



Iams Consulting, LLC
ENGINEERING ENVIRONMENTS

April 18, 2023

Ms. Martina Wolf Battistone
Senior Environmental Planner
City of Pittsburgh
200 Ross Street
Pittsburgh, PA 15219

**RE: 1709/1711 Cliff Street
Planning Module – Component 4A**

Dear Ms. Battistone:

Attached, please find the DEP Planning Module Submission for the above referenced project. Please review the Planning Module as attached and complete the Component 4A and return to our office. We have included the following:

- Transmittal Letter;
- Project Narrative;
- USGS Map with Project Noted;
- Sewage Facilities Planning Module;
- Pennsylvania Natural Diversity Inventory Review (PNDI);
- Alternative Sewage Facilities Analysis;
- Chapter 94 Consistency Determination:
 - PWSA (Collection)
 - See attached Dry Weather Test;
- Component 4A, Municipal Planning Agency Review; **Please complete the Component 4A and return to our office.**
- Component 4C, County or Joint Health Department Review;

If you have questions, or comments, please let me know.

Sincerely,

Jonathan C. Iams, P.E.

**1709 & 1711 CLIFF STREET
PITTSBURGH WATER AND SEWER
AUTHORITY**

Project Narrative and Calculations



Iams Consulting, LLC
ENGINEERING ENVIRONMENTS

1709 & 1711 CLIFF STREET
Pittsburgh Water and Sewer Authority
Project Narrative and Calculations

TABLE OF CONTENTS

1.0	General Information	1
2.0	Sewer System Connections and Flows	1
2.1	Existing Sewers and Connections	1
2.2	Former Sewer Flows	1
2.2.1	Former Sanitary Flows	1
2.2.2	Former Storm Water Flows	1
2.3	Proposed Sewer Flows	2
2.3.1	Proposed Sanitary Flows Proposed	2
2.3.2	Proposed Storm Water Flows	2
2.4	Summary of Sewers	2
3.0	Water System Connections and Flows	2
3.1	Existing Water Lines and Connections	2
3.2	Former Water Flows	2
3.3	Proposed Water Flows	2
3.4	Water Summary	3

1.0 GENERAL INFORMATION

Land Development Project: Cliff Street Residences

Ownership of Land Development Project: Thomas Crews
412-638-6065
Tcrews287@gmail.com

Type of Establishment: Residential

Number of Plumbing Fixtures (Each Unit):
4 – Residential Water Closets
5 – Residential Lavatories
1 – Showers
1 – Bathtub
1 – Clothes Washer Connection
1 – Kitchen Sinks
1 - Dishwasher

Occupancy of the Facility: R1A-VH; Residential Two Family

Applicant Information: Jonathan C. Iams
Iams Consulting, LLC
807 James Street
Suite 301
Pittsburgh, PA 15212

Additional Information:

1709/1710 Cliff Street is a 2,110 sf, Two Family Residential Duplex located at 1709/1710 Cliff Street.

2.0 SEWER SYSTEM CONNECTIONS AND FLOWS

2.1 Existing Sewers and Connections

Presently, there are no sewer lines serving the property.

2.2 Former Sewer Flows:

2.2.1 Former Sanitary Sewer Flows

The site previously was vacant.

2.2.2 Former Storm Sewer Flows

The following represents an estimation of the existing storm water flows:

Building:

$Q = CIA$

$C = 0.70$

$I = 5.8 \text{ in/hr (25 year storm)}$

$A = 0.0484 \text{ acres}$

$$Q = 0.196$$

Total Estimate of Former Storm Sewer Flow

0.196 cfs

2.3 Proposed Sewer Flows:

2.3.1 Proposed Sanitary Sewer Flows

Based on the proposed usage of the building, the new sanitary flows shall be:

Two Family Residential Duplex	800 gpd
HVAC Condensate Load:	7 gpd

Total Estimate of New Sanitary Sewer Flow

807 gpd

2.3.2 Proposed Storm Sewer Flows

The following represents an estimation of the proposed storm water flows:

Building:

$$Q = CIA$$

$$C = 0.95$$

$$I = 5.8 \text{ in/hr (25 year storm)}$$

$$A = 0.0484 \text{ acres}$$

$$Q = 0.267 \text{ cfs}$$

Total Estimate of New Storm Sewer Flow

0.267 cfs

2.4 Sewer Summary:

There will be two new 4" sanitary sewer connections made to the existing 15" combination sewer in Cliff Street.

