

SCALE HORIZONTAL: 1"=10' VERTICAL: 1"=10'

NOTE: CROSS SECTIONS FOR CONTRACTOR'S USE. NOT PART OF GRADING PERMIT PLANS.

LEGEND

— AS-BUILT - - - - - EXISTING — PROPOSED [X] CHANNEL BREACH PROTECTION [W] WOOD DROP RIFFLE [G] WOOD GLIDE RIFFLE [B] TOE BOULDER PROTECTION [S] OUTFALL STABILIZATION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark D. ...
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

10/26/18
 DATE

MCCORMICK TAYLOR

509 South Exeter Street
 4th Floor
 Baltimore, Maryland 21202
 (410) 662-7400

Howard County
 MARYLAND

Storm Water Management Division
 Bureau of Environmental Services
 6751 Columbia Gateway Drive, Suite 514
 Columbia, Maryland 21046-3143
 (410) 313-6444

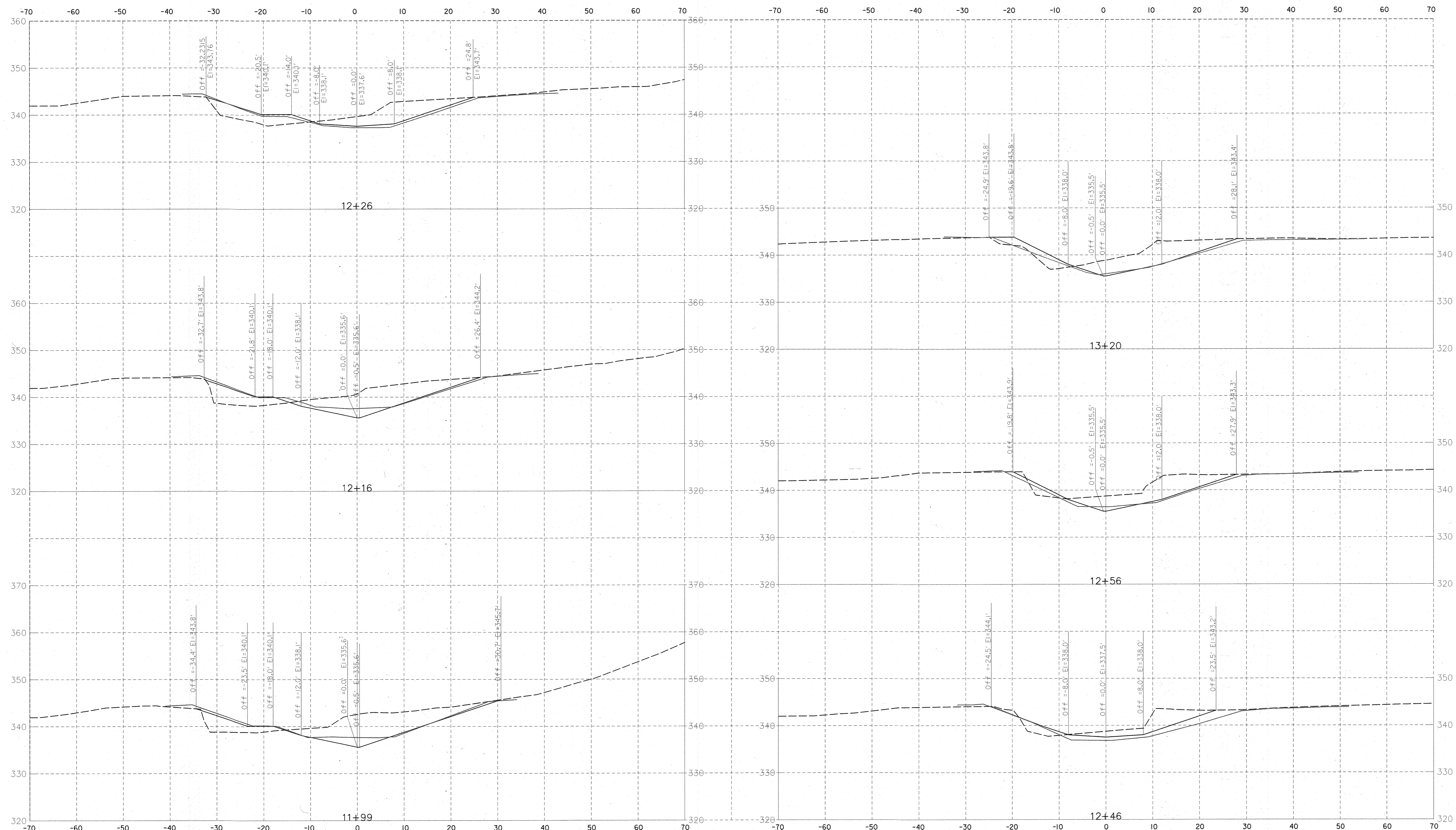


DES: KR /NW	LEN	AS-BUILT	11/08/19
DRN: DD			
CHK: LN			
DATE: 10/22/18	BY	NO.	REVISION
			DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
LITTLE PATUXENT AT FREDERICK ROAD
STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
HOWARD COUNTY
HSCD #: EP-17-39
CROSS SECTIONS

SCALE AS SHOWN

SHEET 1 OF 23



SCALE HORIZONTAL: 1"=10' VERTICAL: 1"=10'

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LEGEND

— AS-BUILT - - - EXISTING — PROPOSED [X] CHANNEL BREACH PROTECTION [W] WOOD DROP RIFFLE [G] WOOD GLIDE RIFFLE [B] TOE BOULDER PROTECTION [S] OUTFALL STABILIZATION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Michael J. ...
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

10/24/18
 DATE

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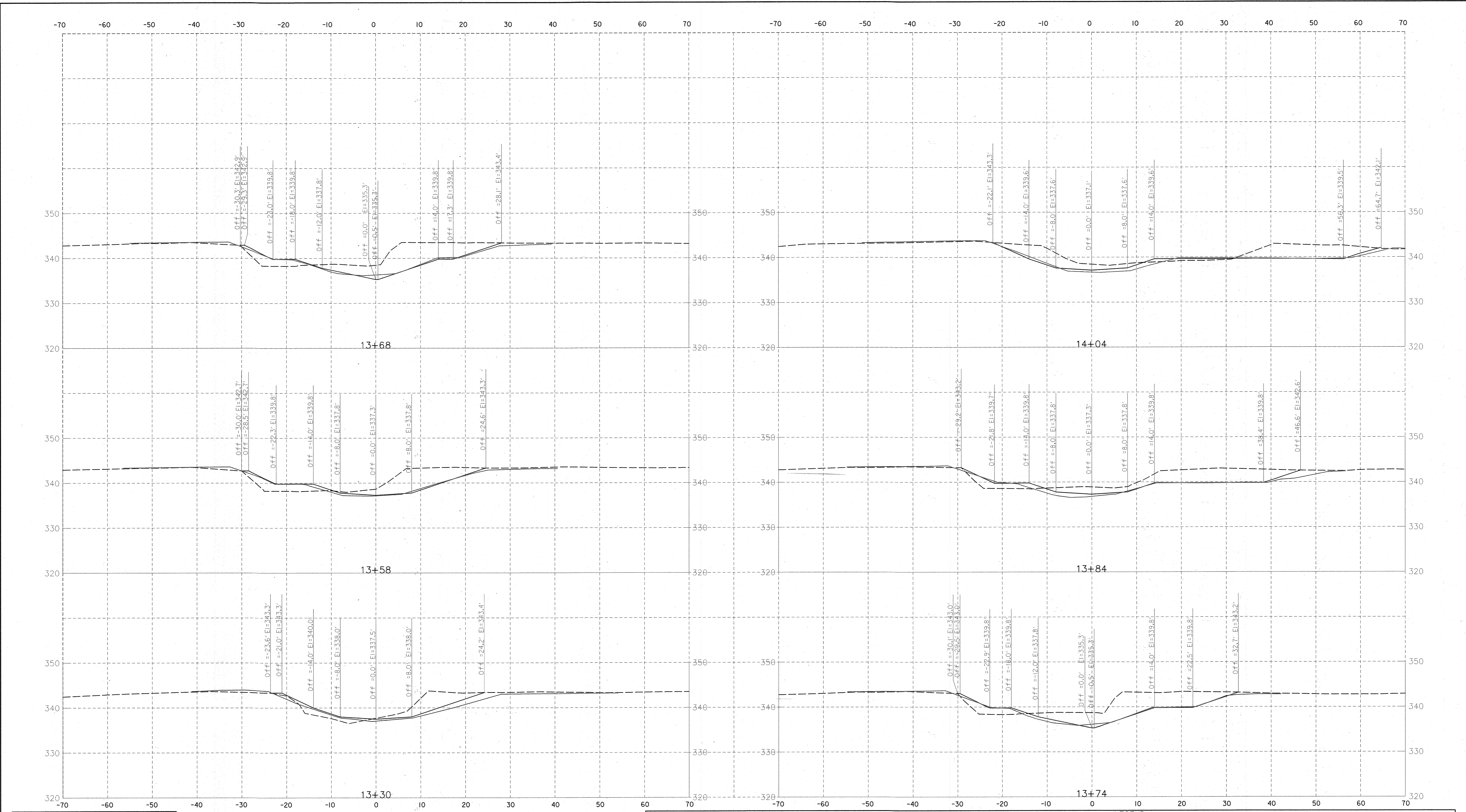


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LITTLE PATUXENT AT FREDERICK ROAD
STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
HOWARD COUNTY
HSCD #: EP-17-39
CROSS SECTIONS

SCALE AS SHOWN

SHEET 2 OF 23



SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"=10'

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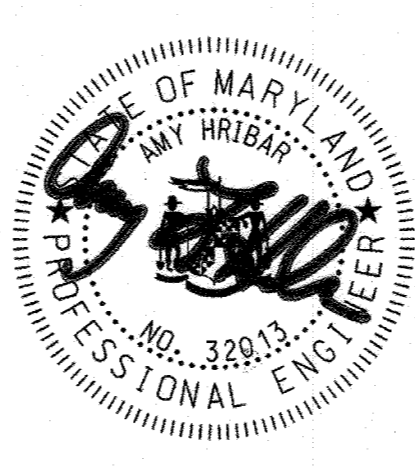
LEGEND
 — AS-BUILT - - - EXISTING — PROPOSED [X] CHANNEL BREACH PROTECTION [W] WOOD DROP RIFFLE [G] WOOD GLIDE RIFFLE [B] TOE BOULDER PROTECTION [S] OUTFALL STABILIZATION

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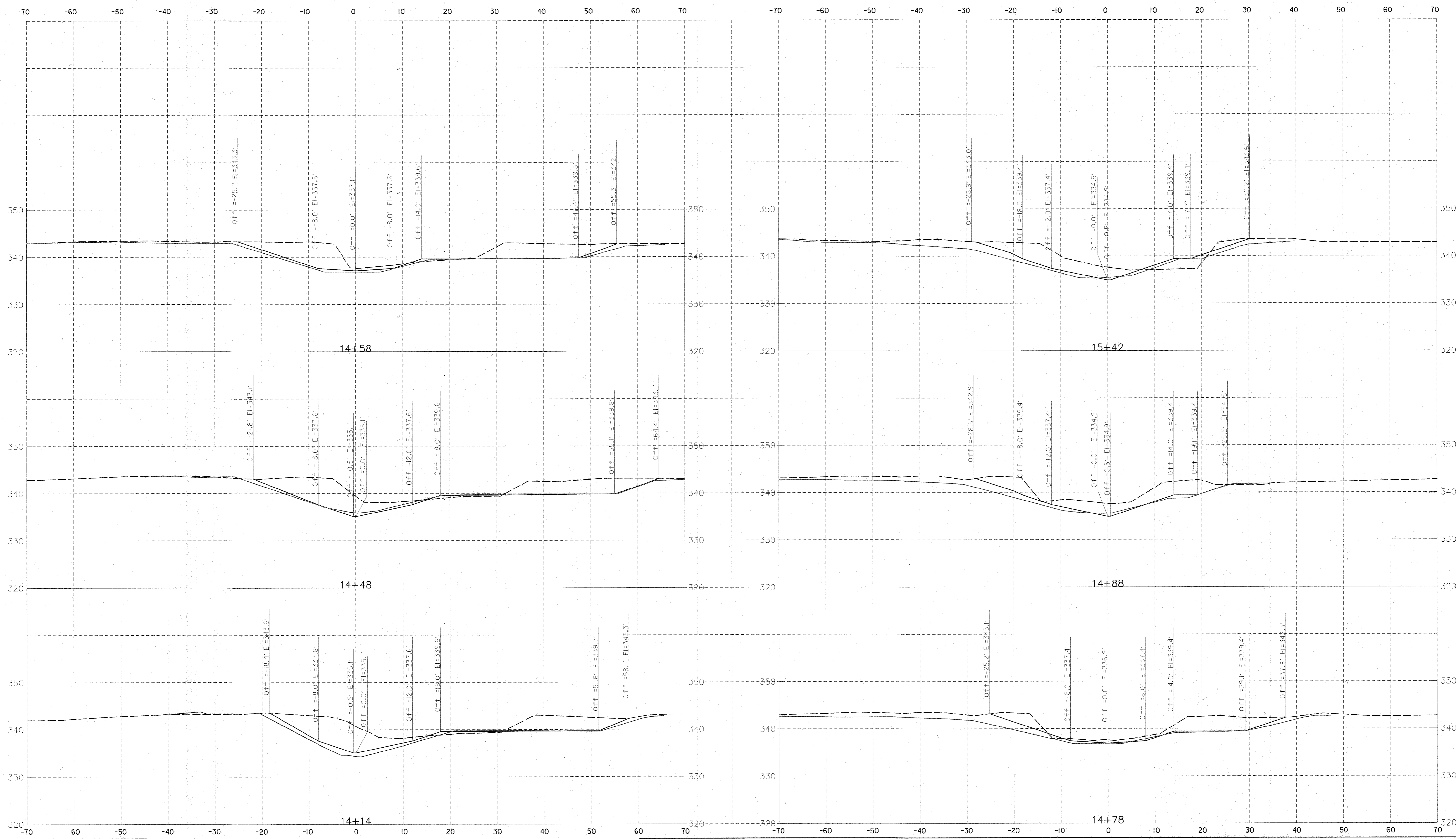
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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
LITTLE PATUXENT AT FREDERICK ROAD
STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
HOWARD COUNTY
HSCD #: EP-17-39
CROSS SECTIONS

