Corps of Engineers District: **Louisville**
Date Generated: 11/13/2025

About the Floodplain Analysis and Regulatory Assessment (FARA):

All streams have a floodplain, whether mapped or not. This FARA, and the information provided herein, is designed for sites along streams with a mapped floodplain that delineates the floodway portion of the floodplain; see the image below for a visual guide to the floodplain, floodway, and flood fringe. The information in this document was determined using an automated mapping tool. The DNR has high confidence in the tool, but there are scenarios where the floodplain information provided requires additional review from the DNR.

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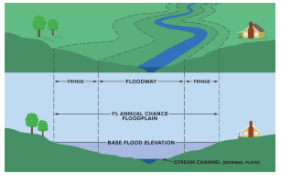
- The base flood elevation on page 1 is not available
- The tool selects the nearest flood elevation point for a stream outside the floodplain associated with the point of interest
- There is not a delineated floodway for the stream nearest your point of interest
- The point of interest is along a stream without a mapped floodplain
- The point of interest is in a mapped floodplain of another stream, but the stream nearest the point of interest does not have a mapped floodplain with a floodway of its own



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We recommend keeping a copy of this FARA for your records as the DNR will not have a copy on file.
For additional information on floodplain regulations please copy the following line into a web browser:
https://countydataharvest.in.gov/DNR/INFIP_Report_Backpgs.pdf

PATH TO COPY INTO WEB BROWSER TO COMPLETE SURVEY:

https://survey123.arcgis.com/share/3293526dfdca453e95c19b08fb7bdcfb??FIELD%3ALAT1=39.66566448754278&FIELD%3ALON1=-86.1420618514093&FIELD%3ADNR_PERMIT=yes&FIELD%3ALO&FIELD%3ASTREAM=LITTLE+BUCK+CREEK&FIELD%3AINIT_DATE=11%2F13%2F2025&FIELD%3ABFE=734.7091293

Example of generated FARA Report

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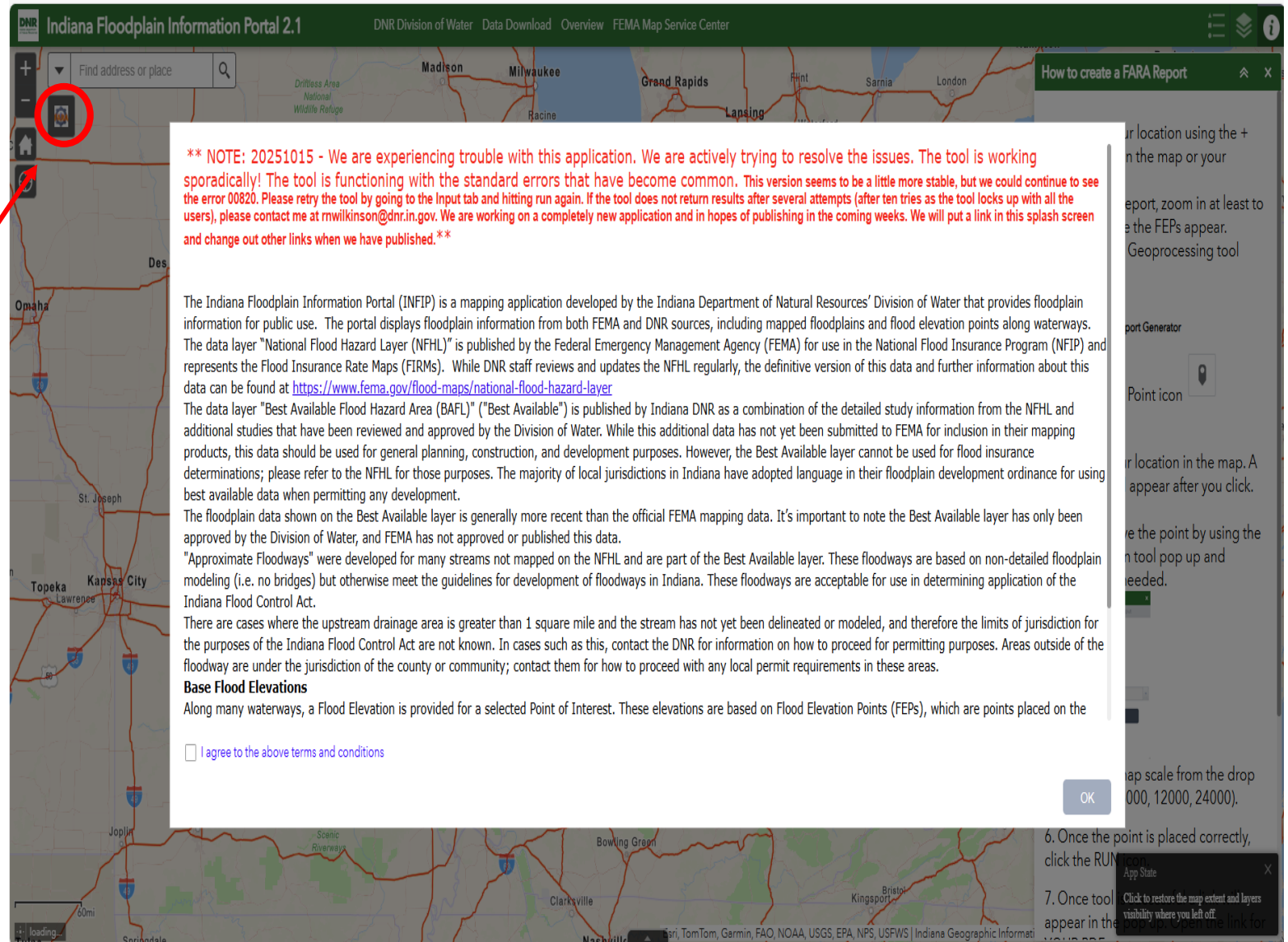
INFIP 2.1 Application

- [Indiana Floodplain Information Portal 2.1]
- This is a Publicly accessed AGOL App
- Inhouse tool built to specified requirements to allow users to get information on state floodplain regulations from the DOW maintained databases



