CUY-90-14.90

PID 82119

APPENDIX GE-01

West Slope Grading Plans
(Contract Document)

State of Ohio
Department of Transporta on
Jerry Wray, Director

Innerbelt Bridge
Construction Contract Group 2 (CCG2)

~~Revision Date: August 5, 2013 (Addendum 7)~~

Revised April 30, 2014

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

CUY-90-14.90
CITY OF CLEVELAND
CUYAHOGA COUNTY

WEST SLOPE GRADING PLAN

LOCATION MAP

LATITUDE: 41°29'07" LONGITUDE: 81°41'82"

SCALE IN MILES
0 0.5 1 1.5 2

N

PORTION TO BE IMPROVED _____
INTERSTATE HIGHWAY _____
FEDERAL ROUTES _____
STATE ROUTES _____
COUNTY & TOWNSHIP ROADS _____
OTHER ROADS _____

DESIGN DESIGNATION
NONE

DESIGN EXCEPTIONS
NONE REQUIRED

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WALL NO. 3	81-93

PROJECT DESCRIPTION

THE PORTION OF THE PROJECT CONTAINED HEREIN CONSISTS OF THE EXCAVATION OF THE WEST SLOPE OF THE CUYAHOGA RIVER BETWEEN THE NORFOLK SOUTHERN RAILROAD, ABBEY AVENUE, AND WEST 13TH STREET; AND CONSTRUCTION OF A PORTION OF THE NEW TOWPATH TRAIL AND ADJACENT WALLS.

PROJECT LENGTH = 0.11 MILES

PROJECT EARTH DISTURBED AREA:	9.1 ACRES
ESTIMATED DEVELOPER EARTH DISTURBED AREA:	6.8 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA:	15.9 ACRES

2013 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

OIL & GAS PRODUCERS UNDERGROUND
PROTECTION SERVICE CALL: **1-800-925-0988**

PLAN PREPARED BY:

E.L. ROBINSON
the Challenge. the Choice
1801 Watermark Drive. Suite 310 · Columbus. Ohio 43215

ENGINEERS SEAL:
FOR ENTIRE PLAN EXCEPT SHEETS 61-64

STATE OF OHIO
RICHARD L ENGEL
E-39617
REGISTERED
PROFESSIONAL ENGINEER

SIGNED: Richard L. Engel
DATE: 3/22/13

ENGINEERS SEAL:
FOR SHEETS 61-64

STATE OF OHIO
JAMAL NUSAIRAT
E-62260
REGISTERED
PROFESSIONAL ENGINEER

SIGNED: Jamal Nusairat
DATE: 3/22/13

STANDARD CONSTRUCTION DRAWINGS						SUPPLEMENTAL SPECIFICATIONS		SPECIAL PROVISIONS
BP-3.1	4/20/12							
						838	4/15/05	
CB-2.2	1/18/13					840	12/31/12	
MH-1.2	1/18/13							

APPROVED _____
DATE _____ DISTRICT DEPUTY DIRECTOR

APPROVED _____
DATE _____ DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO. E101 (051)
PID NO. 82119
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NONE
CUY-90-14.90
1 / 93

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EXISTING UTILITIES

THE DEVELOPER IS RESPONSIBLE FOR VERIFYING THE LOCATION AND DISPOSITION OF ALL EXISTING UTILITIES THAT MAY HAVE BEEN IMPACTED BY CCGI WORK.

DEVELOPER'S DRAINAGE RESPONSIBILITIES

THE DESIGN OF A PROPOSED DRAINAGE SYSTEM SUFFICIENT TO CONVEY PROJECT RUNOFF, INCLUDING SUBSURFACE DRAINAGE FROM THE TRENCH DRAIN SYSTEM IS THE RESPONSIBILITY OF THE DEVELOPER.

