



# Public Notice

**U.S. Army Corps  
Of Engineers  
Baltimore District**

**In Reply to Application Number  
CENAB-OP-RMN (MD, DNR/Bloede Dam Removal)  
2015-60068-M02**

**PN-15-69**

**Comment Period: October 28, 2015 to November 30, 2015**

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THE PURPOSE OF THIS PUBLIC NOTICE IS TO SOLICIT COMMENTS FROM THE PUBLIC ABOUT THE WORK DESCRIBED BELOW. AT THIS TIME, NO DECISION HAS BEEN MADE AS TO WHETHER OR NOT A PERMIT WILL BE ISSUED.

The Baltimore District has received an application for a Department of the Army Permit pursuant to Section 404 of the Clean Water Act.

**APPLICANT:** Maryland Department of Natural Resources  
c/o Mr. Jordan Loran  
580 Taylor Avenue B-2  
Annapolis, Maryland 21401

**LOCATION:** Patapsco River, at Bloede Dam, Baltimore and Howard Counties, Maryland.

**WORK:** The applicant proposes to remove Bloede Dam in the Patapsco Valley State Park and its associated fish ladder and to replace 75 feet of a 16-inch sewer line. Removal of the dam's concrete structures is to be performed in-stream using a combination of a wrecking ball and excavation equipment, and is expected to release approximately 250,000 to 312,000 cubic yards of sediment downstream over a period of approximately one to seven months, depending on hydrological conditions following dam removal. The composition of the sediment to be released would consist of approximately 72% sand and approximately 28% silt.

General construction sequencing impacting the river would be as follows:

1. Install erosion and sediment control measures and best management practices temporarily impacting approximately 15,000 square feet of the river.
2. Install temporary stream diversion structures.
3. Construct an approximately 200-foot long temporary access road in the Patapsco River consisting of #2 stone or larger, from Ilchester Road to Grist Mill trail, temporarily impacting approximately 13,000 square feet of river.
4. Construct a 35-foot by 226-foot temporary access pad partially within the Patapsco River below Bloede Dam, consisting of #2 stone or larger for sewer and dam access during construction, temporarily impacting approximately 7,900 square feet of river.

5. Remove an existing sewer pipe and to install a new 75-foot section of 16-inch sewer pipe 5 feet below the anticipated river bottom in the same location. This work entails trench excavation, placing bedding material, sewer pipe installation, and backfill with riprap and grout to match the river bottom elevation. This work would temporarily impact approximately 10,000 square feet of river.
6. Breach dam for initial drawdown.
7. Remove dam and fish ladder.

The total temporary impacts due to this project are approximately 50,000 square feet of river.

Additionally, approximately 4,320 linear feet of streambank plantings are proposed as part of the overall project.

The purpose of the project is to restore fish passage and natural geomorphic and ecological functions to the Patapsco River.

The applicant has established an adaptive management and monitoring plan as part of the planning and design phase of this project. This provides for a process, based on monitoring, applied studies, and modeling, to identify and address any necessary corrective actions that may be necessary as a result of dam removal. The data collected will also contribute to long-term monitoring currently underway on the Patapsco River and allow the applicant and other project partners to document and communicate the ecological response resulting from the restoration activities.

All work is to be completed in accordance with the enclosed plans. If you have any questions concerning this matter, please contact Mr. Jon Romeo of this office at (410) 962-6079.

The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, and, in general, the needs and welfare of the people.

An evaluation of the work described above on the public interest will include application of the Clean Water Act Section 404 (b)(1) Guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404 of the Clean Water Act.

The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider

and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an

Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Written comments concerning the work described above related to the factors listed above or other pertinent factors must be received by the District Engineer, U.S. Army Corps of Engineers, Baltimore District, [ATTN: Mr. Jon Romeo, CENAB-OP-RMN] P.O. Box 1715, Baltimore, Maryland 21203-1715, within the comment period specified above.

**SECTION 401 WATER QUALITY CERTIFICATION:** The applicant is required to obtain a water quality certification from the Maryland Department of the Environment in accordance with Section 401 of the Clean Water Act. Any written comments concerning the work described above which relate to water quality certification must be received by the Maryland Department of the Environment, Nontidal Wetlands Division, Montgomery Park Business Center, 1800 Washington Boulevard, Suite 430, Baltimore, Maryland 21230-1708 within the comment period as specified above to receive consideration. The Section 401 certifying agency has a statutory limit of one year from the date of this public notice to make its decision.

**COASTAL ZONE MANAGEMENT PROGRAM:** The applicant has certified in this application that the proposed activity complies with and will be conducted in a manner consistent with the Maryland Coastal Zone Management (CZM) Program. By this public notice, we are requesting the State concurrence or objection to the applicant's consistency statement. Public comments relating to consistency must be received by the Maryland Department of the Environment, Nontidal Wetlands Division, Montgomery Park Business Center, 1800 Washington Boulevard, Suite 430, Baltimore, Maryland 21230-1708 within the comment period specified above to receive consideration. MDE has a statutory limit of 6 months to concur or object to the applicant's consistency determination.

The applicant must obtain any State or local government permits which may be required.

A preliminary review of this application indicates that the proposed work will not affect listed species or their critical habitat pursuant to Section 7 of the Endangered Species Act as amended. As the evaluation of this application continues, additional information may become available which could modify this preliminary determination.

The State Historic Preservation Officer (SHPO), Maryland Historical Trust (MHT), has determined that Bloede Dam is eligible for listing in the National Register of Historic Places under Criteria A, B, and C for its specialized engineering, innovative design, and association with early electrification and that removal of the dam would have an adverse effect on historic resources. The National Marine Fisheries Service (NMFS), which is the

lead Federal agency for this project, the SHPO, and other parties, have identified a series of stipulations to be implemented in conjunction with the project in order to account for the effects of the proposed undertaking on historic properties. These stipulations are to be incorporated into a Memorandum of Agreement.

Any person who has an interest which may be adversely affected by the issuance of this permit may request a public hearing. The request, which must be in writing, must be received by the District Engineer, U.S. Army Corps of Engineers, Baltimore District, [ATTN: Mr. Jon Romeo, CENAB-OP-RMN], P.O. Box 1715, Baltimore, Maryland 21203-1715, within the comment period specified as above to receive consideration. Also, the request must clearly state forth the interest which may be adversely affected by this activity and the manner in which the interest may be adversely affected.

It is requested that you communicate the foregoing information concerning the proposed work to any persons known by you to be interested and not being known to this office, who did not receive a copy of this notice.

FOR THE DISTRICT ENGINEER:

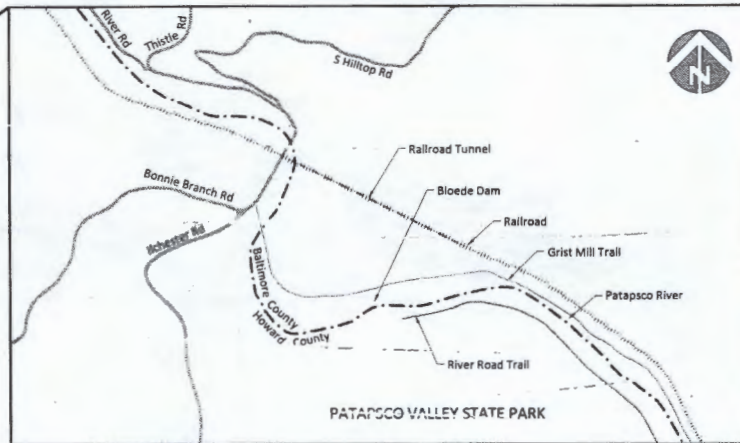
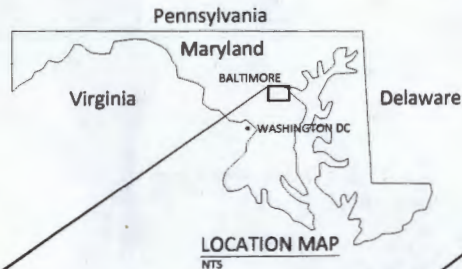
Joseph P. DaVia  
Chief, Maryland Section Northern

# PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL

## MAY 15, 2015

### SHEET LIST

- DT1 Cover, Sheet List and Vicinity Map
- DG1 Existing Conditions and Property Ownership
- DG2 Construction Staging, Access and Sequencing
- DG3 Survey Control and Dam Removal Sheet Key
- DC1 Erosion and Sedimentation Control STA 162+00 to STA 174+00
- DC2 Erosion and Sedimentation Control STA 174+00 to STA 185+00
- DC3 Erosion and Sedimentation Control STA 185+00 to STA 195+00
- DC4 Erosion and Sedimentation Control STA 195+00 to STA 207+00
- DCG1 Grading Plan STA 162+00 to STA 174+00
- DCG2 Grading Plan STA 174+00 to STA 185+00
- DCG3 Grading Plan STA 185+00 to STA 195+00
- DCG4 Grading Allowance Items
- DD1 Dam Demolition Plan
- DD2 Dam Record Drawings (For Reference Only)
- DD3 Dam Record Drawing (For Reference Only)
- DD4 Dam Preservation Plan
- DXS1 Cross Section Locations Plan
- DXS2 Cross Sections STA 166+25 to 166+65
- DXS3 Cross Sections STA 167+28 to 167+98
- DXS4 Cross Sections STA 169+04 to 170+63
- DXS5 Cross Sections STA 172+91 to 175+19
- DXS6 Cross Sections STA 177+58 to 179+20
- DXS7 Cross Sections STA 181+64 to 183+10
- DXS8 Cross Sections STA 185+25 to 188+77
- DXS9 Cross Sections STA 187+47 to 188+46
- DP1 Treatment Areas and Stabilization Plan
- DP2 Planting Plan STA 162+00 to STA 174+00
- DP3 Planting Plan STA 174+00 to STA 185+00
- DP4 Planting Plan STA 185+00 to STA 195+00
- DP5 Planting Plan STA 195+00 to STA 207+00
- DP6 Planting Schedules and Details
- BSG-1 Cover Sheet - Patapsco Interceptor Relocation (Baltimore County)
- BSG-2 Symbols, Notes, and Abbreviations
- BSG-3 Access Plan
- BSG-4 Access Road Sections
- BSG-5 Existing Interceptor Record Drawings (For Information Only)
- BSG-6 Existing Interceptor Record Drawings (For Information Only)
- BSG-7 Existing Interceptor Record Drawings (For Information Only)
- BSG-8 Existing Interceptor Record Drawings (For Information Only)
- BSG-9 Pedestrian Bridge Record Drawings (For Information Only)
- BSG-10 Pedestrian Bridge Record Drawings (For Information Only)
- BSR-1 Clearing and Grubbing Plan
- BSC-1 Patapsco Interceptor Plans
- BSC-2 Patapsco Interceptor Profile (STA 0+00 To STA 8+00)
- BSC-3 Patapsco Interceptor Profile (STA 8+00 To End)
- BSC-4 Geotechnical Profile (For Information Only)
- BSC-5 Geotechnical Profile (For Information Only)
- BSC-6 Bypass Connection Details
- BSC-7 Erosion & Sediment Control - Laydown and Access Areas
- BSC-8 Erosion & Sediment Control - Patapsco Interceptor
- BSC-9 Erosion & Sediment Control Notes & Details
- BSC-10 Erosion & Sediment Control Notes & Details
- BSC-11 Erosion & Sediment Control Notes & Details
- BSC-12 Erosion & Sediment Control Notes & Details
- BSC-13 Erosion & Sediment Control Notes & Details
- BSC-14 Details
- BSC-15 Details
- BSC-16 Details
- BSD-1 Existing Interceptor Removal Plans
- BST-1 Traffic Control Plan
- HSG-1 Cover Sheet - Bonnie Branch Sewer Relocation (Howard County)
- HSG-2 Symbols, Notes, and Abbreviations
- HSG-3 Access Plan
- HSG-4 Access Road Sections
- HSG-5 Bonnie Branch Sewer Record Drawings (For Information Only)
- HSG-6 Bonnie Branch Sewer Record Drawings (For Information Only)
- HSG-7 Pedestrian Bridge Record Drawings (For Information Only)
- HSG-8 Pedestrian Bridge Record Drawings (For Information Only)
- HSG-9 Clearing and Grubbing Plan
- HSC-1 Bonnie Branch Siphon Plan
- HSC-2 Erosion and Sediment Control - Bonnie Branch Siphon
- HSC-3 Erosion & Sediment Control Notes & Details
- HSC-4 Erosion & Sediment Control Notes & Details
- HSC-5 Erosion & Sediment Control Notes & Details
- HSC-6 Erosion & Sediment Control Notes & Details
- HSC-7 Erosion & Sediment Control Notes & Details
- HSC-8 Details
- HSC-9 Details
- HST-1 Traffic Control Plan
- L1 North Overlook Design Site and Architectural Plan
- L2 North Overlook Design Details
- L3 South Overlook Design Site and Architectural Plan
- L4 South Overlook Design Details



HORIZONTAL DATUM: NAD83  
VERTICAL DATUM: NAVD88  
1" = 1000'

#### CALL BEFORE YOU DIG:

THE CONTRACTOR SHALL CONTACT "MISS UTILITY" (1-800-257-7777) AT LEAST 48 BUSINESS HOURS PRIOR TO BEGINNING OF ANY GRADING OR DEMOLITION ACTIVITIES AND VERIFY THE LOCATION OF ALL EXISTING PUBLIC UTILITIES. IF "MISS UTILITY" DOES NOT RESPOND THE CONTRACTOR IS REQUIRED TO CONTACT AND CONTRACT A PRIVATE UTILITY LOCATOR COMPANY 48 HOURS PRIOR TO BEGINNING GRADING OR DEMOLITION ACTIVITIES.

DEPARTMENT OF GENERAL SERVICES  
C. GAIL BASSETTE, SECRETARY  
ROOM 1401  
301 WEST PLEASANT ST  
BALTIMORE, MD 21201

DEPARTMENT OF GENERAL SERVICES  
APPROVAL

PROJECT MANAGER \_\_\_\_\_ DATE \_\_\_\_\_

CHIEF - PROJ. MGT AND DESIGN \_\_\_\_\_ DATE \_\_\_\_\_

DEPARTMENT OF NATURAL RESOURCES  
APPROVAL

NAME \_\_\_\_\_ DATE \_\_\_\_\_

TITLE \_\_\_\_\_

STATE OF MARYLAND  
BOARD OF PUBLIC WORKS

LAWRENCE J. HOGAN, JR Governor  
PETER FRANCHYT Comptroller  
NANCY K. KOPP Treasurer

#### OWNER'S CERTIFICATION

I/WE HEREBY CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION, AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT. I/WE HEREBY AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY APPROPRIATE INSPECTION AND ENFORCEMENT AUTHORITY OR THE STATE OF MARYLAND, DEPARTMENT OF THE ENVIRONMENT.

DATE \_\_\_\_\_ OWNER SIGNATURE \_\_\_\_\_

CARD NO. \_\_\_\_\_ PRINTED NAME AND TITLE \_\_\_\_\_

#### STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN SEVEN (7) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER (1) RATIO 3:1 HORIZONTAL TO 1 VERTICAL (3:1); AND FOURTEEN (14) DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

#### DESIGN CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, THE 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I & II INCLUDING SUPPLEMENTS, THE ENVIRONMENT ARTICLE SECTIONS 4-101 THROUGH 116 AND SECTIONS 4-201 AND 215, AND THE CODE OF MARYLAND REGULATIONS (COMAR) 26.17.01 AND COMAR 26.17.02 FOR EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT, RESPECTFULLY.

DATE \_\_\_\_\_ DESIGNER'S SIGNATURE \_\_\_\_\_

M.D. REGISTRATION NO. \_\_\_\_\_ PRINTED NAME \_\_\_\_\_  
P.E., R.L.S., R.L.A. OR R.A. (CIRCLE ONE)

| NO | DATE | REVISION DESCRIPTION | RP,DF    | BN       | JK,BN    |
|----|------|----------------------|----------|----------|----------|
|    |      |                      | DRAWN    | DESIGNED | CHECKED  |
|    |      |                      | BN       | 5/15/15  | 11-04-30 |
|    |      |                      | APPROVED | DATE     | PROJECT  |

PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL  
DEPARTMENT OF NATURAL RESOURCES  
AMERICAN RIVERS  
BALTIMORE AND HOWARD COUNTY, MD

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

8 NDRS  
EXPIRATION DATE: 03/31/2018 LICENSE NO. 38887

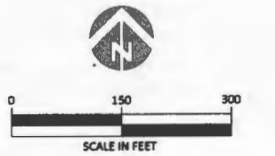
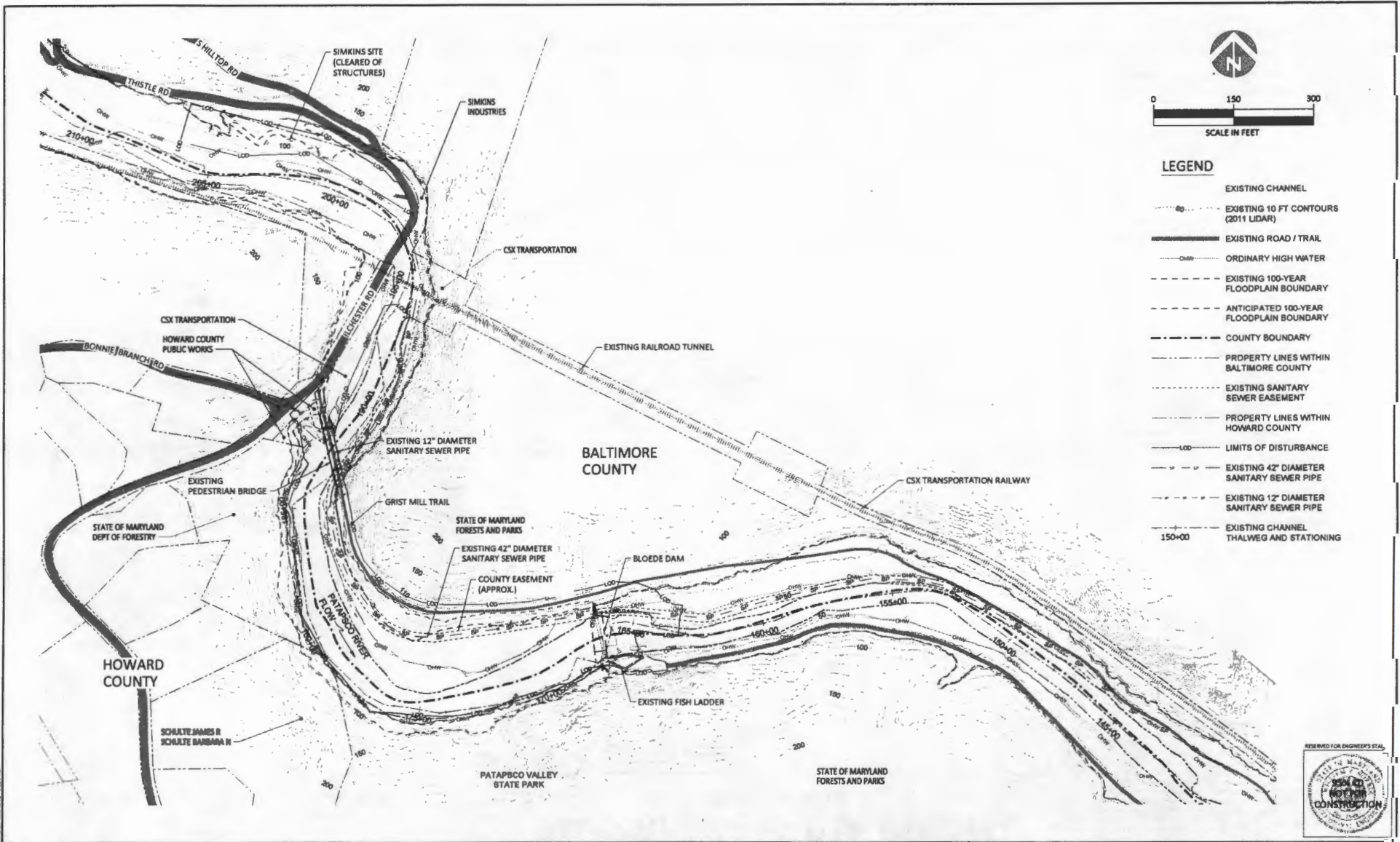


501 Portway Ave, Suite 501  
Hood River, OR 97031  
541.386.9003  
www.interfluve.com

COVER, SHEET LIST AND  
VICINITY MAP



SHEET  
DT1  
SHEET 1 OF 31



- LEGEND**
- EXISTING CHANNEL
  - EXISTING 10 FT CONTOURS (2011 LIDAR)
  - EXISTING ROAD / TRAIL
  - OHW — ORDINARY HIGH WATER
  - - - EXISTING 100-YEAR FLOODPLAIN BOUNDARY
  - - - ANTICIPATED 100-YEAR FLOODPLAIN BOUNDARY
  - - - COUNTY BOUNDARY
  - - - PROPERTY LINES WITHIN BALTIMORE COUNTY
  - - - EXISTING SANITARY SEWER EASEMENT
  - - - PROPERTY LINES WITHIN HOWARD COUNTY
  - - - LIMITS OF DISTURBANCE
  - - - EXISTING 42" DIAMETER SANITARY SEWER PIPE
  - - - EXISTING 12" DIAMETER SANITARY SEWER PIPE
  - - - EXISTING CHANNEL THALWEG AND STATIONING



| NO. | DATE | REVISION DESCRIPTION |
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|----------|----------|----------|
| RP,DF    | BN       | JK,BN    |
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVER RS  
 BALTIMORE AND HOWARD COUNTY, MD

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 8 HOURS  
 EXPIRATION DATE: 06/26/2018 LICENSE NO. 39887

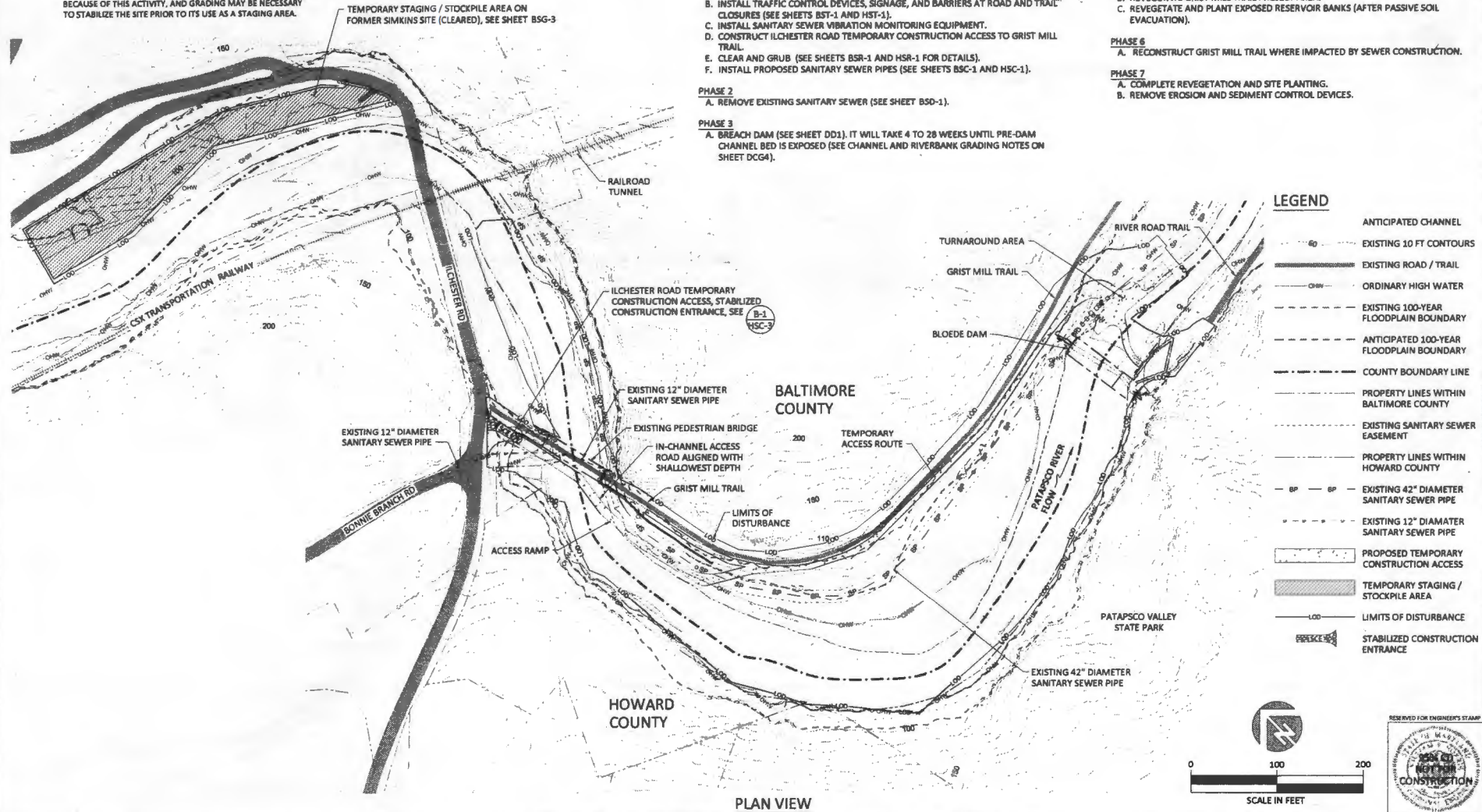


501 Portaway Ave, Suite 101  
 Hood River, OR 97031  
 541.386.9009  
 www.interfluve.com

**EXISTING CONDITIONS AND PROPERTY OWNERSHIP**

SHEET  
**DG1**  
 SHEET 2 OF 3

NOTE:  
THE SIMKINS PROPERTY SITE HAS BEEN VACANT FOR OVER A YEAR, AND TRESPASSING AND ILLEGAL ATY USE HAS BEEN AN ISSUE. THE SITE IS CURRENTLY IN A DEGRADED CONDITION BECAUSE OF THIS ACTIVITY, AND GRADING MAY BE NECESSARY TO STABILIZE THE SITE PRIOR TO ITS USE AS A STAGING AREA.