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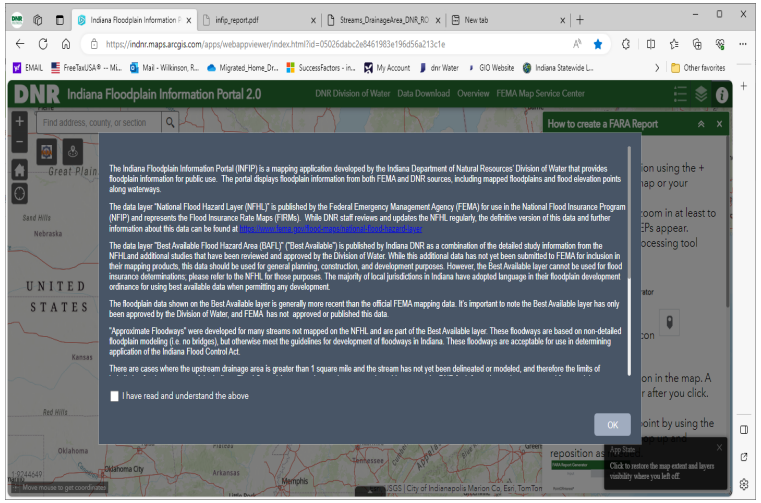
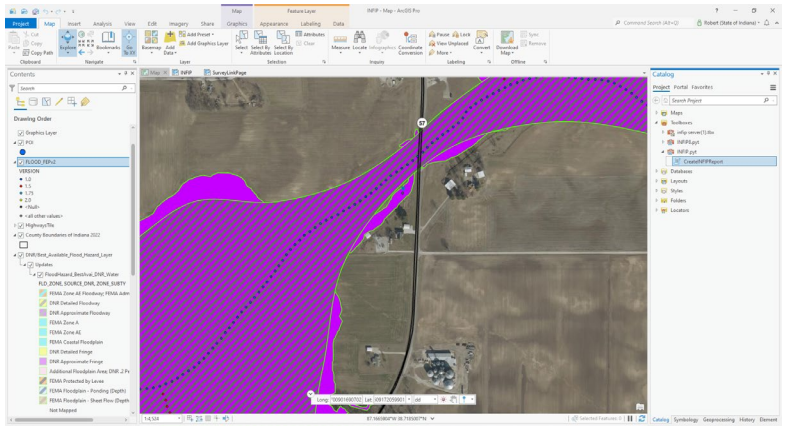
Layers for INFIP

Layers of INFIP

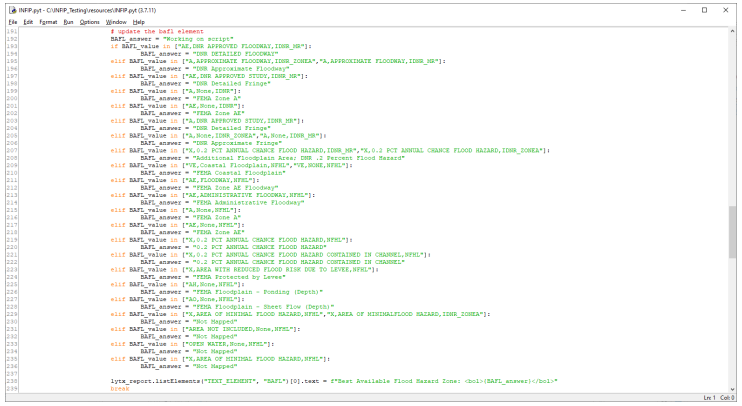
- Public will use the INFIP 2.1 App
- Tool will create the PDF from information drawn from the GIS Layers, placed on the PDF according to where the elements are situated on the layout view in ArcPRO



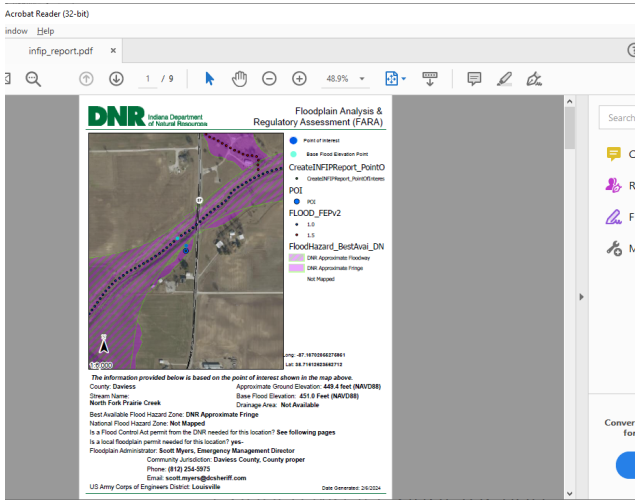
INFIP 2.1 WebApp



ArcPRO .APRX



INFIP.pyt



INFIP_REPORT.pdf (FARA)

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Layers for INFIP

FEPS- https://gisdata.in.gov/server/rest/services/Hosted/FEPv2gdb/FeatureServer (0)

Roads-https://gisdata.in.gov/server/rest/services/Hosted/HighwaysTile/MapServer

Counties-https://gisdata.in.gov/server/rest/services/Hosted/County_Boundaries_of_Indiana_2022/FeatureServer (0)

BAFL-https://gisdata.in.gov/server/rest/services/DNR/Best_Available_Flood_Hazard_Layer/MapServer