SEQUENCE OF CONSTRUCTION

PERFORM THE EXCAVATION AND SPECIFIED RELATED WORK LOCATED BETWEEN STATIONS 2008+00± AND 2014+00± FOR THE FULL WIDTH OF THE PROJECT LIMITS ACCORDING TO THE REQUIREMENTS STATED IN THE SEQUENCE OF CONSTRUCTION REQUIREMENTS PROVIDED BELOW.

DEVELOPER'S GROUNDWATER CONTROL PLAN

SUBMIT, FOR THE IQF'S REVIEW, A WRITTEN WORK PLAN DEFINING THE PROCEDURES THAT THE DEVELOPER SHALL IMPLEMENT, FOR THE CONTROL OF GROUNDWATER, WHEN EXCAVATING THE SOIL ON THE WEST SLOPE. SUBMIT THE GROUNDWATER CONTROL PLAN AT LEAST 14 CALENDAR DAYS BEFORE BEGINNING THE WEST SLOPE EXCAVATION WORK. AS A MINIMUM, INCLUDE THE FOLLOWING INFORMATION IN THE SUBMITTAL DOCUMENT:

A. DETAILS OF THE PROPOSED WORK SEQUENCE AND SCHEDULE FOR THE OVERALL CONSTRUCTION OPERATION AS IT RELATES TO THE EXCAVATION OF THE WEST SLOPE. PROVIDE A SCHEDULE FOR PERFORMING THE REQUIRED GROUND WATER CONTROL WORK, INCLUDING PLANS FOR ANY NECESSARY RECOVERY SCHEDULE THAT WILL BE REQUIRED IF THE INITIALLY DESIGNED GROUND WATER CONTROL SYSTEM USED TO KEEP THE WORK AREAS DRY IS NOT PERFORMING SATISFACTORILY. IT IS NOT ACCEPTABLE TO ALLOW ANY SURFACE WATER PONDING AREAS TO DEVELOP WITHIN THE WEST SLOPE EXCAVATION WORK LIMITS.

B. PROCEDURES FOR MAINTAINING CORRECT HORIZONTAL AND VERTICAL ALIGNMENT OF THE EXCAVATION.

C. PROCEDURES FOR MAINTAINING CONTROL OF THE GROUND WATER AS IT RELATES TO ALL TEMPORARY EXCAVATIONS; SUCH AS ACCESS BENCHES AND COFFERDAMS.

D. A PLAN SCHEMATIC VIEW OF ALL PROPOSED TEMPORARY WATER COLLECTION LOCATIONS AND DESCRIBE THE WATER DELIVERY SYSTEM FOR OUTLETTING THE COLLECTED DRAINAGE DISCHARGE. SHOW LOCATIONS OF ALL SUMPS, DITCHES AND PIPES.

E. PROVIDE A LIST OF PROPOSED EQUIPMENT TO BE USED SUCH AS CRANES, DRILLS, AUGERS, PUMPS, SUMPS, POWER SYSTEMS, HOSES, PIPES, ETC. INCLUDE ALL PROPOSED PUMP AND PIPE CAPACITIES AND SIZES.

REVIEW OF THE GROUNDWATER CONTROL PLAN BY THE IQF DOES NOT RELIEVE THE DEVELOPER OF THE RESPONSIBILITY FOR OBTAINING THE REQUIRED PERFORMANCE AND RESULTS FOR THIS WORK.

INSTRUMENTATION

INSTALL ALL NEW INSTRUMENTATION LOCATED OUTSIDE OF THE EXCAVATION AREA BEFORE BEGINNING STAGE 1.

INSTALL INSTRUMENTATION LOCATED WITHIN THE EXCAVATION AREA WITHIN 14 DAYS AFTER THE EXCAVATION AND EMBANKMENT WORK IS COMPLETE. REPAIR OR REPLACE INSTRUMENTATION THAT IS DAMAGED WITHIN 14 DAYS.

TOWPATH TRAIL

THE TOWPATH TRAIL SURFACE CAN BE CONSTRUCTED AFTER WALL 2 SHEETING, DRILLED SHAFTS, AND CONCRETE WALL FACING ARE CONSTRUCTED.

