

NOTE- LOD BEYOND SHEET SAME AS PHASE I LOD SHOWN ON DRAWING NO. ES-01.

PHASE 5- DOWNSTREAM TRIBUTARY STREAM WORK

PHASE 5- SEQUENCE OF CONSTRUCTION

INSTALL PHASE 5 TREE PROTECTION FENCE (TPF) AS SHOWN ON THE PLANS AND RECEIVE APPROVAL FROM THE INSPECTOR BEFORE ANY CLEARING.

A. MAINTAIN THE STABILIZED ENTRANCE SCE I-1. MAINTAIN THE LOD, AND CONSTRUCT AND/OR MAINTAIN THE TREE PROTECTION FENCE, STAGE AND STOCKPILE WITHIN DESIGNATED AREAS SHOWN ON THE PLAN SET. MAINTAIN THE TEMPORARY ACCESS BRIDGE TAB I-1 ACROSS THE TRIBUTARY CHANNEL. RE-INSTALL FILTER LOGS FL I-1 AND FL I-2 FROM PHASE I.

B. CLEAR AND GRUB ONLY AS NECESSARY FOR INSTALLATION OF PHASE 5 EROSION AND SEDIMENT CONTROL DEVICES. INSTALL PERIMETER CONTROL- 18 INCH FILTER LOG FL 5-1.

C. WORKING FROM DOWNSTREAM TO UPSTREAM, INSTALL SANDBAGS IN THE STREAM CHANNEL AND UTILIZE PUMP AROUND SYSTEMS, WHICH INCLUDES THE FOLLOWING CONTROLS: TEMP. SANDBAGS SB 5-1, FILTER BAG FB 5-1, PUMP AROUND PA 5-1 AND PA 5-2, AND RIPRAP OUTLET PROTECTION ROP 5-1. ONCE SB 5-1 AND PA 5-1 IS INSTALLED, MOVE SB 4-1 TO THE NEW STATION AND OFFSET LOCATION AS SPECIFIED ON THIS PLAN SHEET, AND REMOVE SB 3-2 AND PA 4-1, WHICH ARE SHOWN ON DWG. NO. ES-01. DEWATER BETWEEN THE SANDBAGS. ALL WATER COLLECTING IN THE WORK AREA SHALL BE PUMPED TO FILTER BAG FB 5-1.

D. ONCE SANDBAGS ARE INSTALLED AND PUMP AROUND PRACTICES FUNCTIONING, AND WITH APPROVAL FROM THE INSPECTOR, CONSTRUCT AND GRADE STREAM CHANNEL AND IN STREAM STRUCTURES AS SHOWN ON THE PLANS, WITHIN THE PHASE 5 STA. LIMITS AS SPECIFIED IN SEQUENCE OF CONSTRUCTION GENERAL NOTE 4 ON DRAWING NO. ES-01, EXCEPT FOR THE STREAM CHANNEL WITHIN THE TAB I-1 LIMITS. AFTER THE PHASE 5 PROPOSED FEATURES ARE CONSTRUCTED, REMOVE TAB I-1 AND INSTALL THE REMAINDER GRADING AND STRUCTURES WITHIN THE TAB I-1 LIMITS. INSTALL LANDSCAPING WITHIN THE PHASE 5 LOD.

E. WHEN ALL AREAS ARE STABILIZED AND PERMANENT VEGETATION IS ESTABLISHED, AND WITH PERMISSION OF THE INSPECTOR, THE CONTRACTOR IS TO REMOVE ALL REMAINING SEDIMENT CONTROL MEASURES, STABILIZE THE STAGING AND STOCKPILING AREAS, STABILIZE ALL REMAINING AREAS DAMAGED BY THE REMOVAL PROCESS, PERMANENTLY STABILIZE REMAINDER OF PROJECT SITE AS PER THE LANDSCAPING PLANS, AND REMOVE ALL REMAINING TREE PROTECTION FENCE WITHIN THE PROJECT LIMITS. ONCE SCE I-1 HAS BEEN REMOVED, REPLACE THE CURB AND GUTTER AT THE CUL-DE-SAC TO RESTORE THE CURB AND GUTTER TO ITS EXISTING CONDITION. NOTE THAT THE 8" THICK MULCH ACCESS PATH AND TIMBER MATTING (IN WETLAND AREAS) IS TO BE REMOVED AFTER CONSTRUCTION IS COMPLETE AND AFTER THE SURROUNDING PROJECT SITE HAS BEEN PERMANENTLY STABILIZED.

NOTICE TO CONTRACTOR- EROSION AND SEDIMENT CONTROL WILL BE STRICTLY ENFORCED.

LEGEND

NOTE- SEE DWG. NO. AB-01 FOR OTHER FEATURES.	TEMP. BRIDGE (TB)	TEMPORARY ACCESS BRIDGE
LOD	TEMP. DIVERSION BARRIER	TIMBER MATTING FOR ACCESS PATH
LOC	8" THICK MULCH	FILTER BAG
TPF	PROPOSED RIPRAP	TEMP. DIVERSION BARRIER
PROP. CHANNEL	STABILIZED CONSTRUCTION ENTRANCE	8" THICK MULCH
PROP. CONTOUR	24" CWD	PROPOSED RIPRAP
18" FL	RIGHT OF WAY LINE	STABILIZED CONSTRUCTION ENTRANCE
SF	SANDBAG BARRIER	24" CWD
EX. TREE REMOVAL		RIGHT OF WAY LINE
DISCHARGE HOSE		SANDBAG BARRIER
PUMP		

TREE PROTECTION FENCE (TPF)*		
100 LF	PERIMETER AROUND EX. TREES AS SHOWN	(5 EX. TREES)

*NOTE- TO BE PAID FOR UNDER THE TEMPORARY ORANGE CONSTRUCTION FENCE PAY ITEM.

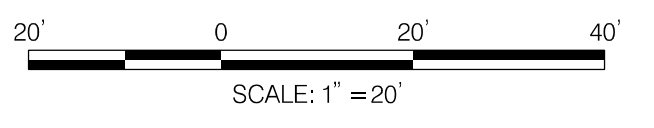
SANDBAGS (SB)		
•	TRIB- STA. 24+60, 10' LT TO STA. 24+62, 12' RT	H=2 FT. MIN.** SB 4-1

*NOTE- QUANTITY SPECIFIED ON PHASE 4 PLAN SHEET (DWG. NO. ES-07).
**NOTE- THE TOP ELEVATION OF THE SB SHOULD TIE INTO THE EX. GROUND ELEVATION ON BOTH TERMINAL ENDS OF THE SB BARRIER.

PUMP AROUND (PA)		
•	TRIBUTARY- STA. 24+62, BASELINE TO STA. 27+61, 8' RT	PA 5-1

* COST FOR HOSE AND PUMP INCIDENTAL TO MAINTNEANCE OF STREAM FLOW PAY ITEM.

- NOTES:
1. THE EROSION AND SEDIMENT CONTROL (ES) PLAN IS PRESENTED IN FIVE (5) CONSTRUCTION PHASES SHOWN ON PLAN SHEET ES-01 THROUGH ES-09.
 2. SEE SHEETS SR-01 TO SR-03 FOR PROPOSED STREAM RESTORATION MEASURES, AND PR-01 TO PR-03 FOR PROPOSED PROFILES. FOR LANDSCAPING PLANS, SEE DWG. NO. LP-01 TO LP-03.
 3. THE CONTRACTOR AND ITS DRIVERS SHALL TAKE EXTRA PRECAUTION WHEN DRIVING AND HAULING MATERIALS ON THE ACCESS ROAD, SITE AREAS AND CHANNEL TO MINIMIZE IMPACT TO EXISTING FEATURES SUCH AS TREES, WETLANDS, WATERS OF THE U.S., THE STREAM BED, CHANNEL SLOPES, AND NEWLY CONSTRUCTED FEATURES.
 4. FOR MAINTENANCE AND REMOVAL OF PUMP AROUND PRACTICES, SEE CRITERIA SPECIFIED ON DWG. NO. EN-04.



HORIZONTAL DATUM NAD 83/91
VERTICAL DATUM NAVD 88
MDE # 19-SF-0196; 18-NT-0086

CONSTELLATION DESIGN GROUP, INC.
CONSULTING ENGINEERS
57 W. TIMONIUM ROAD
SUITE 200
TIMONIUM, MD 21093
410-252-1884

Maryland Transportation Authority
Engineering Division

ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	GRADING, RGC, AND EXCAVATION ADJUSTMENTS	JCT	6/16/20

**I-95 EXPRESS TOLL LANES NORTHBOUND EXTENSION
CARSINS RUN STREAM RESTORATION**

JOHN F. KENNEDY MEMORIAL HIGHWAY
HARFORD COUNTY
PHASE 5
EROSION & SEDIMENT CONTROL PLAN

DESIGNED BY DJW DRAWN BY JCT CHECKED BY CDG
CONST. REVIEW BY DATE OCTOBER 2019 SCALE 1" = 20'

CONTRACT NO. KH-3028-0000
DRAWING NO. ES-08
SHEET NO. 29 OF 87

PUMP AROUND (PA)		
•	TRIBUTARY- STA. 27+61, 8' RT TO STA. 27+98, 1' LT	PA 5-1
•	TRIBUTARY- STA. 27+89, 1' RT TO STA. 27+94, 35' RT	PA 5-2

• COST FOR HOSE AND PUMP INCIDENTAL TO MAINTANCE OF STREAM FLOW PAY ITEM.

FILTER BAG (FB)		
1 EA	TRIBUTARY- STA. 28+09, 35' RT	FB 5-1

RIPRAP OUTLET PROTECTION (ROP)		
•	TRIBUTARY- STA. 27+99, BASELINE (5'LX5'WX19'D)	ROP 5-1

• COST FOR RIPRAP TO BE INCIDENTAL TO MAINTANCE OF STREAM FLOW PAY ITEM.

18 INCH FILTER LOG (FL)		
42 LF	TRIBUTARY- STA. 28+16, 29' RT TO STA. 27+89, 16' RT	FL 5-1

SANDBAGS (SB)		
7 CY TRIB-	STA. 27+93, 13' LT TO STA. 27+90, 16' RT H=2 FT. MIN. •	SB 5-1

*NOTE- THE TOP ELEVATION OF THE SB SHOULD TIE INTO THE EX. GROUND ELEVATION ON BOTH TERMINAL ENDS OF THE SB BARRIER.

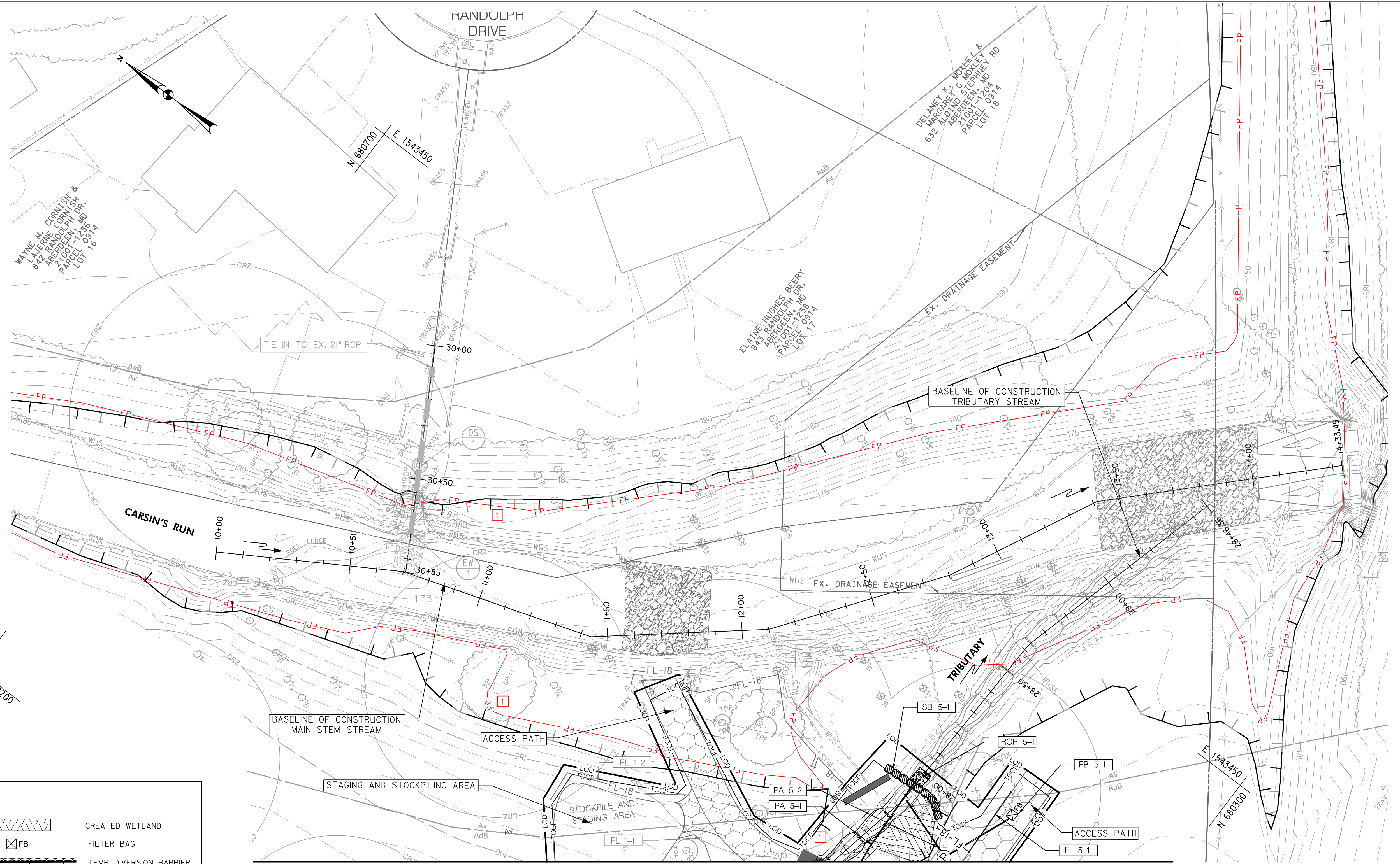
NOTES:

1. THE EROSION AND SEDIMENT CONTROL (ES) PLAN IS PRESENTED IN FIVE (5) CONSTRUCTION PHASES SHOWN ON PLAN SHEET ES-01 THROUGH ES-09.
2. SEE SHEETS SR-01 TO SR-03 FOR PROPOSED STREAM RESTORATION MEASURES, AND PR-01 TO PR-03 FOR PROPOSED PROFILES. FOR LANDSCAPING PLANS, SEE DWG. NO. LP-01 TO LP-03.
3. THE CONTRACTOR AND ITS DRIVERS SHALL TAKE EXTRA PRECAUTION WHEN DRIVING AND HAULING MATERIALS ON THE ACCESS ROAD, SITE AREAS AND CHANNEL TO MINIMIZE IMPACT TO EXISTING FEATURES SUCH AS TREES, WETLANDS, WATERS OF THE U.S., THE STREAM BED, CHANNEL SLOPES, AND NEWLY CONSTRUCTED FEATURES.
4. FOR MAINTENANCE AND REMOVAL OF PUMP AROUND PRACTICES, SEE CRITERIA SPECIFIED ON DWG. NO. EN-04.

LEGEND

NOTE- SEE DWG. NO. AB-01 FOR OTHER FEATURES.

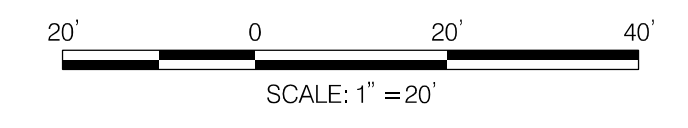
	SANDBAG BARRIER		CREATED WETLAND
	LIMITS OF DISTURBANCE		FILTER BAG
	TREE PROTECTION FENCE (TPF)		TEMP. DIVERSION BARRIER
	PROP. CHANNEL		8" THICK MULCH ACCESS PATH
	PROP. CONTOUR		PROPOSED RIPRAP
	18 INCH DIAMETER FILTER LOG		STABILIZED CONSTRUCTION ENTRANCE
	SILT FENCE		24 INCH DIAMETER CLEAR WATER DIVERSION PIPE
	EX. TREE REMOVAL		RIGHT OF WAY LINE
	DISCHARGE HOSE		
	PUMP		



NOTICE TO CONTRACTOR- EROSION AND SEDIMENT CONTROL WILL BE STRICTLY ENFORCED.

PHASE 5- DOWNSTREAM TRIBUTARY STREAM WORK

MATCH LINE - SEE ES-08



HORIZONTAL DATUM NAD 83/91
 VERTICAL DATUM NAVD 88
 MDE # 19-SF-0196; 18-NT-0086

CONSTELLATION DESIGN GROUP, INC.
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Maryland Transportation Authority
 Engineering Division

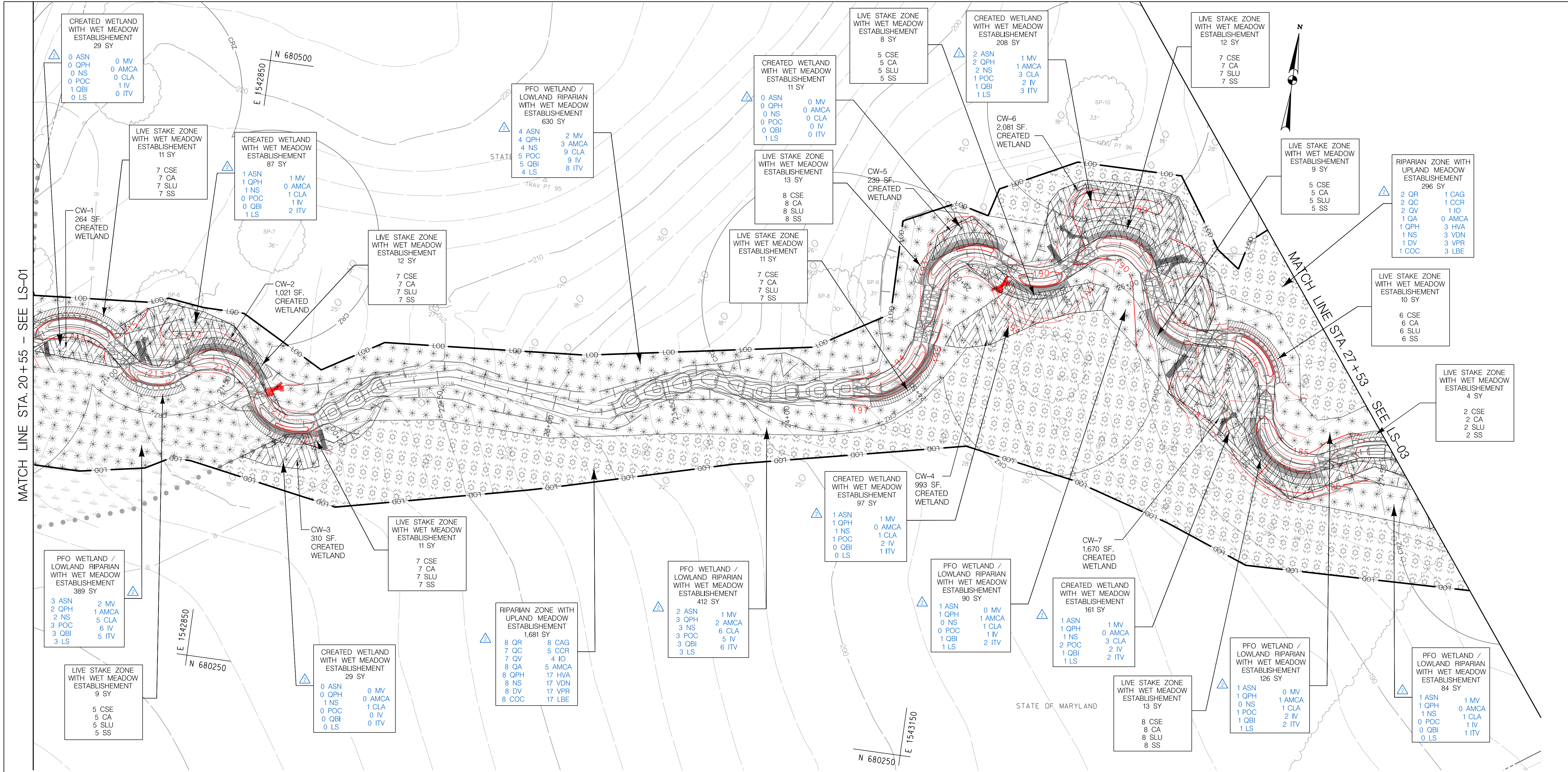
ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	ADD 100-YR FLOODPLAIN- MD PERMIT (FEMA)	JCT	6/16/20

**I-95 EXPRESS TOLL LANES NORTHBOUND EXTENSION
 CARBINS RUN STREAM RESTORATION**

JOHN F. KENNEDY MEMORIAL HIGHWAY
 HARFORD COUNTY
 PHASE 5
 EROSION & SEDIMENT CONTROL PLAN

DESIGNED BY DJW DRAWN BY JCT CHECKED BY CDG
 CONST. REVIEW BY DATE OCTOBER 2019 SCALE 1" = 20'

CONTRACT NO. KH-3028-0000
DRAWING NO. ES-09
SHEET NO. 30 OF 87

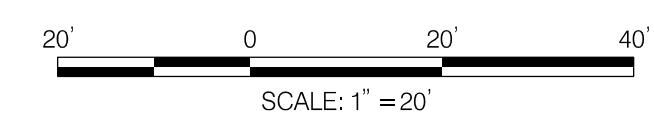


NOTES:
 1. NO WOODY PLANT MATERIAL SHALL BE INSTALLED BELOW THE STREAM'S INDICATORS OF FREQUENT FLOWS.
 2. NO WOODY PLANT MATERIAL SHALL BE INSTALLED IN THE CENTER OF THE STREAM CHANNEL.

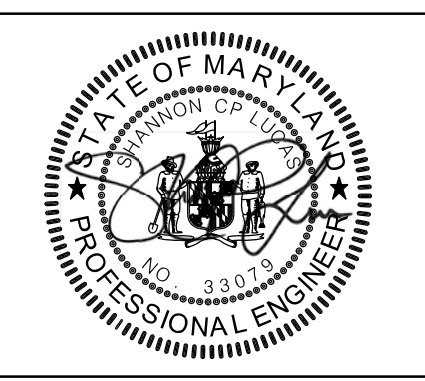
LEGEND

	RIPARIAN ZONE		PFO WETLAND / LOWLAND RIPARIAN ZONE
	LIVE STAKES ZONE		TURF GRASS ZONE
	CREATED WETLANDS		

HORIZONTAL DATUM NAD 83/91
 VERTICAL DATUM NAVD 88
 MDE # 19-SF-0196; 18-NT-0086



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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE
ADDENDUM NO. 2	REVISE TREE/SHRUB QTY'S	SL	1/16/20
REACH 18.3	GRADING ADJUSTMENTS	SL	6/16/20

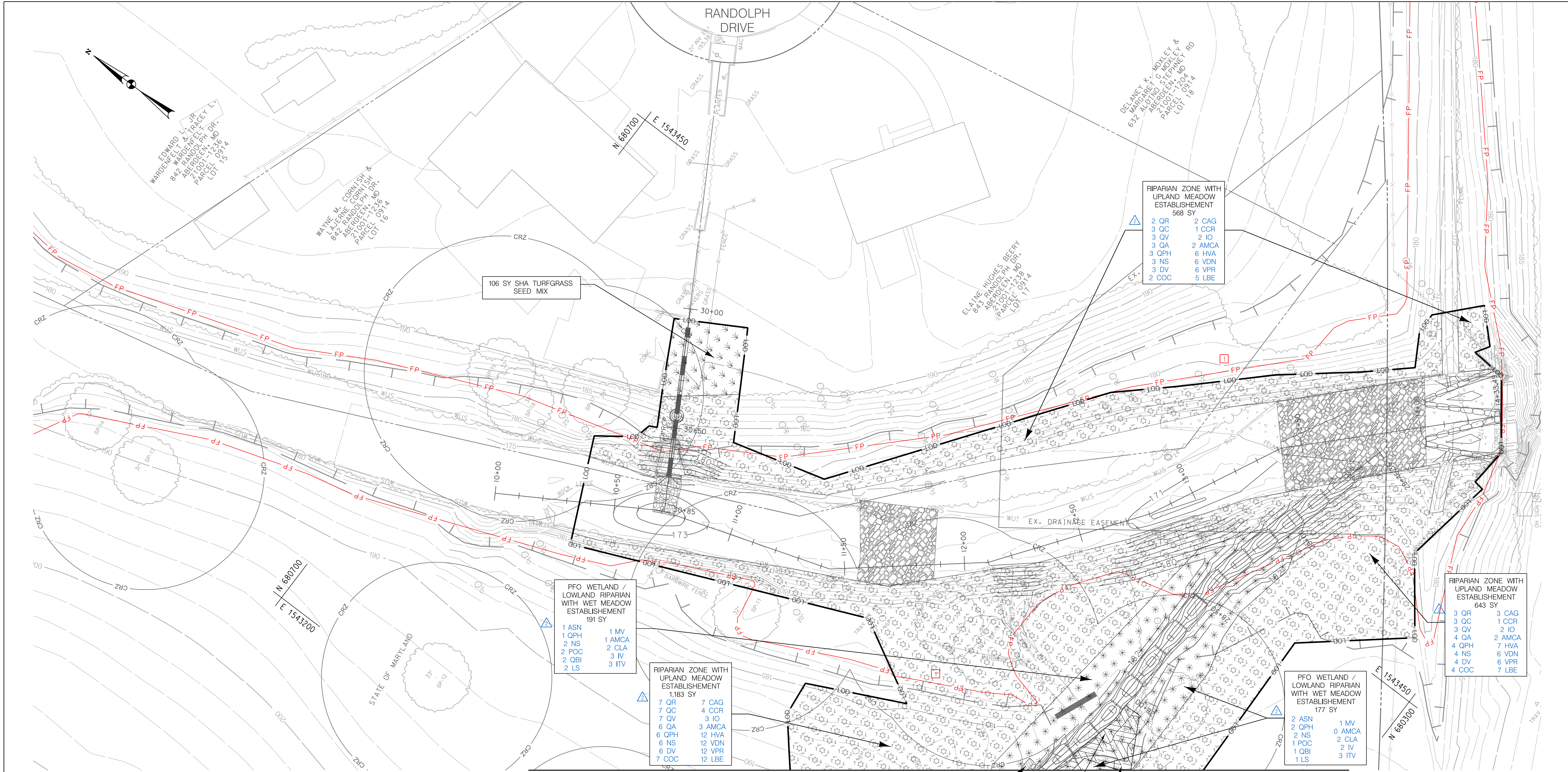
**I-95 EXPRESS TOLL LANES NORTHBOUND EXTENSION
 CARSENS RUN STREAM RESTORATION**

JOHN F. KENNEDY MEMORIAL HIGHWAY
 HARFORD COUNTY

LANDSCAPE PLAN

DESIGNED BY SL, AW, SD DRAWN BY CSD, KP, AW, JS CHECKED BY SL, GM, JB
 CONST. REVIEW BY _____ DATE OCTOBER, 2019 SCALE 1" = 20'

CONTRACT NO. KH-3028-0000
 DRAWING NO. **LS-02**
 SHEET NO. 32 OF 87
 UPDATED: 31JUL18



NOTES:
 1. NO WOODY PLANT MATERIAL SHALL BE INSTALLED BELOW THE STREAM'S INDICATORS OF FREQUENT FLOWS.
 2. NO WOODY PLANT MATERIAL SHALL BE INSTALLED IN THE CENTER OF THE STREAM CHANNEL.