3.0 WATER SYSTEM CONNECTIONS AND FLOWS

3.1 Existing Water Lines and Connections

Presently, there are no domestic water lines serving the property.

3.2 Former Water Flows:

3.2.1 Former Water Flows

The site previously was vacant.

3.3 Proposed Water Flows:

3.3.1 Proposed Water Flows

Based on the proposed usage of the building, the new water flows shall be:

Two Family Residential Duplex 800 gpd

Total Estimate of New Water Flow 800 gpd

3.4 Water Summary:

There will be two new 1" domestic water line connections to the existing 6" water main in Cliff Street.



INSTRUCTIONS FOR COMPLETING COMPONENT 4A MUNICIPAL PLANNING AGENCY REVIEW

Remove and recycle these instructions prior to mailing component to the approving agency.

Background

This component, Component 4, is used to obtain the comments of planning agencies and/or health departments having jurisdiction over the project area. It is used in conjunction with other planning module components appropriate to the characteristics of the project proposed.

Who Should Complete the Component?

The component should be completed by any existing municipal planning agency, county planning agency, planning agency with areawide jurisdiction, and/or health department having jurisdiction over the project site. It is divided into sections to allow for convenient use by the appropriate agencies.

The project sponsor must forward copies of this component, along with supporting components and data, to the appropriate planning agency(ies) and health department(s) (if any) having jurisdiction over the development site. These agencies are responsible for responding to the questions in their respective sections of Component 4, as well as providing whatever additional comments they may wish to provide on the project plan. After the agencies have completed their review, the component will be returned to the applicant. The agencies have 60 days in which to provide comments to the applicant. If the agencies fail to comment within this 60 day period, the applicant may proceed to the next stage of the review without the comments. The use of registered mail or certified mail (return receipt requested) by the applicant when forwarding the module package to the agencies will document a date of receipt.

After receipt of the completed Component 4 from the planning agencies, or following expiration of the 60 day period without comments, the applicant must submit the entire component package to the municipality having jurisdiction over the project area for review and action. If approved by the municipality, the proposed plan, along with the municipal action, will be forwarded to the approving agency (Department of Environmental Protection or delegated local agency). The approving agency, in turn, will either approve the proposed plan, return it as incomplete, or disapprove the plan, based upon the information provided.

Instructions for Completing Planning Agency and/or Health Department Review Component

Section A. Project Name

Enter the project name as it appears on the accompanying sewage facilities planning module component (Component 2, 2m, 3, 3s or 3m).

Section B. Review Schedule

Enter the date the package was received by the reviewing agency, and the date that the review was completed.

Section C. Agency Review

1. Answer the yes/no questions and provide any descriptive information necessary on the lines provided. Attach additional sheets, if necessary.
2. Complete the name, title, and signature block.

Section D. Additional Comments

The Agency may provide whatever additional comment(s) it deems necessary, as described in the form. Attach additional sheets, if necessary.



DEP Code #: _____

**SEWAGE FACILITIES PLANNING MODULE
COMPONENT 4A - MUNICIPAL PLANNING AGENCY REVIEW**

Note to Project Sponsor: To expedite the review of your proposal, one copy of your completed planning module package and one copy of this *Planning Agency Review Component* should be sent to the local municipal planning agency for their comments.