**CONSTRUCTION STAGING, ACCESS AND SEQUENCING**

- PHASE 1**  
 A. INSTALL EROSION AND SEDIMENT CONTROL DEVICES AND BEST MANAGEMENT PRACTICES.  
 B. INSTALL TRAFFIC CONTROL DEVICES, SIGNAGE, AND BARRIERS AT ROAD AND TRAIL CLOSURES (SEE SHEETS BST-1 AND HST-1).  
 C. INSTALL SANITARY SEWER VIBRATION MONITORING EQUIPMENT.  
 D. CONSTRUCT ILCHESTER ROAD TEMPORARY CONSTRUCTION ACCESS TO GRIST MILL TRAIL.  
 E. CLEAR AND GRUB (SEE SHEETS BSR-1 AND HSR-1 FOR DETAILS).  
 F. INSTALL PROPOSED SANITARY SEWER PIPES (SEE SHEETS BSC-1 AND MSC-1).

- PHASE 2**  
 A. REMOVE EXISTING SANITARY SEWER (SEE SHEET BSD-1).

- PHASE 3**  
 A. BREACH DAM (SEE SHEET DD1). IT WILL TAKE 4 TO 28 WEEKS UNTIL PRE-DAM CHANNEL BED IS EXPOSED (SEE CHANNEL AND RIVERBANK GRADING NOTES ON SHEET DCG4).

- PHASE 4**  
 A. REMOVE DAM AND FISH LADDER.

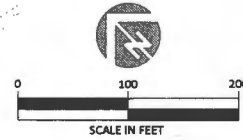
- PHASE 5**  
 A. CONSTRUCT NORTH OVERLOOK AND SOUTH OVERLOOK (SEE SHEET L3).  
 B. REVEGETATE GRIST MILL TRAIL PROJECT AREA.  
 C. REVEGETATE AND PLANT EXPOSED RESERVOIR BANKS (AFTER PASSIVE SOIL EVACUATION).

- PHASE 6**  
 A. RECONSTRUCT GRIST MILL TRAIL WHERE IMPACTED BY SEWER CONSTRUCTION.

- PHASE 7**  
 A. COMPLETE REVEGETATION AND SITE PLANTING.  
 B. REMOVE EROSION AND SEDIMENT CONTROL DEVICES.

**LEGEND**

- 60 --- ANTICIPATED CHANNEL
- 100 --- EXISTING 10 FT CONTOURS
- --- EXISTING ROAD / TRAIL
- --- ORDINARY HIGH WATER
- --- EXISTING 100-YEAR FLOODPLAIN BOUNDARY
- --- ANTICIPATED 100-YEAR FLOODPLAIN BOUNDARY
- --- COUNTY BOUNDARY LINE
- --- PROPERTY LINES WITHIN BALTIMORE COUNTY
- --- EXISTING SANITARY SEWER EASEMENT
- --- PROPERTY LINES WITHIN HOWARD COUNTY
- 42" --- EXISTING 42" DIAMETER SANITARY SEWER PIPE
- 12" --- EXISTING 12" DIAMETER SANITARY SEWER PIPE
- --- PROPOSED TEMPORARY CONSTRUCTION ACCESS
- --- TEMPORARY STAGING / STOCKPILE AREA
- --- LIMITS OF DISTURBANCE
- --- STABILIZED CONSTRUCTION ENTRANCE



PLAN VIEW

| NO. | DATE | REVISION DESCRIPTION |
|-----|------|----------------------|
|     |      |                      |
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|----------|----------|----------|
| RP,DF    | BN       | JK,BN    |
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 B. NORRIS  
 EXPIRATION DATE: 06/26/2018 LICENSE NO. 38887

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 Hood River, OR 97031  
 541.386.5003  
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**CONSTRUCTION STAGING,  
 ACCESS AND SEQUENCING**

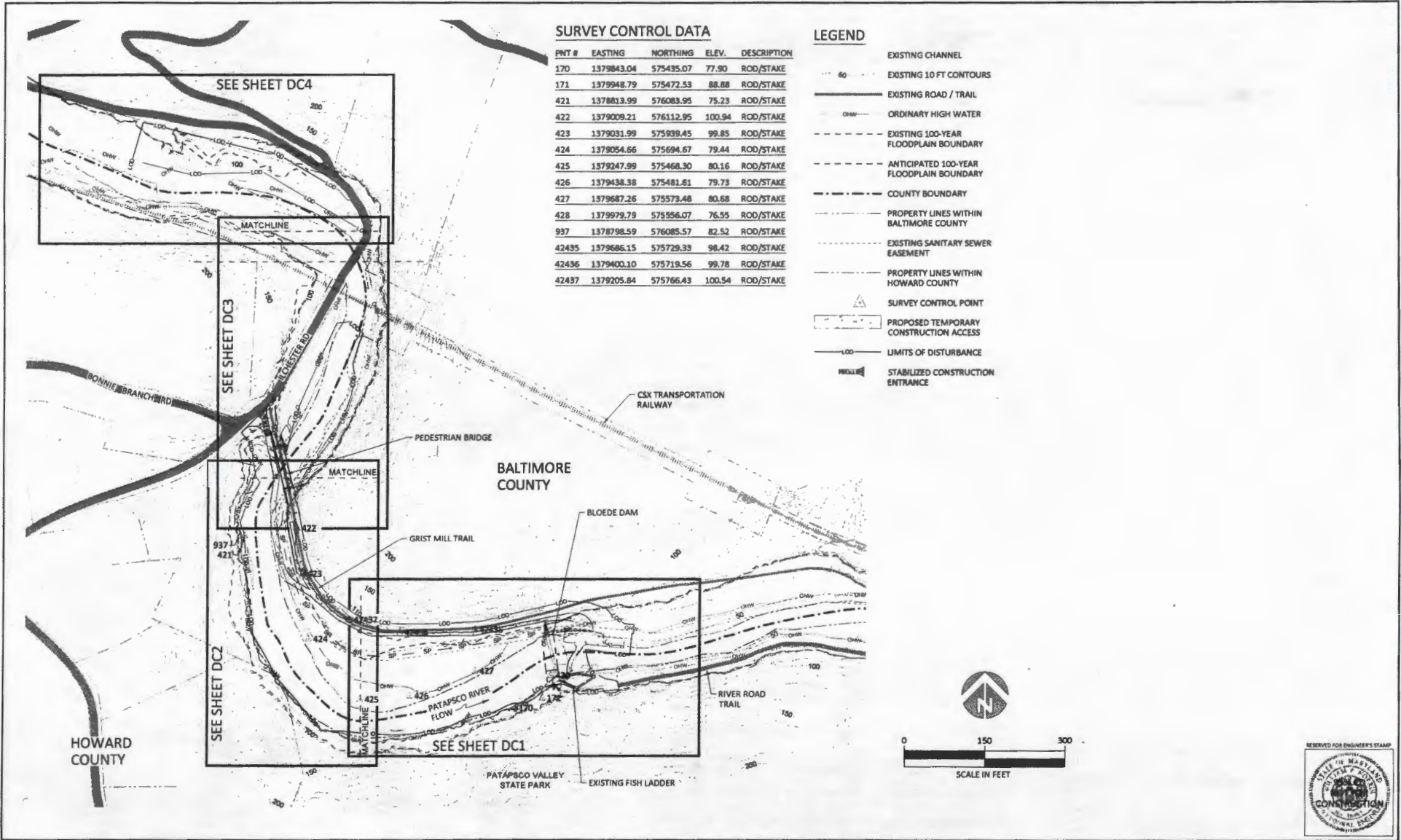
SHEET  
**DG2**  
 SHEET 3 OF 31

**SURVEY CONTROL DATA**

| PNT # | EASTING    | NORTHING  | ELEV.  | DESCRIPTION |
|-------|------------|-----------|--------|-------------|
| 170   | 1379843.04 | 575435.07 | 77.90  | ROD/STAKE   |
| 171   | 1379948.79 | 575472.53 | 88.88  | ROD/STAKE   |
| 421   | 1378813.99 | 576083.95 | 75.23  | ROD/STAKE   |
| 422   | 1379009.21 | 576112.95 | 100.94 | ROD/STAKE   |
| 423   | 1379031.99 | 575939.45 | 99.85  | ROD/STAKE   |
| 424   | 1379054.66 | 575694.67 | 79.44  | ROD/STAKE   |
| 425   | 1379247.99 | 575468.30 | 80.16  | ROD/STAKE   |
| 426   | 1379438.38 | 575481.61 | 79.73  | ROD/STAKE   |
| 427   | 1379687.26 | 575573.48 | 80.68  | ROD/STAKE   |
| 428   | 1379979.79 | 575556.07 | 76.55  | ROD/STAKE   |
| 997   | 1378798.59 | 576085.57 | 82.52  | ROD/STAKE   |
| 42435 | 1379686.15 | 575729.33 | 98.42  | ROD/STAKE   |
| 42436 | 1379400.10 | 575719.56 | 99.78  | ROD/STAKE   |
| 42437 | 1379205.84 | 575766.43 | 100.54 | ROD/STAKE   |

**LEGEND**

- EXISTING CHANNEL
- EXISTING 10 FT CONTOURS
- EXISTING ROAD / TRAIL
- ORDINARY HIGH WATER
- EXISTING 100-YEAR FLOODPLAIN BOUNDARY
- ANTICIPATED 100-YEAR FLOODPLAIN BOUNDARY
- COUNTY BOUNDARY
- PROPERTY LINES WITHIN BALTIMORE COUNTY
- EXISTING SANITARY SEWER EASEMENT
- PROPERTY LINES WITHIN HOWARD COUNTY
- SURVEY CONTROL POINT
- PROPOSED TEMPORARY CONSTRUCTION ACCESS
- LIMITS OF DISTURBANCE
- STABILIZED CONSTRUCTION ENTRANCE



| NO. | DATE | REVISION DESCRIPTION |
|-----|------|----------------------|
|     |      |                      |
|     |      |                      |

|          |          |          |
|----------|----------|----------|
| RP, DF   | BN       | JCBN     |
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 5/13/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 EXPIRATION DATE: 02/28/2015 LICENSE NO. 38887



501 Portway Ave, Suite 101  
 Hood River, OR 97031  
 541.384.9003  
 www.interfluve.com

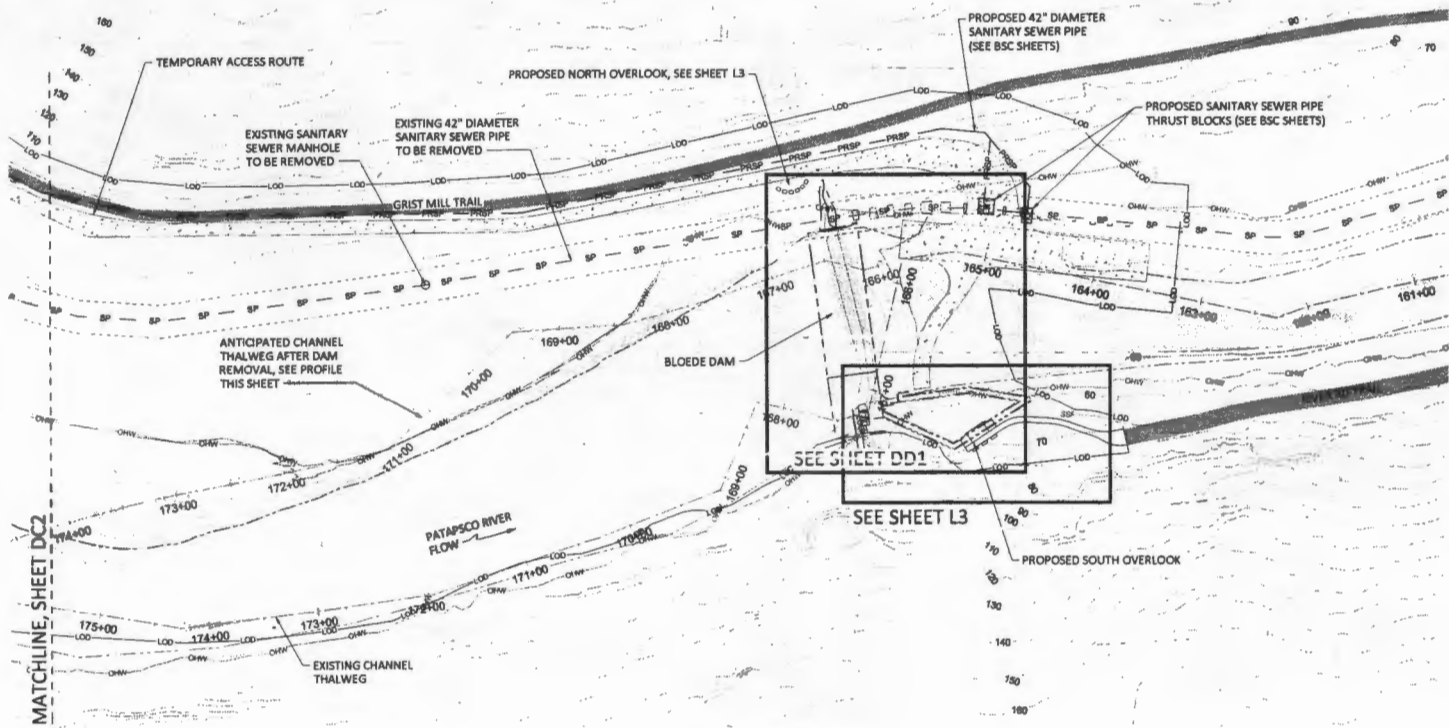
**SURVEY CONTROL AND DAM REMOVAL SHEET KEY**

SHEET  
**DG3**  
 SHEET 4 OF 31

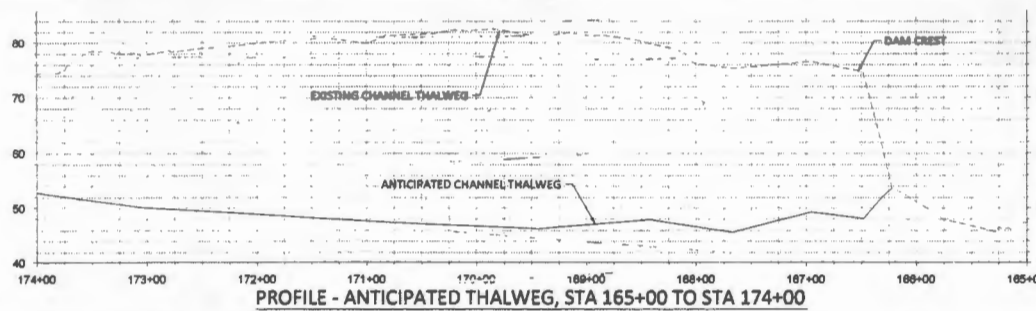




- LEGEND**
- - - - - EXISTING 1-FT CONTOURS
  - =====  
EXISTING ROAD / TRAIL
  - OHW OHW ORDINARY HIGH WATER
  - - - - - PROPERTY LINES WITHIN BALTIMORE COUNTY
  - - - - - EXISTING SANITARY SEWER EASEMENT
  - - - - - PROPERTY LINES WITHIN HOWARD COUNTY
  - SP SP EXISTING 42" DIAMETER SANITARY SEWER PIPE
  - PRSP PRSP PROPOSED 42" DIAMETER SANITARY SEWER PIPE
  - ▨ STAGING / STOCKPILE AREA
  - ▭ PROPOSED CONSTRUCTION ACCESS
  - - - - - ANTICIPATED CHANNEL
  - SPF SUPER SILT FENCE
  - LOD LOD LIMITS OF DISTURBANCE
  - 168+00 EXISTING CHANNEL THALWEG AND STATIONING
  - 168+00 ANTICIPATED CHANNEL THALWEG AND STATIONING



PLAN VIEW



SCALE: 1" = 10'  
SCALE: 1" = 50'



| NO. | DATE | REVISION DESCRIPTION |
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|          |          |          |
|----------|----------|----------|
| RP_DF    | RN       | JK_BN    |
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-80 |
| APPROVED | DATE     | PROJECT  |

PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

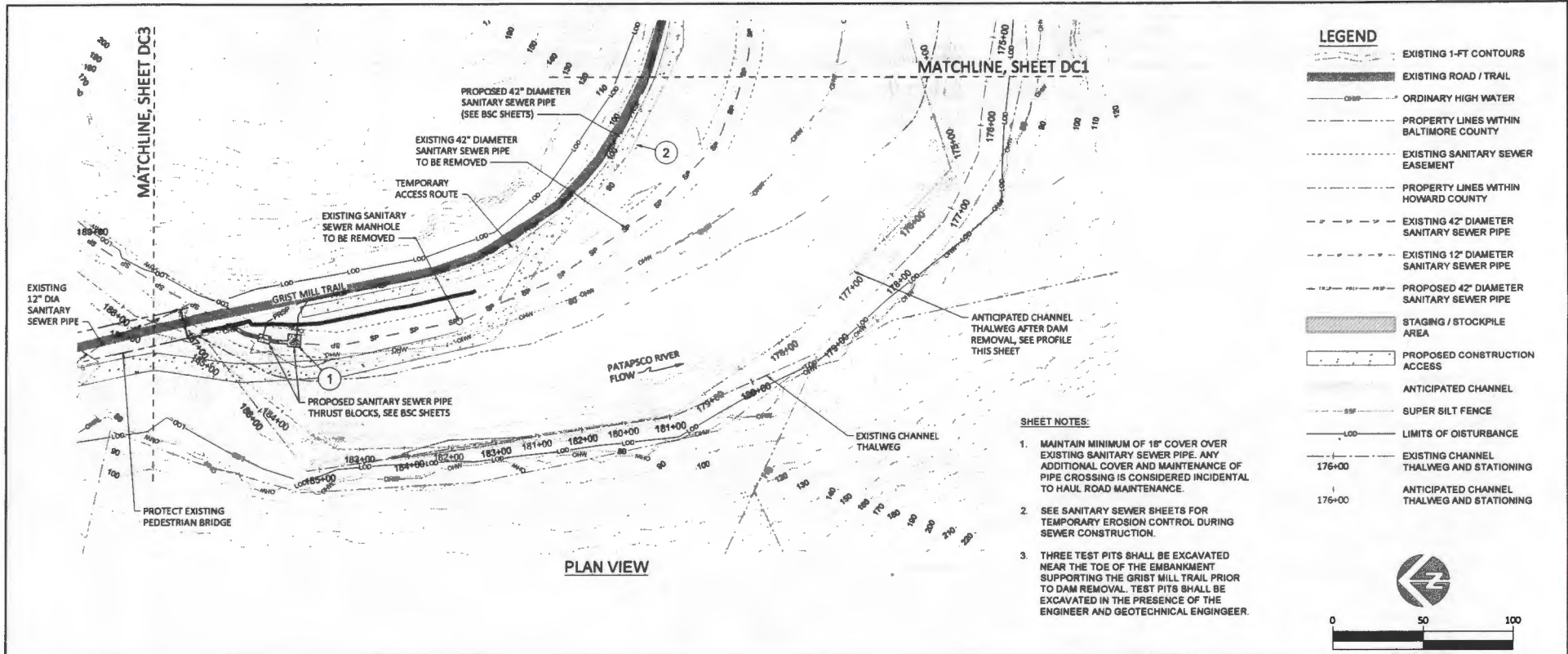
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 EXPIRATION DATE: 06/03/2016 LICENSE NO.: 36897



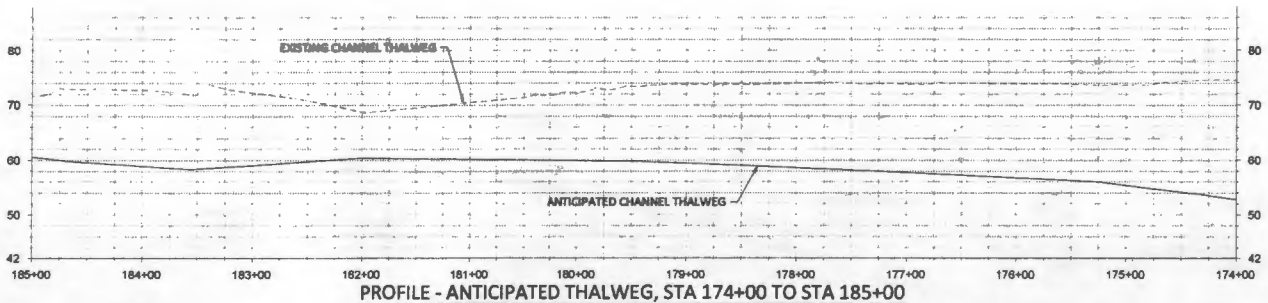
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**EROSION AND SEDIMENTATION CONTROL STA 162+00 TO STA 174+00**

SHEET  
**DC1**  
 SHEET 5 OF 31



PLAN VIEW



| NO | DATE | REVISION DESCRIPTION |
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|    |      |                      |

| RP,DF    | BN       | JK,BN    |
|----------|----------|----------|
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

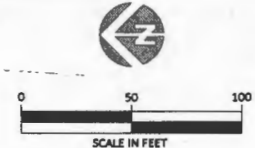
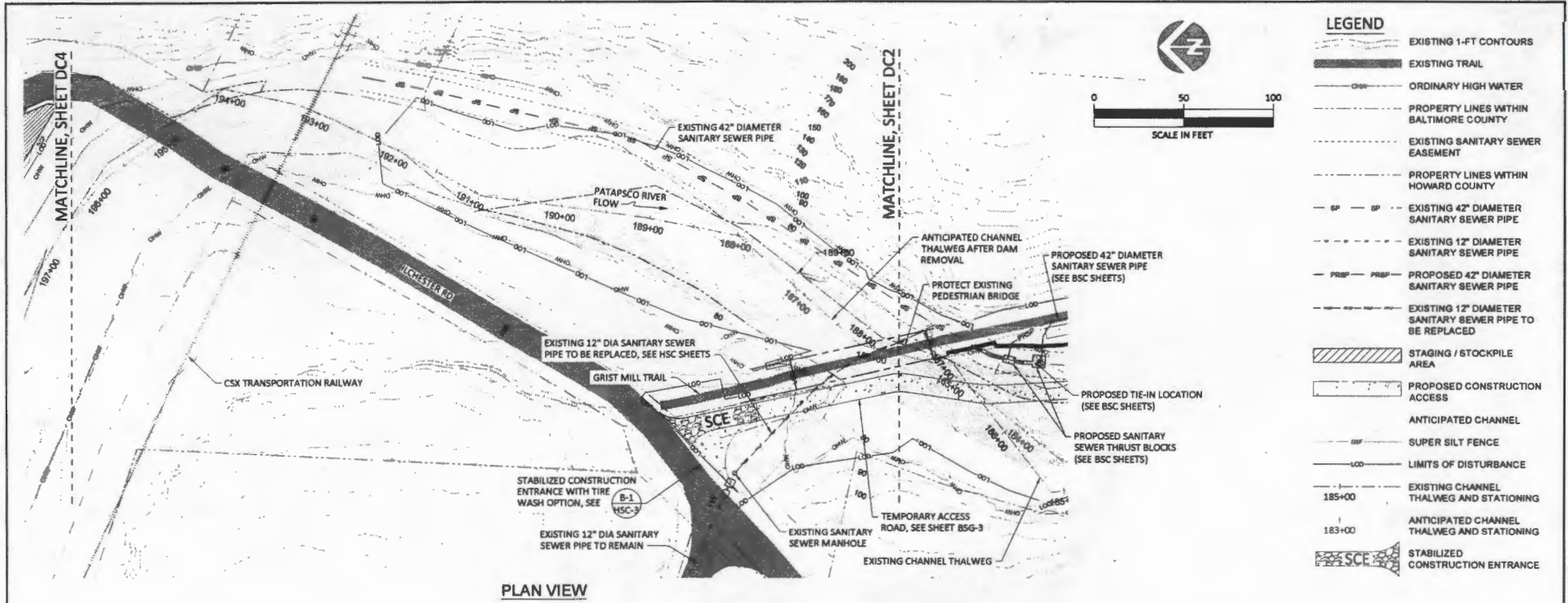
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 EXPIRATION DATE: 03/31/2021 LICENSE NO. 38987