LEGEND

	RIPARIAN ZONE		PFO WETLAND / LOWLAND RIPARIAN ZONE
	LIVE STAKES ZONE		TURF GRASS ZONE
	CREATED WETLANDS		

HORIZONTAL DATUM NAD 83/91
 VERTICAL DATUM NAVD 88
 MDE # 19-SF-0196; 18-NT-0086

SCALE: 1" = 20'

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STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 NO. 3307

MDTA
Maryland Transportation Authority
Engineering Division

ADDENDUMS & REVISIONS

NO.	DESCRIPTION	BY	DATE
▲	ADDENDUM NO. 2 - REVISE TREE/SHRUB QTYS	SL	1/16/20
□	ADD 100-YEAR FLOODPLAIN-MD PERMIT (FEMA)	SL	6/16/20

**I-95 EXPRESS TOLL LANES NORTHBOUND EXTENSION
 CARNS RUN STREAM RESTORATION**

JOHN F. KENNEDY MEMORIAL HIGHWAY
 HARFORD COUNTY

LANDSCAPE PLAN

DESIGNED BY SL, AW, SD
 DRAWN BY CSD, KP, AW, JS
 CHECKED BY SL, GM, JB

CONTRACT NO. KH-3028-0000
 DRAWING NO. **LS-03**
 SHEET NO. 33 OF 87
 UPDATED: 31JUL18

MASTER PLANT SCHEDULE FOR LS-01

PFO WETLAND /LOWLAND RIPARIAN ZONE AND CREATED WETLANDS ZONE

(4,885 SQ FT /0.11 AC)

Key	Qty	Botanical Name	Common Name	Size	Form	Spacing	Notes
TREES							
ASN	4	Acer saccharinum	Silver Maple	1" Caliper	*7 Cont.	10' O.C.	FACW; FS/PS
OPH	4	Quercus phellos	Willow Oak	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
NS	4	Nyssa sylvatica	Black Gum	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
POC	4	Platanus occidentalis	Sycamore	1" Caliper	*7 Cont.	10' O.C.	FACW; FS/PS
OBI	3	Quercus bicolor	Swamp White Oak	1" Caliper	*7 Cont.	10' O.C.	FACW; FS/PS
LS	3	Liquidambar styraciflua	Sweet Gum	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
UNDERSTORY TREES							
MV	2	Magnolia virginiana	Sweetbay magnolia	5-6' Height Min.	*5 Cont.	10' O.C.	FACW; FS/PS/SH
AMCA	2	Amelanchier canadensis	Serviceberry	5-6' Height Min.	*5 Cont.	10' O.C.	FAC; PS/SH
SHRUBS							
CLA	8	Clethra alnifolia	Sweet Pepperbush	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FAC; PS/SH
IG	0	Ilex glabra	Inkberry	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FAC; PS/PS/SH
IV	7	Ilex verticillata	Winterberry	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FACW; FS/PS/SH
ITV	7	Itea virginica	Virginia Sweetspire	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	OBL; FS/PS/SH

• PLANT 1 MALE ILEX FOR EVERY 5 FEMALE ILEX

LIVE STAKE ZONES
(47 SQ FT/0.00 AC /42 LF)

Key	Qty	Botanical Name	Common Name	Size	Form	Spacing/Rate
CSE	3	Cornus sericea	Red Osier Dogwood	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
CA	3	Cornus amomum	Silky Dogwood	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
SLU	3	Salix lucida	Shinning willow	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
SS	3	Salix sericea	Silky willow	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.

LIVE STAKES FOR TOE BOULDER AND WOODY TOE ZONES
(16 LF)

Key	Qty	Botanical Name	Common Name	Size	Form	Spacing/Rate
CSE	2	Cornus sericea	Red Osier Dogwood	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
CA	2	Cornus amomum	Silky Dogwood	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
SLU	2	Salix lucida	Shinning willow	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
SS	2	Salix sericea	Silky willow	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.

PERMANENT SEEDING FOR PFO WETLAND /LOWLAND RIPARIAN, CREATED WETLANDS, AND LIVE STAKE ZONES

(4,932 SQ FT /0.11 AC)

Qty(SY)	Botanical Name
548	SHA WET MEADOW SEED MIX

TURF GRASS ZONE
(15,480 SQ FT /0.36 AC)

Qty(SY)	Botanical Name
1,720	SHA TURFGRASS SEED MIX (920,06.07(G))

Application Rate of 200 lbs / ac

MISCELLANEOUS ITEMS

Qty (SY)	Material
60	Natural Fiber Matting (Type D Soil Stabilization Matting)
907	Placing Furnished Topsoil (4' Depth)
1,361	Placing Salvaged Topsoil (4' Depth)

MASTER PLANT SCHEDULE FOR LS-02

RIPARIAN ZONE

(17,795 SQ FT /0.41 AC)

Key	Qty	Botanical Name	Common Name	Size	Form	Spacing	Notes
TREES							
OR	10	Quercus rubra	Northern Red Oak	1" Caliper	*7 Cont.	10' O.C.	FACU; FS/PS
OC	9	Quercus coccinea	Scarlet Oak	1" Caliper	*7 Cont.	10' O.C.	Nt; FS
OQ	9	Quercus velutina	Black Oak	1" Caliper	*7 Cont.	10' O.C.	Nt; FS
OA	9	Quercus alba	White Oak	1" Caliper	*7 Cont.	10' O.C.	FACU; FS/PS
OPH	9	Quercus phellos	Willow Oak	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
NS	9	Nyssa sylvatica	Black Gum	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
DV	9	Diospyros virginiana	Persimmon	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
COC	9	Celtis occidentalis	Common Hackberry	1" Caliper	*7 Cont.	10' O.C.	FACU; FS/PS/SH
CAG	9	Carya glabra	Pignut Hickory	1" Caliper	*7 Cont.	10' O.C.	FACU; FS/PS
UNDERSTORY TREES							
CCR	6	Carpinus caroliniana	Muscledwood	5-6' Height Min.	*5 Cont.	10' O.C.	FAC; PS/SH
IO	5	Ilex opaca	American Holly	5-6' Height Min.	*5 Cont.	10' O.C.	FACU; FS/PS/SH
AMCA	5	Amelanchier canadensis	Serviceberry	5-6' Height Min.	*5 Cont.	10' O.C.	FAC; PS/SH
SHRUBS							
HVA	20	Hamamelis virginiana	Witch Hazel	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FACU; PS/SH
VDN	20	Viburnum dentatum	Southern Arrowwood	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FAC; FS/PS/SH
VPR	20	Viburnum prunifolium	Black Haw	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FACU; FS/PS/SH
LBE	20	Lindera benzoin	Northern Spicebush	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FAC; PS/SH

• PLANT 1 MALE ILEX FOR EVERY 5 FEMALE ILEX

PFO WETLAND /LOWLAND RIPARIAN ZONE AND CREATED WETLANDS ZONE

(21,167 SQ FT /0.49 AC)

Key	Qty	Botanical Name	Common Name	Size	Form	Spacing	Notes
TREES							
ASN	17	Acer saccharinum	Silver Maple	1" Caliper	*7 Cont.	10' O.C.	FACW; FS/PS
OPH	17	Quercus phellos	Willow Oak	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
NS	16	Nyssa sylvatica	Black Gum	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
POC	16	Platanus occidentalis	Sycamore	1" Caliper	*7 Cont.	10' O.C.	FACW; FS/PS
OBI	16	Quercus bicolor	Swamp White Oak	1" Caliper	*7 Cont.	10' O.C.	FACW; FS/PS
LS	16	Liquidambar styraciflua	Sweet Gum	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
UNDERSTORY TREES							
MV	10	Magnolia virginiana	Sweetbay magnolia	5-6' Height Min.	*5 Cont.	10' O.C.	FACW; FS/PS/SH
AMCA	9	Amelanchier canadensis	Serviceberry	5-6' Height Min.	*5 Cont.	10' O.C.	FAC; PS/SH
SHRUBS							
CLA	32	Clethra alnifolia	Sweet Pepperbush	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FAC; PS/SH
IG	0	Ilex glabra	Inkberry	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	15' O.C.	FAC; FS/PS/SH
IV	32	Ilex verticillata	Winterberry	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FACW; FS/PS/SH
ITV	32	Itea virginica	Virginia Sweetspire	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	OBL; FS/PS/SH

• PLANT 1 MALE ILEX FOR EVERY 5 FEMALE ILEX

LIVE STAKE ZONES
(1,094 SQ FT/0.03 AC /939 LF)

Key	Qty	Botanical Name	Common Name	Size	Form	Spacing/Rate
CSE	74	Cornus sericea	Red Osier Dogwood	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
CA	74	Cornus amomum	Silky Dogwood	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
SLU	74	Salix lucida	Shinning willow	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
SS	74	Salix sericea	Silky willow	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.

LIVE STAKES FOR TOE BOULDER AND WOODY TOE ZONES
(405 LF)

Key	Qty	Botanical Name	Common Name	Size	Form	Spacing/Rate
CSE	51	Cornus sericea	Red Osier Dogwood	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
CA	51	Cornus amomum	Silky Dogwood	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
SLU	51	Salix lucida	Shinning willow	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
SS	51	Salix sericea	Silky willow	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.

PERMANENT SEEDING FOR PFO WETLAND /LOWLAND RIPARIAN, CREATED WETLANDS, AND LIVE STAKE ZONES

(22,261 SQ FT /0.51 AC)

Qty(SY)	Botanical Name
2,476	SHA WET MEADOW SEED MIX

PERMANENT SEEDING FOR THE RIPARIAN ZONE

(17,795 SQ FT /0.41 AC)

Qty(SY)	Botanical Name
1,977	SHA UPLAND MEADOW MIX

MISCELLANEOUS ITEMS

Qty	Material
1,129 SY	Natural Fiber Matting (Type D Soil Stabilization Matting)
1,781 SY	Placing Furnished Topsoil (4' Depth)
2,672 SY	Placing Salvaged Topsoil (4' Depth)
351 LF	Tree Root Pruning

MASTER PLANT SCHEDULE FOR LS-03

RIPARIAN ZONE

(21,543 SQ FT /0.49 AC)

Key	Qty	Botanical Name	Common Name	Size	Form	Spacing	Notes
TREES							
OR	12	Quercus rubra	Northern Red Oak	1" Caliper	*7 Cont.	10' O.C.	FACU; FS/PS
OC	13	Quercus coccinea	Scarlet Oak	1" Caliper	*7 Cont.	10' O.C.	Nt; FS
OQ	13	Quercus velutina	Black Oak	1" Caliper	*7 Cont.	10' O.C.	Nt; FS
OA	13	Quercus alba	White Oak	1" Caliper	*7 Cont.	10' O.C.	FACU; FS/PS
OPH	13	Quercus phellos	Willow Oak	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
NS	13	Nyssa sylvatica	Black Gum	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
DV	13	Diospyros virginiana	Persimmon	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
COC	13	Celtis occidentalis	Common Hackberry	1" Caliper	*7 Cont.	10' O.C.	FACU; FS/PS/SH
CAG	12	Carya glabra	Pignut Hickory	1" Caliper	*7 Cont.	10' O.C.	FACU; FS/PS
UNDERSTORY TREES							
CCR	6	Carpinus caroliniana	Muscledwood	5-6' Height Min.	*5 Cont.	10' O.C.	FAC; PS/SH
IO	7	Ilex opaca	American Holly	5-6' Height Min.	*5 Cont.	10' O.C.	FACU; FS/PS/SH
AMCA	7	Amelanchier canadensis	Serviceberry	5-6' Height Min.	*5 Cont.	10' O.C.	FAC; PS/SH
SHRUBS							
HVA	25	Hamamelis virginiana	Witch Hazel	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FACU; PS/SH
VDN	24	Viburnum dentatum	Southern Arrowwood	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FAC; FS/PS/SH
VPR	24	Viburnum prunifolium	Black Haw	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FACU; FS/PS/SH
LBE	24	Lindera benzoin	Northern Spicebush	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FAC; PS/SH

• PLANT 1 MALE ILEX FOR EVERY 5 FEMALE ILEX

PFO WETLAND /LOWLAND RIPARIAN ZONE AND CREATED WETLANDS ZONE

(3,753 SQ FT /0.09 AC)

Key	Qty	Botanical Name	Common Name	Size	Form	Spacing	Notes
TREES							
ASN	3	Acer saccharinum	Silver Maple	1" Caliper	*7 Cont.	10' O.C.	FACW; FS/PS
OPH	3	Quercus phellos	Willow Oak	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
NS	4	Nyssa sylvatica	Black Gum	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
POC	3	Platanus occidentalis	Sycamore	1" Caliper	*7 Cont.	10' O.C.	FACW; FS/PS
OBI	4	Quercus bicolor	Swamp White Oak	1" Caliper	*7 Cont.	10' O.C.	FACW; FS/PS
LS	4	Liquidambar styraciflua	Sweet Gum	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
UNDERSTORY TREES							
MV	1	Magnolia virginiana	Sweetbay magnolia	5-6' Height Min.	*5 Cont.	10' O.C.	FACW; FS/PS/SH
AMCA	2	Amelanchier canadensis	Serviceberry	5-6' Height Min.	*5 Cont.	10' O.C.	FAC; PS/SH
SHRUBS							
CLA	5	Clethra alnifolia	Sweet Pepperbush	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FAC; PS/SH
IG	0	Ilex glabra	Inkberry	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	15' O.C.	FAC; FS/PS/SH
IV	6	Ilex verticillata	Winterberry	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FACW; FS/PS/SH
ITV	6	Itea virginica	Virginia Sweetspire	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	OBL; FS/PS/SH

• PLANT 1 MALE ILEX FOR EVERY 5 FEMALE ILEX

LIVE STAKE ZONES
(13 SQ FT/0.00 AC /5 LF)

Key	Qty	Botanical Name	Common Name	Size	Form	Spacing/Rate
CSE	1	Cornus sericea	Red Osier Dogwood	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
CA	1	Cornus amomum	Silky Dogwood	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
SLU	1	Salix lucida	Shinning willow	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.
SS	1	Salix sericea	Silky willow	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.

PERMANENT SEEDING FOR PFO WETLAND /LOWLAND RIPARIAN, CREATED WETLANDS, AND LIVE STAKE ZONES

(3,756 SQ FT /0.09 AC)

Qty(SY)	Botanical Name
417	SHA WET MEADOW SEED MIX

PERMANENT SEEDING FOR THE RIPARIAN ZONE

(21,543 SQ FT /0.49 AC)

Qty(SY)	Botanical Name
2,394	SHA UPLAND MEADOW MIX

TURF GRASS ZONE

(958 SQ FT /0.02 AC)

Qty(SY)	Botanical Name
106	SHA TURFGRASS SEED MIX (920,06.07(G))

Application Rate of 200 lbs / ac

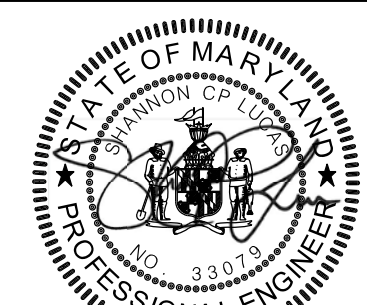
MISCELLANEOUS ITEMS

Qty	Material
506 SY	Natural Fiber Matting (Type D Soil Stabilization Matting)
1,167 SY	Placing Furnished Topsoil (4' Depth)
1,750 SY	Placing Salvaged Topsoil (4' Depth)
362 LF	Tree Root Pruning

HORIZONTAL DATUM NAD 83/91
VERTICAL DATUM NAVD 88
MDE # 19-SF-0196; 18-NT-0086

NOTES COLUMN KEY:
NI - NON INDICATOR
FACU - FACULTATIVE UPLAND
FAC - FACULTATIVE
FACW - FACULTATIVE WET
OBL - OBLIGATE WETLAND
FS - FULL SUN
PS - PARTIAL SHADE
SH - SHADE

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NO.	DESCRIPTION	BY	DATE
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MASTER PLANT SCHEDULE FOR ALL SHEETS

RIPARIAN ZONE (SHEETS 32-33)							
(39,338 SQ. FT. / 0.9 AC)							
Key	Qty	Botanical Name	Common Name	Size	Form	Spacing	Notes
TREES							
OR	22	Quercus rubra	Northern Red Oak	1" Caliper	*7 Cont.	10' O.C.	FACU; FS/PS
OC	22	Quercus coccinea	Scarlet Oak	1" Caliper	*7 Cont.	10' O.C.	NI; FS
OV	22	Quercus velutina	Black Oak	1" Caliper	*7 Cont.	10' O.C.	NI; FS
OA	22	Quercus alba	White Oak	1" Caliper	*7 Cont.	10' O.C.	FACU; FS/PS
OPH	22	Quercus phellos	Willow Oak	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
NS	22	Nyssa sylvatica	Black Gum	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
DV	22	Diospyros virginiana	Persimmon	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
COC	22	Celtis occidentalis	Common Hackberry	1" Caliper	*7 Cont.	10' O.C.	FACU; FS/PS/SH
CAG	21	Carya glabra	Pignut Hickory	1" Caliper	*7 Cont.	10' O.C.	FACU; FS/PS
UNDERSTORY TREES							
CCR	12	Carpinus caroliniana	Musclewood	5-6' Height Min.	*5 Cont.	10' O.C.	FAC; PS/SH
IO	12	Ilex opaca*	American Holly	5-6' Height Min.	*5 Cont.	10' O.C.	FACU; FS/PS/SH
AMCA	12	Amelanchier canadensis	Serviceberry	5-6' Height Min.	*5 Cont.	10' O.C.	FAC; PS/SH
SHRUBS							
HVA	45	Hamamelis virginiana	Witch Hazel	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FACU; PS/SH
VDN	44	Viburnum dentatum	Southern Arrowwood	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FAC; FS/PS/SH
VPR	44	Viburnum prunifolium	Black Haw	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FACU; FS/PS/SH
LBE	44	Lindera benzoin	Northern Spicebush	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FAC; PS/SH

PFO WETLAND /LOWLAND RIPARIAN ZONE AND CREATED WETLANDS ZONE (SHEETS 31-33)							
(29,805 SQ. FT. / 0.68 AC)							
TREES							
ASN	24	Acer saccharinum	Silver Maple	1" Caliper	*7 Cont.	10' O.C.	FACW; FS/PS
OPH	24	Quercus phellos	Willow Oak	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
NS	24	Nyssa sylvatica	Black Gum	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
POC	23	Platanus occidentalis	Sycamore	1" Caliper	*7 Cont.	10' O.C.	FACW; FS/PS
OBI	23	Quercus bicolor	Swamp White Oak	1" Caliper	*7 Cont.	10' O.C.	FACW; FS/PS
LS	23	Liquidambar styraciflua	Sweet Gum	1" Caliper	*7 Cont.	10' O.C.	FAC; FS/PS
UNDERSTORY TREES							
MV	13	Magnolia virginiana	Sweet Magnolia	5-6' Height Min.	*5 Cont.	10' O.C.	FACW; FS/PS/SH
AMCA	13	Amelanchier canadensis	Serviceberry	5-6' Height Min.	*5 Cont.	10' O.C.	FAC; PS/SH
SHRUBS							
CLA	45	Clethra alnifolia	Sweet Pepperbush	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FAC; PS/SH
IG	0	Ilex glabra	Holly	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	15' O.C.	FAC; FS/PS/SH
IV	45	Ilex verticillata*	Winterberry	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	FACW; FS/PS/SH
ITV	45	Itea virginica	Virginia Sweetspire	2-3' Ht. Min. / Multi-stemmed	*3 Cont.	10' O.C.	OBL; FS/PS/SH

LIVE STAKE ZONES (SHEETS 31-33)							
(1,154 SQ. FT. / 0.03 AC / 986 LF)							
Key	Qty	Botanical Name	Common Name	Size	Form	Spacing/Rate	
CSE	78	Cornus sericea	Red Osier Dogwood	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.	
CA	78	Cornus amomum	Silky Dogwood	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.	
SLU	78	Salix lucida	Shining Willow	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.	
SS	78	Salix sericea	Silky Willow	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.	

LIVE STAKES FOR TOE BOULDER AND WOODY TOE ZONES (SHEETS 31-32)							
(421 LF)							
Key	Qty	Botanical Name	Common Name	Size	Form	Spacing/Rate	
CSE	53	Cornus sericea	Red Osier Dogwood	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.	
CA	53	Cornus amomum	Silky Dogwood	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.	
SLU	53	Salix lucida	Shining Willow	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.	
SS	53	Salix sericea	Silky Willow	3' Length 0.5"-1.5" dia.	Dormant Stems	2' O.C.	

MISCELLANEOUS ITEMS (SHEETS 27-29)							
Qty	Common Name						
1,695 SY	Natural Fiber Matting (Type D Soil Stabilization Matting)						
3,855 SY	Placing Furnished Topsoil (4" Depth)						
5,783 SY	Placing Salvaged Topsoil (4" Depth)						
713 LF	Tree Root Pruning						

Meadow Establishment Seeding Times							
Region	Spring	Summer	Fall	Late Fall	Winter		
2	3/1 to 5/14	5/15 to 7/31	8/1 to 10/14	10/15 to 11/30	12/1 to 2/29		
	Plus Additive A	Plus Additive B	Plus Additive C	Plus Additive D	Plus Additive E		
	Plus Additive B	Plus Additive C	Plus Additive D	Plus Additive E	Plus Additive A		

Turfgrass Establishment Seeding Times							
Region	Spring	Summer	Fall	Late Fall	Winter		
2	3/1 to 5/14	5/15 to 7/31	8/1 to 10/14	10/15 to 11/15	11/16 to 2/29		
		Plus Additive					

NOTES:

- NO WOODY PLANT MATERIAL SHALL BE INSTALLED BELOW THE STREAM'S INDICATORS OF FREQUENT FLOWS.
- NO WOODY PLANT MATERIAL SHALL BE INSTALLED IN THE CENTER OF THE STREAM CHANNEL.
- NO PLANTING SHALL OCCUR UNTIL AFTER CONSTRUCTION IS FINISHED.
- TREES AND UNDERSTORY TREES ACCOUNT FOR 90% OF THE PLANTING AREA AND SHRUBS ACCOUNT FOR 10%.

