

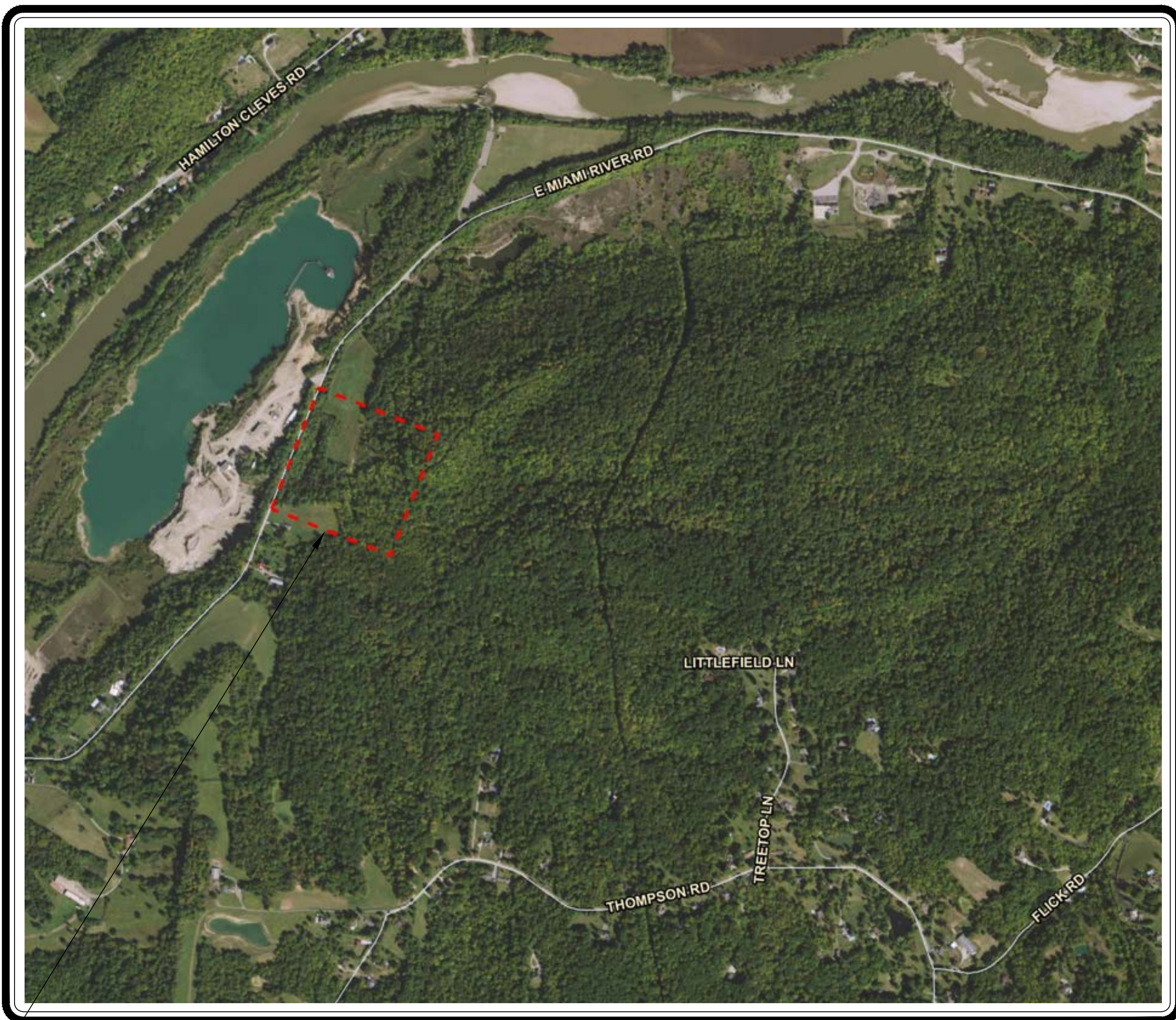
Oak Glen Pipeline
Release Incident

APPENDIX

A

Primary Restoration As-Built Drawings

Sunoco Logistics



COVER SHEET
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS

Revisions made in accordance with Phase 1 Primary Restoration Plan Approval with Modifications (Natural Resource Trustees (OEP/USFWS) and Great Parks of Hamilton County) dated March 4, 2016.

AS-BUILT

DRAWN BY:	SKL
DESIGNED BY:	AS
DATE:	MAR 2019
JOB NO:	J143037800

SHEET NO.

DF 33



Location: R:\Projects\1411431\43037870_CardioENTRIX_OakGlen\NPICAD\ASbuilt_Year1_2019072802-OakGlen-201910228.dwg
Layout Tab Name: 2-EXISTING CONDITIONS, Images: 00-Blue Valley Final Plans 20080415, Page: 4.jpg , Xrefs:
Last Saved By: Stephen LaFon, 3/1/2019 3:15:25 PM
Plotted By: Stephen LaFon, 3/1/2019 3:16:06 PM

EXISTING CONDITIONS
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS

[illegible]

AS-BUILT

DRAWN BY: SKL

DESIGNED BY: AS

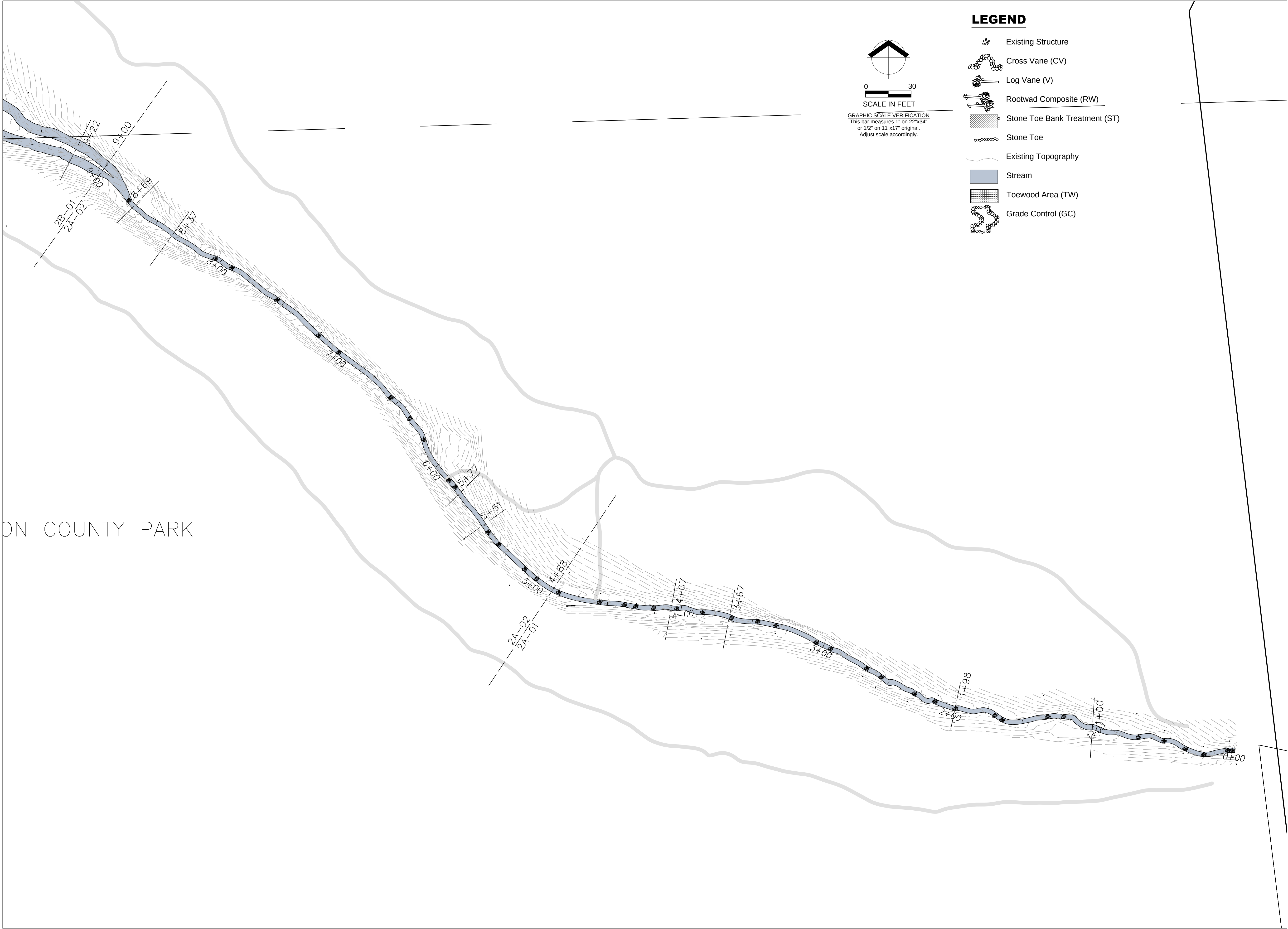
DATE: MAR 2019

JOB NO: 1143037800

SHEET NO.

2

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Plotted By: Stephen LaFon; Plotted: March 1, 2019, 3:16:08 PM



TREATMENT AREAS 2A-01 AND 2A-02
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS

REVISION

AS-BUILT

DRAWN BY: SKL
DESIGNED BY: AS
DATE: MAR 2019
JOB NO: J143037800

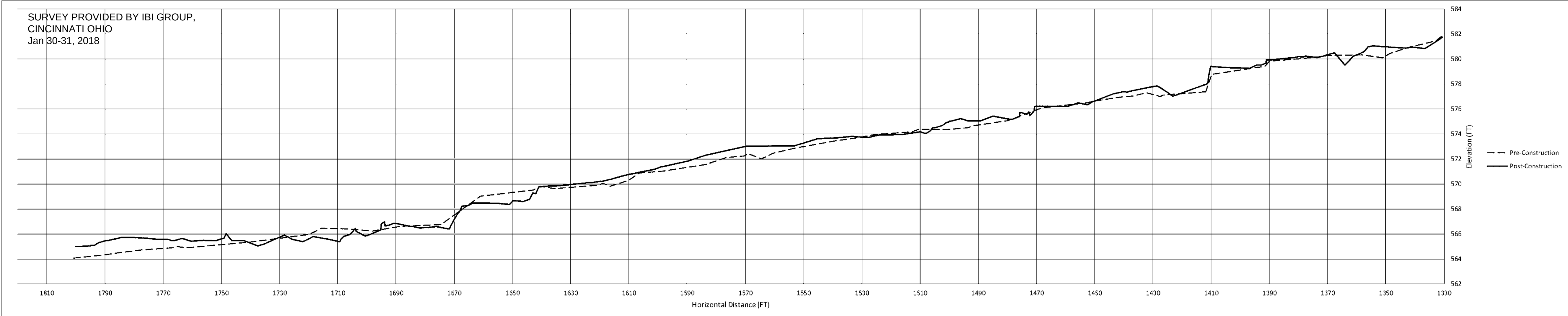
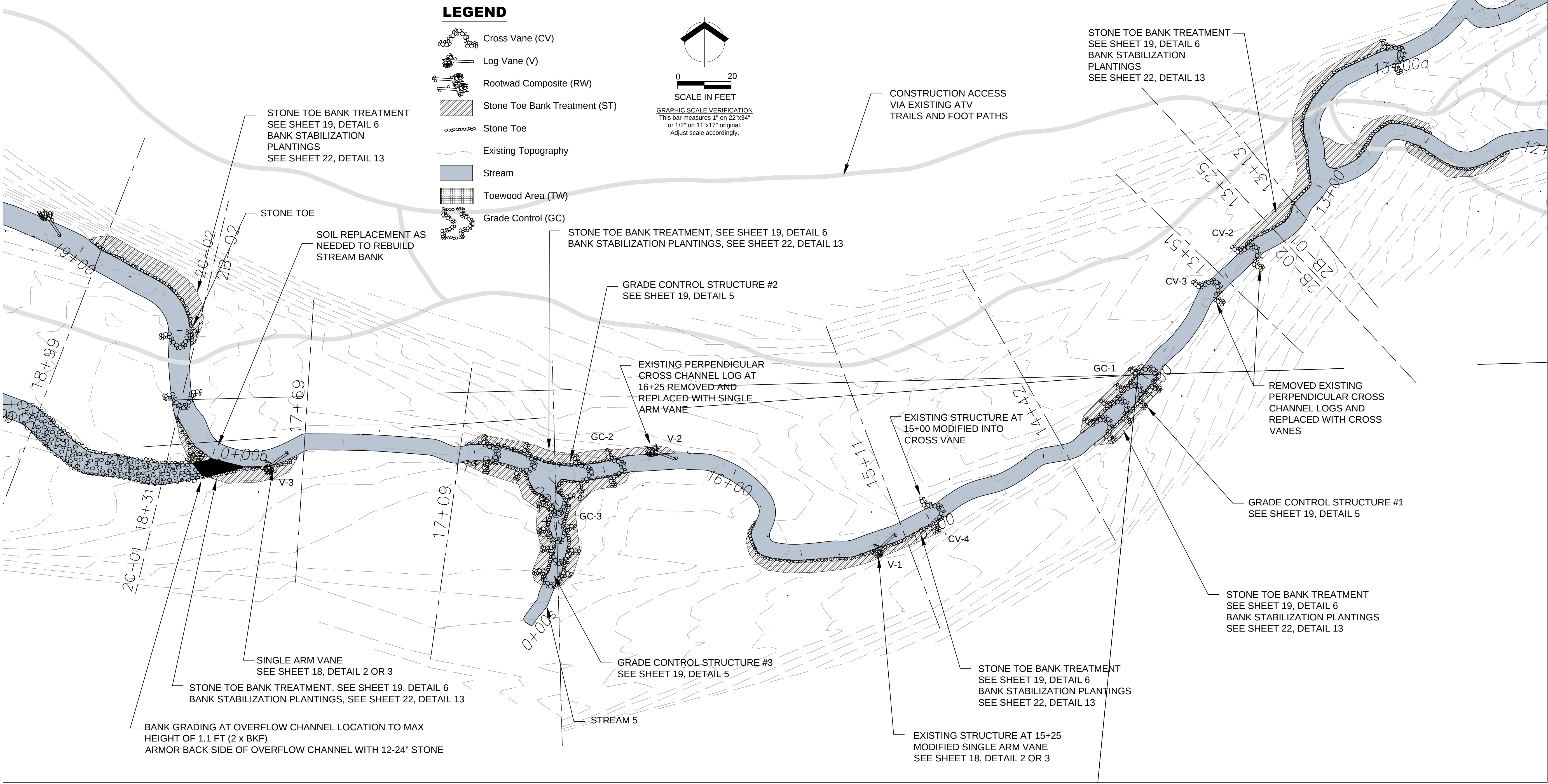
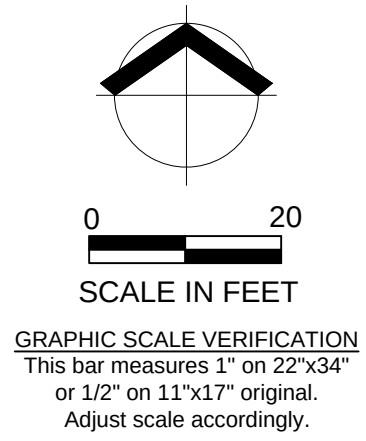
SHEET NO.

3

OF 33

LEGEND

- Cross Vane (CV)
- Log Vane (V)
- Rootwad Composite (RW)
- Stone Toe Bank Treatment (ST)
- Stone Toe
- Existing Topography
- Stream
- Toewood Area (TW)
- Grade Control (GC)



TREATMENT AREA 2B-02
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS

REVISION

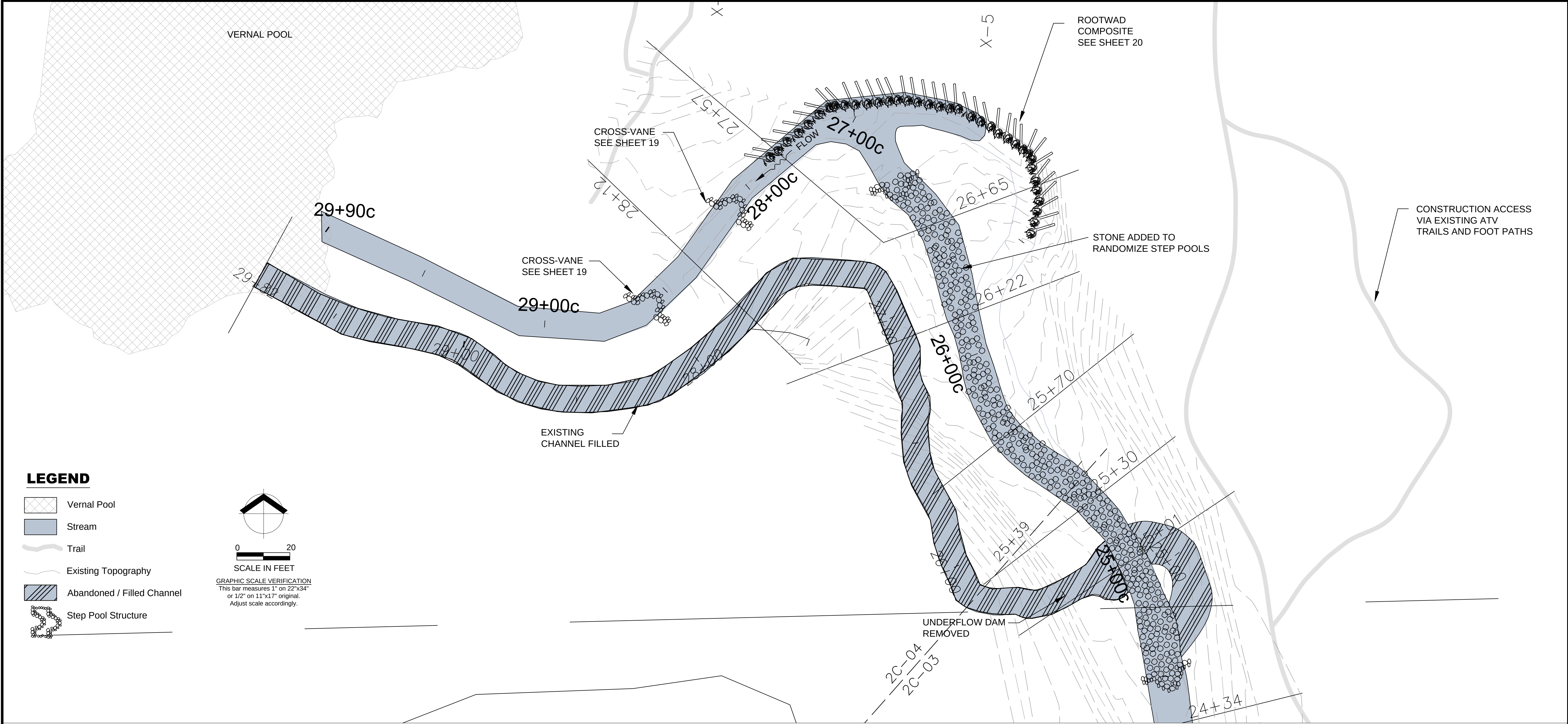
AS-BUILT

DRAWN BY: SKL
DESIGNED BY: AS
DATE: MAR 2019
JOB NO: J143037800

SHEET NO.

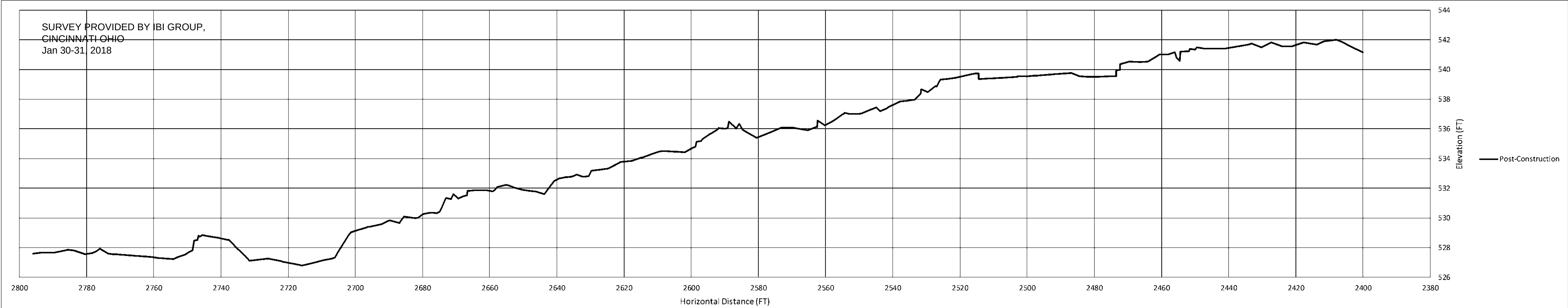
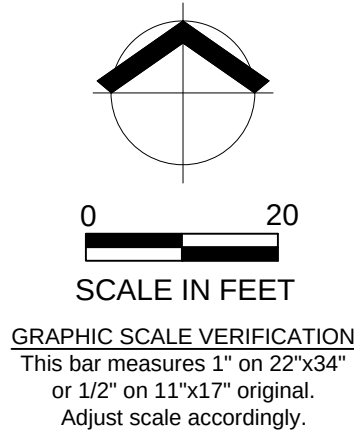
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Plotted By: Stephen LaFon
Plotted: March 1, 2019, 3:16:31 PM



LEGEND

- Vernal Pool
- Stream
- Trail
- Existing Topography
- Abandoned / Filled Channel
- Step Pool Structure



**TREATMENT AREA 2C-04
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS**

REVISION

AS-BUILT

DRAWN BY: SKL
DESIGNED BY: AS
DATE: MAR 2019
JOB NO: J143037800

SHEET NO.

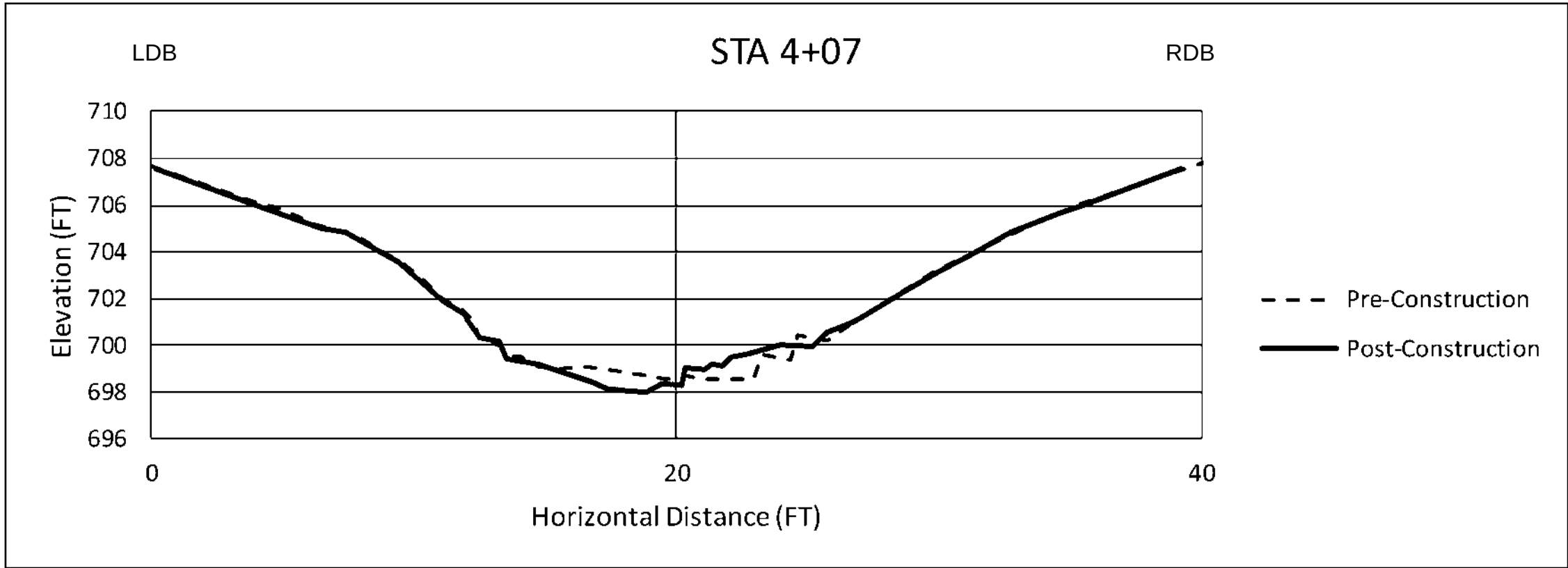
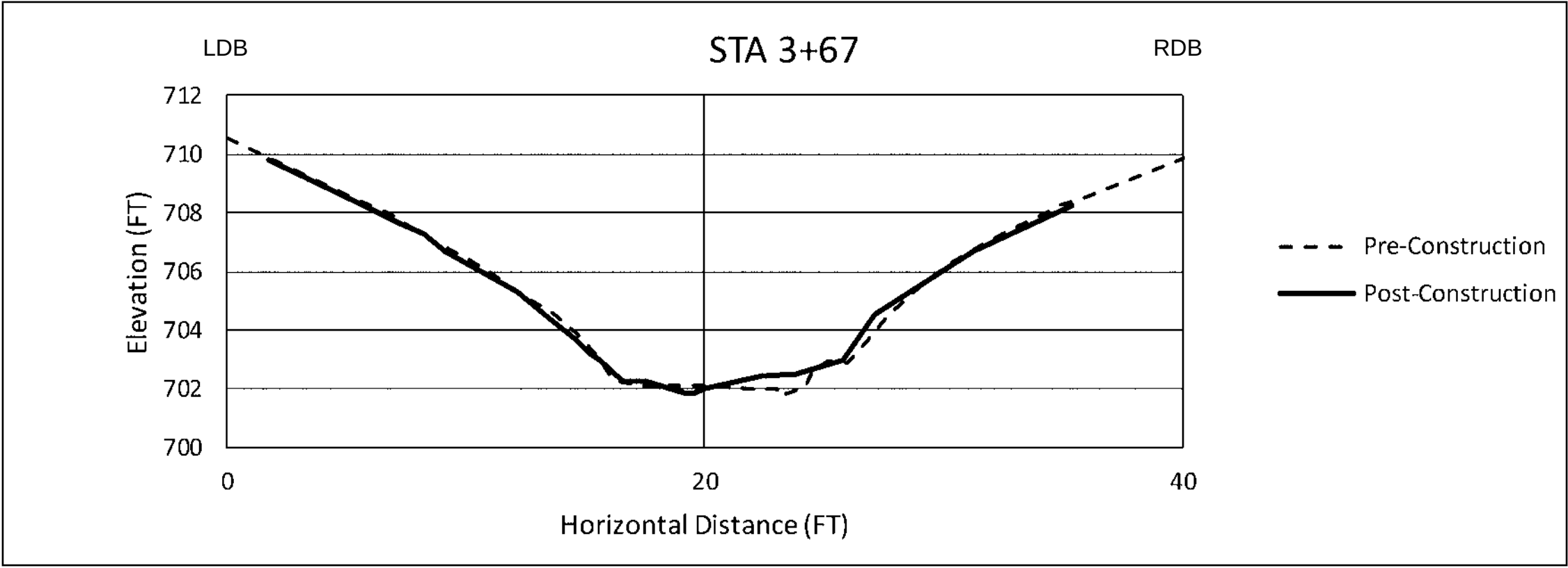
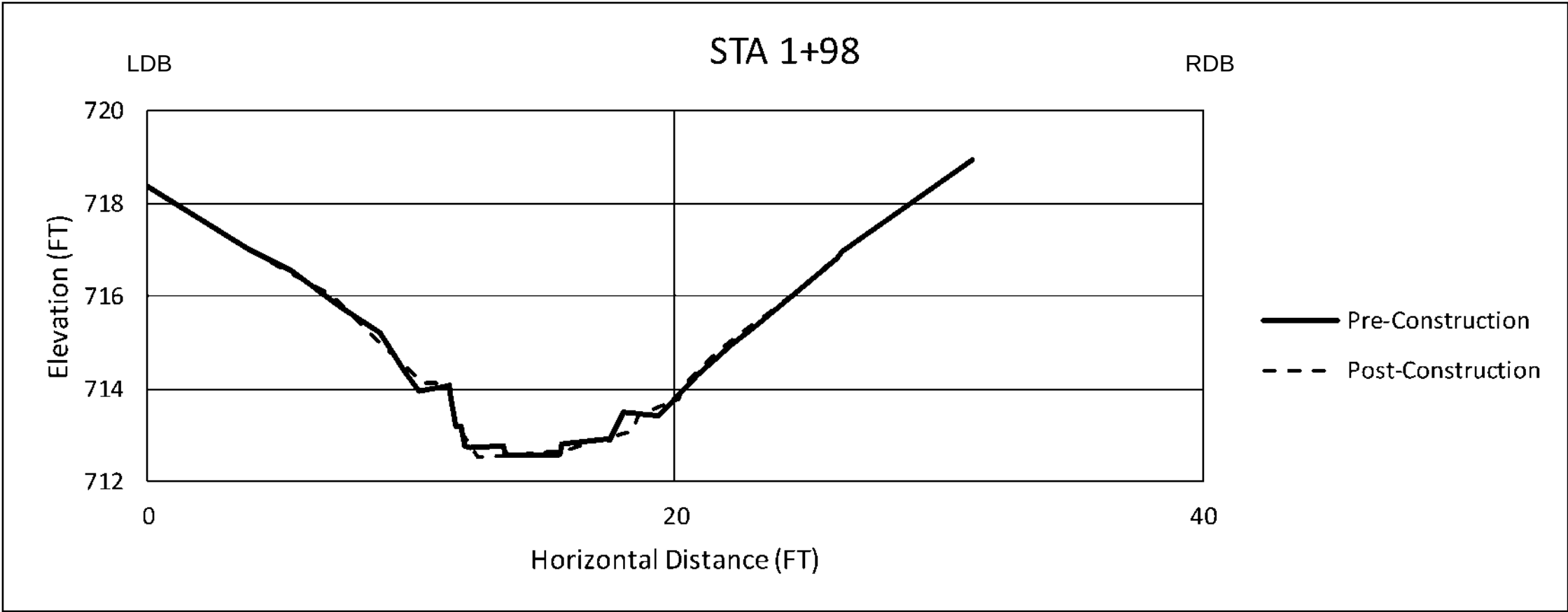
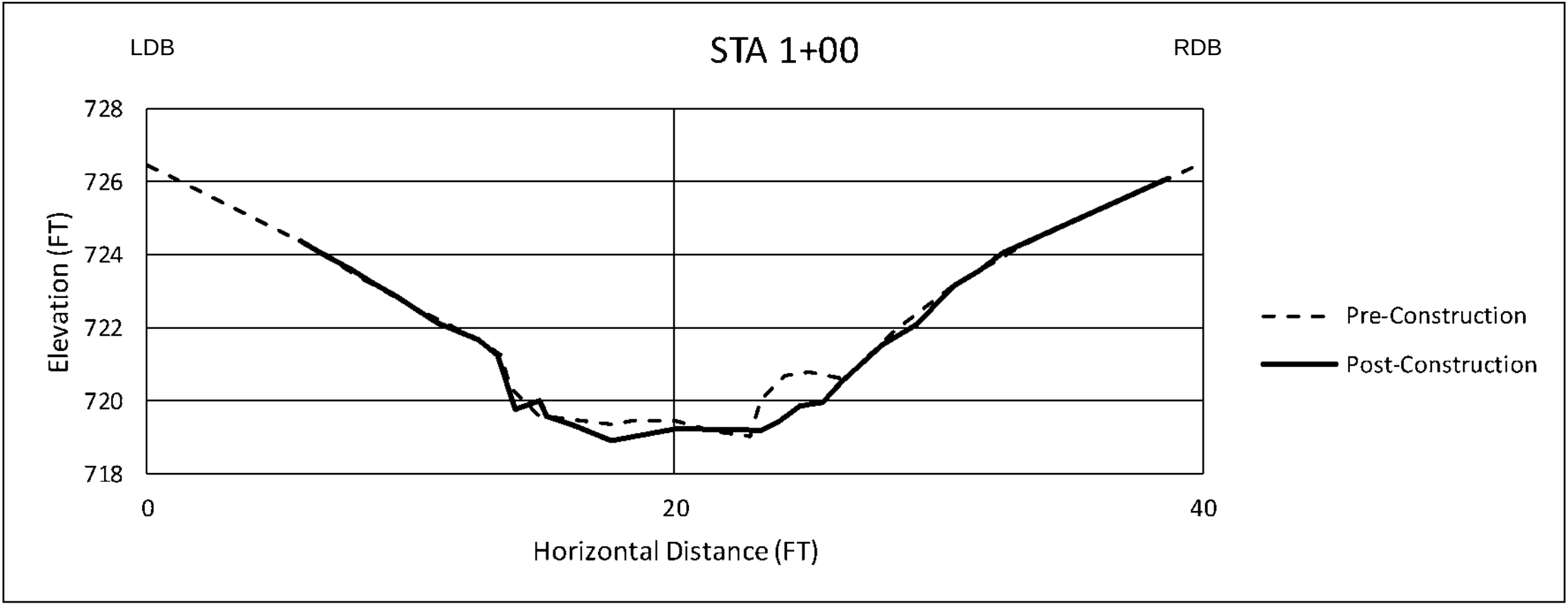
9