SECTION A. PROJECT NAME (See Section A of instructions)

Project Name
1709/1711 Cliff Street

SECTION B. REVIEW SCHEDULE (See Section B of instructions)

1. Date plan received by municipal planning agency 4/19/2023
2. Date review completed by agency 4/26/2023

SECTION C. AGENCY REVIEW (See Section C of instructions)

- | Yes | No | |
|-------------------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 1. Is there a municipal comprehensive plan adopted under the Municipalities Planning Code (53 P.S. 10101, <i>et seq.</i>)? |
| <input type="checkbox"/> | N/A <input type="checkbox"/> | 2. Is this proposal consistent with the comprehensive plan for land use?
If no, describe the inconsistencies _____ |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. Is this proposal consistent with the use, development, and protection of water resources?
If no, describe the inconsistencies _____ |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Is this proposal consistent with municipal land use planning relative to Prime Agricultural Land Preservation? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 5. Does this project propose encroachments, obstructions, or dams that will affect wetlands?
If yes, describe impacts _____ |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 6. Will any known historical or archaeological resources be impacted by this project?
If yes, describe impacts _____ |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 7. Will any known endangered or threatened species of plant or animal be impacted by this project?
If yes, describe impacts _____ |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 8. Is there a municipal zoning ordinance? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 9. Is this proposal consistent with the ordinance?
If no, describe the inconsistencies _____ |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 10. Does the proposal require a change or variance to an existing comprehensive plan or zoning ordinance? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 11. Have all applicable zoning approvals been obtained? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 12. Is there a municipal subdivision and land development ordinance? |

SECTION C. AGENCY REVIEW (continued)

- | Yes | No | |
|-------------------------------------|-------------------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 13. Is this proposal consistent with the ordinance?
If no, describe the inconsistencies _____ |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 14. Is this plan consistent with the municipal Official Sewage Facilities Plan?
If no, describe the inconsistencies _____ |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 15. Are there any wastewater disposal needs in the area adjacent to this proposal that should be considered by the municipality?
If yes, describe _____ |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 16. Has a waiver of the sewage facilities planning requirements been requested for the residual tract of this subdivision? |
| <input type="checkbox"/> | <input type="checkbox"/> | If yes, is the proposed waiver consistent with applicable ordinances?
If no, describe the inconsistencies
_____ |

17. Name, title and signature of planning agency staff member completing this section:
 Name: Kyla Prendergast
 Title: Senior Environmental Planner
 Signature: *Kyla Prendergast*
 Date: 4/26/2023
 Name of Municipal Planning Agency: City of Pittsburgh Department of City Planning
 Address 100 Ross St, Suite 202, Pittsburgh, PA 15219
 Telephone Number: 412-522-6551

SECTION D. ADDITIONAL COMMENTS (See Section D of instructions)

This component does not limit municipal planning agencies from making additional comments concerning the relevancy of the proposed plan to other plans or ordinances. If additional comments are needed, attach additional sheets.

The planning agency must complete this component within 60 days.

This component and any additional comments are to be returned to the applicant.



INSTRUCTIONS FOR COMPLETING COMPONENT 4C COUNTY OR JOINT HEALTH DEPARTMENT REVIEW

Remove and recycle these instructions prior to mailing component to the approving agency.

Background

This component, Component 4, is used to obtain the comments of planning agencies and/or health departments having jurisdiction over the project area. It is used in conjunction with other planning module components appropriate to the characteristics of the project proposed.

Who Should Complete the Component?

The component should be completed by any existing municipal planning agency, county planning agency, planning agency with areawide jurisdiction, and/or health department having jurisdiction over the project site. It is divided into sections to allow for convenient use by the appropriate agencies.

The project sponsor must forward copies of this component, along with supporting components and data, to the appropriate planning agency(ies) and health department(s) (if any) having jurisdiction over the development site. These agencies are responsible for responding to the questions in their respective sections of Component 4, as well as providing whatever additional comments they may wish to provide on the project plan. After the agencies have completed their review, the component will be returned to the applicant. The agencies have 60 days in which to provide comments to the applicant. If the agencies fail to comment within this 60 day period, the applicant may proceed to the next stage of the review without the comments. The use of registered mail or certified mail (return receipt requested) by the applicant when forwarding the module package to the agencies will document a date of receipt.