REPRESENTATIVE CROSS SECTIONS

TO ILLUSTRATE THE SEQUENCE OF CONSTRUCTION AS DESCRIBED IN THE FOLOWING NOTES, TWO REPRESENTATIVE CROSS SECTIONS (TOWPATH TRAIL STA. 307+00 AND STA. 312+83) ARE SHOWN ON SHEETS 2-5.

STAGE 1 - WALL 2, EXCAVATION, AND EMBANKMENT

STAGE 1.1
START THE EXCAVATION AT THE TOP OF THE SLOPE AND EXCAVATE DOWN TO THE FINISHED GRADE. DO NOT EXCAVATE BELOW THE ELEVATION OF THE TOWPATH TRAIL.

STAGE 1.2
INSTALL WALL 2 SHEETING, DRILLED SHAFTS, AND CONSTRUCT WALL 2 CONCRETE FACING.

STAGE 1.3
PERFORM STAGE 1 EXCAVATION WORK DOWN TO THE BENCH AT ELEVATION 625. LEAVE 10 FEET OF NATIVE SOIL IN PLACE AS MEASURED HORIZONTALLY FROM THE FACE OF THE UPPER TRENCH DRAIN.

STAGE 2 - TRENCH DRAIN CONSTRUCTION
PERFORM ALL EXCAVATION WORK REQUIRED FOR THE INSTALLATION OF THE UPPER TRENCH DRAIN AND 12" TYPE F CONDUIT AND CONSTRUCT THE EMBANKMENT TO THE LIMITS SHOWN. CONSTRUCT THE WORK IN SEGMENTS. SEGMENT LENGTH WILL BE LIMITED EACH DAY BY THE DEVELOPER'S ABILITY TO COMPLETE THE REQUIRED EXCAVATION, TRENCH DRAIN INSTALLATION, AND EMBANKMENT WORK. FOR DETAILS, SEE SHEET 6.

PROVIDE A POSITIVE OUTLET FOR THE 12" TYPE F CONDUIT TO THE DEVELOPER'S STORM SEWER SYSTEM. CONNECT THE PROPOSED TRENCH DRAIN OUTLET CONDUIT TO THE DEVELOPER'S STORM SEWER SYSTEM. ENSURE A POSITIVE OUTLET IS PROVIDED FOR EACH SEGMENT LENGTH CONSTRUCTED.

STAGE 3 - EXCAVATION
PERFORM STAGE 3 EXCAVATION WORK DOWN TO THE BENCH AT 612. LEAVE 10 FEET OF NATIVE SOIL IN PLACE AS MEASURED HORIZONTALLY FROM THE FACE OF THE LOWER TRENCH DRAIN.