**EROSION AND SEDIMENTATION CONTROL STA 174+00 TO STA 185+00**

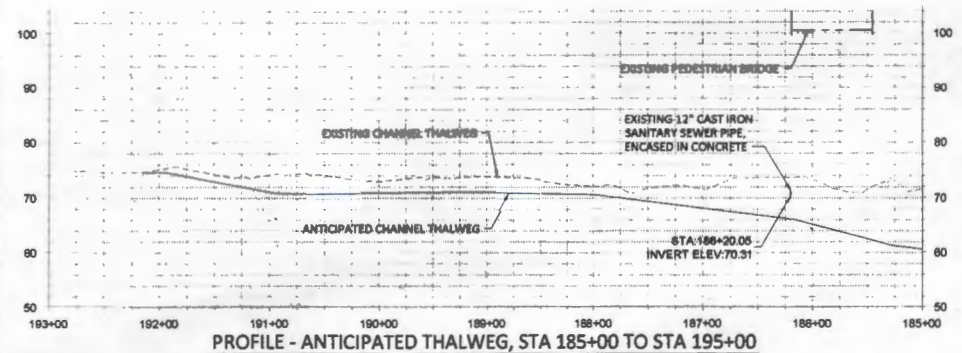
SHEET  
**DC2**  
 SHEET 6 OF 31





- LEGEND**
- EXISTING 1-FT CONTOURS
  - - - EXISTING TRAIL
  - ORDINARY HIGH WATER
  - - - PROPERTY LINES WITHIN BALTIMORE COUNTY
  - - - EXISTING SANITARY SEWER EASEMENT
  - - - PROPERTY LINES WITHIN HOWARD COUNTY
  - 6P - 6P - EXISTING 42" DIAMETER SANITARY SEWER PIPE
  - - - EXISTING 12" DIAMETER SANITARY SEWER PIPE
  - PRSP - PRSP - PROPOSED 42" DIAMETER SANITARY SEWER PIPE
  - - - EXISTING 12" DIAMETER SANITARY SEWER PIPE TO BE REPLACED
  - ▨ STAGING / STOCKPILE AREA
  - ▭ PROPOSED CONSTRUCTION ACCESS
  - ANTICIPATED CHANNEL
  - SUPER SILT FENCE
  - LIMITS OF DISTURBANCE
  - 185+00 --- EXISTING CHANNEL THALWEG AND STATIONING
  - 183+00 --- ANTICIPATED CHANNEL THALWEG AND STATIONING
  - ▨ SCE STABILIZED CONSTRUCTION ENTRANCE

**PLAN VIEW**



SCALE: 1" = 20'  
 5X VERTICAL EXAGGERATION  
 SCALE: 1" = 100'

**PROFILE - ANTICIPATED THALWEG, STA 185+00 TO STA 195+00**



| NO. | DATE | REVISION DESCRIPTION |
|-----|------|----------------------|
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| RP, DF   | BN       | JK, BN   |
|----------|----------|----------|
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

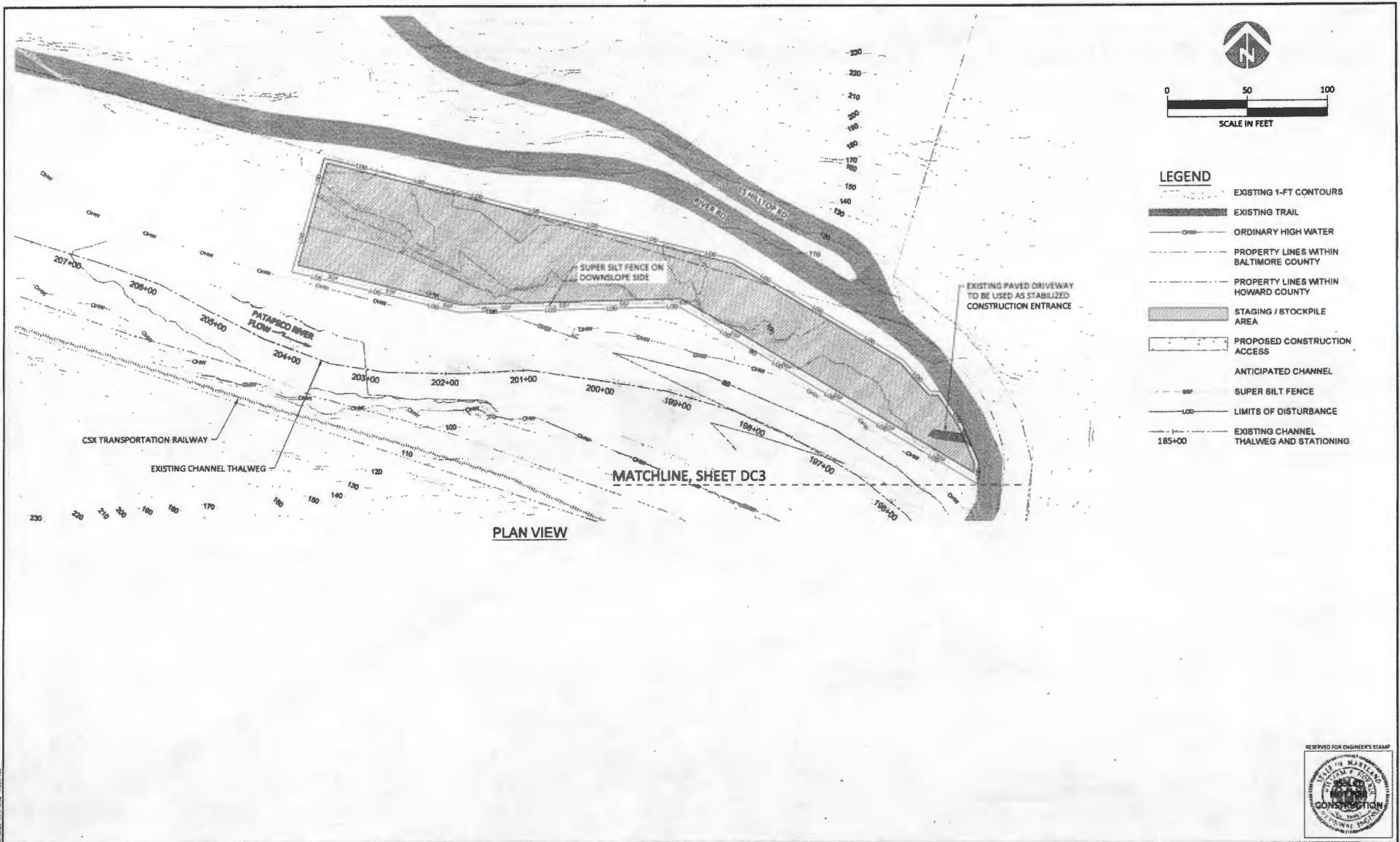
**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 B. NORRIS  
 EXPIRATION DATE: 09/01/2019 LICENSE NO. 16887

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**EROSION AND SEDIMENTATION CONTROL STA 185+00 TO STA 195+00**

SHEET  
**DC3**  
 SHEET 7 OF 31



- LEGEND**
- EXISTING 1-FT CONTOURS
  - EXISTING TRAIL
  - ORDINARY HIGH WATER
  - PROPERTY LINES WITHIN BALTIMORE COUNTY
  - PROPERTY LINES WITHIN HOWARD COUNTY
  - STAGING / STOCKPILE AREA
  - PROPOSED CONSTRUCTION ACCESS
  - ANTICIPATED CHANNEL
  - SUPER SILT FENCE
  - LIMITS OF DISTURBANCE
  - EXISTING CHANNEL THALWEG AND STATIONING

**PLAN VIEW**



| NO. | DATE | REVISION DESCRIPTION |
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| RP,DF    | BN       | JL,BN    |
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

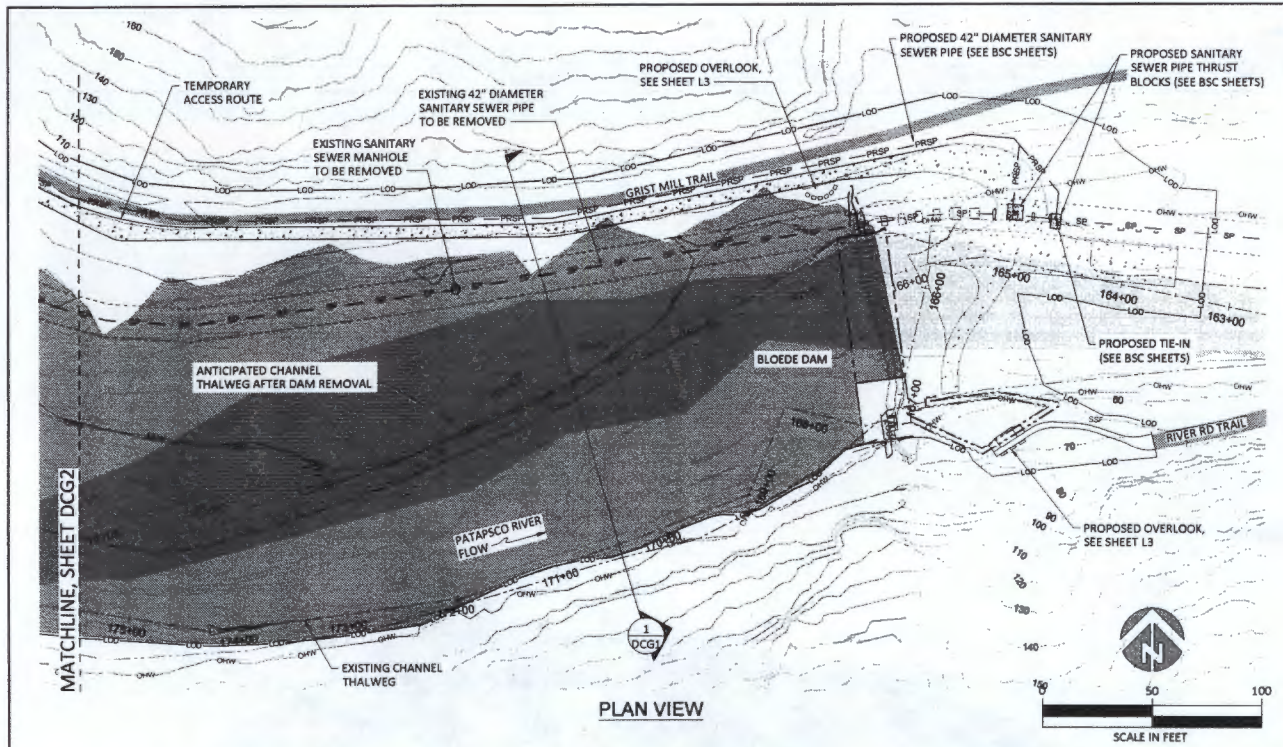
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 B. MORRIS  
 EXPIRATION DATE: 08/03/2018 LICENSE NO. 36987



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**EROSION AND SEDIMENTATION CONTROL STA 195+00 TO STA 207+00**

SHEET  
**DC4**  
 SHEET 8 OF 31

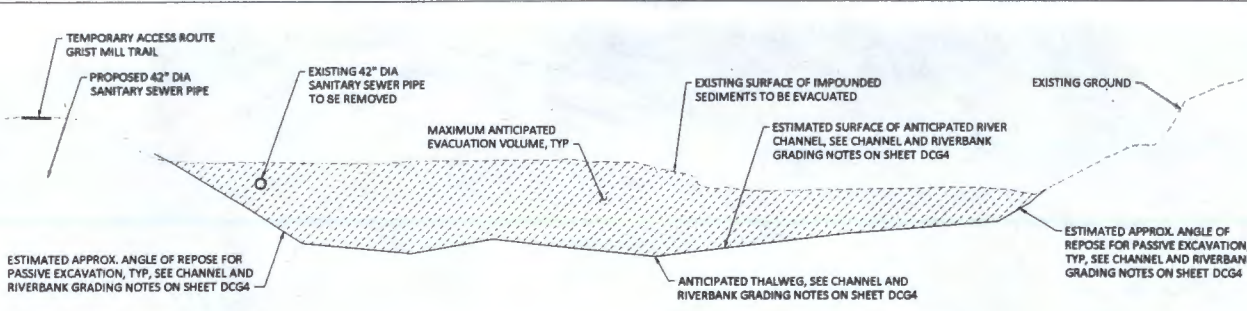


**LEGEND**

- - - - - EXISTING 1-FT CONTOURS
- ==== EXISTING ROAD / TRAIL
- CHW - - - - - ORDINARY HIGH WATER
- - - - - PROPERTY LINES WITHIN BALTIMORE COUNTY
- - - - - EXISTING SANITARY SEWER EASEMENT
- - - - - PROPERTY LINES WITHIN HOWARD COUNTY
- SP - - - - - EXISTING 42" DIAMETER SANITARY SEWER PIPE
- PRSP - - - - - PROPOSED 42" DIAMETER SANITARY SEWER PIPE
- ▭ PROPOSED CONSTRUCTION ACCESS
- ▨ ANTICIPATED SEDIMENT EVACUATION AREA TO BE GRADED FOR SLOPE STABILITY ONLY AS DIRECTED BY OWNER. PAYMENT SHALL BE PER HOUR, AND SHALL INCLUDE ALL MATERIALS, LABOR, AND EQUIPMENT.
- ▨ ANTICIPATED CHANNEL
- SUPER SILT FENCE
- LOD - - - - - LIMITS OF DISTURBANCE
- 168+00 - - - - - EXISTING CHANNEL THALWEG AND STATIONING
- 168+00 - - - - - ANTICIPATED CHANNEL THALWEG AND STATIONING

**CHANNEL AND RIVER BANK GRADING NOTES:**

1. CONTRACTOR SHALL EXCLUDE PUBLIC FROM THE CHANNEL AND RIVERBANKS.
2. SEE SHEETS BSR-1 AND HSR-1 FOR CLEARING AND GRUBBING AREAS.
3. SEDIMENT IS TO BE PASSIVELY EVACUATED BY RIVER FLOWS. NO ONE SHALL BE ALLOWED ACCESS NEAR THE EDGE OR FACE OF RETAINED SEDIMENTS.
4. SOME STEEPLY GRADED SEDIMENTS MAY BE DEEMED AN UNACCEPTABLE SAFETY RISK AND WILL BE REQUIRED TO BE PUSHED INTO ACTIVE FLOW, BASED UPON RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER. SUCH OPERATIONS SHALL BE PERFORMED BY A TRACKED EXCAVATOR WITH SUFFICIENT REACH TO AVOID DESTABILIZING SLOPES RESULTING FROM TRACK SURCHARGE.
5. SEDIMENT WILL BE EVACUATED TO THE PRE-DAM TOPOGRAPHIC SURFACE. THE PRE-DAM TOPOGRAPHIC SURFACE SHALL BE DETERMINED BY THE ENGINEER BASED ON FIELD INDICATORS. THE FOLLOWING SHALL BE USED AS FIELD INDICATORS OF THE PRE-DAM TOPOGRAPHIC SURFACE: RELATIVELY HARD/COURSE SEDIMENT UNDERLYING FINE SEDIMENT; STUMPS EXHUMED FROM IMPOUNDED SEDIMENT; BEDROCK; LARGE BOULDERS; ROCK WALLS; AND RIPRAP. IF THE PRE-DAM TOPOGRAPHIC SURFACE BECOMES UNDERMINED AND UNSTABLE, NOTIFY THE ENGINEER AND GEOTECHNICAL ENGINEER. IF ANY EXISTING STRUCTURE BECOMES UNDERMINED, NOTIFY THE ENGINEER AND GEOTECHNICAL ENGINEER IMMEDIATELY. IF PIERS SUPPORTING EXISTING SANITARY SEWER BECOME UNDERMINED, NOTIFY THE ENGINEER AND GEOTECHNICAL ENGINEER IMMEDIATELY.
6. IF CHANNEL OR RIVERBANK EXCAVATION IS NECESSARY AS DETERMINED BY THE ENGINEER, EXCAVATE DOWN TO THE PRE-DAM TOPOGRAPHIC SURFACE AS INDICATED BY NOTE 4, OR AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER. EXCAVATED MATERIAL TO REMAIN ON-SITE.
7. REMOVE ALL MAN-MADE, DELETERIOUS MATERIALS LARGER THAN A BRICK OR THAT MAY HAVE NEGATIVE IMPACTS TO WATER QUALITY FROM THE CHANNEL AND RIVERBANKS. CONTRACTOR SHALL HAUL AND DISPOSE OF DELETERIOUS MATERIALS IN A LEGAL MANNER.
8. CAREFULLY REMOVE SEDIMENT AROUND HISTORIC DAM (LOCATED UPSTREAM OF BLOEDE DAM AND BURIED BY IMPOUNDED SEDIMENT) AND ALLOW 3 DAYS FOLLOWING SEDIMENT REMOVAL FOR PHOTOGRAPHY OF HISTORIC DAM PRIOR TO ITS REMOVAL.



**1** TYPICAL SECTION - ANTICIPATED CHANNEL EVACUATION  
 DCG1 SCALE: 1" = 30'



| NO | DATE | REVISION DESCRIPTION |
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| RP,DF    | BN       | JK,BN    |
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 3/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

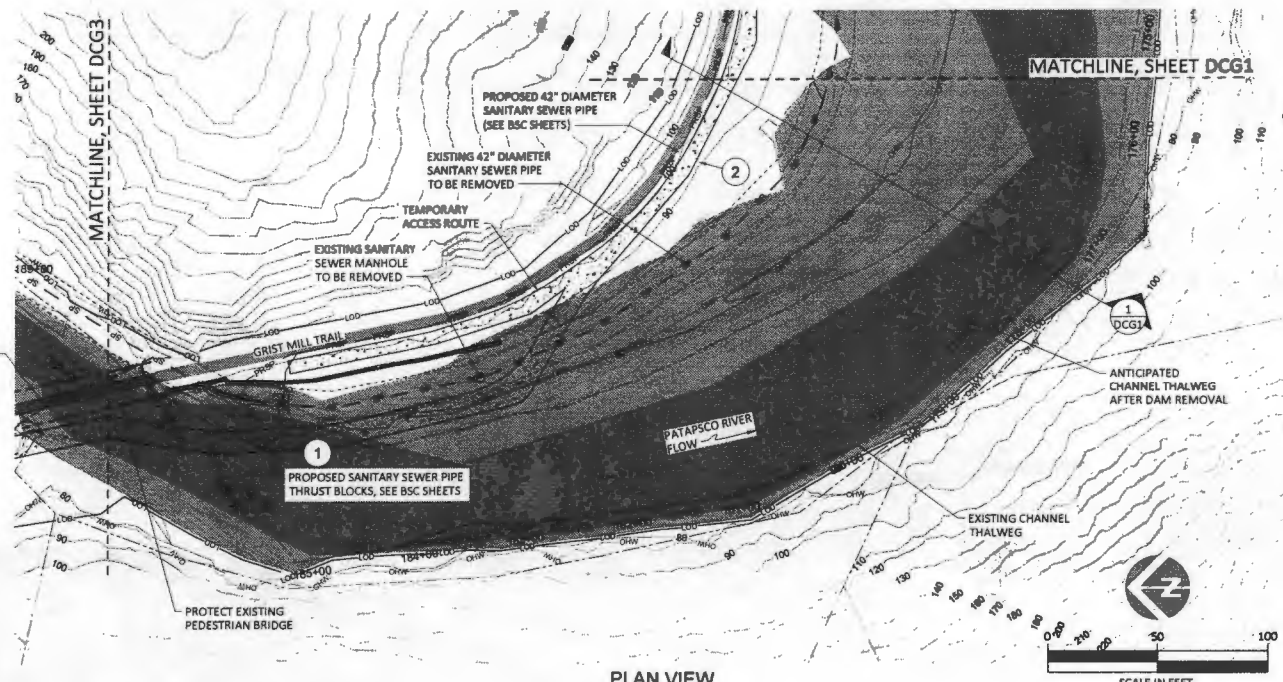
PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 S. NDARIS  
 EXPIRATION DATE: 08/28/2018 LICENSE NO. 36987

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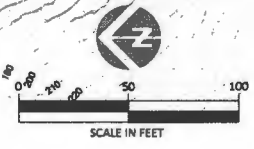
GRADING PLAN STA 162+00 TO STA 174+00

SHEET  
**DCG1**  
 SHEET 9 OF 31



- LEGEND**
- - - - - EXISTING 1-FT CONTOURS
  - - - - - EXISTING ROAD / TRAIL
  - - - - - ORDINARY HIGH WATER
  - - - - - PROPERTY LINES WITHIN BALTIMORE COUNTY
  - - - - - EXISTING SANITARY SEWER EASEMENT
  - - - - - PROPERTY LINES WITHIN HOWARD COUNTY
  - - - - - EXISTING 42" DIAMETER SANITARY SEWER PIPE
  - - - - - EXISTING 12" DIAMETER SANITARY SEWER PIPE
  - - - - - PROPOSED 42" DIAMETER SANITARY SEWER PIPE
  - - - - - PROPOSED CONSTRUCTION ACCESS
  - - - - - ANTICIPATED SEDIMENT EVACUATION AREA, TO BE GRADED FOR SLOPE STABILITY ONLY AS DIRECTED BY OWNER. PAYMENT SHALL BE PER HOUR, AND SHALL INCLUDE ALL MATERIALS, LABOR, AND EQUIPMENT.
  - - - - - ANTICIPATED CHANNEL
  - - - - - LIMITS OF DISTURBANCE
  - - - - - EXISTING CHANNEL THALWEG AND STATIONING
  - - - - - ANTICIPATED CHANNEL THALWEG AND STATIONING

**PLAN VIEW**



**SHEET NOTES:**

1. MAINTAIN MINIMUM OF 18" COVER OVER EXISTING SANITARY SEWER PIPE. ANY ADDITIONAL COVER AND MAINTENANCE OF PIPE CROSSING IS CONSIDERED INCIDENTAL TO HAUL ROAD MAINTENANCE.
2. SEE SANITARY SEWER SHEETS FOR TEMPORARY EROSION CONTROL DURING SEWER CONSTRUCTION.