OF 33

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Plotted By: Stephen LaFon
Plotted: March 1, 2019, 3:12:23 PM

SURVEY PROVIDED BY IBI GROUP,
CINCINNATI, OHIO
Jan 30-31, 2018

GRAPHIC SCALE VERIFICATION
This bar measures 1" on 22"x34"
or 1/2" on 11"x17" original.
Adjust scale accordingly.



AS-BUILT CHANNEL CROSS SECTIONS
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS

REVISION

AS-BUILT

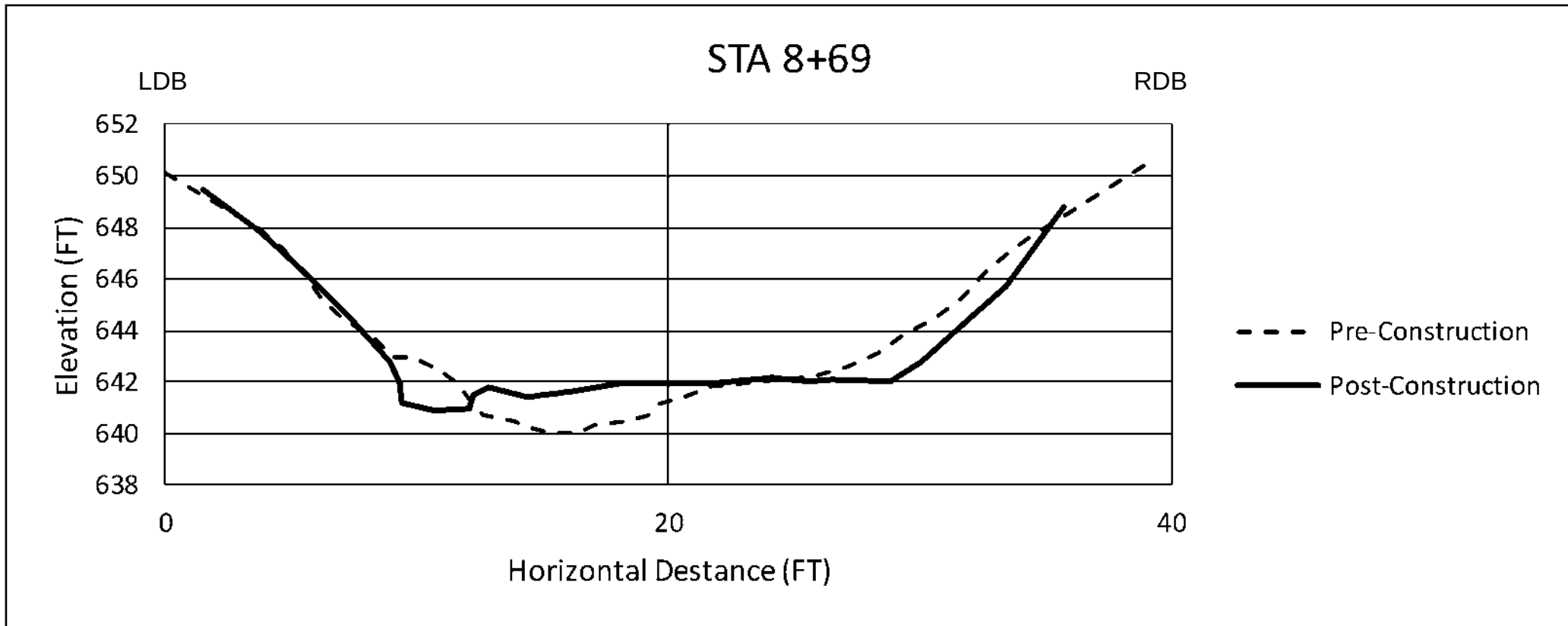
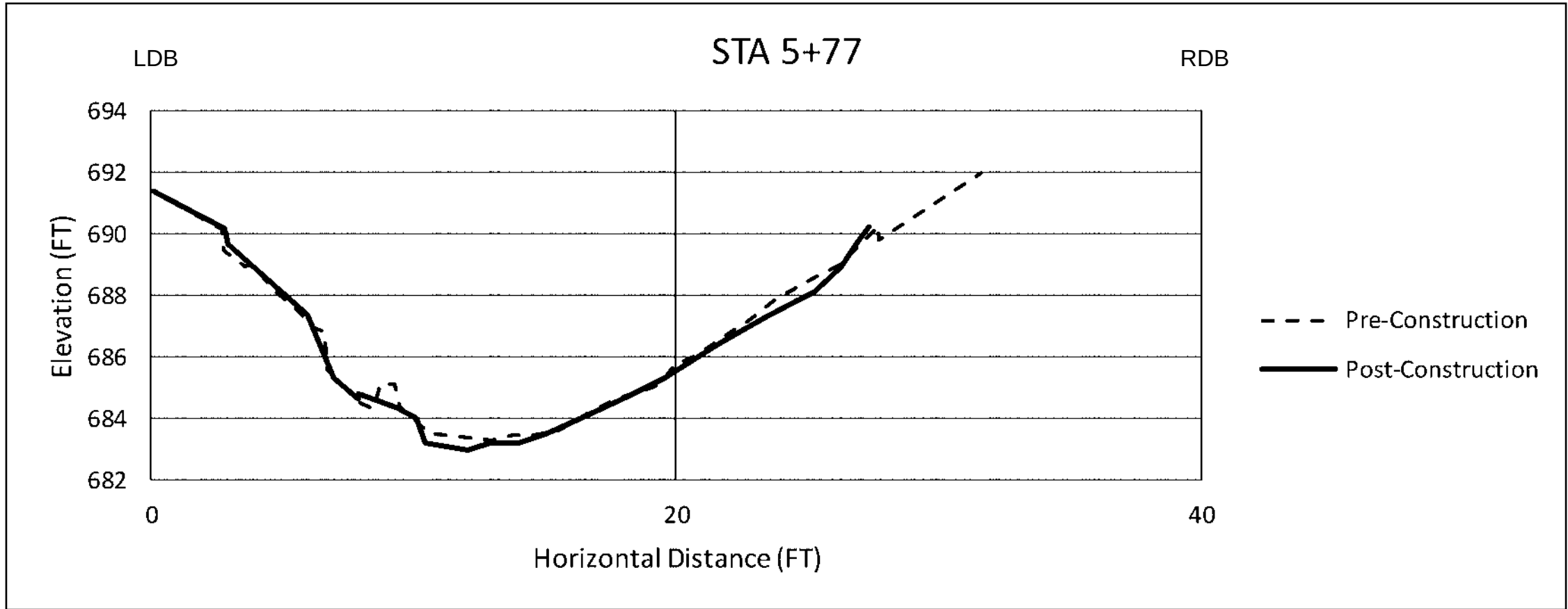
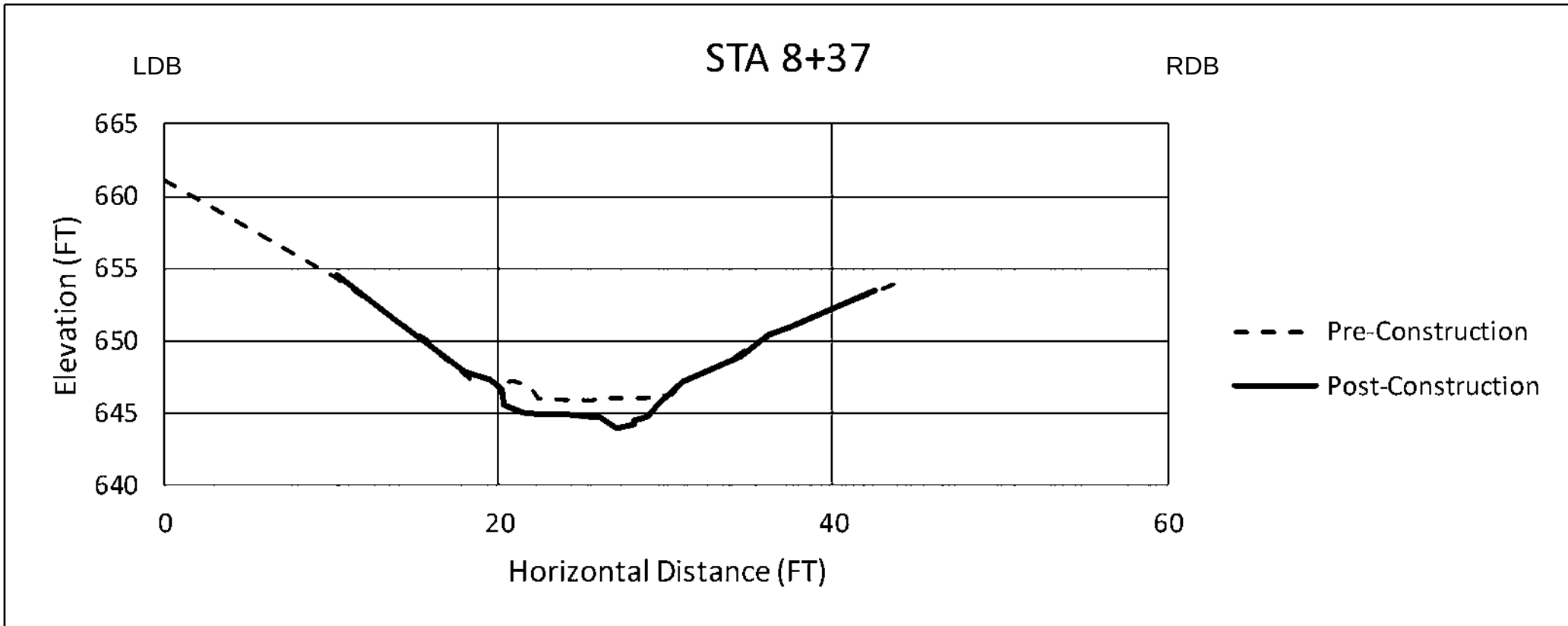
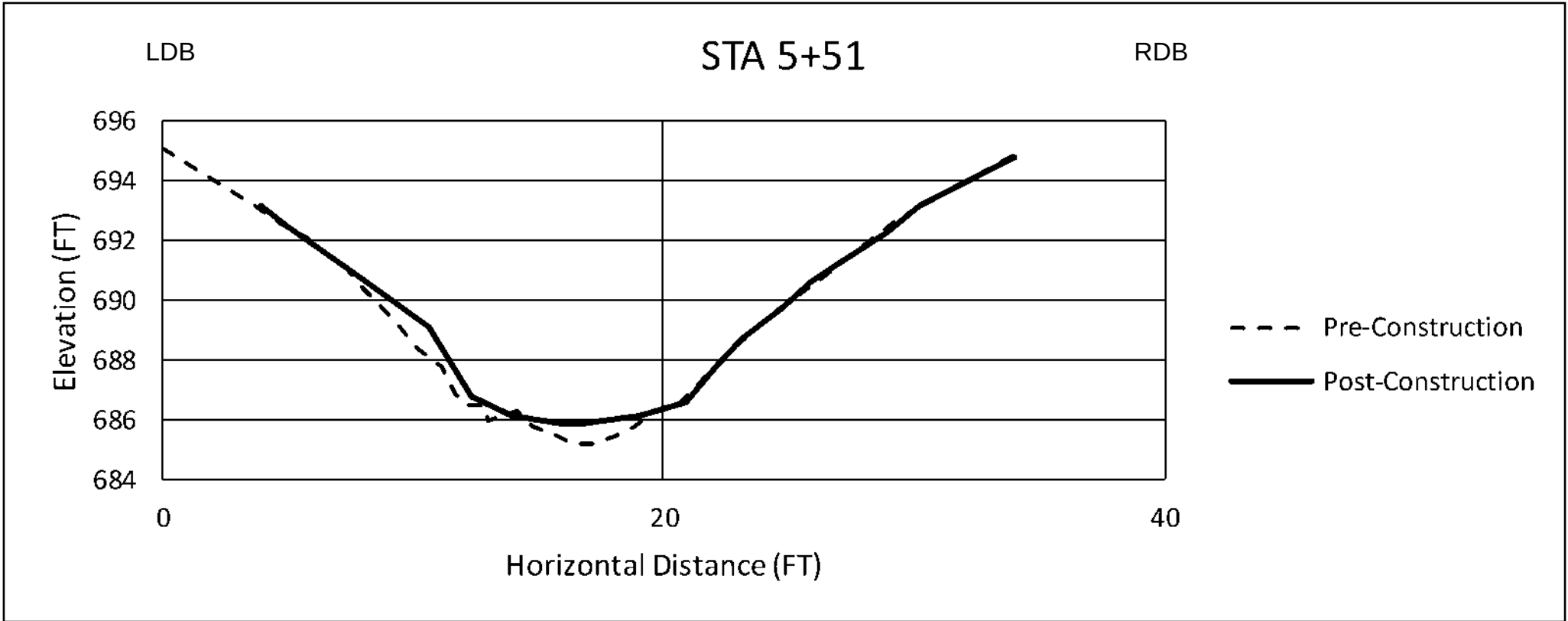
DRAWN BY: SKL
DESIGNED BY: AS
DATE: MAR 2019
JOB NO: J143037800

SHEET NO.

10
OF 33

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Layed out Name: 11-ASBUILT CHANNEL CROSS SECTIONS
Layed out Date: 2/28/2019 10:58:52 AM
Plotted By: Stephen LaFon
Plotted Date: 3/1/2019 3:12:25 PM

SURVEY PROVIDED BY IBI GROUP,
CINCINNATI OHIO
Jan 30-31, 2018



GRAPHIC SCALE VERIFICATION
This bar measures 1" on 22'x34"
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Adjust scale accordingly.



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ASBUILT CHANNEL CROSS SECTIONS
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS

REVISION

AS-BUILT

DRAWN BY: SKL
DESIGNED BY: AS
DATE: MAR 2019
JOB NO: J143037800

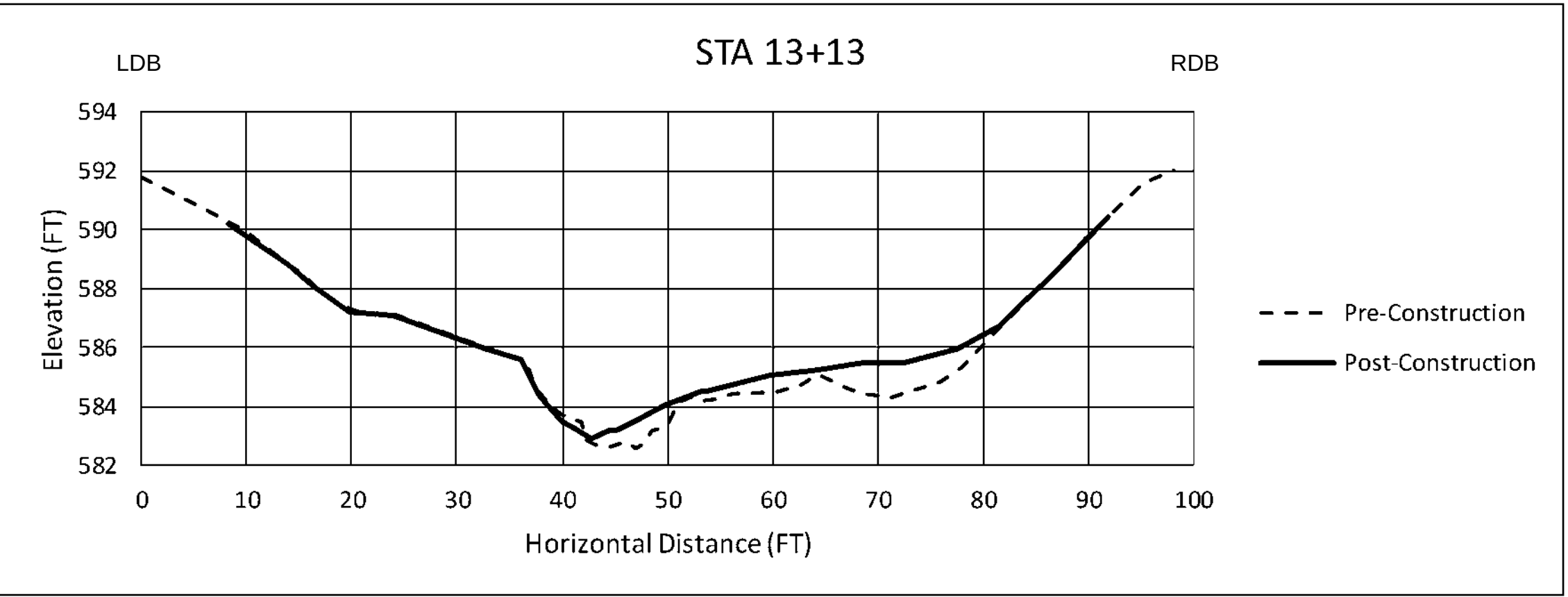
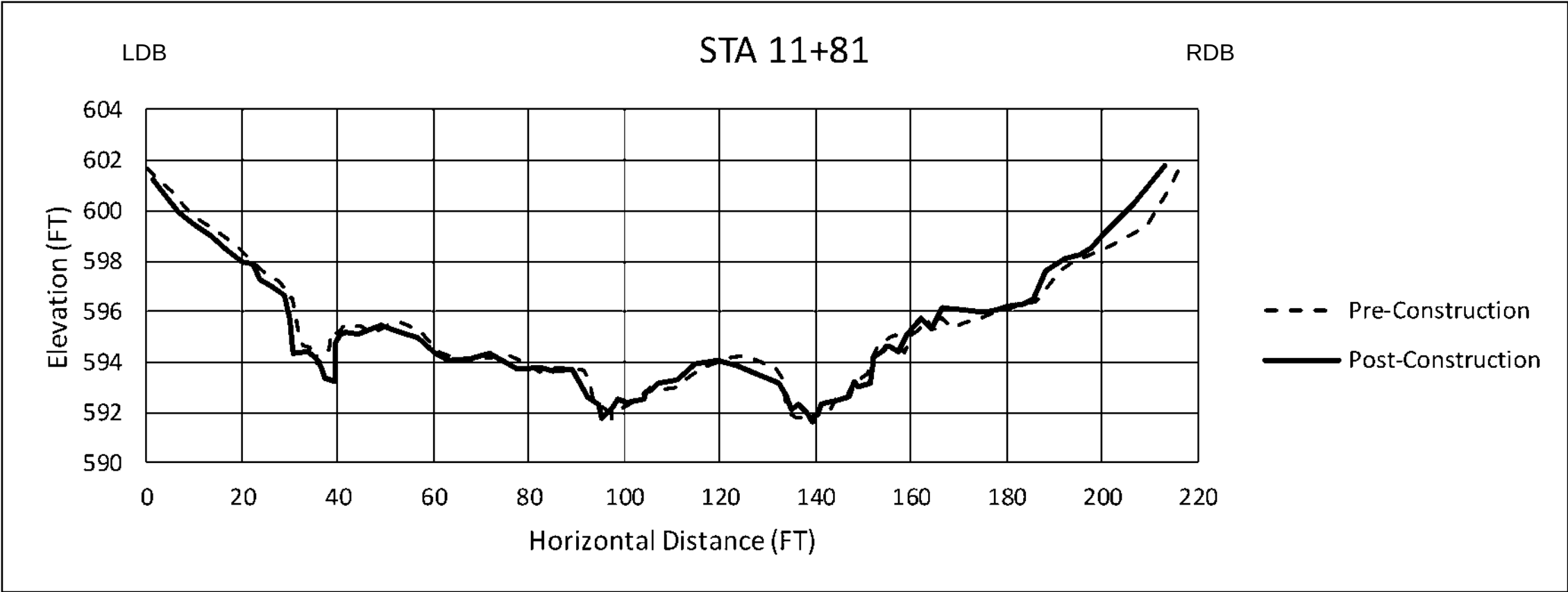
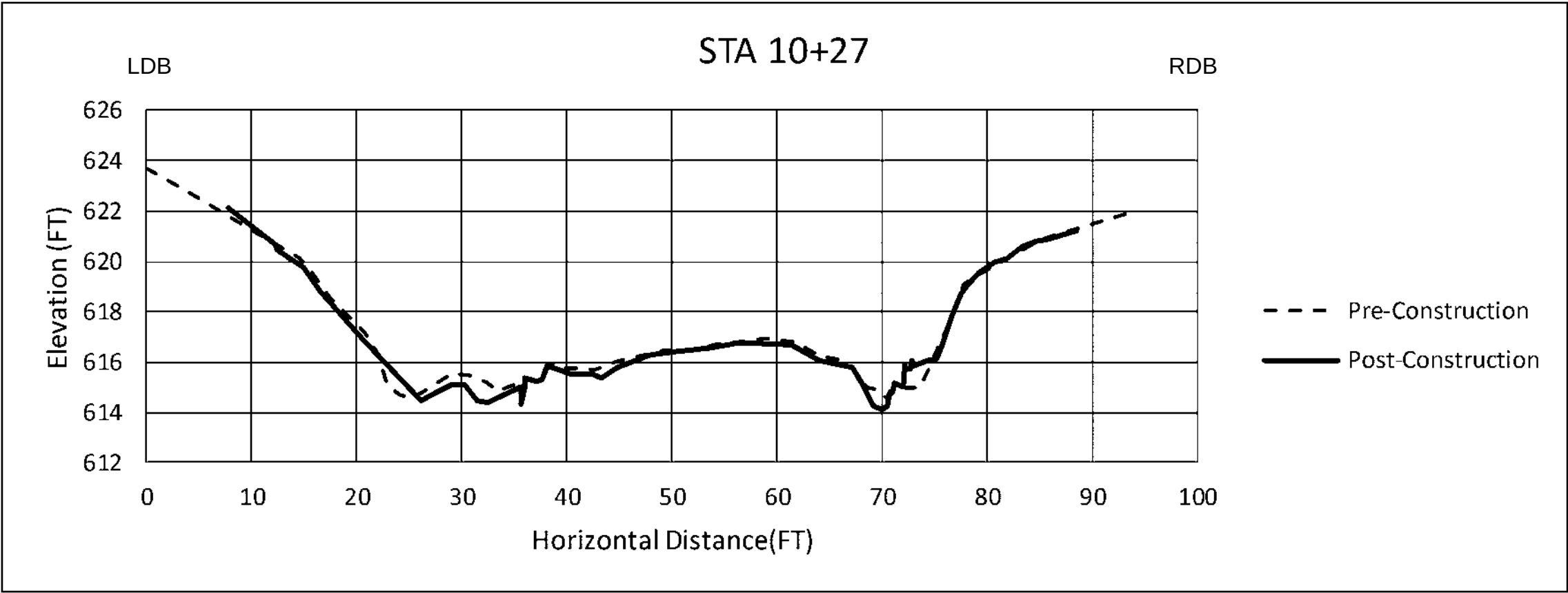
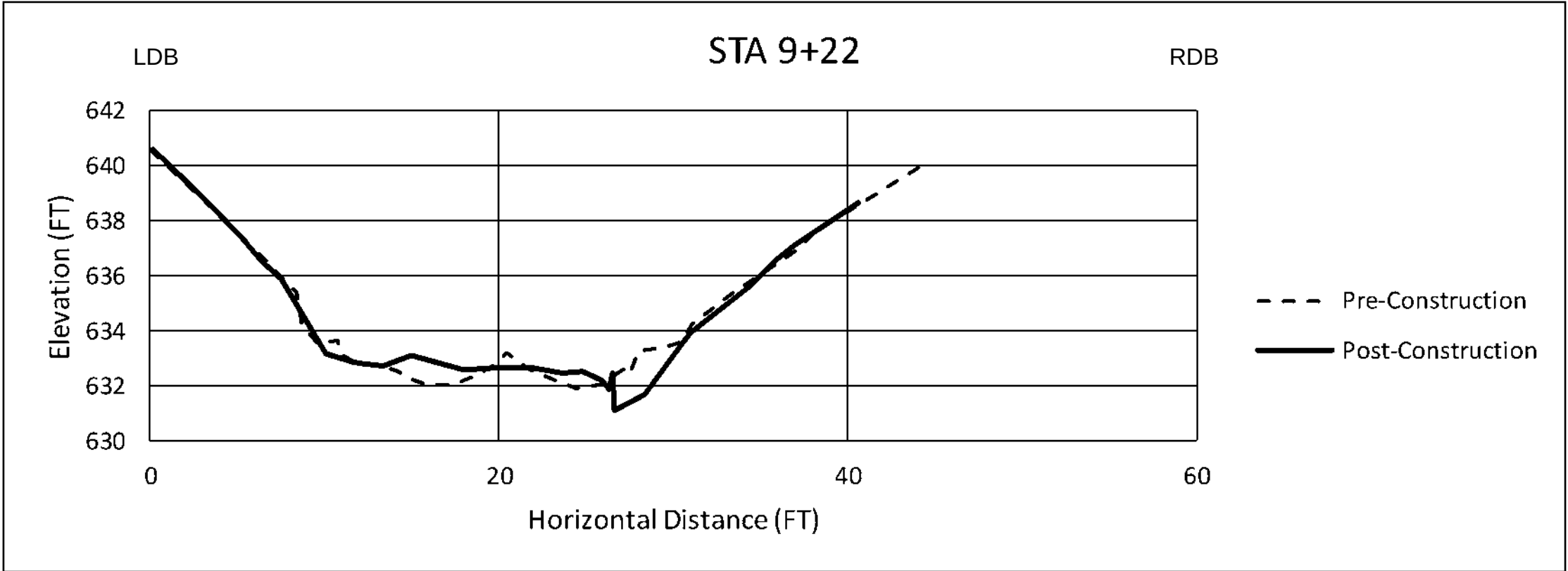
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11

OF 33

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Plotted By: Stephen LaFon, Plotted: March 1, 2019, 3:12:27 PM

SURVEY PROVIDED BY IBI GROUP,
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Jan 30-31, 2018



GRAPHIC SCALE VERIFICATION
This bar measures 1" on 22"x34"
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AS-BUILT CHANNEL CROSS SECTIONS
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS

REVISION

AS-BUILT

DRAWN BY: SKL
DESIGNED BY: AS
DATE: MAR 2019
JOB NO: J143037800

SHEET NO.