NOTES COLUMN KEY:
 NI - NON INDICATOR
 FACU - FACULTATIVE UPLAND
 FAC - FACULTATIVE
 FACW - FACULTATIVE WET
 OBL - OBLIGATE WETLAND
 FS - FULL SUN
 PS - PARTIAL SHADE
 SH - SHADE

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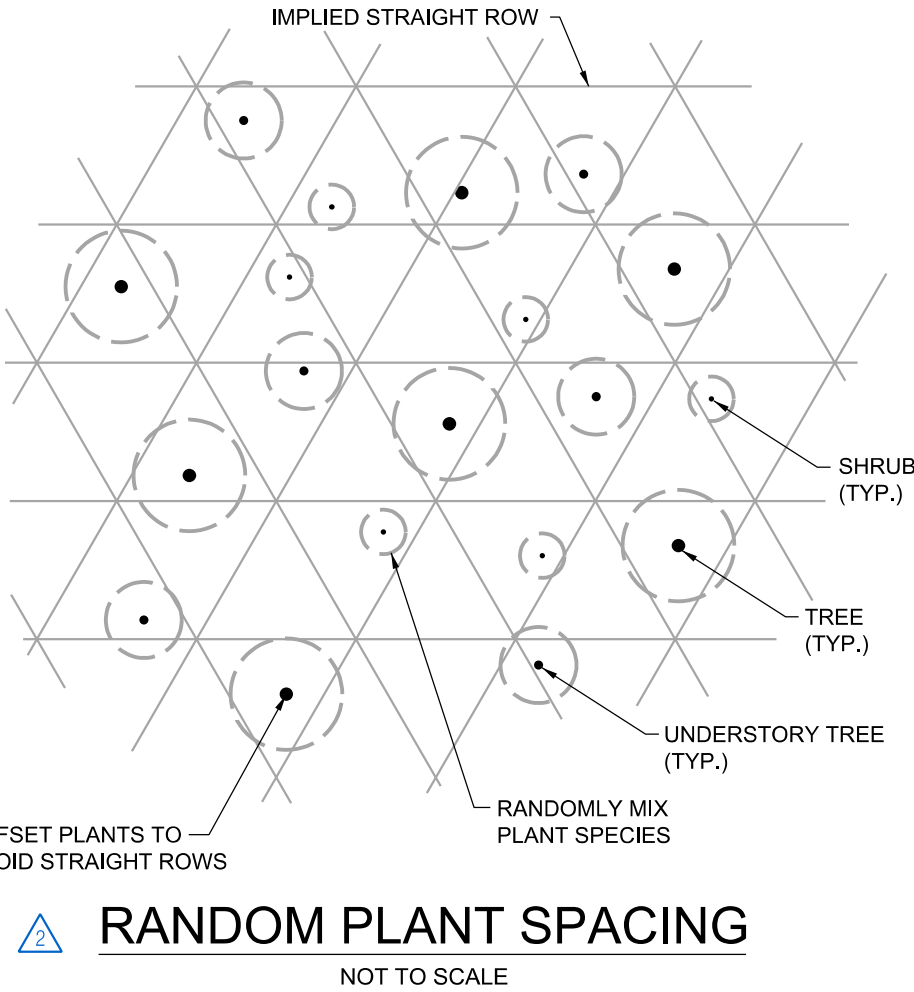
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 Engineering Division

Trees also planted in Oct 2020 that were not specified:
 19 Quercus palustris - Pin Oak
 22 Liriodendron tulipifera - Tulip Poplar
 20 Acer rubrum - Red Maple

Planted shrub totals include additional 54 shrubs from October 2020 emails. Planted January 2021



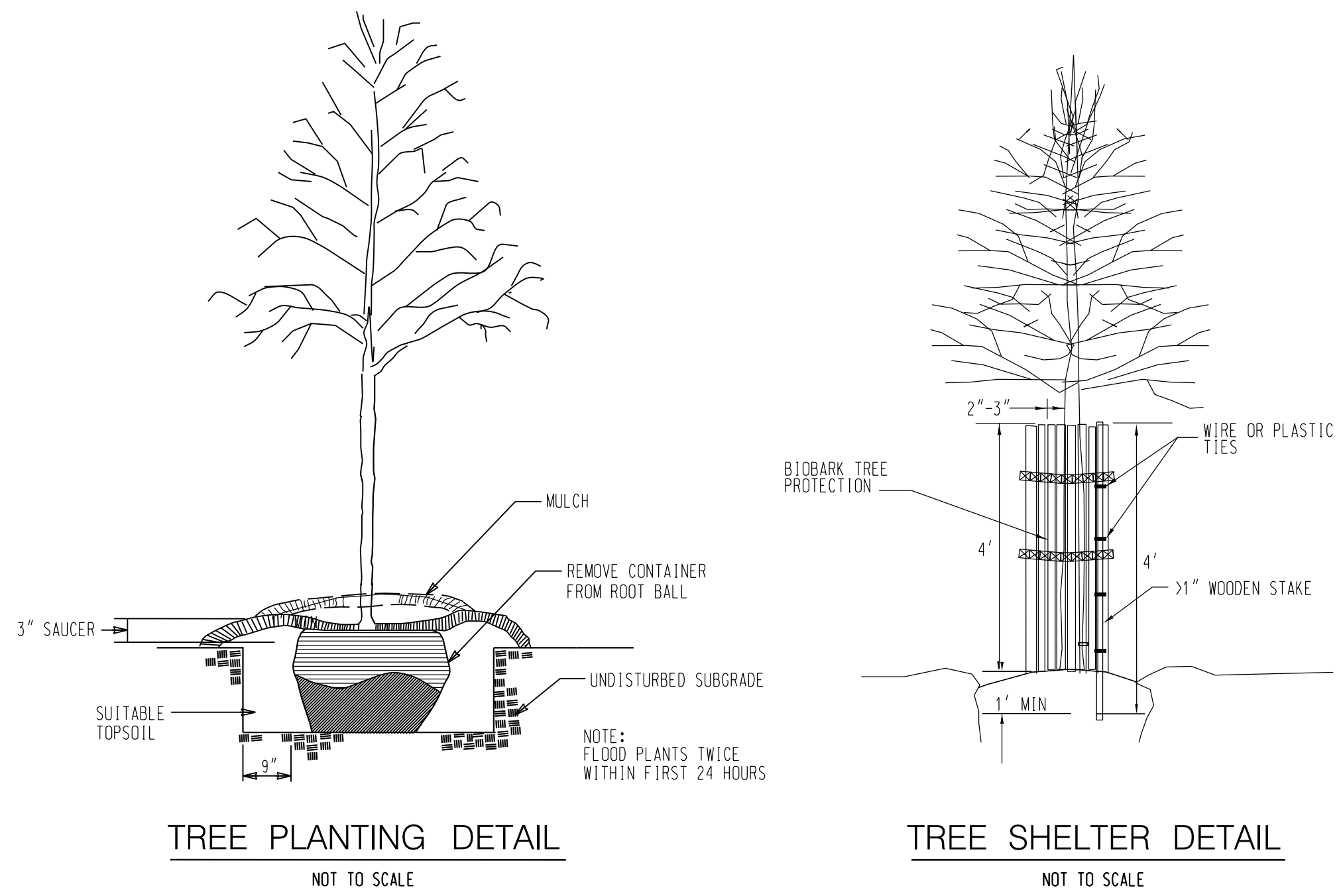
NOTE:
 1. TREE PLANTING SHALL BE A RANDOM DISTRIBUTION OF SPECIES AND TREE TYPE.
 2. REFER TO PLANT SCHEDULES FOR DENSITIES. CLUSTER PLANTS RANDOMLY AS DIRECTED. AVOID DISTURBANCE TO ROOTS OF TREES BEING PRESERVED.

PERMANENT SEEDING FOR PFO WETLAND /LOWLAND RIPARIAN, CREATED WETLANDS, AND LIVE STAKE ZONES (SHEETS 31-33)	
Qty(SY)	Botanical Name
3,441	SHA WET MEADOW SEED MIX (920.06.06(c)(d))

PERMANENT SEEDING FOR THE RIPARIAN ZONE (SHEET 32-33)	
Qty(SY)	Botanical Name
4,371	SHA UPLAND MEADOW MIX (920.06.06(c)(d))

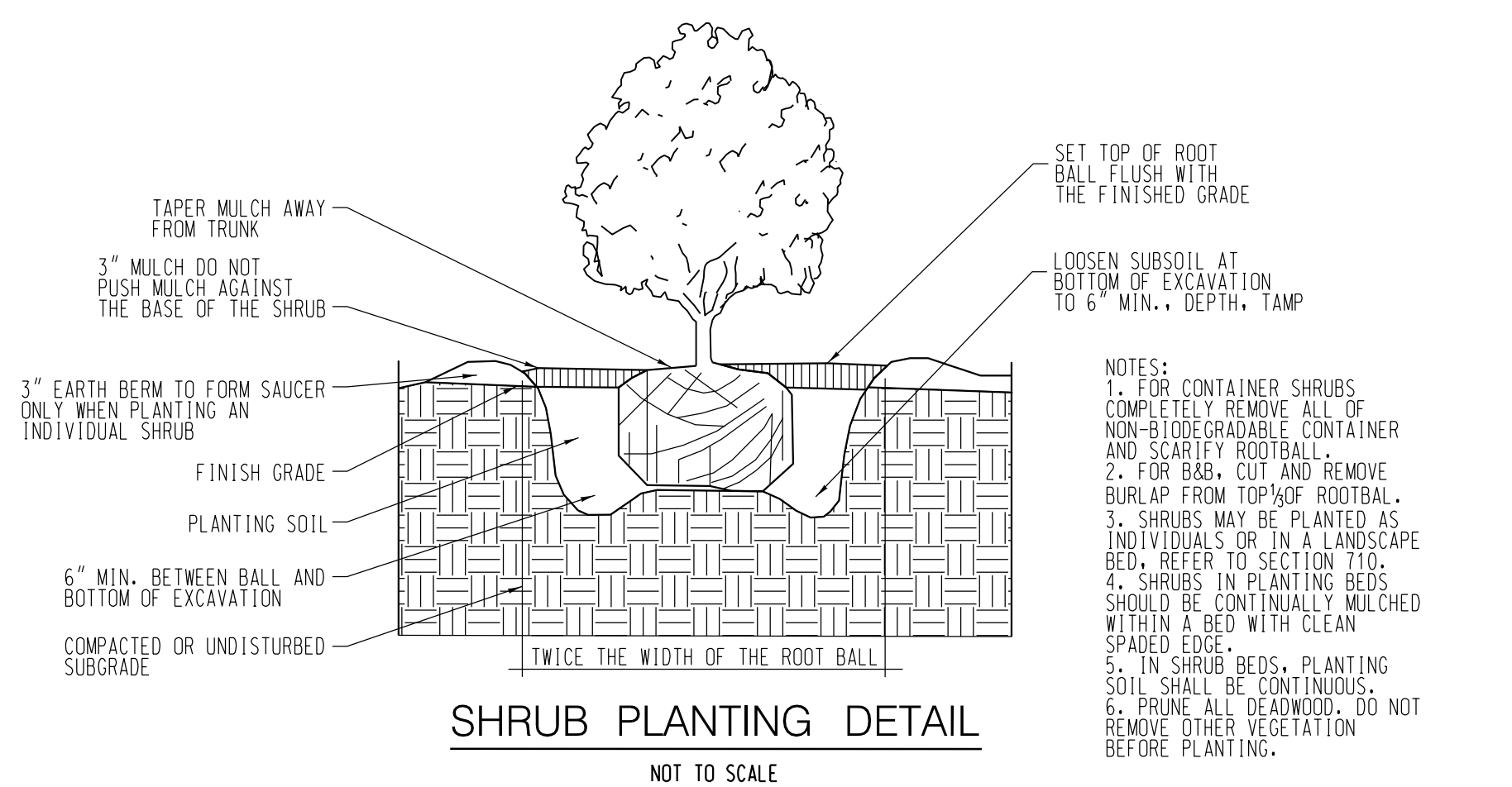
TURF GRASS ZONE (SHEET 31.33)	
Qty(SY)	Botanical Name
1,826	SHA TURFGRASS SEED MIX (920.06.07(a))

Application Rate of 200 lbs / ac

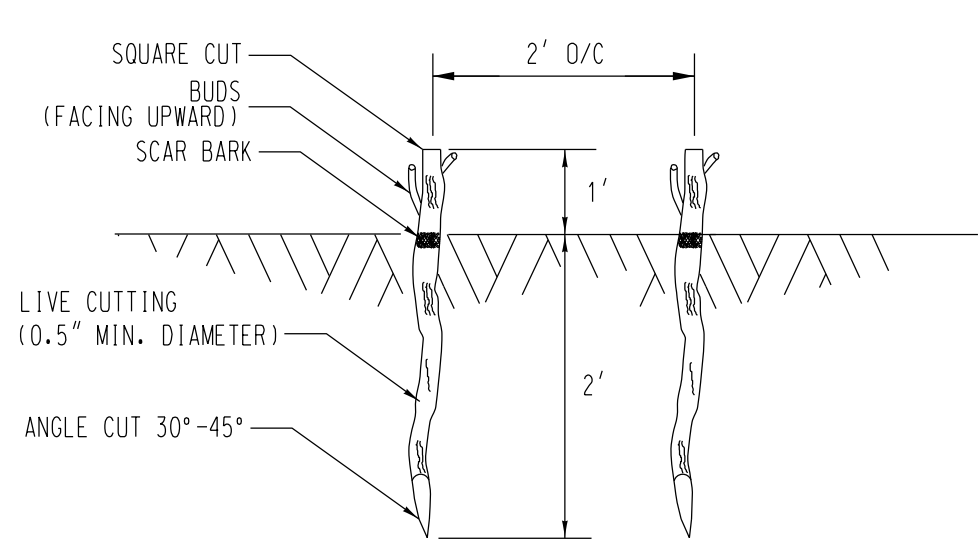


TREE PLANTING DETAIL NOT TO SCALE

TREE SHELTER DETAIL NOT TO SCALE



SHRUB PLANTING DETAIL NOT TO SCALE



LIVE STAKE DETAIL NOT TO SCALE

HORIZONTAL DATUM NAD 83/91
 VERTICAL DATUM NAVD 88
 MDE # 19-SF-0196; 18-NT-0086

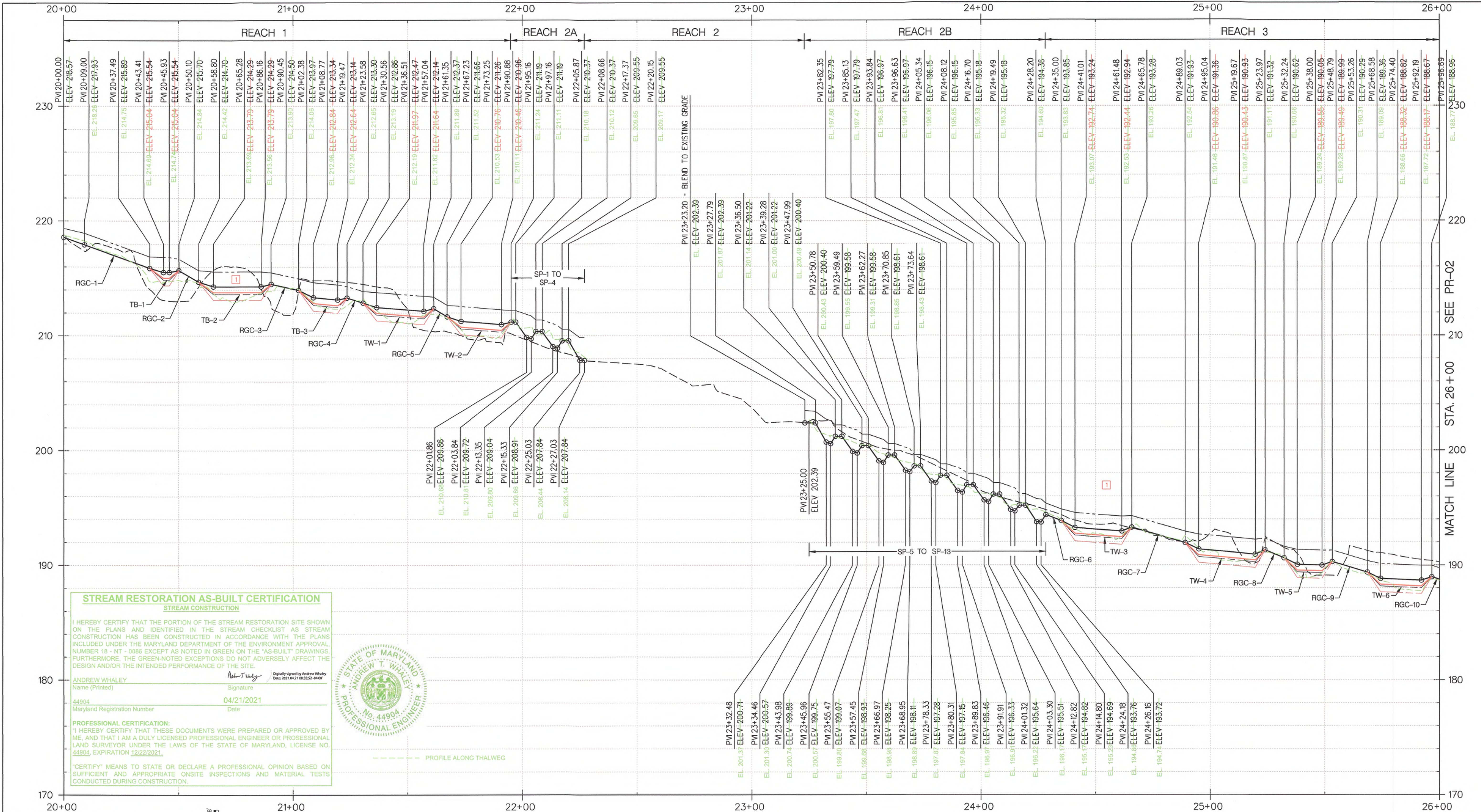
ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE
ADDENDUM NO. 2	REVISE TREE/SHRUB QTYS	SL	1/16/20

I-95 EXPRESS TOLL LANES NORTHBOUND EXTENSION CARSINS RUN STREAM RESTORATION

JOHN F. KENNEDY MEMORIAL HIGHWAY
 HANFORD COUNTY
 LANDSCAPE DETAILS

DESIGNED BY SL, AW, SD
 DRAWN BY CSD, KP, AW, JS
 CHECKED BY SL, GM, JB
 CONST. REVIEW BY _____ DATE OCTOBER, 2019 SCALE NOT TO SCALE

CONTRACT NO. KH-3028-0000
 DRAWING NO. LD-02
 SHEET NO. 35 OF 87
 UPDATED: 31JUL18



STREAM RESTORATION AS-BUILT CERTIFICATION
 STREAM CONSTRUCTION

I HEREBY CERTIFY THAT THE PORTION OF THE STREAM RESTORATION SITE SHOWN ON THE PLANS AND IDENTIFIED IN THE STREAM CHECKLIST AS STREAM CONSTRUCTION HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS INCLUDED UNDER THE MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVAL, NUMBER 18 - NT - 0086 EXCEPT AS NOTED IN GREEN ON THE "AS-BUILT" DRAWINGS. FURTHERMORE, THE GREEN-NOTED EXCEPTIONS DO NOT ADVERSELY AFFECT THE DESIGN AND/OR THE INTENDED PERFORMANCE OF THE SITE.

ANDREW WHALEY
 Name (Printed) Signature
 44904 Maryland Registration Number 04/21/2021 Date

PROFESSIONAL CERTIFICATION:
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER OR PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 44904, EXPIRATION 12/22/2021.

*CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED ON SUFFICIENT AND APPROPRIATE ONSITE INSPECTIONS AND MATERIAL TESTS CONDUCTED DURING CONSTRUCTION.



LEGEND

- TOP OF BANK
- - - - - EXISTING GROUND
- PROPOSED GRADE
- - - - - PROPOSED THALWEG*

*THALWEG IS OFFSET FROM CENTERLINE

VERTICAL SCALE: 1" = 4'
 HORIZONTAL SCALE: 1" = 20'

NOTE:
 REFER TO POOL DETAILS DE-01 AND DE-02 AND STREAM CROSS SECTIONS HC-01 - HC-42 FOR LOCATION OF THALWEG.

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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	REVISE PROFILE	JS	6/16/20

**I-95 EXPRESS TOLL LANES NORTHBOUND EXTENSION
 CARSINS RUN STREAM RESTORATION**

JOHN F. KENNEDY MEMORIAL HIGHWAY
 HARFORD COUNTY

RIPKEN TRIBUTARY - STREAM PROFILE

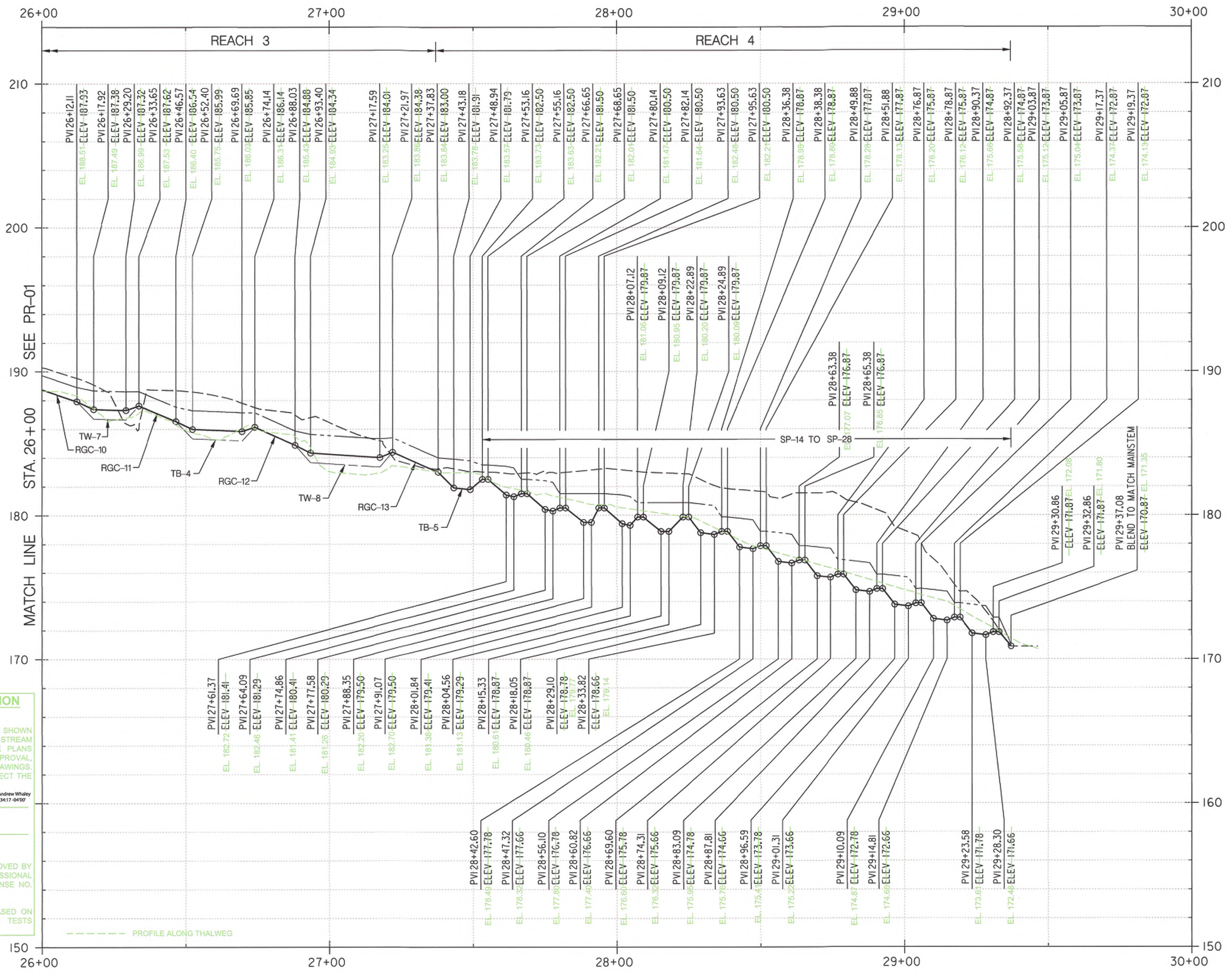
DESIGNED BY SL, AW, SD
 DRAWN BY CSD, KP, AW, JS
 CHECKED BY SL, GM, JB

CONST. REVIEW BY _____ DATE OCTOBER, 2019 SCALE AS SHOWN

CONTRACT NO.
 KH-3028-0000

DRAWING NO.
PR-01

SHEET NO.
 36 OF 87



STREAM RESTORATION AS-BUILT CERTIFICATION
 STREAM CONSTRUCTION

I HEREBY CERTIFY THAT THE PORTION OF THE STREAM RESTORATION SITE SHOWN ON THE PLANS AND IDENTIFIED IN THE STREAM CHECKLIST AS STREAM CONSTRUCTION HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS INCLUDED UNDER THE MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVAL, NUMBER 18 - NT - 0086 EXCEPT AS NOTED IN GREEN ON THE "AS-BUILT" DRAWINGS. FURTHERMORE, THE GREEN-NOTED EXCEPTIONS DO NOT ADVERSELY AFFECT THE DESIGN AND/OR THE INTENDED PERFORMANCE OF THE SITE.

ANDREW WHALEY
 Name (Printed) Signature Date: 2021.04.21 09:34:17 -0400
 44904
 Maryland Registration Number Date: 04/21/2021

PROFESSIONAL CERTIFICATION:
 "I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER OR PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 44904, EXPIRATION 12/22/2021."

"CERTIFY" MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED ON SUFFICIENT AND APPROPRIATE ONSITE INSPECTIONS AND MATERIAL TESTS CONDUCTED DURING CONSTRUCTION.

LEGEND

- TOP OF BANK
- EXISTING GROUND
- PROPOSED GRADE
- PROPOSED THALWEG*

*THALWEG IS OFFSET FROM CENTERLINE

HORIZONTAL SCALE: 1" = 20'

VERTICAL SCALE: 1" = 4'

NOTE: REFER TO POOL DETAILS DE-01 AND DE-02 AND STREAM CROSS SECTIONS HC-01 - HC-42 FOR LOCATION OF THALWEG.