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| RP_DF    | BN       | JK_BN    |
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

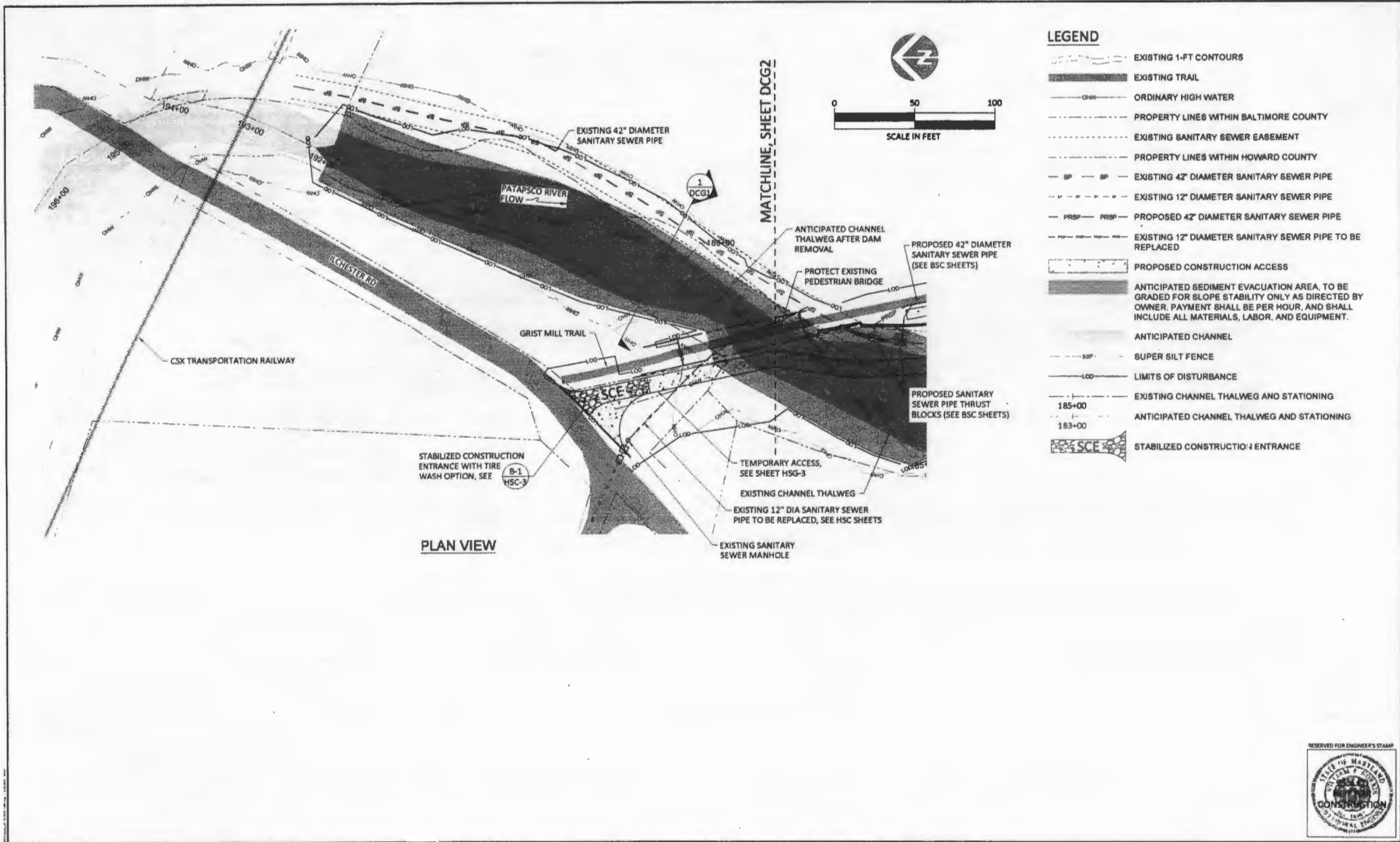
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 B. NORRIS  
 EXPIRATION DATE: 08/31/2018 LICENSE NO. 36887



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**GRADING PLAN STA 174+00 TO STA 185+00**

SHEET  
**DCG2**  
 SHEET 10 OF 31



| NO. | DATE | REVISION DESCRIPTION |
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| RP,DF    | BN       | JK,BN    |
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**  
**DEPARTMENT OF NATURAL RESOURCES**  
**AMERICAN RIVERS**  
**BALTIMORE AND HOWARD COUNTY, MD**

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B. NORRIS  
 EXPIRATION DATE: 06/02/2018 LICENSE NO.: 16987

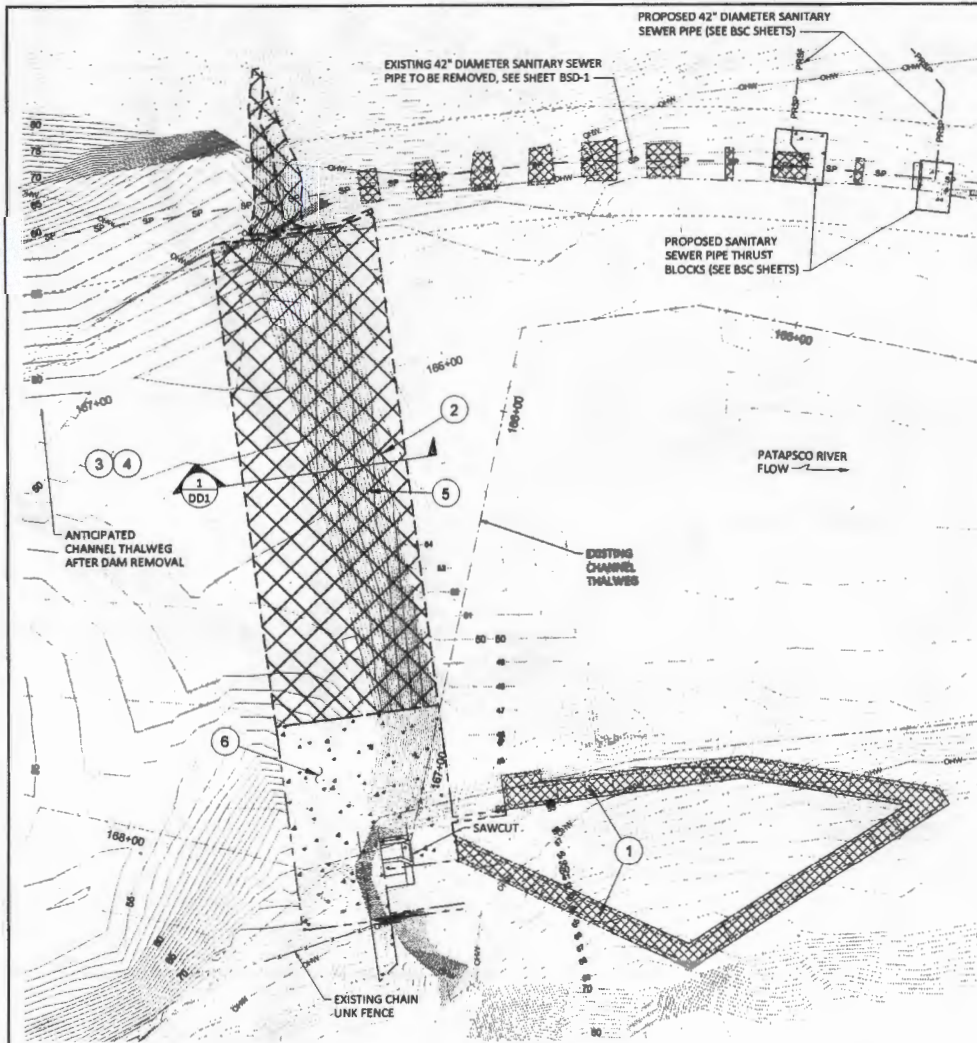
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**GRADING PLAN STA 185+00 TO STA 195+00**

SHEET  
**DCG3**  
 SHEET 11 OF 31







PLAN VIEW

**SHEET NOTES - RESERVOIR DEWATERING AND DAM REMOVAL PHASING**

- 1 REMOVE FISH LADDER.
- 2 SAWCUT BUTTRESSES AND BREACH DAM WITH WRECKING BALL, AS NECESSARY.
- 3 ALLOW RESERVOIR TO DE-WATER.
- 4 ALLOW 3 DAYS FOR PHOTOGRAPHY OF HISTORIC DAM EXPOSED BY SEDIMENT EVACUATION, PRIOR TO REMOVAL.
- 5 BLAST, BORE, JACK, OR CUT REMAINDER OF DAM AND REMOVE DOWN TO EXISTING BEDROCK.
- 6 PRESERVE AND PROTECT RIGHT BANK DAM ABUTMENT AS SHOWN ON SHEET DD4.



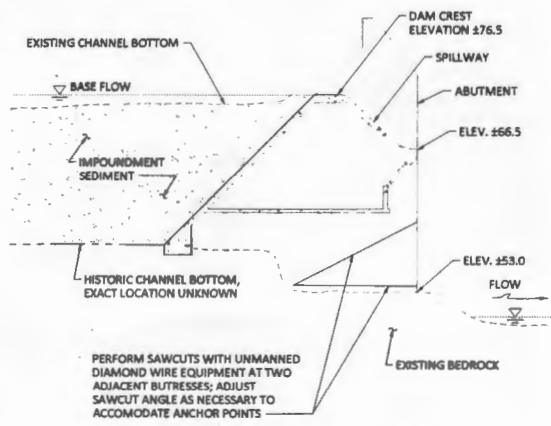
- LEGEND**
- 80 --- 80 --- EXISTING 1-FT CONTOURS
  - 80 --- 80 --- ANTICIPATED 2-FT CONTOURS, FINISH GRADE
  - --- PROPERTY LINES WITHIN BALTIMORE COUNTY
  - --- EXISTING SANITARY SEWER EASEMENT
  - --- PROPERTY LINES WITHIN HOWARD COUNTY
  - --- ORDINARY HIGH WATER
  - SP --- SP --- EXISTING 42" DIAMETER SANITARY SEWER PIPE TO REMAIN
  - SP --- SP --- EXISTING 42" DIAMETER SANITARY SEWER PIPE TO BE REMOVED
  - PRSP --- PRSP --- PROPOSED 42" DIAMETER SANITARY SEWER PIPE
  - --- EXISTING DAM TO REMAIN
  - --- EXISTING DAM TO BE REMOVED
  - --- EXISTING MISC. CONCRETE STRUCTURES, TO BE REMOVED
  - --- EXISTING CHANNEL THALWEG AND STATIONING
  - 166+00 --- 166+00 --- ANTICIPATED CHANNEL THALWEG AND STATIONING

**DEMOLITION GENERAL NOTES**

DEMOLITION AND REMOVAL SHALL INCLUDE BUT IS NOT LIMITED TO DEMOLITION, CRUSHING, SALVAGE, HAULING, AND PLACEMENT, OF THE CONCRETE DAM STRUCTURE, THE FISH LADDER STRUCTURE, AND OTHER DELETERIOUS MATERIAL.

CONTRACTOR SHALL PROTECT ALL ADJACENT PROPERTY STRUCTURES, UTILITIES AND LANDSCAPE.

DEMOLITION DEBRIS SHALL BE SALVAGED, OR DISPOSED OF BY CONTRACTOR, IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.



**1 DD1 DAM DEMOLITION SECTION VIEW**  
NOT TO SCALE



| NO. | DATE | REVISION DESCRIPTION |
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| RP, DF   | BN       | JK, BN   |
| DRAWN    | DESIGNED | CHECKED  |
| BM       | 5/15/15  | 11-06-90 |
| APPROVED | DATE     | PROJECT  |

**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**  
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 BALTIMORE AND HOWARD COUNTY, MD

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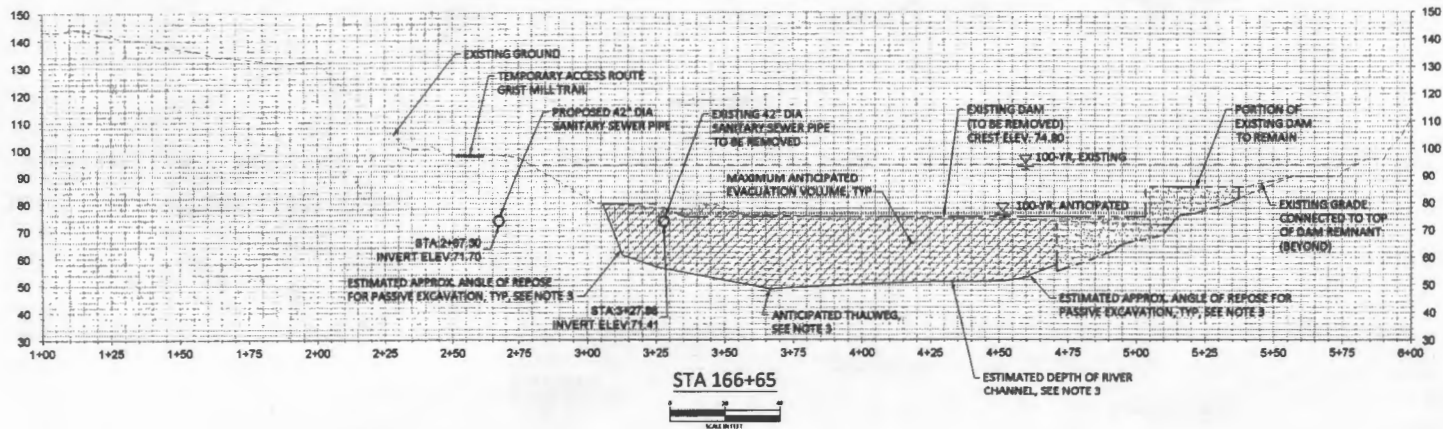
EXPIRATION DATE: 03/29/2018 LICENSE NO.: 3682

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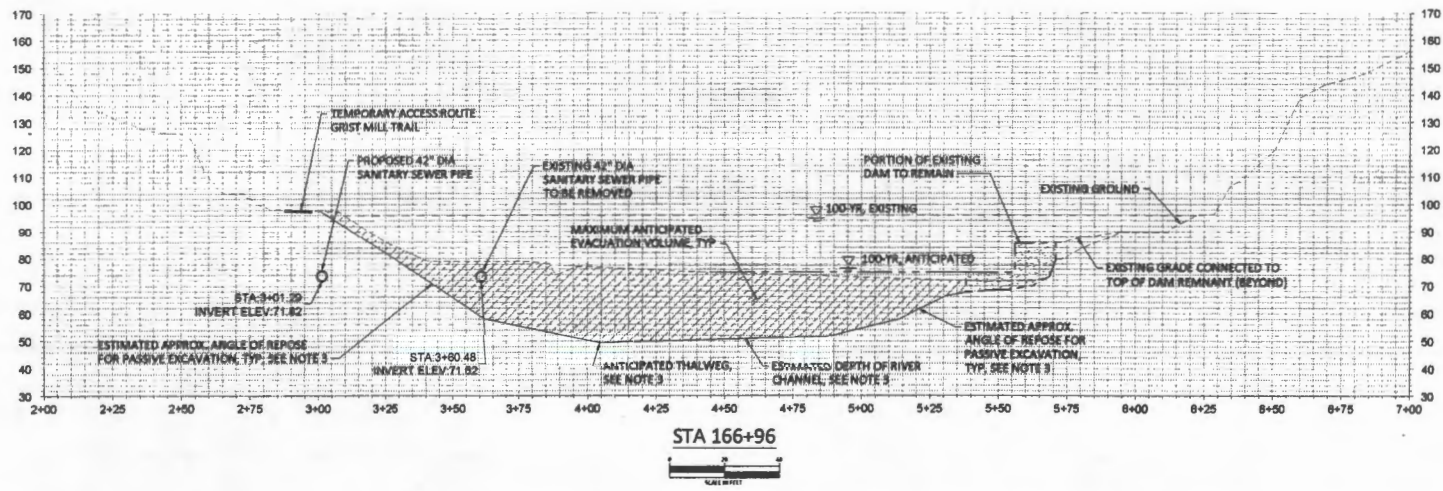
**DAM DEMOLITION PLAN**

|                |
|----------------|
| SHEET          |
| <b>DD1</b>     |
| SHEET 13 OF 31 |





STA 166+65  
SCALE: 1"=10'



STA 166+96  
SCALE: 1"=10'

- SHEET NOTES:**
1. PIPE ELEVATIONS ARE REPRESENTATIVE OF THE INVERT.
  2. PROPOSED SIDE SLOPES STEEPER THAN 2:1 (H:V) SHALL BE RECONSTRUCTED IN 1-FOOT LIFTS AND MECHANICALLY COMPACTED TO 95% PROCTOR UTILIZING MATERIAL AVAILABLE ON-SITE. MATERIAL SHALL BE APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. FINAL GRADING COMPACTED FILL SHALL BE BENCHED (NOTCHED) INTO THE EXISTING SLOPE A MINIMUM OF 4 FEET VERTICALLY FOR EVERY 10 FEET HORIZONTAL.
  3. SEE CHANNEL AND RIVER BANK GRADING NOTES ON SHEET DCG1.
  4. CROSS SECTION VIEWS ARE ORIENTED LOOKING DOWNSTREAM. STATIONING IS BASED ON ANTICIPATED THALWEG.



| NO. | DATE | REVISION DESCRIPTION |
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| RP,DF    | BN       | JK,BN    |
|----------|----------|----------|
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

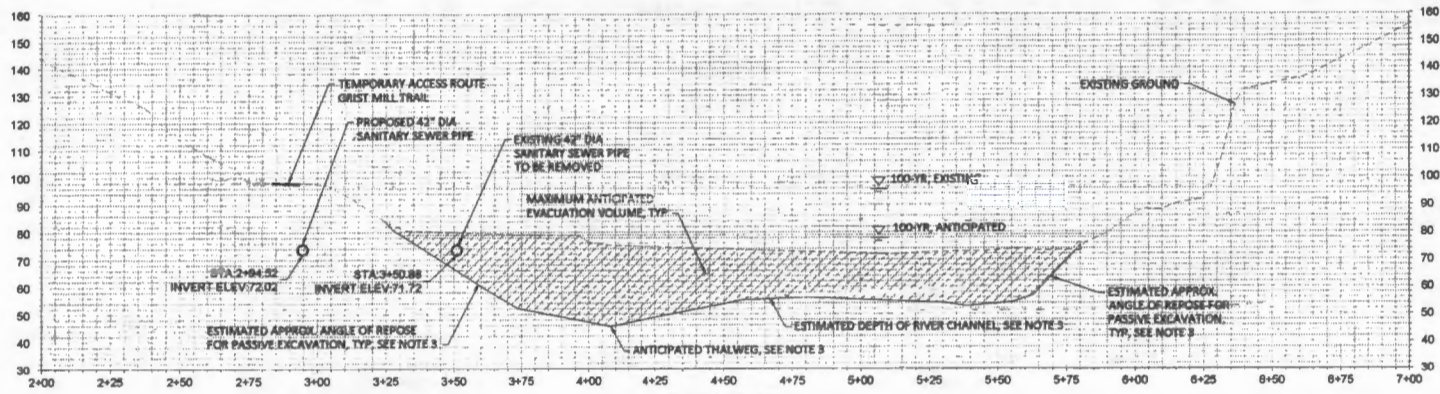
**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

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 B. MORRIS  
 EXPIRATION DATE: 09/01/2017 LICENSE NO. 38887

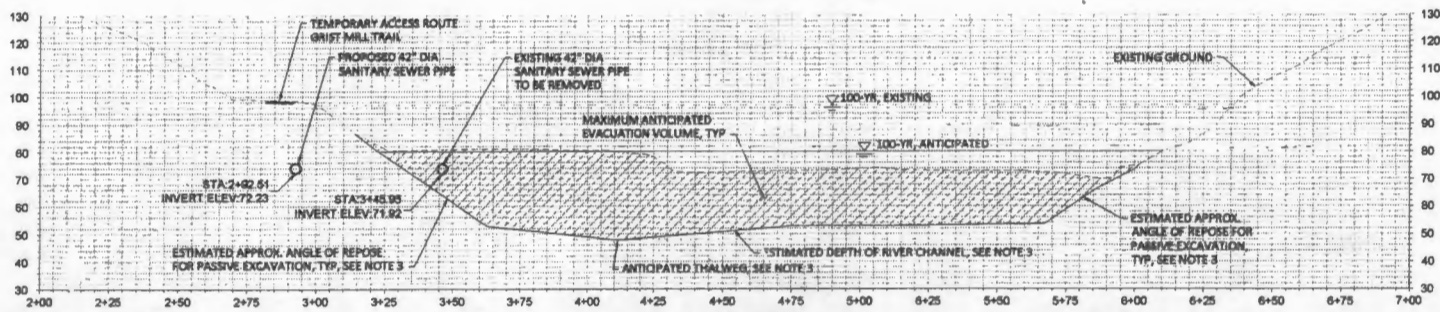
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**CROSS SECTIONS STA 166+25 TO 166+65**

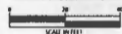
SHEET  
**DXS2**  
 SHEET 18 OF 31



STA 167+67



STA 168+43



**SHEET NOTES:**

1. PIPE ELEVATIONS ARE REPRESENTATIVE OF THE INVERT.
2. PROPOSED SIDE SLOPES STEEPER THAN 2:1 (H:V) SHALL BE RECONSTRUCTED IN 1-FOOT LIFTS AND MECHANICALLY COMPACTED TO 95% PROCTOR UTILIZING MATERIAL AVAILABLE ONSITE. MATERIAL SHALL BE APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. FINAL GRADING COMPACTED FILL SHALL BE BENCHED (NOTCHED) INTO THE EXISTING SLOPE A MINIMUM OF 4 FEET VERTICALLY FOR EVERY 10 FEET HORIZONTAL.
3. SEE CHANNEL AND RIVER BANK GRADING NOTES ON SHEET DCG1.
4. CROSS SECTION VIEWS ARE ORIENTED LOOKING DOWNSTREAM. STATIONING IS BASED ON ANTICIPATED THALWEG.



| NO. | DATE | REVISION DESCRIPTION |
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| RP,DF    | BN       | JK,BN    |
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

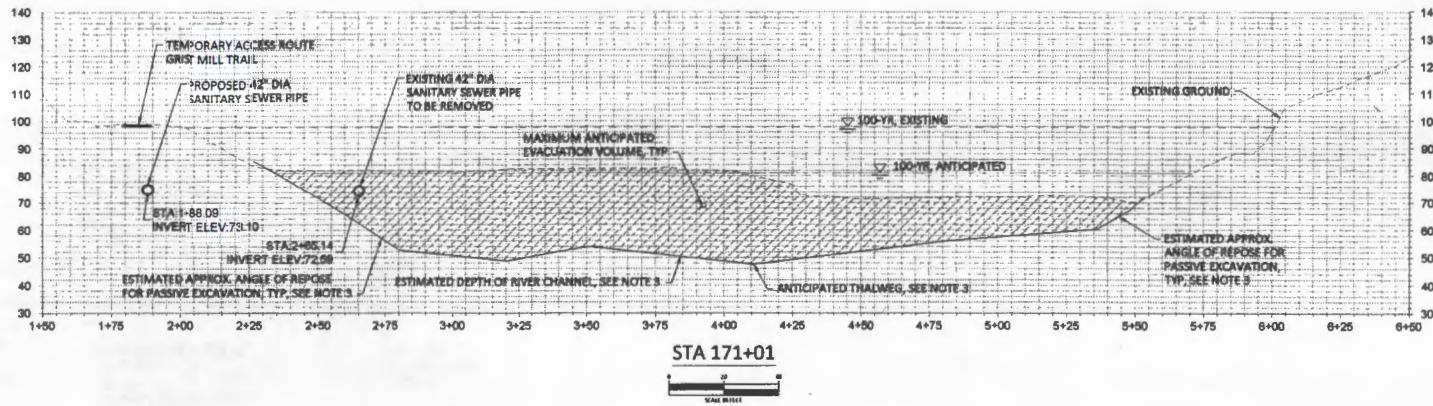
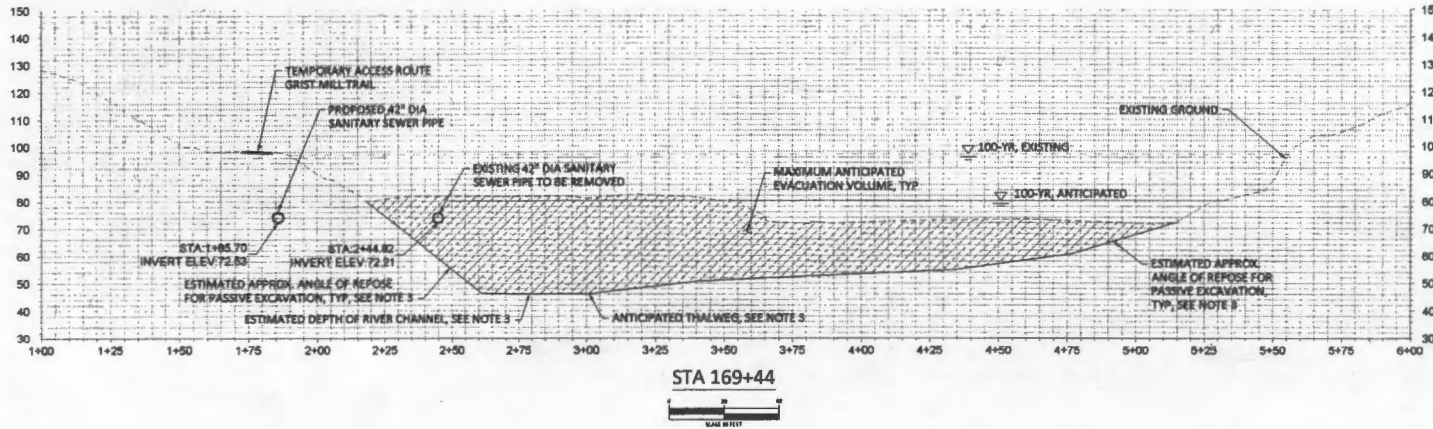
PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 B. NORRIS  
 EXPIRATION DATE: 02/02/2018 LICENSE NO. 16887

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CROSS SECTIONS STA 167+28  
 TO 167+98

SHEET  
**DXS3**  
 SHEET 19 OF 31



**SHEET NOTES:**

1. PIPE ELEVATIONS ARE REPRESENTATIVE OF THE INVERT.
2. PROPOSED SIDE SLOPES STEEPER THAN 2:1 (H:V) SHALL BE RECONSTRUCTED IN 1-FOOT LIFTS AND MECHANICALLY COMPACTED TO 95% PROCTOR UTILIZING MATERIAL AVAILABLE ONSITE. MATERIAL SHALL BE APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. FINAL GRADING COMPACTED FILL SHALL BE BENCHED (NOTCHED) INTO THE EXISTING SLOPE A MINIMUM OF 4 FEET VERTICALLY FOR EVERY 10 FEET HORIZONTAL.
3. SEE CHANNEL AND RIVER BANK GRADING NOTES ON SHEET D061.
4. CROSS SECTION VIEWS ARE ORIENTED LOOKING DOWNSTREAM. STATIONING IS BASED ON ANTICIPATED THALWEG.



| NO. | DATE | REVISION DESCRIPTION |
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| RP_DF    | BN       | JK_BN    |
|----------|----------|----------|
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

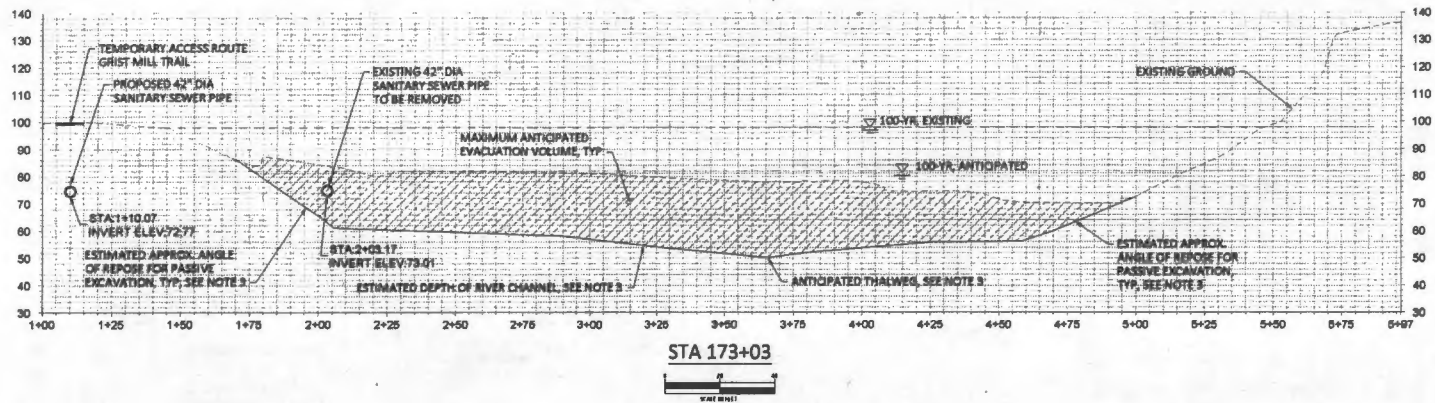
**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 EXPIRATION DATE: 01/01/2018    S. NORRIS    LICENSE NO. 36897

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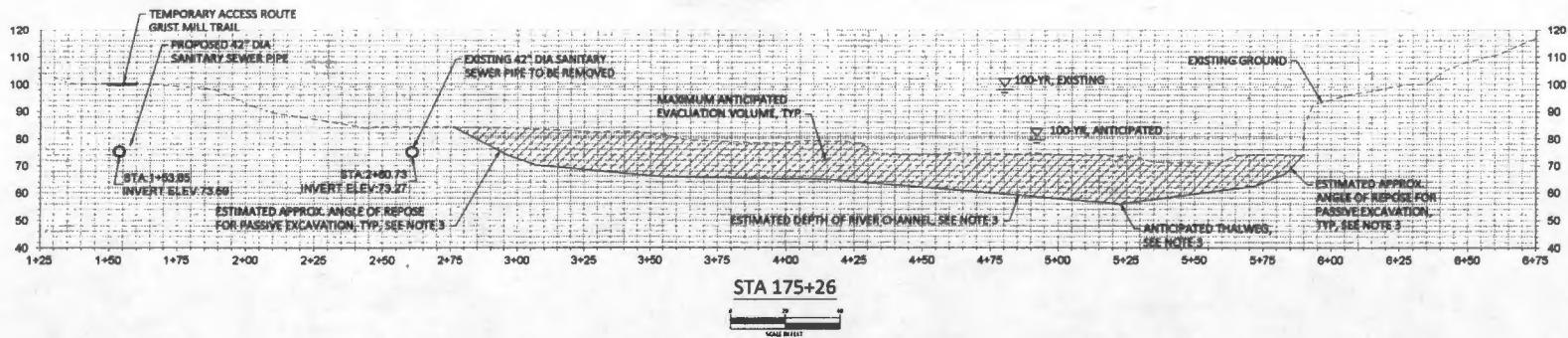
**CROSS SECTIONS STA 169+04 TO 170+63**

SHEET  
**DXS4**  
 SHEET 20 OF 31



**SHEET NOTES:**

1. PIPE ELEVATIONS ARE REPRESENTATIVE OF THE INVERT.
2. PROPOSED SIDE SLOPES STEEPER THAN 2:1 (H:V) SHALL BE RECONSTRUCTED IN 1-FOOT LIFTS AND MECHANICALLY COMPACTED TO 95% PROCTOR UTILIZING MATERIAL AVAILABLE ONSITE. MATERIAL SHALL BE APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. FINAL GRADING COMPACTED FILL SHALL BE BENCHED (NOTCHED) INTO THE EXISTING SLOPE A MINIMUM OF 4 FEET VERTICALLY FOR EVERY 10 FEET HORIZONTAL.
3. SEE CHANNEL AND RIVER BANK GRADING NOTES ON SHEET DCG1.
4. CROSS SECTION VIEWS ARE ORIENTED LOOKING DOWNSTREAM. STATIONING IS BASED ON ANTICIPATED THALWEG.