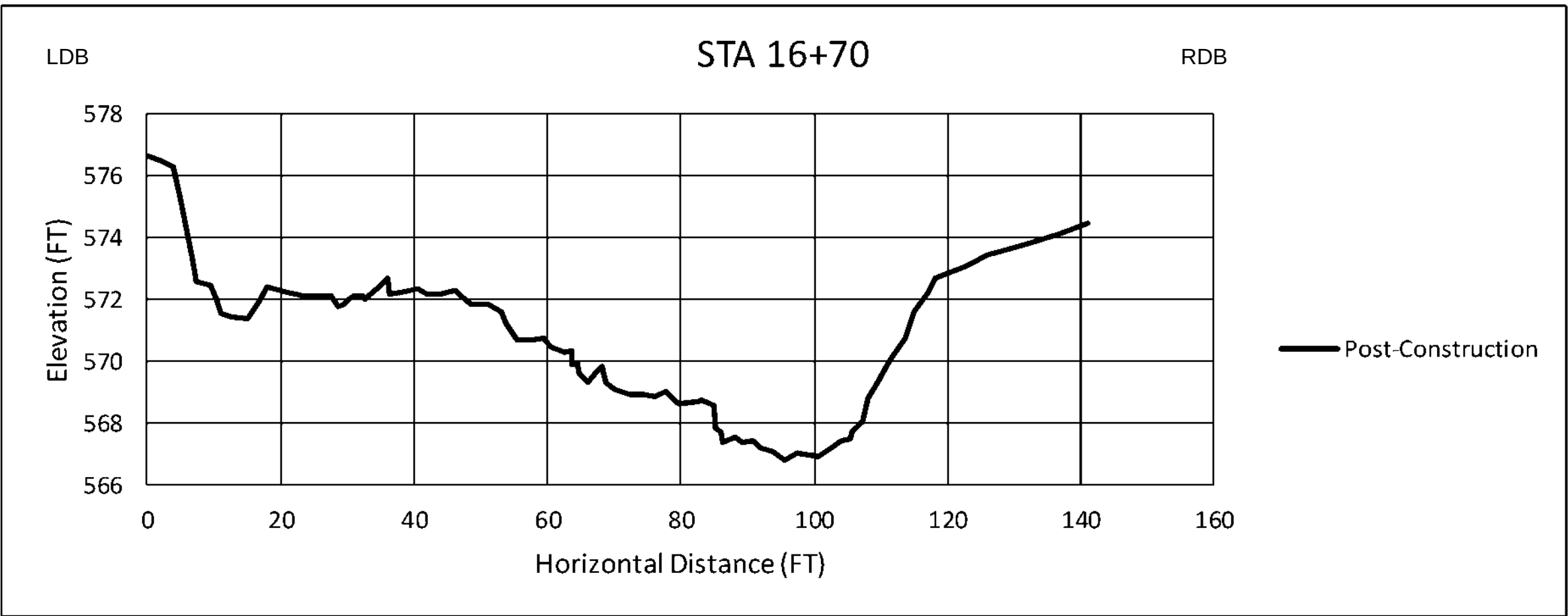
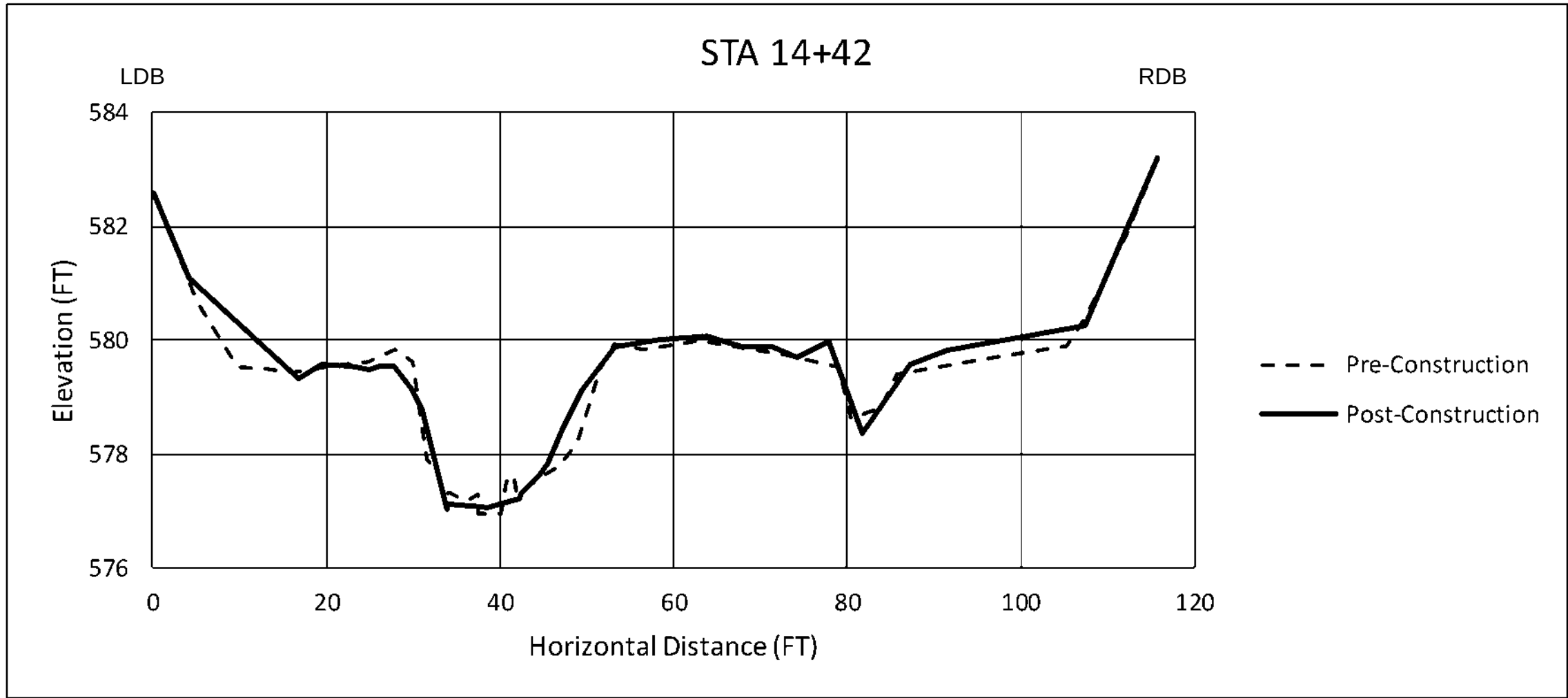
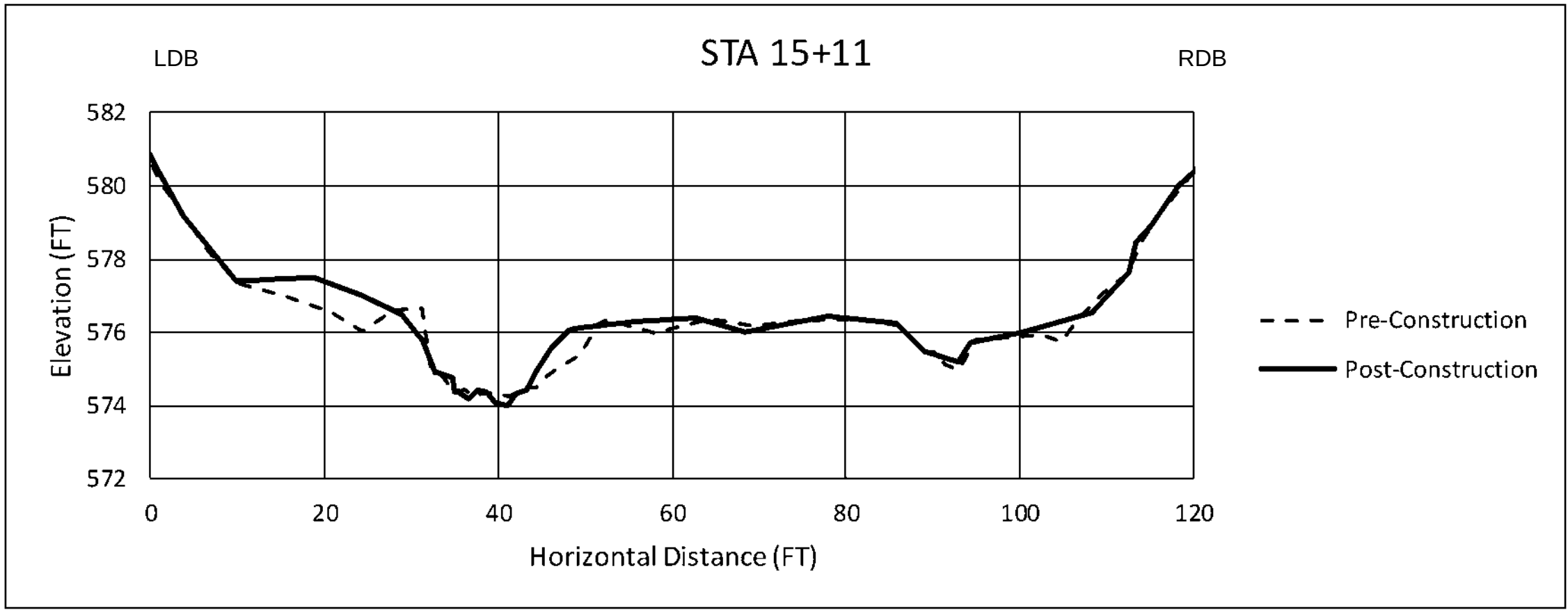
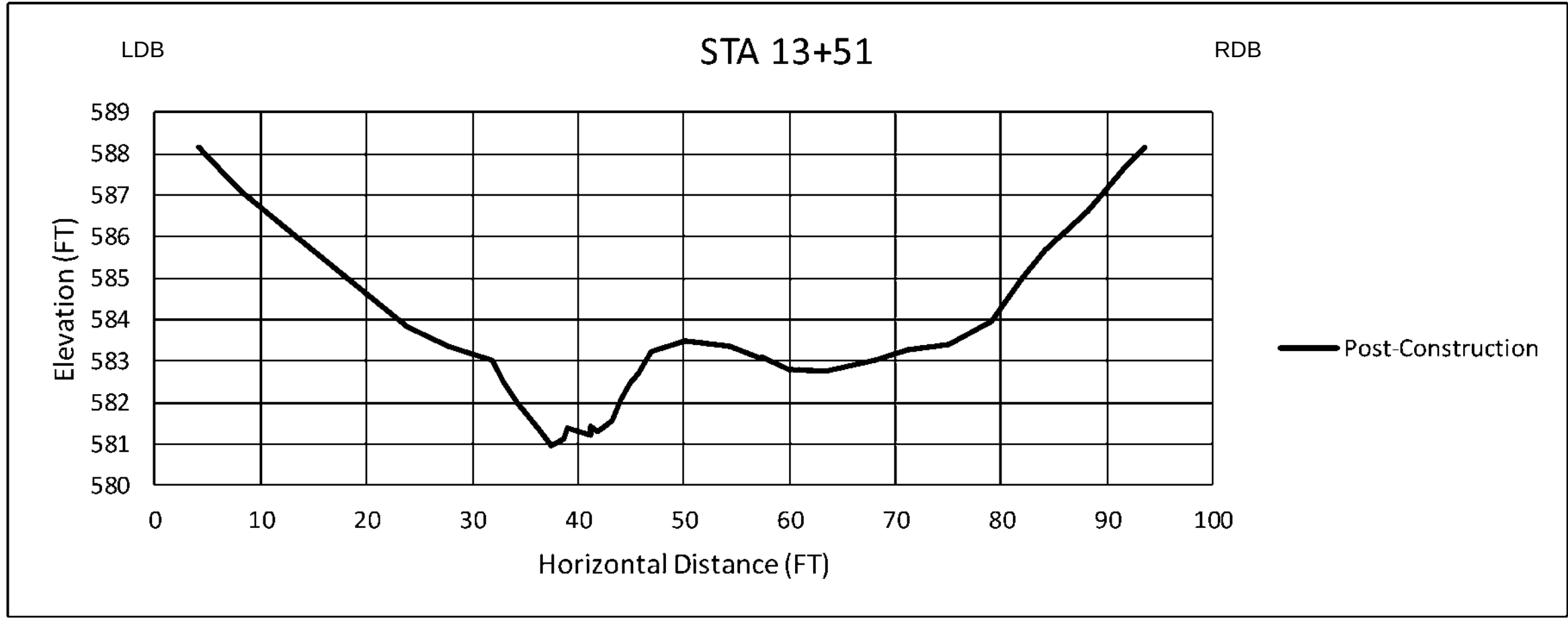
12

OF 33

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Plotted By: Stephen LaFon Plotted: March 1, 2019, 3:12:30 PM

SURVEY PROVIDED BY IBI GROUP,
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GRAPHIC SCALE VERIFICATION
This bar measures 1" on 22"x34"
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Adjust scale accordingly.



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ASBUILT CHANNEL CROSS SECTIONS
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS

REVISION

AS-BUILT

DRAWN BY: SKL
DESIGNED BY: AS
DATE: MAR 2019
JOB NO: J143037800

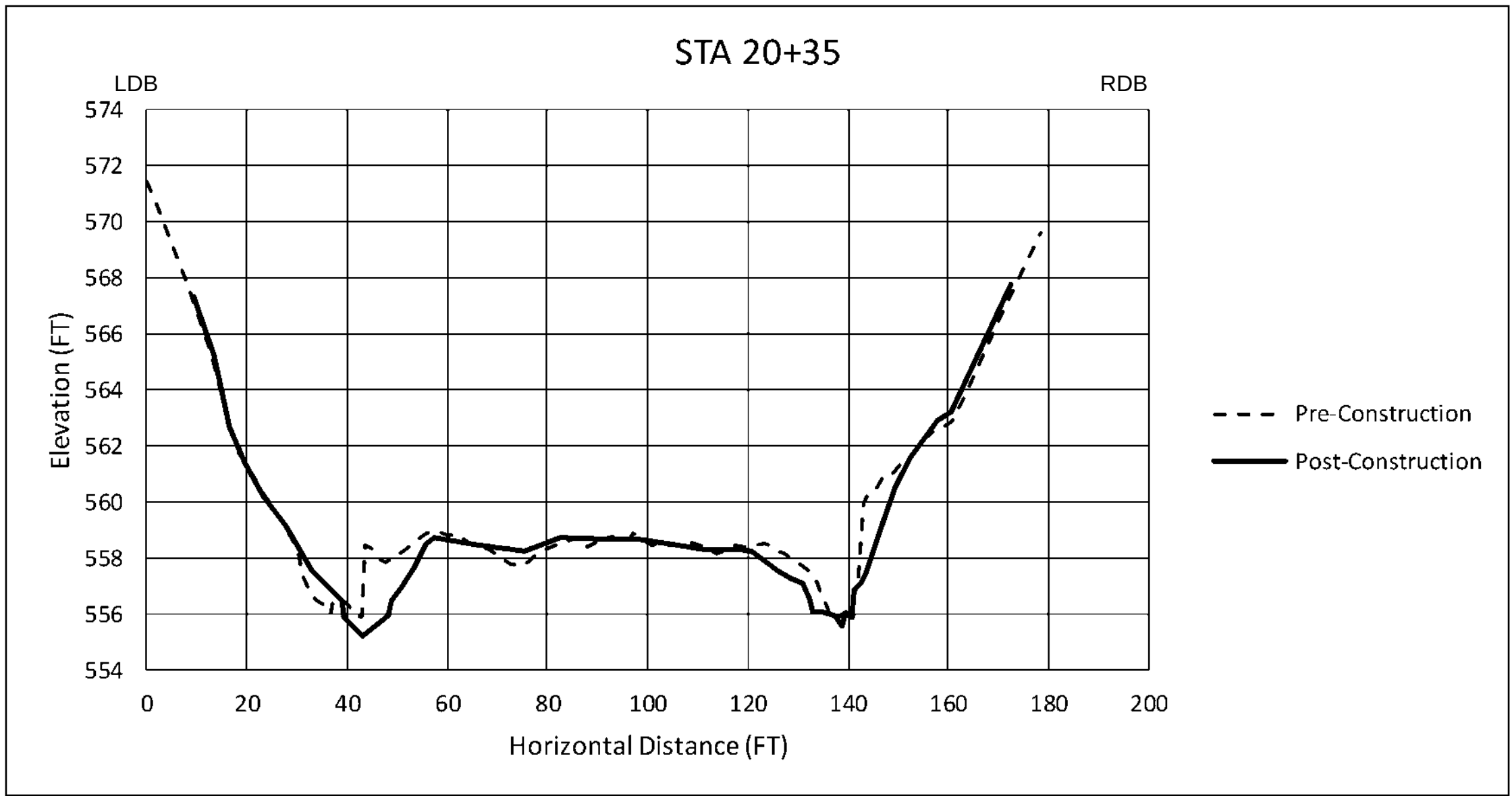
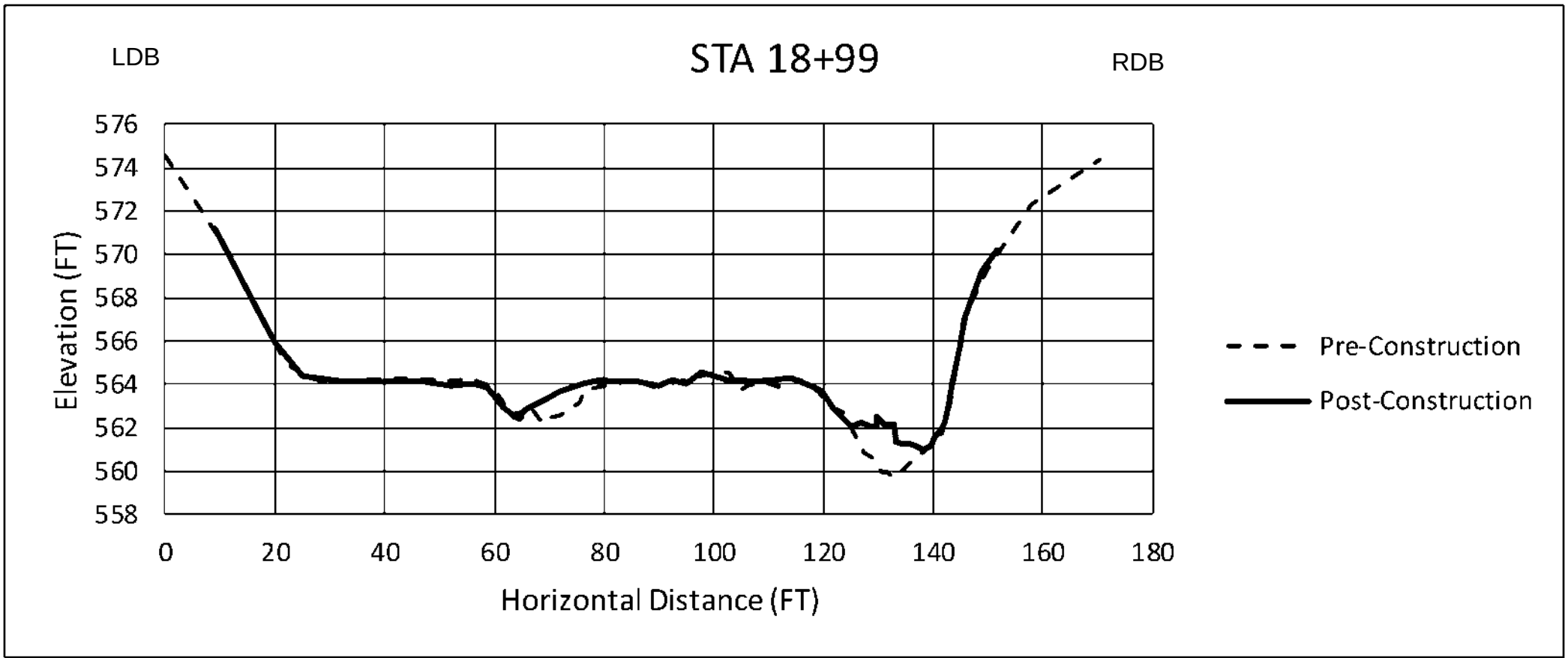
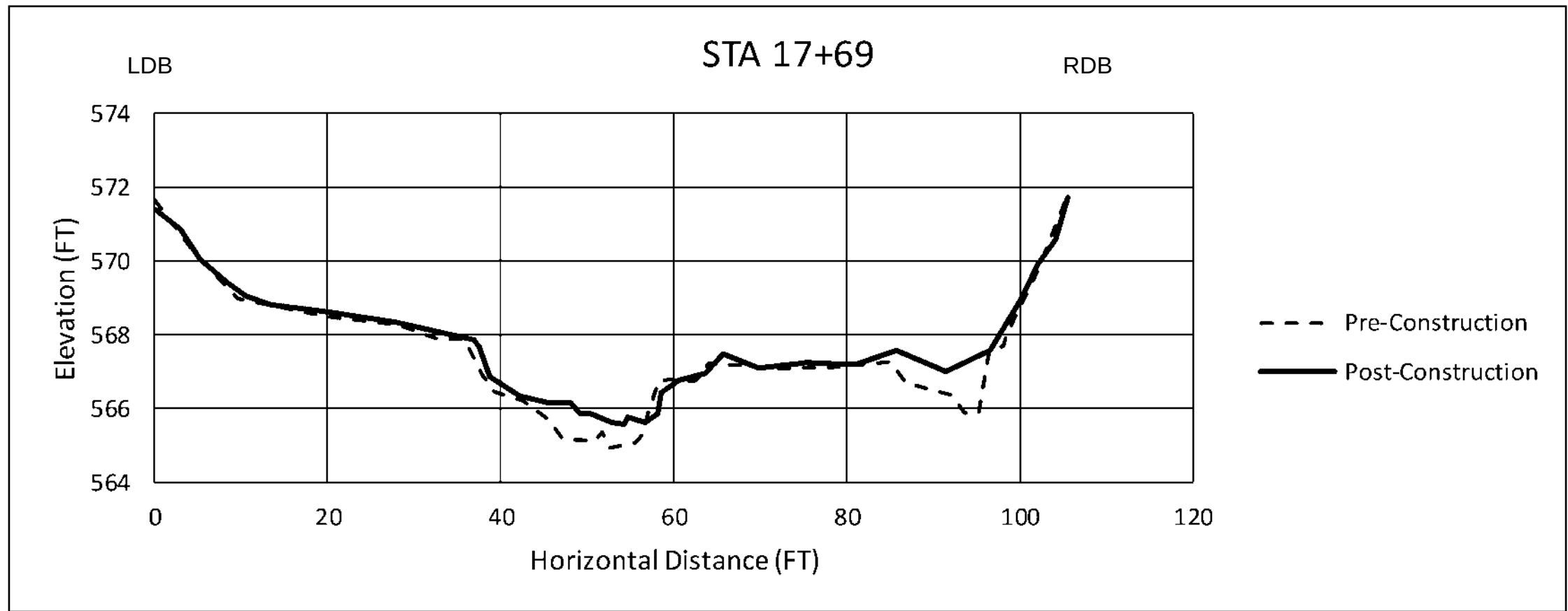
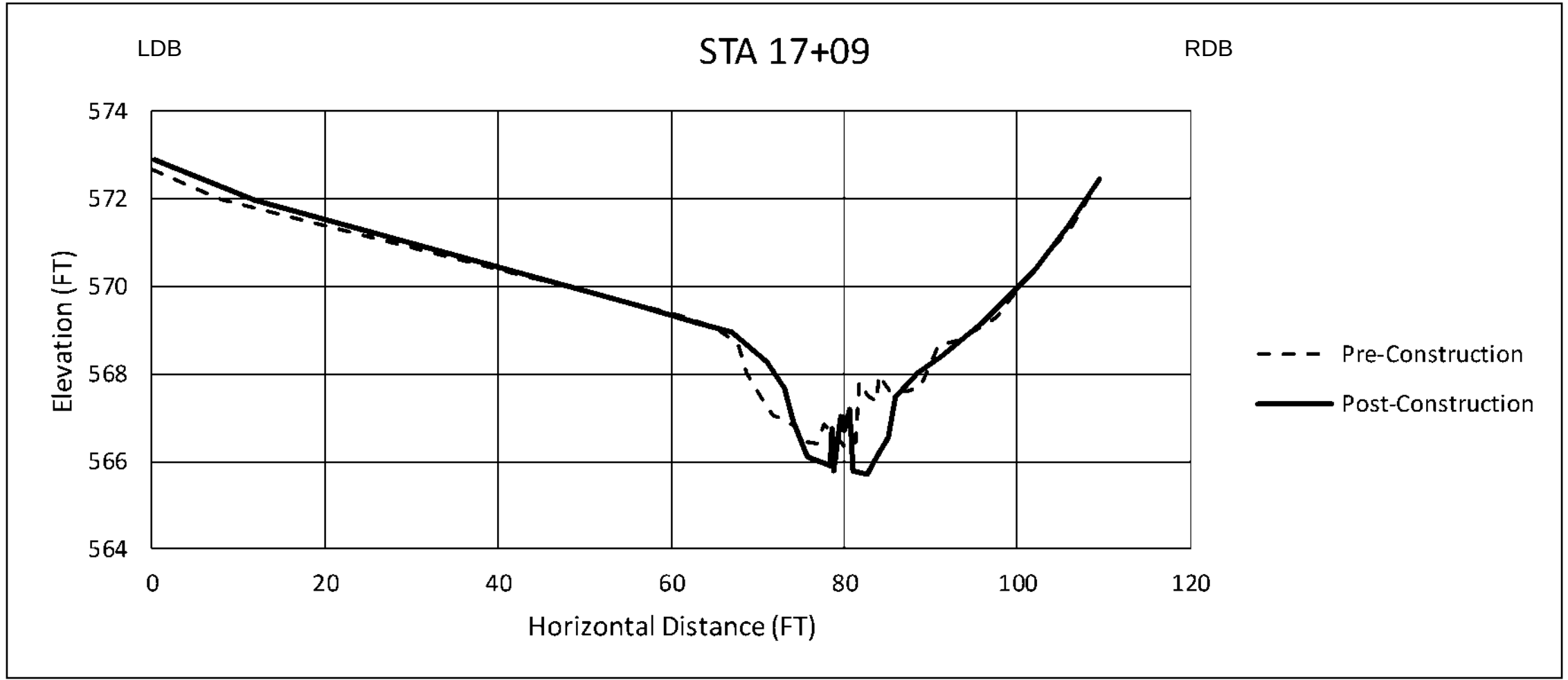
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13

OF 33

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Plotted By: Stephen LaFon
Plotted: March 1, 2019, 3:12:34 PM

SURVEY PROVIDED BY IBI GROUP,
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Jan 30-31, 2018



GRAPHIC SCALE VERIFICATION
This bar measures 1" on 22"x34"
or 1/2" on 11"x17" original.
Adjust scale accordingly.



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ASBUILT CHANNEL CROSS SECTIONS
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS

REVISION

AS-BUILT

DRAWN BY: SKL
DESIGNED BY: AS
DATE: MAR 2019
JOB NO: J143037800

SHEET NO.