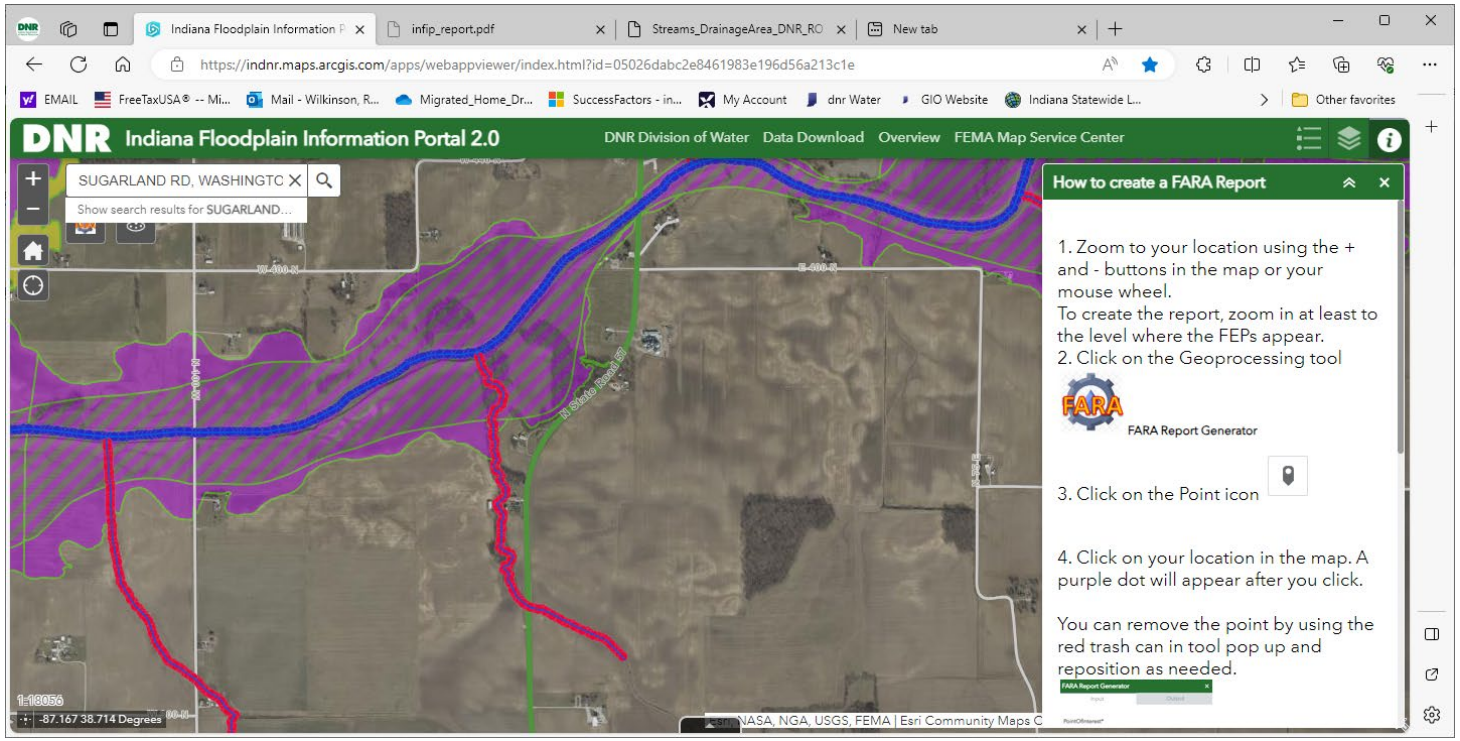
Imagery - https://di-ingov.img.arcgis.com/arcgis/services/DynamicWebMercator/Indiana_Current_Imagery/ImageServer

DEM- https://di-ingov.img.arcgis.com/arcgis/services/DynamicWebMercator/Indiana_2016_2020_DEM/ImageServer

INFIP 2.1

Example

- Site level zoom
- Layers shown: BAFL, FEPS, NHD, and transportation



INFIP 2.1 example showing layers

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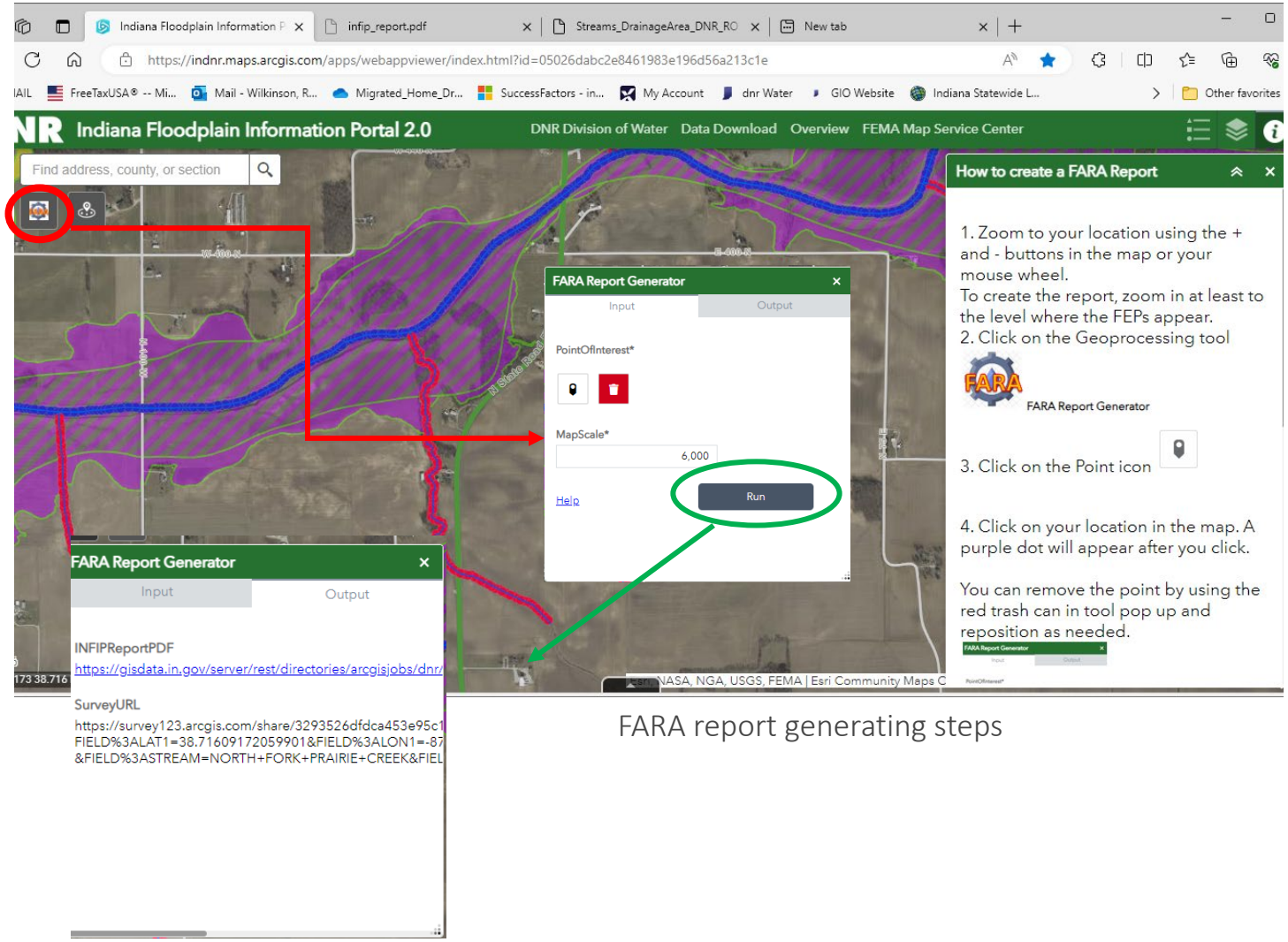
FARA REPORT GENERATOR