After receipt of the completed Component 4 from the planning agencies, or following expiration of the 60 day period without comments, the applicant must submit the entire component package to the municipality having jurisdiction over the project area for review and action. If approved by the municipality, the proposed plan, along with the municipal action, will be forwarded to the approving agency (Department of Environmental Protection or delegated local agency). The approving agency, in turn, will either approve the proposed plan, return it as incomplete, or disapprove the plan, based upon the information provided.

Instructions for Completing Planning Agency and/or Health Department Review Component

Section A. Project Name

Enter the project name as it appears on the accompanying sewage facilities planning module component (Component 2, 2m, 3, 3s or 3m).

Section B. Review Schedule

Enter the date the package was received by the reviewing agency, and the date that the review was completed.

Section C. Agency Review

1. Answer the yes/no questions and provide any descriptive information necessary on the lines provided. Attach additional sheets, if necessary.
2. Complete the name, title, and signature block.

Section D. Additional Comments

The Agency may provide whatever additional comment(s) it deems necessary, as described in the form. Attach additional sheets, if necessary.



**SEWAGE FACILITIES PLANNING MODULE
COMPONENT 4C - COUNTY OR JOINT HEALTH DEPARTMENT REVIEW**

Note to Project Sponsor: To expedite the review of your proposal, one copy of your completed planning module package and one copy of this *Planning Agency Review Component* should be sent to the county or joint county health department for their comments.

SECTION A. PROJECT NAME (See Section A of instructions)

Project Name

1709/1711 Cliff Street

SECTION B. REVIEW SCHEDULE (See Section B of instructions)

1. Date plan received by county or joint county health department _____
Agency name _____
2. Date review completed by agency _____

SECTION C. AGENCY REVIEW (See Section C of instructions)

Yes No

1. Is the proposed plan consistent with the municipality's Official Sewage Facilities Plan?
If no, what are the inconsistencies? _____
2. Are there any wastewater disposal needs in the area adjacent to this proposal that should be considered by the municipality?
If yes, describe _____
3. Is there any known groundwater degradation in the area of this proposal?
If yes, describe _____
4. The county or joint county health department recommendation concerning this proposed plan is as follows: _____
5. Name, title and signature of person completing this section:
Name: _____
Title: _____
Signature: _____
Date: _____
Name of County Health Department: _____
Address: _____
Telephone Number: _____

SECTION D. ADDITIONAL COMMENTS (See Section D of instructions)

This component does not limit county planning agencies from making additional comments concerning the relevancy of the proposed plan to other plans or ordinances. If additional comments are needed, attach additional sheets.

The county planning agency must complete this component within 60 days.

This component and any additional comments are to be returned to the applicant.

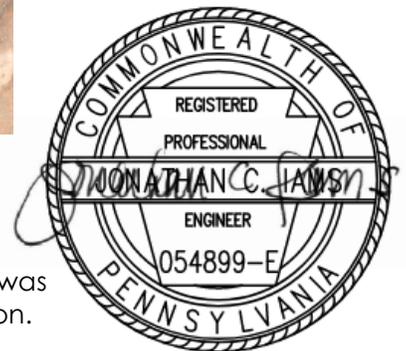


Iams Consulting, LLC
ENGINEERING ENVIRONMENTS

DRY WEATHER CALCULATIONS
1709/1711 Cliff Street

COMPONENT 3 PLANNING MODULE

Iams Consulting LLC completed a dry weather test in accordance with the PWSA Manual. Measurements were taken from 7:00 to 8:00 on December 1st 2022. Five measurements were taken: 7:00; 7:15; 7:30; 7:45 and 8:00. The flow was 3.25" consistently for the five measurements. Below, is a picture of the manhole the day of the measurements.



Please see dry weather calculations below:

Please note that the slope of the sewer utilized in the calculation below was provided by PWSA with the Most Limited Capacity Sewer Map information.