14

OF 33

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Plotted By: Stephen LaFon Plotted: March 1, 2019, 3:12:36 PM

SURVEY PROVIDED BY IBI GROUP,
CINCINNATI, OHIO
Jan 30-31, 2018

GRAPHIC SCALE VERIFICATION
This bar measures 1" on 22"x34"
or 1/2" on 11"x17" original.
Adjust scale accordingly.

ASBUILT CHANNEL CROSS SECTIONS
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS

REVISION

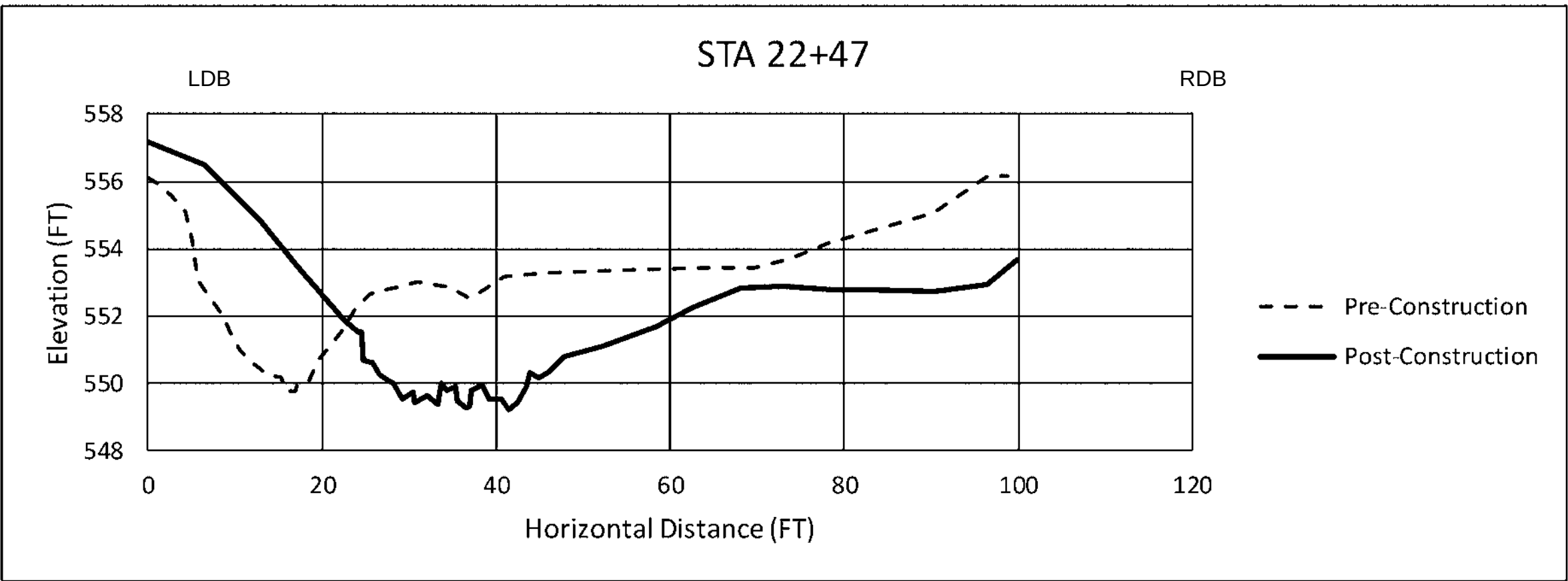
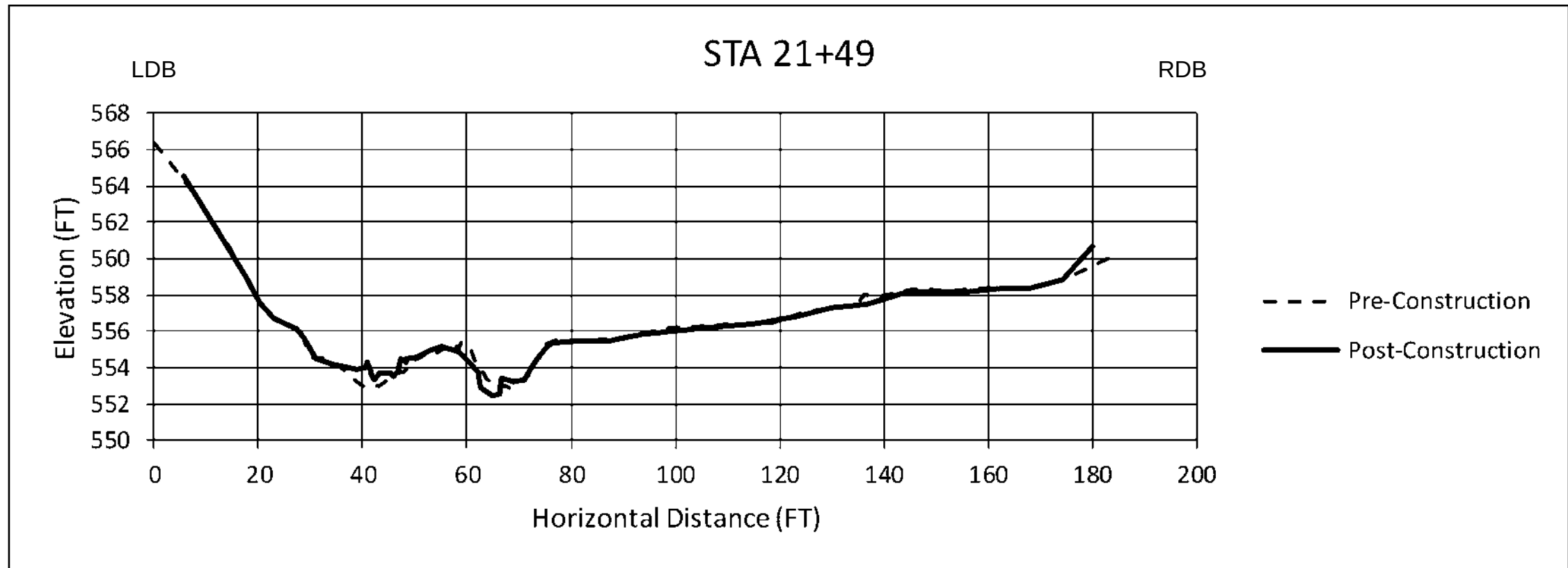
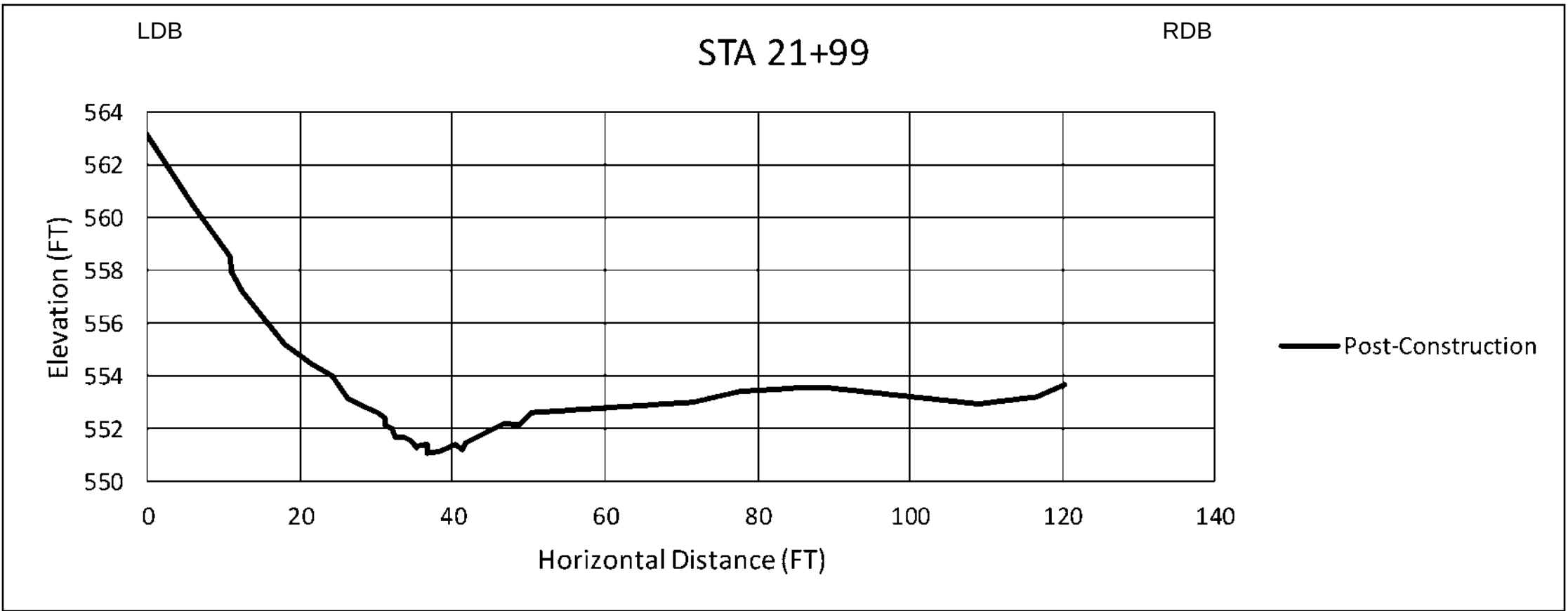
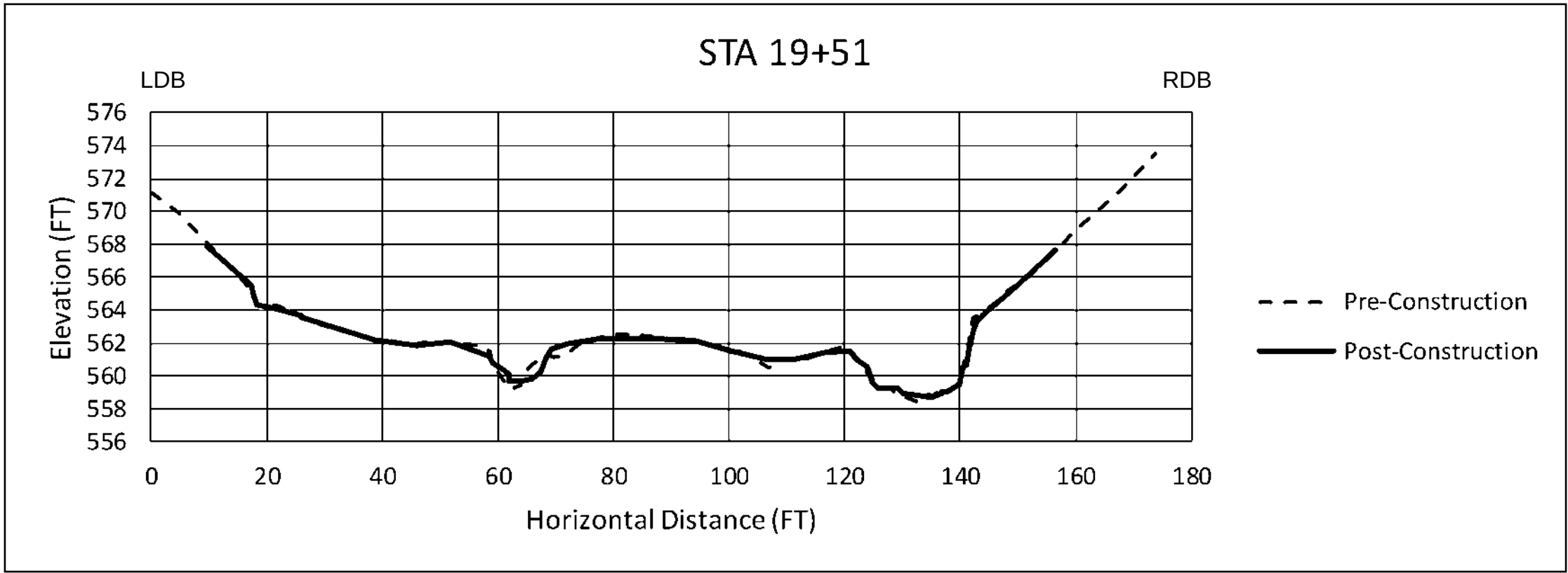
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DRAWN BY: SKL
DESIGNED BY: AS
DATE: MAR 2019
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SHEET NO.

15

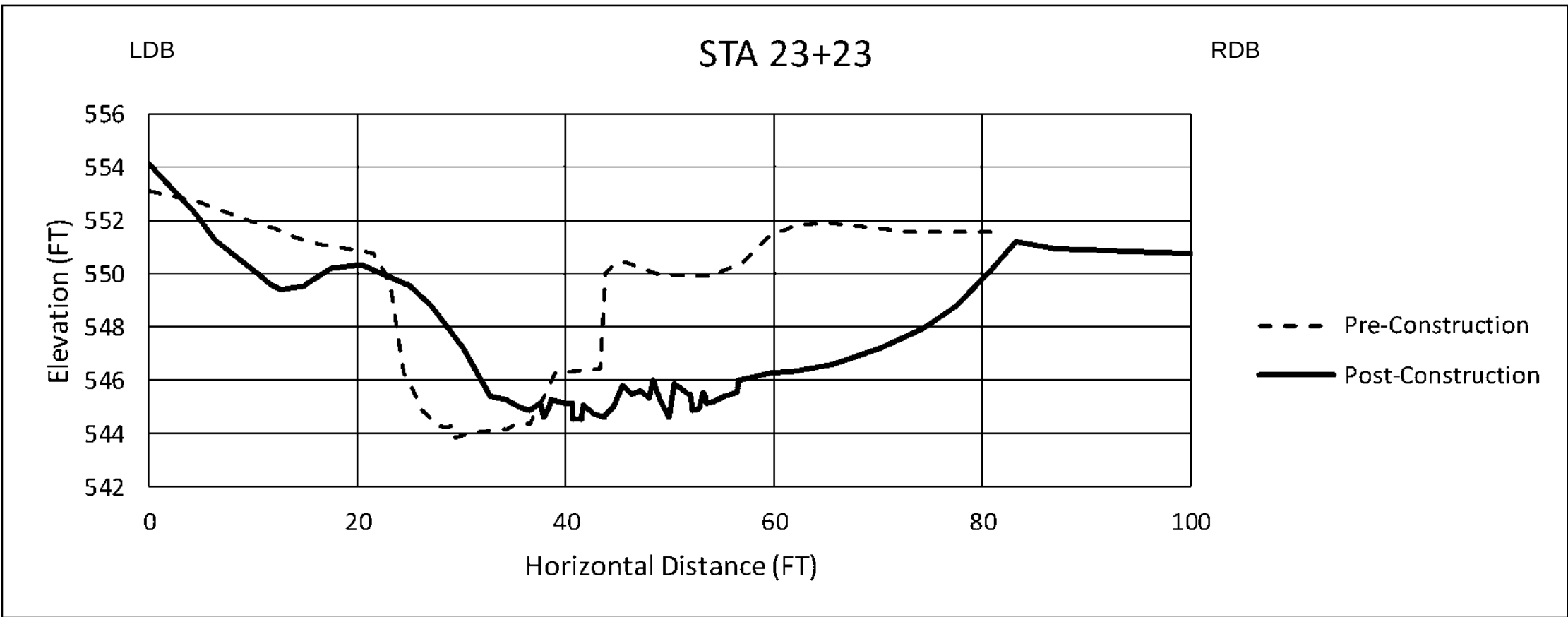
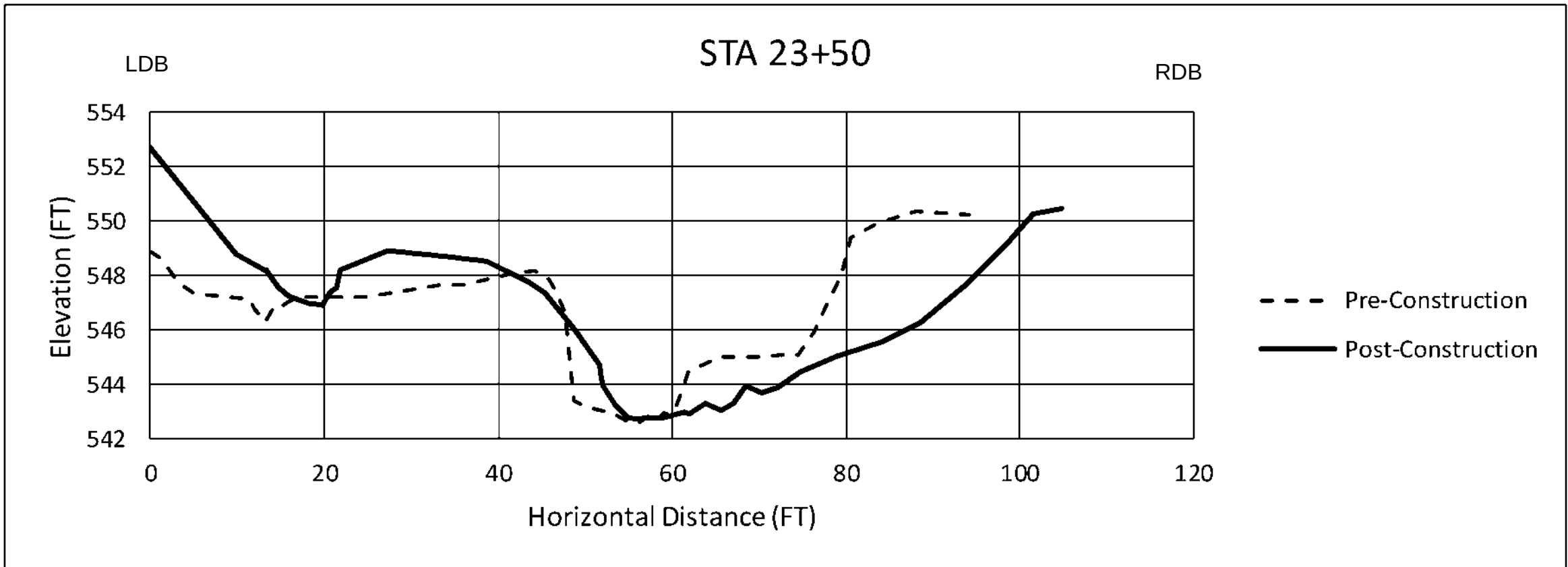
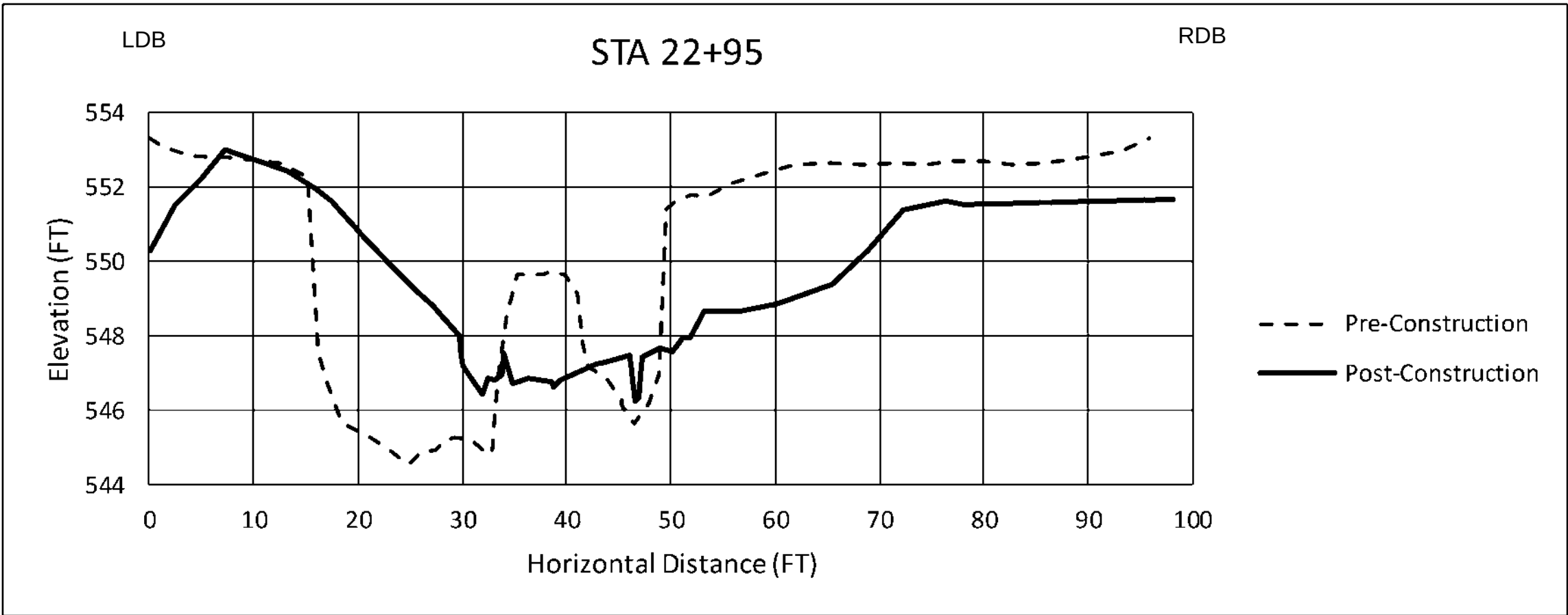
OF 33



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Plotted By: Stephen LaFon, Plotted: March 1, 2019, 3:12:38 PM

SURVEY PROVIDED BY IBI GROUP,
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Jan 30-31, 2018

GRAPHIC SCALE VERIFICATION
This bar measures 1" on 22"x34"
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Adjust scale accordingly.



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AS-BUILT CHANNEL CROSS SECTIONS
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS

REVISION

AS-BUILT

DRAWN BY: SKL

DESIGNED BY: AS

DATE: MAR 2019

JOB NO: J143037800

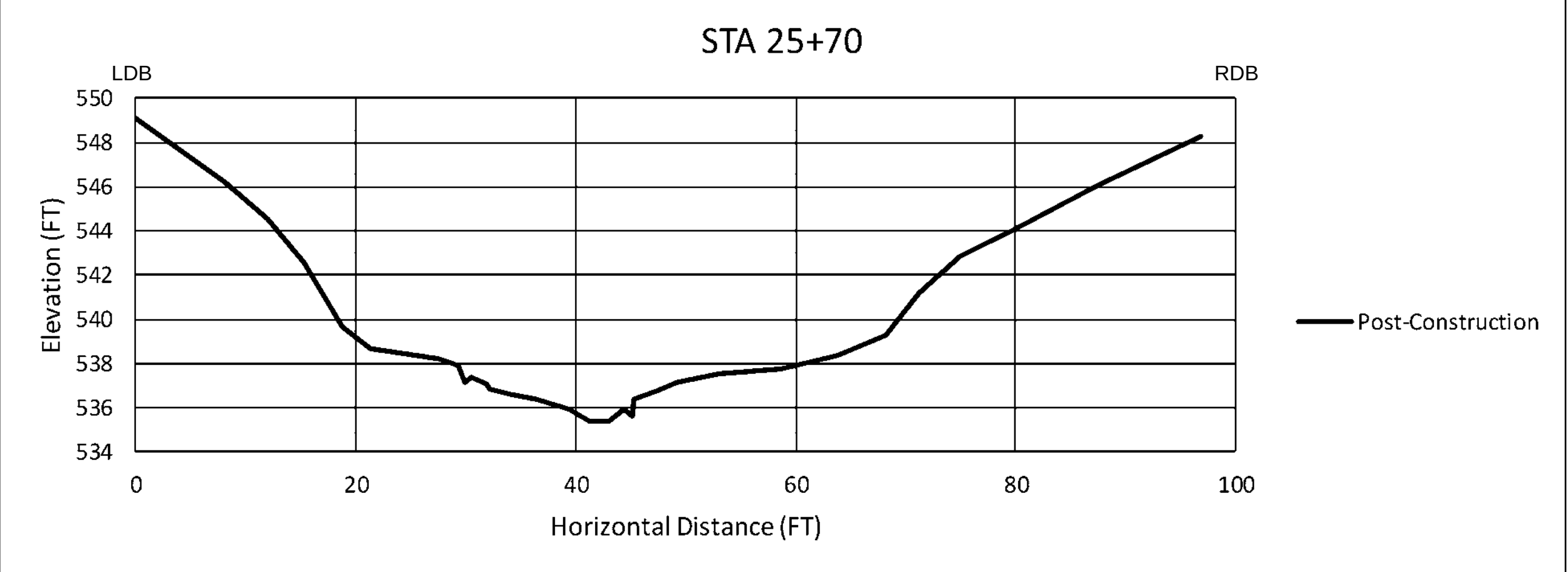
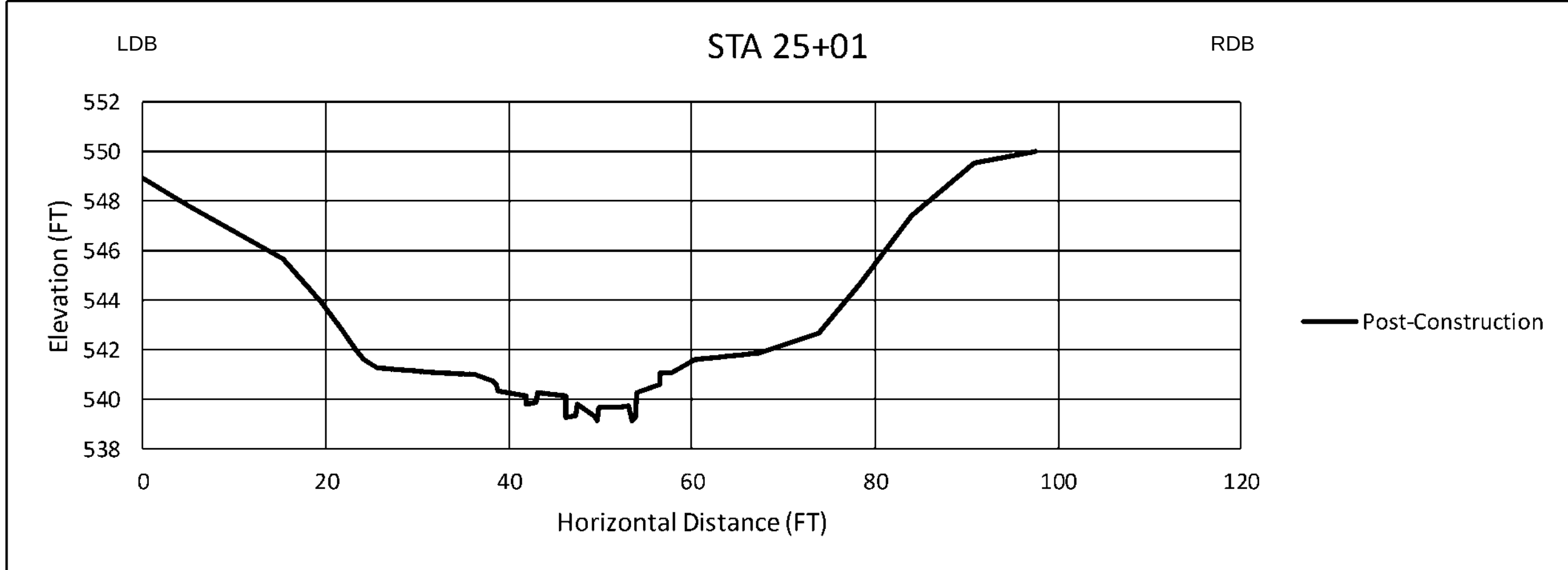
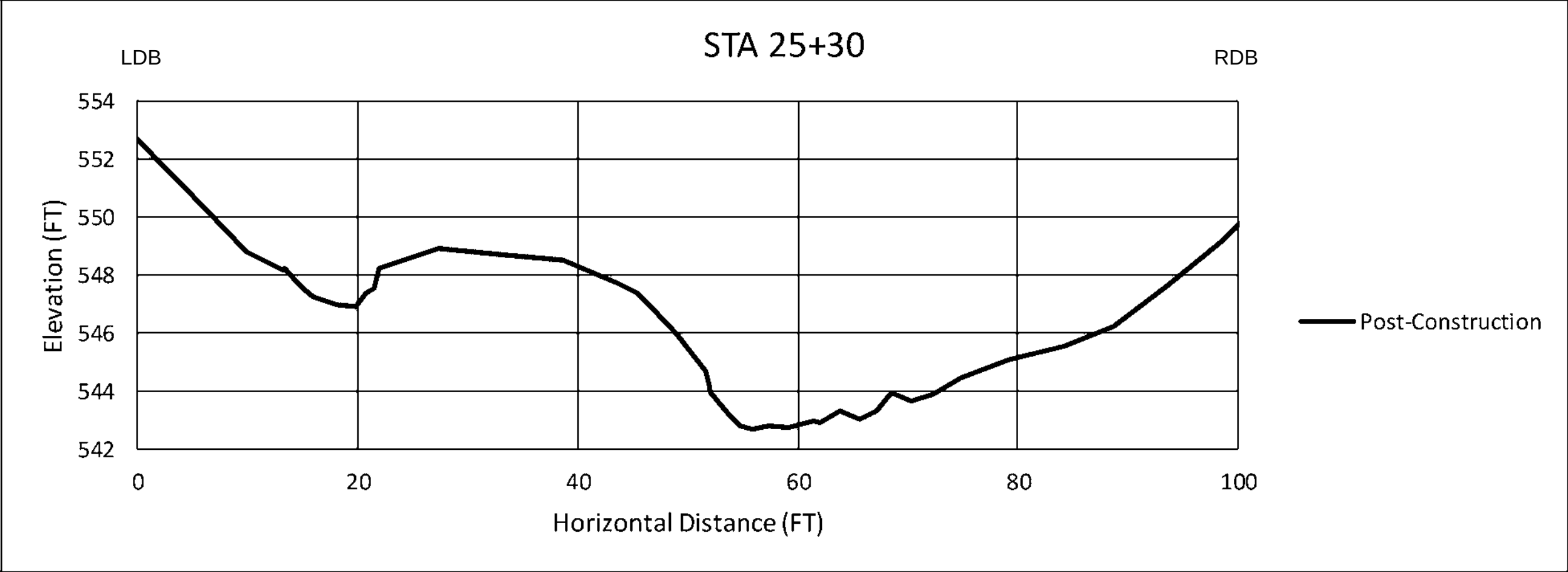
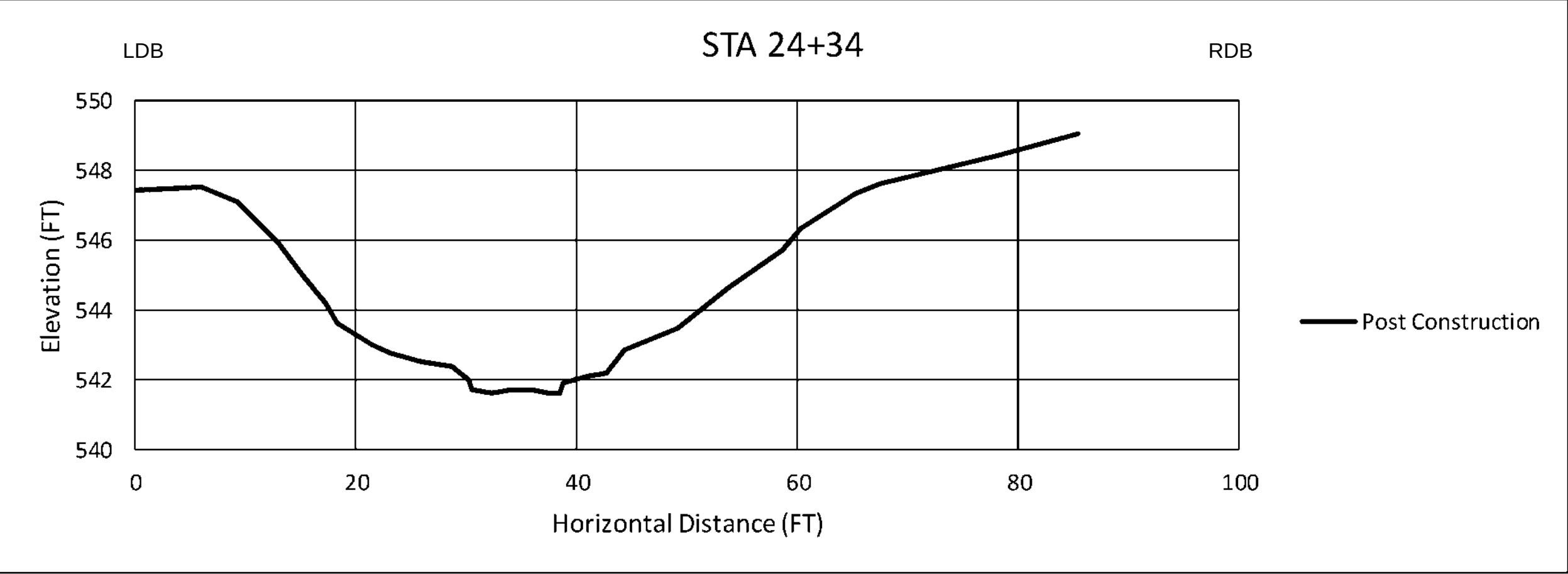
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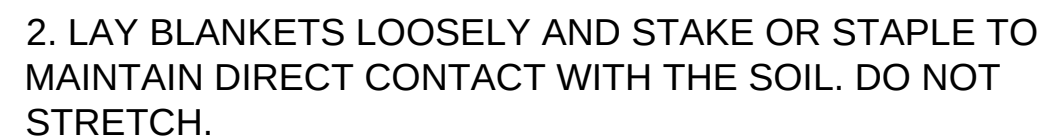
16