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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

I-95 EXPRESS TOLL LANES NORTHBOUND EXTENSION
CARSINS RUN STREAM RESTORATION

JOHN F. KENNEDY MEMORIAL HIGHWAY
 HARFORD COUNTY
 RIPKEN TRIBUTARY - STREAM PROFILE

DESIGNED BY SL, AW, SD
 DRAWN BY CSD, KP, AW, JS
 CHECKED BY SL, GM, JB
 CONST. REVIEW BY _____ DATE OCTOBER, 2019 SCALE AS SHOWN

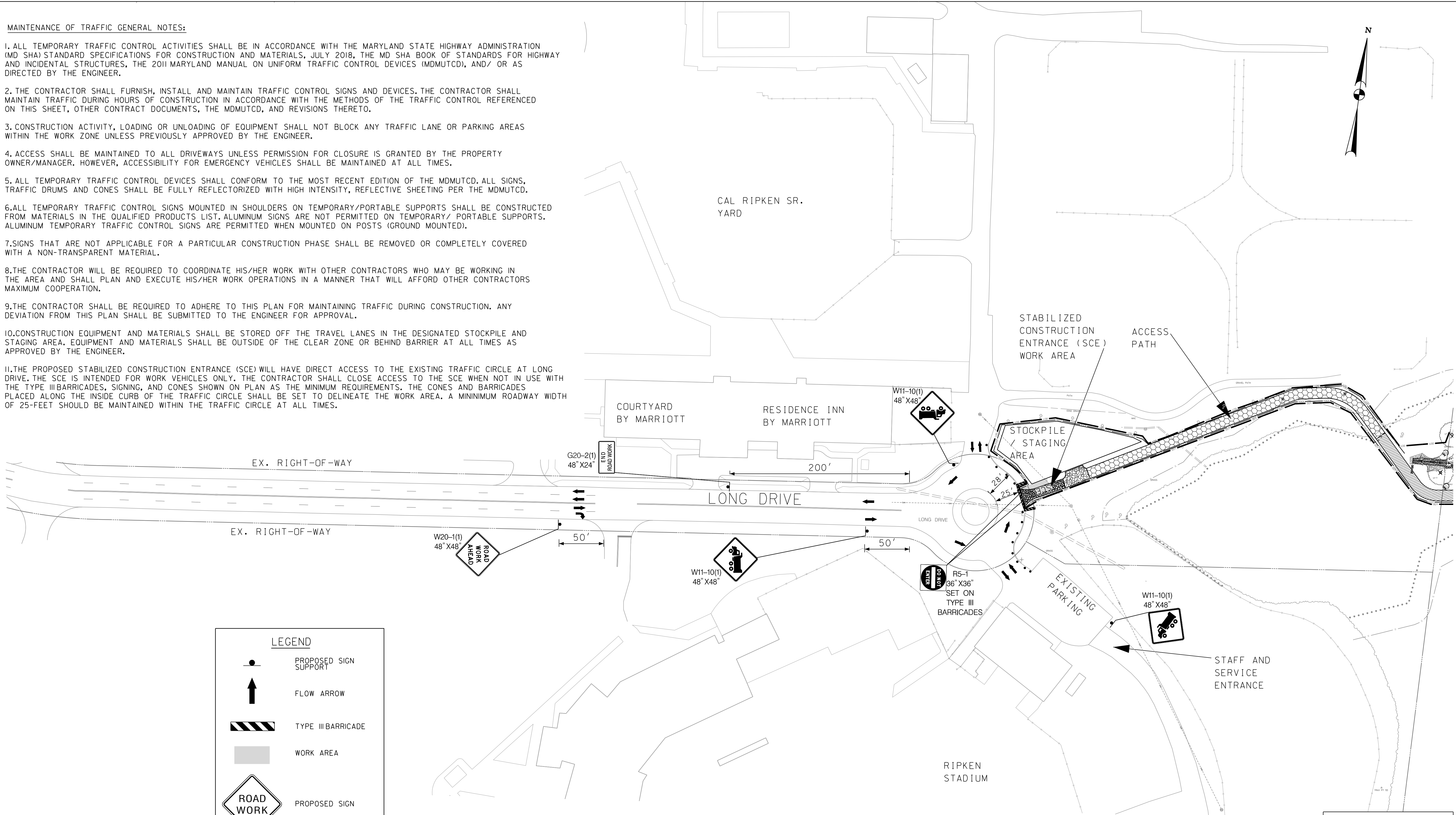
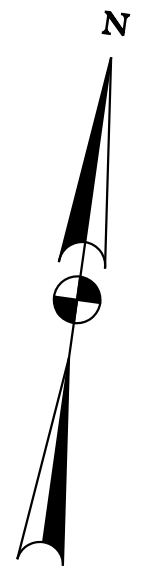
AS-BUILT

HORIZONTAL DATUM NAD 83/91
 VERTICAL DATUM NAVD 88
 MDE # 19-SF-0196; 18-NT-0086

CONTRACT NO. KH-3028-0000
 DRAWING NO. **PR-02**
 SHEET NO. 37 OF 87

MAINTENANCE OF TRAFFIC GENERAL NOTES:

1. ALL TEMPORARY TRAFFIC CONTROL ACTIVITIES SHALL BE IN ACCORDANCE WITH THE MARYLAND STATE HIGHWAY ADMINISTRATION (MD SHA) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, JULY 2018, THE MD SHA BOOK OF STANDARDS FOR HIGHWAY AND INCIDENTAL STRUCTURES, THE 2011 MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MDMUTCD), AND/ OR AS DIRECTED BY THE ENGINEER.
2. THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN TRAFFIC CONTROL SIGNS AND DEVICES. THE CONTRACTOR SHALL MAINTAIN TRAFFIC DURING HOURS OF CONSTRUCTION IN ACCORDANCE WITH THE METHODS OF THE TRAFFIC CONTROL REFERENCED ON THIS SHEET, OTHER CONTRACT DOCUMENTS, THE MDMUTCD, AND REVISIONS THERETO.
3. CONSTRUCTION ACTIVITY, LOADING OR UNLOADING OF EQUIPMENT SHALL NOT BLOCK ANY TRAFFIC LANE OR PARKING AREAS WITHIN THE WORK ZONE UNLESS PREVIOUSLY APPROVED BY THE ENGINEER.
4. ACCESS SHALL BE MAINTAINED TO ALL DRIVEWAYS UNLESS PERMISSION FOR CLOSURE IS GRANTED BY THE PROPERTY OWNER/MANAGER. HOWEVER, ACCESSIBILITY FOR EMERGENCY VEHICLES SHALL BE MAINTAINED AT ALL TIMES.
5. ALL TEMPORARY TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MDMUTCD. ALL SIGNS, TRAFFIC DRUMS AND CONES SHALL BE FULLY REFLECTORIZED WITH HIGH INTENSITY, REFLECTIVE SHEETING PER THE MDMUTCD.
6. ALL TEMPORARY TRAFFIC CONTROL SIGNS MOUNTED IN SHOULDERS ON TEMPORARY/PORTABLE SUPPORTS SHALL BE CONSTRUCTED FROM MATERIALS IN THE QUALIFIED PRODUCTS LIST. ALUMINUM SIGNS ARE NOT PERMITTED ON TEMPORARY/ PORTABLE SUPPORTS. ALUMINUM TEMPORARY TRAFFIC CONTROL SIGNS ARE PERMITTED WHEN MOUNTED ON POSTS (GROUND MOUNTED).
7. SIGNS THAT ARE NOT APPLICABLE FOR A PARTICULAR CONSTRUCTION PHASE SHALL BE REMOVED OR COMPLETELY COVERED WITH A NON-TRANSPARENT MATERIAL.
8. THE CONTRACTOR WILL BE REQUIRED TO COORDINATE HIS/HER WORK WITH OTHER CONTRACTORS WHO MAY BE WORKING IN THE AREA AND SHALL PLAN AND EXECUTE HIS/HER WORK OPERATIONS IN A MANNER THAT WILL AFFORD OTHER CONTRACTORS MAXIMUM COOPERATION.
9. THE CONTRACTOR SHALL BE REQUIRED TO ADHERE TO THIS PLAN FOR MAINTAINING TRAFFIC DURING CONSTRUCTION. ANY DEVIATION FROM THIS PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
10. CONSTRUCTION EQUIPMENT AND MATERIALS SHALL BE STORED OFF THE TRAVEL LANES IN THE DESIGNATED STOCKPILE AND STAGING AREA. EQUIPMENT AND MATERIALS SHALL BE OUTSIDE OF THE CLEAR ZONE OR BEHIND BARRIER AT ALL TIMES AS APPROVED BY THE ENGINEER.
11. THE PROPOSED STABILIZED CONSTRUCTION ENTRANCE (SCE) WILL HAVE DIRECT ACCESS TO THE EXISTING TRAFFIC CIRCLE AT LONG DRIVE. THE SCE IS INTENDED FOR WORK VEHICLES ONLY. THE CONTRACTOR SHALL CLOSE ACCESS TO THE SCE WHEN NOT IN USE WITH THE TYPE III BARRICADES, SIGNING, AND CONES SHOWN ON PLAN AS THE MINIMUM REQUIREMENTS. THE CONES AND BARRICADES PLACED ALONG THE INSIDE CURB OF THE TRAFFIC CIRCLE SHALL BE SET TO DELINEATE THE WORK AREA. A MINIMUM ROADWAY WIDTH OF 25- FEET SHOULD BE MAINTAINED WITHIN THE TRAFFIC CIRCLE AT ALL TIMES.



LEGEND

- PROPOSED SIGN SUPPORT
- FLOW ARROW
- TYPE III BARRICADE
- WORK AREA
- PROPOSED SIGN

HORIZONTAL DATUM NAD 83/91
 VERTICAL DATUM NAVD 88
 MDE # 19-SF-0196; 18-NT-0086

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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

**I-95 EXPRESS TOLL LANES NORTHBOUND EXTENSION
 CARSENS RUN STREAM RESTORATION**

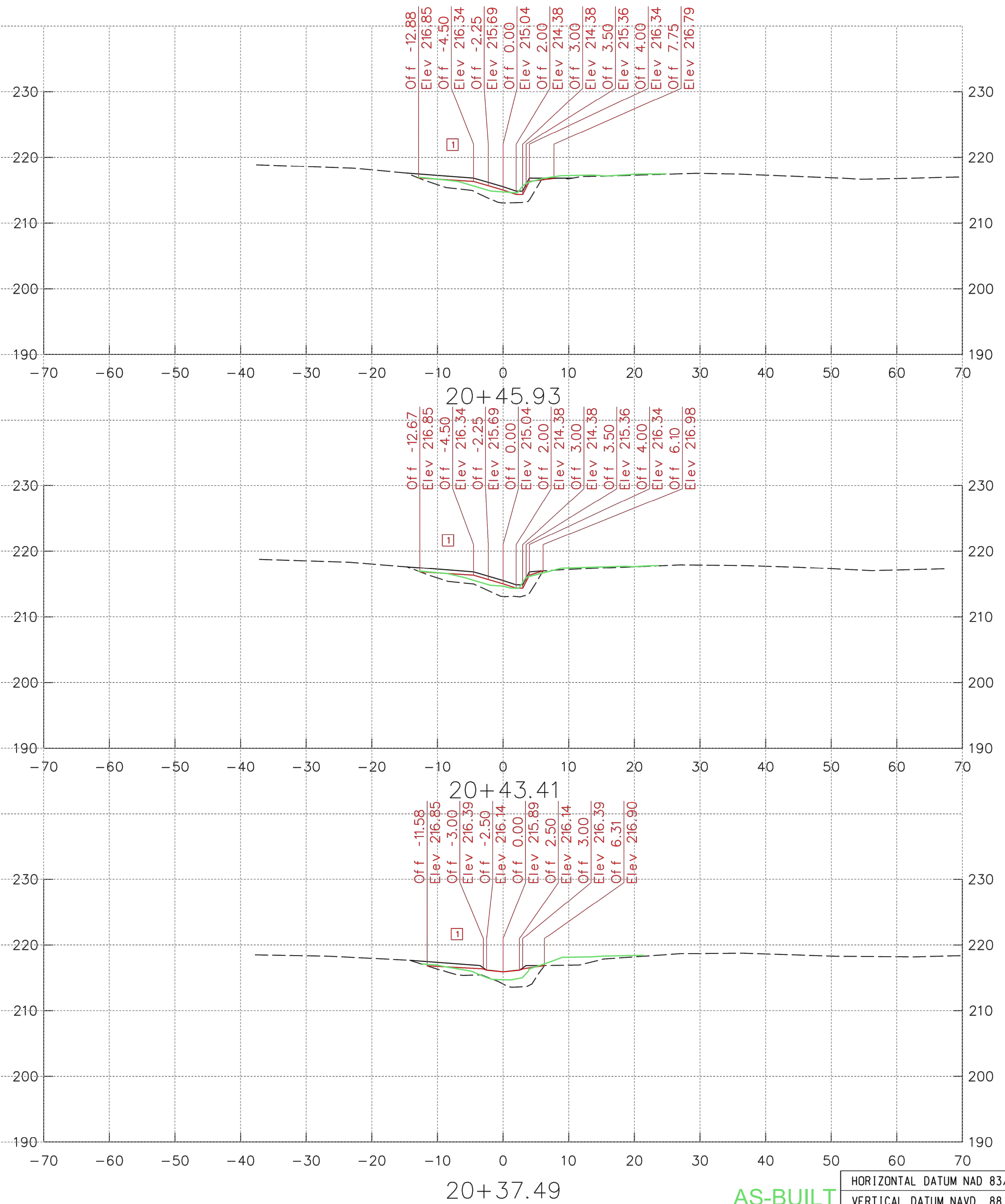
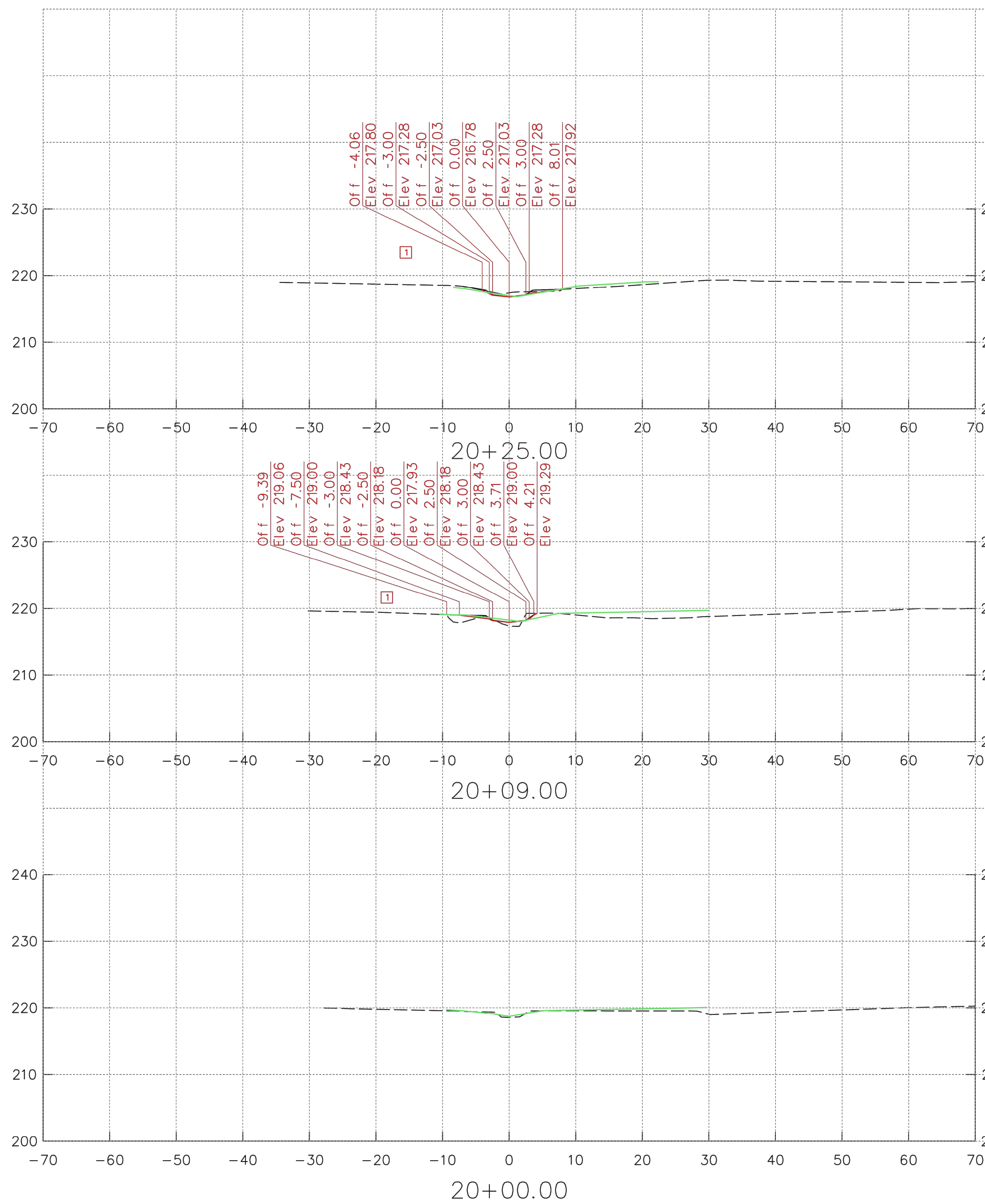
JOHN F. KENNEDY MEMORIAL HIGHWAY
 HARFORD COUNTY
 MAINTENANCE OF TRAFFIC PLAN

DESIGNED BY JAB DRAWN BY JAB CHECKED BY JFL
 CONST. REVIEW BY _____ DATE OCTOBER, 2019 SCALE 1" = 50'

CONTRACT NO.
KH-3028-0000

DRAWING NO.
MT-01

SHEET NO.
39 OF 87



AS-BUILT HORIZONTAL DATUM NAD 83/91
VERTICAL DATUM NAVD 88

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ADDENDUMS & REVISIONS		
NO.	DESCRIPTION	BY DATE
1	REVISE CROSS SECTION	JS 6/16/20

**I-95 EXPRESS TOLL LANES NORTHBOUND EXTENSION
CARSINS RUN STREAM MITIGATION PLAN**

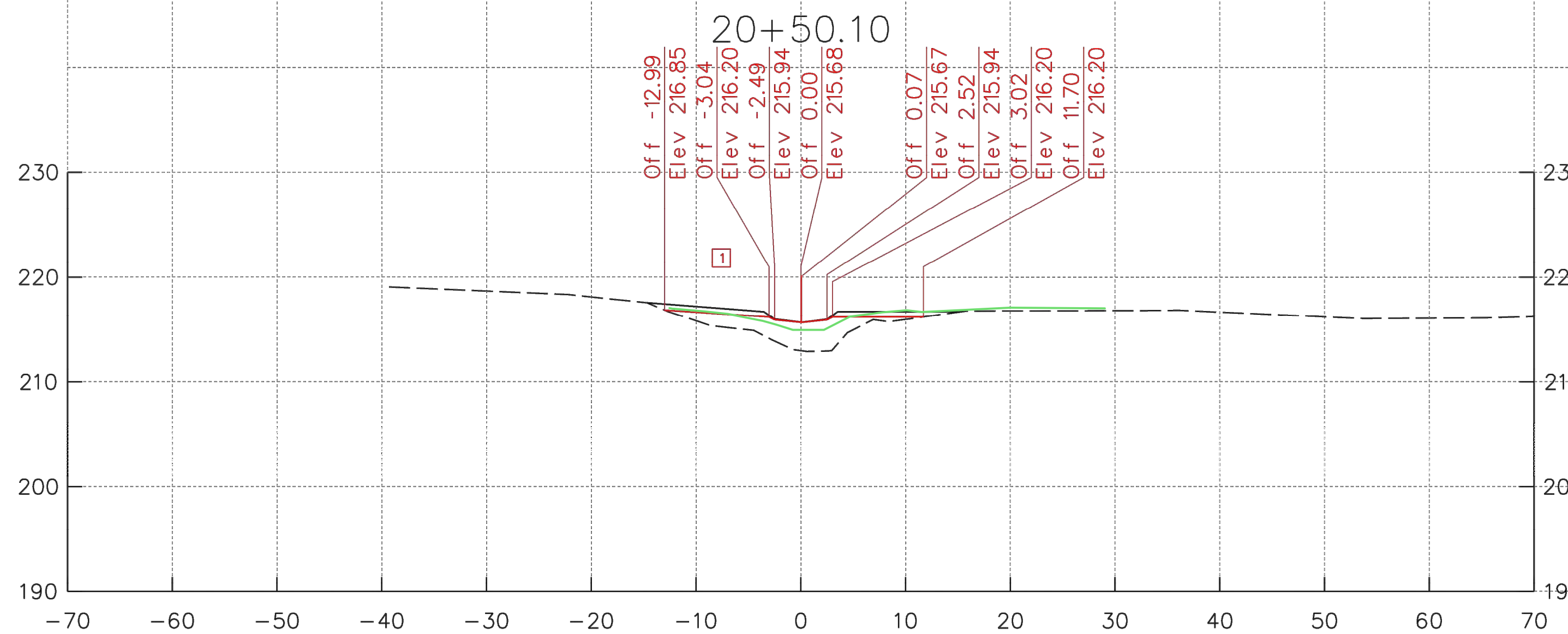
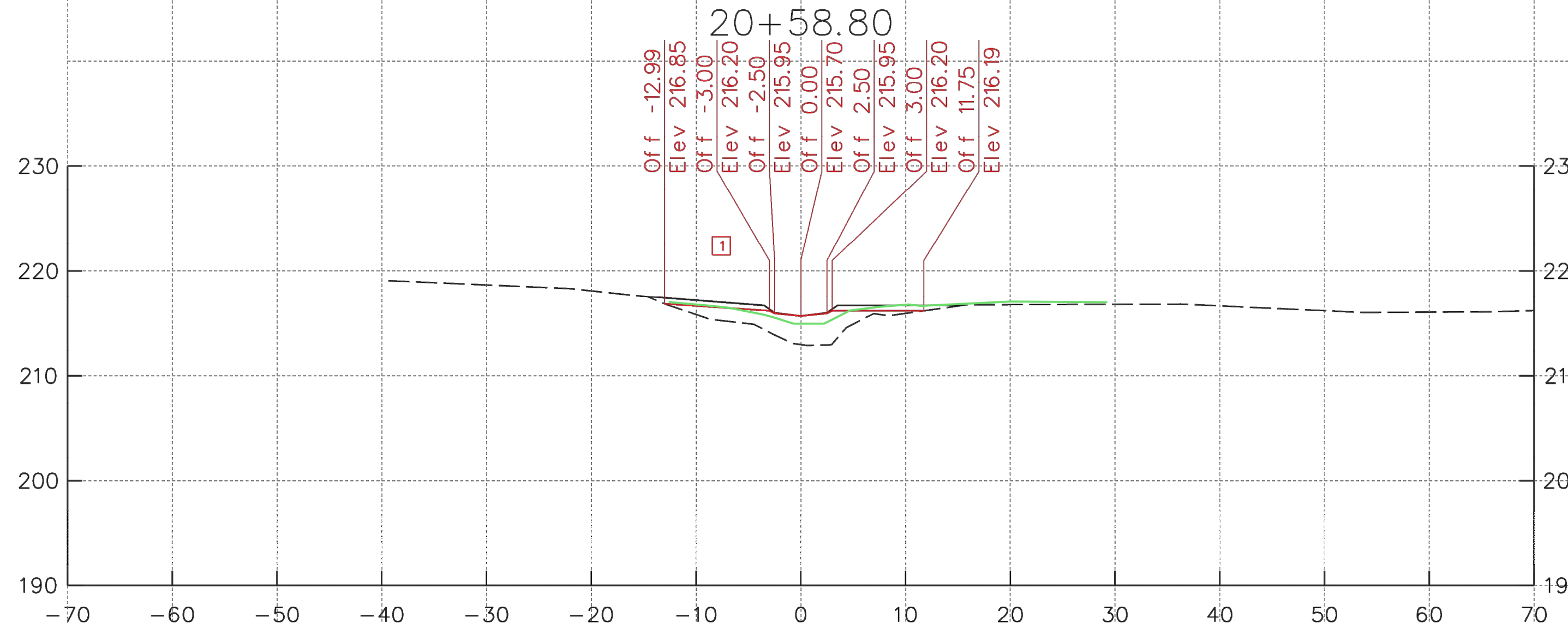
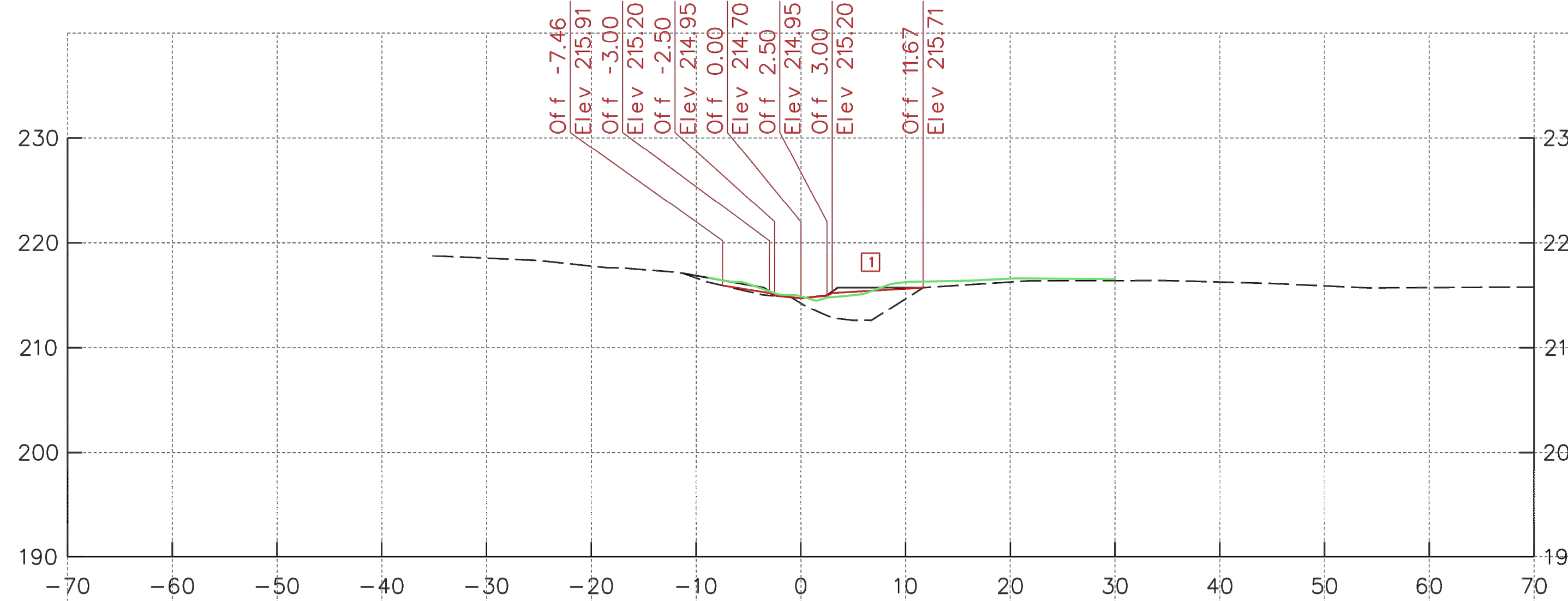
JOHN F. KENNEDY MEMORIAL HIGHWAY
HARFORD COUNTY