1. PROJECT INFORMATION

Project Name: **1709-1711 Cliff Street**

Date of Review: **11/14/2022 04:43:08 PM**

Project Category: **Development, Residential, subdivision which will contain 1-2 lots with 1-2 single family living units**

Project Area: **0.17 acres**

County(s): **Allegheny**

Township/Municipality(s): **PITTSBURGH**

ZIP Code:

Quadrangle Name(s): **PITTSBURGH EAST**

Watersheds HUC 8: **Lower Allegheny**

Watersheds HUC 12: **Allegheny River-Ohio River**

Decimal Degrees: **40.445947, -79.986777**

Degrees Minutes Seconds: **40° 26' 45.4080" N, 79° 59' 12.3974" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, based on the information you provided, no further coordination is required with the jurisdictional agencies. This response does not reflect potential agency concerns regarding impacts to other ecological resources, such as wetlands.

1709-1711 Cliff Street



-  Buffered Project Boundary
-  Project Boundary



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

1709-1711 Cliff Street



-  Buffered Project Boundary
-  Project Boundary



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE:

No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <https://conservationexplorer.dcnr.pa.gov/content/resources>.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

PA Fish and Boat Commission

Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

U.S. Fish and Wildlife Service

Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
Email: IR1_ESPenn@fws.gov
NO Faxes Please

PA Game Commission

Bureau of Wildlife Management
Division of Environmental Review
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: _____
Company/Business Name: _____
Address: _____
City, State, Zip: _____
Phone:(_____) _____ Fax:(_____) _____
Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

applicant/project proponent signature

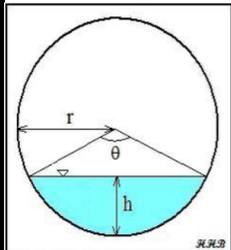
date

Sewage Facilities Planning Module
Chapter 94 Consistency Determination
Hydraulic Calculations Spreadsheet for Peak Flow Depth Measurements

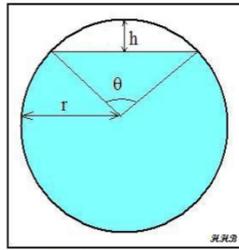
PROJECT NAME: 1709 - 1711 Cliff Street
PWSA PROJECT NUMBER: DEV-135-0722
PWSA REVIEWER: Benjamin Grunauer
DATE: January 28,2023

LEGEND: Input Data Output Data

Section A: Manning Equation for Partially Filled Pipes



Partially Full Pipe Flow Parameters
(Less Than Half Full)



Partially Full Pipe Flow Parameters
(More Than Half Full)

Variable	Units	Description
Q	ft ³	Volumetric flowrate
n	Unitless	Manning Roughness Coeff.
A	ft ²	Cross-Sectional Area of Flow
R	ft	Hydraulic Radius
S	ft/ft	Slope of Hydraulic Grade Line
P	ft	Wetted Perimeter of "A"
r	ft	Radius
h	ft	Depth of Flow or Headspace
θ	radians	Central Angle

$$Q = \left(\frac{1.49}{n}\right) \times A \times R^{2/3} \times S^{1/2} \qquad R = \frac{A}{P} \qquad \theta = 2 \times \cos^{-1} \left(\frac{r-h}{r}\right)$$

$$A_{<50\% \text{ Full}} = \frac{r^2(\theta - \sin \theta)}{2} \qquad \text{OR} \qquad A_{>50\% \text{ Full}} = \pi \times r^2 \times \frac{r^2(\theta - \sin \theta)}{2}$$

$$P_{<50\% \text{ Full}} = r \times \theta \qquad P_{>50\% \text{ Full}} = (2 \times \pi \times r) - (r \times \theta)$$

Section B: Data for Calculations

Peaking Factor, P.F.	
Sanitary Sewers	3
Combined Sewers	3.5

Proposed Project Flows		
Variable	Value	Units
Q _p	807	gpd

Variable	Value	Units
Material	VCP	
n	0.015	unitless
S	0.031	ft/ft
h	0.292	ft
D	1.25	ft
P.F.	3.5	unitless