OF 33

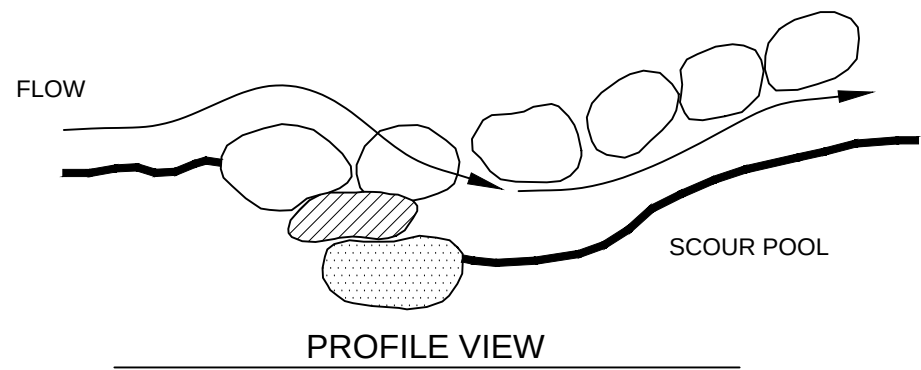
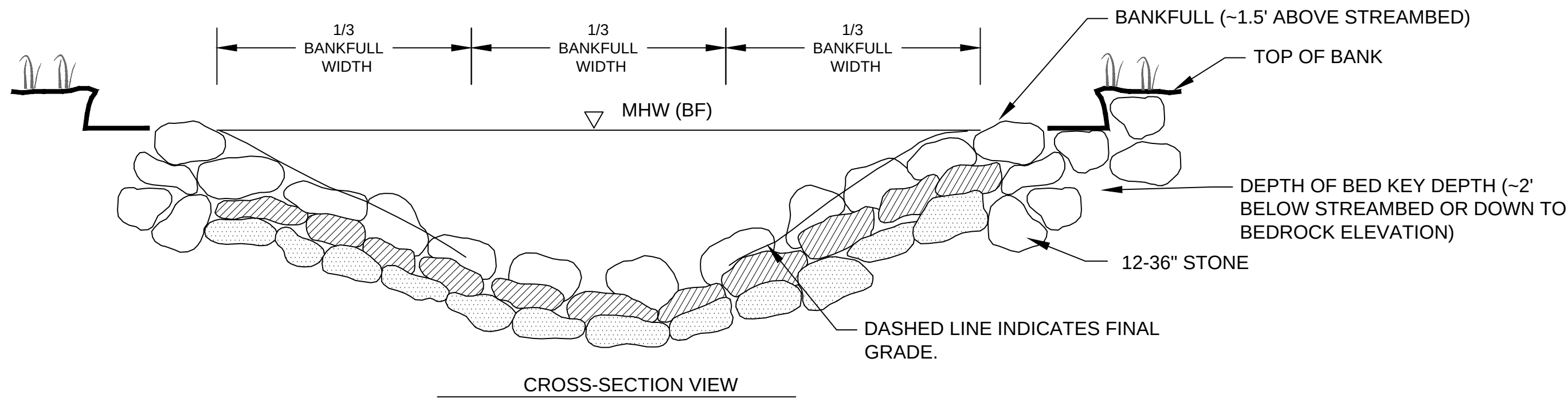
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Layout Date: 1/30/2019 3:12:39 PM
Plotted By: Stephen LaSon
Plotted Date: 1/30/2019 3:12:39 PM

SURVEY PROVIDED BY IBI GROUP,
CINCINNATI OHIO
Jan 30-31, 2018



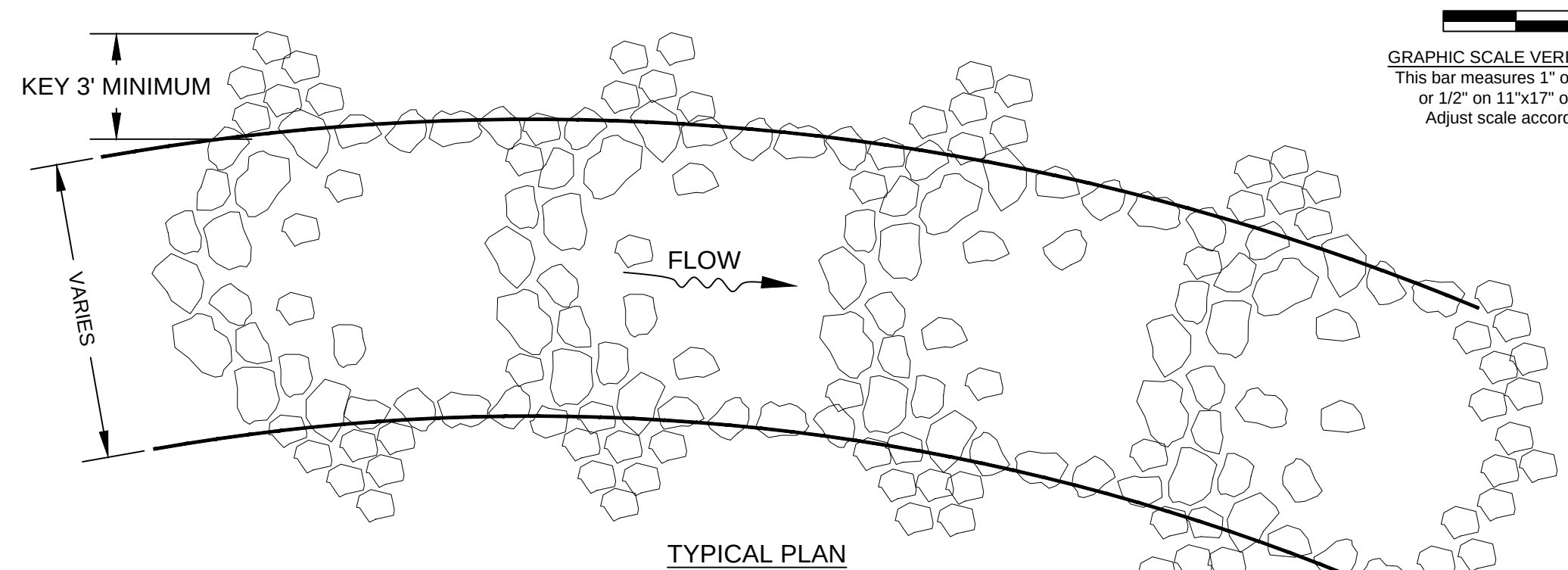


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Plotted: March 1, 2019, 3:12:45 PM

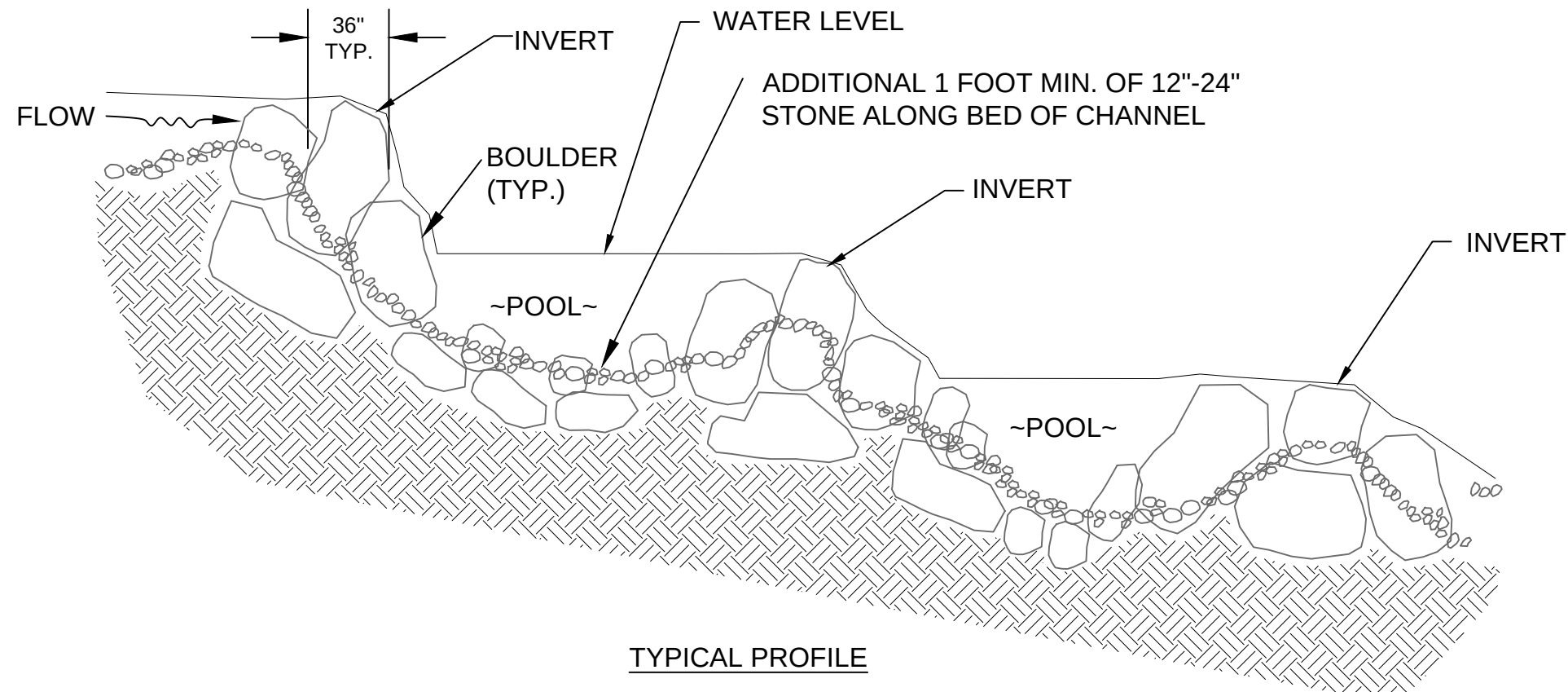


NOTES:

1. FINAL ORIENTATION AND PLACEMENT OF STRUCTURES MAY BE ADJUSTED IN THE FIELD BY PROJECT DESIGNER.



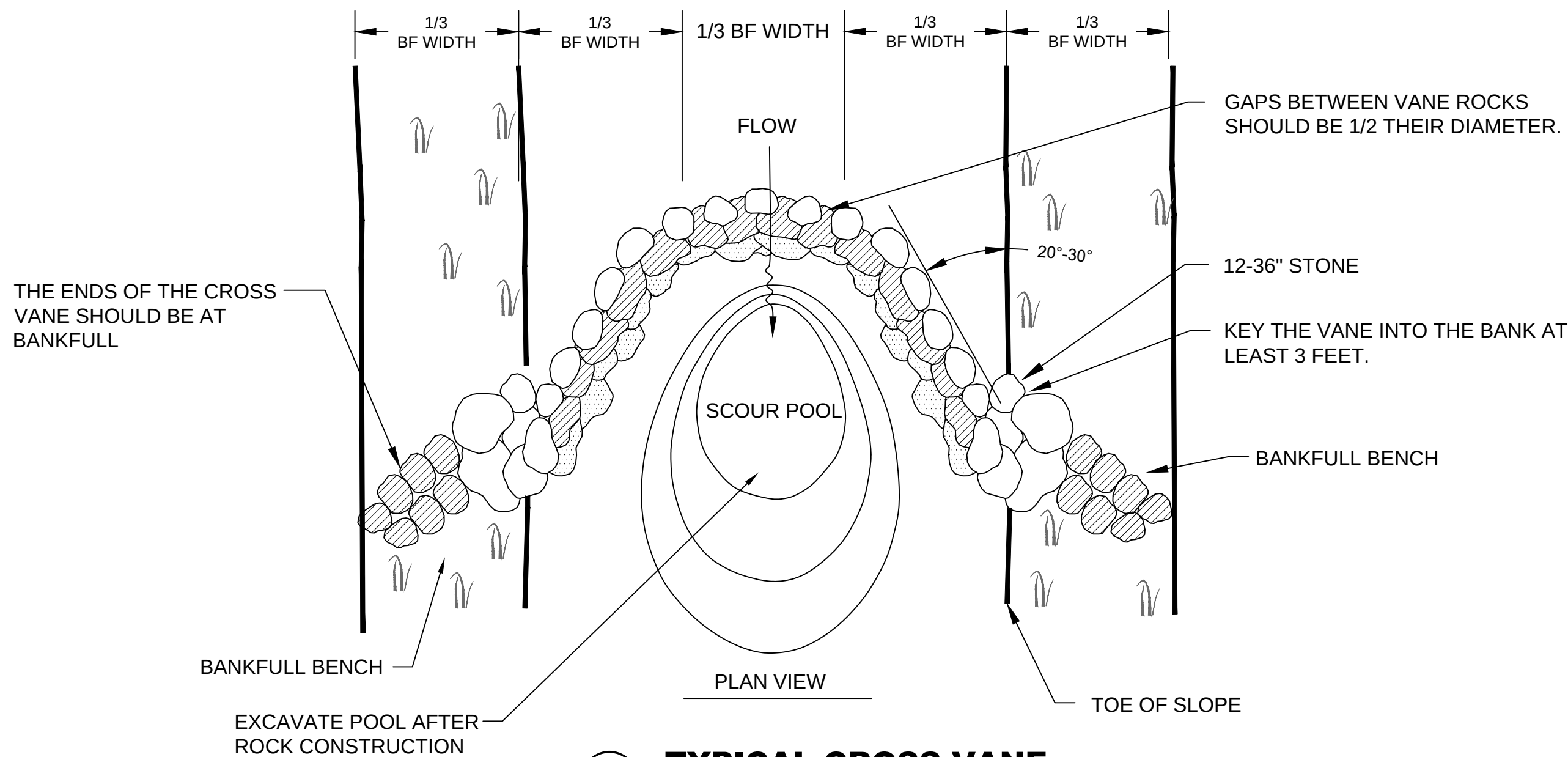
GRAPHIC SCALE VERIFICATION
This bar measures 1" on 22"x34"
or 1/2" on 11"x17" original.
Adjust scale accordingly.



NOTES:

1. BOULDERS SHALL HAVE A MAJOR AXIS OF 24-48".
2. APPROXIMATELY 33% TO 50% OF BOULDERS SHALL BE BURIED INTO THE SUB-GRADE.
3. BOULDERS AND COBBLES INTERLOCK TO FORM COMPLETE LINES THAT CROSS THE CHANNEL FROM BANK TO BANK.
4. DETAIL TO BE USED FOR STRUCTURES GC-1 THRU GC-4

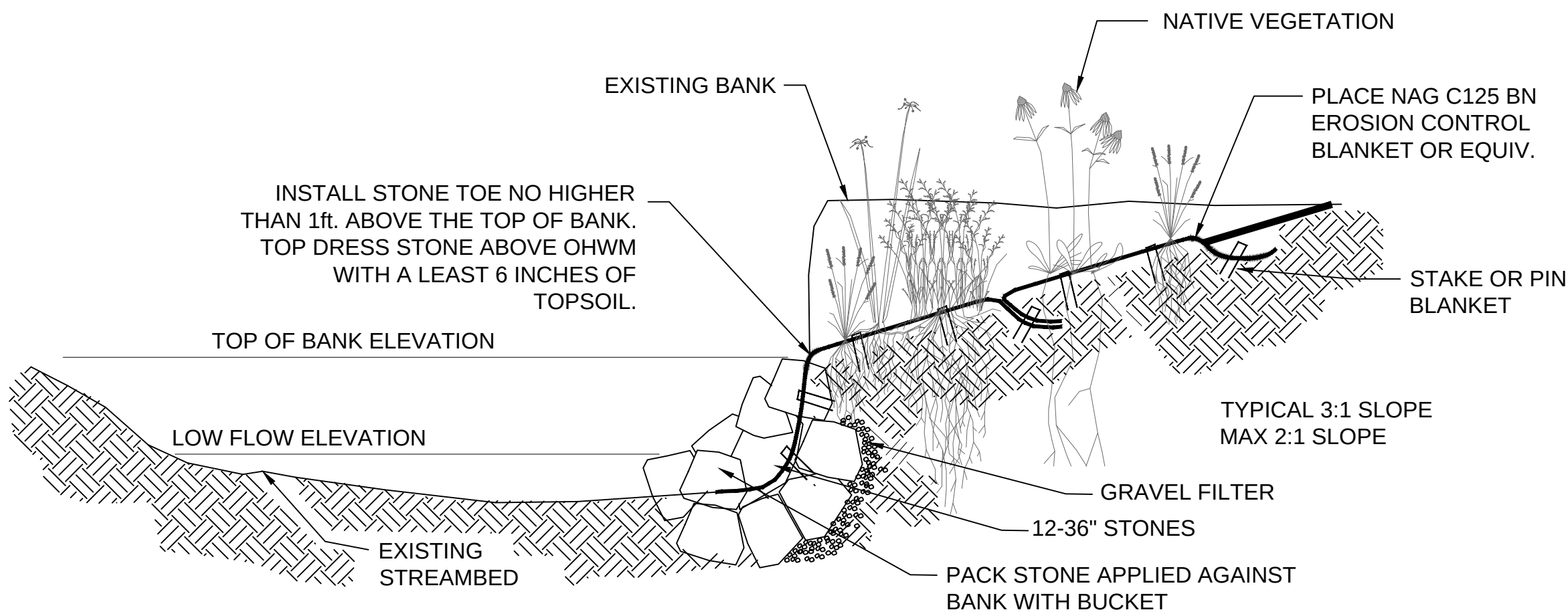
5 GRADE CONTROL STRUCTURE
NOT TO SCALE



4 TYPICAL CROSS-VANE
NOT TO SCALE

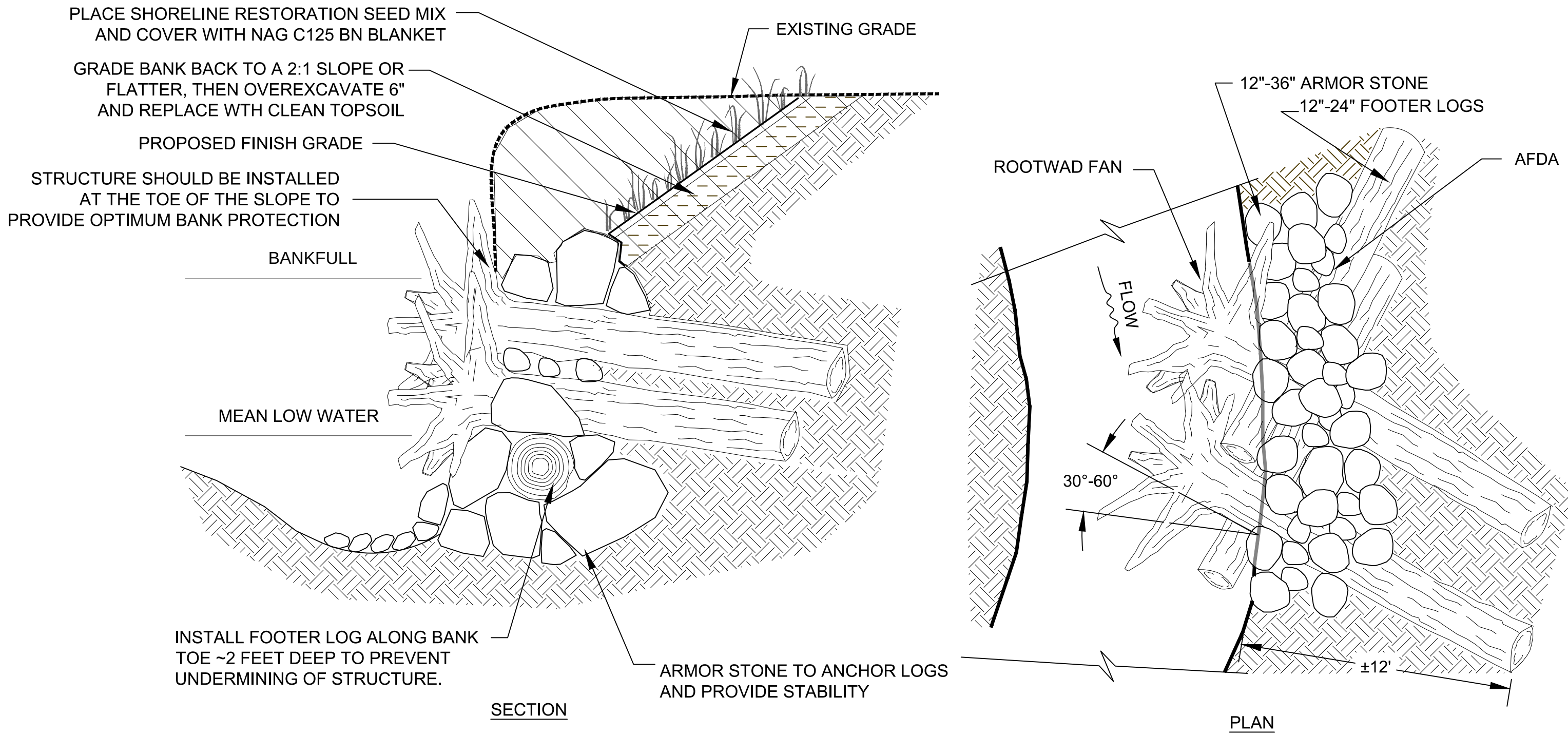
NOTES:

1. DETAIL TO BE USED FOR STRUCTURES CV-1 THRU CV-8



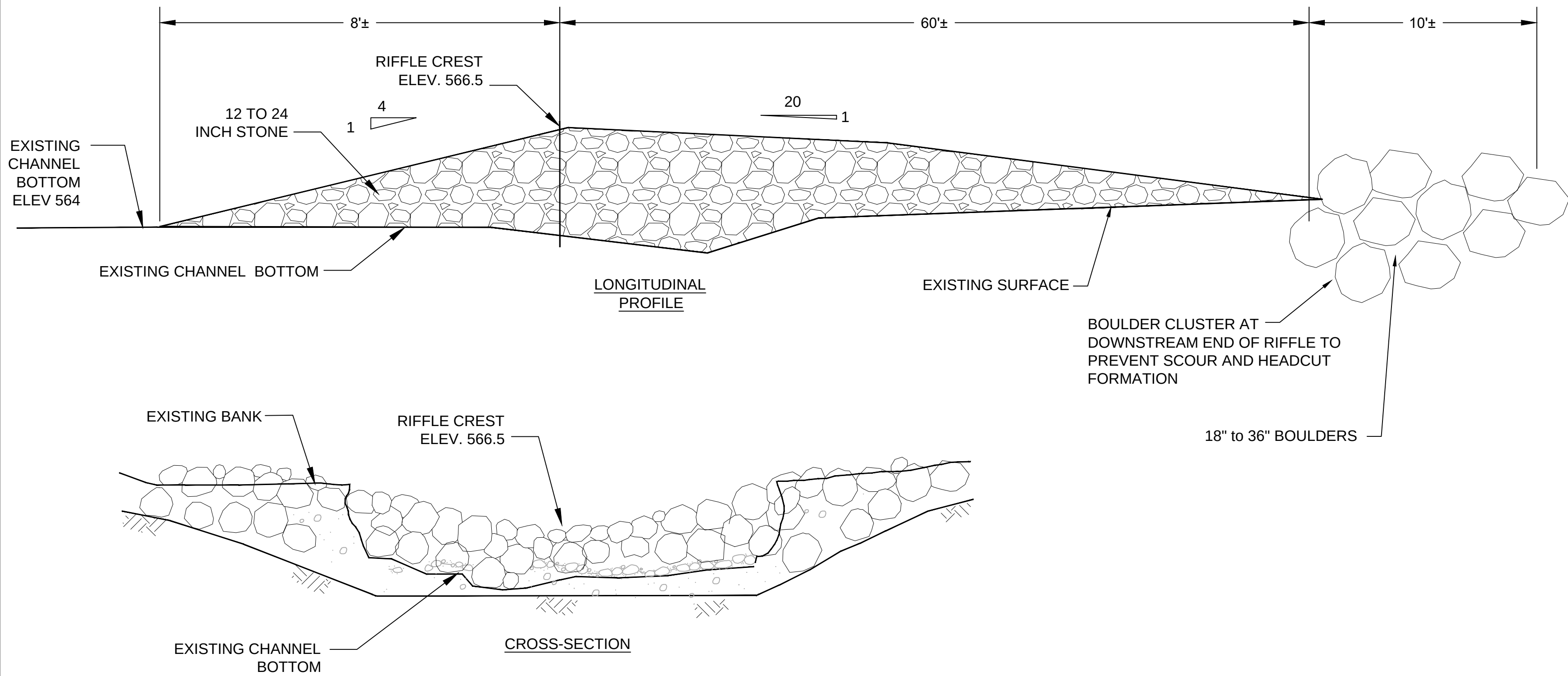
6 STONE TOE BANK TREATMENT
NOT TO SCALE

Location: R:\Projects\141431\14317820_OakGlen\ENTR\OakGlen\FCAD\AS-Built_Year1_20190228\UD_OakGlen-XSEC-20190228.dwg
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Layout: 1414317820_OakGlen\FCAD\AS-Built_Year1_20190228\UD_OakGlen-XSEC-20190228.dwg
Plotted By: Stephen LaSon Plotted: March 1, 2019, 3:12:47 PM