SCALE
AS SHOWN
SHEET
3 OF 23



SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"= 10'

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— AS-BUILT - - - EXISTING — PROPOSED [X] CHANNEL BREACH PROTECTION [X] WOOD DROP RIFFLE [X] WOOD GLIDE RIFFLE [X] TOE BOULDER PROTECTION [X] OUTFALL STABILIZATION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark D. L...
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10/24/18
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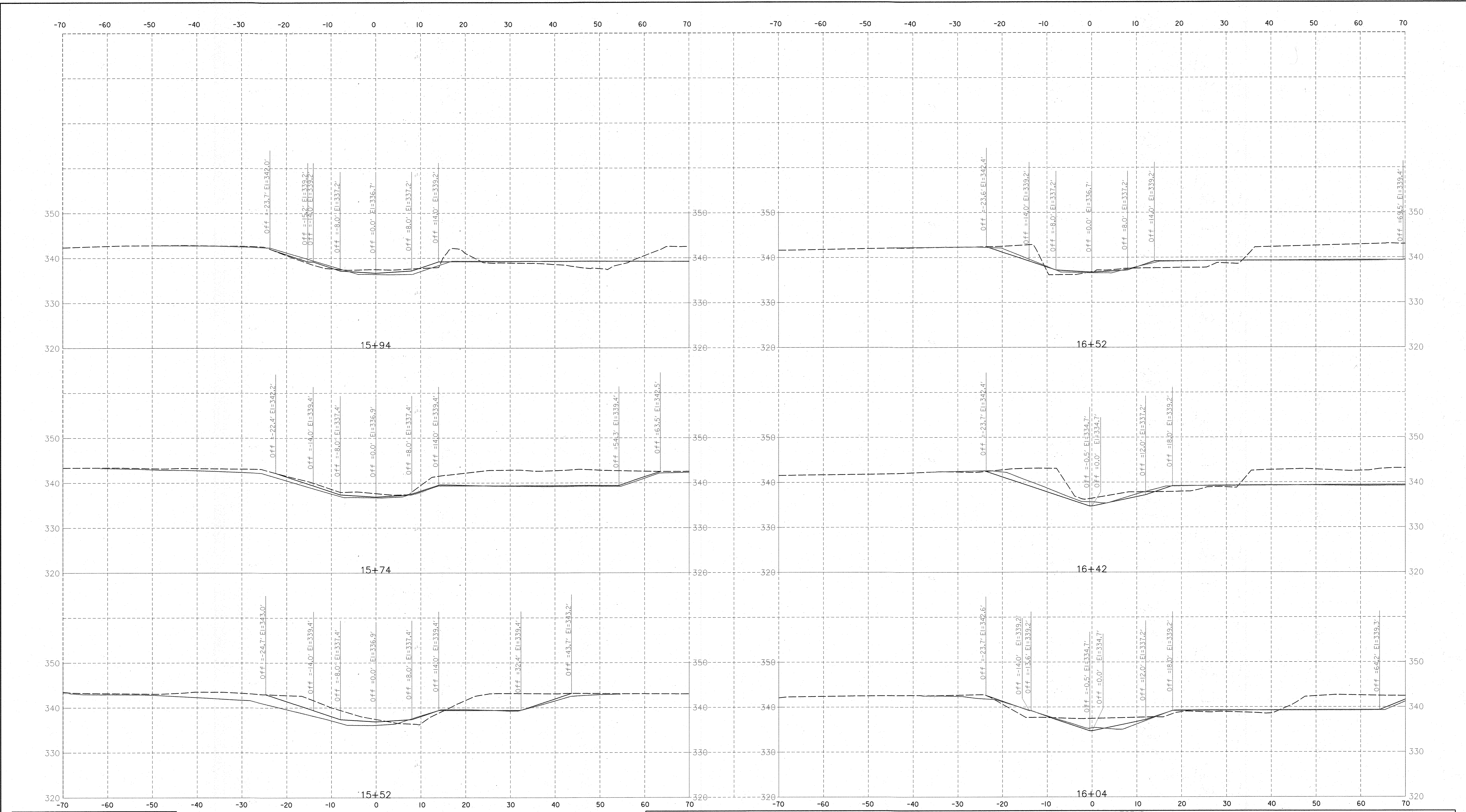


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CAPITAL PROJECT #D-1158
HOWARD COUNTY
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CROSS SECTIONS

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— AS-BUILT - - - EXISTING — PROPOSED [X] CHANNEL BREACH PROTECTION [W] WOOD DROP RIFFLE [G] WOOD GLIDE RIFFLE [B] TOE BOULDER PROTECTION [S] OUTFALL STABILIZATION

DEPARTMENT OF PUBLIC WORKS
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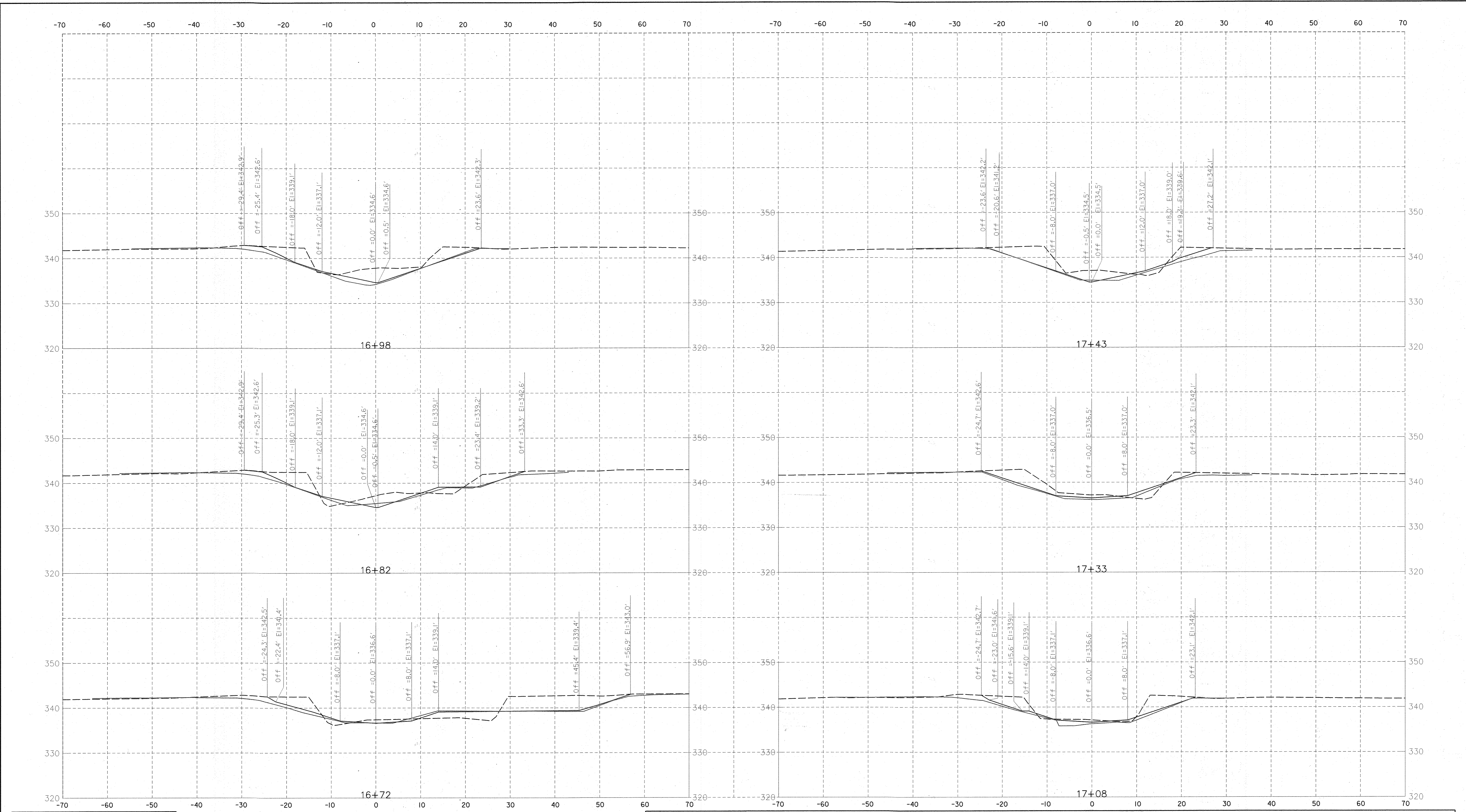


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LITTLE PATUXENT AT FREDERICK ROAD
STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
HOWARD COUNTY
HSCD #: EP-17-39
CROSS SECTIONS

SCALE
AS SHOWN

SHEET
5 OF 23



SCALE
HORIZONTAL: 1"=10' VERTICAL: 1" = 10'

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LEGEND
 --- AS-BUILT - - - - - EXISTING ——— PROPOSED [X] CHANNEL BREACH PROTECTION [W] WOOD DROP RIFFLE [G] WOOD GLIDE RIFFLE [B] TOE BOULDER PROTECTION [S] OUTFALL STABILIZATION