Steps to Generate a FARA

- Initiate the tool by selecting it on the screen
- Pop up will show as “FARA Report Generator
- Select and place the curser on desired location, select the ‘MapScale’, then ‘RUN’
- This will result in the pop up
  - Gives a link to the PDF report
  - Gives path to the Survey123 that allows user to submit questionnaire with pertinent data in survey filled out (This link is also printed out on PDF report but is not fully functional).
- Select the ‘INFIPReportPDF’ link to open



FARA report generating steps

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INFIPREPORT.PDF

Report

- When the link is activated, the PDF will open in a new Tab in your browser!
- The report is 9 pages long

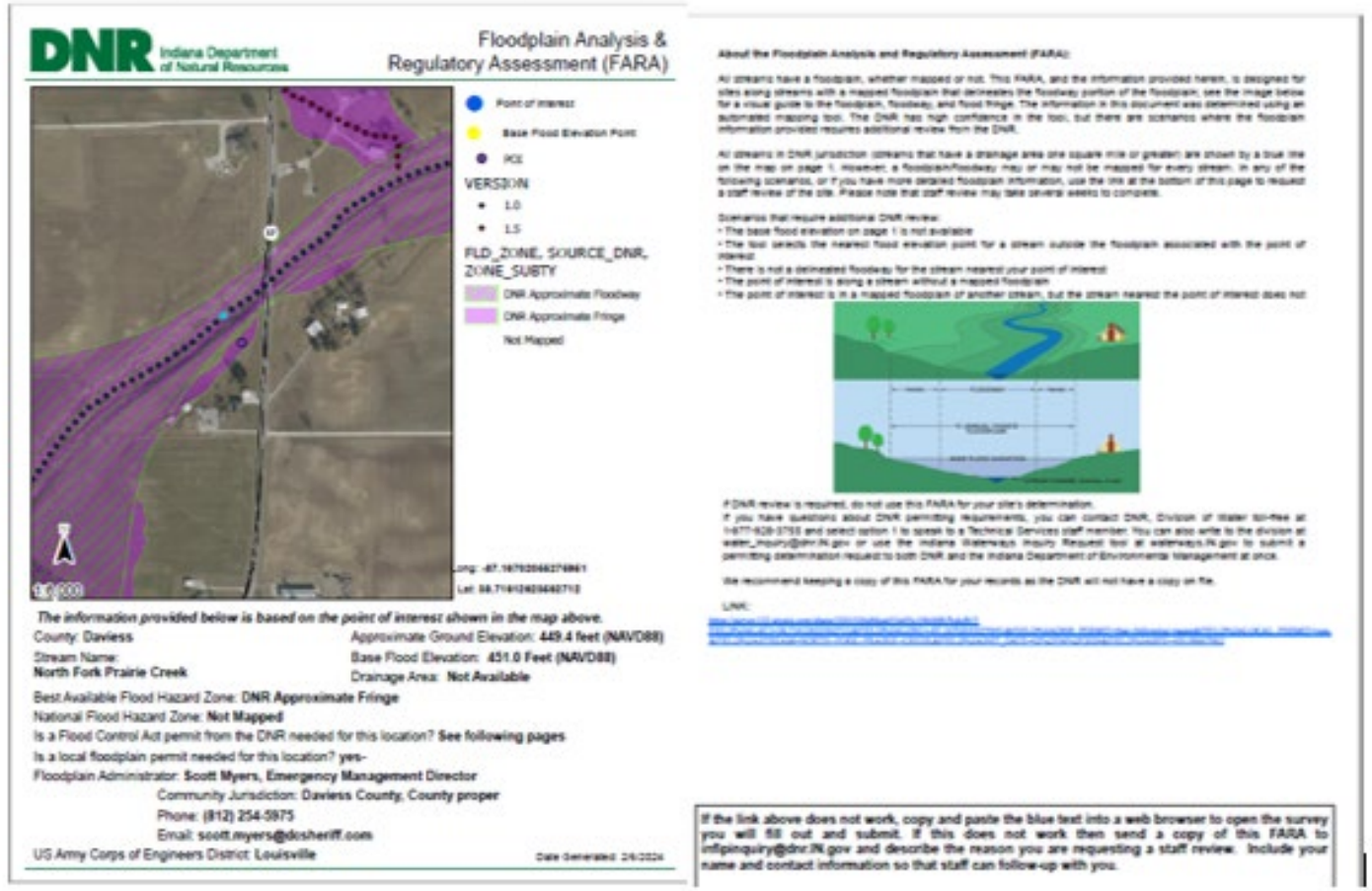
Page 1

All pertinent information the user needs to determine their status is on page 1

- The map will show, at scale, the point of interest they selected in the tool.
- Nearest FEP is selected (cyan)
- Legend – is dynamic in this version
- Information for the POI is below the map and displayed for the user's decision

Page 2

Contains the survey link for access to additional DOW support



Page 1 and Page 2 of the FARA report

*DOW's GIS team can update this document as needed.