Section C: Calculations for Design and/or Permitted Capacities

Variable	Description	Definition
Q _{d, avg}	Design Capacity, Average	= full pipe flow conditions / peaking factor
Q _{d, peak}	Design Capacity, Peak	full pipe flow conditions

Design Capacity, Average

Design Capacity, Peak

Variable	Value	Unit
Q _{d, avg}	1,810,363	gpd

Variable	Value	Unit
D	1.250	ft
r	0.625	ft
A	1.227	ft ²
P	3.927	ft
R	0.313	ft
Q _{d, peak}	10	cfs
Q _{d, peak}	6,336,270	gpd

Section D: Calculations for Present Flows

Variable	Description	Definition
Q _{ex, avg}	Present Flows, Average	= Q _{ex, peak} / P.F.
Q _{ex, peak}	Present Flows, Peak	existing flow conditions per site investigations

Present Flows, Average		
Variable	Value	Unit
Q _{ex, avg}	216,075	gpd

Present Flows, Peak		
Variable	Value	Unit
D	1.250	ft
r	0.625	ft
θ	2.02	rad
h/D	0.23328	ft/ft
A	0.22	ft ²
P	1.26	ft
R	0.173	ft
Q _{ex, peak}	1	cfs
Q _{ex, peak}	756,263	gpd

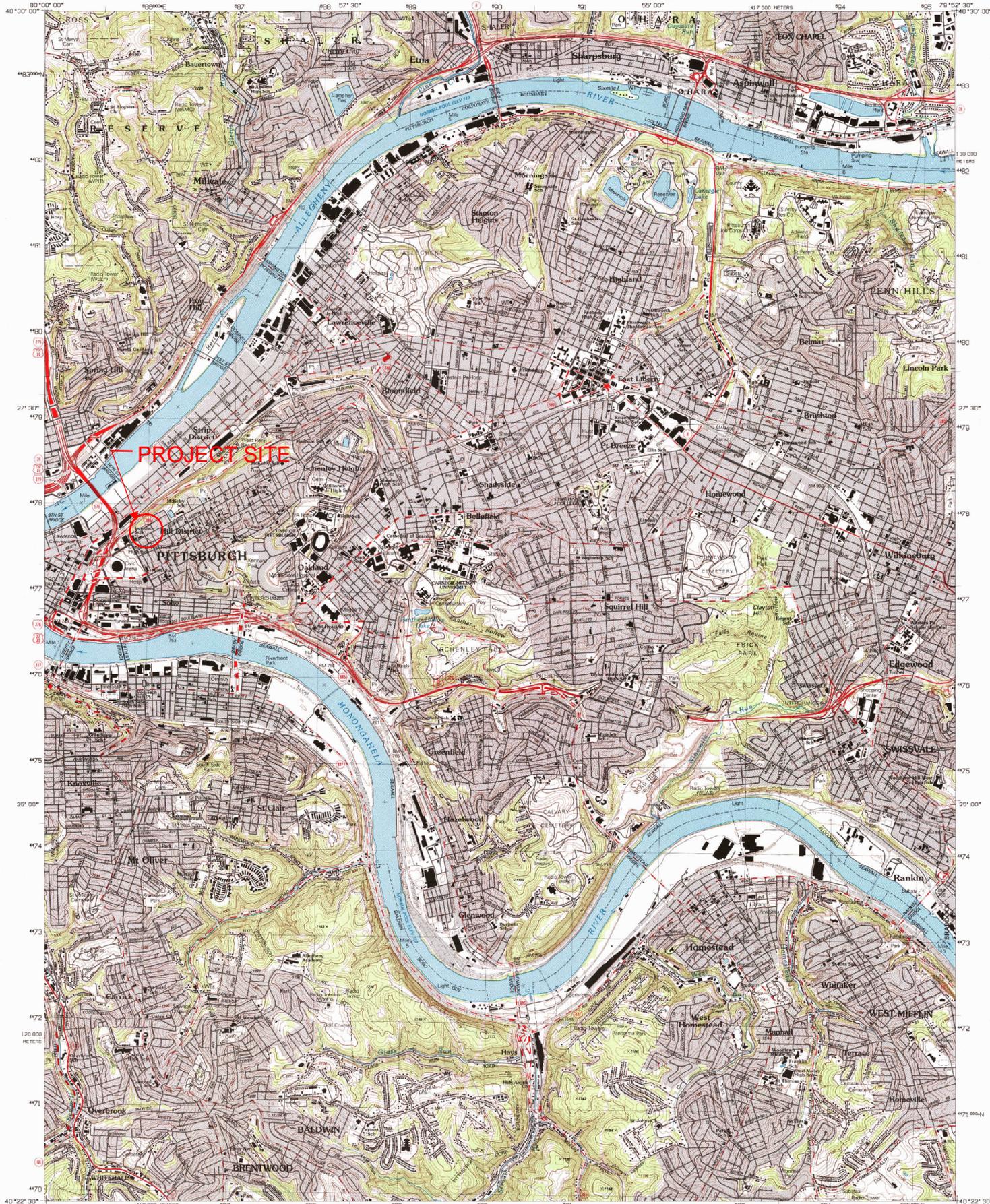
Section E: Calculations for Projected Flows in Five (5) Years