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HOWARD COUNTY, MARYLAND

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 10/26/18
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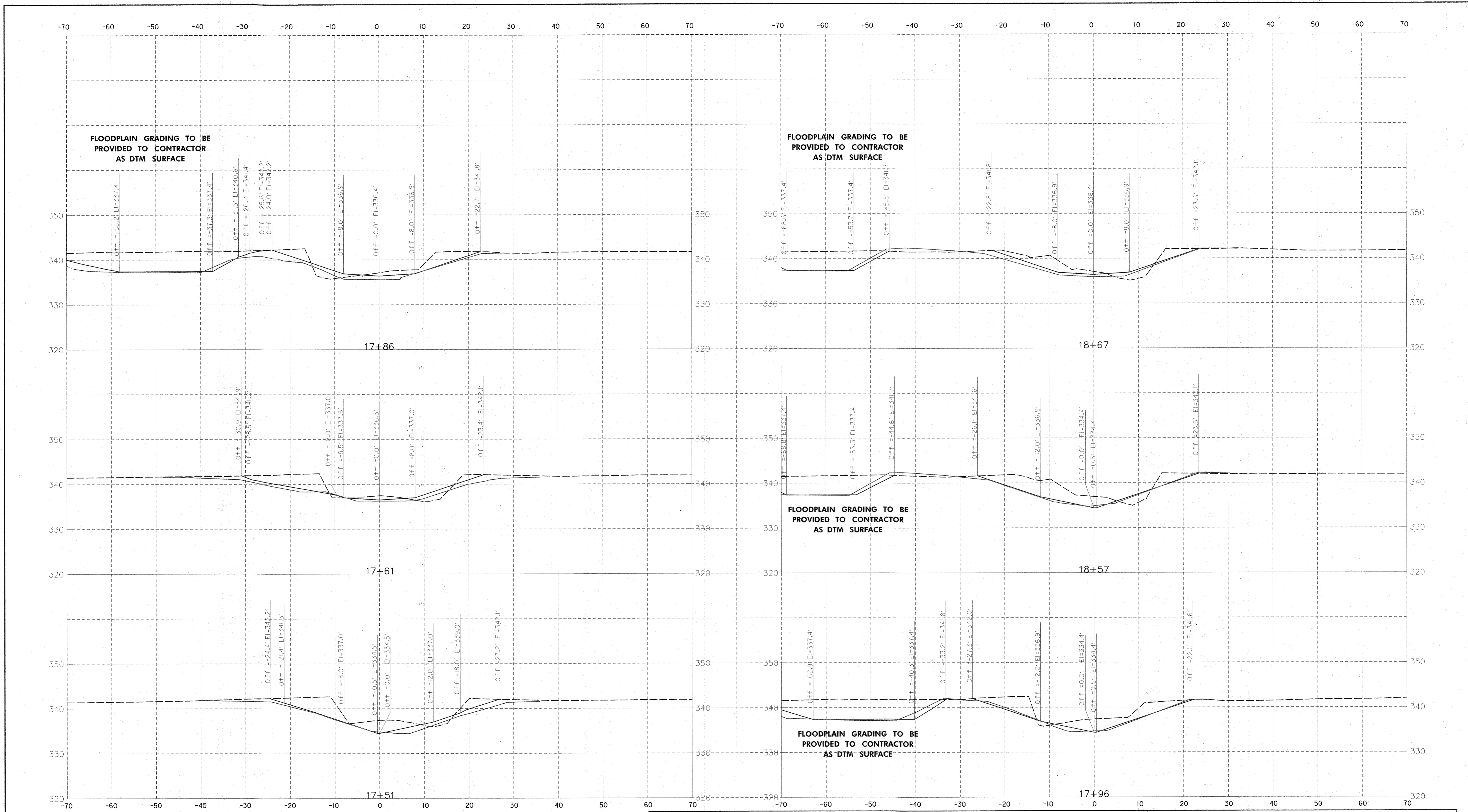
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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
LITTLE PATUXENT AT FREDERICK ROAD
STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
HOWARD COUNTY
HSCD #: EP-17-39
CROSS SECTIONS

SCALE
AS SHOWN
SHEET
6 OF 23



SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"=10'

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LEGEND
 --- AS-BUILT - - - EXISTING — PROPOSED [X] CHANNEL BREACH PROTECTION [W] WOOD DROP RIFFLE [G] WOOD GLIDE RIFFLE [B] TOE BOULDER PROTECTION [S] OUTFALL STABILIZATION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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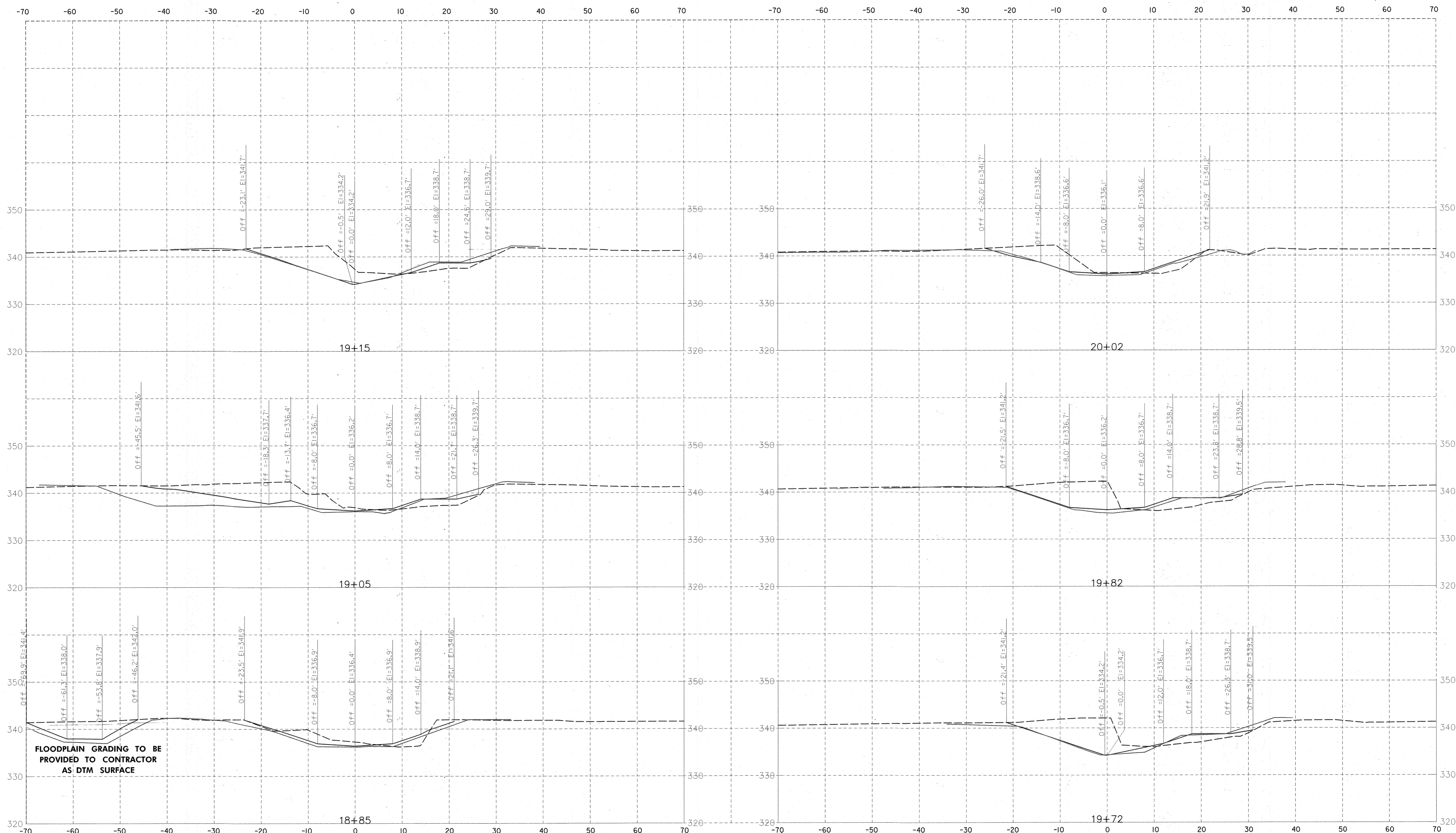
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LITTLE PATUXENT AT FREDERICK ROAD
STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
HOWARD COUNTY
HSCD #: EP-17-39
CROSS SECTIONS

SCALE
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SHEET
7 OF 23



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LEGEND

— AS-BUILT - - - EXISTING — PROPOSED [Cross-hatch] CHANNEL BREACH PROTECTION [Diagonal lines] WOOD DROP RIFFLE [Stippled] WOOD GLIDE RIFFLE [Dotted] TOE BOULDER PROTECTION [Horizontal lines] OUTFALL STABILIZATION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

M. J. [Signature]
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

10/24/18
 DATE

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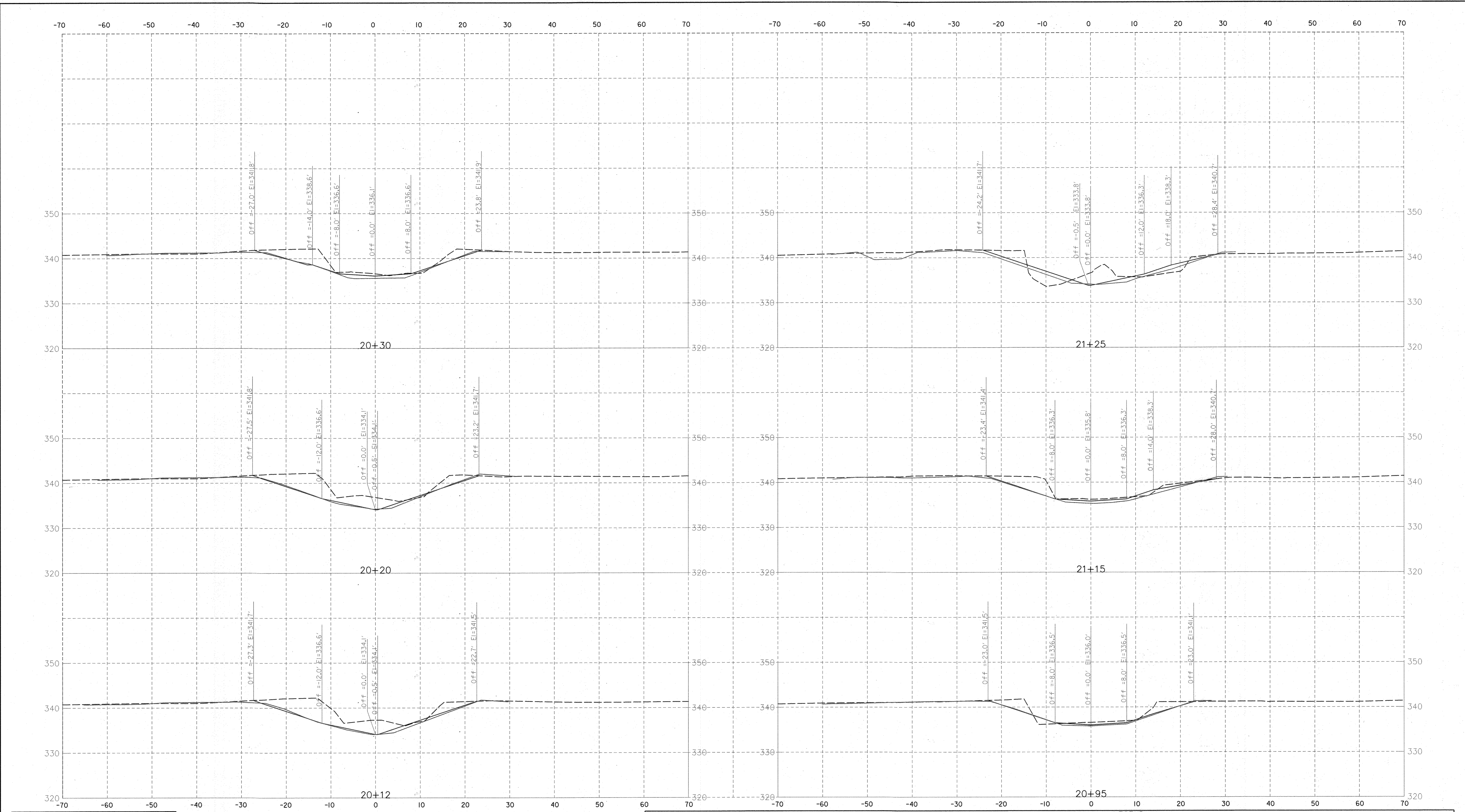


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STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
HOWARD COUNTY
HSCD #: EP-17-39
CROSS SECTIONS