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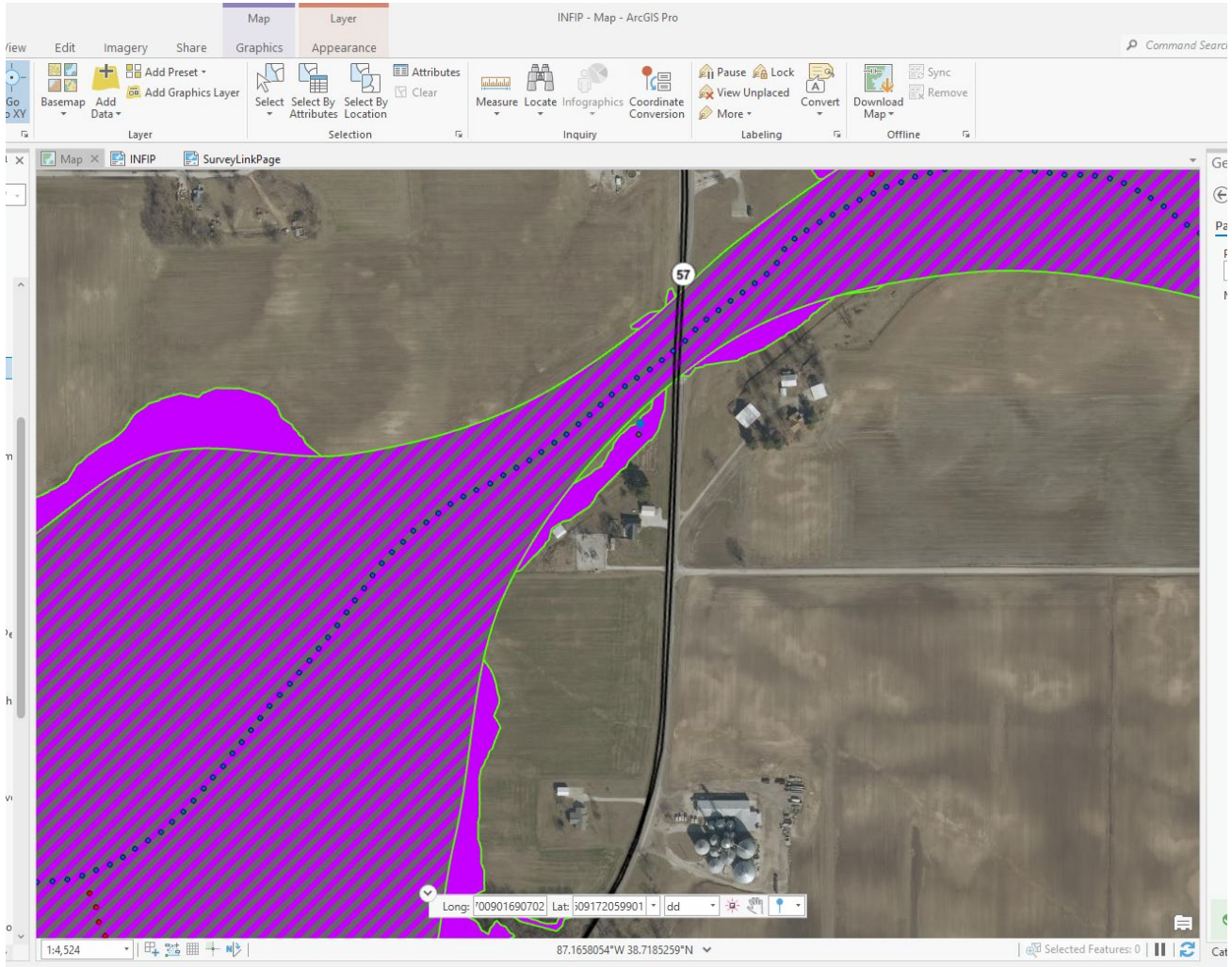
INFIP Results

- INFIP has averaged 371 hits per day
- Benefits for the Public:
  - Users can have readily available information about their point of interest and direct access to further DOW help through the survey link in the FARA report.
    - This connects them to an Engineering Service Center staff member to further assist.
  - Users can provided detailed information about their requests in the survey to streamline the engineering queue of incoming requests.
- Benefits for the DOW:
  - Engineers are not inundated with the average number of users of the tool each day.
  - Engineers can more quickly assess the needs of the users that request further information about their POI.

WHAT THE GIO KNOWS…

- ArcPRO is the set up for the tool and map used for the geoprocessing
- Map is set up with symbology required for the PDF and AGOL App
- *FARA Report Generator is a toolbox- python script*
- Process is similar to the INFIP 2.0 App
- This is a test site. Once all testing is completed and tool works properly, then it has to be published to the server for use on INFIP App
- This map must also be sent to the GIO Office to be published on the server