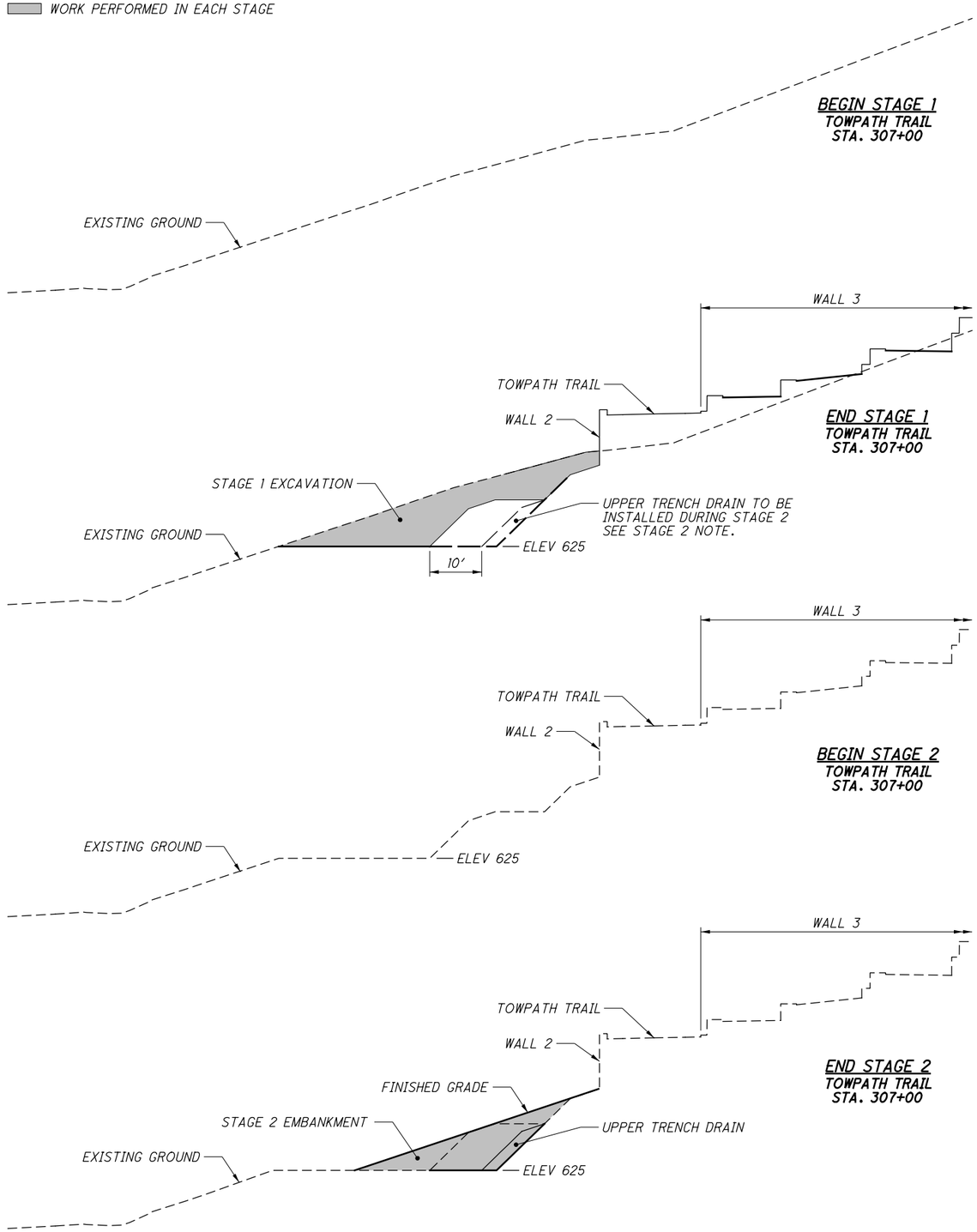
STAGE 4 - TRENCH DRAIN CONSTRUCTION
PERFORM ALL EXCAVATION WORK REQUIRED FOR THE INSTALLATION OF THE LOWER TRENCH DRAIN AND 12" TYPE F CONDUIT AND CONSTRUCT THE EMBANKMENT TO THE LIMITS SHOWN. CONSTRUCT THE WORK IN SEGMENTS. SEGMENT LENGTH WILL BE LIMITED EACH DAY BY THE DEVELOPER'S ABILITY TO COMPLETE THE REQUIRED EXCAVATION, TRENCH DRAIN INSTALLATION, AND EMBANKMENT WORK. FOR DETAILS, SEE SHEET 6.

PROVIDE A POSITIVE OUTLET FOR THE 12" TYPE F CONDUIT TO THE DEVELOPER'S STORM SEWER SYSTEM. CONNECT THE PROPOSED TRENCH DRAIN OUTLET CONDUIT TO THE DEVELOPER'S STORM SEWER SYSTEM. ENSURE A POSITIVE OUTLET IS PROVIDED FOR EACH SEGMENT LENGTH CONSTRUCTED.

STAGE 5 - GAS DUCTS
INSTALL GAS RELIEF DUCTS WITHIN 30 DAYS AFTER STAGE 4 IS COMPLETE. FOR DETAILS, SEE SHEET 7.