SCALE AS SHOWN

SHEET 8 OF 23



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LEGEND
 — AS-BUILT - - - EXISTING — PROPOSED [X] CHANNEL BREACH PROTECTION [W] WOOD DROP RIFFLE [G] WOOD GLIDE RIFFLE [B] TOE BOULDER PROTECTION [S] OUTFALL STABILIZATION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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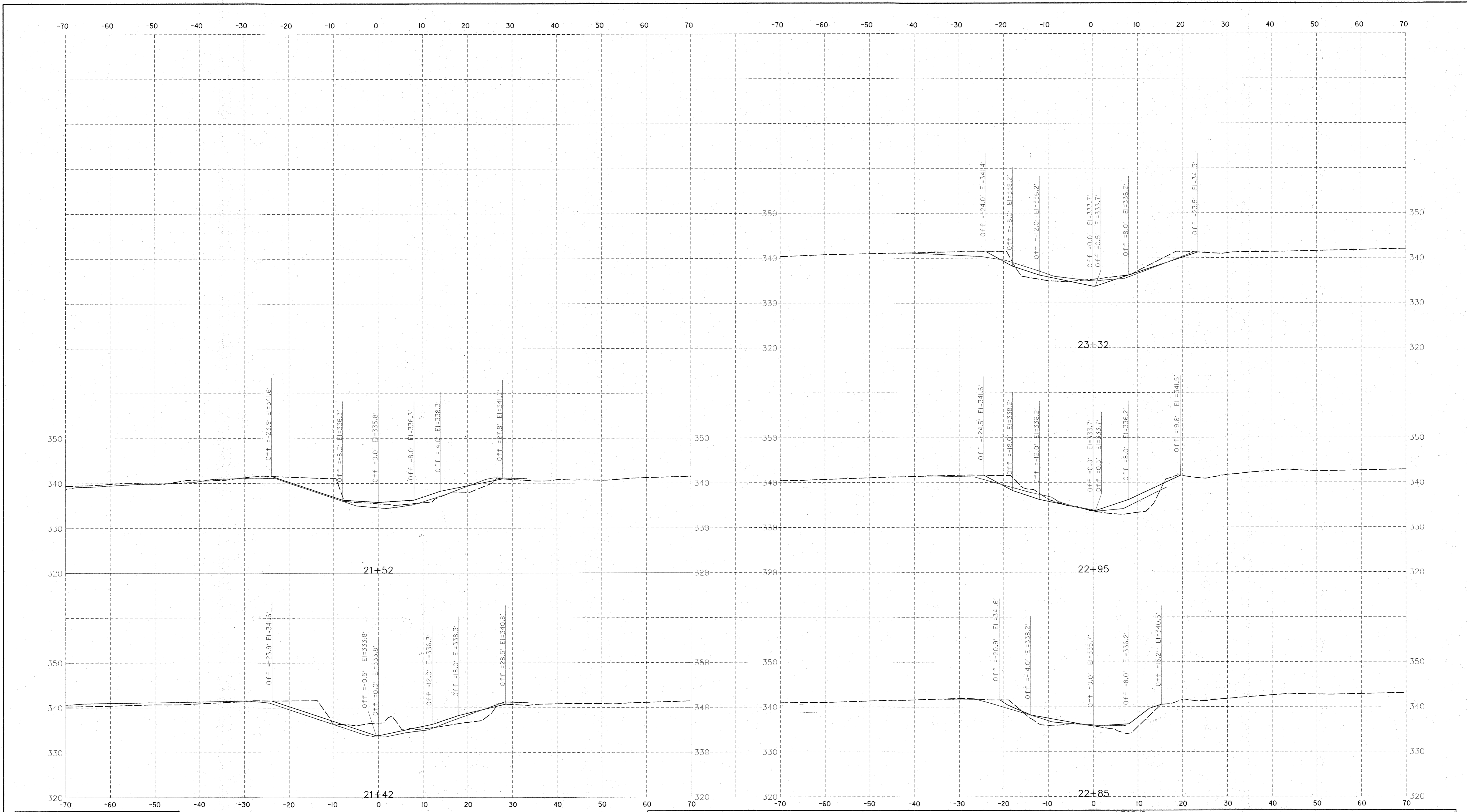
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STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
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CROSS SECTIONS

SCALE
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SHEET
9 OF 23



SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"= 10'

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— AS-BUILT - - - EXISTING PROPOSED [X] CHANNEL BREACH PROTECTION [X] WOOD DROP RIFFLE [X] WOOD GLIDE RIFFLE [X] TOE BOULDER PROTECTION [X] OUTFALL STABILIZATION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Michael J. ...
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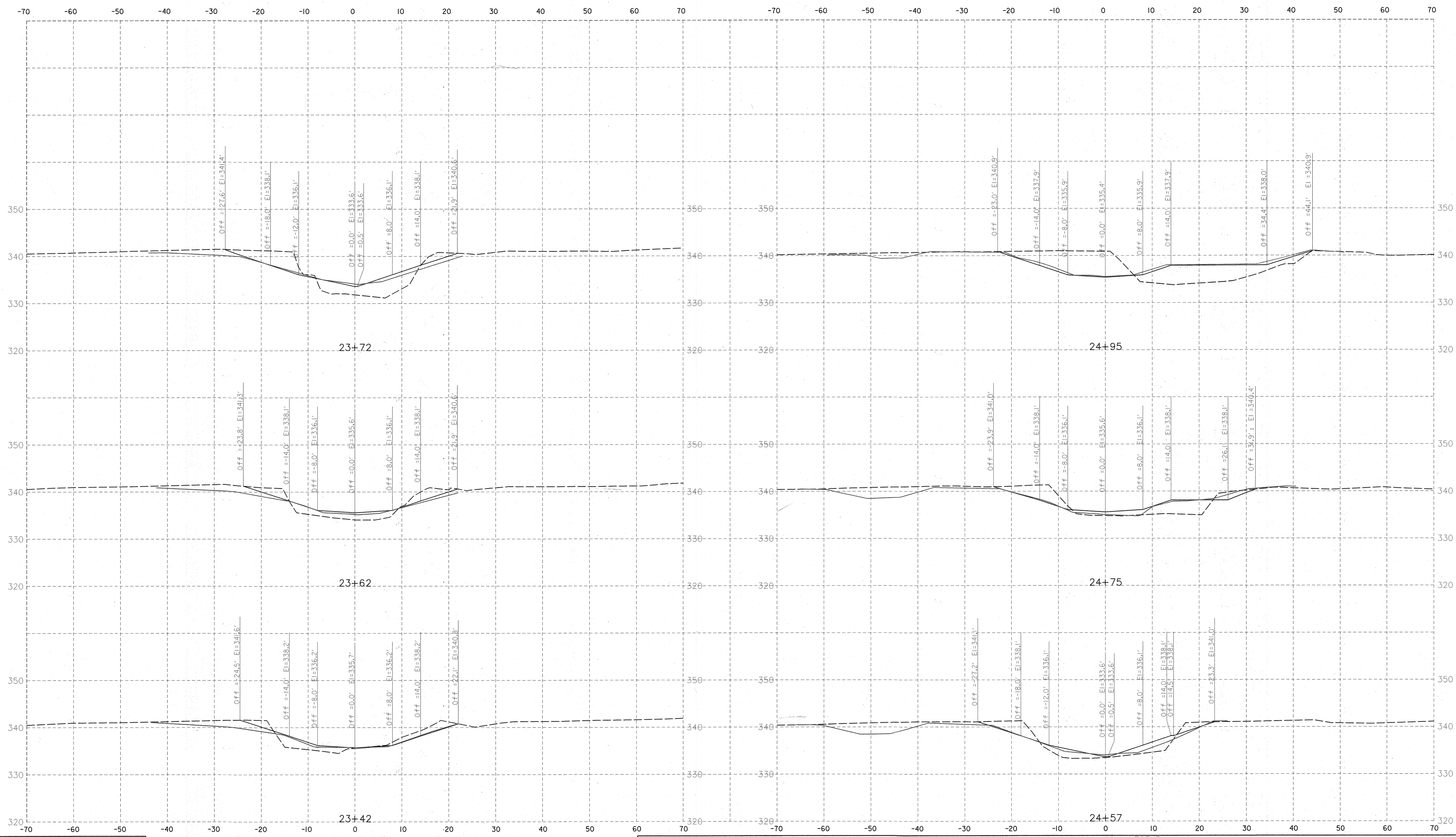


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LITTLE PATUXENT AT FREDERICK ROAD
STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
HOWARD COUNTY
HSCD #: EP-17-39
CROSS SECTIONS

SCALE
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10 OF 23



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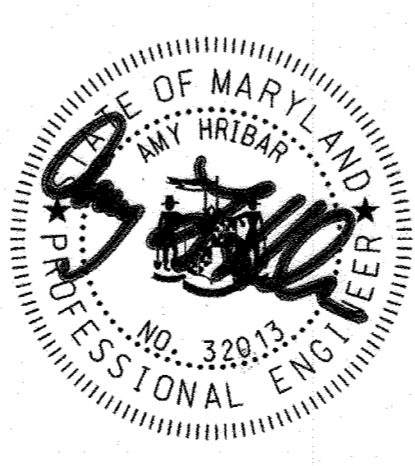
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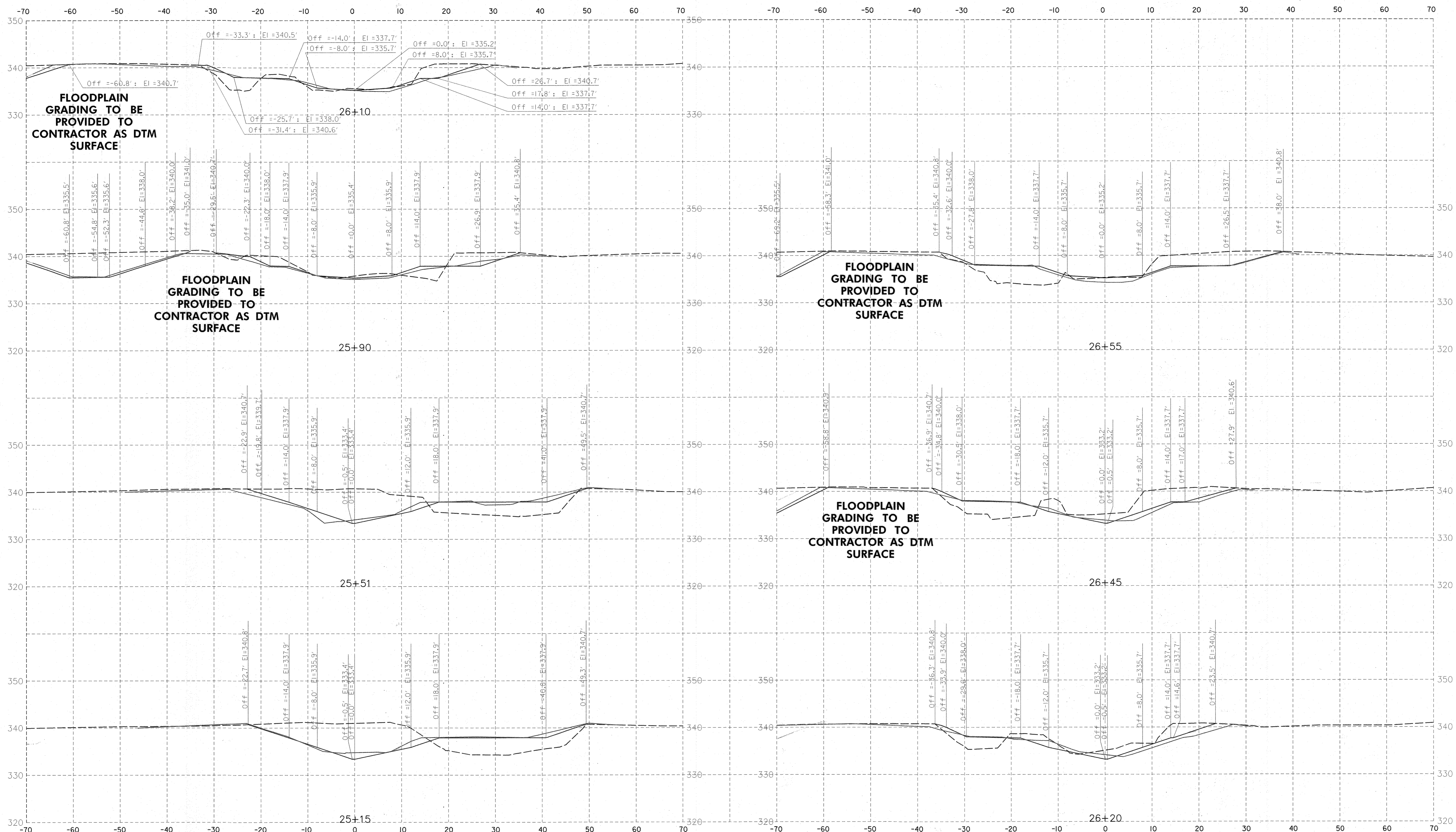
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CAPITAL PROJECT #D-1158
HOWARD COUNTY
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CROSS SECTIONS

SCALE
AS SHOWN
SHEET
11 OF 23



SCALE HORIZONTAL: 1"=10' VERTICAL: 1"=10'

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LEGEND

— AS-BUILT - - - EXISTING — PROPOSED [X] CHANNEL BREACH PROTECTION [W] WOOD DROP RIFFLE [G] WOOD GLIDE RIFFLE [B] TOE BOULDER PROTECTION [S] OUTFALL STABILIZATION