Variable	Description	Definition
Q _{proj, avg}	Projected Flows in Five (5) Years, Average	= Q _{proj, peak} ÷ P.F.
Q _{proj, peak}	Projected Flows in Five (5) Years, Peak	= (Q _{ex, peak} + Q _p) x 1.05

Projected Flow Calculations		
Variable	Value	Unit
Q _{proj, avg}	227,121	gpd
Q _{proj, peak}	794,924	gpd

Section F: Compare Results with Applicant's Submission

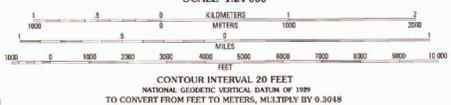
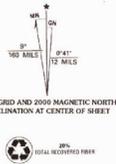
Variable	PWSA, gpd	Applicant, gpd	Difference, gpd	Difference, %
Q _{d, avg}	1,810,363	1,810,363	0	0%
Q _{d, peak}	6,336,270	6,336,270	0	0%
Q _{ex, avg}	216,075	216,075	0	0%
Q _{ex, peak}	756,263	756,263	0	0%
Q _{proj, avg}	227,121	227,121	0	0%
Q _{proj, peak}	794,924	794,924	0	0%



Produced by the United States Geological Survey
in cooperation with Pennsylvania Department of Conservation
and Natural Resources, Bureau of Topographic and Geologic Survey
Derived from imagery taken 1991 and other sources. Photoinspected
using imagery taken 1997; no major culture or drainage changes
observed. Survey control current as of 1992.
Boundaries, other than corporate, revised 2000

North American Datum of 1983 (NAD 83). Projection and
1000-meter grid. Universal Transverse Mercator, zone 17.
2 500-meter ticks: Pennsylvania Coordinate System of 1983 (south zone)
North American Datum of 1927 (NAD 27) is shown by dashed
corner ticks. The values of the shift between NAD 83 and NAD 27
for 7.5-minute intersections are obtainable from National Geodetic
Survey NADCON software

There may be private landholdings within the boundaries of the
National or State reservations shown on this map



1	2	3	1 Ensworth
2	3	4	2 Glenaw
3	4	5	3 New Kensington West
4	5	6	4 Pittsburgh West
5	6	7	5 Braddock
6	7	8	6 Bridgeville
7	8	9	7 Glassport
8	9	10	8 McKeesport

ADJOINING 7.5' QUADRANGLE NAMES

ROAD CLASSIFICATION

Primary highway, hard surface ——— Light-duty road, hard or improved surface ———

Secondary highway, hard surface ——— Unimproved road ———

Interstate Route ——— U.S. Route ——— State Route ———

RECEIVED JUN 2 2003

PITTSBURGH EAST, PA. 1997

NIMA 5064 1V NW-SR81

USGS
Restor
Topo A

3 1818 00417875 0

9 780699 494 5122