RESERVED FOR ENGINEER'S STAMP



| NO. | DATE | REVISION DESCRIPTION |
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| RP,DF    | BN       | JK,BN    |
|----------|----------|----------|
| DRMAN    | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**  
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 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

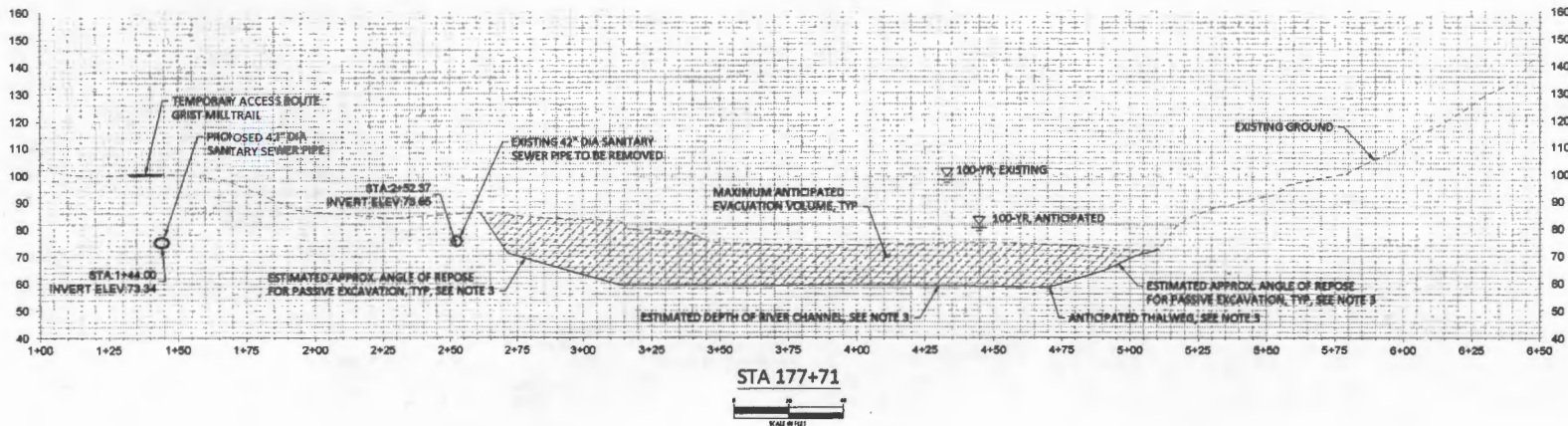
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 EXPIRATION DATE: 06/01/2018 LICENSE NO. 38887



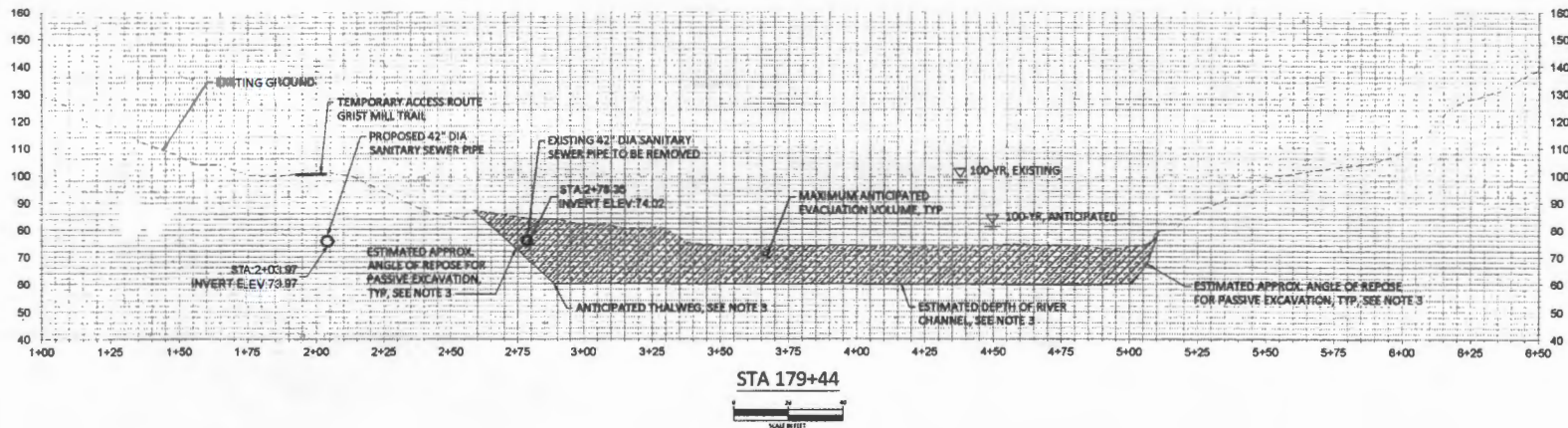
501 Portway Ave, Suite 101  
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**CROSS SECTIONS STA 172+91 TO 175+19**

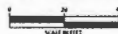
SHEET  
**DXSS**  
 SHEET 21 OF 31



STA 177+71



STA 179+44



**SHEET NOTES:**

1. PIPE ELEVATIONS ARE REPRESENTATIVE OF THE INVERT.
2. PROPOSED SIDE SLOPES STEEPER THAN 2:1 (H:V) SHALL BE RECONSTRUCTED IN 1-FOOT LIFTS AND MECHANICALLY COMPACTED TO 95% PROCTOR UTILIZING MATERIAL AVAILABLE ONSITE. MATERIAL SHALL BE APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. FINAL GRADING COMPACTED FILL SHALL BE BENCHED (NOTCHED) INTO THE EXISTING SLOPE A MINIMUM OF 4 FEET VERTICALLY FOR EVERY 1D FEET HORIZONTAL.
3. SEE CHANNEL AND RIVER BANK GRADING NOTES ON SHEET DCG1.
4. CROSS SECTION VIEWS ARE ORIENTED LOOKING DOWNSTREAM. STATIONING IS BASED ON ANTICIPATED THALWEG.

RESERVED FOR ENGINEER'S STAMP



| NO. | DATE | REVISION DESCRIPTION |
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| RP, DF   | BN       | JK, BN   |
|----------|----------|----------|
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 5/15/13  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

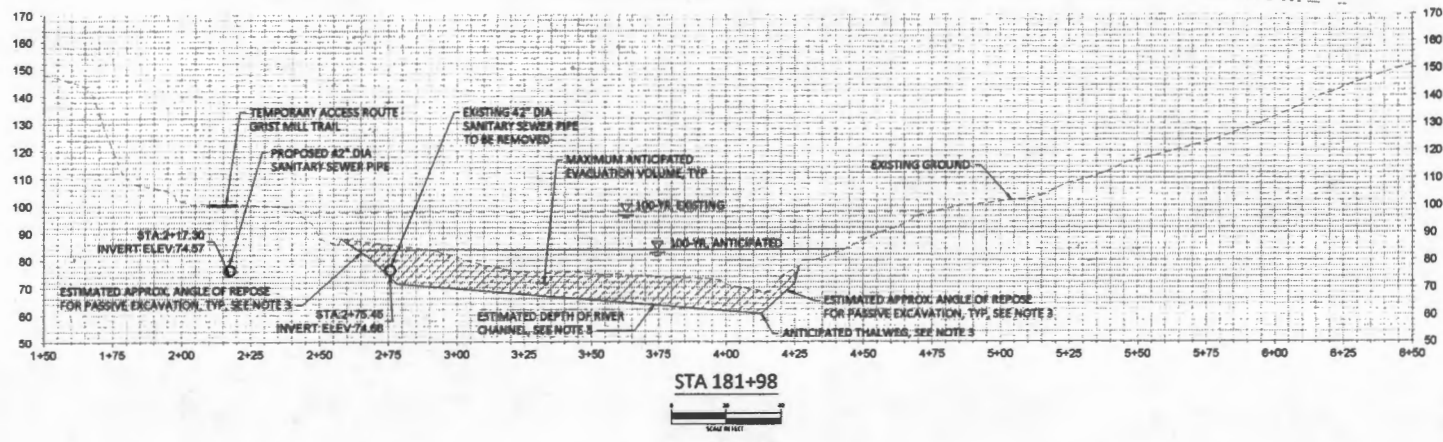
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 B. NORRIS  
 EXPIRATION DATE: 08/31/2015 LICENSE NO. 3693



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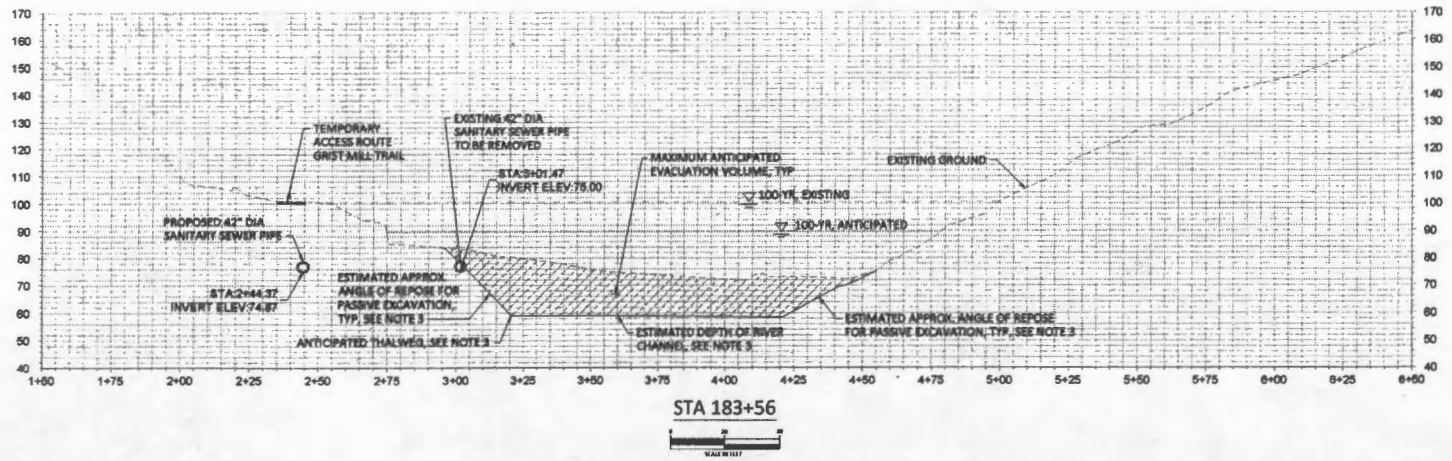
CROSS SECTIONS STA 177+58  
 TO 179+20

SHEET  
**DXS6**  
 SHEET 22 OF 31



**SHEET NOTES:**

1. PIPE ELEVATIONS ARE REPRESENTATIVE OF THE INVERT.
2. PROPOSED SIDE SLOPES STEEPER THAN 2:1 (H:V) SHALL BE RECONSTRUCTED IN 1-FOOT LIFTS AND MECHANICALLY COMPACTED TO 95% PROCTOR UTILIZING MATERIAL AVAILABLE ONSITE. MATERIAL SHALL BE APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. FINAL GRADING COMPACTED FILL SHALL BE BENCHED (NOTCHED) INTO THE EXISTING SLOPE A MINIMUM OF 4 FEET VERTICALLY FOR EVERY 10 FEET HORIZONTAL.
3. SEE CHANNEL AND RIVER BANK GRADING NOTES ON SHEET DCS1.
4. CROSS SECTION VIEWS ARE ORIENTED LOOKING DOWNSTREAM. STATIONING IS BASED ON ANTICIPATED THALWEG.



| NO. | DATE | REVISION DESCRIPTION |
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| RP,DF    | BN       | JK,BN    |
| DRWH     | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

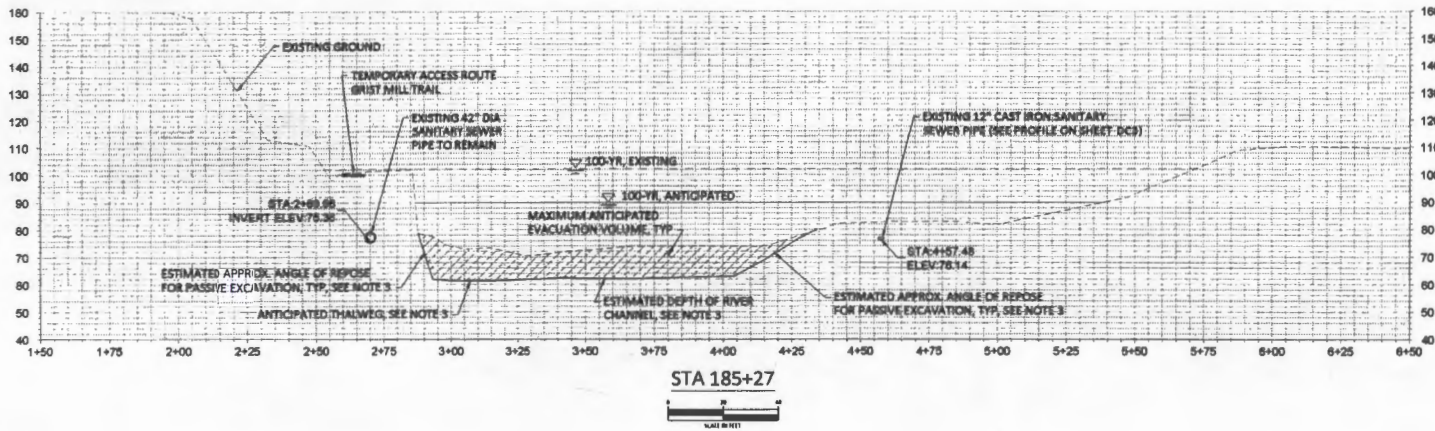
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 B. NORRIS  
 EXPIRATION DATE: 06/30/2018 LICENSE NO. 36987

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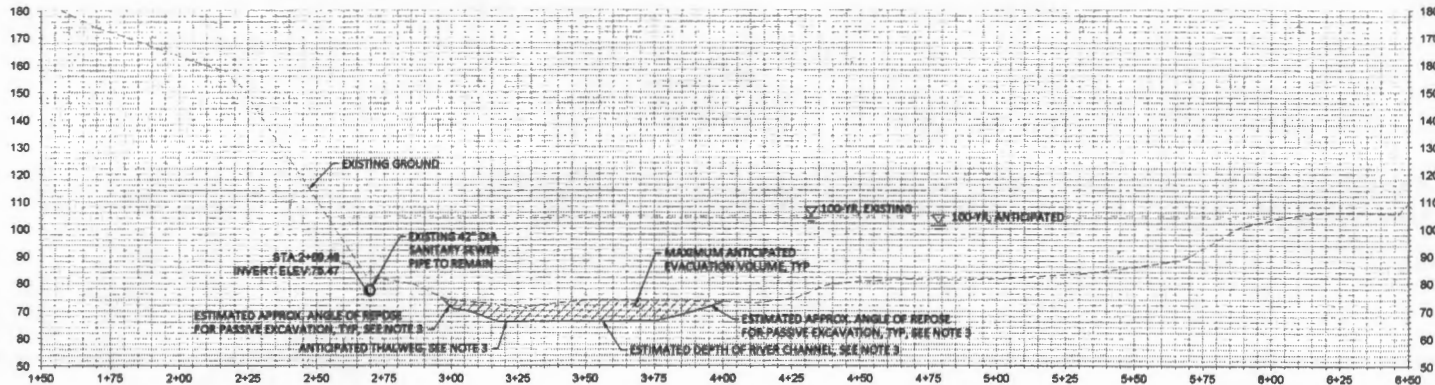
CROSS SECTIONS STA 181+64 TO 183+10

SHEET  
**DXS7**  
 SHEET 23 OF 31





STA 185+27

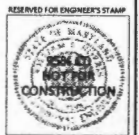


STA 186+17



SHEET NOTES:

1. PIPE ELEVATIONS ARE REPRESENTATIVE OF THE INVERT.
2. PROPOSED SIDE SLOPES STEEPER THAN 2:1 (H:V) SHALL BE RECONSTRUCTED IN 1-FOOT LIFTS AND MECHANICALLY COMPACTED TO 95% PROCTOR UTILIZING MATERIAL AVAILABLE ON-SITE. MATERIAL SHALL BE APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. FINAL GRADING COMPACTED FILL SHALL BE BENCHED (NOTCHED) INTO THE EXISTING SLOPE A MINIMUM OF 4 FEET VERTICALLY FOR EVERY 10 FEET HORIZONTAL.
3. SEE CHANNEL AND RIVER BANK GRADING NOTES ON SHEET DCG1.
4. CROSS SECTION VIEWS ARE ORIENTED LOOKING DOWNSTREAM. STATIONING IS BASED ON ANTICIPATED THALWEG.



| NO. | DATE | REVISION DESCRIPTION |
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| RP/DF    | BN       | JIC/BN   |
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| ORAHN    | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

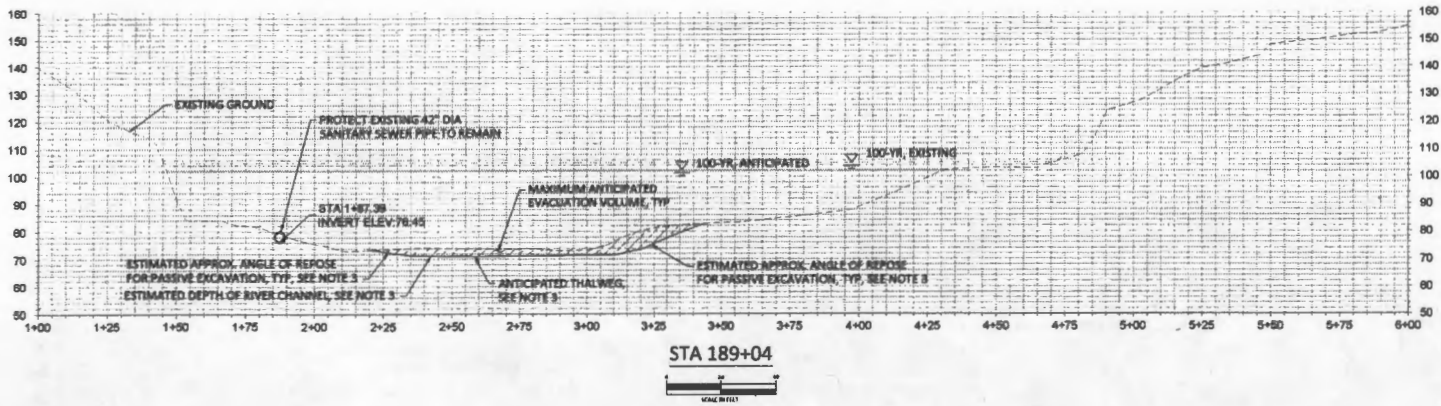
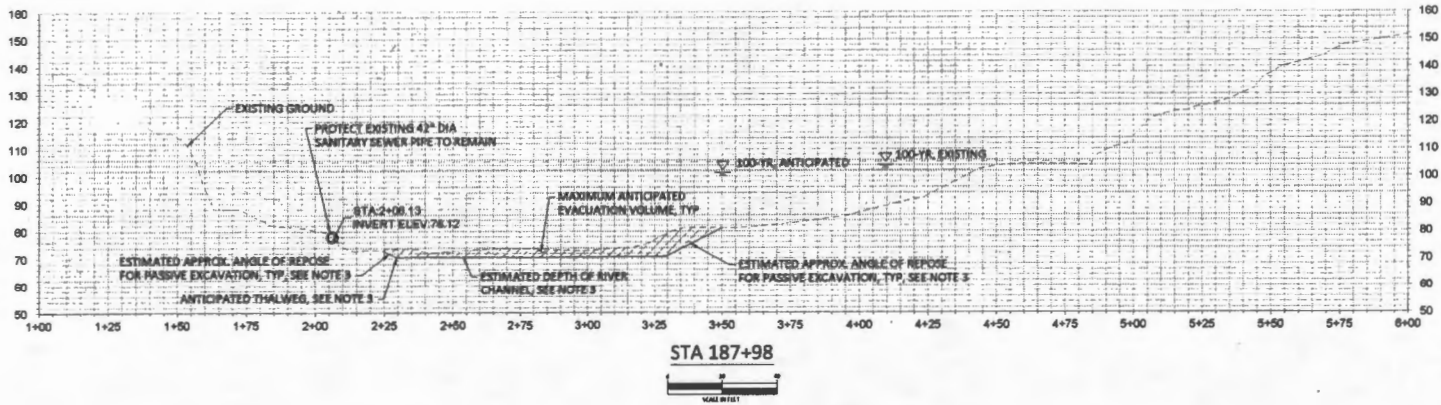
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 B. NORRIS  
 EXPIRATION DATE: 08/01/2018 LICENSE NO. 3887



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CROSS SECTIONS  
 STA 185+25 TO 185+77

SHEET  
 DXS8  
 SHEET 24 OF 31



**SHEET NOTES:**

1. PIPE ELEVATIONS ARE REPRESENTATIVE OF THE INVERT.
2. PROPOSED SIDE SLOPES STEEPER THAN 2:1 (H:V) SHALL BE RECONSTRUCTED IN 1-FOOT LIFTS AND MECHANICALLY COMPACTED TO 95% PROCTOR UTILIZING MATERIAL AVAILABLE ONSITE. MATERIAL SHALL BE APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. FINAL GRADING COMPACTED FILL SHALL BE BENCHED (NOTCHED) INTO THE EXISTING SLOPE A MINIMUM OF 4 FEET VERTICALLY FOR EVERY 10 FEET HORIZONTAL.
3. SEE CHANNEL AND RIVER BANK GRADING NOTES ON SHEET DCG1.
4. CROSS SECTION VIEWS ARE ORIENTED LOOKING DOWNSTREAM. STATIONING IS BASED ON ANTICIPATED THALWEG.