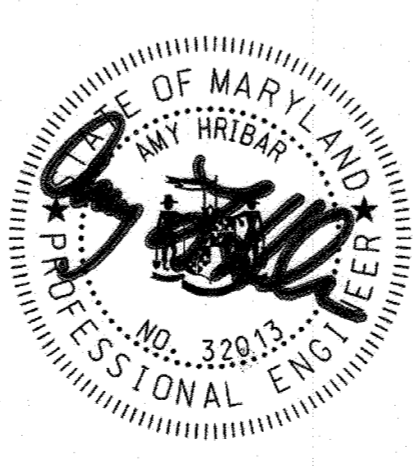
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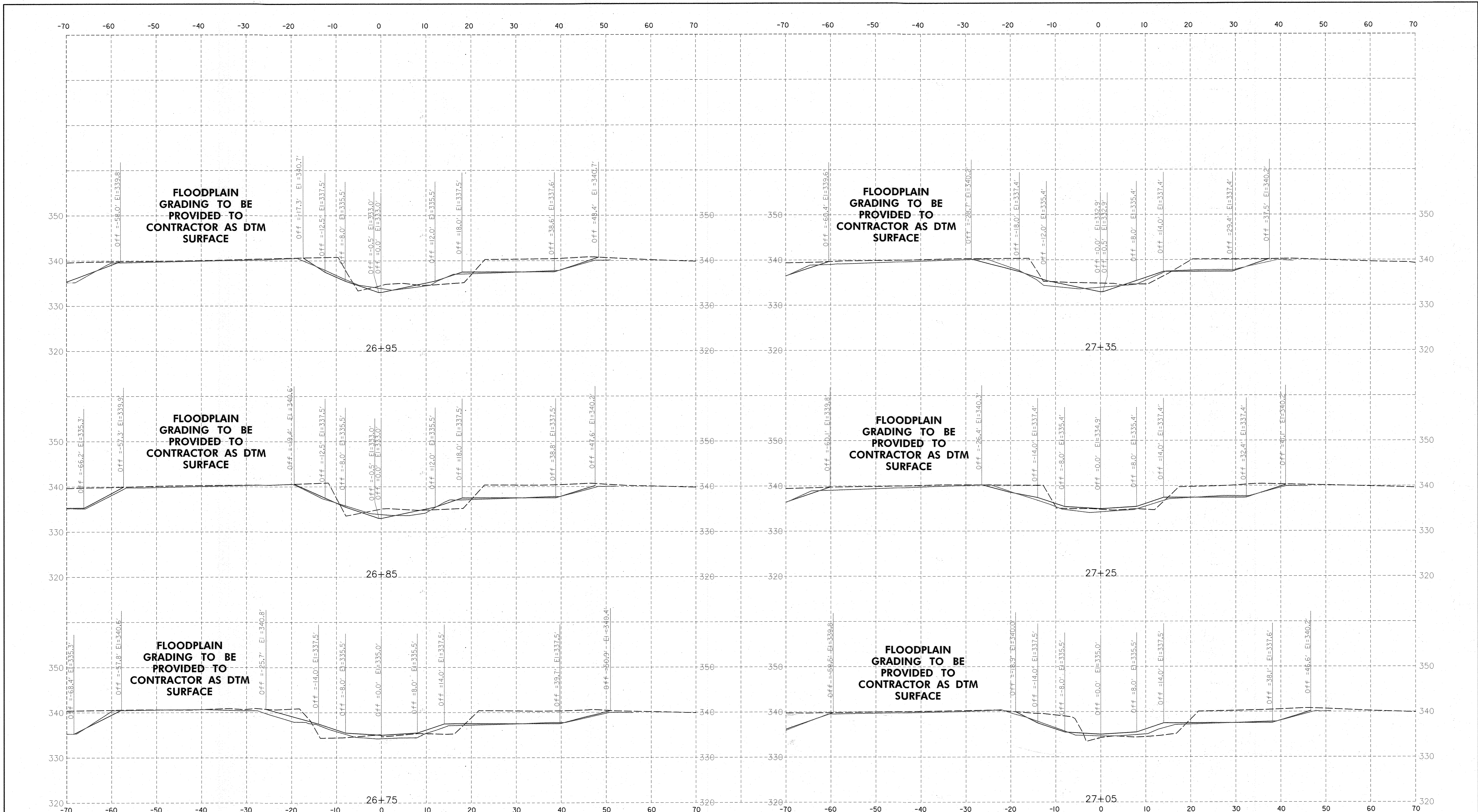
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LITTLE PATUXENT AT FREDERICK ROAD
STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
HOWARD COUNTY
HSCD #: EP-17-39
CROSS SECTIONS**

SCALE AS SHOWN
SHEET 12 OF 23



SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"=10'

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LEGEND
 --- AS-BUILT
 - - - - - EXISTING
 ——— PROPOSED
 [Cross-hatched] CHANNEL BREACH PROTECTION
 [Wavy lines] WOOD DROP RIFFLE
 [Stippled] WOOD GLIDE RIFFLE
 [Dotted] TOE BOULDER PROTECTION
 [Diagonal lines] OUTFALL STABILIZATION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Mark D. L...
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

10/24/18
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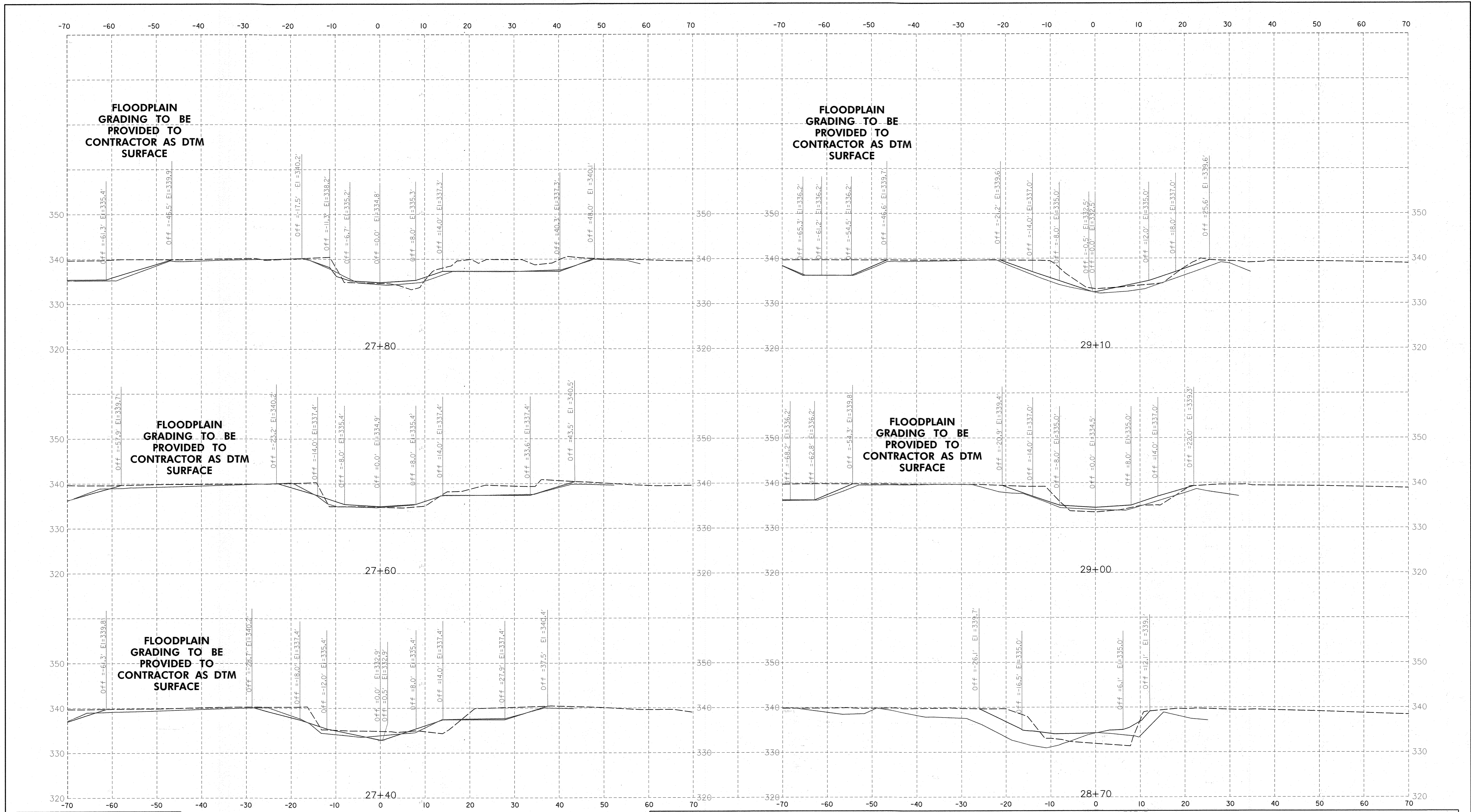


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— AS-BUILT - - - EXISTING — PROPOSED [X] CHANNEL BREACH PROTECTION [WDR] WOOD DROP RIFFLE [WGL] WOOD GLIDE RIFFLE [TBP] TOE BOULDER PROTECTION [OS] OUTFALL STABILIZATION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Manuel...
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

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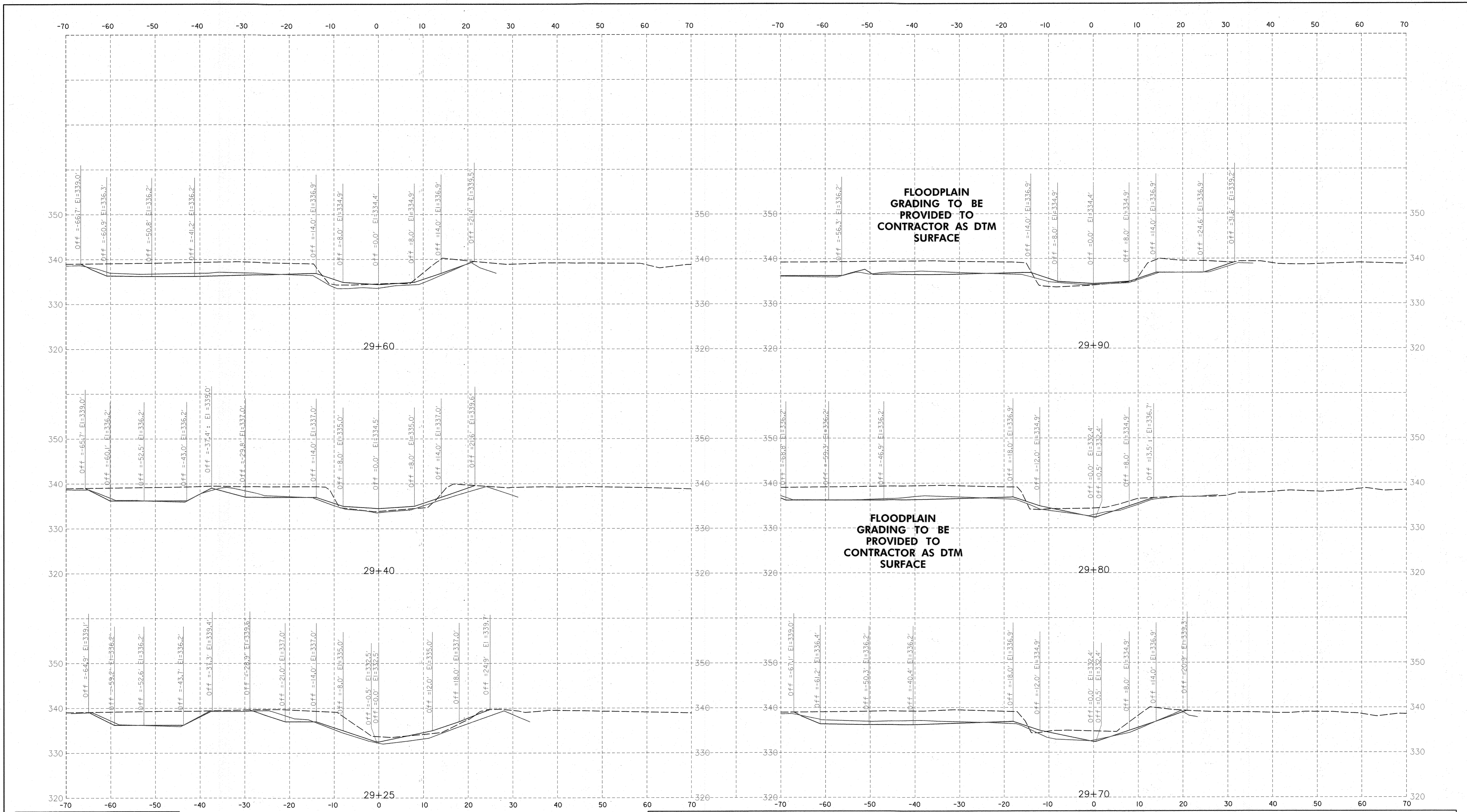