STREAM CROSS SECTIONS

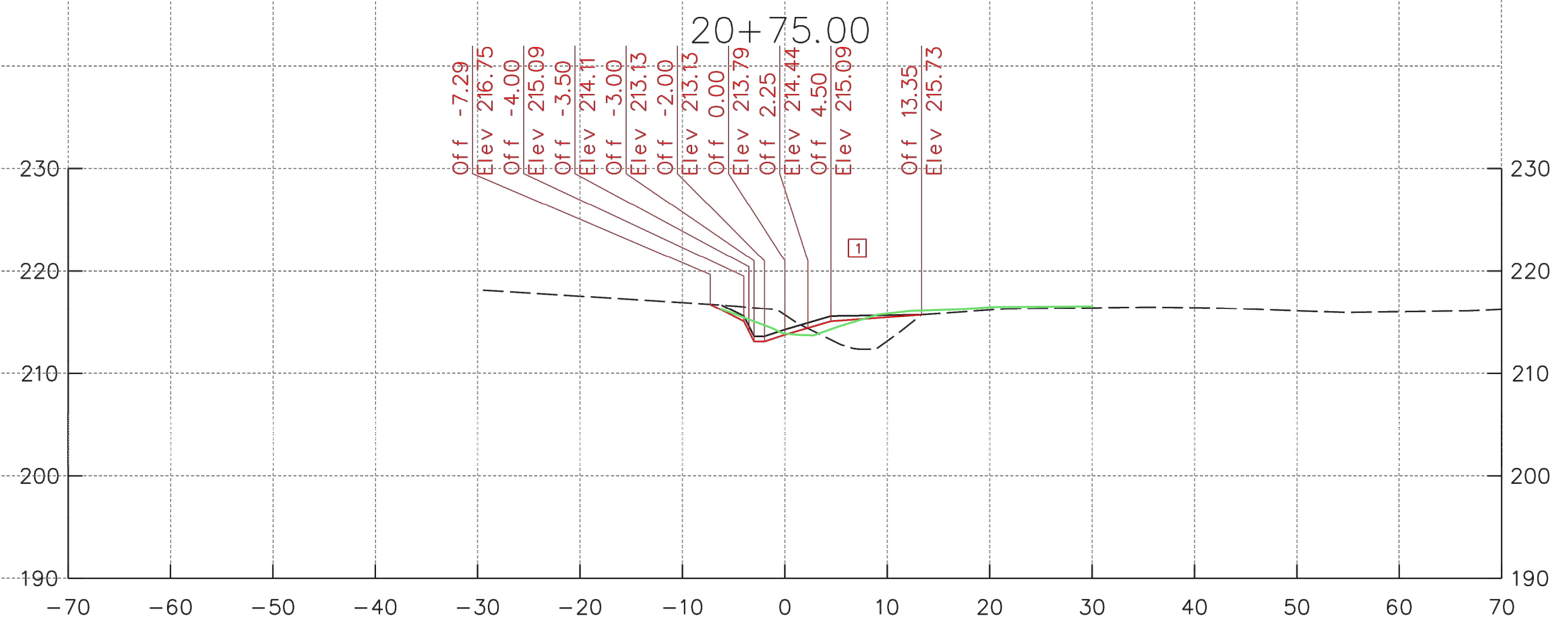
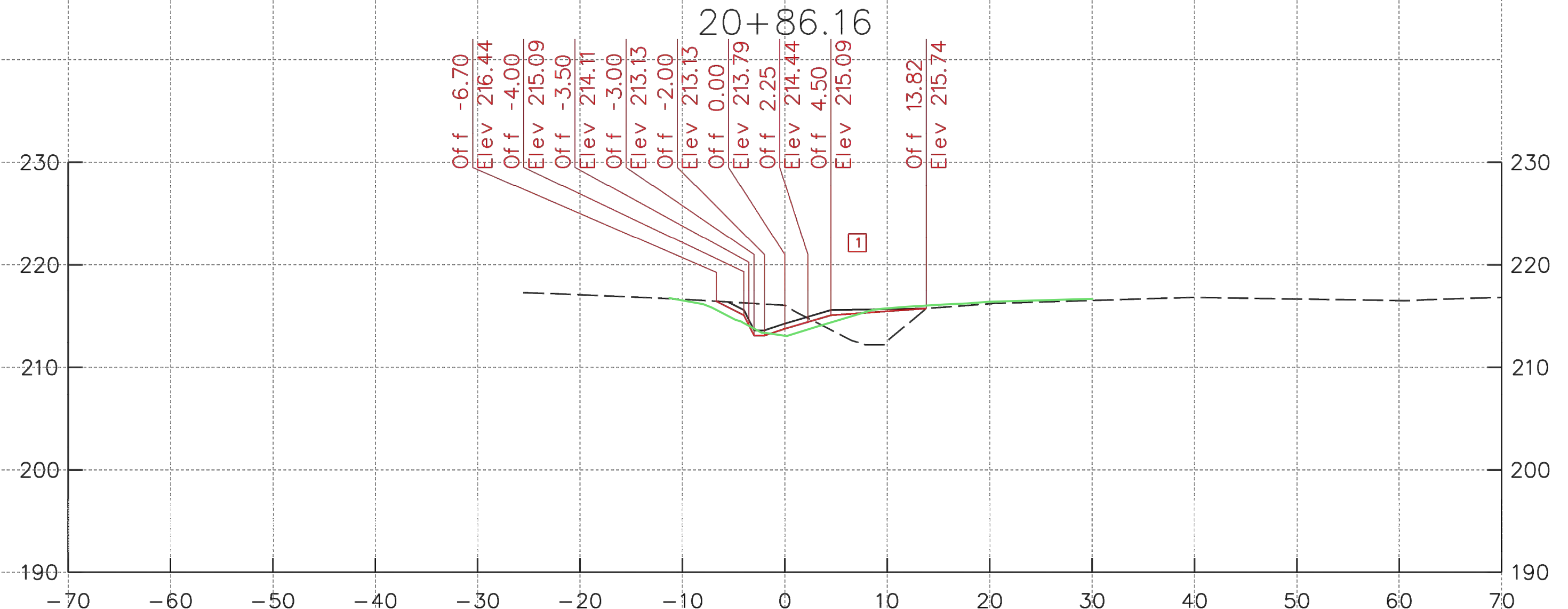
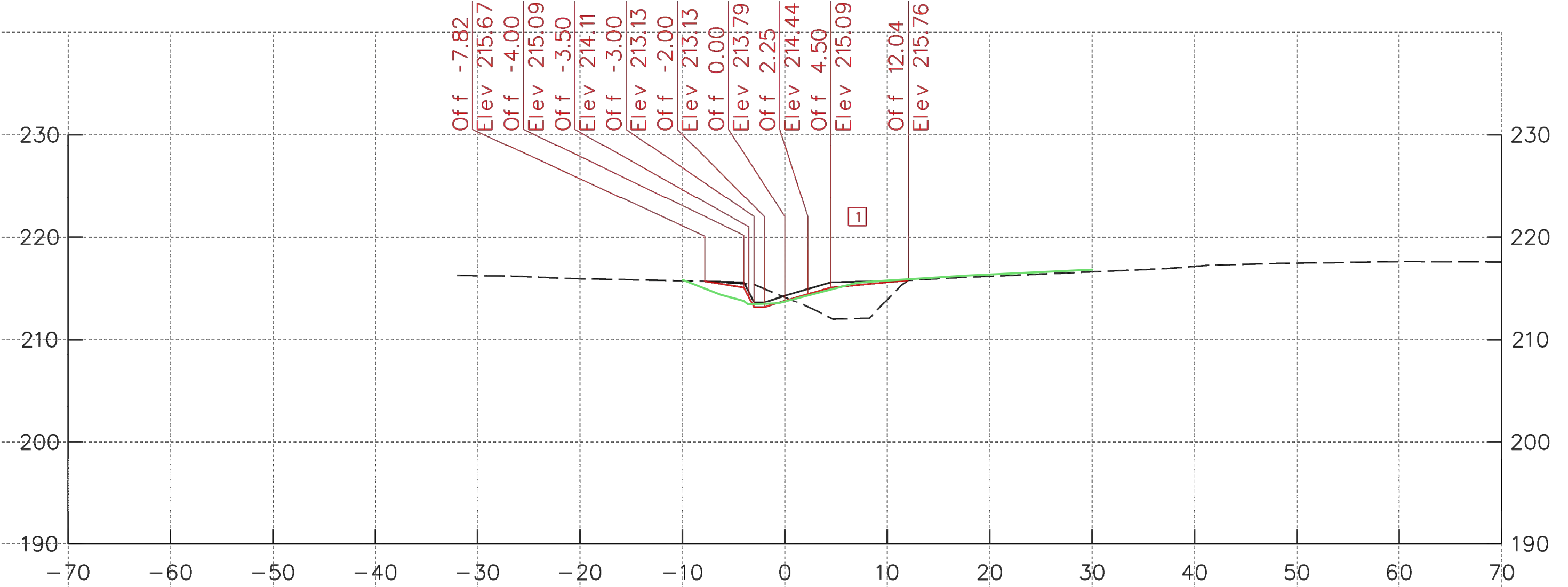
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HORIZONTAL DATUM NAD 83/91
VERTICAL DATUM NAVD 88

CONTRACT NO. KH-3028-0000
DRAWING NO. **HC-01**
SHEET NO. 40 OF 87



20+50.00



20+65.28

AS-BUILT

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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	REVISE CROSS SECTION	JS	6/16/20

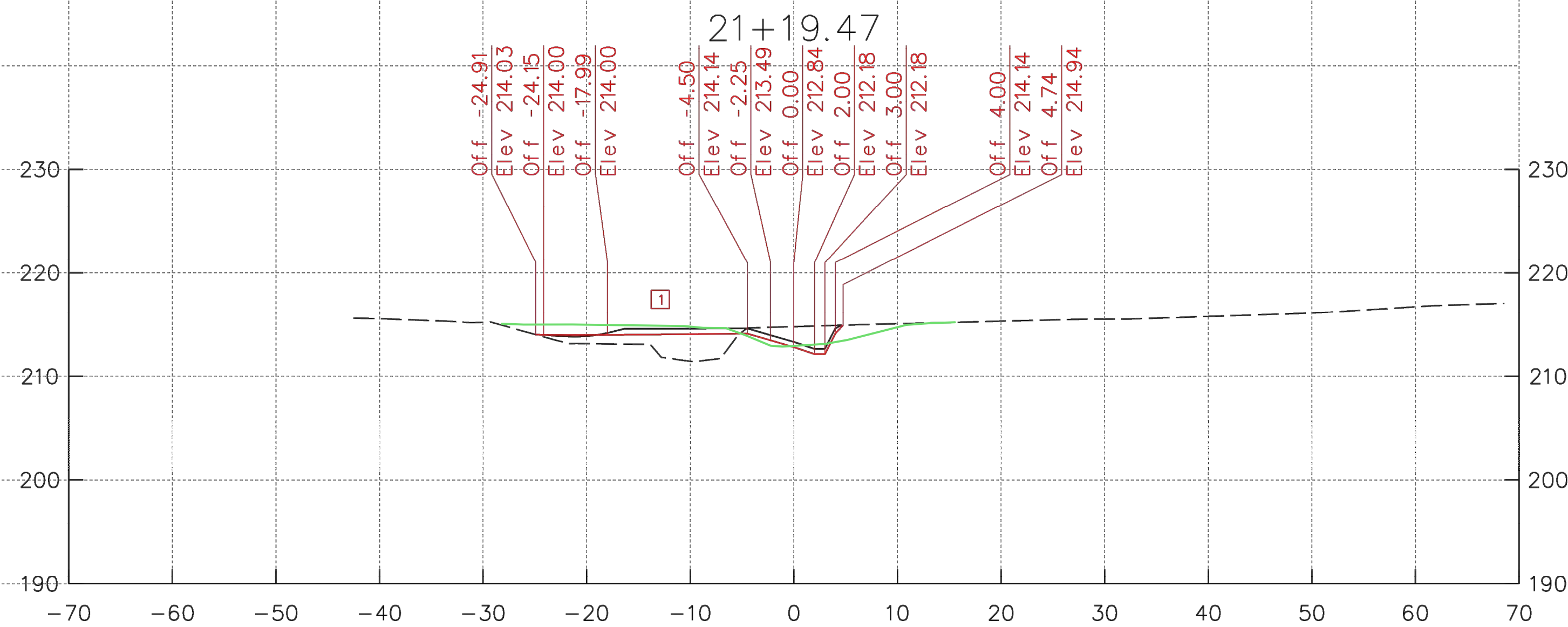
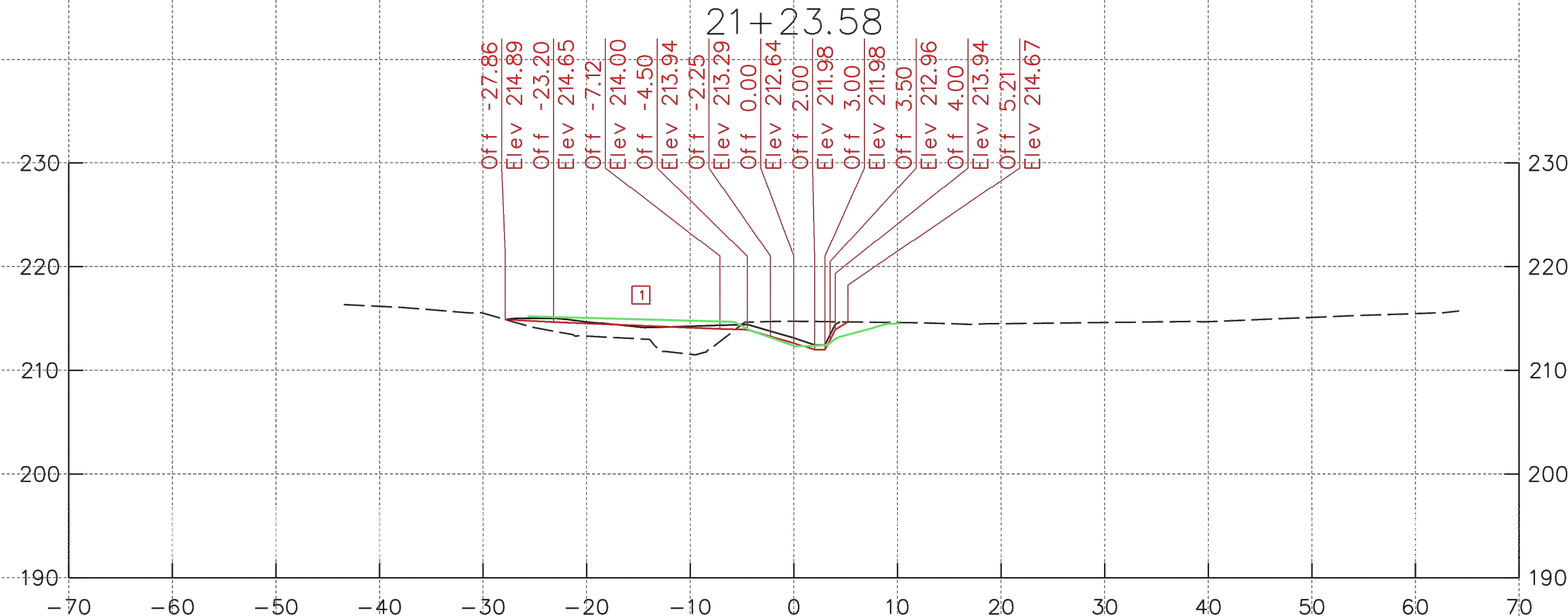
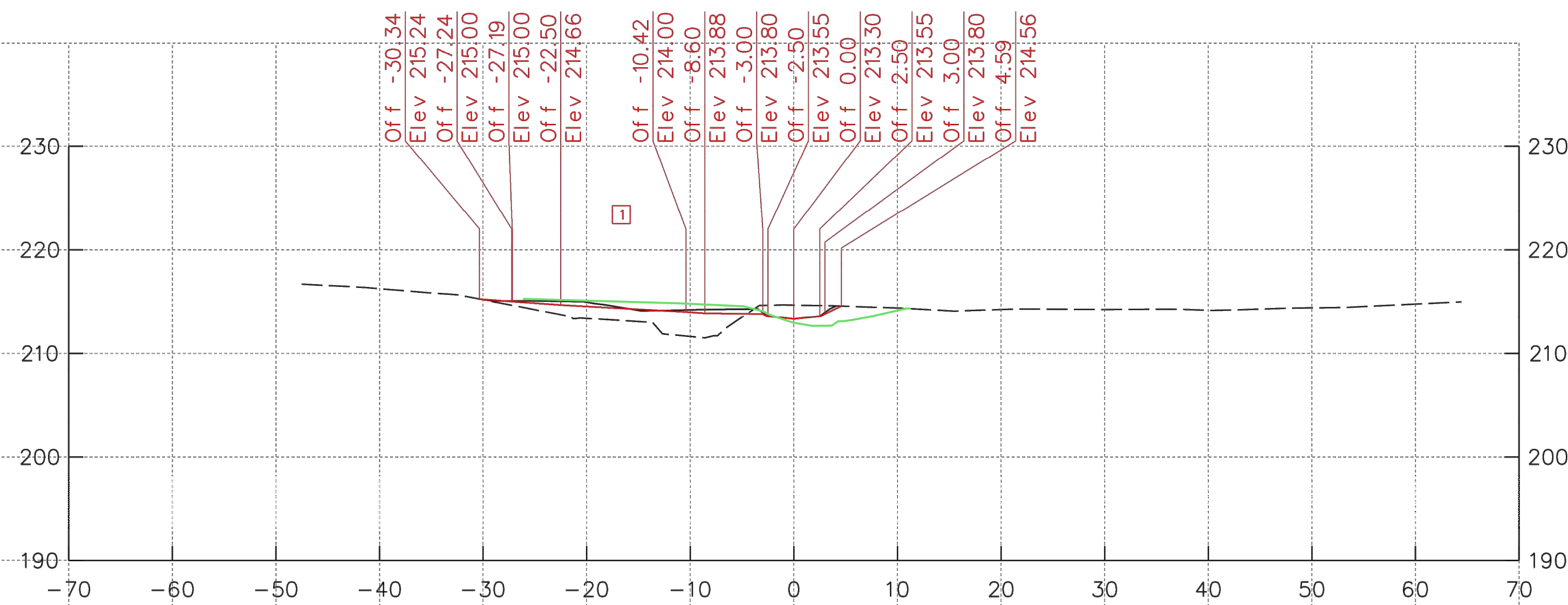
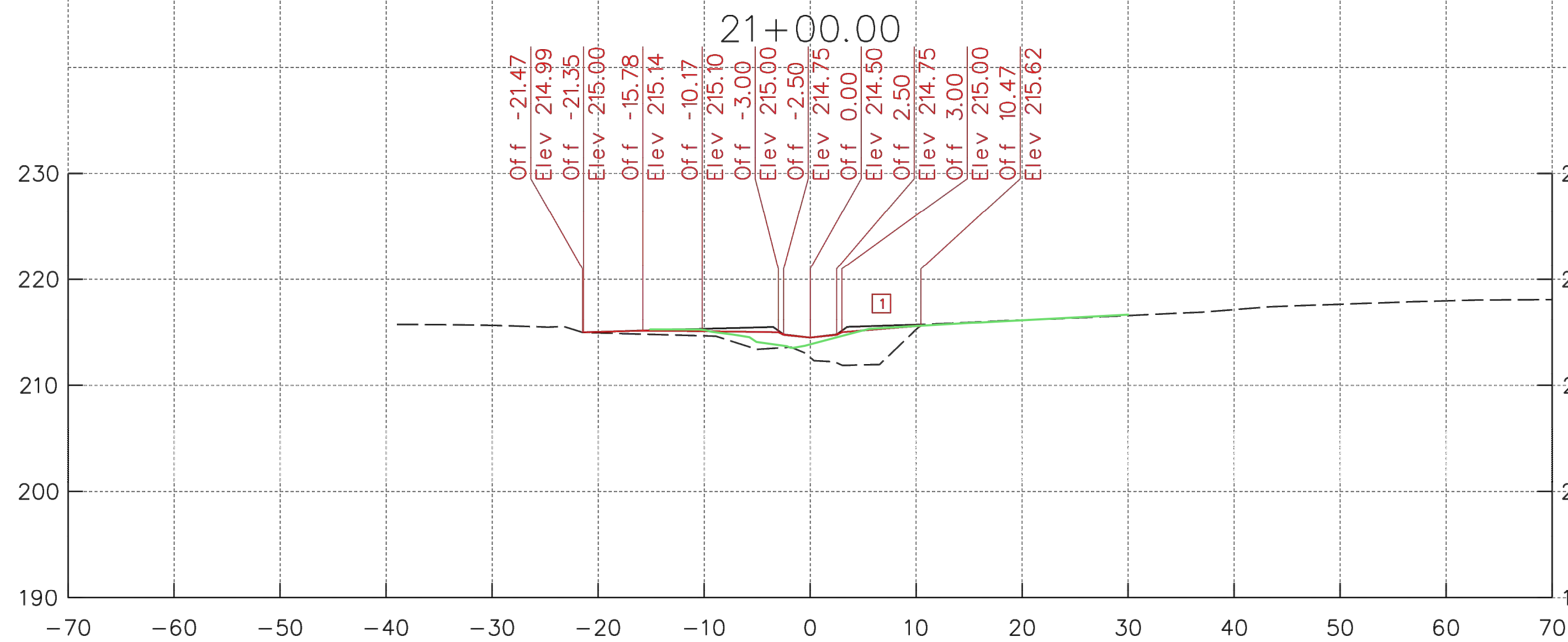
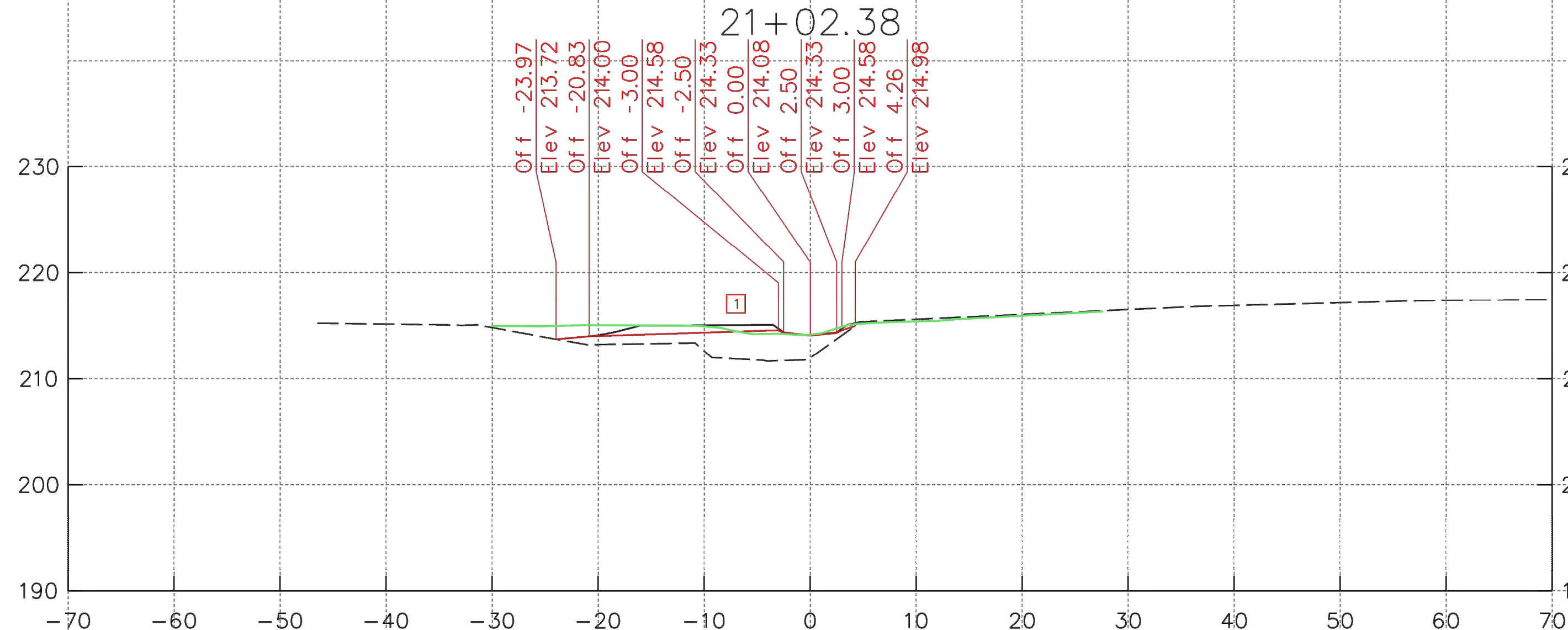
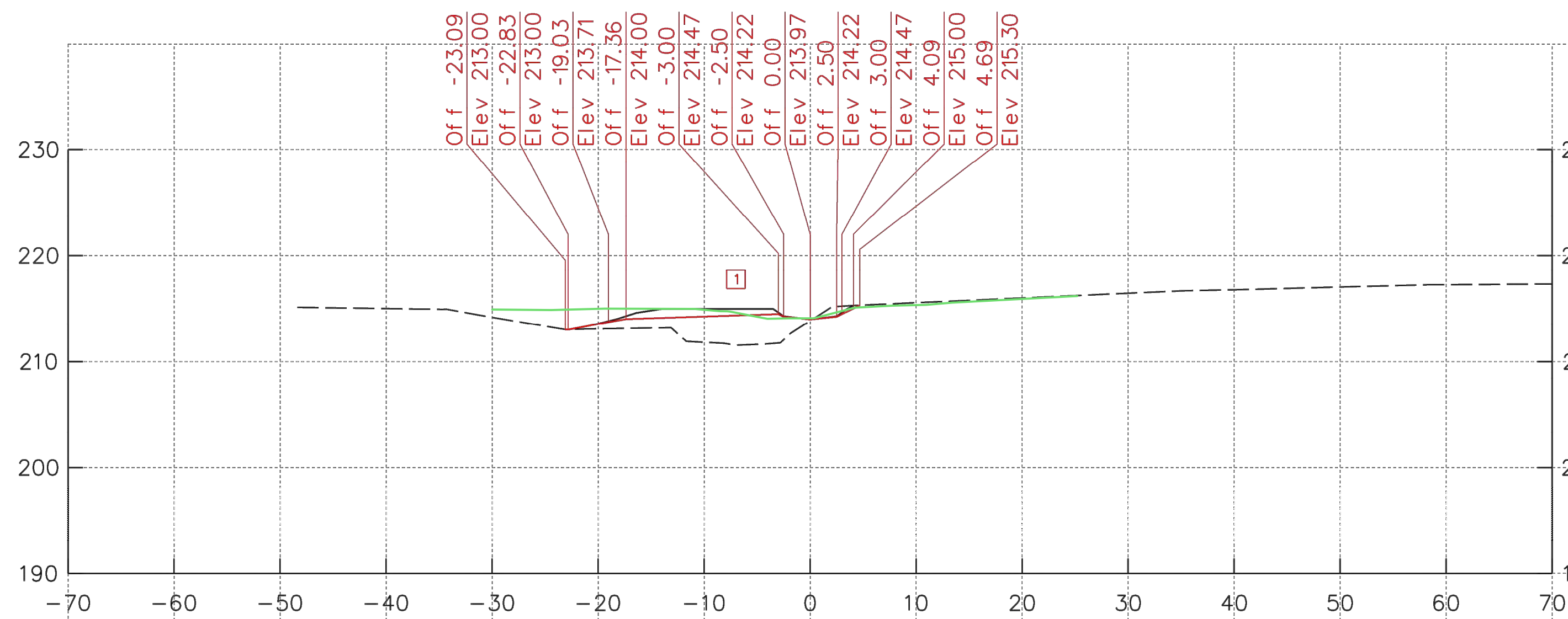
**I-95 EXPRESS TOLL LANES NORTHBOUND EXTENSION
CARSINS RUN STREAM MITIGATION PLAN**