1. PLACE ROOTWAD SO THAT ROOTFAN PROVIDES NEAR-BANK PROTECTION.
2. ANGLE ROOTWAD 30-60 DEGREES PERPENDICULARLY FROM FLOW DIRECTION TO PROVIDE ADEQUATE DEFLECTION.
3. ADDITIONAL ROOTWAD SHOULD BE SET BACK BEHIND THE LOWEST ROW OF REVETMENTS.
4. PLACE STONE AT LEAST 2 FEET DEEP INTO BANK AT BASE TO STABILIZE AND ANCHOR LOGS KEYED WITHIN STREAMBANK.
5. ROOTWAD LOG SHOULD BE KEYED INTO STREAMBANK APPROX. 8-12 FEET.
6. BACKFILL OVER TOP OF ROOTWAD REVETMENT WITH EXISTING SOIL.
7. FOOTER LOGS TO BE KEYED INTO BANK TO PROTECT AGAINST UNDERCUTTING AND PROVIDE STABILITY FOR ROOTWAD.
8. KEY ROOTWAD AND FOOTER LOGS INTO STREAMBANK THROUGH EXCAVATION AND/OR TRENCHING.
9. DETAIL TO BE USED FOR STRUCTURES RW-1 AND RW-2

7 ROOTWAD COMPOSITE INSTALLATION
NOT TO SCALE

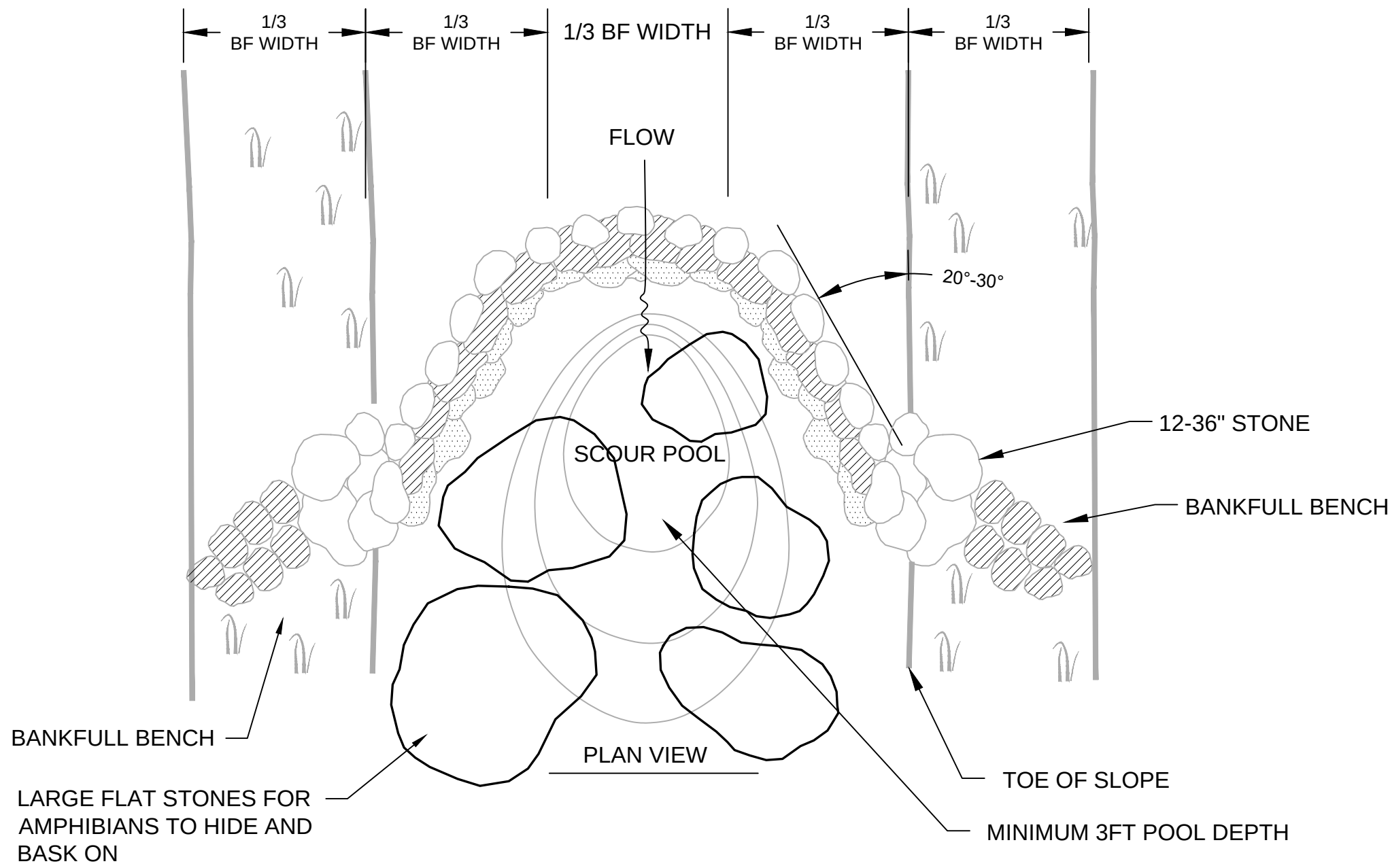


8 OVERFLOW ROCK RIFFLE STRUCTURE DETAIL
NOT TO SCALE

NOTES:

1. DETAIL TO BE USED FOR STRUCTURES AH-1 THRU AH-3

GRAPHIC SCALE VERIFICATION
This bar measures 1" on 22"x34"
or 1/2" on 11"x17" original.
Adjust scale accordingly.



9 AMPHIBIAN HABITAT STRUCTURE
NOT TO SCALE

GENERAL CONSTRUCTION NOTES:

- 1) FOOTING BOULDERS ARE BOULDERS PLACED TO PROVIDE A FOUNDATION FOR THE SURFACE BOULDERS IN MANY OF THE ROCK STRUCTURES. FOOTING BOULDERS SHALL BE DURABLE STONE WITH A MINIMUM DIAMETER AS SHOWN ON DETAILS.
- 2) SURFACE BOULDERS ARE THE TOP-MOST COURSE OF BOULDERS USED IN EACH ROCK STRUCTURE. SURFACE BOULDERS MAY BE SEEN PROTRUDING FROM THE WATER SURFACE DURING LOW FLOWS. SURFACE BOULDERS SHALL BE DURABLE STONE WITH A MINIMUM DIAMETER AS SHOWN ON DETAILS.
- 3) THE VANE LENGTH IS THE STRAIGHT LINE PORTION OF STRUCTURES MEASURED FROM THE STREAM BANK AT BANKFULL ELEVATION TO THE CHANNEL BED.
- 4) THE VANE ANGLE IS THE SMALLEST ANGLE MEASURED BETWEEN A VANE AND A LINE TANGENT TO THE BANKFULL ELEVATION AT THE POINT WHERE THE VANE INTERSECTS THE BANK.
- 5) A FLOODPLAIN SILL IS THE BURIED EXTENSION OF THE STRUCTURE PERPENDICULAR TO THE FLOW DIRECTION OF THE BANKFULL CHANNEL.
- 6) THE THALWEG IS THE LOWEST PORTION OF THE BANKFULL CHANNEL.
- 7) ROOT WADS ARE THE ROOT MASS OF A TREE AND ATTACHED TRUNK. ROOT WADS AND LOGS MAY BE HARVESTED DURING EQUIPMENT ACCESS AND BANK GRADING OPERATIONS IF THE TREES ARE DETERMINED TO BE IN THE PATH OF CONSTRUCTION AND CLEARED FOR REMOVAL. HARVESTING SHALL BE EXECUTED IN A MANNER AS NOT TO LEAVE SIGNIFICANT VOIDS IN THE EXISTING RIPARIAN CORRIDOR. NO HARVESTING OF TREES OR WOOD SHALL OCCUR OUTSIDE THE FOOTPRINT OF CONSTRUCTION.
- 8) THE LOG STRUCTURES ARE CONSTRUCTED FROM INTACT AND NON-DECOMPOSED LOGS.
- 9) NATIVE STONE MATERIAL FROM THE EXISTING CHANNEL SHALL BE STOCKPILED AND REUSED TO TOP DRESS NEW CONSTRUCTION WITHIN THE CHANNEL WHERE POSSIBLE. SOME EXCAVATION OF CHANNEL BED MATERIAL WILL BE NECESSARY FOR PROPER INSTALLATION OF INSTREAM STRUCTURES.
- 10) ALL EFFORTS WILL BE MADE TO MINIMIZE REMOVAL OF LARGE TREES ALONG THE STREAM AND ON THE SITE. IN ADDITION, TREES SHALL BE REMOVED IN A MANNER TO ALLOW THEM TO BE REUSED ON THE SITE AS ROOT WADS OR LOG VANES.
- 11) ADJUSTMENTS IN THE CONFIGURATION AND PLACEMENT OF IN-STREAM STRUCTURES AND BANK GRADING AREAS MAY BE REQUESTED BY CARDNO'S ON-SITE CONSTRUCTION MANAGER BASED ON SITE CONDITIONS AND MATERIAL AVAILABILITY.
- 12) DEPTHS FOR ALL FOOTER STONE, KEYS, ETC MAY BE MODIFIED IF BEDROCK IS ENCOUNTERED DURING INSTALLATION OF THE STRUCTURES. IF ENCOUNTERED, STRUCTURE COMPONENTS WILL BE SET TO A MAXIMUM DEPTH OF THE BEDROCK ELEVATION.

REVISION

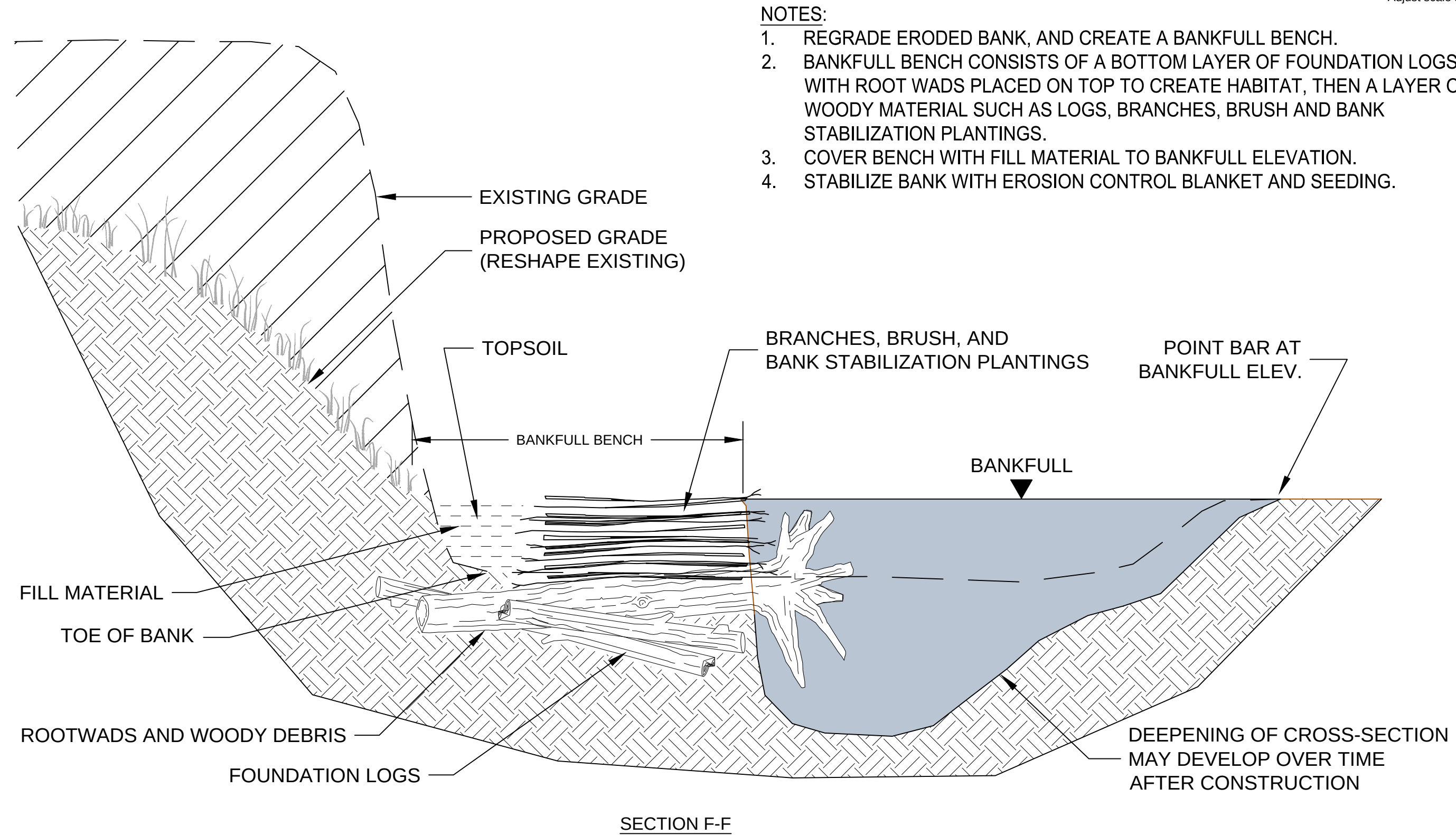
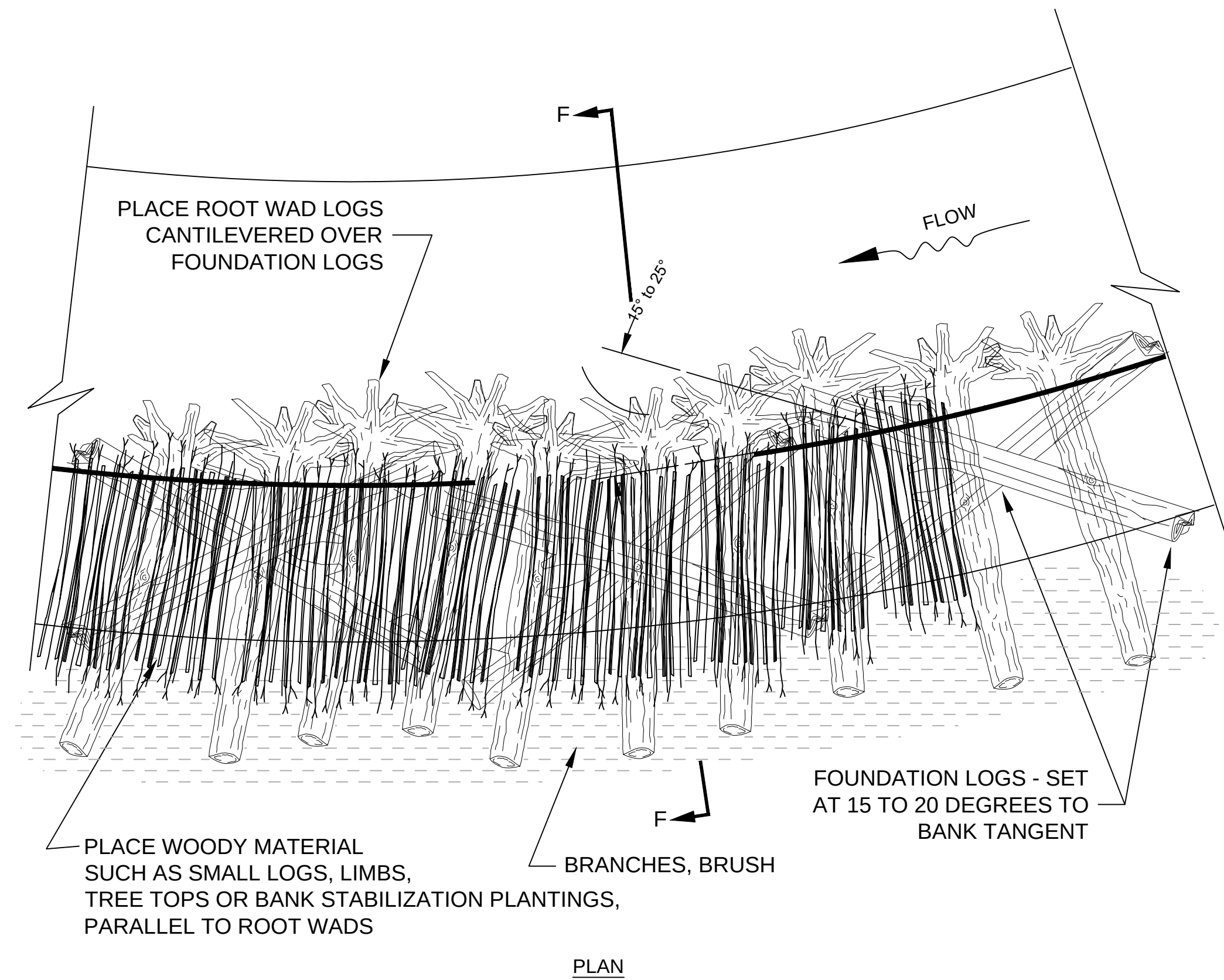
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DATE: MAR 2019
JOB NO: J143037800

SHEET NO.

21

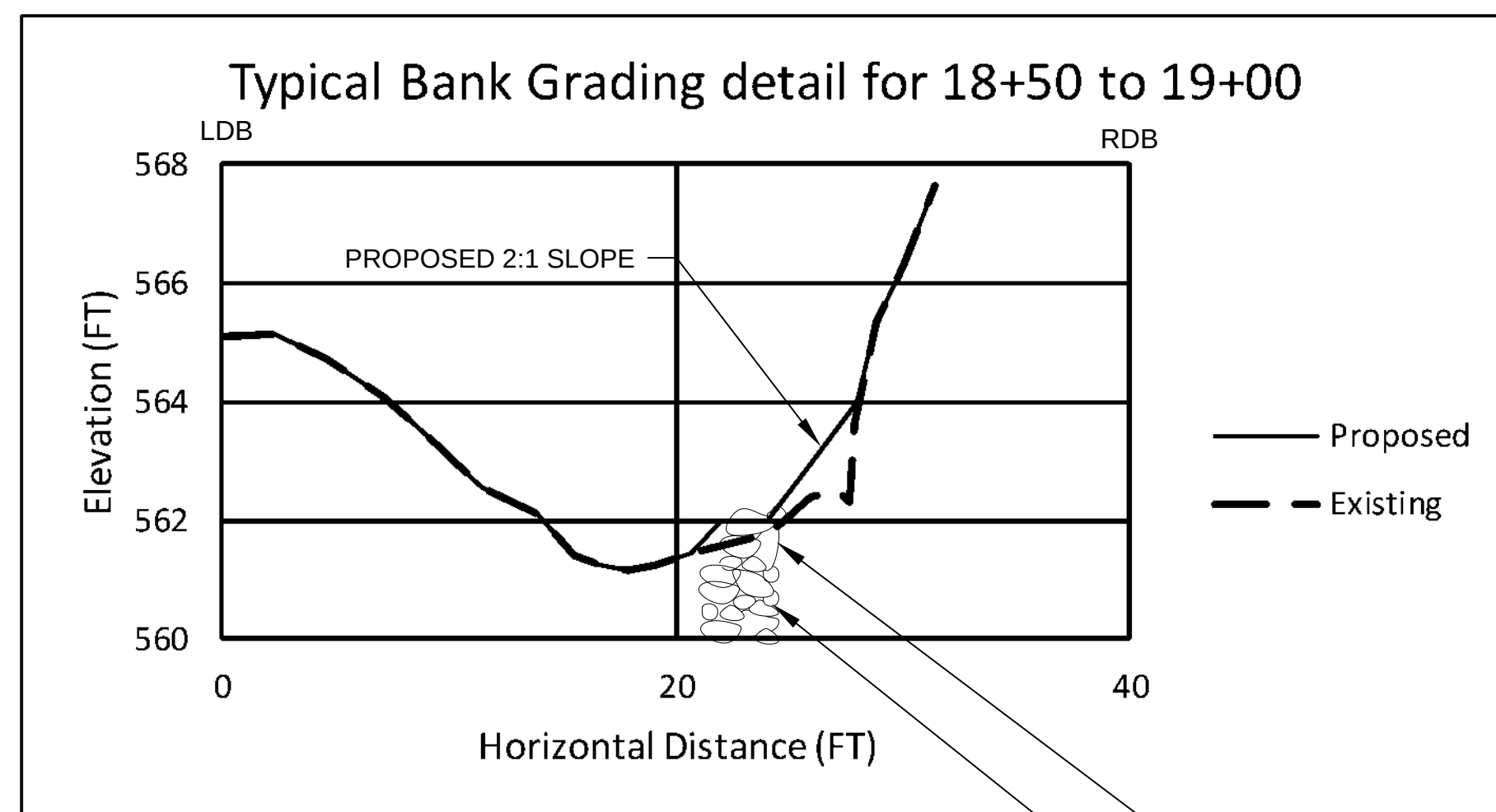
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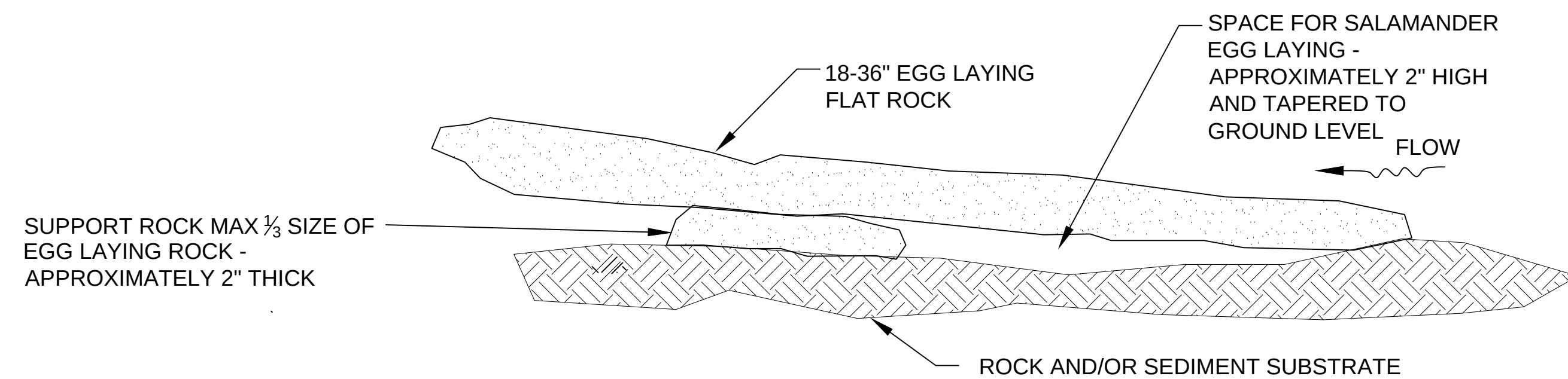
- NOTES:
1. REGRADE ERODED BANK, AND CREATE A BANKFULL BENCH.
 2. BANKFULL BENCH CONSISTS OF A BOTTOM LAYER OF FOUNDATION LOGS WITH ROOT WADS PLACED ON TOP TO CREATE HABITAT, THEN A LAYER OF WOODY MATERIAL SUCH AS LOGS, BRANCHES, BRUSH AND BANK STABILIZATION PLANTINGS.
 3. COVER BENCH WITH FILL MATERIAL TO BANKFULL ELEVATION.
 4. STABILIZE BANK WITH EROSION CONTROL BLANKET AND SEEDING.

GRAPHIC SCALE VERIFICATION
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Adjust scale accordingly.