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HOWARD COUNTY, MARYLAND

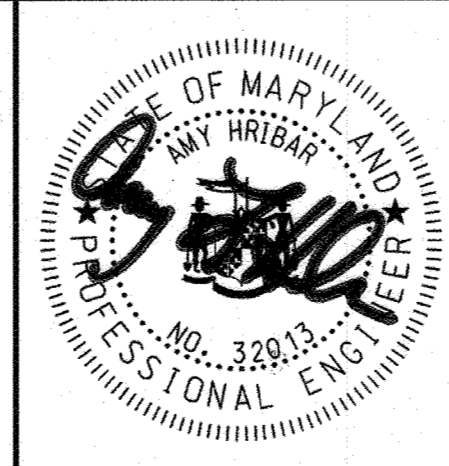
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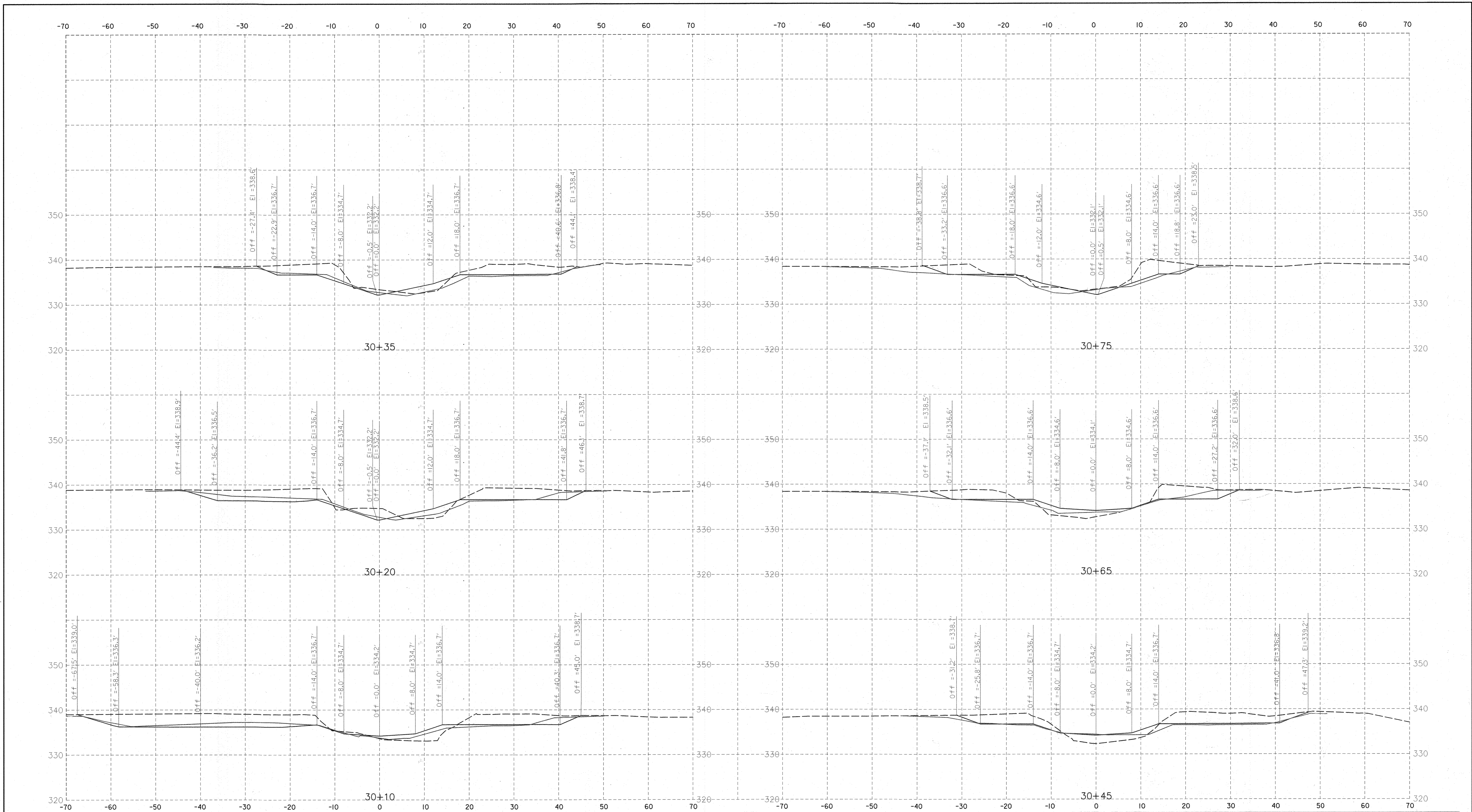


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AS SHOWN

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— AS-BUILT - - - EXISTING — PROPOSED [Cross-hatch] CHANNEL BREACH PROTECTION [Wavy] WOOD DROP RIFFLE [Stippled] WOOD GLIDE RIFFLE [Dotted] TOE BOULDER PROTECTION [Diagonal lines] OUTFALL STABILIZATION

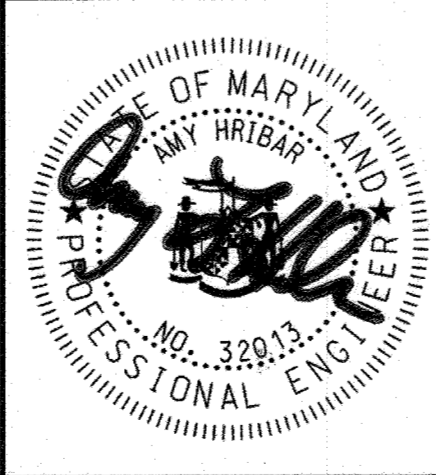
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Mark D. ...
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

10/26/18
DATE

McCORMICK TAYLOR
509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

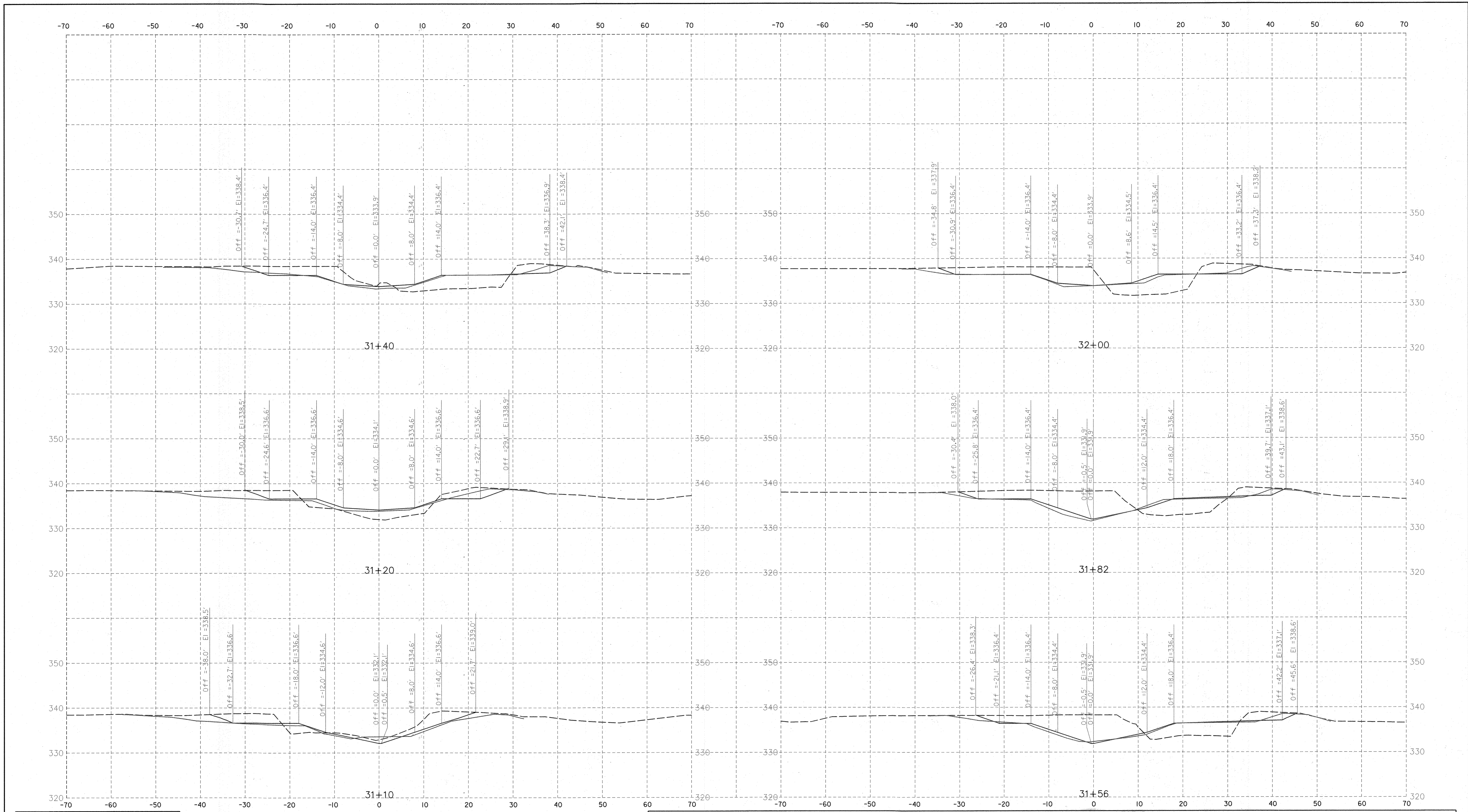
Howard County
MARYLAND
Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143
(410) 313-6444



DES: KR /NW	LEN		AS-BUILT	11/08/19
DRN: DD				
CHK: LN				
DATE: 10/22/18	BY	NO.	REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
LITTLE PATUXENT AT FREDERICK ROAD
STREAM REHABILITATION PROJECT
CAPITAL PROJECT #D-1158
HOWARD COUNTY
HSCD #: EP-17-39
CROSS SECTIONS

SCALE
AS SHOWN
SHEET
16 OF 23



SCALE
HORIZONTAL: 1"=10' VERTICAL: 1"=10'

NOTE: CROSS SECTIONS FOR CONTRACTOR'S USE.
NOT PART OF GRADING PERMIT PLANS.

— AS-BUILT — EXISTING — PROPOSED [Cross-hatched] CHANNEL BREACH PROTECTION [Diagonal] WOOD DROP RIFFLE [Diagonal] WOOD GLIDE RIFFLE [Cross-hatched] TOE BOULDER PROTECTION [Diagonal] OUTFALL STABILIZATION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