JOHN F. KENNEDY MEMORIAL HIGHWAY
HARFORD COUNTY

STREAM CROSS SECTIONS

DESIGNED BY SL	DRAWN BY JS	CHECKED BY SL
CONST. REVIEW BY	DATE OCTOBER, 2019	SCALE 1" = 10'

HORIZONTAL DATUM NAD 83/91	CONTRACT NO. KH-3028-0000
VERTICAL DATUM NAVD 88	DRAWING NO. HC-02
	SHEET NO. 41 OF 87



AS-BUILT
HORIZONTAL DATUM NAD 83/91
VERTICAL DATUM NAVD 88

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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	REVISE CROSS SECTION	JS	6/16/20

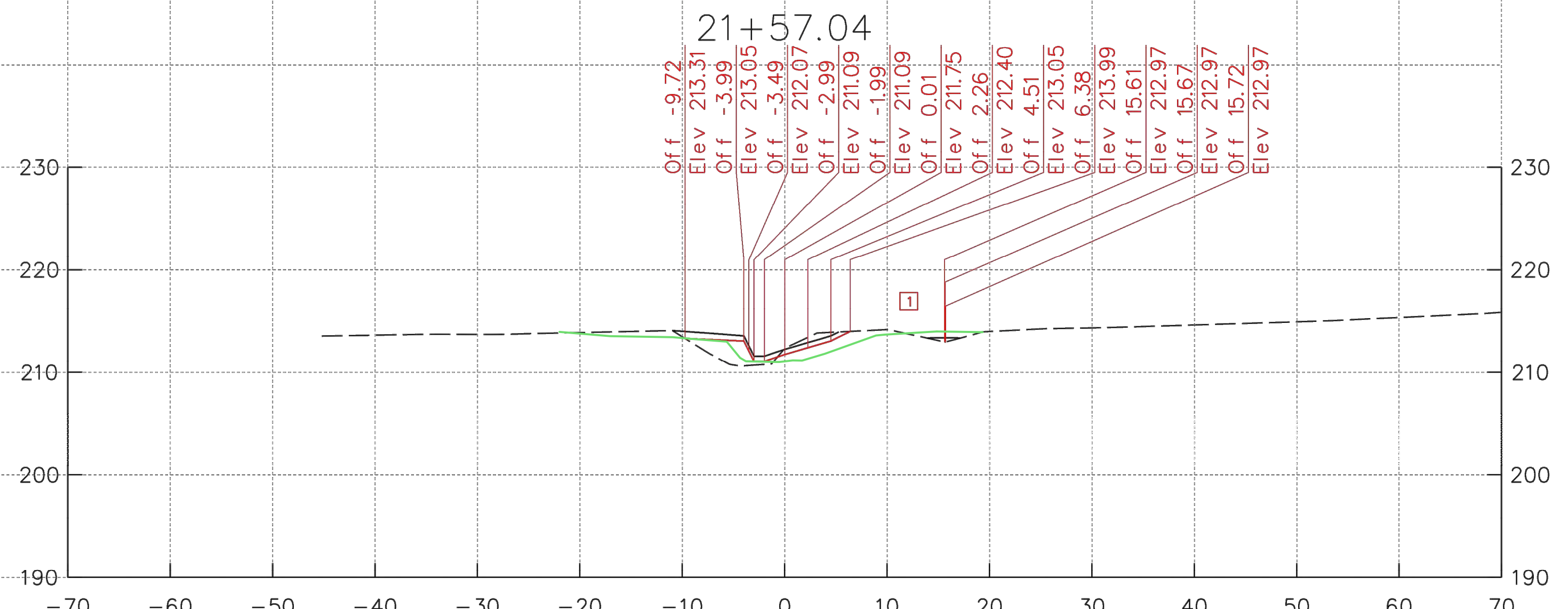
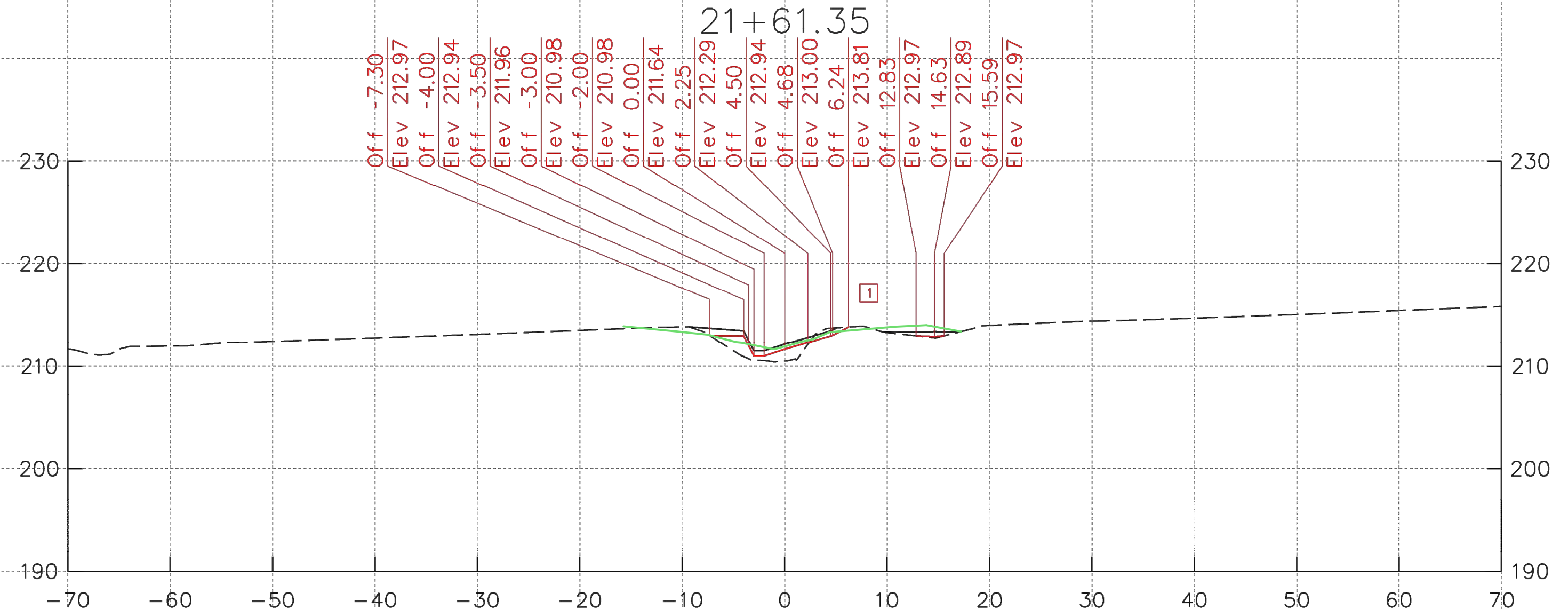
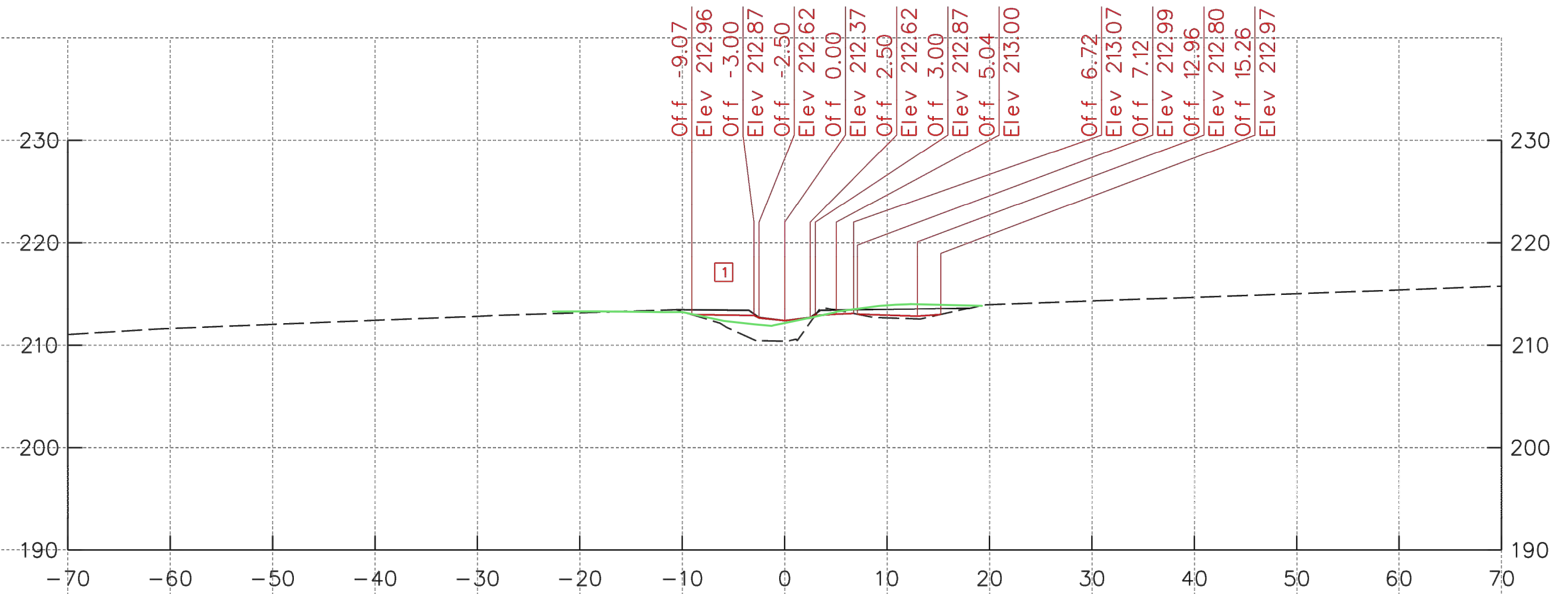
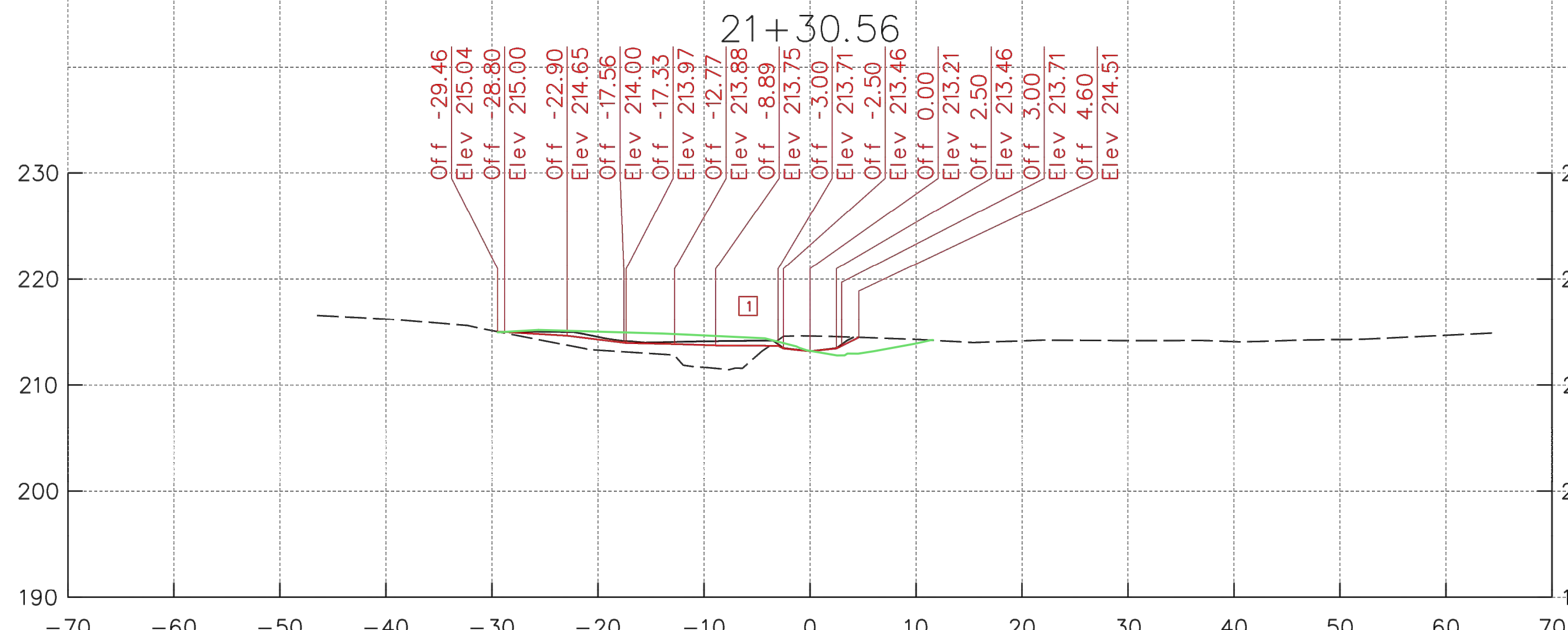
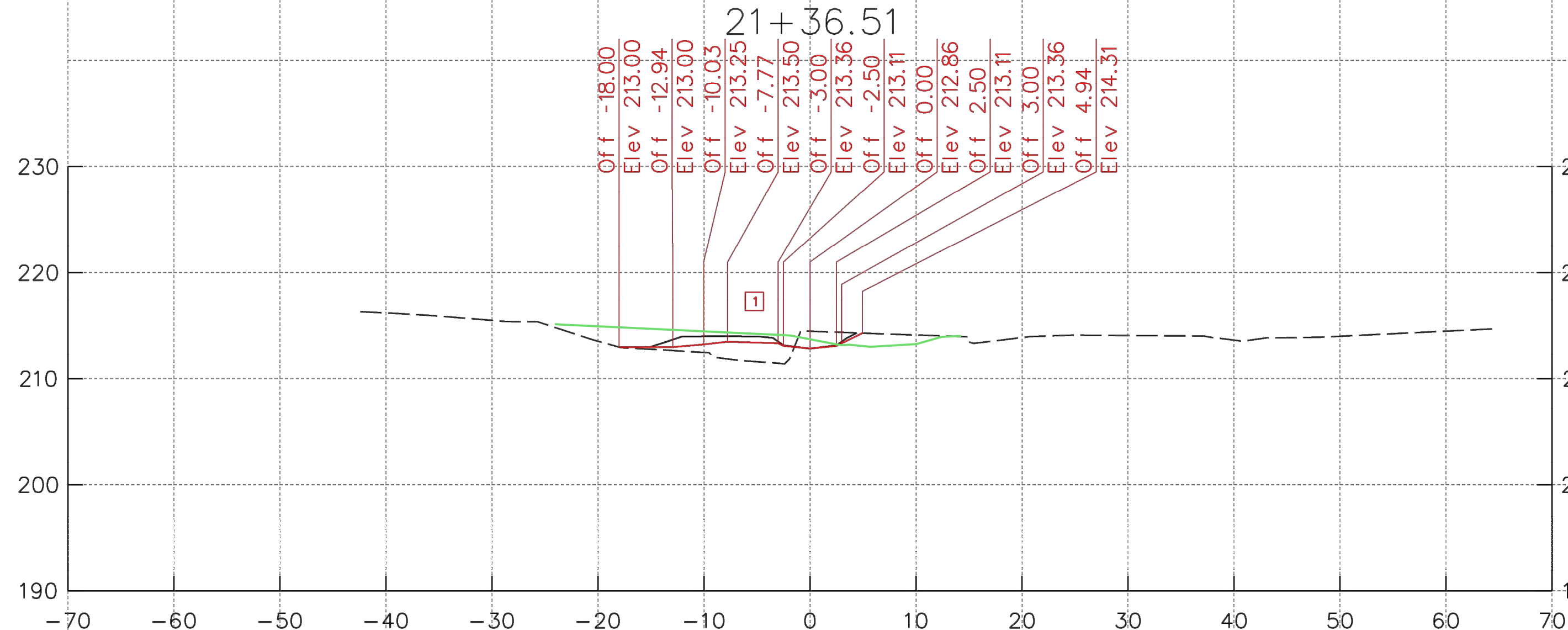
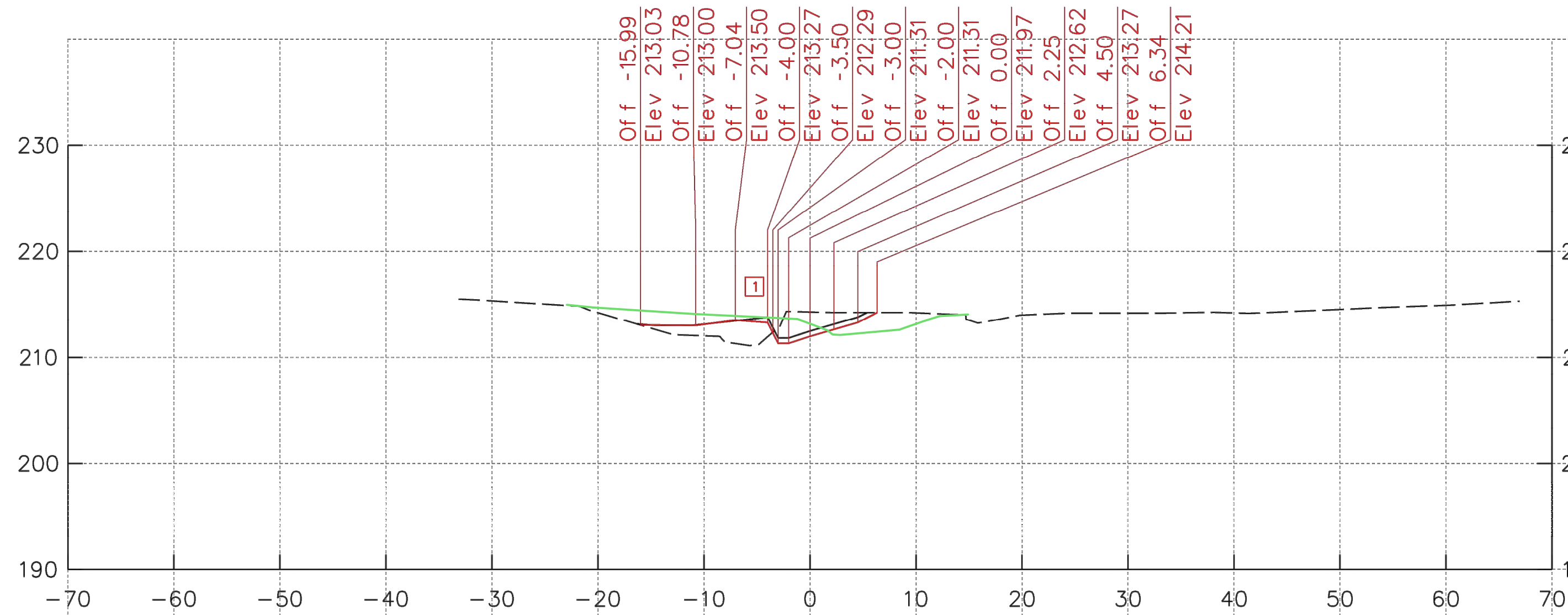
**I-95 EXPRESS TOLL LANES NORTHBOUND EXTENSION
CARSENS RUN STREAM MITIGATION PLAN**

JOHN F. KENNEDY MEMORIAL HIGHWAY
HARFORD COUNTY

STREAM CROSS SECTIONS

DESIGNED BY SL	DRAWN BY JS	CHECKED BY SL
CONST. REVIEW BY	DATE OCTOBER, 2019	SCALE 1" = 10'

CONTRACT NO. KH-3028-0000
DRAWING NO. **HC-03**
SHEET NO. 42 OF 87



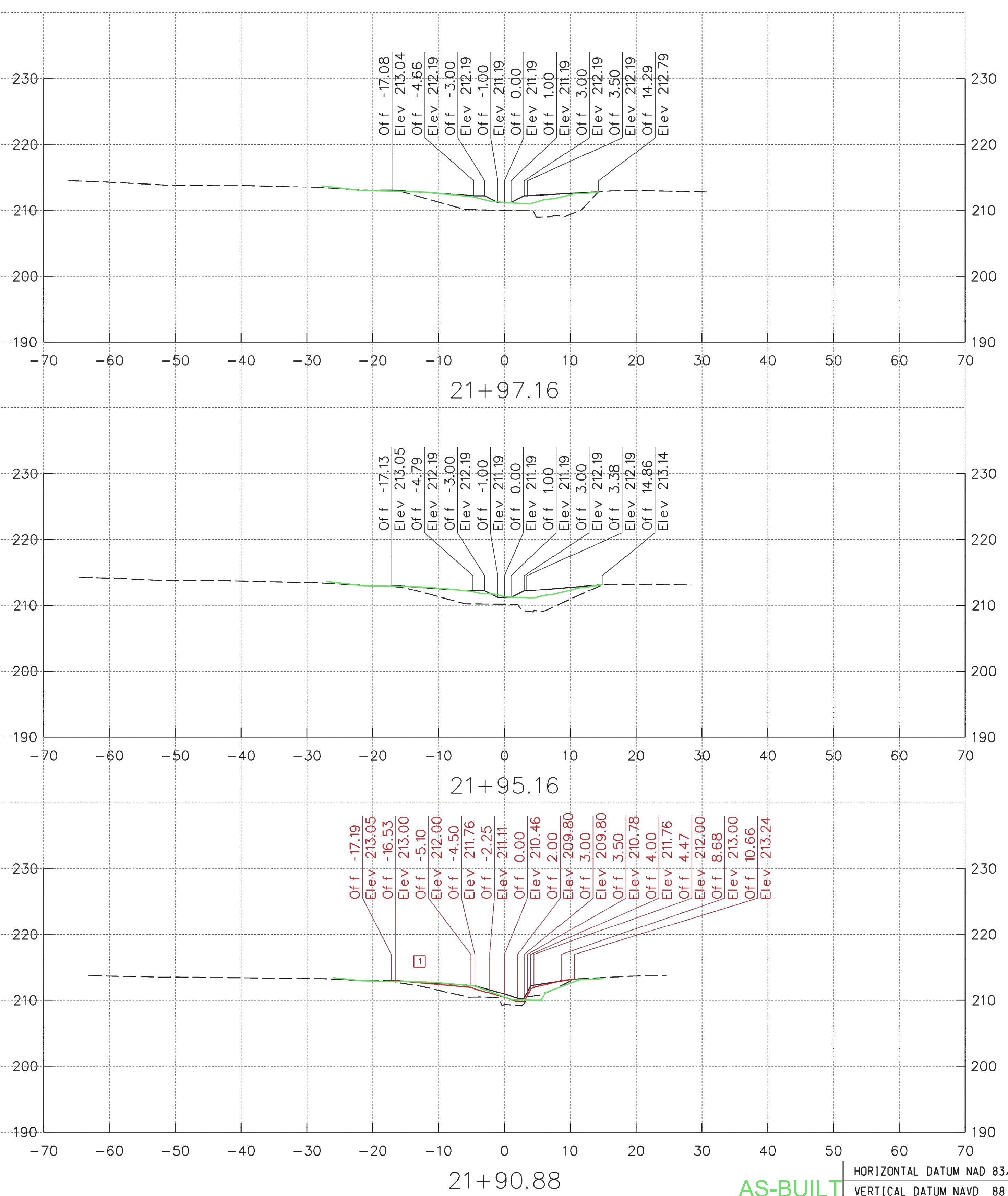
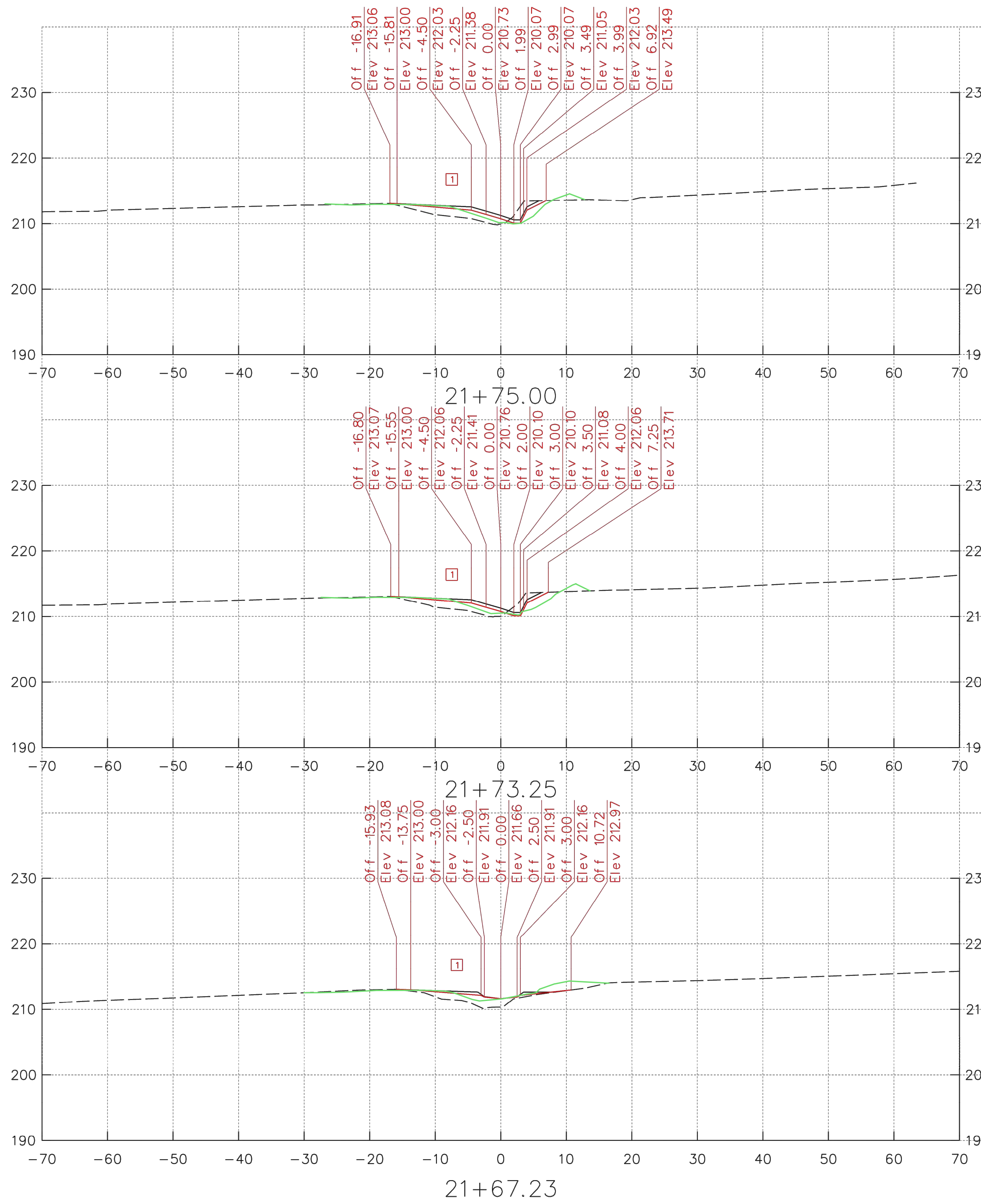