10 **TYPICAL TOE WOOD - SOD MAT BANK RESTORATION**
NOT TO SCALE



11 **BANK GRADING - TYPICAL**
NOT TO SCALE



12 **AMPHIBIAN HABITAT EGG LAYING ROCK STRUCTURES**
NOT TO SCALE

REVISION

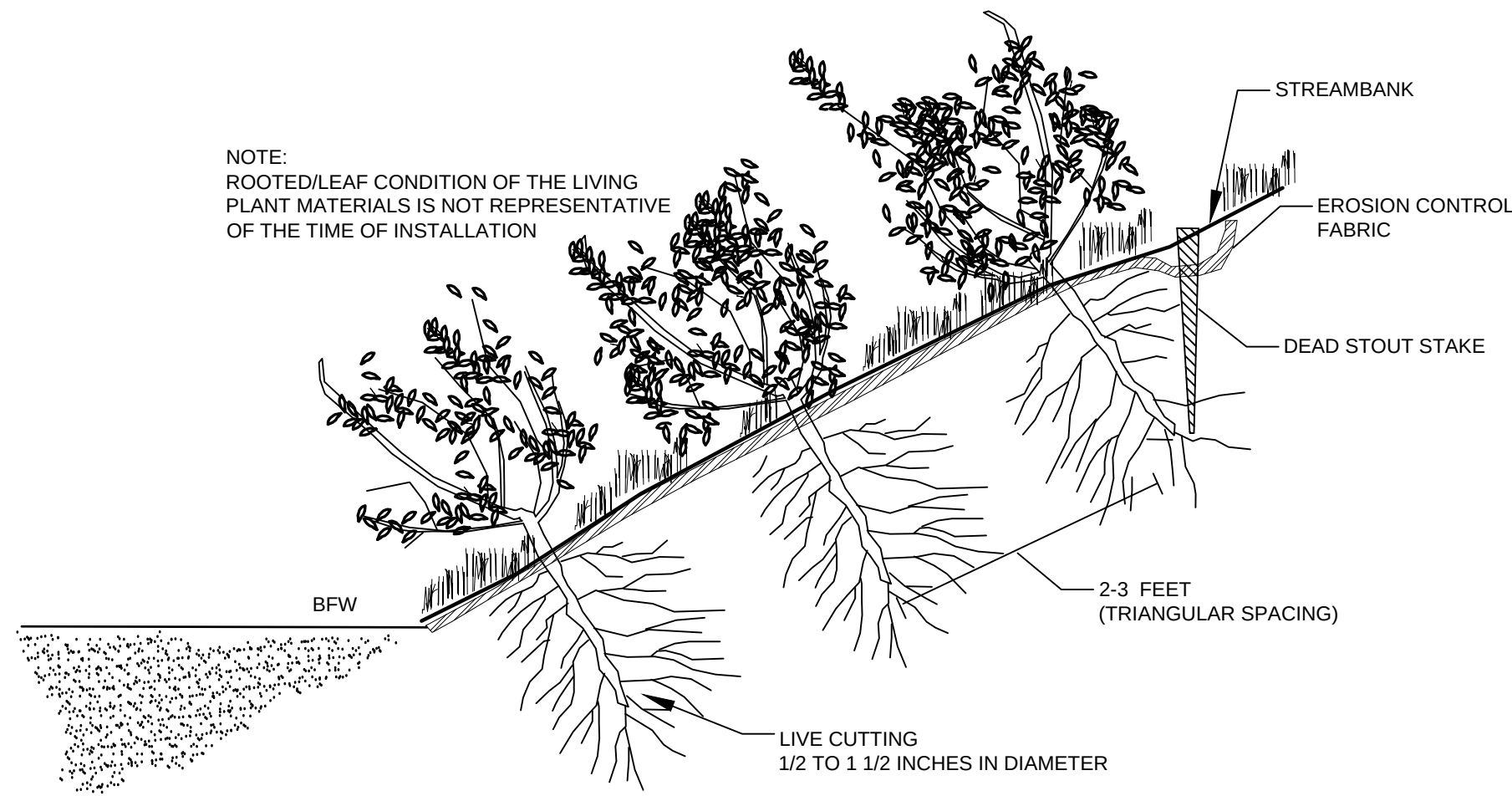
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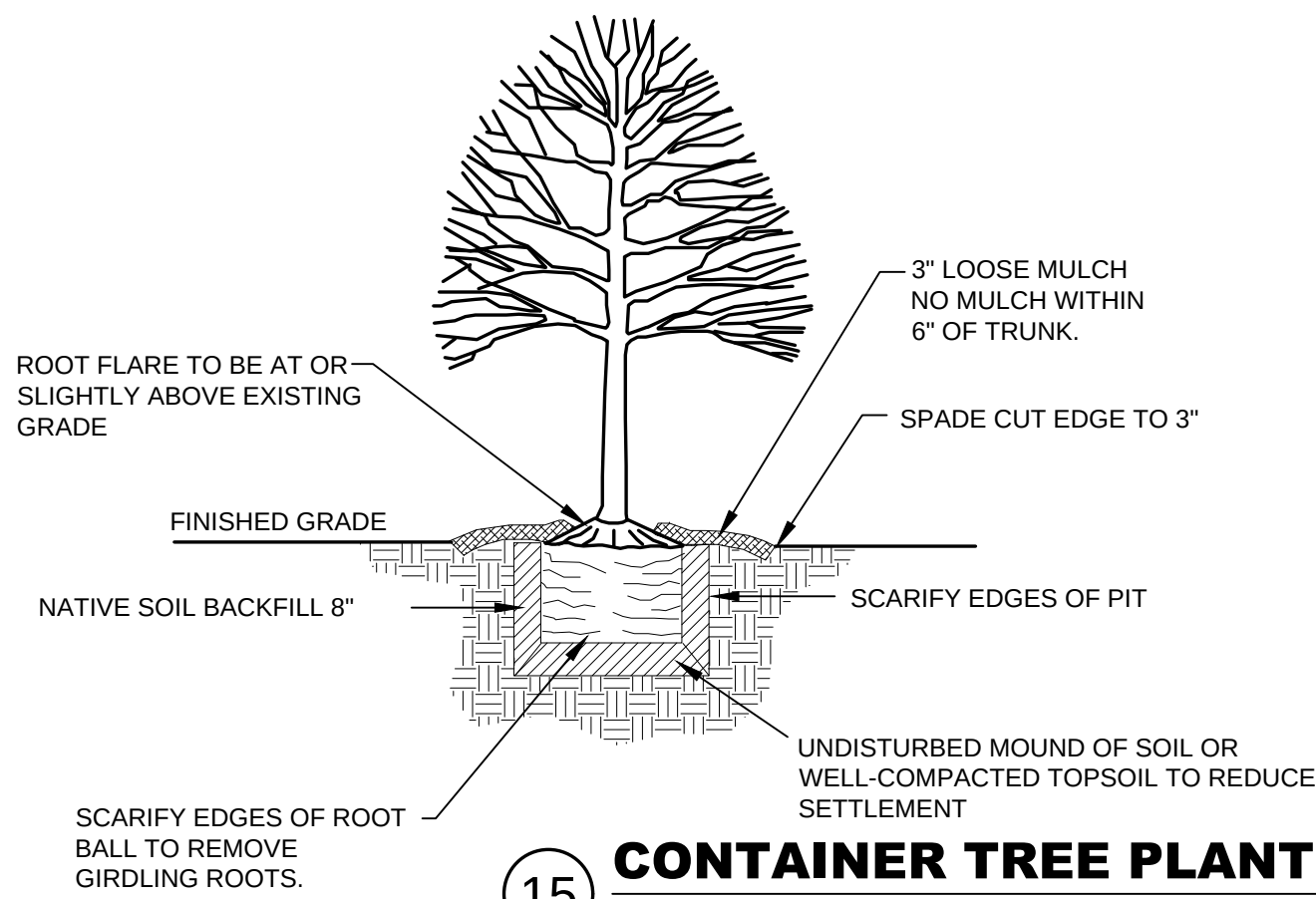
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OF 33



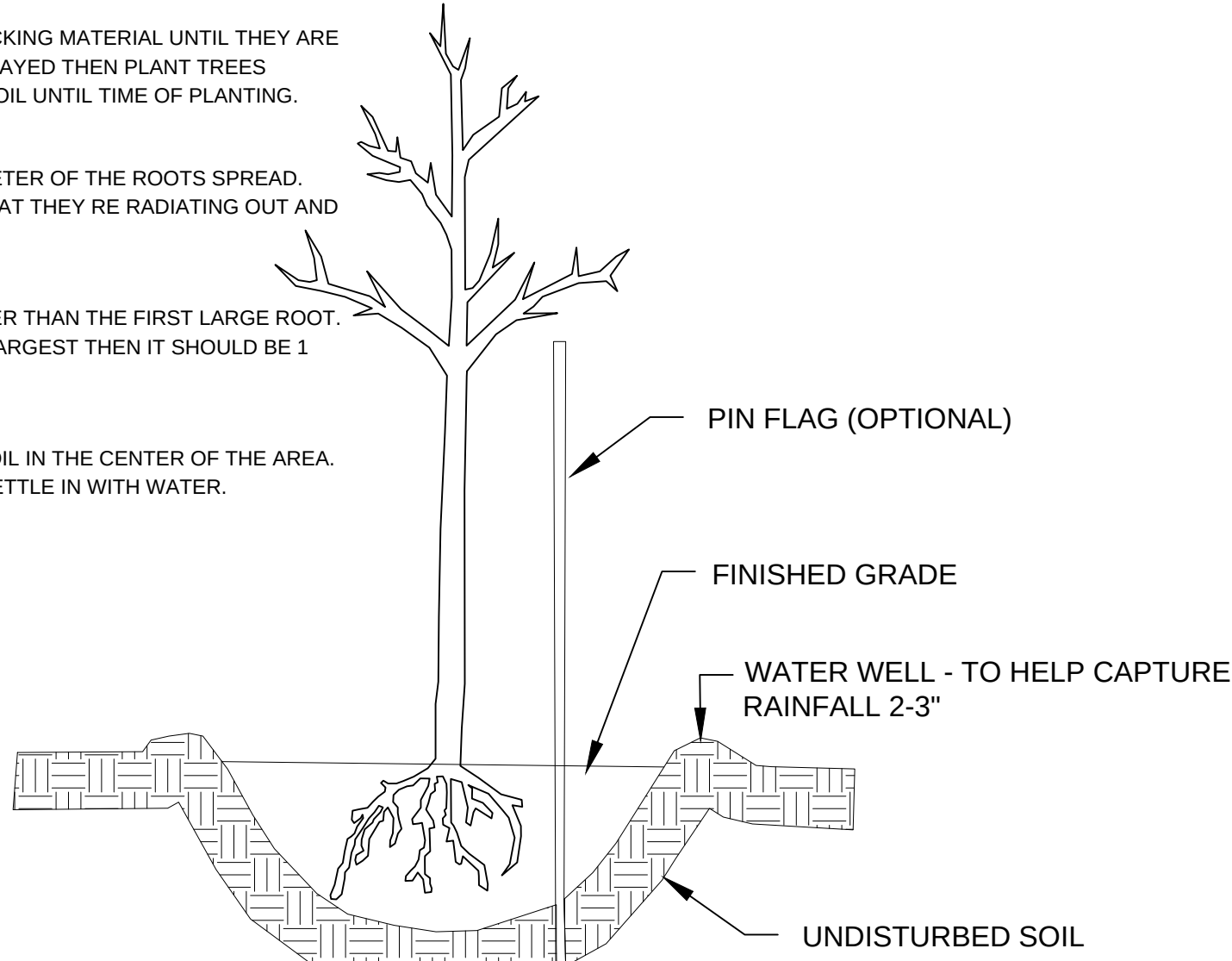
13 **BANK STABILIZATION PLANTINGS**
NOT TO SCALE



15 **CONTAINER TREE PLANTING DETAIL**
NOT TO SCALE

GRAPHIC SCALE VERIFICATION
This bar measures 1" on 22"x34"
or 1/2" on 11"x17" original.
Adjust scale accordingly.

- NOTES:
1. ROOTS MUST BE KEPT MOIST IN PACKING MATERIAL UNTIL THEY ARE PLANTED. IF PLANTING WILL BE DELAYED THEN PLANT TREES TEMPORARILY IN WOODCHIPS OR SOIL UNTIL TIME OF PLANTING.
 2. HOLE MUST BE 2-3 TIMES THE DIAMETER OF THE ROOTS SPREAD. SPREAD ROOTS OUT IN HOLE SO THAT THEY RE RADIATING OUT AND DOWN SLIGHTLY.
 3. TREE SHOULD SIT 2-3 INCHES HIGHER THAN THE FIRST LARGE ROOT. IF TOP ROOT APPEARS TO BE THE LARGEST THEN IT SHOULD BE 1 INCH BELOW FINISHED GRADE.
 4. SET THE TREE ON UNDISTURBED SOIL IN THE CENTER OF THE AREA. BACK FILL WITH NATIVE SOIL AND SETTLE IN WITH WATER.



14 **BARE ROOT DETAIL**
NOT TO SCALE

REVISION										
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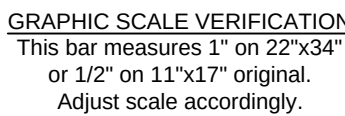
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DATE: MAR 2019
JOB NO: J143037800

SHEET NO.

23

OF 33



Sediment Removed During Response and Primary Restoration Activities*

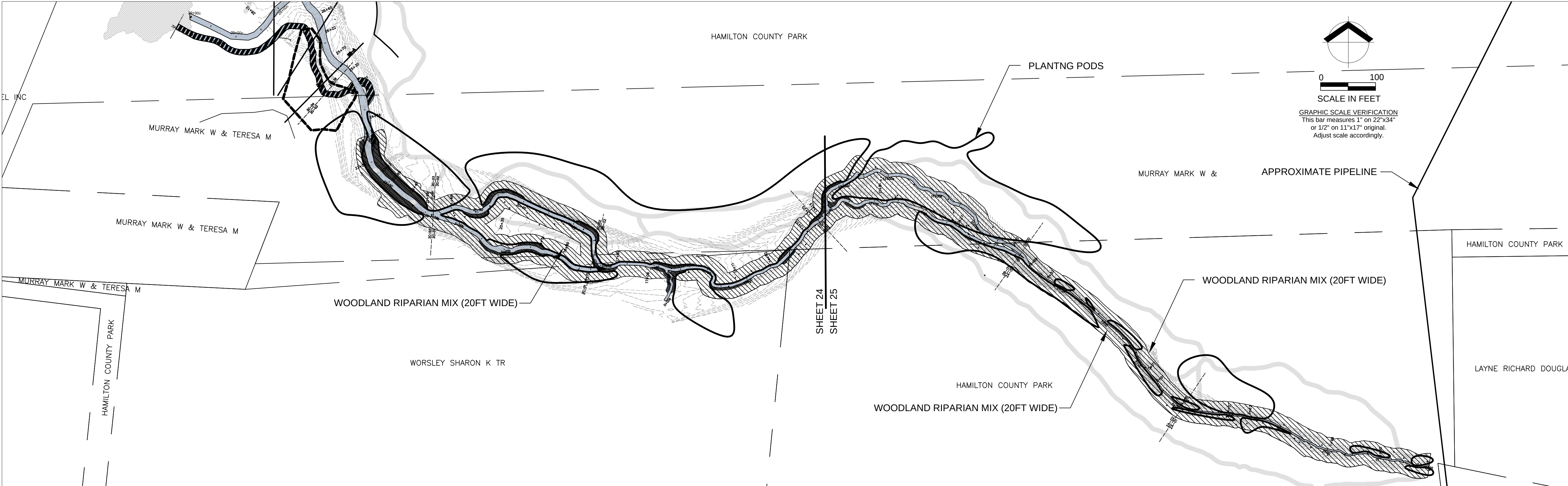
Activity	Dates	Qty (tons)
Removed During Initial Response	Mar 2014 - June 2016	1,165
Primary Restoration Construction Disposal	Sept - Dec 2016	545
Storm Damage Repair Disposal	Oct 2017	530
Total		2,240

*The quantity of imported fill removed from the Phase 3 areas was not specifically tracked because excavated material was recycled by the contractor. Therefore, no waste volumes/weights were tracked for disposal purposes. As a first approximation, the amount of material removed is assumed to be generally equivalent to the amount of soil imported to backfill excavations.

Material Added During Primary Restoration Activities

Activity	Dates	Material	Qty (tons)
Phase 1 and 2 Restoration	July 2016 - Oct 2017	Top Soil	550
		Stone	2,303
Phase 3 Restoration	Dec 2017 - July 2018	Top Soil	1,499
Total			4,352

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Plotted By: Stephen LaDon
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Woodland Riparian Mix

Botanical Name	Common Name	Planned Ounces/Acre	As-Built Ounces/Acre	Variance from Planned
<i>Carex frankii</i>	Bristly Cattail Sedge	7.50	7.50	0.00
<i>Bromus pubescens</i>	Woodland Brome	16.00	16.00	0.00
<i>Elymus canadensis</i>	Canada Wild Rye	28.00	28.00	0.00
<i>Elymus hystrix</i>	Bottlebrush Grass	5.00	5.00	0.00
<i>Elymus riparius</i>	Riverbank Wild Rye	22.00	22.00	0.00
<i>Elymus villosus</i>	Silky Wild Rye	32.00	32.00	0.00
<i>Elymus virginicus</i>	Virginia Wild Rye	72.00	72.00	0.00
Total		182.50	182.50	0.00
<i>Aquilegia canadensis</i>	Wild Columbine	0.50	1.20	+0.70
<i>Actaea racemosa</i>	Black Cohosh	2.00	0.00	-2.00
<i>Aster cordifolius</i>	Heart-Leaved Aster	1.00	1.00	0.00
<i>Aster lateriflorus</i>	Side-Flowering Aster	0.75	0.75	0.00
<i>Aster novae-angliae</i>	New England Aster	2.00	2.00	0.00
<i>Aster shortii</i>	Short's Aster	0.75	0.75	0.00
<i>Impatiens capensis</i>	Jewelweed*	4.00	0.00	-4.00
<i>Lobelia siphilitica</i>	Great Blue Lobelia*	0.25	0.43	+0.18
<i>Monarda fistulosa</i>	Wild Bergamot	1.50	1.50	0.00
<i>Penstemon digitalis</i>	Foxglove Beardtongue	1.25	1.25	0.00
<i>Solidago caesia</i>	Blue-Stemmed Goldenrod	0.25	0.25	0.00
<i>Verbena urticifolia</i>	Hairy White Vervain	1.25	1.25	0.00
<i>Verbesina alternifolia</i>	Wingstem	2.50	2.50	0.00
Total		18.00	12.88	-5.12
<i>Avena sativa</i>	Common Oat	360.00	360.00	0.00
<i>Lolium multiflorum</i>	Annual Rye	100.00	100.00	0.00
Total		460.00	460.00	0.00

*A transposition error was found in the planned applications rates for Jewelweed and Great Blue Lobelia between the Phase 1 Narrative Plan and the Plan Set; Planned application rates noted above reflect the rates that were listed in the Plan Set.

Supplemental Enhancement Species*

		Planned Ounces/10 ac.	As-Built Ounces/10 ac.	Variance from Planned
<i>Asarum canadense</i>	Wild Ginger	4.00	0.00	-4.00
<i>Claytonia virginica</i>	Spring Beauty	2.00	0.00	-2.00
<i>Dicentra cucullaria</i>	Dutchman's Breeches	2.00	0.00	-2.00
<i>Erythronium americanum</i>	Yellow Trout Lily	4.00	0.00	-4.00
<i>Geranium maculatum</i>	Wild Geranium	2.00	0.00	-2.00
<i>Mertensia virginica</i>	Virginia Bluebells	2.00	2.00	0.00
<i>Phlox divaricata</i>	Woodland Phlox	2.00	0.00	-2.00
<i>Polygonatum biflorum</i>	Smooth Solomon's Seal	56.00	56.00	0.00
<i>Sanguinaria canadensis</i>	Bloodroot	8.00	8.00	0.00
<i>Smilacina racemosa</i>	Feathery False Solomon's Seal	16.00	9.02	-6.98
<i>Osmundastrum cinnamomeum</i>	Cinnamon Fern	As available	0.00	0.00
Total		98.00	75.02	-22.98

*Supplemental Enhancement Species were bagged separately and hand-broadcast in appropriate habitats.

Slope Stabilization Seed Mix

Botanical Name	Common Name	Planned Ounces/Acre	As-Built Ounces/Acre	Variance from Planned
Permanent Grasses:				
<i>Andropogon gerardii</i>	Big Bluestem	48.00	48.00	0.00
<i>Bouteloua curtipendula</i>	Side-Oats Grama	16.00	16.00	0.00
<i>Carex spp.</i>	Prairie Sedge Mix	4.00	4.00	0.00
<i>Elymus canadensis</i>	Canada Wild Rye	32.00	32.00	0.00
<i>Elymus virginicus</i>	Virginia Wild Rye	24.00	24.00	0.00
<i>Panicum virgatum</i>	Switch Grass	0.00	12.00	+12.00
<i>Schizachyrium scoparium</i>	Little Bluestem	32.00	32.00	0.00
<i>Sorghastrum nutans</i>	Indian Grass	32.00	32.00	0.00
Total		188.00	200.00	+12.00
Temporary Cover:				
<i>Avena sativa</i>	Common Oat	512.00	512.00	0.00
<i>Lolium multiflorum</i>	Annual Rye	240.00	240.00	0.00
Total		752.00	752.00	0.00

Subcanopy Tree and Shrub Planting List (16' O.C.)

Botanical Name	Common Name	Planned Qty.	As-Built Qty.	Variance from Planned
<i>Asimina triloba</i>	Pawpaw	400	400	0
<i>Lindera benzoin</i>	Spicebush	350	350	0
<i>Cercis canadensis</i>	Redbud	330	330	0
<i>Viburnum acerifolium</i>	Maple Leaf Viburnum	200	200	0
Number of Installed Subcanopy Trees and Shrubs:		1280	1280	0

Canopy Tree Planting List (16' O.C.)

Botanical Name	Common Name	Planned Qty.	As-Built Qty.	Variance from Planned
<i>Carya cordiformis</i>	Bitternut Hickory	84	84	0
<i>Carya glabra</i>	Pignut Hickory	84	84	0
<i>Carya ovata</i>	Shagbark Hickory	84	84	0
<i>Liriodendron tulipifera</i>	Tulip Poplar	84	84	0
<i>Quercus rubrum</i>	Red Oak	84	84	0
Number of Installed Canopy Trees and Shrubs:		420	420	0

Total Number of Installed Canopy and Subcanopy Trees and Shrub 1700

Bioengineering & Bank Stabilization As-Built Planting List (2-3' O.C.)

Botanical Name	Common Name	Live Stake			Bareroot		
		Planned Qty.	As-Built Qty.	Variance from Planned	Planned Qty.	As-Built Qty.	Variance from Planned
<i>Cornus amomum</i>	Silky Dogwood	165	205	+40	0	0	0
<i>Cornus drummondii</i>	Roughleaf Dogwood	50	0	-50	0	0	0
<i>Sambucus canadensis</i>	Elderberry	115	200	+85	0	0	0
<i>Asimina triloba</i>	Pawpaw	0	0	0	380	400	+20
<i>Cercis canadensis</i>	Redbud	0	0	0	105	125	+20
<i>Juglans nigra</i>	Black Walnut	0	0	0	0	100	+100
<i>Lindera benzoin</i>	Spicebush	0	0	0	215	225	+10
<i>Platanus occidentalis</i>	Sycamore	0	0	0	0	150	+150
<i>Viburnum acerifolium</i>	Maple-Leaved Viburnum	75	0	-75	105	125	+20
Totals:		405	405	0	805	1125	+320

Total Number of Installed Bioengineering & Bank Stabilization Plants:

Variance from Planned:

1530

+320

PHASE 1 PLANTING PLAN
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS

REVISION

AS-BUILT

DRAWN BY: SKL

DESIGNED BY: AS

DATE: MAR 2019

JOB NO: J143037800

SHEET NO.

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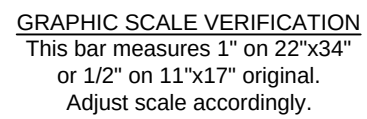


Area (ac)	1.566	0.906
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 Supplemental Tree and Shrub Planting Pods

 Bank Stabilization Treatment Areas

 woodland Riparian Seeding Areas



PLANTING PLAN
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS

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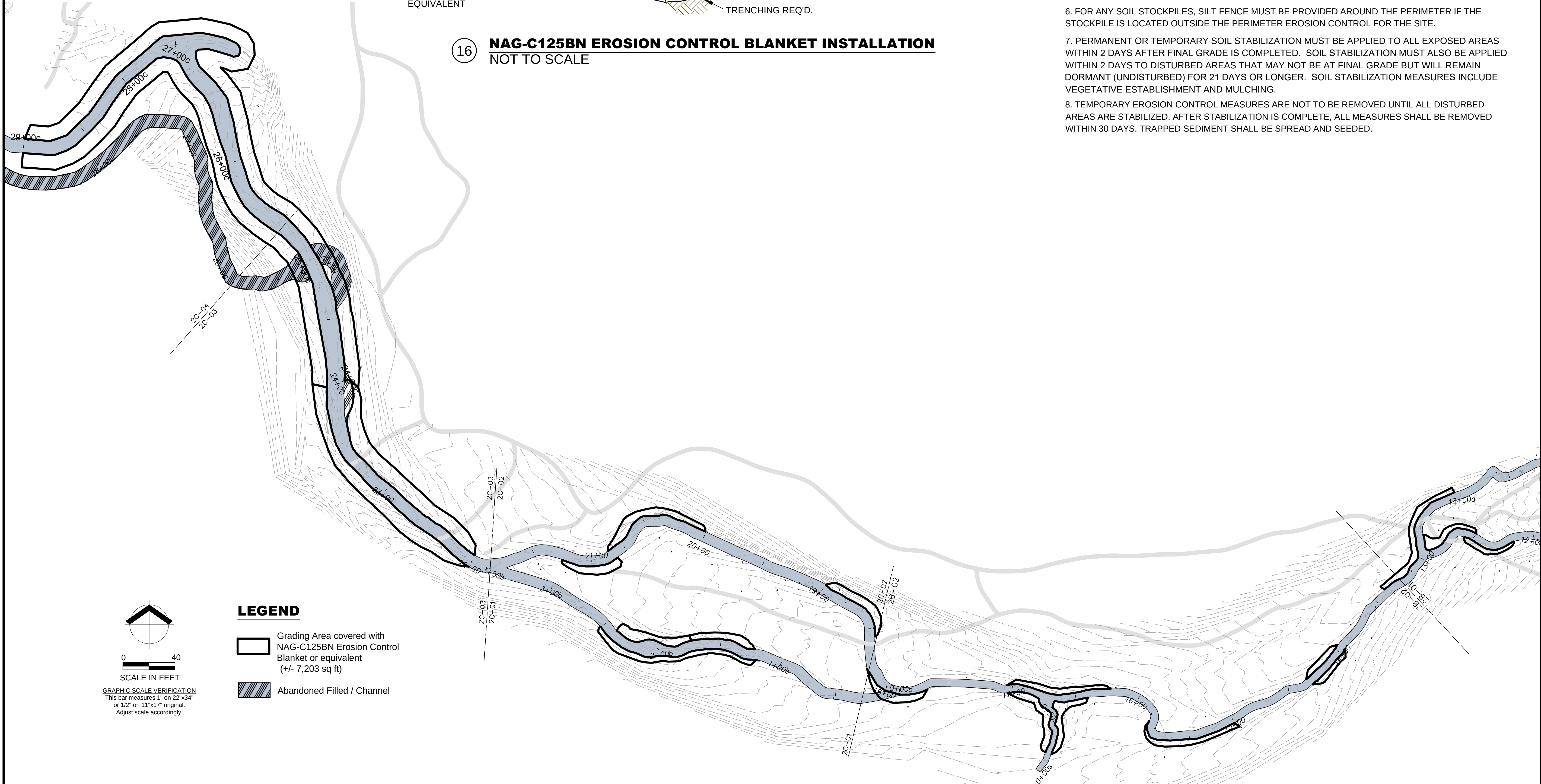
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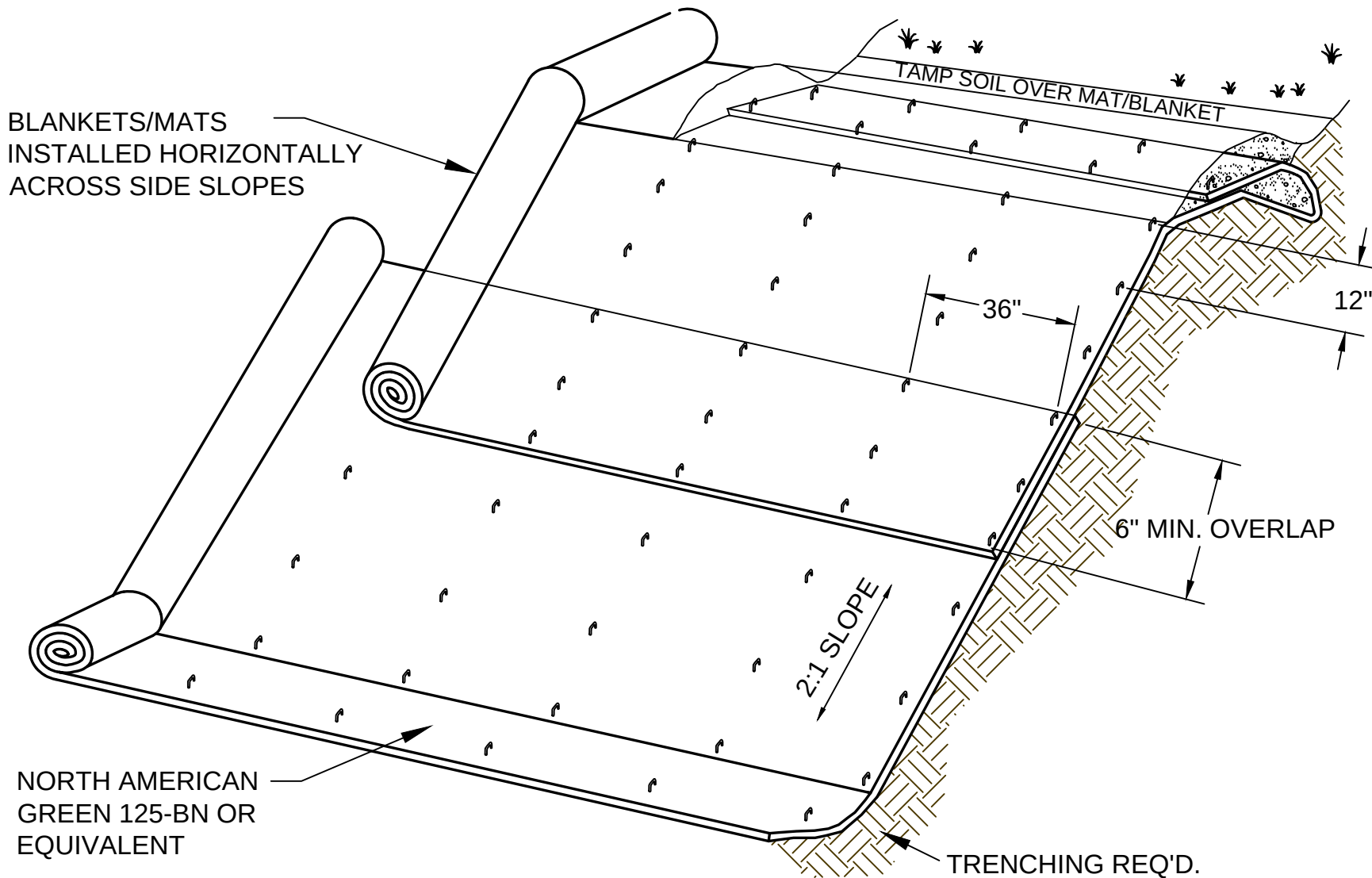
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NOTES:

1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.



16 NAG-C125BN EROSION CONTROL BLANKET INSTALLATION
NOT TO SCALE

EROSION AND SEDIMENT CONTROL NOTES:

EROSION CONTROL MEASURES SHOWN ON THESE PLANS SHALL BE INITIATED TO PREVENT THE TRANSPORT OF SEDIMENT FROM CONSTRUCTION ACTIVITIES. IF FIELD INSPECTIONS SHOW THESE MEASURES ARE UNABLE TO CONFINE SEDIMENT TO THE PROJECT SITE, APPROPRIATE MODIFICATIONS WILL BE MADE. ALL PROVISIONS OF LOCAL AND/OR STATE EROSION AND SEDIMENT CONTROL REGULATIONS SHALL APPLY TO THIS PROJECT.