STAGE 6 - BULKHEAD WORK
DO NOT BEGIN CONSTRUCTION OF THE CUYAHOGA RIVER WEST SLOPE BULKHEAD DEADMAN RELATED WORK UNTIL AFTER ALL STAGE 4 WORK HAS BEEN COMPLETED.

WORK PERFORMED IN EACH STAGE

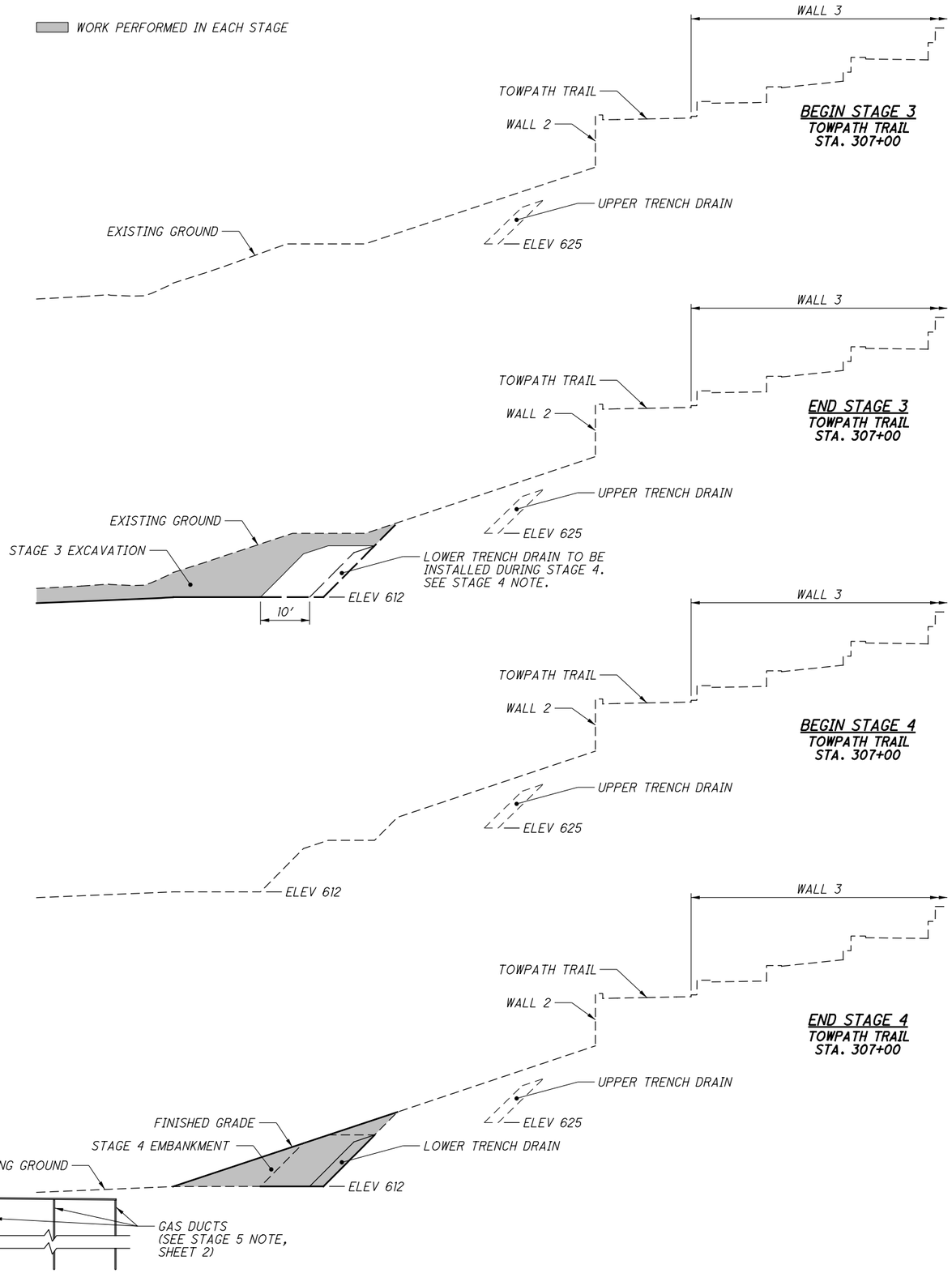


CALCULATED CDS
CHECKED RLE

GENERAL NOTES
SEQUENCE OF CONSTRUCTION - STA. 307+00

CUY-90-14.90

SEQUENCE OF CONSTRUCTION (CONTINUED)