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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	REVISE CROSS SECTION	JS	6/16/20

I-95 EXPRESS TOLL LANES NORTHBOUND EXTENSION
CARSINS RUN STREAM MITIGATION PLAN
 JOHN F. KENNEDY MEMORIAL HIGHWAY
 HARFORD COUNTY
 STREAM CROSS SECTIONS
 DESIGNED BY SL DRAWN BY JS CHECKED BY SL
 CONST. REVIEW BY _____ DATE OCTOBER, 2019 SCALE 1" = 10'

HORIZONTAL DATUM NAD 83/91
 VERTICAL DATUM NAVD 88
 CONTRACT NO. KH-3028-0000
 DRAWING NO. **HC-04**
 SHEET NO. 43 OF 87



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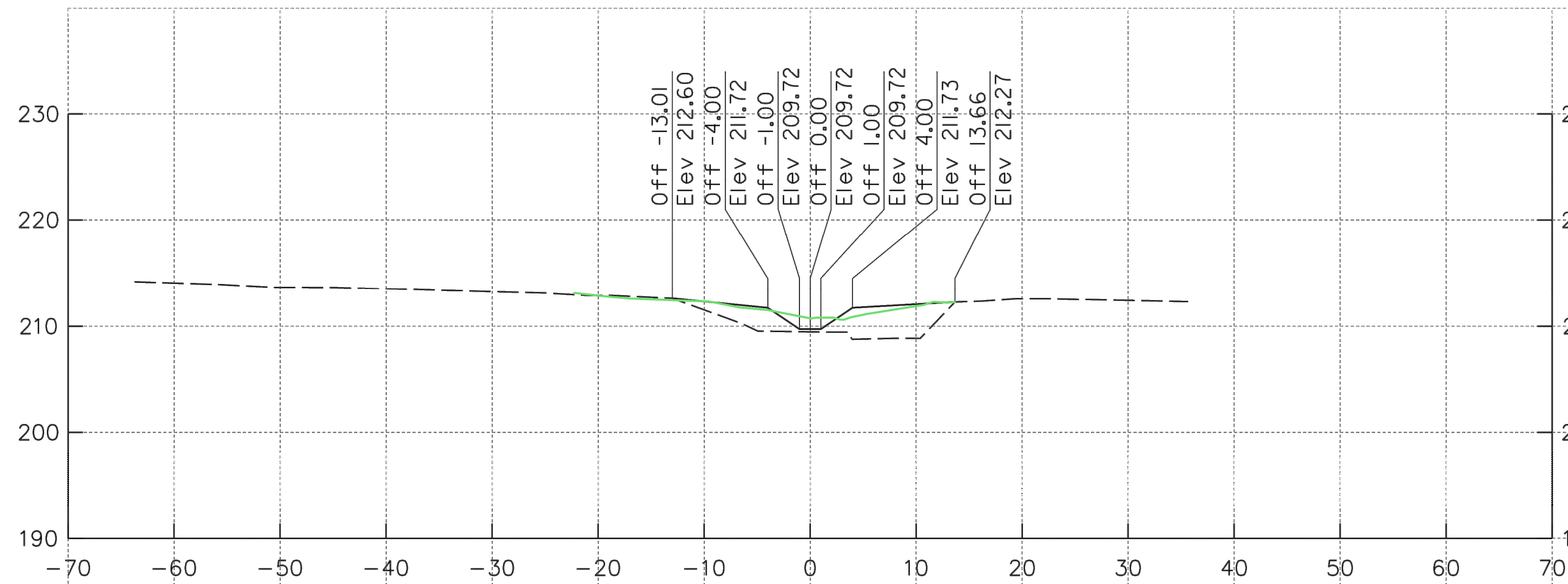
ADDENDUMS & REVISIONS		
NO.	DESCRIPTION	BY DATE
1	REVISE CROSS SECTION	JS 6/16/20

**I-95 EXPRESS TOLL LANES NORTHBOUND EXTENSION
 CARSENS RUN STREAM MITIGATION PLAN**

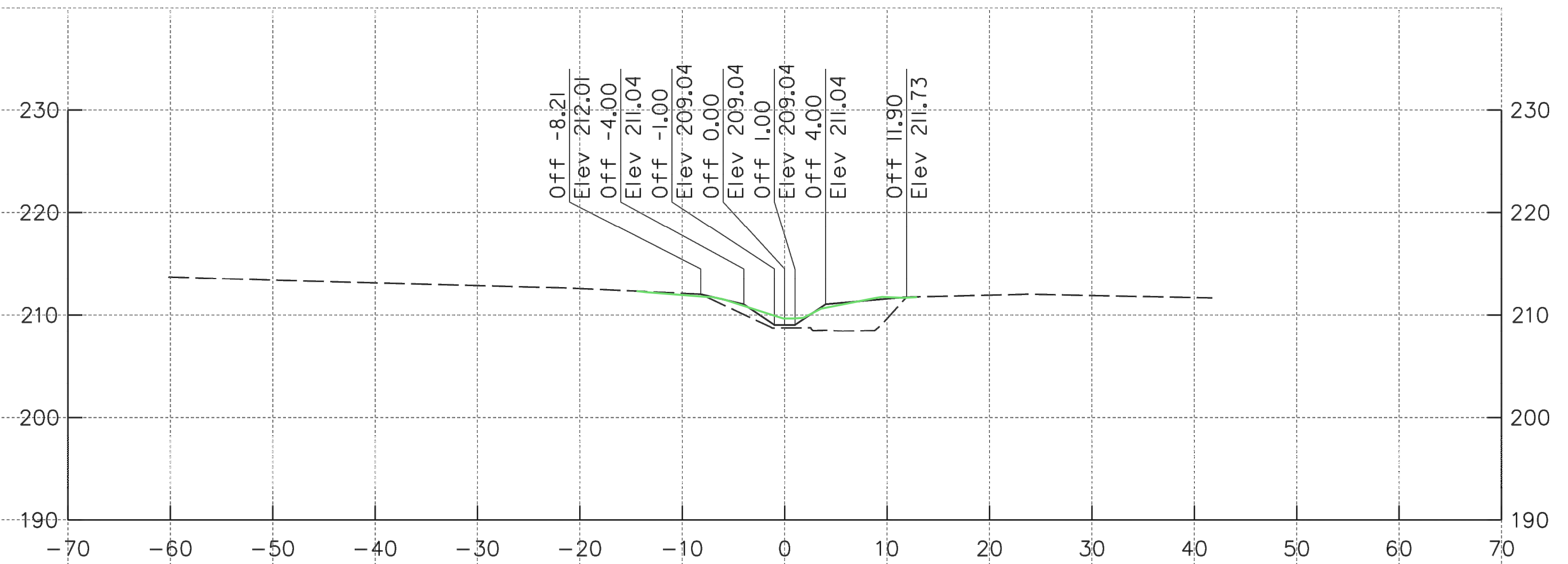
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HORIZONTAL DATUM NAD 83/91
 VERTICAL DATUM NAVD 88

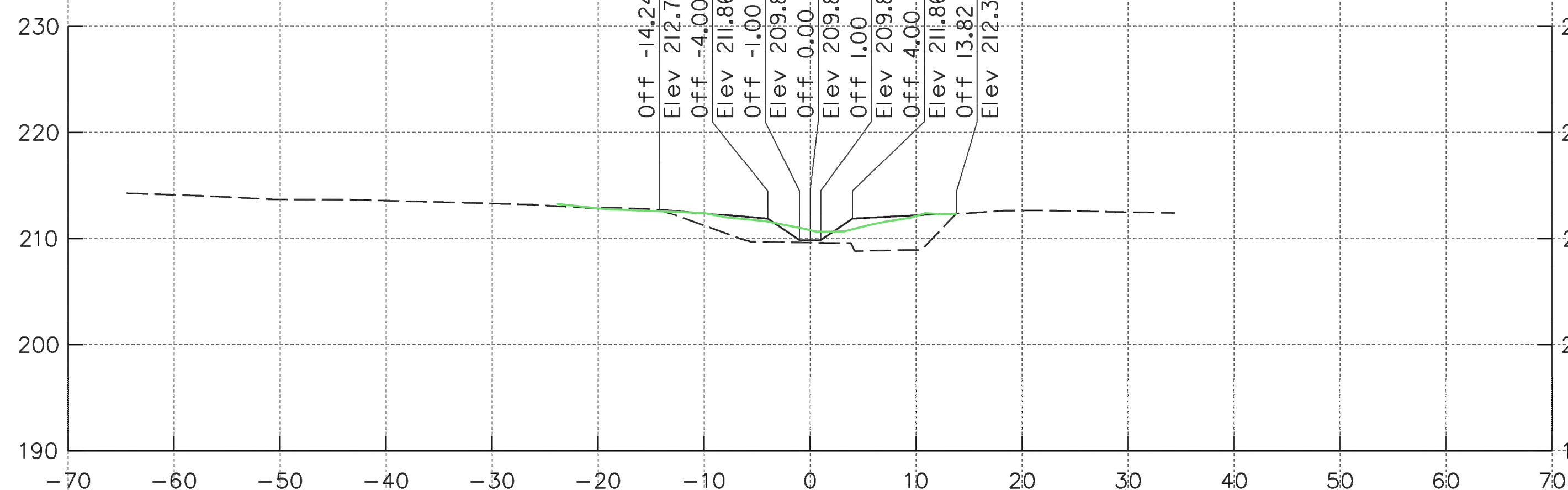
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 DRAWING NO. **HC-05**
 SHEET NO. 44 OF 87



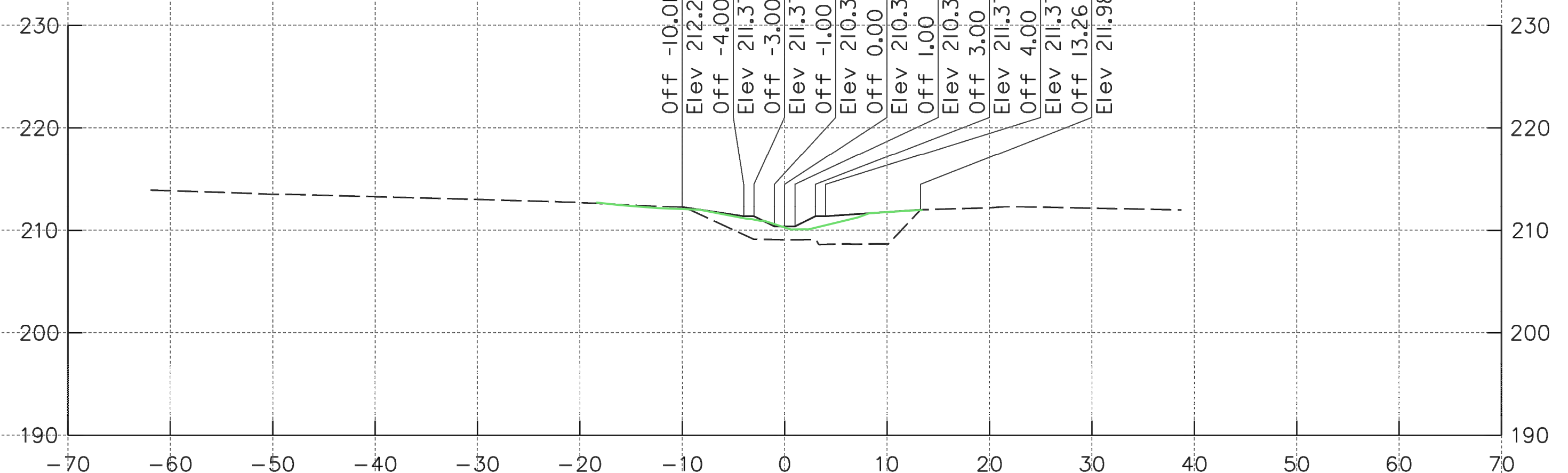
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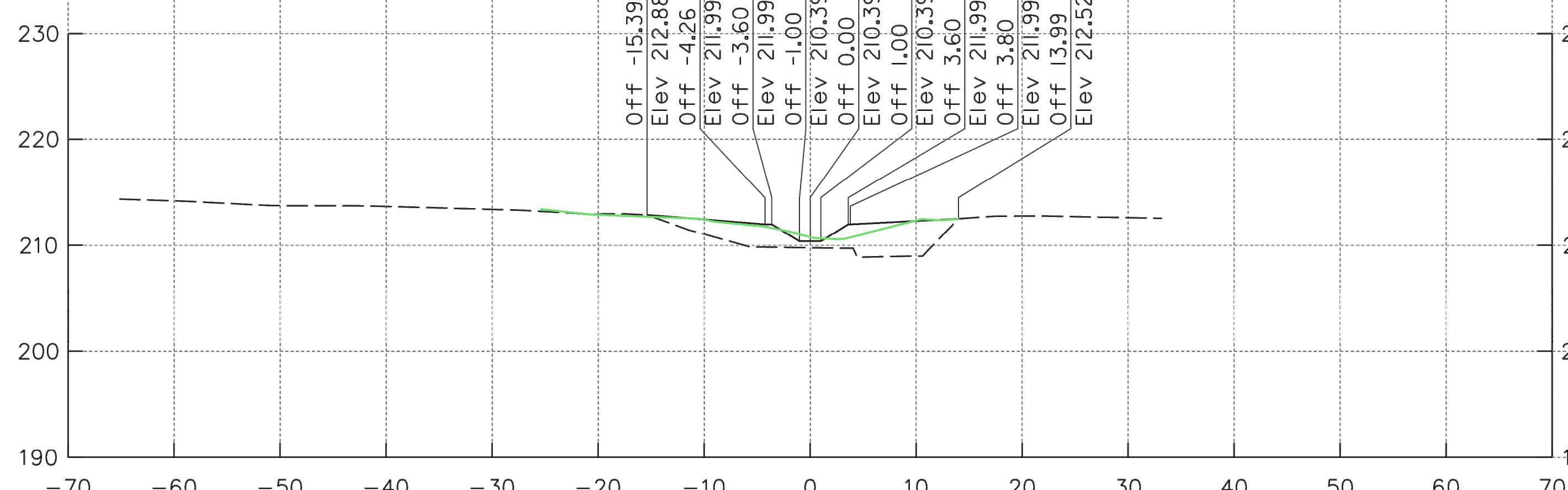
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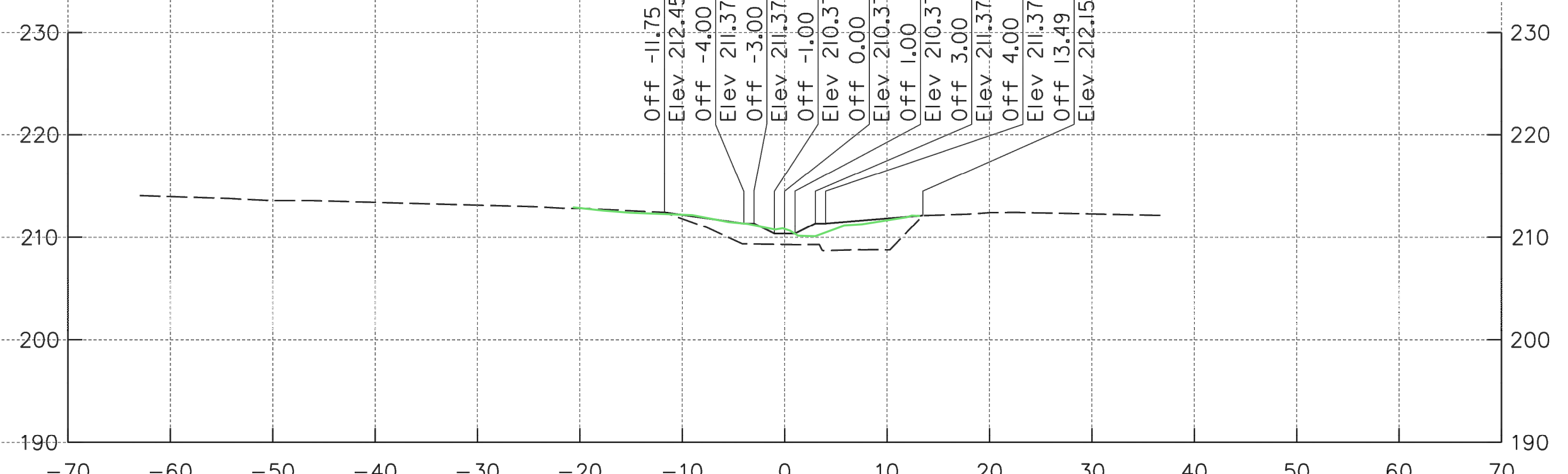
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22+08.66



22+00.00



22+05.87

AS-BUILT
HORIZONTAL DATUM NAD 83/91
VERTICAL DATUM NAVD 88

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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

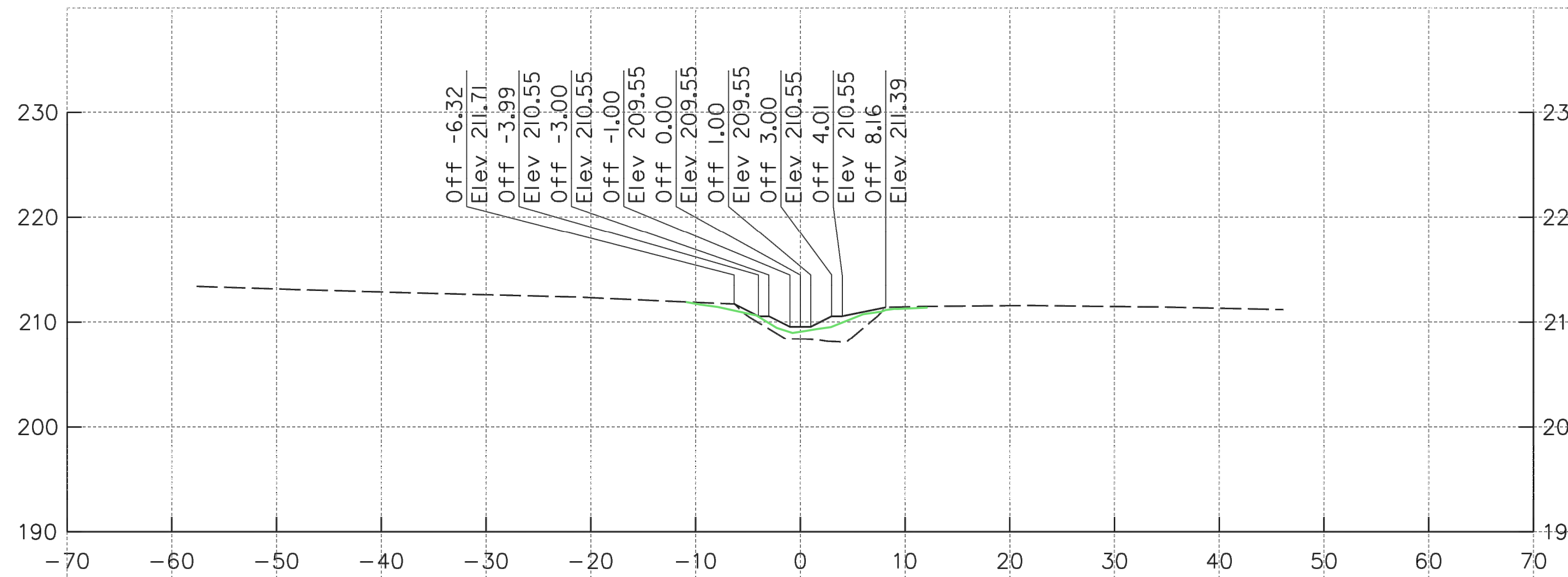
**I-95 EXPRESS TOLL LANES NORTHBOUND EXTENSION
CARSINS RUN STREAM MITIGATION PLAN**

JOHN F. KENNEDY MEMORIAL HIGHWAY
HARFORD COUNTY

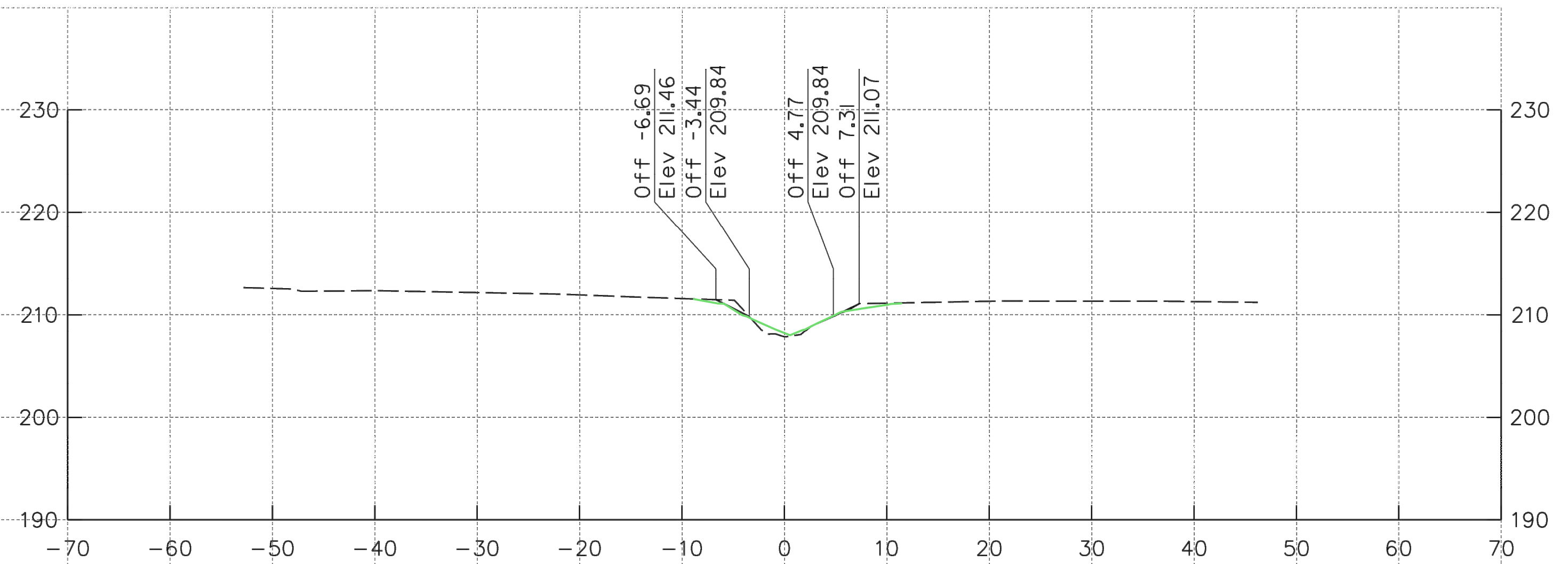
STREAM CROSS SECTIONS

DESIGNED BY SL	DRAWN BY JS	CHECKED BY SL
CONST. REVIEW BY	DATE OCTOBER, 2019	SCALE 1" = 10'