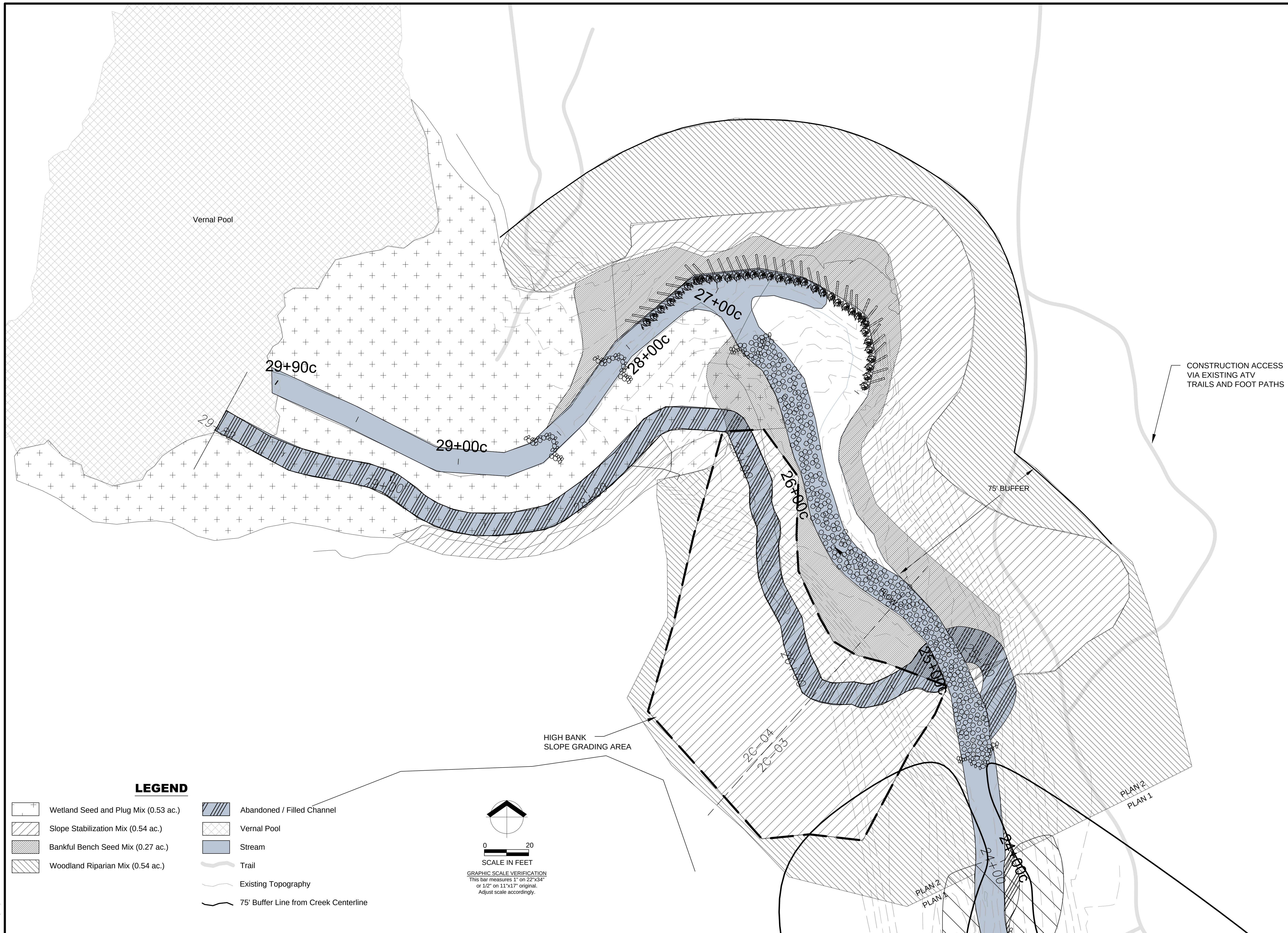
1. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS, AS WELL AS ANY RESIDUAL OIL OBSERVED IN THE STREAM.
2. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORMWATER DISCHARGE DITCHES OR WATERS OF THE STATE. WASTE MATERIALS WILL BE DISPOSED OF IN ACCORDANCE WITH THE APPROVED WASTE MANAGEMENT PLAN.
3. PERIODIC INSPECTIONS OF THE EROSION CONTROL MEASURES SHALL BE MADE TO ASSESS THEIR CONDITIONS. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
4. SEDIMENT CONTROL MEASURES MAY REQUIRE MINOR FIELD ADJUSTMENTS AT TIME OF CONSTRUCTION TO ENSURE THEIR INTENDED PURPOSE IS ACCOMPLISHED.
5. SURFACE FLOWS OVER CUT AND FILL SLOPES SHALL BE CONTROLLED BY RE-DIRECTING FLOWS FROM FLOWING OVER THE EXPOSED SLOPES WITHOUT CAUSING EROSION.
6. FOR ANY SOIL STOCKPILES, SILT FENCE MUST BE PROVIDED AROUND THE PERIMETER IF THE STOCKPILE IS LOCATED OUTSIDE THE PERIMETER EROSION CONTROL FOR THE SITE.
7. PERMANENT OR TEMPORARY SOIL STABILIZATION MUST BE APPLIED TO ALL EXPOSED AREAS WITHIN 2 DAYS AFTER FINAL GRADE IS COMPLETED. SOIL STABILIZATION MUST ALSO BE APPLIED WITHIN 2 DAYS TO DISTURBED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR 21 DAYS OR LONGER. SOIL STABILIZATION MEASURES INCLUDE VEGETATIVE ESTABLISHMENT AND MULCHING.
8. TEMPORARY EROSION CONTROL MEASURES ARE NOT TO BE REMOVED UNTIL ALL DISTURBED AREAS ARE STABILIZED. AFTER STABILIZATION IS COMPLETE, ALL MEASURES SHALL BE REMOVED WITHIN 30 DAYS. TRAPPED SEDIMENT SHALL BE SPREAD AND SEEDED.

REVISION

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OF 33



PHASE 2 PLANTING PLAN - SEEDING
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS

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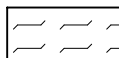
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OF 33

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Woodland Riparian Mix (0.54 ac.)					
Botanical Name	Common Name	Planned	1st Application	2nd Application	Variance
		Ounces/Acre	As-Built Ounces/Acre	As-Built Ounces/Acre	
<i>Carex frankii</i>	Bristly Cattail Sedge	7.50	7.59	7.50	+7.59
<i>Bromus pubescens</i>	Woodland Brome	16.00	15.93	16.00	+15.93
<i>Elymus canadensis</i>	Canada Wild Rye	28.00	27.96	28.00	+27.96
<i>Elymus hystrix</i>	Bottlebrush Grass	5.00	5.00	5.00	+5.00
<i>Elymus riparius</i>	Riverbank Wild Rye	22.00	22.04	22.00	+22.04
<i>Elymus villosus</i>	Silky Wild Rye	32.00	32.04	32.00	+32.04
<i>Elymus virginicus</i>	Virginia Wild Rye	72.00	72.04	72.00	+72.04
Total		182.50	182.59	182.50	+182.59
<i>Aquilegia canadensis</i>	Wild Columbine	0.50	0.56	4.00	+4.06
<i>Actaea racemosa</i>	Black Cohosh	2.00	0.00		-2.00
<i>Aster cordifolius</i>	Heart-Leaved Aster	1.00	0.93	2.50	+2.43
<i>Aster lateriflorus</i>	Side-Flowering Aster	0.75	0.74		-0.01
<i>Aster novae-angliae</i>	New England Aster	2.00	2.04		+0.04
<i>Aster shortii</i>	Short's Aster	0.75	0.74		-0.01
<i>Impatiens capensis</i>	Jewelweed*	4.00	0.00		-4.00
<i>Lobelia siphilitica</i>	Great Blue Lobelia*	0.25	0.19		-0.06
<i>Monarda fistulosa</i>	Wild Bergamot	1.50	1.48	4.00	+3.98
<i>Penstemon digitalis</i>	Foxglove Beardtongue	1.25	1.30	4.00	+4.05
<i>Solidago caesia</i>	Blue-Stemmed Goldenrod	0.25	0.19		-0.06
<i>Verbena urticifolia</i>	Hairy White Vervain	1.25	1.30		+0.05
<i>Verbesina alternifolia</i>	Wingstem	2.50	2.58	5.00	+5.09
Total		18.00	12.04	19.50	+13.54
<i>Avena sativa</i>	Common Oat	360.00	360.00	360.00	+360.00
<i>Lolium multiflorum</i>	Annual Rye	100.00	100.00	100.00	+100.00
Total		460.00	460.00	460.00	+460.00
*A transposition error was found in the planned applications rates for Jewelweed and Great Blue Lobelia between the Phase 2 Narrative Plan and the Plan Set; Planned application rates noted above reflect the rates that were listed in the Plan Set.					

Bankful Bench Seed Mix (0.27 ac.)				
Botanical Name	Common Name	Planned Ounces/Acre	As-Built Ounces/Acre	Variance from Planned
Permanent Grasses/Sedges:				
<i>Calamagrostis canadensis</i>	Bluejoint Grass	1.00	1.11	+0.11
<i>Carex crinita</i>	Fringed Sedge	2.00	1.85	-0.15
<i>Carex lupulina</i>	Common Hop Sedge	4.00	4.07	+0.07
<i>Carex lurida</i>	Bottlebrush Sedge	1.50	1.48	-0.02
<i>Carex frankii</i>	Bristly Cattail Sedge	3.00	2.96	-0.04
<i>Carex squarrosa</i>	Narrow-Leaved Cattail Sedge	1.00	1.11	+0.11
<i>Carex vulpinoidea</i>	Brown Fox Sedge	4.00	4.07	+0.07
<i>Elymus virginicus</i>	Virginia Wild Rye	20.00	20.00	0.00
<i>Glyceria striata</i>	Fowl Manna Grass	2.00	1.85	-0.15
<i>Juncus effusus</i>	Common Rush	0.50	0.37	-0.13
<i>Leersia oryzoides</i>	Rice Cut Grass	2.00	1.85	-0.15
<i>Scirpus atrovirens</i>	Dark Green Rush	2.00	1.85	-0.15
<i>Spartina pectinata</i>	Prairie Cord Grass	1.00	1.11	0.11
Total		44.00	43.68	-0.32
Temporary Cover:				
<i>Avena sativa</i>	Common Oat	360.00	360.00	0.00
<i>Lolium multiflorum</i>	Annual Rye	100.00	100.00	0.00
Total		460.00	460.00	0.00

Forbs:				
<i>Alisma spp.</i>	Water Plantain (Various Mix)	3.00	2.96	-0.04
<i>Angelica atropurpurea</i>	Great Angelica	1.00	1.11	+0.11
<i>Bidens cernua</i>	Nodding Bur Marigold	2.50	2.59	+0.09
<i>Boehmeria cylindrica</i>	False Nettle	2.00	1.85	-0.15
<i>Campanulastrum americanum</i>	Tall Bellflower	0.25	0.37	+0.12
<i>Cephalanthus occidentalis</i>	Buttonbush	0.50	0.37	-0.13
<i>Doellingeria umbellata</i>	Flat-Topped Aster	0.25	0.37	+0.12
<i>Helenium autumnale</i>	Sneezeweed	2.00	1.85	-0.15
<i>Heracleum lanatum</i>	Cow Parsnip	0.75	0.74	-0.01
<i>Hibiscus moscheutos</i>	Swamp Rose Mallow	2.00	1.85	-0.15
<i>Lobelia siphilitica</i>	Great Blue Lobelia	0.50	0.37	-0.13
<i>Lycopus americanus</i>	Common Water Horehound	0.25	0.37	0.12
<i>Mimulus ringens</i>	Monkey Flower	1.25	1.11	-0.14
<i>Penthorum sedoides</i>	Ditch Stonecrop	0.50	0.37	-0.13
<i>Polygonum spp.</i>	Pinkweed (Various Mix)	0.50	0.37	-0.13
<i>Rudbeckia laciniata</i>	Wild Golden Glow	2.00	1.85	-0.15
<i>Senna hebecarpa</i>	Wild Senna	2.00	1.85	-0.15
<i>Solidago patula</i>	Swamp Goldenrod	1.00	1.11	0.11
<i>Symphoricaricum puniceum</i>	Swamp Aster	0.75	0.74	-0.01
<i>Verbesina alternifolia</i>	Wingstem	4.00	4.07	0.07
Total		27.50	26.27	-1.23



Subcanopy Tree and Shrub Planting List (Planned 0.81 ac; As-Built 0.78 ac.)				
Botanical Name	Common Name	Planned Qty.	As-Built Qty.	Variance from
				Planned
<i>Asimina triloba</i>	Pawpaw	80	80	0
<i>Lindera benzoin</i>	Spicebush	70	70	0
<i>Cercis canadensis</i>	Redbud	40	40	0
<i>Viburnum acerifolium</i>	Maple Leaf Viburnum	35	35	0
Total		225	225	0

Canopy Tree Planting List (Planned 0.81 ac; As-Built 0.78 ac.)				
Botanical Name	Common Name	Planned Qty.	As-Built Qty.	Variance from
				Planned
<i>Carya cordiformis</i>	Bitternut Hickory	25	25	0
<i>Carya glabra</i>	Pignut Hickory	25	25	0
<i>Carya ovata</i>	Shagbark Hickory	25	25	0
<i>Juglans nigra</i>	Black Walnut	0	25	+25
<i>Platanus occidentalis</i>	American Sycamore	0	25	+25
<i>Liriodendron tulipifera</i>	Tulip Poplar	25	25	0
<i>Quercus rubra</i>	Red Oak	25	25	0
Total		125	175	+50

Total Number of Installed Canopy and Subcanopy Trees and Shrubs:	400
Variance from Planned:	+50

Trees and shrubs planted on average 10' centers (435 stems/acre)

Wetland Seed and Plug Mix (0.53 ac.)				
<u>Botanical Name</u>	<u>Common Name</u>	<u>Planned Ounces/Acre</u>	<u>As-Built Ounces/Acre</u>	<u>Variance from Planned</u>
<i>Carex frankii</i>	Bristly Cattail Sedge	7.50	7.55	+0.05
<i>Bromus pubescens</i>	Woodland Brome	16.00	16.04	+0.04
<i>Elymus canadensis</i>	Canada Wild Rye	28.00	27.92	-0.08
<i>Elymus hystrix</i>	Bottlebrush Grass	5.00	5.09	+0.09
<i>Elymus riparius</i>	Riverbank Wild Rye	22.00	22.08	+0.08
<i>Elymus villosus</i>	Silky Wild Rye	32.00	32.08	+0.08
<i>Elymus virginicus</i>	Virginia Wild Rye	72.00	72.08	+0.08
Total		182.50	182.84	+0.34
<i>Avena sativa</i>	Common Oat	360.00	360.00	0.00
<i>Lolium multiflorum</i>	Annual Rye	100.00	100.00	0.00
Total		460.00	460.00	0.00

Wetland Plug List (3' O.C.)				
Botanical Name	Common Name	Planned QTY Plugs	As-Built QTY Plugs	Variance from Planned
<i>Carex frankii</i>	Bristly Cattail Sedge	700	700	0
<i>Elymus canadensis</i>	Canada Wild Rye	350	450	+100
<i>Elymus hystrix</i>	Bottlebrush Grass	350	0	-350
<i>Elymus riparius</i>	Riverbank Wild Rye	650	900	+250
<i>Elymus virginicus</i>	Virginia Wild Rye	650	650	0
Total		2700	2700	0

Assumes Wetland Mudflat Planting Area = ~0.53 acres

Wetland Planting List (Planned 0.53 ac; As-Built 0.59 ac.)				
Botanical Name	Common Name	Planned Qty.	As-Built Qty.	Variance from Planned
<i>Acer saccharinum</i>	Silver Maple	20	30	+10
<i>Carya laciniosa</i>	Shellbark Hickory	25	25	0
<i>Cephalanthus occidentalis</i>	Buttonbush	140	140	0
<i>Quercus bicolor</i>	Swamp White Oak	25	30	+5
<i>Plantanus occidentalis</i>	American Sycamore	25	30	+5
<i>Salix nigra</i>	Black Willow	15	20	+5
Total		250	275	+25

Trees and shrubs planted on average 10' centers (435 stems/acre)

Slope Stabilization Seed Mix (0.54 ac.)

Botanical Name	Common Name	Planned Ounces/Acre	As-Built Ounces/Acre	Variance om Planne
Permanent Grasses:				
<i>Andropogon gerardii</i>	Big Bluestem	48.00	47.96	-0.04
<i>Bouteloua curtipendula</i>	Side-Oats Grama	16.00	15.93	-0.07
<i>Carex molesta</i>	Field Oval Sedge	4.00	4.07	+0.07
<i>Chamaecrista fasciculata</i>	Partridge pea	0.00	12.04	+12.04
<i>Elymus canadensis</i>	Canada Wild Rye	32.00	32.04	+0.04
<i>Elymus virginicus</i>	Virginia Wild Rye	24.00	24.07	+0.07
<i>Rudbeckia hirta</i>	Black-eyed Susan	0.00	5.00	+5.00
<i>Schizachyrium scoparium</i>	Little Bluestem	32.00	32.04	+0.04
<i>Sorghastrum nutans</i>	Indian Grass	32.00	32.04	+0.04
Total		188.00	205.19	+17.19
Temporary Cover:				
<i>Avena sativa</i>	Common Oat	512.00	512.04	+0.04
<i>Lolium multiflorum</i>	Annual Rye	240.00	240.00	0.00
Total		752.00	752.04	+0.04

Bioengineering and Bank Stabilization Planting List (Planned 0.54 ac; As-Built 0.68 ac.)							
Live Stake				Bareroot			
Botanical Name	Common Name	Planned Qty.	As-Built Qty.	Variance from Planned	Planned Qty.	As-Built Qty.	Variance from Planned
<i>Cornus amomum</i>	Silky Dogwood	290	0	-290	0	0	0
<i>Cornus drummondii</i>	Roughleaf Dogwood	290	0	-290	0	500	+500
<i>Viburnum acerifolium</i>	Maple Leaf Viburnum	290	0	-290	475	0	-475
<i>Sambucus canadensis</i>	Elderberry	290	300	+10	0	0	0
<i>Cercis canadensis</i>	Redbud	0	0	0	475	550	+75
<i>Asimina triloba</i>	Pawpaw	0	0	0	475	0	-475
<i>Lindera benzoin</i>	Spicebush	0	0	0	475	0	-475
<i>Juglans nigra</i>	Black Walnut	0	0	0	0	500	+500
<i>Platanus occidentalis</i>	American Sycamore	0	0	0	0	500	+500
<i>Quercus rubra</i>	Red Oak	0	0	0	0	500	+500
<i>Carya cordiformis</i>	Bitternut Hickory	0	0	0	0	500	+500
Total		1,160.00	300	-860	1,900.00	3,050.00	+1150
Total Number of Installed Bioengineering & Bank Stabilization Plants:							3,350.00
Variance from Planned:							+290

SCALE IN FEET
GRAPHIC SCALE VERIFICATION
This bar measures 1" on 22"x34"
or 1/2" on 11"x17" original.
Adjust scale accordingly.

PHASE 2 SEED MIXES / PLANTING
LISTS
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS

REVISION											
Revised per Trustee / Stakeholder comments dated 6/10/16											
07/15/16											
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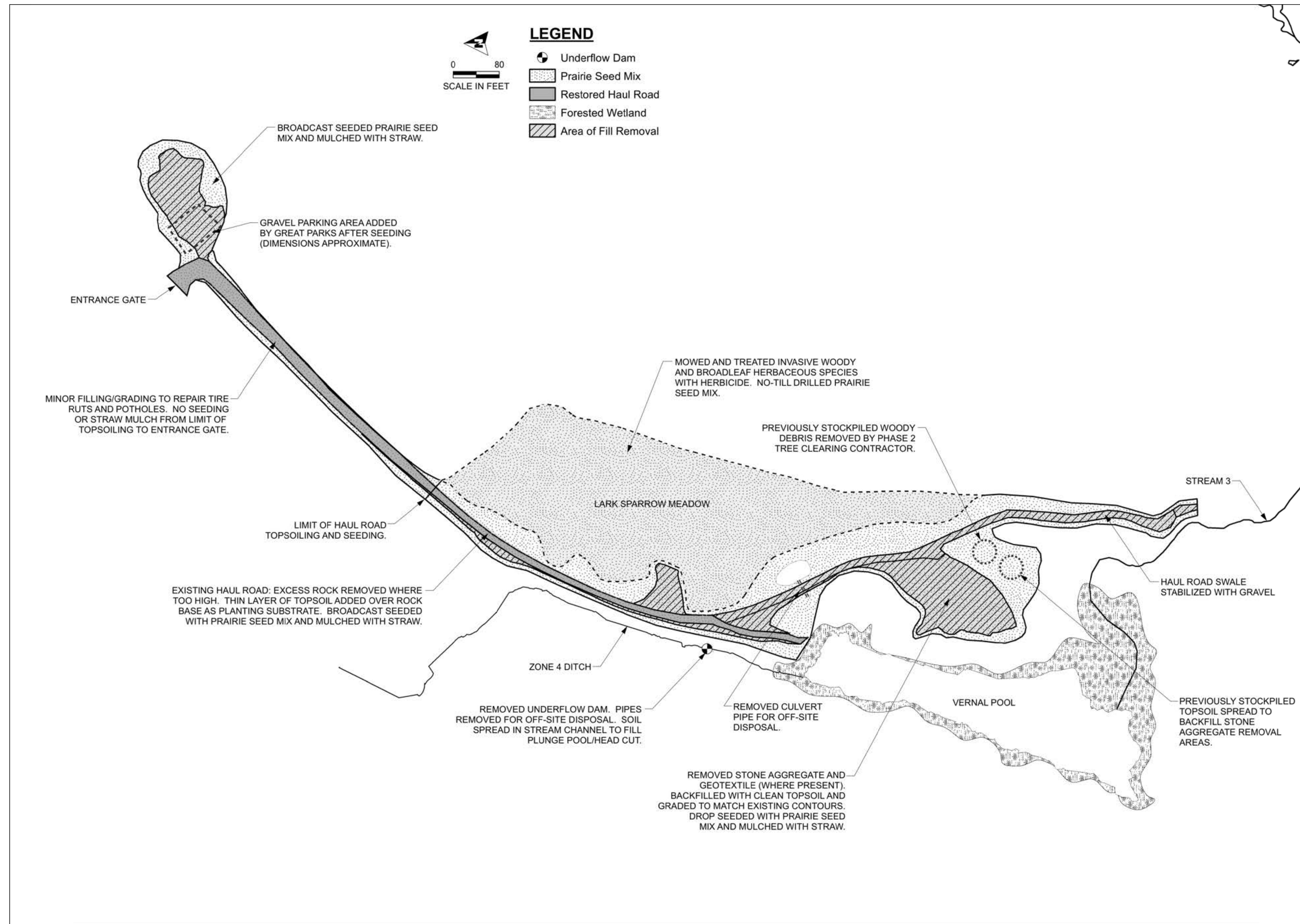
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JOB NO: J143037800

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PHASE 3 TREATMENT AND SEEDING PLAN OAK GLEN PIPELINE RELEASE INCIDENT - PRIMARY RESTORATION CONSTRUCTION AS-BUILTS

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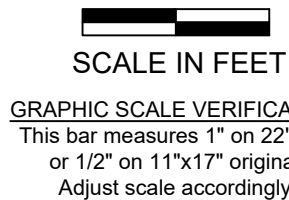
Woodland Riparian Mix

<u>Botanical Name</u>	<u>Common Name</u>	<u>Planned Ounces/Acre</u>	<u>As-Built Ounces/Acre</u>	<u>Variance from Planned</u>
<i>Carex frankii</i>	Bristly Cattail Sedge	7.50	7.50	0.00
<i>Bromus pubescens</i>	Woodland Brome	16.00	16.00	0.00
<i>Elymus canadensis</i>	Canada Wild Rye	28.00	28.00	0.00
<i>Elymus hystrix</i>	Bottlebrush Grass	5.00	5.00	0.00
<i>Elymus riparius</i>	Riverbank Wild Rye	22.00	22.00	0.00
<i>Elymus villosus</i>	Silky Wild Rye	32.00	32.00	0.00
<i>Elymus virginicus</i>	Virginia Wild Rye	72.00	72.00	0.00
	Total	182.50	182.50	0.00
<i>Aquilegia canadensis</i>	Wild Columbine	0.50	1.20	+0.70
<i>Actaea racemosa</i>	Black Cohosh	2.00	0.00	-2.00
<i>Aster cordifolius</i>	Heart-Leaved Aster	1.00	1.00	0.00
<i>Aster lateriflorus</i>	Side-Flowering Aster	0.75	0.75	0.00
<i>Aster novae-angliae</i>	New England Aster	2.00	2.00	0.00
<i>Aster shortii</i>	Short's Aster	0.75	0.75	0.00
<i>Impatiens capensis</i>	Jewelweed*	4.00	0.00	-4.00
<i>Lobelia siphilitica</i>	Great Blue Lobelia*	0.25	0.43	+0.18
<i>Monarda fistulosa</i>	Wild Bergamot	1.50	1.50	0.00
<i>Penstemon digitalis</i>	Foxglove Beardtongue	1.25	1.25	0.00
<i>Solidago caesia</i>	Blue-Stemmed Goldenrod	0.25	0.25	0.00
<i>Verbena urticifolia</i>	Hairy White Vervain	1.25	1.25	0.00
<i>Verbesina alternifolia</i>	Wingstem	2.50	2.50	0.00
	Total	18.00	12.88	-5.12
<i>Avena sativa</i>	Common Oat	360.00	360.00	0.00
<i>Lolium multiflorum</i>	Annual Rye	100.00	100.00	0.00
	Total	460.00	460.00	0.00

*A transposition error was found in the planned applications rates for Jewelweed and Great Blue Lobelia between the Phase 1 Narrative Plan and the Plan Set, as referenced in the Phase 3 Primary Restoration Plan; Planned application rates noted above reflect the rates that were listed in the Phase 1 Plan Set.

Prairie Seed Mix

<u>Botanical Name</u>	<u>Common Name</u>	<u>Planned Ounces/Acre</u>	<u>As-Built Ounces/Acre</u>	<u>Variance from Planned</u>
Permanent Grasses:				
<i>Andropogon gerardii</i>	Big Bluestem	12.00	12.00	0.00
<i>Bouteloua curtipendula</i>	Side-Oats Grama	16.00	16.00	0.00
<i>Carex spp.</i>	Prairie Sedge Mix	3.00	3.00	0.00
<i>Elymus canadensis</i>	Canada Wild Rye	24.00	24.00	0.00
<i>Panicum virgatum</i>	Switchgrass	2.50	2.50	0.00
<i>Schizachyrium scoparium</i>	Little Bluestem	28.00	28.00	0.00
<i>Sorghastrum nutans</i>	Indian Grass	12.00	12.00	0.00
	Total	97.50	97.50	0.00
Temporary Cover:				
<i>Avena sativa</i>	Common Oat	360.00	360.00	0.00
<i>Lolium multiflorum</i>	Annual Rye	100.00	100.00	0.00
	Total	460.00	460.00	0.00
Forbs:				
<i>Asclepias syriaca</i>	Common Milkweed	1.00	1.00	0.00
<i>Asclepias tuberosa</i>	Butterfly Weed	1.00	1.00	0.00
<i>Chamaecrista fasciculata</i>	Partridge Pea	9.00	9.00	0.00
<i>Coreopsis lanceolata</i>	Sand Coreopsis	5.00	5.00	0.00
<i>Echinacea purpurea</i>	Broad-leaved Purple Coneflower	7.50	7.50	0.00
<i>Heliopsis helianthoides</i>	False Sunflower	0.25	0.25	0.00
<i>Lupinus perennis</i>	Wild Lupine	1.00	1.00	0.00
<i>Monarda fistulosa</i>	Wild Bergamot	0.50	0.50	0.00
<i>Penstemon digitalis</i>	Foxglove Beard Tongue	1.00	1.00	0.00
<i>Pycnanthemum virginianum</i>	Common Mountain Mint	0.50	0.50	0.00
<i>Ratibida pinnata</i>	Yellow Coneflower	3.50	3.50	0.00
<i>Rudbeckia hirta</i>	Black-Eyed Susan	8.00	8.00	0.00
<i>Solidago speciosa</i>	Showy Goldenrod	1.00	1.00	0.00
<i>Symphyotrichum laeve</i>	Smooth Blue Aster	0.50	0.50	0.00
<i>Symphyotrichum novae-angliae</i>	New England Aster	0.75	0.75	0.00
	Total	40.50	40.50	0.00



PHASE 3 SEED MIXES
OAK GLEN PIPELINE RELEASE INCIDENT -
PRIMARY RESTORATION CONSTRUCTION
AS-BUILTS

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