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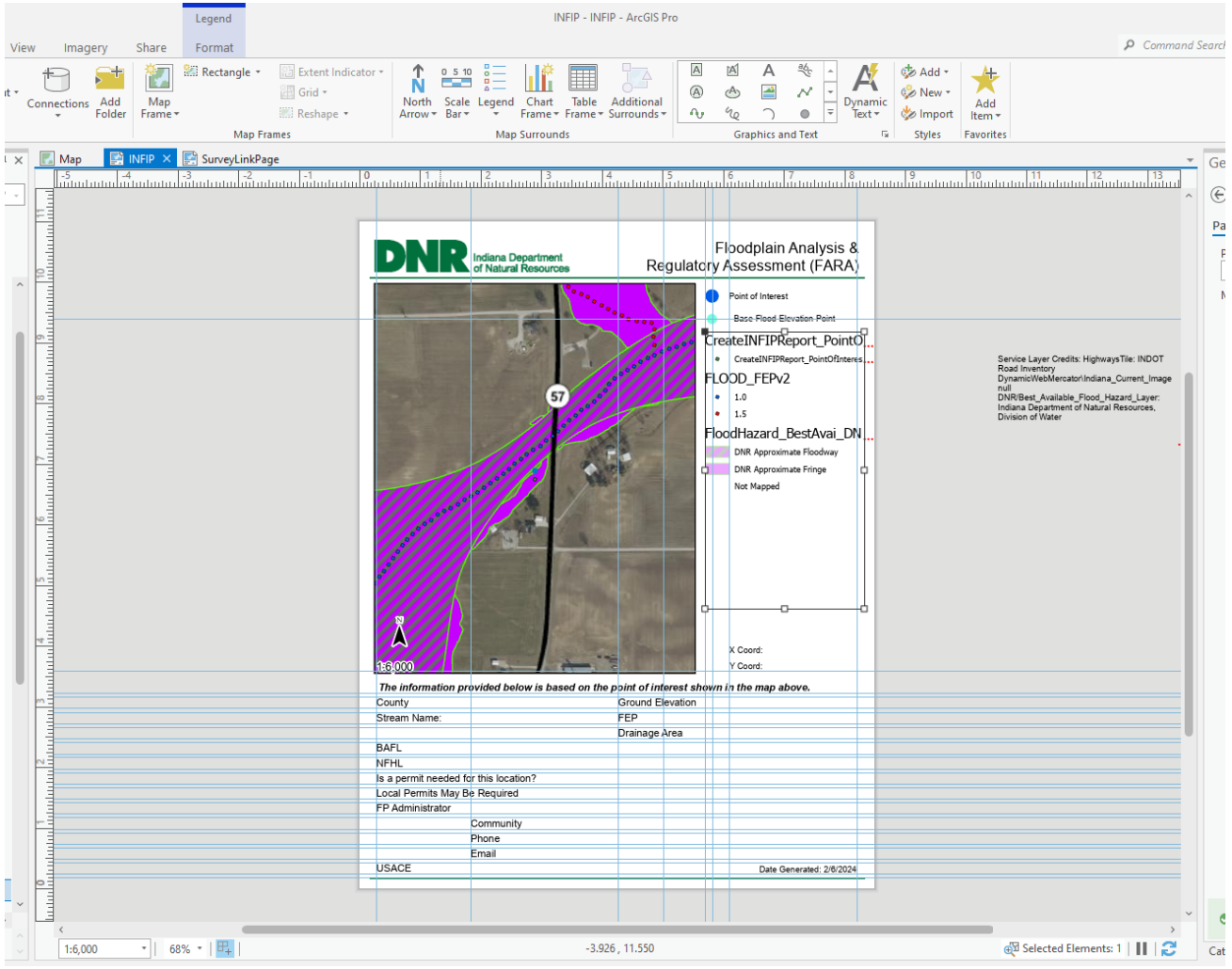
Layout View in ArcPRO

- The layout view in ArcPRO is set up to design the 1st page of your INFIP_REPORT.PDF
- This should look like a template of your finished product when running the tool on INFIP 2.0
- All the text, lines, and boxes are called elements that allow us to program where data is written
- Each element is pulled from different attributes of different feature classes on the map
- A top priority for GIS is to keep the data updated, while continuously checking for accuracy and completeness



Elements displayed on ArcPRO view of report

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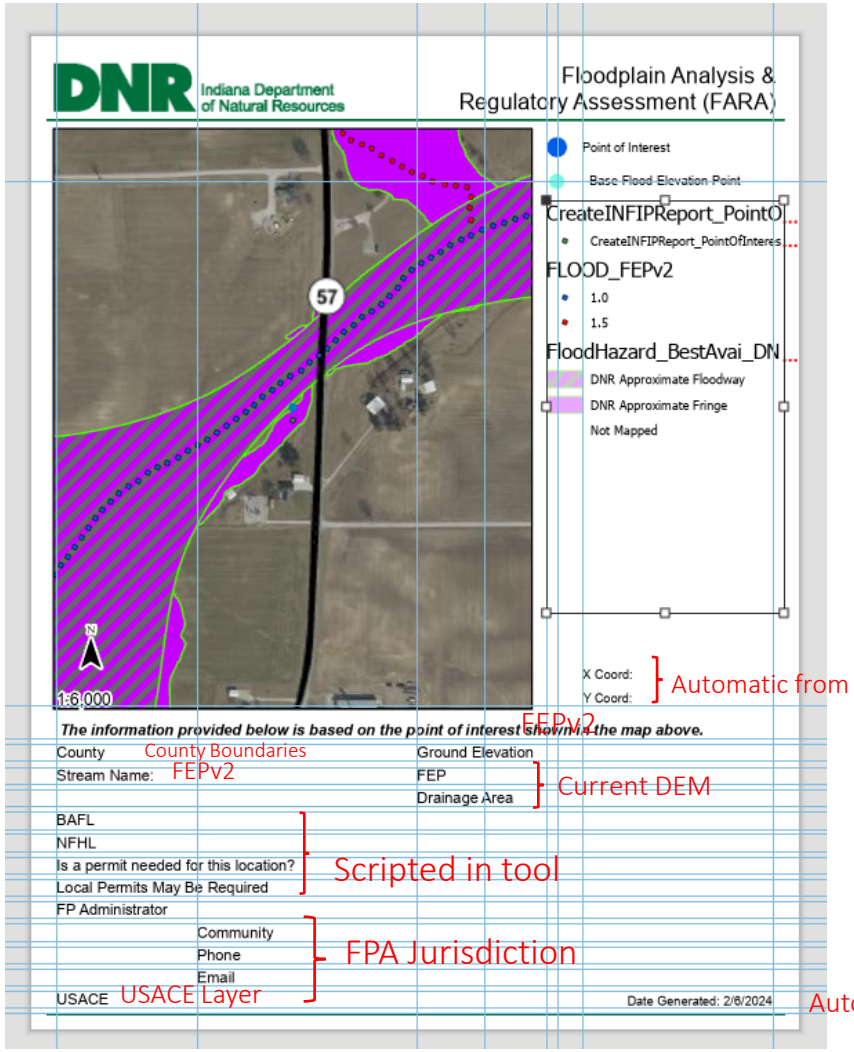
LAYOUT VIEW

- Map pane comes from the location on map at the scale requested with tool
- Point of Interest and Base Flood Elevation Point are legend constants (Manually set)
- Everything in the report comes from the layers designated, and the legend only shows the values that are on the viewer (does not show ALL values)
- “Information provided below” is data that is pulled from layers (designated by text on picture in red) on map by using the tool