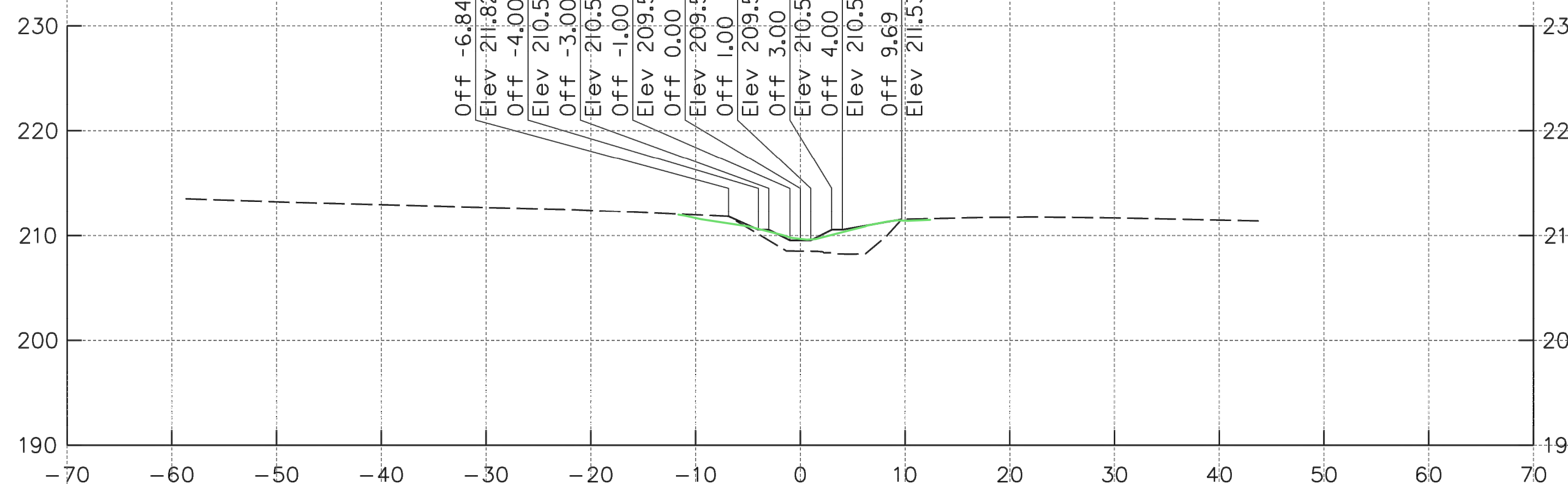
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VERTICAL DATUM NAVD 88	DRAWING NO. HC-06
SHEET NO. 45 OF 87	



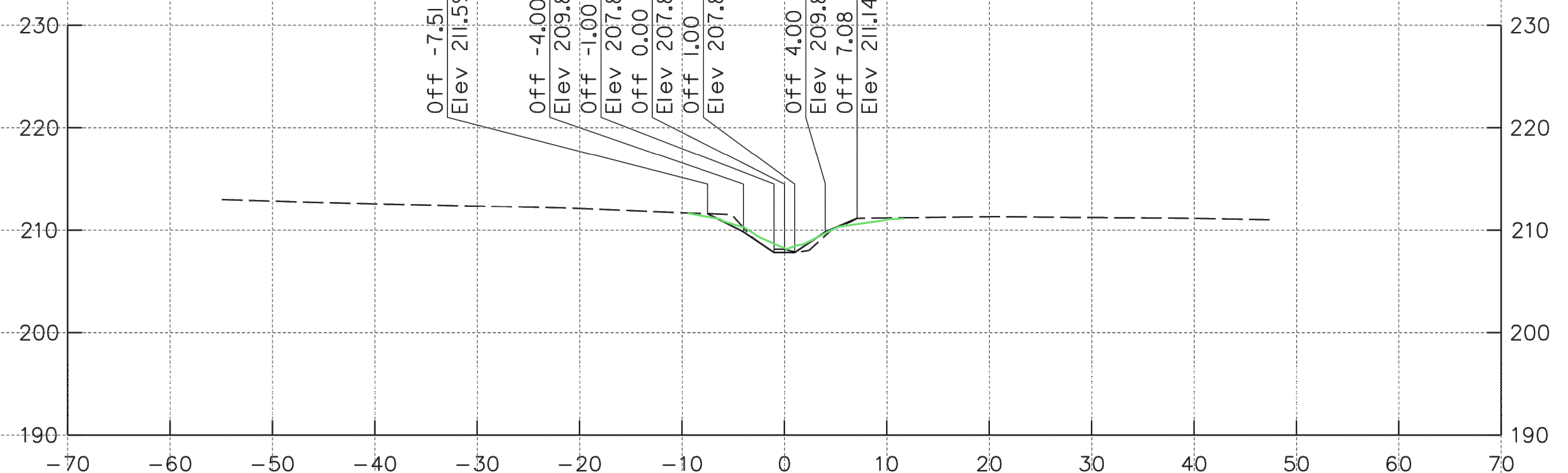
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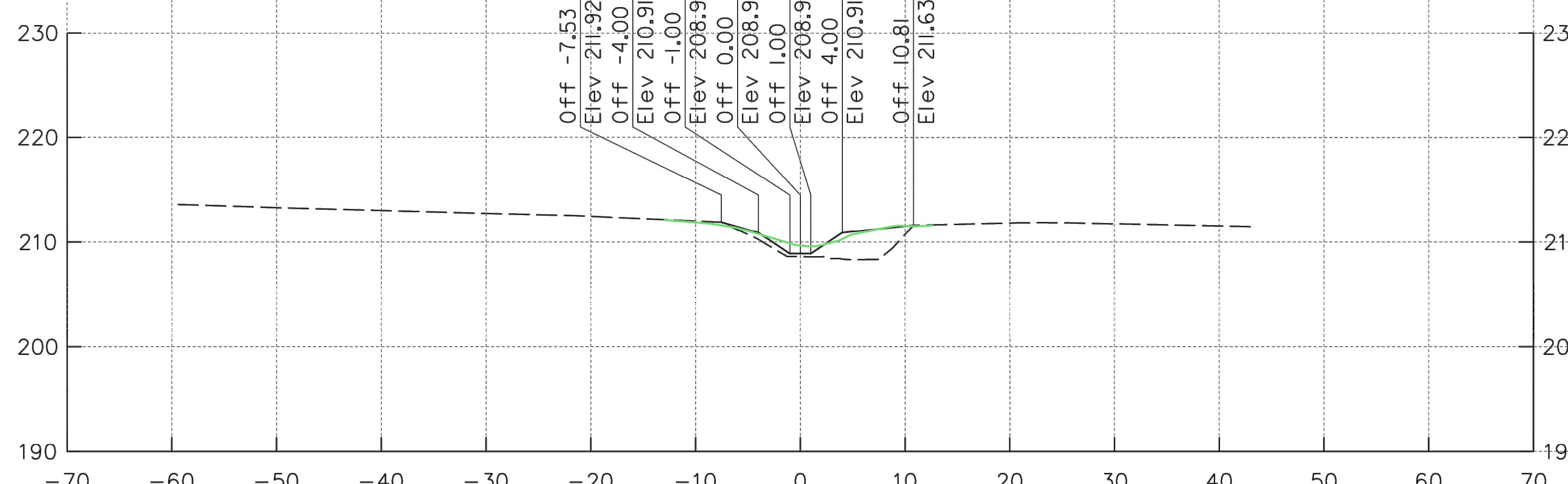
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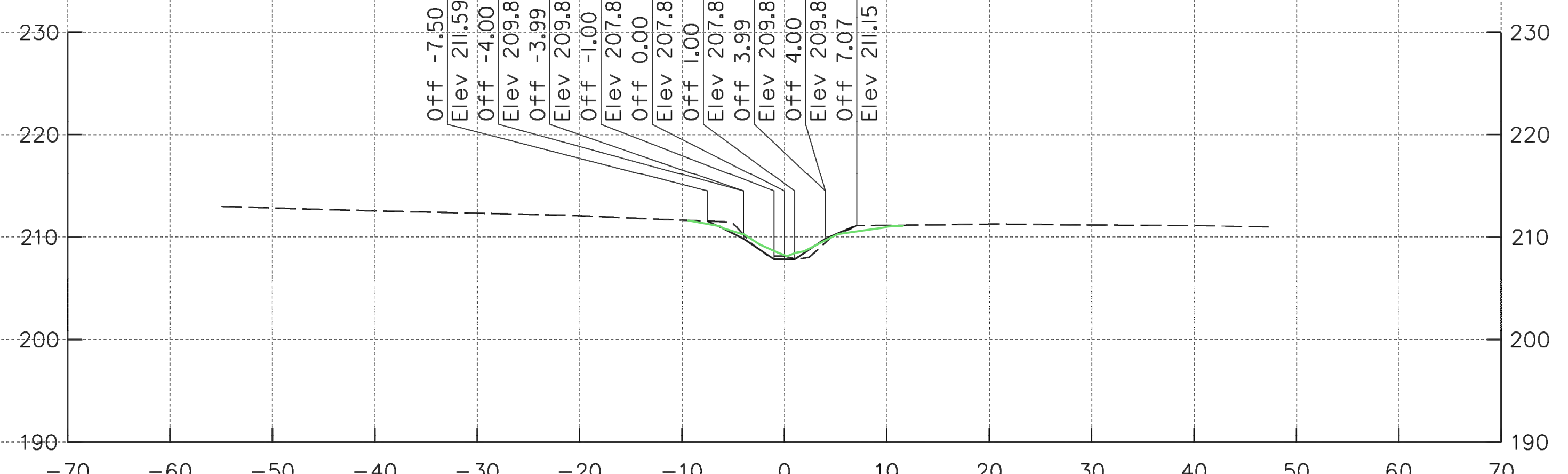
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22+25.03



22+15.33



22+25.00

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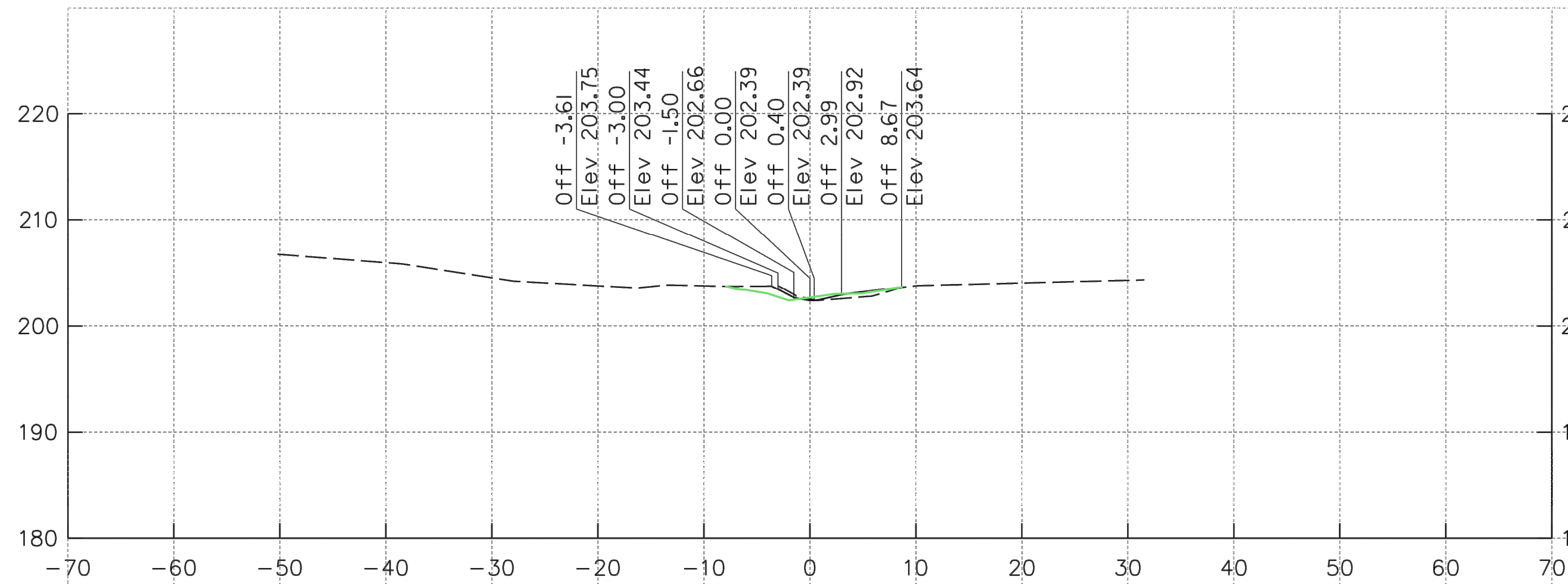
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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

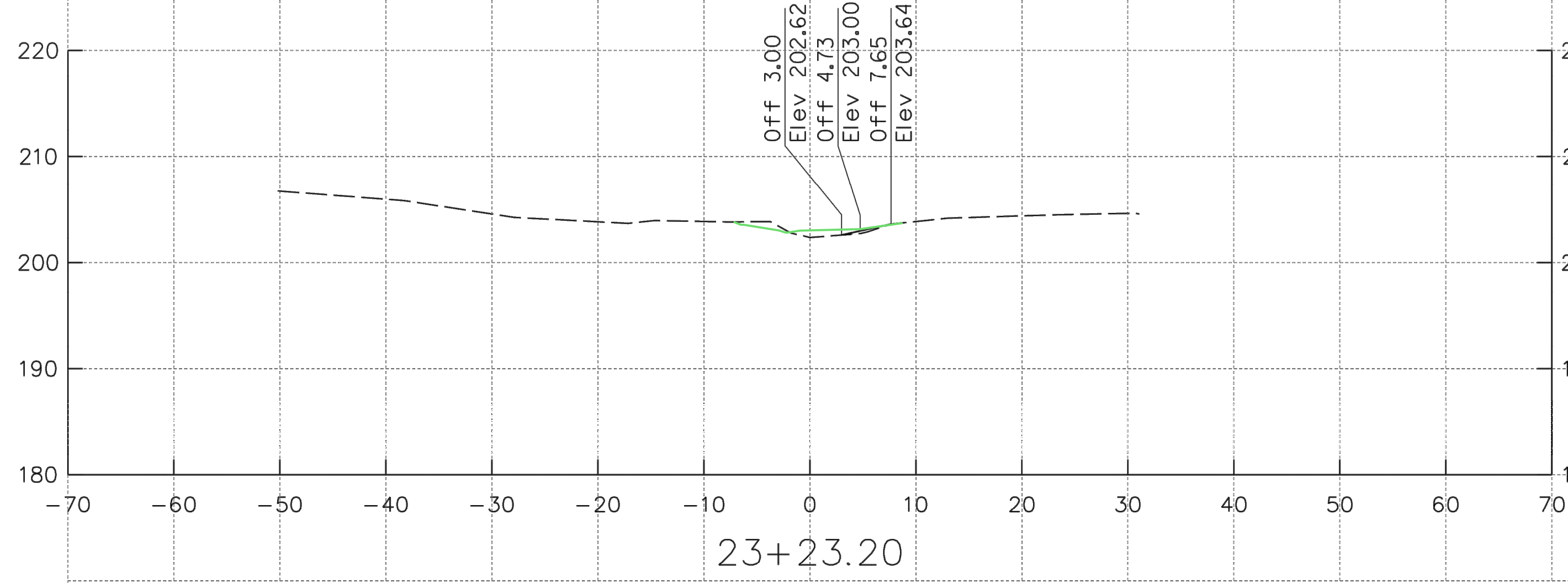
I-95 EXPRESS TOLL LANES NORTHBOUND EXTENSION
CARSINS RUN STREAM MITIGATION PLAN
JOHN F. KENNEDY MEMORIAL HIGHWAY
HARFORD COUNTY
STREAM CROSS SECTIONS

DESIGNED BY SL	DRAWN BY JS	CHECKED BY SL	SHEET NO.
CONST. REVIEW BY	DATE OCTOBER, 2019	SCALE 1" = 10'	46 OF 87

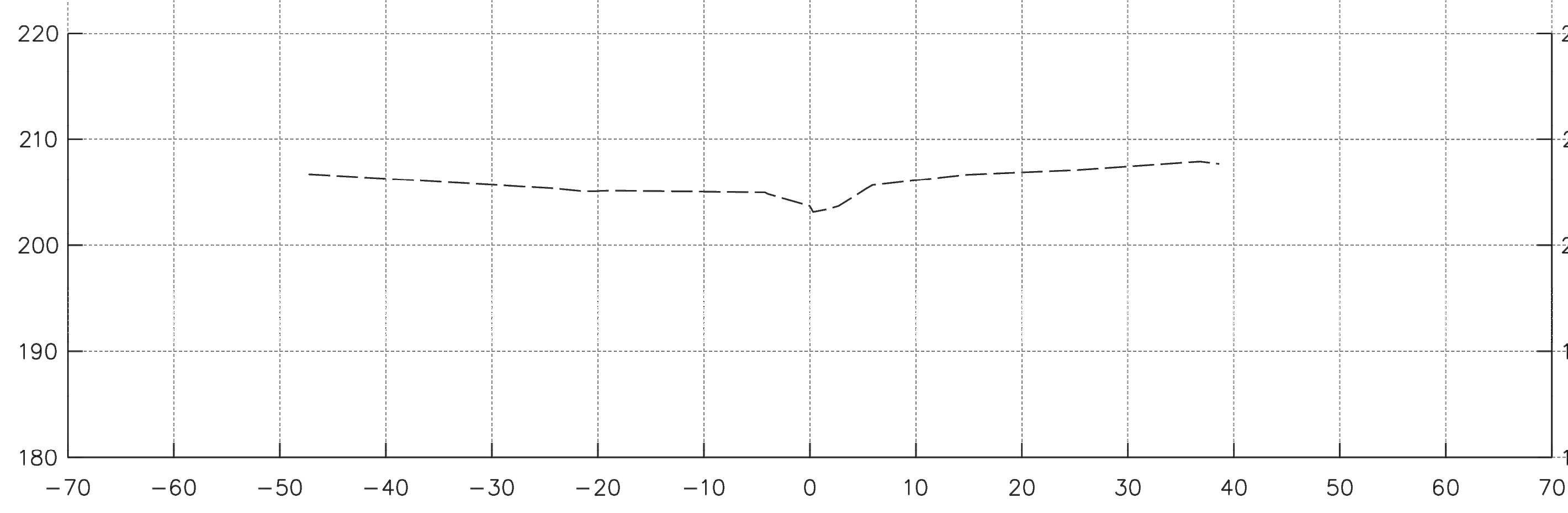
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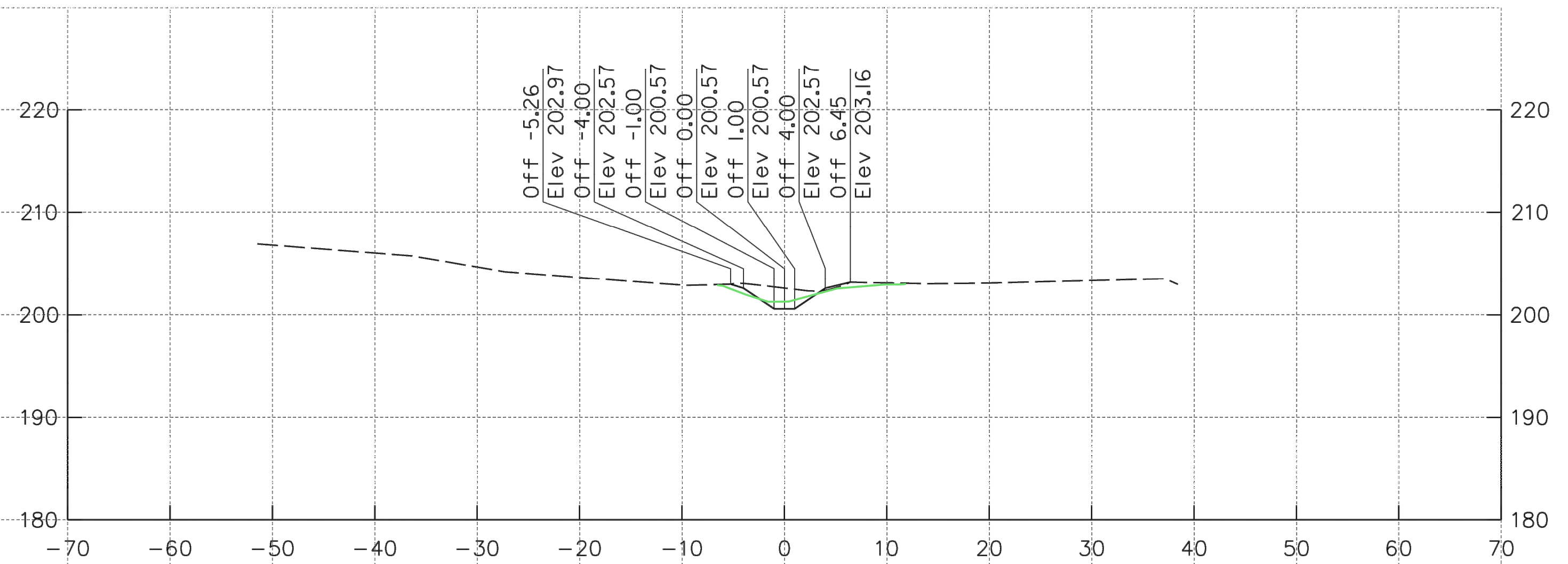
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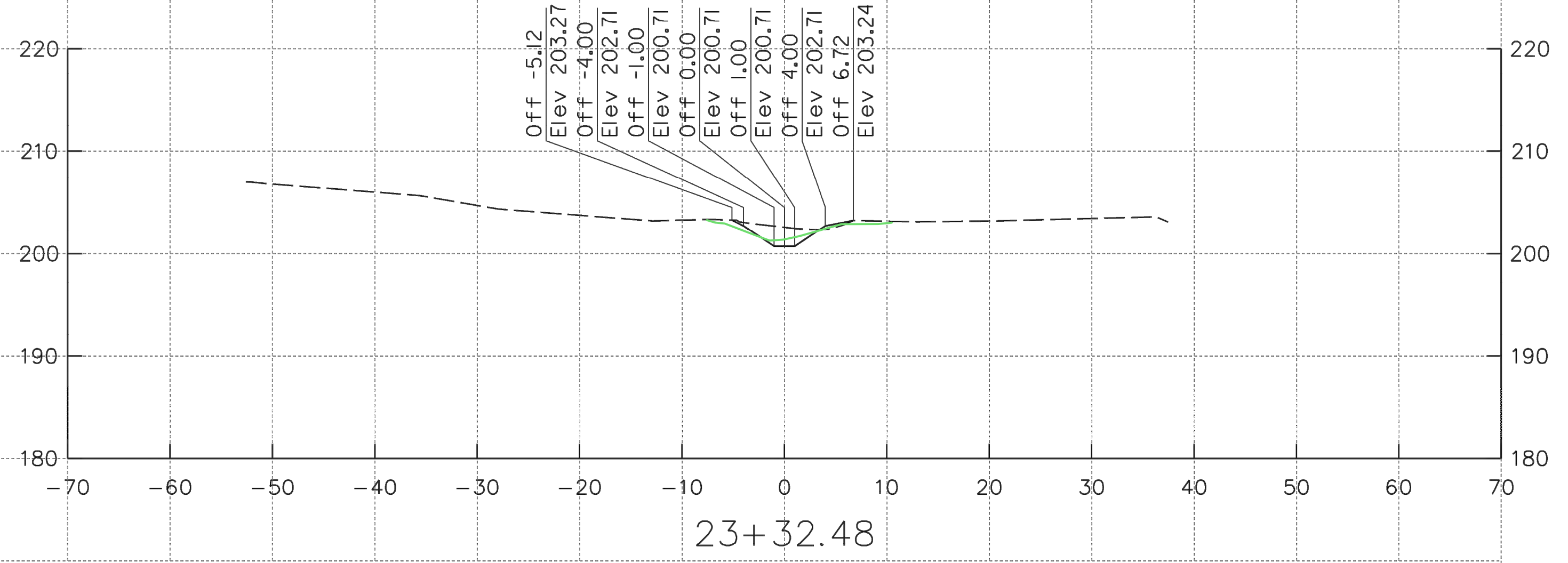
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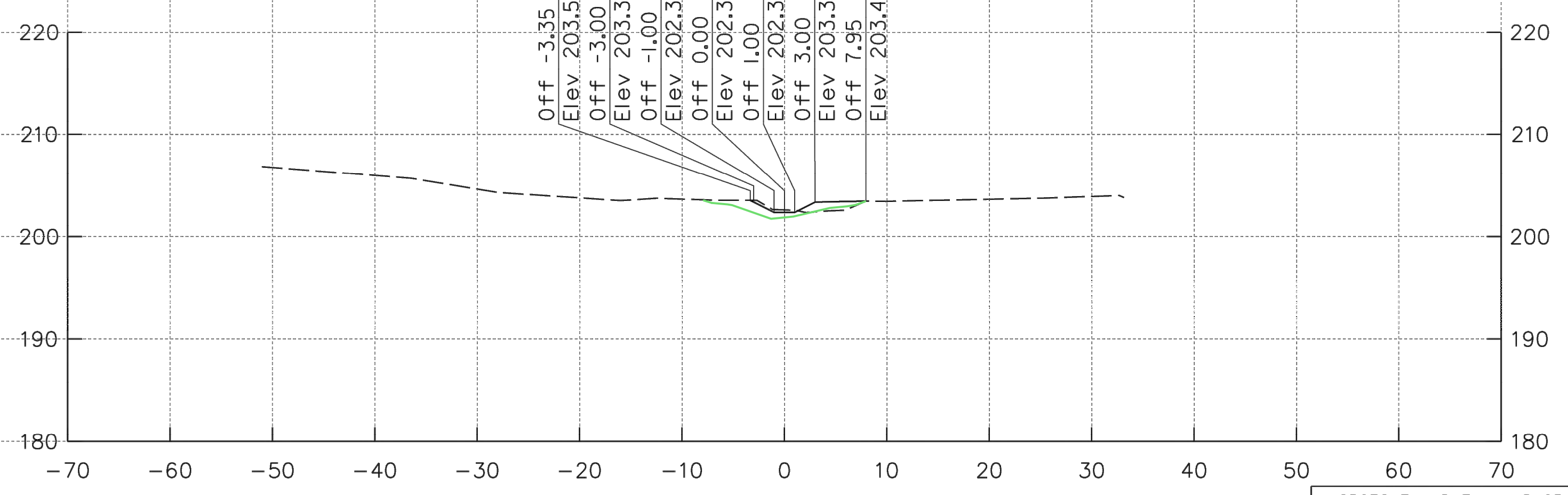
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23+27.79

AS-BUILT

HORIZONTAL DATUM NAD 83/91
VERTICAL DATUM NAVD 88

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ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY	DATE

**I-95 EXPRESS TOLL LANES NORTHBOUND EXTENSION
CARSINS RUN STREAM MITIGATION PLAN**

JOHN F. KENNEDY MEMORIAL HIGHWAY
HARFORD COUNTY
STREAM CROSS SECTIONS
DESIGNED BY SL
DRAWN BY JS
CHECKED BY SL
CONST. REVIEW BY
DATE OCTOBER, 2019
SCALE 1" = 10'

CONTRACT NO.
KH-3028-0000
DRAWING NO.
HC-08
SHEET NO.
47 OF 87