RESERVED FOR ENGINEER'S STAMP



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| RP,DF    | BN       | JK,BN    |
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

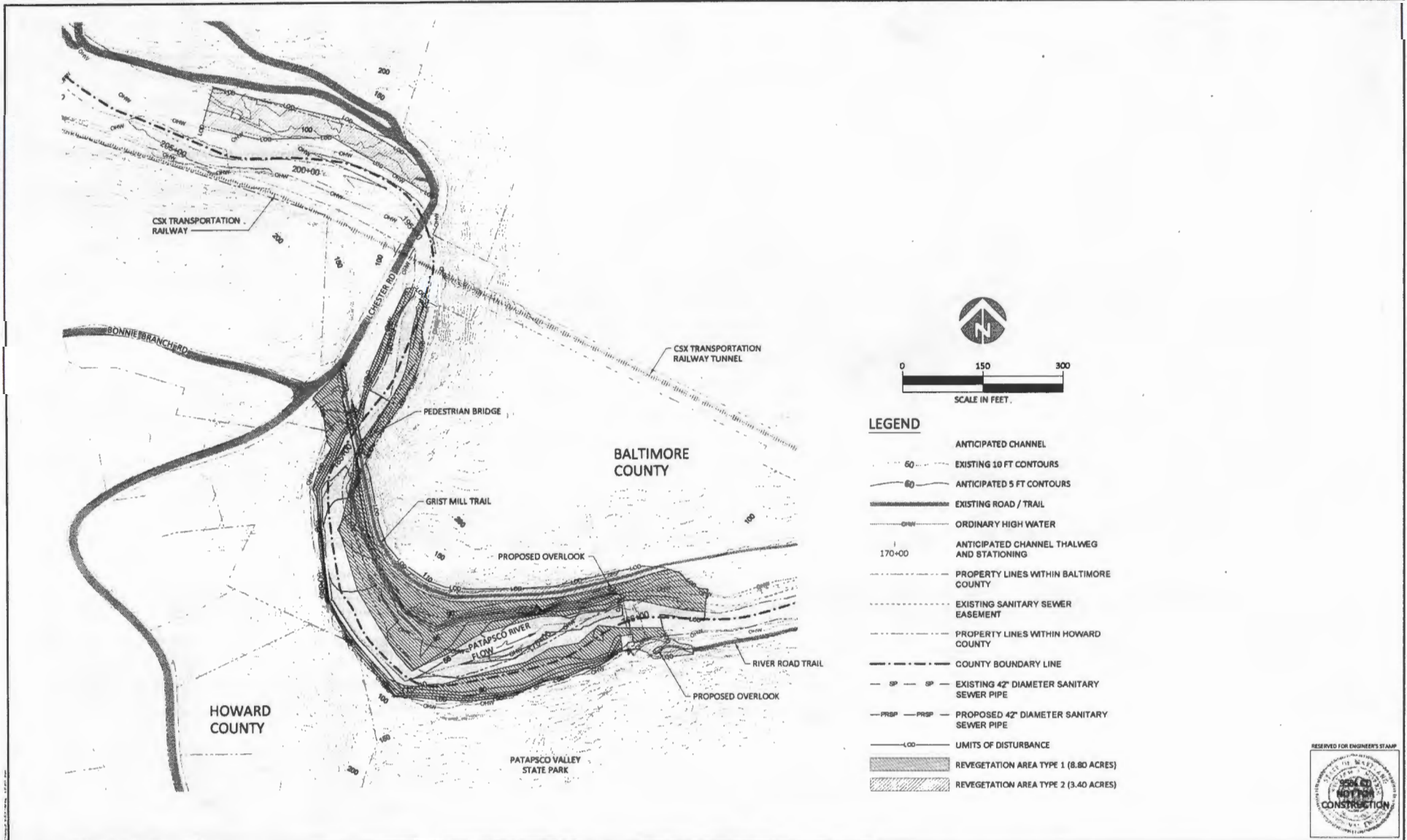
**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 B. NORRIS  
 EXPIRATION DATE: 05/05/2018 LICENSE NO. 36887

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**CROSS SECTIONS**  
 STA 187+47 TO 188+46

SHEET  
**DXS9**  
 SHEET 25 OF 31



- LEGEND**
- ANTICIPATED CHANNEL
  - 60 --- EXISTING 10 FT CONTOURS
  - 60 --- ANTICIPATED 5 FT CONTOURS
  - EXISTING ROAD / TRAIL
  - OHW --- ORDINARY HIGH WATER
  - 170+00 ANTICIPATED CHANNEL THALWEG AND STATIONING
  - PROPERTY LINES WITHIN BALTIMORE COUNTY
  - EXISTING SANITARY SEWER EASEMENT
  - PROPERTY LINES WITHIN HOWARD COUNTY
  - COUNTY BOUNDARY LINE
  - 42" --- 42" --- EXISTING 42" DIAMETER SANITARY SEWER PIPE
  - PRSP --- PRSP --- PROPOSED 42" DIAMETER SANITARY SEWER PIPE
  - LOD --- LIMITS OF DISTURBANCE
  - REVEGETATION AREA TYPE 1 (8.80 ACRES)
  - REVEGETATION AREA TYPE 2 (3.40 ACRES)



| NO. | DATE | REVISION DESCRIPTION |
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| RP_DF    | BN       | JK_BN    |
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

**PATAPSCO INTRECEPTOR RELOCATION AND DAM REMOVAL**  
 DEPARTMENT OF NATURAL RESOURCES  
 AMERICAN RIVERS  
 BALTIMORE AND HOWARD COUNTY, MD

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 B. NORRIS  
 EXPIRATION DATE: 01/24/2018 LICENSE NO. 36987

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**TREATMENT AREAS AND STABILIZATION PLAN**

SHEET  
**DP1**  
 SHEET 26 OF 31

### I. REVEGETATION AREA PLANTINGS TYPE 1

| Limit of Disturbance (LOD)     |                    | Area (ac.)                       | 8.80         |             |
|--------------------------------|--------------------|----------------------------------|--------------|-------------|
| Latin Name                     | Common Name        | Spacing (ft O.C. - average grid) | Total #      | Type        |
| <b>TREES</b>                   |                    |                                  |              |             |
| <i>Acer rubrum</i>             | Red maple          | 14.76'                           | 110          | 5 gal       |
| <i>Acer saccharinum</i>        | Silver maple       | 14.76'                           | 110          | 5 gal       |
| <i>Betula nigra</i>            | River birch        | 14.76'                           | 110          | 5 gal       |
| <i>Carya cordiformis</i>       | Bitternut Hickory  | 14.76'                           | 110          | 5 gal       |
| <i>Carya ovata</i>             | Shagbark Hickory   | 14.76'                           | 110          | 5 gal       |
| <i>Celtis occidentalis</i>     | Hickberry          | 14.76'                           | 110          | 5 gal       |
| <i>Fagus grandifolia</i>       | American beech     | 14.76'                           | 110          | 5 gal       |
| <i>Liquidambar styraciflua</i> | Sweet gum          | 14.76'                           | 110          | 5 gal       |
| <i>Liriodendron tulipifera</i> | Tulip poplar       | 14.76'                           | 110          | 5 gal       |
| <i>Nyssa sylvatica</i>         | Black gum          | 14.76'                           | 110          | 5 gal       |
| <i>Quercus bicolor</i>         | Swamp white oak    | 14.76'                           | 110          | 5 gal       |
| <i>Tilia americana</i>         | American basswood  | 14.76'                           | 110          | 5 gal       |
| <i>Quercus rubra</i>           | Northern red oak   | 14.76'                           | 110          | 5 gal       |
| <i>Quercus velutina</i>        | Black oak          | 14.76'                           | 110          | 5 gal       |
| <i>Platanus occidentalis</i>   | American sycamore  | 14.76'                           | 110          | 5 gal       |
| <i>Populus deltoides</i>       | Eastern cottonwood | 14.76'                           | 110          | 5 gal       |
| <i>Salix nigra</i>             | Black willow       | see note below                   | 200          | Live stake  |
|                                |                    |                                  | <b>TOTAL</b> | <b>1980</b> |

| Latin Name                    | Common Name          | Spacing (ft O.C. - average grid) | Total #      | Type        |
|-------------------------------|----------------------|----------------------------------|--------------|-------------|
| <b>SHRUBS</b>                 |                      |                                  |              |             |
| <i>Rubus allegheniensis*</i>  | Allegheny blackberry | 11.16'                           | 257          | 2 gal       |
| <i>Vaccinium stamineum</i>    | Deerberry            | 11.16'                           | 257          | 2 gal       |
| <i>Sassafras albidum</i>      | Sassafras            | 11.16'                           | 257          | 2 gal       |
| <i>Viburnum dentatum</i>      | southern arrowwood   | 11.16'                           | 257          | 2 gal       |
| <i>Sambucus canadensis</i>    | common elderberry    | 11.16'                           | 257          | 2 gal       |
| <i>Clethra alnifolia</i>      | sweet pepperbush     | 11.16'                           | 257          | 2 gal       |
| <i>Cornus amomum</i>          | Silky dogwood        | 11.16'                           | 257          | 2 gal       |
| <i>Hamamelis virginica</i>    | witch hazel          | 11.16'                           | 257          | 2 gal       |
| <i>Arcia arbutifolia</i>      | red chokeberry       | 11.16'                           | 257          | 2 gal       |
| <i>Sassafras albidum</i>      | Sassafras            | 11.16'                           | 257          | 2 gal       |
| <i>Amelanchier canadensis</i> | Eastern serviceberry | 11.16'                           | 257          | 2 gal       |
| <i>Cornus amomum</i>          | Silky dogwood        | 11.16'                           | 257          | 2 gal       |
|                               |                      |                                  | <b>TOTAL</b> | <b>3080</b> |

\* To limit foot traffic

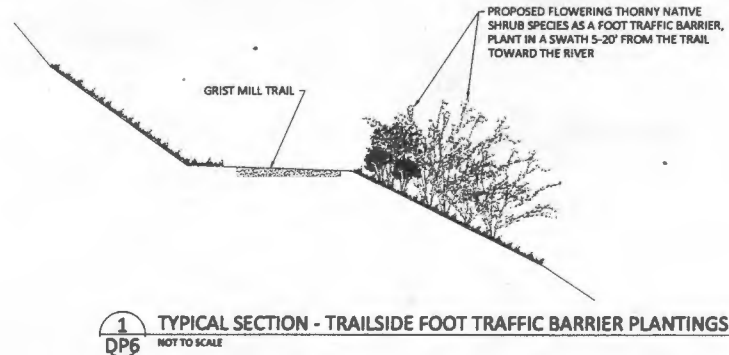
| GROUNDCOVER / SEED MIX (25 lbs/acre)                     | Area (acres) | Lbs     | Type |
|--|--------------|---------|------|
| Native steep slope mix (Meynema) - additional cover crop | 8.80         | 108,000 | PLS  |

Note: Black willow live stakes shall be planted along river banks within 10-20 feet of edge of water.

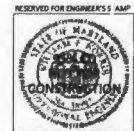
### II. REVEGETATION AREA PLANTINGS TYPE 2

| Limit of Disturbance (LOD) along Grist Mill Trail and River Road |                      | Area (ac.)                       | 3.40         |             |
|--|----------------------|----------------------------------|--------------|-------------|
| Latin Name   | Common Name          | Spacing (ft O.C. - average grid) | Total #      | Type        |
| <b>SHRUBS</b>  |                      |                                  |              |             |
| <i>Sassafras albidum</i>   | Sassafras            | 11.16'                           | 257          | 2 gal       |
| <i>Viburnum dentatum</i>   | southern arrowwood   | 11.16'                           | 257          | 2 gal       |
| <i>Sambucus canadensis</i>                                       | common elderberry    | 11.16'                           | 257          | 2 gal       |
| <i>Clethra alnifolia</i>   | sweet pepperbush     | 11.16'                           | 257          | 2 gal       |
| <i>Hamamelis virginica</i>                                       | witch hazel          | 11.16'                           | 257          | 2 gal       |
| <i>Amelanchier canadensis</i>                                    | Eastern serviceberry | 11.16'                           | 257          | 2 gal       |
| <i>Cornus amomum</i>   | Silky dogwood        | 11.16'                           | 257          | 2 gal       |
|  |                      |                                  | <b>TOTAL</b> | <b>1980</b> |

| GROUNDCOVER / SEED MIX (25 lbs/acre)                     | Area (acres) | Lbs    | Type |
|--|--------------|--------|------|
| Native steep slope mix (Meynema) - additional cover crop | 3.40         | 41,900 | PLS  |



1 DP6 NOT TO SCALE  
TYPICAL SECTION - TRAILSIDE FOOT TRAFFIC BARRIER PLANTINGS



| NO. | DATE | REVISION DESCRIPTION |
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| RP_DF    | BN       | JK_BN    |
|----------|----------|----------|
| DRAWN    | DESIGNED | CHECKED  |
| BN       | 5/15/15  | 11-04-30 |
| APPROVED | DATE     | PROJECT  |

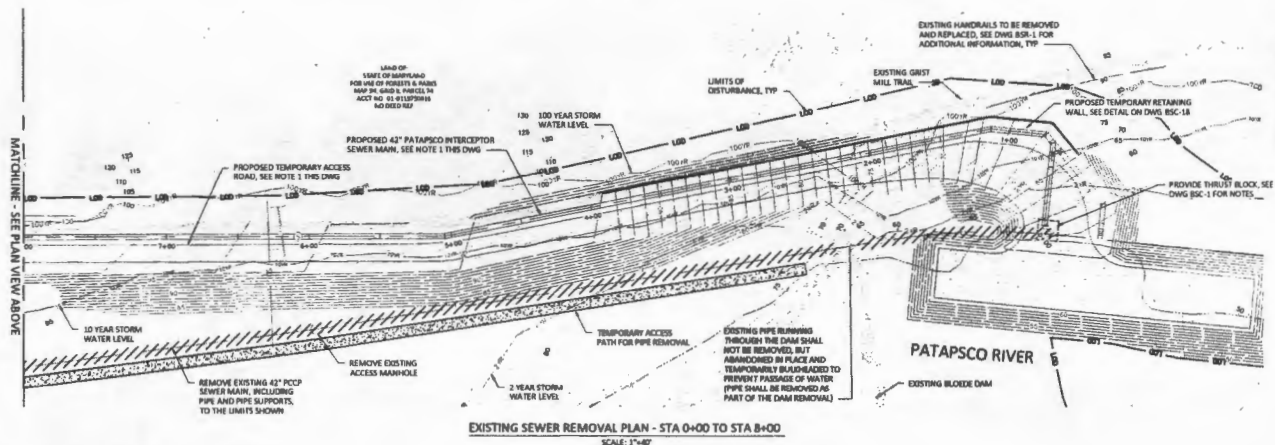
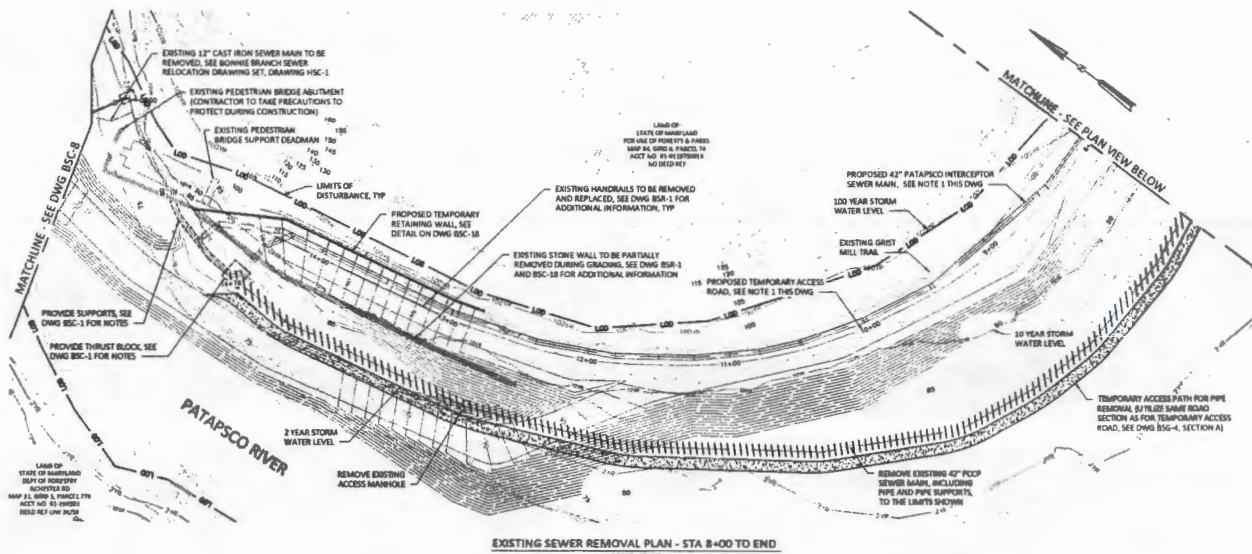
PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL  
DEPARTMENT OF NATURAL RESOURCES  
AMERICAN RIVERS  
BALTIMORE AND HOWARD COUNTY, MD

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
B. NORRIS  
EXPIRATION DATE: 06/01/2016 LICENSE NO. 36887

501 Portway Ave, Suite 101  
Hood River, OR 97031  
541.386.9009  
www.interfluve.com

PLANTING SCHEDULES AND DETAILS

SHEET DP6 SHEET 31 OF 31



**NOTES:**

1. REFER TO DRAWINGS BSC-1 FOR GRADING, ACCESS ROAD, AND PIPE INSTALLATION.
2. REFER TO DRAWING BSC-9 FOR EROSION & SEDIMENT CONTROL.
3. STREAM CONDITIONS AND FLOOD LINES SHOWN ARE BASED ON A HEC-4AS MODEL PREPARED BY INTERFLUVE, INC. FLOOD LINE LOCATIONS ARE BASED ON EXISTING TOPOGRAPHY.
4. LIMITS OF DISTURBANCE SHOWN ARE FOR PIPE INSTALLATION AND DAM REMOVAL. REFER TO DAM REMOVAL DRAWINGS FOR FULL LIMITS.
5. CONTRACTOR SHALL PUMP SEWAGE OUT FROM EXISTING PIPE PRIOR TO REMOVAL. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF SAID SEWAGE.
6. WHERE EXISTING PIPE IS BURIED, CONTRACTOR SHALL REGRADE THE AREA ADJACENT TO THE PIPE TRENCH WALL UPON REMOVAL OF THE PIPE. IT IS NOT ANTICIPATED THAT ADDITIONAL BACKFILL MATERIAL WILL BE REQUIRED.



|  |         |   |       |
|--|---------|---|-------|
| <b>PROFESSIONAL CERTIFICATION</b><br>I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. |         | <b>BUREAU OF BUILDING SERVICES</b><br>APPROVED BY: _____<br>DATE: _____ |       |
| DATE   | PROJECT | EXPIRATION DATE   | SCALE |
|  |         |   |       |

|  |         |  |   |  |   |
|--|---------|--|---|--|---|
| <b>PROFESSIONAL CERTIFICATION</b><br>I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. |         | AS-BUILT / REVISION BY: _____<br>DATE: _____ | P.F.A. NO.: _____<br>KEY SHEET POSITION: _____<br>R.O.V. NO.: _____ | DRAWING SCALE:<br>PLAN SCALE: 1"=40'<br>PROFILE SCALE: N/A | DEPARTMENT OF PUBLIC WORKS<br>APPROVED BY: _____<br>DATE: _____<br>DIRECTOR |
| DATE   | PROJECT | EXPIRATION DATE                              | SCALE   |  |   |
|  |         |  |   |  |   |

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

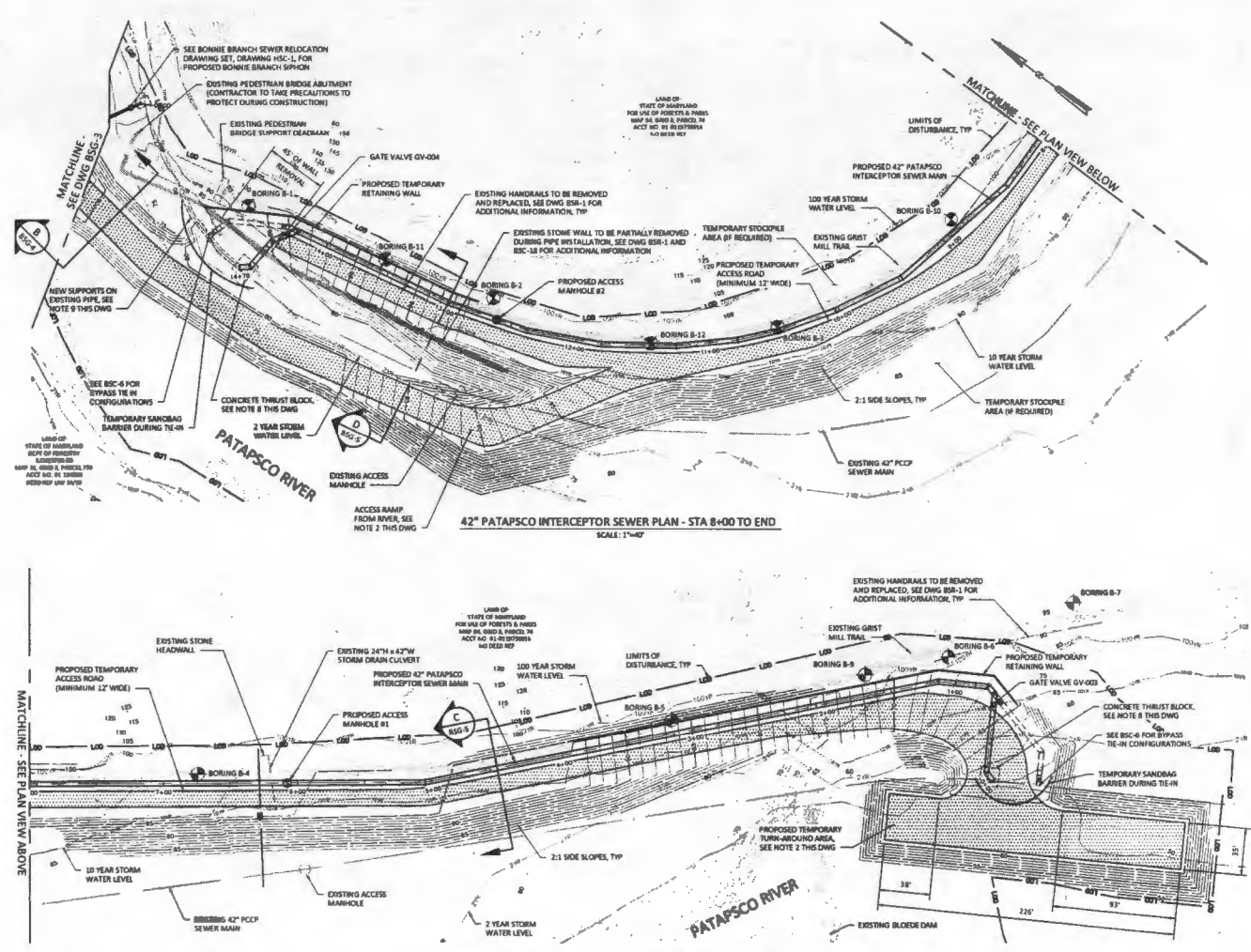
**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**

EXISTING INTERCEPTOR REMOVAL PLANS

ELECTION DIST. NO.: 1

|                            |                        |
|----------------------------|------------------------|
| SHEET DESIGNATION<br>B50-1 | CONTRACT NUMBER<br>N/A |
| JOB ORDER NUMBER<br>N/A    | SHEET 31 OF 32         |
| DRAWING NUMBER<br>N/A      | FILE NO.               |
|                            | DATE                   |

95% CD - NOT FOR CONSTRUCTION



42" PATAPSCO INTERCEPTOR SEWER PLAN - STA 8+00 TO END  
SCALE: 1"=40'

42" PATAPSCO INTERCEPTOR SEWER PLAN - STA 0+00 TO STA 8+00  
SCALE: 1"=40'

**NOTES:**

- ALL GRADING SHOW HEREIN SHALL BE PERFORMED FOR CONSTRUCTION OF THE PIPE AND ACCESS ROAD. FINAL GRADING FOR THE SITE SHALL CONSIST OF RETURNING THE DISTURBED AREAS TO THE EXISTING GRADES UNLESS OTHERWISE INDICATED.
- ALL GRADING PERFORMED IN THE PATAPSCO RIVER, INCLUDING THE ACCESS RAMPS AND THE TURNAROUND, SHALL BE CONSTRUCTED OF MEDIUM STONE OR LARGER. STONE SHALL BE MIXED WITH FINE AGGREGATES MEETING MARYLAND STATE HIGHWAY ADMINISTRATION STANDARDS AS REQUIRED TO ACHIEVE COMPACTION.
- REFER TO THE GEOTECHNICAL REPORT LOCATED IN THE SPECIFICATIONS FOR BORING LOGS AND RELATED INFORMATION.
- REFER TO DRAWING BSC-9 FOR EROSION & SEDIMENT CONTROL.
- STREAM CONDITIONS AND FLOOD LINES SHOWN ARE BASED ON A HEC-RAS MODEL PREPARED BY HYDRELIVE, INC. FLOOD LINE LOCATIONS ARE BASED ON EXISTING TOPOGRAPHY.
- REFER TO DRAWING BSC-1 FOR LIMITS AND DETAILS FOR REMOVAL OF EXISTING 42" PCCP INTERCEPTOR AND DAM.
- LIMITS OF DISTURBANCE SHOWN ARE FOR PIPE INSTALLATION AND DAM REMOVAL. REFER TO DAM REMOVAL DRAWINGS FOR FULL LIMITS.
- CONCRETE THRUST BLOCKS REQUIRE A MINIMUM 2,000 PSF BEARING CAPACITY. CONTRACTOR SHALL CONFIRM BEARING CAPACITY PRIOR TO INSTALLATION AND SUBMIT THIS INFORMATION TO THE ENGINEER FOR REVIEW. ADJUSTMENTS TO THE THRUST BLOCK DIMENSIONS MAY BE NECESSARY BASED ON FIELD-VERIFIED DATA. ANY ALTERNATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. CONCRETE REINFORCING WILL BE REQUIRED. ANCHOR RODS MAY BE NECESSARY TO ALLOW FOR BOTH SEWER LINES TO REMAIN IN SERVICE DURING CONSTRUCTION AND PRIOR TO EXISTING SEWER BEING TAKEN OFFLINE. THRUST BLOCKS MAY BE POURED SEPARATELY.
- CONCRETE CRADLE SUPPORT WITH STRAPS WILL BE NECESSARY ON EXISTING PIPE WHERE HIGHWAY OVERLAP SHALL BE ANCHORED PER PIPE ARMORING DETAIL ON DWG BSC-18.
- A PHOTO AND APPROXIMATE ELEVATIONS OF THE EXISTING WALL ARE PROVIDED ON DRAWING BSC-18. CONTRACTOR SHALL REMOVE THE ROCK WALL ONLY WHERE NECESSARY FOR INSTALLATION OF THE PROPOSED 42" SEWER. WHERE WALL IS REMOVED, THE CONTRACTOR SHALL SALVAGE ALL ROCK AND STORE FOR USE IN RECONSTRUCTION OF THE WALL. WHERE THE WALL IS NOT REMOVED, THE CONTRACTOR SHALL CAREFULLY GRAZE OVER THE WALL FOR CONSTRUCTION OF THE TEMPORARY ACCESS ROAD. ONCE THE TEMPORARY ACCESS ROAD IS REMOVED, THE CONTRACTOR SHALL RE-EXPOSE TWO (2) ROWS OF THE ROCK WALL FOR AESTHETIC PURPOSES. RECONSTRUCTION OF THE PORTIONS OF THE WALL THAT ARE REMOVED SHALL BE PERFORMED TO CLOSELY MATCH THE EXISTING WALL CONFIGURATION AND PATTERN. CONTRACTOR SHALL PROVIDE PHOTOGRAPHS BEFORE AND AFTER WALL RECONSTRUCTION SO THAT THE RECONSTRUCTED WALL MAY BE ASSESSED BY THE ENGINEER/OWNER.
- SEE LANDSCAPE ARCHITECTURE SHEETS FOR NORTH OVERLOOK DESIGN. FINAL OVERLOOK LOCATION SHALL BE DETERMINED DURING CONSTRUCTION BASED ON THE ENGINEER'S DIRECTION.
- EXISTING HANDRAILS ALONG THE GRIST MILL TRAIL SHALL BE CAREFULLY REMOVED AND STORED DURING CONSTRUCTION. UPON COMPLETION OF THE TRAIL RECONSTRUCTION, THE CONTRACTOR SHALL REINSTALL THE HANDRAILS TO MATCH EXISTING CONDITIONS.