The TOOL - Python script

Python Script

- Scripting that determines the BAFL Element answer dependent on the three fields from the BAFL Layer
  - Same three fields that we use to set symbols
  - Each different set of values need to have an 'IF' statement or answer is "WORKING ON SCRIPT"
  - Allows GIS team to know if something is missing or data needs to be checked for errors.
- This script is in house and can be adjusted, improved, or updated! We have direct control of the process
  - DOW GIS team and the GIO office
- Once the tool is run successfully in ArcPRO, then it can be published for use in the INFIP App
- Coding is up to 357 lines of code

```
NFIP.pyt (3.7.11)
low  Help
update the bafl element
FL_answer = "Working on script"
 BAFL_value in ["AE,DNR APPROVED FLOODWAY,IDNR_MR"]:
      BAFL_answer = "DNR DETAILED FLOODWAY"
if BAFL_value in ["A,APPROXIMATE FLOODWAY,IDNR_ZONEA","A,APPROXIMATE FLOODWAY,IDNR_MR"]:
      BAFL_answer = "DNR Approximate Floodway"
if BAFL_value in ["AE,DNR APPROVED STUDY,IDNR_MR"]:
      BAFL_answer = "DNR Detailed Fringe"
if BAFL_value in ["A,None,IDNR"]:
      BAFL_answer = "FEMA Zone A"
if BAFL_value in ["AE,None,IDNR"]:
      BAFL_answer = "FEMA Zone AE"
if BAFL_value in ["A,DNR APPROVED STUDY,IDNR_MR"]:
      BAFL_answer = "DNR Detailed Fringe"
if BAFL_value in ["A,None,IDNR_ZONEA","A,None,IDNR_MR"]:
      BAFL_answer = "DNR Approximate Fringe"
if BAFL_value in ["X,0.2 PCT ANNUAL CHANCE FLOOD HAZARD,IDNR_MR","X,0.2 PCT ANNUAL CHANCE FLOOD HAZARD,IDNR_ZONEA"]:
      BAFL_answer = "Additional Floodplain Area; DNR .2 Percent Flood Hazard"
if BAFL_value in ["VE,Coastal Floodplain,NFHL","VE,NONE,NFHL"]:
      BAFL_answer = "FEMA Coastal Floodplain"
if BAFL_value in ["AE,FLOODWAY,NFHL"]:
      BAFL_answer = "FEMA Zone AE Floodway"
if BAFL_value in ["AE,ADMINISTRATIVE FLOODWAY,NFHL"]:
      BAFL_answer = "FEMA Administrative Floodway"
if BAFL_value in ["A,None,NFHL"]:
      BAFL_answer = "FEMA Zone A"
if BAFL_value in ["AE,None,NFHL"]:
      BAFL_answer = "FEMA Zone AE"
if BAFL_value in ["X,0.2 PCT ANNUAL CHANCE FLOOD HAZARD,NFHL"]:
      BAFL_answer = "0.2 PCT ANNUAL CHANCE FLOOD HAZARD"
if BAFL_value in ["X,0.2 PCT ANNUAL CHANCE FLOOD HAZARD CONTAINED IN CHANNEL,NFHL"]:
      BAFL_answer = "0.2 PCT ANNUAL CHANCE FLOOD HAZARD CONTAINED IN CHANNEL"
if BAFL_value in ["X,AREA WITH REDUCED FLOOD RISK DUE TO LEVEE,NFHL"]:
      BAFL_answer = "FEMA Protected by Levee"
if BAFL_value in ["AH,None,NFHL"]:
      BAFL_answer = "FEMA Floodplain - Ponding (Depth)"
if BAFL_value in ["AO,None,NFHL"]:
      BAFL_answer = "FEMA Floodplain - Sheet Flow (Depth)"
if BAFL_value in ["X,AREA OF MINIMAL FLOOD HAZARD,NFHL","X,AREA OF MINIMALFLOOD HAZARD,IDNR_ZONEA"]:
      BAFL_answer = "Not Mapped"
if BAFL_value in ["AREA NOT INCLUDED,None,NFHL"]:
      BAFL_answer = "Not Mapped"
if BAFL_value in ["OPEN WATER,None,NFHL"]:
      BAFL_answer = "Not Mapped"
if BAFL_value in ["X,AREA OF MINIMAL FLOOD HAZARD,NFHL"]:
      BAFL_answer = "Not Mapped"

tx_report.listElements("TEXT_ELEMENT", "BAFL")[0].text = f"Best Available Flood Hazard Zone: <bol>{BAFL_answer}</bol>"
eak
```

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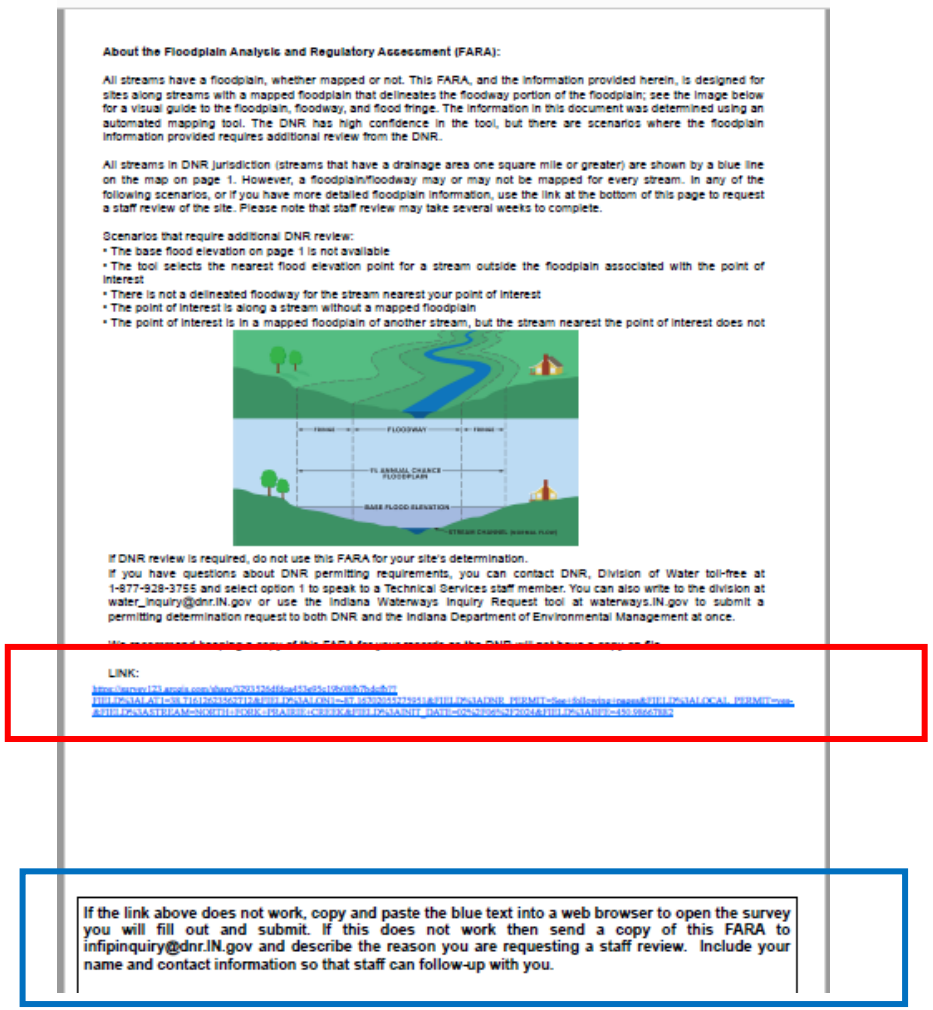
SURVEY123 for further review