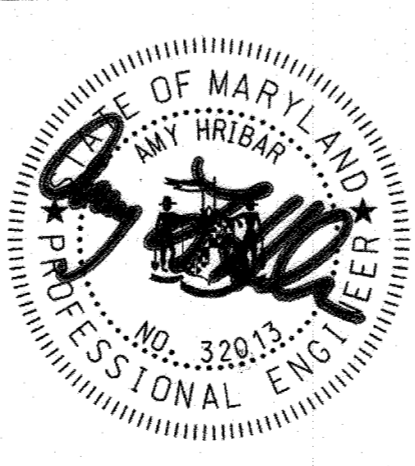
Michael J. ...
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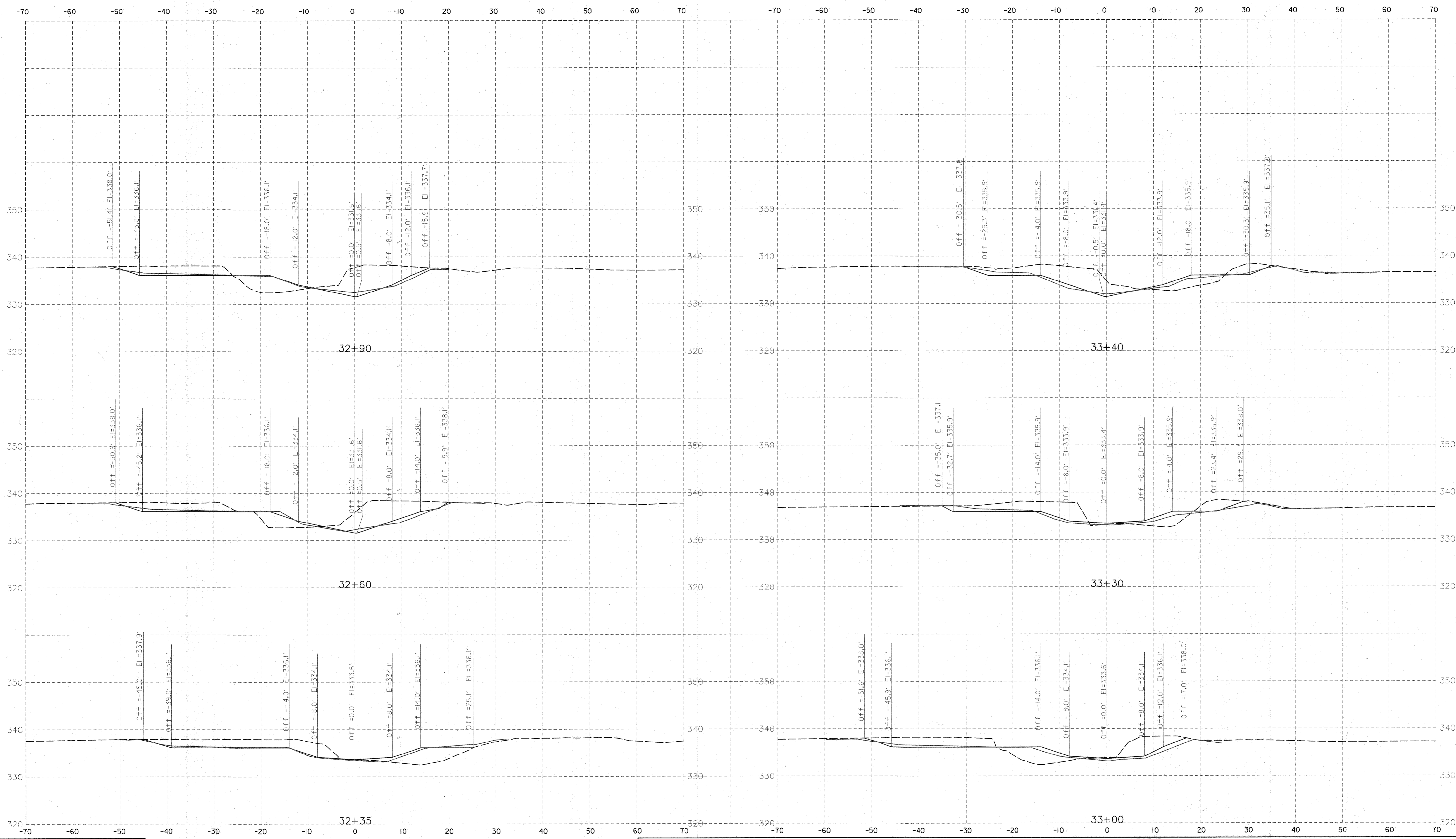


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— AS-BUILT - - - EXISTING — PROPOSED [X] CHANNEL BREACH PROTECTION [X] WOOD DROP RIFFLE [X] WOOD GLIDE RIFFLE [X] TOE BOULDER PROTECTION [X] OUTFALL STABILIZATION

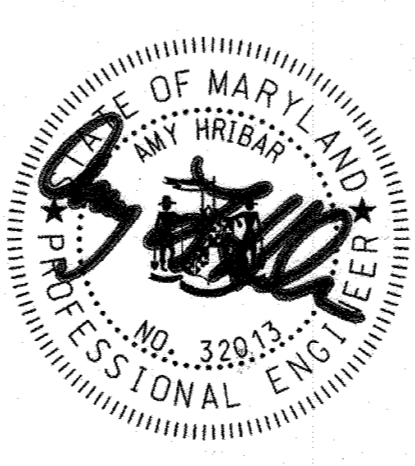
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HOWARD COUNTY, MARYLAND

M. J. [Signature]
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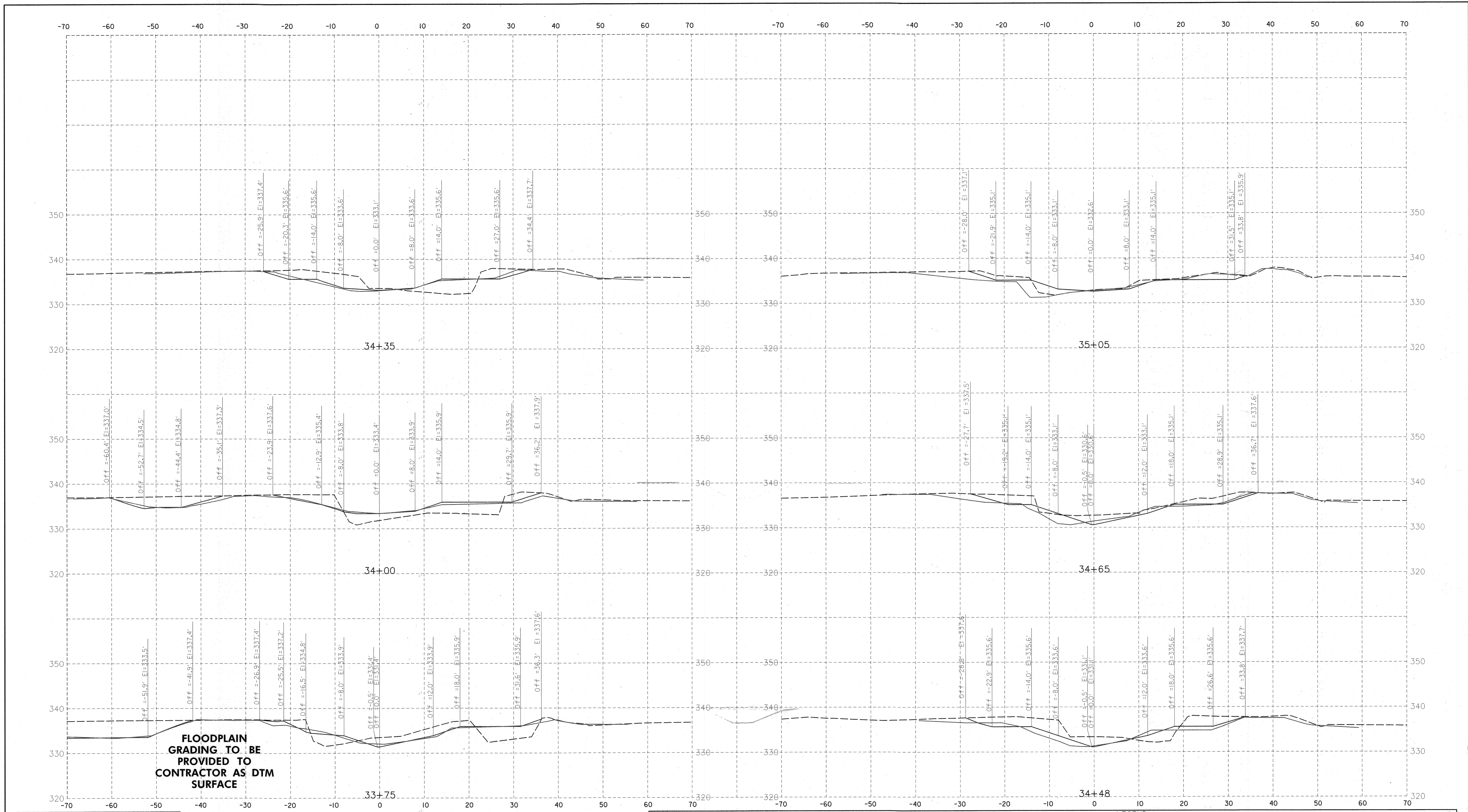
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FLOODPLAIN GRADING TO BE PROVIDED TO CONTRACTOR AS DTM SURFACE

SCALE
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LEGEND
 — AS-BUILT - - - EXISTING — PROPOSED [X] CHANNEL BREACH PROTECTION [W] WOOD DROP RIFFLE [G] WOOD GLIDE RIFFLE [B] TOE BOULDER PROTECTION [S] OUTFALL STABILIZATION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Manuel...
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

10/21/18
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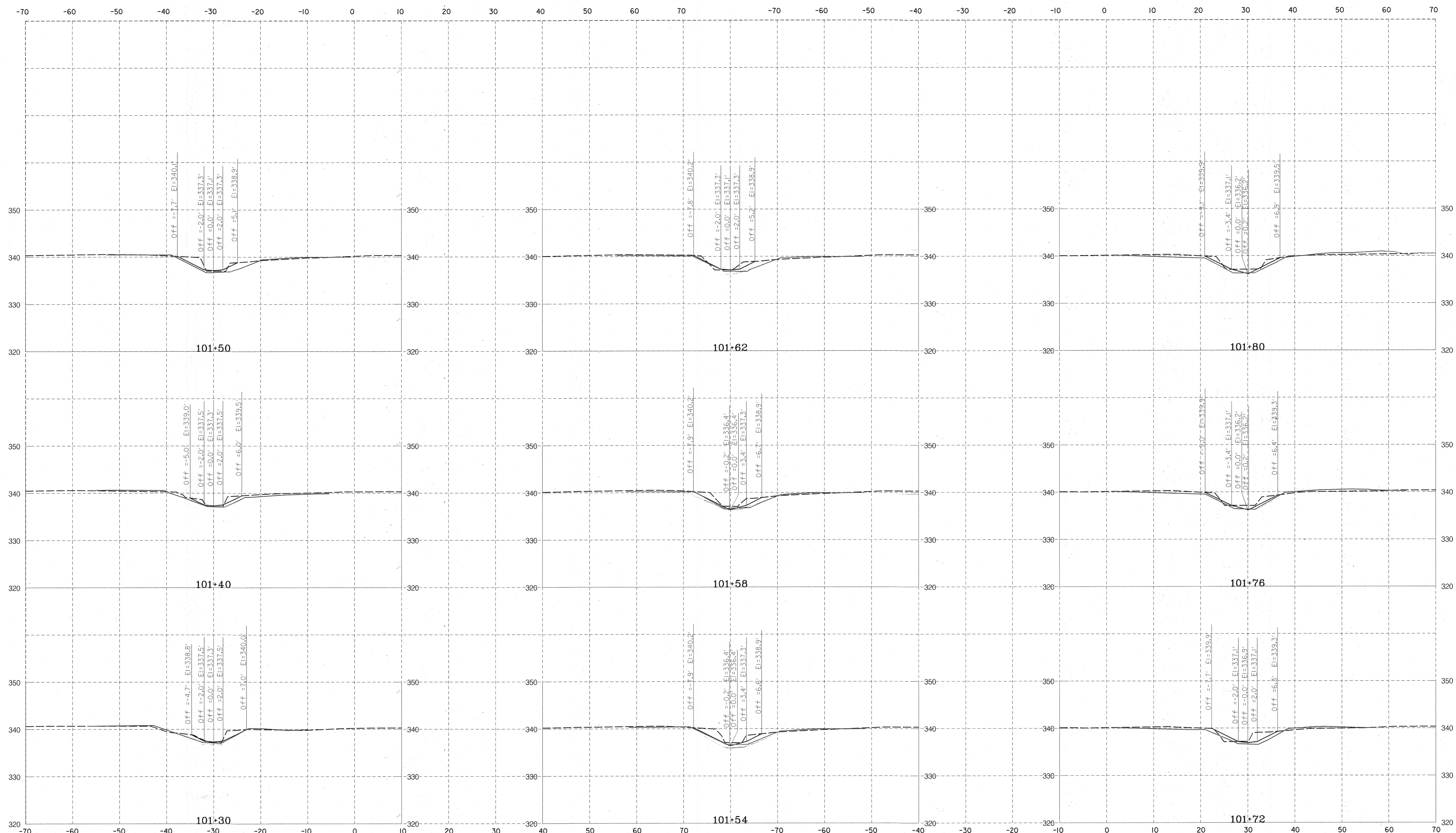


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— AS-BUILT - - - EXISTING — PROPOSED [X] CHANNEL BREACH PROTECTION [WDR] WOOD DROP RIFFLE [WGL] WOOD GLIDE RIFFLE [TBP] TOE BOULDER PROTECTION [OS] OUTFALL STABILIZATION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Michael J. Ryan
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