**STREAM CONDITIONS NEAR UPSTREAM TIE-IN:**

- NORMAL WATER SURFACE ELEVATION = 75.71 FT (NAVD 88)
- 2-YEAR STORM WATER SURFACE ELEVATION = 82.2 FT (NAVD 88)
- 10-YEAR STORM WATER SURFACE ELEVATION = 91.08 FT (NAVD 88)
- 100-YEAR STORM WATER SURFACE ELEVATION = 110.09 FT (NAVD 88)

**STREAM CONDITIONS NEAR DOWNSTREAM TIE-IN:**

- NORMAL WATER SURFACE ELEVATION = 48.45 FT (NAVD 88)
- 2-YEAR STORM WATER SURFACE ELEVATION = 57.00 FT (NAVD 88)
- 10-YEAR STORM WATER SURFACE ELEVATION = 65.89 FT (NAVD 88)
- 100-YEAR STORM WATER SURFACE ELEVATION = 83.27 FT (NAVD 88)

**DATA ON EXISTING 42" PCCP SEWER:**

- FIELD-MEASURED OUTSIDE DIAMETER = 51 INCHES
- FIELD-MEASURED JOINT SPACING = 16 FEET
- CONTRACTOR SHALL VERIFY THESE DIMENSIONS PRIOR TO PROCUREMENT OF TAPPING SADDLE AND LINESHOP.
- RECORD DRAWINGS FOR THE EXISTING PIPE HAVE BEEN PROVIDED FOR INFORMATION ONLY ON DWG BSC-4 THROUGH BSC-9.



| PROFESSIONAL CERTIFICATION  | BUREAU OF BUILDING SERVICES       |
|---|-----------------------------------|
| I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. | APPROVED BY: _____<br>DATE: _____ |
| LICENSE NO. 23707 EXPIRATION DATE 04/08/17  |                                   |



| PROFESSIONAL CERTIFICATION  | AS-BUILT / REVISION | BY | DATE | P.W.A. NO. | KEY HOLEY POSITION OR | DRAWING SCALE | DEPARTMENT OF PUBLIC WORKS |
|---|---------------------|----|------|------------|-----------------------|---------------|----------------------------|
| I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.               |                     |    |      |            |                       |               |                            |
| LICENSE NO. 25785 EXPIRATION DATE 01/08/23  |                     |    |      |            |                       |               |                            |
| ENGINEER: Name and Signature, P.C. (Professional Engineer & Subcontractor)<br>1 South Street, Suite 1100<br>Baltimore, Maryland 21202<br>Phone / Fax: (410) 538-7481 / 7862 |                     |    |      |            |                       |               |                            |
|   |                     |    |      |            |                       |               |                            |

| PERIOD OF EXPIRATION AND CONSTRUCTION | BUILDINGS | ROCKWAYS | STRUCTURES | FRONT BRIDGE | SEWER | WATER | FIELD DRAWING |
|---------------------------------------|-----------|----------|------------|--------------|-------|-------|---------------|
|                                       |           |          |            |              |       |       |               |
|                                       |           |          |            |              |       |       |               |
|                                       |           |          |            |              |       |       |               |

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**

PATAPSCO INTERCEPTOR PLANS

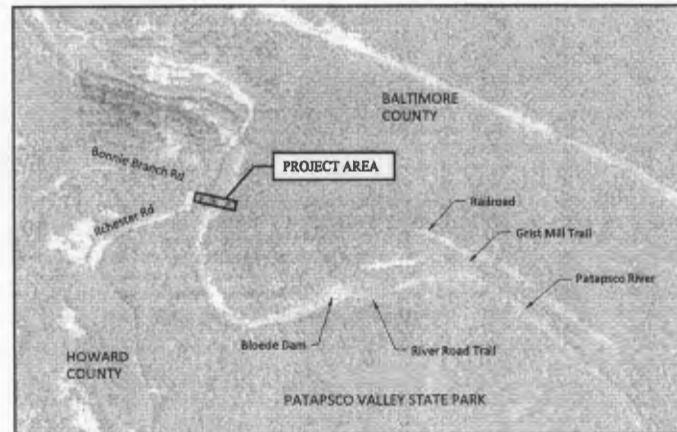
SUBDIVISION: \_\_\_\_\_ ELECTION DIST NO.: 1

| SHEET DESIGNATION | CONTRACT NUMBER |
|-------------------|-----------------|
| BSC-1             | N/A             |
| JOB ORDER NUMBER  | N/A             |
| SHEET 13 OF 32    |                 |
| DRAWING NUMBER    | N/A             |
| FILE NO.          | 26              |

95% CD - NOT FOR CONSTRUCTION

# HOWARD COUNTY, MARYLAND PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL

MAY 2015



### EROSION AND SEDIMENT CONTROL NOTES:

1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY OFFICE OF INSPECTION AND PERMITS PRIOR TO THE START OF ANY CONSTRUCTION (410) 952-2437.
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
3. FOLLOWING INITIAL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
  - 3.1. 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES;
  - 3.2. 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR MULCHING, PERMANENT AND TEMPORARY SEEDING.
5. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
6. IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED.

### EROSION CONTROL CONSTRUCTION SEQUENCE NOTES:

1. OBTAIN APPROVED PLAN AND APPROVAL PLACARD. A COPY OF THE APPROVED PLAN MUST BE ON FILE AT THE JOB SITE. NOTIFY EROSION CONTROL AUTHORITIES OF PROPOSED STARTING DATE OF LAND DISTURBING ACTIVITIES.
2. PRE-CONSTRUCTION MEETING WILL BE HELD.
3. INSTALL ALL PERIMETER MEASURES, INCLUDING GRAVEL CONSTRUCTION ENTRANCE AND SILT FENCE WITHIN 7 DAYS OF THE START OF ANY LAND DISTURBING (INCLUDING DEMO).
4. CALL FOR INSPECTION OF INSTALLED DEVICES.
5. BEGIN DEMOLITION AND CONSTRUCTION ACTIVITIES REFER TO DETAILED SEQUENCE ON DRAWING HS-G-2.
6. VEGETATE ALL DISTURBED AREAS WHERE GRADING ACTIVITIES HAVE STOPPED AND WILL NOT CONTINUE FOR MORE THAN 21 CALENDAR DAYS.
7. MAINTAIN ALL EROSION & SEDIMENT CONTROL MEASURES THROUGHOUT CONSTRUCTION.
8. PRIOR TO COMPLETION OF PROJECT, CALL FOR SITE INSPECTION BY ENGINEER. ALL TEMPORARY DEVICES SHALL BE FOUND IN GOOD AND STABLE CONDITION.
9. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED, CALL FOR INSPECTION BY THE OWNER.
10. ONCE REMAINING VEGETATION IS ESTABLISHED, CALL FOR A FINAL INSPECTION BY THE OWNER INSPECTOR TO OBTAIN A CERTIFICATE OF COMPLETION AND REMOVE REMAINING PERIMETER MEASURES. ALL AREAS DISTURBED BY REMOVAL SHALL BE GRADED AS CLOSELY AS POSSIBLE TO ORIGINAL CONDITIONS, AND SEEDED, MULCHED AND FERTILIZED AS SPECIFIED.

### ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_  
(PRINT WHOLE NAME BELOW SIGNATURE)

### DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION \_\_\_\_\_ DATE \_\_\_\_\_  
CHIEF, DIVISION OF LAND DEVELOPMENT \_\_\_\_\_ DATE \_\_\_\_\_  
CHIEF, DEP \_\_\_\_\_ DATE \_\_\_\_\_

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS \_\_\_\_\_ DATE \_\_\_\_\_  
CHIEF BUREAU OF ENGINEERING \_\_\_\_\_ DATE \_\_\_\_\_  
CHIEF BUREAU OF UTILITIES \_\_\_\_\_ DATE \_\_\_\_\_  
CHIEF UTILITY DESIGN DIVISION \_\_\_\_\_ DATE \_\_\_\_\_

**HAZEN AND SAWYER**  
Environmental Engineers & Scientists  
1 SOUTH STREET, SUITE 1150  
BALTIMORE, MARYLAND 21202  
410-538-7681



PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 22393. EXPIRATION DATE: 04/09/2024.

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 32395. EXPIRATION DATE: 04/09/2024.

**SITE LEGEND**

| NEW | EXISTING |                                   |
|-----|----------|-----------------------------------|
| --- | ---      | LIMITS OF DISTURBANCE             |
| --- | ---      | STABILIZED CONSTRUCTION ENTRANCE  |
| --- | ---      | SOIL BORING LOCATION              |
| --- | ---      | CONTOUR                           |
| --- | ---      | PROPERTY LINE                     |
| --- | ---      | SUPER-SILT FENCE                  |
| --- | ---      | 18" FILTER LOG                    |
| --- | ---      | TEMPORARY SANDBAG BARRIER         |
| --- | ---      | PAVEMENT                          |
| --- | ---      | GUARDRAIL                         |
| --- | ---      | FENCE                             |
| --- | ---      | ROAD SIGN                         |
| --- | ---      | OVERHEAD ELECTRIC LINE            |
| --- | ---      | ELECTRIC POLE                     |
| --- | ---      | STORM DRAIN PIPING                |
| --- | ---      | SANITARY SEWER PIPING             |
| --- | ---      | SANITARY SEWER MANHOLE            |
| --- | ---      | 2-YR 2-YEAR STORM WATER LEVEL     |
| --- | ---      | 10-YR 10-YEAR STORM WATER LEVEL   |
| --- | ---      | 100-YR 100-YEAR STORM WATER LEVEL |

**GENERAL NOTES FOR THE BONNIE BRANCH SEWER RELOCATION DRAWINGS ONLY (HSG, HSR, HSC, & HST SERIES DRAWINGS):**

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 331-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORKING BEING DONE. IF MISS UTILITY DOES NOT RESPOND, THE CONTRACTOR SHALL BE REQUIRED TO CONTACT AND CONTRACT A PRIVATE UTILITY LOCATOR COMPANY 48 HOURS PRIOR TO BEGINNING GRADING OR DEMOLITION ACTIVITY.
- THE SURVEY INFORMATION DATED SEPTEMBER 2013 WAS PROVIDED BY INTERLIVE, INC. THE HORIZONTAL DATUM IS REFERENCED TO MARYLAND STATE PLANE (MAD 83/91) AND THE VERTICAL DATUM IS REFERENCED TO NAVD 83.
- EXISTING UTILITIES SHOWN MUST BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO START OF ANY DEMOLITION AND CONSTRUCTION.
- THE ENTIRE PROJECT AREA IS LOCATED IN THE 100 YEAR FLOODPLAIN. FLOOD ELEVATIONS HAVE BEEN PROVIDED ON THE SITE PLANS FOR THE VARIOUS LOCATIONS.
- OFF SITE DISPOSAL OF EXCESS MATERIAL SHALL BE TO AN APPROVED AND PROPERLY PERMITTED SITE.
- THE CONTRACTOR SHALL LOCATE AND PROTECT ALL EXISTING FACILITIES, STRUCTURES AND UTILITIES FROM DAMAGE UNLESS OTHERWISE NOTED TO BE REMOVED/DEMOLISHED.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE AND LEGALLY DISPOSE OF ANY AND ALL DEMOLISHED/EXCESSIVE MATERIALS AT A PROPERLY PERMITTED DISPOSAL SITE.
- POSITIVE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES. PONDING OF WATER SHALL NOT BE PERMITTED. ALL PONDING WATER SHALL BE FILTERED THROUGH A PORTABLE SEDIMENT TANK PRIOR TO DISCHARGE INTO THE PUBLIC STORM SEWER SYSTEM.
- SURFACED STREET AND PARKING AREAS SHALL BE MAINTAINED IN A CLEAN CONDITION - FREE OF MUD AND DUST AT ALL TIMES. ADEQUATE MEANS SHALL BE PROVIDED TO CLEAN TRUCKS AND EQUIPMENT.

**INDEX OF BONNIE BRANCH SEWER RELOCATION DRAWINGS:**

| SHEET NO.         | DRAWING NO. | DESCRIPTION  |
|-------------------|-------------|--|
| <b>HSG SERIES</b> |             |  |
| 1                 | HSG-1       | COVER SHEET  |
| 2                 | HSG-2       | SYMBOLS, NOTES, AND ABBREVIATIONS                          |
| 3                 | HSG-3       | ACCESS PLAN  |
| 4                 | HSG-4       | ACCESS ROAD SECTIONS                                       |
| 5                 | HSG-5       | BONNIE BRANCH SEWER RECORD DRAWINGS (FOR INFORMATION ONLY) |
| 6                 | HSG-6       | BONNIE BRANCH SEWER RECORD DRAWINGS (FOR INFORMATION ONLY) |
| 7                 | HSG-7       | PEDESTRIAN BRIDGE RECORD DRAWINGS (FOR INFORMATION ONLY)   |
| 8                 | HSG-8       | PEDESTRIAN BRIDGE RECORD DRAWINGS (FOR INFORMATION ONLY)   |
| <b>HSR SERIES</b> |             |  |
| 9                 | HSR-1       | CLEARING AND GRUBBING PLAN                                 |
| <b>HSC SERIES</b> |             |  |
| 10                | HSC-1       | BONNIE BRANCH SIPHON PLAN                                  |
| 11                | HSC-2       | EROSION & SEDIMENT CONTROL - BONNIE BRANCH SIPHON          |
| 12                | HSC-3       | EROSION & SEDIMENT CONTROL NOTES & DETAILS                 |
| 13                | HSC-4       | EROSION & SEDIMENT CONTROL NOTES & DETAILS                 |
| 14                | HSC-5       | EROSION & SEDIMENT CONTROL NOTES & DETAILS                 |
| 15                | HSC-6       | EROSION & SEDIMENT CONTROL NOTES & DETAILS                 |
| 16                | HSC-7       | EROSION & SEDIMENT CONTROL NOTES & DETAILS                 |
| 17                | HSC-8       | DETAILS  |
| 18                | HSC-9       | DETAILS  |
| <b>HST SERIES</b> |             |  |
| 19                | HST-1       | TRAFFIC CONTROL PLAN                                       |

**ABBREVIATIONS**

|      |                       |      |  |
|------|-----------------------|------|--|
| ALT  | ALTERNATE APPROX      | LF   | LINEAR FEET LIMITS OF DISTURBANCE      |
| BLDG | BUILDING              | MD   | MARYLAND DEPARTMENT OF THE ENVIRONMENT |
| BLK  | BLOCK                 | MDOT | MARYLAND DEPARTMENT OF TRANSPORTATION  |
| BM   | BENCH MARK            | MSHA | MARYLAND STATE HIGHWAY ADMINISTRATION  |
| BOC  | BACK OF CURB BOTTOM   | MFR  | MANHOLE                                |
| BT   | CURB FEET BOTTOM      | MH   | MANHOLE                                |
| CB   | CURB LINE             | MIR  | MISCELLANEOUS                          |
| CD   | CORRUGATED METAL PIPE | NTS  | NOT TO SCALE                           |
| CM   | CONCRETE              | OD   | OUTSIDE DIAMETER                       |
| CMC  | CONCRETE CURB         | PCCP | PRESTRESSED CONCRETE CURB              |
| CMC  | CONCRETE CURB         | PVC  | POLYVINYL CHLORIDE                     |
| DET  | DETAIL                | PS   | PAGE                                   |
| DN   | DRAIN                 | QTY  | QUANTITY                               |
| DN   | DRAIN                 | RCP  | REINFORCED CONCRETE PIPE               |
| DN   | DRAIN                 | RISD | REQUIRED                               |
| DN   | DRAIN                 | RSF  | REINFORCED SILT FENCE                  |
| DN   | DRAIN                 | R/W  | RIGHT OF WAY                           |
| DN   | DRAIN                 | SC   | STABILIZED CONSTRUCTION ENTRANCE       |
| DN   | DRAIN                 | SE   | SEWER HOUSE CONNECTION                 |
| DN   | DRAIN                 | SH   | SQUARE FEET SPECIFICATION              |
| DN   | DRAIN                 | SS   | SANITARY SEWER                         |
| DN   | DRAIN                 | SSH  | SANITARY SEWER MANHOLE                 |
| DN   | DRAIN                 | STA  | STATION                                |
| DN   | DRAIN                 | STD  | STANDARD                               |
| DN   | DRAIN                 | TYP  | TYPICAL                                |
| DN   | DRAIN                 | UG   | UNDERGROUND                            |
| DN   | DRAIN                 | VERT | VERTICAL                               |
| DN   | DRAIN                 | W/   | WITH                                   |
| DN   | DRAIN                 | W/D  | WITHOUT                                |
| DN   | DRAIN                 | W/S  | WATERS OF THE US                       |
| DN   | DRAIN                 | YD   | YARD                                   |
| DN   | DRAIN                 | YR   | YEAR                                   |

**DETAILED SEQUENCE OF CONSTRUCTION:**

- MOBILIZATION**
  - INSTALL TRAFFIC CONTROL.
  - ESTABLISH LAYDOWN AREA AT FORMER GRASS SITE.
  - BLOCK PEDESTRIAN ACCESS TO THE GRIST MALL TRAIL.
  - CONSTRUCT ACCESS ROAD OFF ALCHESTER ROAD.
- PIPE RELOCATION**
  - BONNIE BRANCH SIPHON (REFER TO BONNIE BRANCH SEWER RELOCATION DRAWING SET)
    - CONSTRUCT ACCESS ROAD TO THE BONNIE BRANCH SIPHON
    - INSTALL 18" WET-TAP WITH TAPPING VALVE ON THE 42" PATAPSCO INTERCEPTOR UPSTREAM OF THE PEDESTRIAN BRIDGE
    - INSTALL BYPASS PUMPING SYSTEM WITH TEMPORARY FLOW METER
    - INSTALL LINESHOP ALONG THE EXISTING 12" BONNIE BRANCH SIPHON
    - REMOVE THE EXISTING 12" BONNIE BRANCH SIPHON
    - INSTALL NEW 18" BONNIE BRANCH SIPHON
    - CAP THE EXISTING 12" BONNIE BRANCH STUB AND INSTALL CONCRETE ANCHOR
    - REMOVE BYPASS PUMPING SYSTEM
  - PATAPSCO INTERCEPTOR (REFER TO PATAPSCO INTERCEPTOR RELOCATION DRAWING SET)
    - CONSTRUCT ACCESS ROAD TO THE PATAPSCO INTERCEPTOR AND ALONG THE GRIST MALL TRAIL
    - RE-GRADE AND WIDEN THE GRIST MALL TRAIL FROM THE PEDESTRIAN BRIDGE TO DOWNSTREAM OF THE BLOCSE DAM
    - INSTALL 42" SEWER ALONG THE GRIST MALL TRAIL
    - BYPASS (UPSTREAM AND DOWNSTREAM WET-TAP AND LINESHOP FOR THE BYPASS PIPING - NO BYPASS PUMPING SHALL BE PERMITTED UNLESS APPROVED BY BALTIMORE COUNTY)
      - INSTALL WET-TAP (2) AND LINESHOP (2) ALONG THE 42" PATAPSCO INTERCEPTOR ON UPSTREAM AND DOWNSTREAM ENDS AS SHOWN ON DRAWING BSC-4
      - COMMENCE BYPASS SYSTEM BY INSERTING THE TWO LINESHOPS
      - INSTALL NEW 42" CONNECTIONS BETWEEN THE EXISTING AND NEW 42" INTERCEPTOR
      - SHUTDOWN THE BYPASS SYSTEM BY REMOVING THE LINESHOPS AND CLOSE VALVES ALONG THE 42" BYPASS LINE
      - REMOVE AND REWORK 42" PATAPSCO INTERCEPTOR
- DAM REMOVAL (REFER TO DAM REMOVAL DRAWINGS)**
  - REMOVE TREES & SHRUBS BETWEEN THE PEDESTRIAN BRIDGE AND BLOCSE DAM
  - EXTEND ACCESS ROADS TO ENABLE PROPER ACCESS TO BLOCSE DAM FOR DEMOLITION
  - DEMOLITION AND REMOVAL OF BLOCSE DAM
- RESTORATION, INCLUDING THE GRIST MALL TRAIL RECONSTRUCTION AND HANDRAIL INSTALLATION (REFER TO DAM REMOVAL DRAWINGS)**

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

SOIL CONSERVATION DISTRICT DATE: \_\_\_\_\_

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

SOIL CONSERVATION DISTRICT DATE: \_\_\_\_\_

DIRECTOR OF PUBLIC WORKS DATE: \_\_\_\_\_

CHIEF BUREAU OF ENGINEERING DATE: \_\_\_\_\_

CHIEF BUREAU OF UTILITIES DATE: \_\_\_\_\_

CHIEF UTILITY DESIGN DIVISION DATE: \_\_\_\_\_

**HAZEN AND SAWYER**  
Environmental Engineers & Scientists  
1 SOUTH STREET, SUITE 1150  
BALTIMORE, MD 21202  
410-539-7881



|             |        |  |  |
|-------------|--------|--|--|
| DESIGNED    | NH/MAB |  |  |
| DRAWN       | MUB    |  |  |
| CHECKED     | JTH    |  |  |
| PREP. ENGR. |        |  |  |
| APPROVED:   |        |  |  |

|            |         |     |
|------------|---------|-----|
| 95% CD     | 05/2015 | JTH |
| 90% CD     | 09/2015 | JTH |
| ISSUED FOR | 04/25   | 07  |