Survey123

- From the 2nd page of the PDF there is a link to Survey123
  - Survey123 is an ESRI WebApp that allows us to set up a questionnaire for further information
  - Link does not work as programmed due to conflicts of ESRI language and Python Language
    - *This is under construction to be corrected*
  - The link on the page can be copied and pasted into the browser to open the survey
    - Note in blue box explains user should use this procedure
- User needs to copy and paste blue lines (link:) into browser. This will allow the survey to open along with auto-populating certain fields we want the information to come from the GIS layers
- User will fill out the survey and submit, which will automatically send an email to the INFIP inquiry email, populate a share point list, which is then grabbed and added to the Engineers Teams planner
  - Power Automate is used to assist in entering the survey to the engineer's workflow queue.



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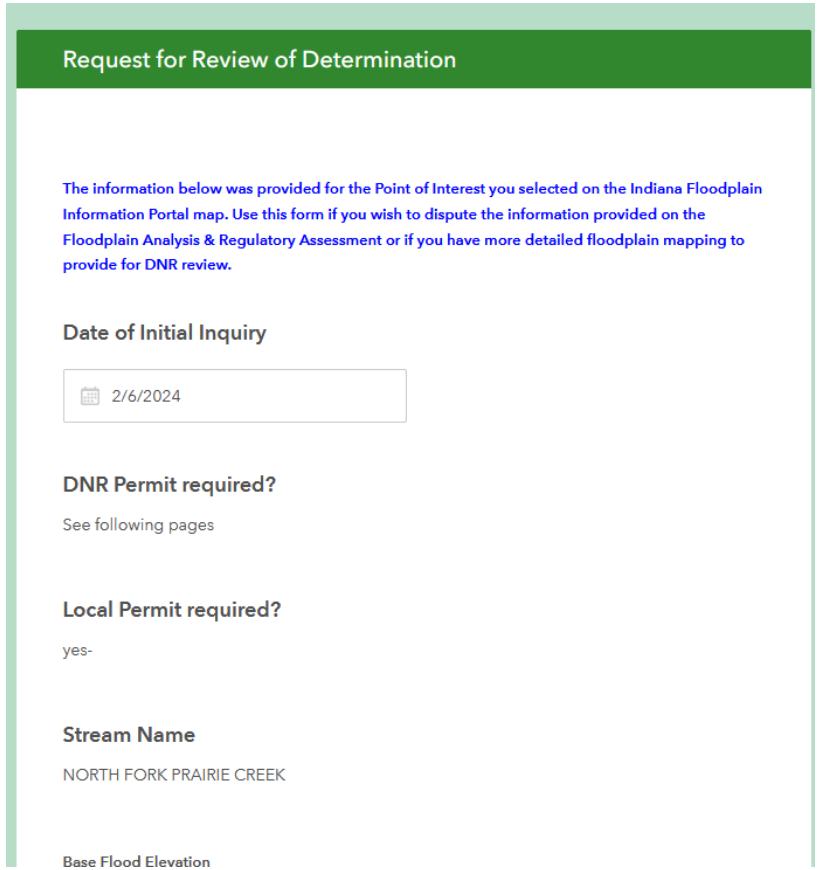
LINK:

If the link above does not work, copy and paste the blue text into a web browser to open the survey you will fill out and submit. If this does not work then send a copy of this FARA to infipinquiry@dnr.IN.gov and describe the reason you are requesting a staff review. Include your name and contact information so that staff can follow-up with you.

THE SURVEY

Survey123

- This survey is a list of questions developed by the Division of Water to further research the FARA process
- Notice some of these questions are already answered. These answers are coming specifically from the POI the user designated on INFIP: coming from the underlying GIS data
- Once the survey is completed the user will submit.
- A power automate program has been programmed to take the information, populate a sharepoint list, and make entries on the Eng tracking spread sheet.
- It will also notify several individuals a survey has been submitted!
- From this survey it will be reviewed by an engineer who will determine what further action is required by DOW.



Common Errors on INFIP

Errors

- Dreaded 0820: “Parameters need fixed”
  - Tool is locked up on the server and must be manually released
  - Locks up due to heavy volume of users
- “99999: File not found or not compatible” or “Something unexpected…”
  - Portal is experiencing problems
  - Requires GIO intervention
- “0500: Field doesn’t exist”
  - During the dataset updates we accidentally changed field name that is originally called out in the tool

Key Takeaways for INFIP

- Our data currency and accuracy is imperative
    - FPA's change constantly and the DOW is always working to gather the most current contact information.
- Data services updated
    - The DOW schedule all Best Available Floodplain Layers (BAFL) to be updated monthly.
        - 5 key layers are updated each month
        - 5-10 studies per month
            - Floodplain studies are engineering studies displayed/published in GIS format
            - Staff dedicated to the scheduled updates spend 100 to 120 (out of 150) hours per month working on updates
    - All Unity derived services are updated "weekly"
        - Staff update 5-7 services weekly using ESRI models to extract data from Unity
            - 5 differing types of Application, Statewide Floodplain Administrators, and dams
- GIS team members work off a standardized and well-tested workflows for the updates.