10/24/18
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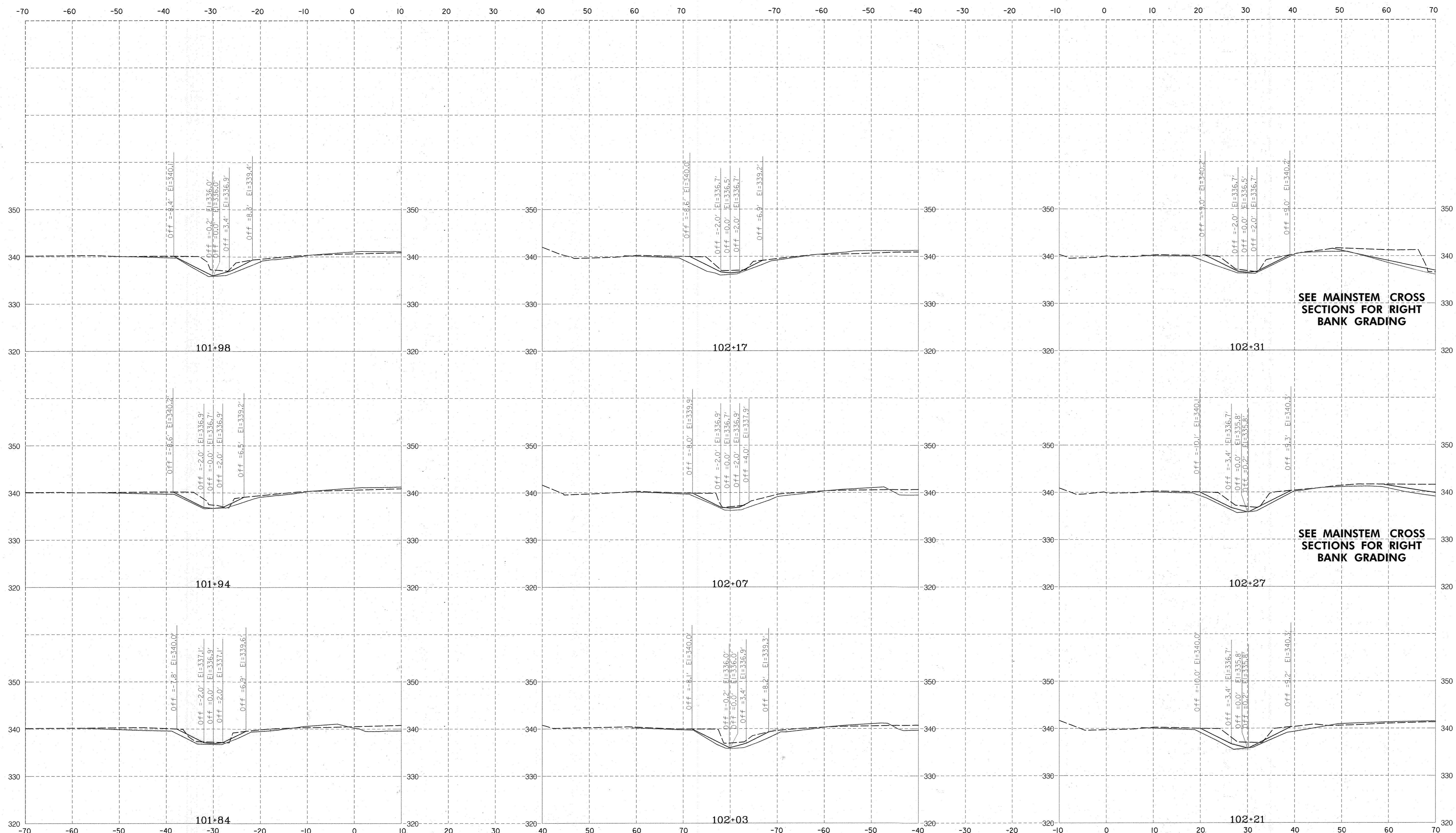


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SEE MAINSTEM CROSS SECTIONS FOR RIGHT BANK GRADING

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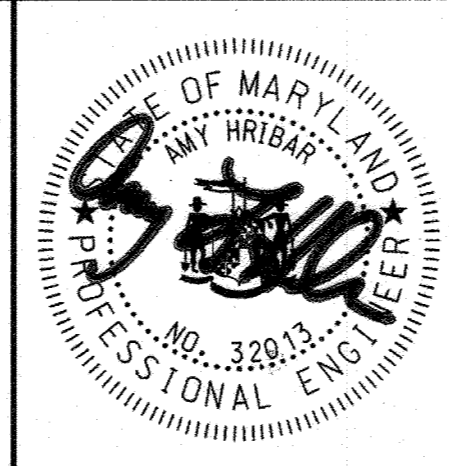
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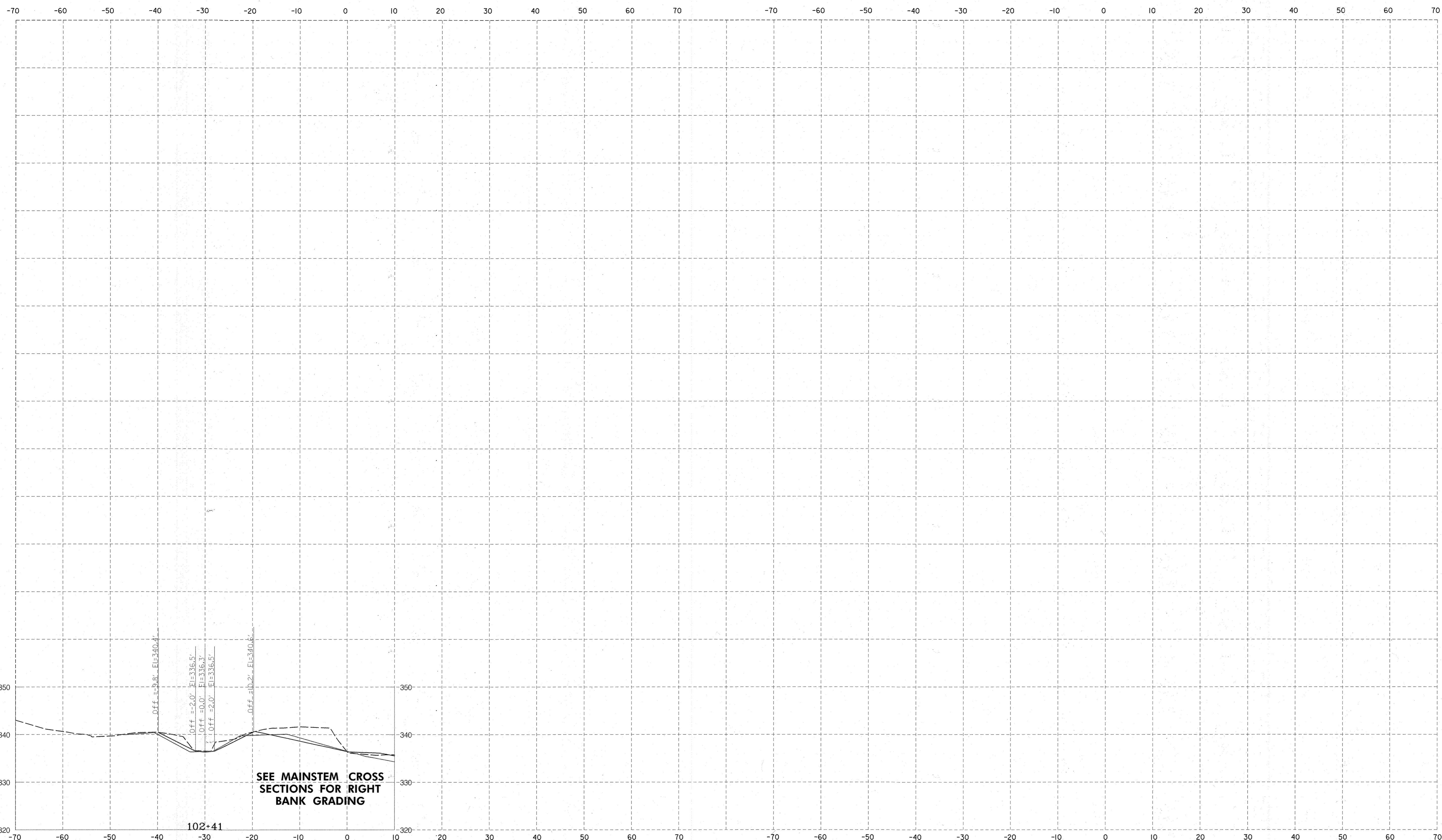
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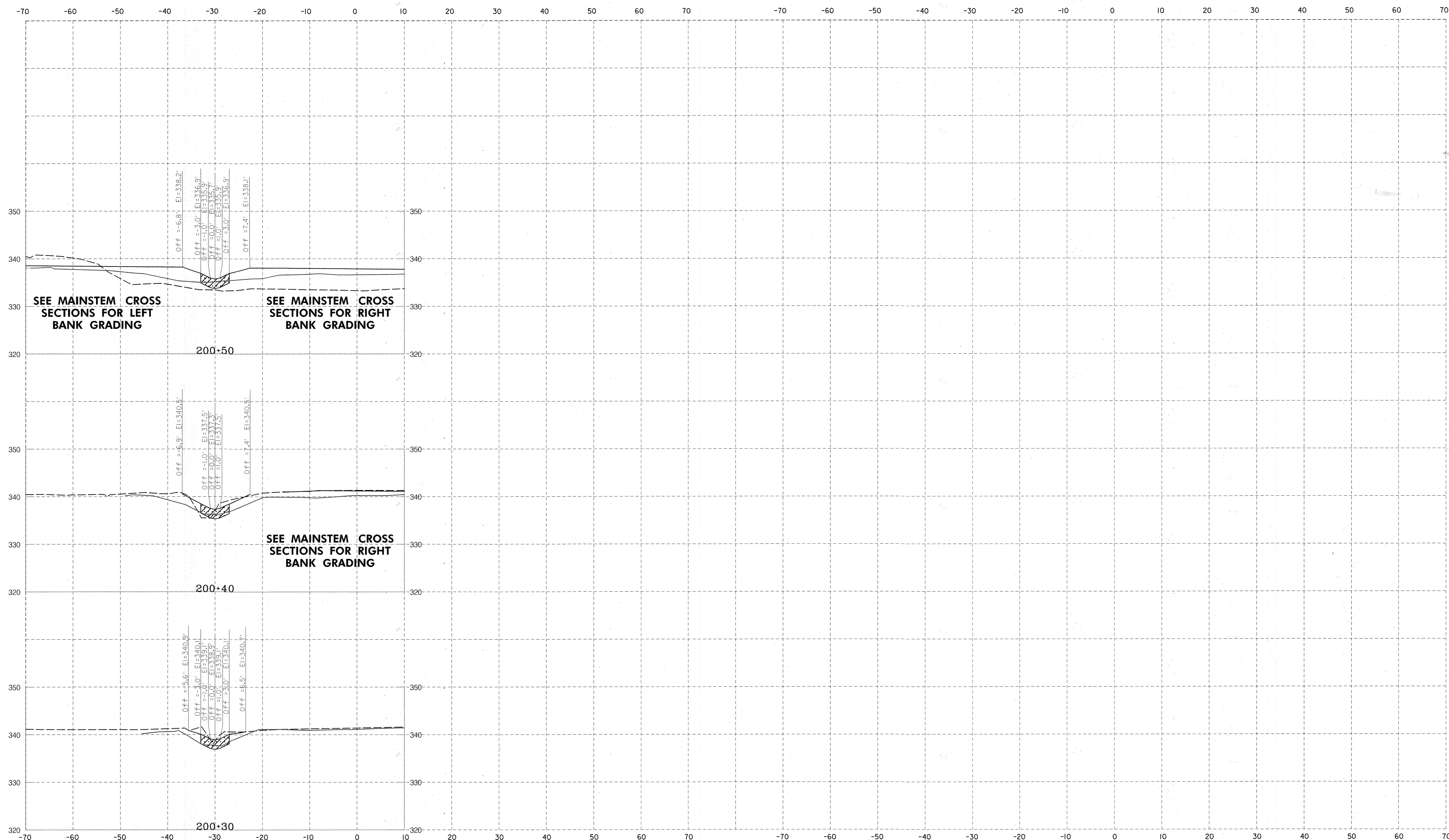
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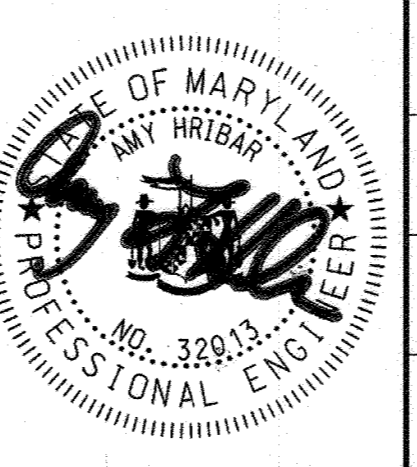
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