**CIVIL**  
SYMBOLS, NOTES, AND ABBREVIATIONS

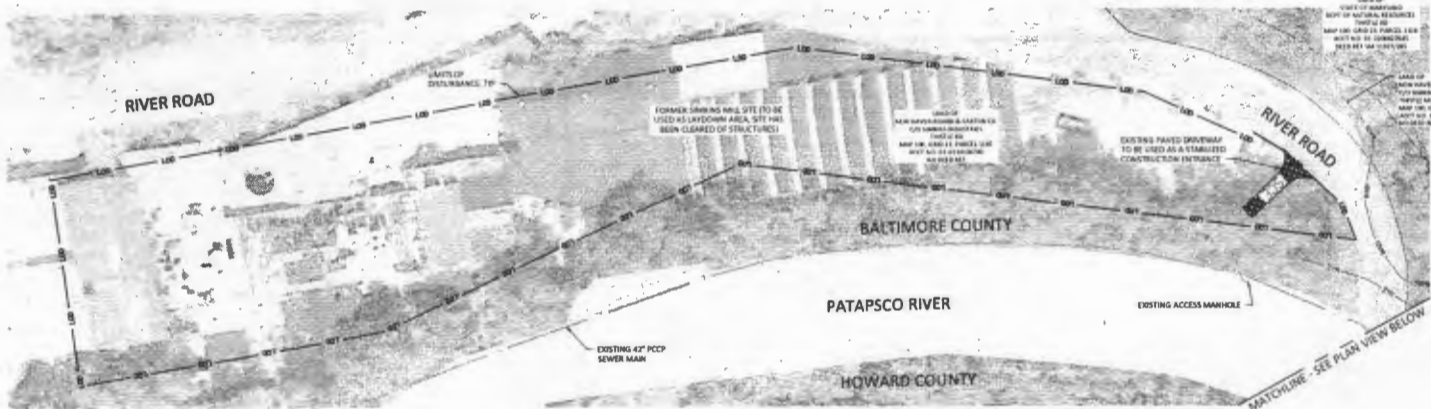
**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: MAY 2015  
DRAWN BY: TRAMPE  
**HSG-2**  
SCALE: NTS  
SHEET 2 OF 19

95% CD - NOT FOR CONSTRUCTION

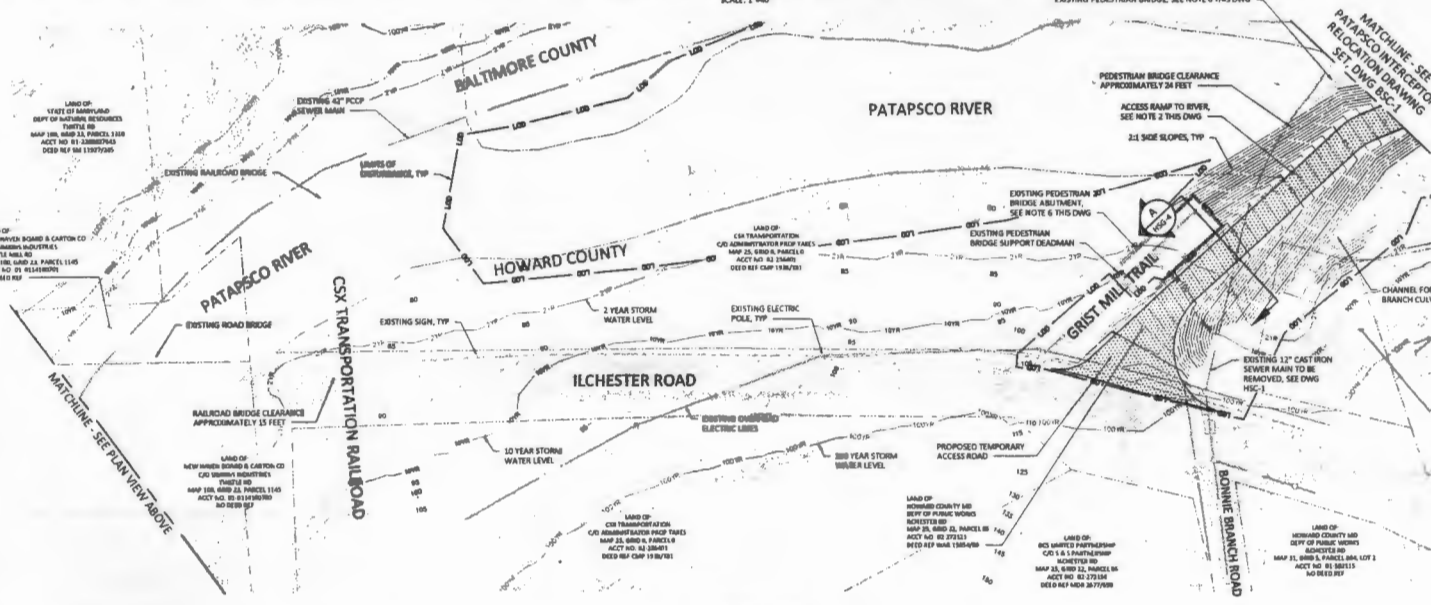
DATE PLOTTED: 05/20/15 10:00 AM





FORMER SIMKINS MILL SITE PLAN (LAYOUT AREA)  
SCALE: 1"=40'

- NOTES:**
1. ALL GRADING SHOW HEREIN SHALL BE PERFORMED FOR CONSTRUCTION OF THE PIPE AND ACCESS ROAD. FINAL GRADING FOR THE SITE SHALL CONSIST OF RETURNING THE DISTURBED AREAS TO THE EXISTING GRADES UNLESS OTHERWISE INDICATED.
  2. ALL GRADING PERFORMED IN THE PATAPSCO RIVER, INCLUDING THE ACCESS RAMPS, SHALL BE CONSTRUCTED OF #200 8" STONE OR LARGER. STONE SHALL BE MIXED WITH FINE AGGREGATES MEETING MARYLAND STATE HIGHWAY ADMINISTRATION STANDARDS AS REQUIRED TO ACHIEVE COMPACTION.
  3. REFER TO DRAWINGS HSC-2 FOR EROSION & SEDIMENT CONTROL.
  4. STREAM CONDITIONS AND FLOOD LINES SHOWN ARE BASED ON A HEC-RAS MODEL PREPARED BY WETZELove, INC. FLOOD LINE LOCATIONS ARE BASED ON EXISTING TOPOGRAPHY.
  5. LIMITS OF DISTURBANCE SHOWN ARE FOR PIPE INSTALLATION AND DAM REMOVAL. REFER TO DAM REMOVAL DRAWINGS FOR FULL LIMITS.
  6. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE EXISTING PEDESTRIAN BRIDGE AND BRIDGE ABUTMENTS DURING CONSTRUCTION. CONTRACTOR SHALL NOT BE PERMITTED TO MOVE EQUIPMENT OF ANY SIZE OVER THE EXISTING PEDESTRIAN BRIDGE. EXISTING PEDESTRIAN BRIDGE MAY BE UTILIZED BY CONTRACTOR'S PERSONNEL. ANY DAMAGE TO THE PEDESTRIAN BRIDGE SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE.
  7. ALL PEDESTRIAN TRAILS WITHIN THE LIMITS OF DISTURBANCE (PORTION OF THE GREAT HILL TRAIL, RIVER ROAD TRAIL) SHALL BE CLOSED TO THE PUBLIC FOR THE DURATION OF CONSTRUCTION. CONTRACTOR SHALL PROVIDE SIGNAGE AND BARRICADES AS REQUIRED FOR THESE CLOSURES.
  8. CONTRACTOR MAY ELECT TO INSTALL CULVERTS UNDER TEMPORARY ROAD TO ASSIST IN BYPASSING THE FLOW OF THE PATAPSCO RIVER. SIZING SHALL BE DETERMINED BY THE CONTRACTOR. IT IS ANTICIPATED THAT STORM EVENTS WILL CAUSE THE RIVER LEVEL TO RISE ABOVE THE ROAD.



ACCESS ROAD PLAN  
SCALE: 1"=40'

- STREAM CONDITIONS NEAR PROPOSED ACCESS ROAD:**
- NORMAL WATER SURFACE ELEVATION = 75.71 FT (DAVD 88)
  - 2-YEAR STORM WATER SURFACE ELEVATION = 83.2 FT (DAVD 88)
  - 10-YEAR STORM WATER SURFACE ELEVATION = 91.08 FT (DAVD 88)
  - 100-YEAR STORM WATER SURFACE ELEVATION = 110.09 FT (DAVD 88)

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT - WATER DISTRICT 1.

SOIL CONSERVATION DISTRICT: \_\_\_\_\_ DATE: \_\_\_\_\_

US SOIL CONSERVATION DISTRICT: \_\_\_\_\_ DATE: \_\_\_\_\_

DESIGNED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND 4 EXITS TECHNICAL REQUIREMENTS.

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 32882; EXPIRATION DATE: 04/08/2015.

SIGNED: \_\_\_\_\_

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 32882; EXPIRATION DATE: 04/08/2015.

SIGNED: \_\_\_\_\_

|   |      |
|---|------|
| DEPARTMENT OF PUBLIC WORKS<br>HOWARD COUNTY, MARYLAND |      |
| DIRECTOR OF PUBLIC WORKS                              | DATE |
| CHIEF BUREAU OF ENGINEERING                           | DATE |
| CHIEF BUREAU OF UTILITIES                             | DATE |
| CHIEF CITY DESIGN DIVISION                            | DATE |

**HAZEN AND SAWYER**  
Environmental Engineers & Scientists  
1 SOUTH STREET, SUITE 1150  
BALTIMORE, MD 21202  
410-539-7881

|                       |                    |               |         |
|-----------------------|--------------------|---------------|---------|
| DESIGNED: NHW/MB      | CHECKED: JHM       | DATE: 05/2015 | BY: JHM |
| DRAWN: MIB            | CHECKED: JHM       | DATE: 03/2015 | BY: JHM |
| PROJECT NO. 2         | ISSUED FOR: 90% CD | DATE: 05/2015 | BY: JHM |
| APPROVED: [Signature] | ISSUED FOR: 90% CD | DATE: 03/2015 | BY: JHM |

**CIVIL ACCESS PLAN**

**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**

2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

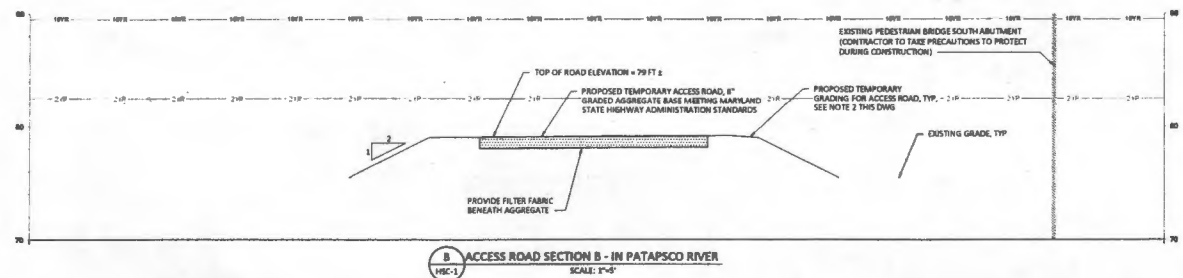
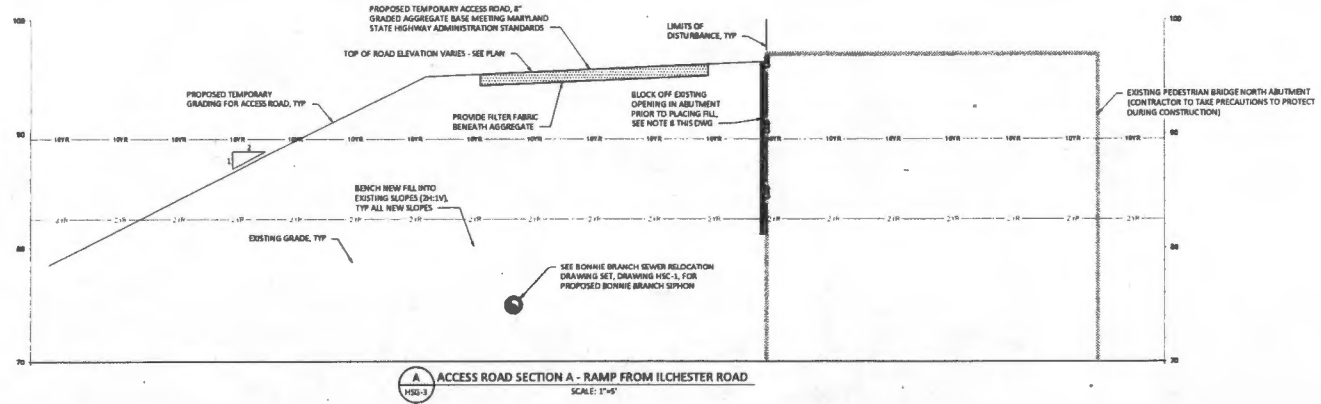
DATE: MAY 2015  
DRAWN BY: [Signature]  
**HSG-3**  
SCALE: 1"=40'  
SHEET 3 OF 19

20150515 4:58 P 0:\3282-000-BAL\Drawings\CAD Backup\H&S\201505-24.dwg 1:40' CD - CIVIL - 20150515

20150515 4:58 P 0:\3282-000-BAL\Drawings\CAD Backup\H&S\201505-24.dwg 1:40' CD - CIVIL - 20150515

**NOTES:**

1. ALL GRADING SHOWN HEREIN SHALL BE PERFORMED FOR CONSTRUCTION OF THE PIPE AND ACCESS ROAD. FINAL GRADING FOR THE SITE SHALL CONSIST OF RETURNING THE DISTURBED AREAS TO THE EXISTING GRADES UNLESS OTHERWISE INDICATED.
2. ALL GRADING PERFORMED IN THE PATAPSCO RIVER, INCLUDING THE ACCESS RAMPS, SHALL BE CONSTRUCTED OF 400# REINFORCED STONE OR LARGER. STONE SHALL BE MIXED WITH FINE AGGREGATES MEETING MARYLAND STATE HIGHWAY ADMINISTRATION STANDARDS AS REQUIRED TO ACHIEVE COMPACTION.
3. STREAM CONDITIONS AND FLOOD LINES SHOWN ARE BASED ON A HEC-RAS MODEL, PREPARED BY INTERLYVE, INC. FLOOD LINE LOCATIONS ARE BASED ON EXISTING TOPOGRAPHY.
4. LIMITS OF DISTURBANCE SHOWN ARE FOR PIPE INSTALLATION AND DAM REMOVAL. REFER TO DAM REMOVAL DRAWINGS FOR FULL LIMITS.
5. INITIAL SITE CLEARING AND GRUBBING SHALL INCLUDE REMOVAL OF TOPSOIL AND UNSUITABLE FILL MATERIALS AND ANY DELETERIOUS MATERIALS WITHIN AREAS TO RECEIVE NEW FILL.
6. AFTER REMOVAL OF UNSUITABLE MATERIALS, THE SUBGRADE SOILS SHALL BE HEAVILY PROOF-ROLLED WITH APPROVED CONSTRUCTION EQUIPMENT TO LOCATE SOFT SPOTS OR AREAS OF EXCESSIVE "PUMPING" THAT ARE TOO UNSUITABLE TO ACCEPT COMPACTED FILL.
7. UNSUITABLE AREAS SHALL BE SCAFFOLD OR AIR-DRIED TO THE REQUIRED MOISTURE CONTENT AND THEN RE-COMPACTED MECHANICALLY STABILIZED USING VARYING-SIZE ROCK, OR EXCAVATED TO STABLE SOILS PRIOR TO PLACEMENT OF FILL.



|   |      |   |      |
|---|------|---|------|
| SIL CONSERVATION DISTRICT                             |      | REVIEWED FOR HOWARD COUNTY SIL CONSERVATION DISTRICT AND METS TECHNICAL REQUIREMENTS  |      |
| DATE  | DATE | DATE  | DATE |
| DEPARTMENT OF PUBLIC WORKS<br>HOWARD COUNTY, MARYLAND |      | Hazen and Sawyer<br>Environmental Engineers & Scientists<br>1 SOUTH STREET, SUITE 1150<br>BALTIMORE, MD 21202<br>410-559-7681 |      |
| DIRECTOR OF PUBLIC WORKS                              | DATE | CHIEF BUREAU OF ENGINEERS   | DATE |
| CHIEF BUREAU OF UTILITIES                             | DATE | CHIEF UTILITY DESIGN DIVISION   | DATE |

|   |   |
|---|---|
| PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 35523. EXPIRATION DATE: 03/31/2020.<br>SIGNED: | PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 35523. EXPIRATION DATE: 03/31/2020.<br>SIGNED: |
|---|---|

|                   |               |         |
|-------------------|---------------|---------|
| DESIGNED: NHH/MSB | DATE: 06/2015 | BY: JTH |
| DRAWN: MSB        | DATE: 09/2015 | BY: JTH |
| CHECKED: JTH      | DATE:         | BY:     |
| PROJECT ENGR: 2   | ISSUED FOR:   | DATE:   |
| APPROVED: 1       | DATE:         | BY:     |

|   |   |   |
|---|---|---|
| <b>CIVIL</b><br><b>ACCESS ROAD SECTIONS</b> | <b>PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL</b><br>2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND | DATE: MAY 2015  |
|   |   | DRAWING NUMBER: <b>HSG-4</b><br>SCALE: 1"=5'<br>SHEET 4 OF 19 |

HAZEN AND SAWYER, INC. 1000 W. BROADWAY, SUITE 1150, BALTIMORE, MD 21202  
 TEL: 410-559-7681 FAX: 410-559-7682 WWW.HAZENANDSAWYER.COM

95% CD - NOT FOR CONSTRUCTION







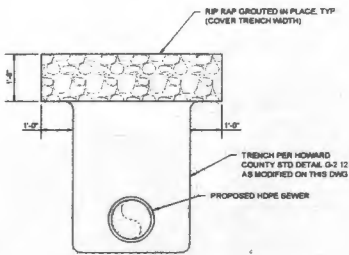








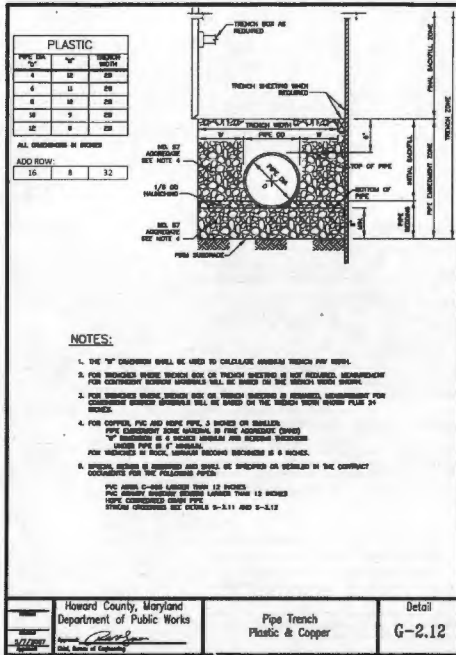




**NOTES**

- ELEVATION OF THE TOP OF THE RIP RAP SHALL BE SET AT THE ANTICIPATED GRADE IN THE CHANNEL AFTER DAM REMOVAL, OR THE EXISTING CHANNEL ELEVATION, WHICHEVER IS LOWER.

**RIP RAP DETAIL FOR BONNIE BRANCH SEWER CONNECTION**  
NOT TO SCALE

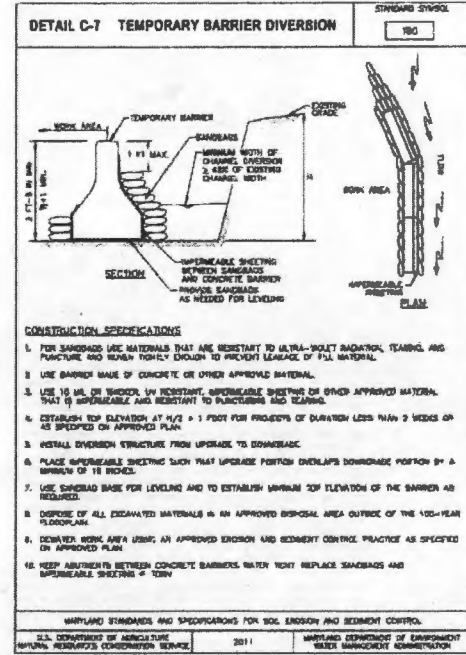


**NOTES:**

- THE 12" DIMENSION SHALL BE USED TO CALCULATE TRENCH PIPE WIDTH.
- FOR TRENCHES WHERE TRENCH BOX OR TRENCH SYSTEMS IS NOT REQUIRED, REINFORCEMENT FOR CONCRETE TRENCH SYSTEMS SHALL BE BASED ON THE TRENCH BOX DESIGN.
- FOR TRENCHES WHERE TRENCH BOX OR TRENCH SYSTEMS IS REQUIRED, REINFORCEMENT FOR CONCRETE TRENCH SYSTEMS SHALL BE BASED ON THE TRENCH BOX DESIGN PLAN 04 (SEE).
- FOR COPPER, PVC AND HDPE PIPE, 3 INCHES OR SMALLER, THE PROTECTIVE ZONE MATERIAL IS FINE AGGREGATE SANDS. FOR PIPE DIAMETERS 4" THROUGH 6" INCHES, SANDS ARE NOT REQUIRED. FOR SANDS 6" THROUGH 8" INCHES, SANDS ARE NOT REQUIRED. FOR SANDS 8" THROUGH 12" INCHES, SANDS ARE NOT REQUIRED. FOR SANDS 12" THROUGH 18" INCHES, SANDS ARE NOT REQUIRED. FOR SANDS 18" THROUGH 24" INCHES, SANDS ARE NOT REQUIRED.
- SPECIAL DESIGN IS REQUIRED AND SHALL BE SPECIFIED OR ORDERED IN THE CONTRACT DOCUMENTS FOR THE FOLLOWING ITEMS:  
PVC AREA 0-200 LARGER THAN 12 INCHES  
THE MINIMUM EXISTING GRADE UNDER SHALL BE 12 INCHES  
100% COMPRESSED GRASS PIPE  
STRENGTH DIMENSIONS SEE DETAILS G-2.11 AND G-2.12

|   |                                 |                  |
|---|---------------------------------|------------------|
| Howard County, Maryland<br>Department of Public Works<br><br>David A. ...<br>Civil Engineer | Pipe Trench<br>Plastic & Copper | Detail<br>G-2.12 |
|---|---------------------------------|------------------|

**PIPE TRENCH DETAIL FOR BONNIE BRANCH SEWER CONNECTION - MODIFIED HOWARD COUNTY STD DETAIL G-2.12**  
NOT TO SCALE



**CONSTRUCTION SPECIFICATIONS**

- FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA-VIOLET RADIATION, TEARING, AND PUNCTURE AND REMAIN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.
- USE BARRIER MADE OF CONCRETE OR OTHER APPROVED MATERIAL.
- USE 16 MIL OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNCTURES AND TEARS.
- ESTABLISH TOP ELEVATION AT  $H/2 \pm 1$  FOOT FOR PROJECTIONS OF DURATION LESS THAN 3 WEEKS OR AS SPECIFIED ON APPROVED PLAN.
- INSTALL DIVERSION STRUCTURE FROM UPSTREAM TO DOWNSTREAM.
- PLACE IMPERMEABLE SHEETING SUCH THAT UPSTREAM PORTION OVERLAPS DOWNSTREAM PORTION BY A MINIMUM OF 18 INCHES.
- USE SANDBAG BASE FOR LEVELING AND TO ESTABLISH MINIMUM TOP ELEVATION OF THE BARRIER AS REQUIRED.
- DISPOSE OF ALL EXHAUSTED MATERIALS IN AN APPROVED DISPOSAL AREA OUTSIDE OF THE 100-YEAR FLOODPLAIN.
- DEVELOP SOAK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN.
- KEEP ADEQUATELY BETWEEN CONCRETE BARRIERS. WATER TIGHT REPLACE SANDBAGS AND IMPERMEABLE SHEETING AS NEEDED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

|  |      |   |
|--|------|---|
| U.S. DEPARTMENT OF AGRICULTURE<br>NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT<br>WATER MANAGEMENT ADMINISTRATION |
|--|------|---|

L 22

**TEMPORARY RIVER CONSTRUCTION DETAIL FOR BONNIE BRANCH SEWER CONNECTION - MIDE DETAIL C-7**  
NOT TO SCALE

|  |      |   |      |
|--|------|---|------|
| THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT |      | REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS. |      |
| SOIL CONSERVATION DISTRICT   | DATE | SOIL CONSERVATION DISTRICT  | DATE |
| <b>DEPARTMENT OF PUBLIC WORKS</b><br>HOWARD COUNTY, MARYLAND   |      |   |      |
| DIRECTOR OF PUBLIC WORKS   | DATE | CHIEF BUREAU OF ENGINEERING   | DATE |
| CHIEF BUREAU OF UTILITIES  | DATE | CHIEF UTILITY DESIGN DIVISION   | DATE |

**HAZEN AND SAWYER**  
Environmental Engineers & Scientists  
1 SOUTH STREET, SUITE 1150  
BALTIMORE, MD 21202  
410-538-7681



|             |        |            |         |     |  |
|-------------|--------|------------|---------|-----|--|
| DESIGNED    | NH/MIB |            |         |     |  |
| DRAWN       | MIB    |            |         |     |  |
| CHECKED     | JTH    |            |         |     |  |
| FIELD ENGR. |        |            |         |     |  |
| APPROVED    | NO     | 95% CD     | 05/2015 | JTH |  |
|             |        | ISSUED FOR | 09/2015 | JTH |  |
|             |        | DATE       |         | BT  |  |

|                |  |
|----------------|--|
| <b>CIVIL</b>   |  |
| <b>DETAILS</b> |  |

**PATAPSCO INTERCEPTOR RELOCATION AND DAM REMOVAL**

2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

|                |          |
|----------------|----------|
| DATE           | MAY 2015 |
| DRAWING NUMBER | HSC-8    |
| SCALE          | N7S      |
| SHEET          | 17 OF 19 |

HAZEN AND SAWYER  
 1 SOUTH STREET, SUITE 1150  
 BALTIMORE, MD 21202  
 410-538-7681  
 WWW.HAZENANDSAWYER.COM

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