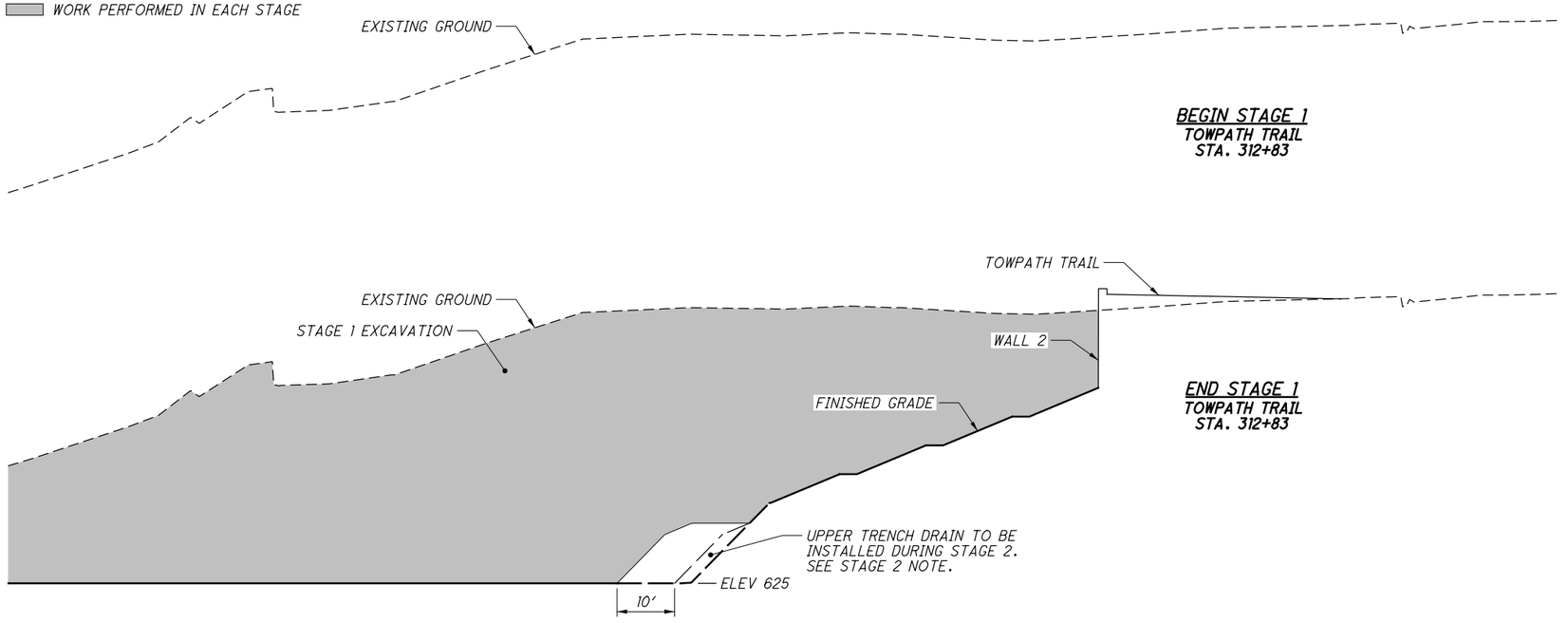
CALCULATED CDS
CHECKED RLE

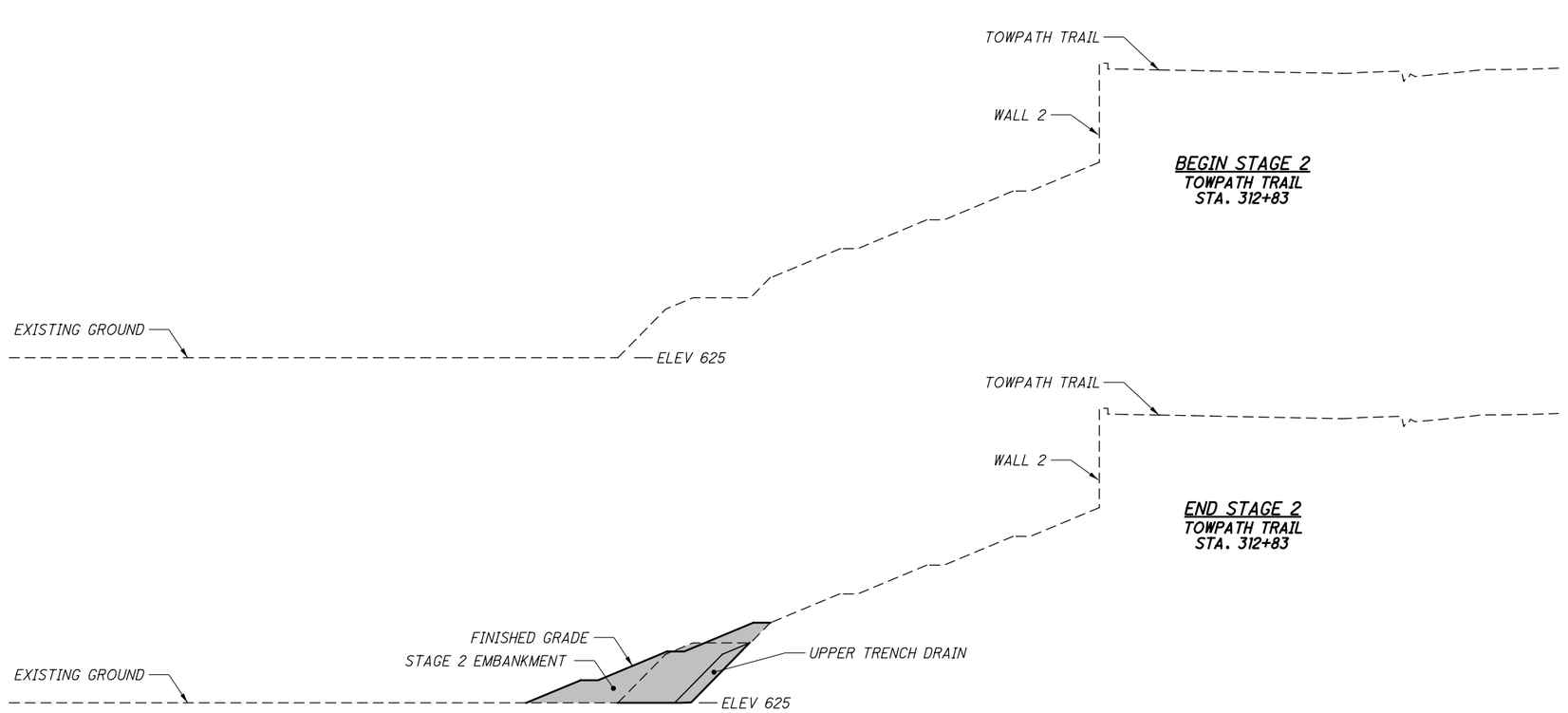
GENERAL NOTES
SEQUENCE OF CONSTRUCTION - STA. 307+00

CUY-90-14.90

SEQUENCE OF CONSTRUCTION (CONTINUED)

WORK PERFORMED IN EACH STAGE





CALCULATED CDS
CHECKED RLE

GENERAL NOTES
SEQUENCE OF CONSTRUCTION - STA. 312+83

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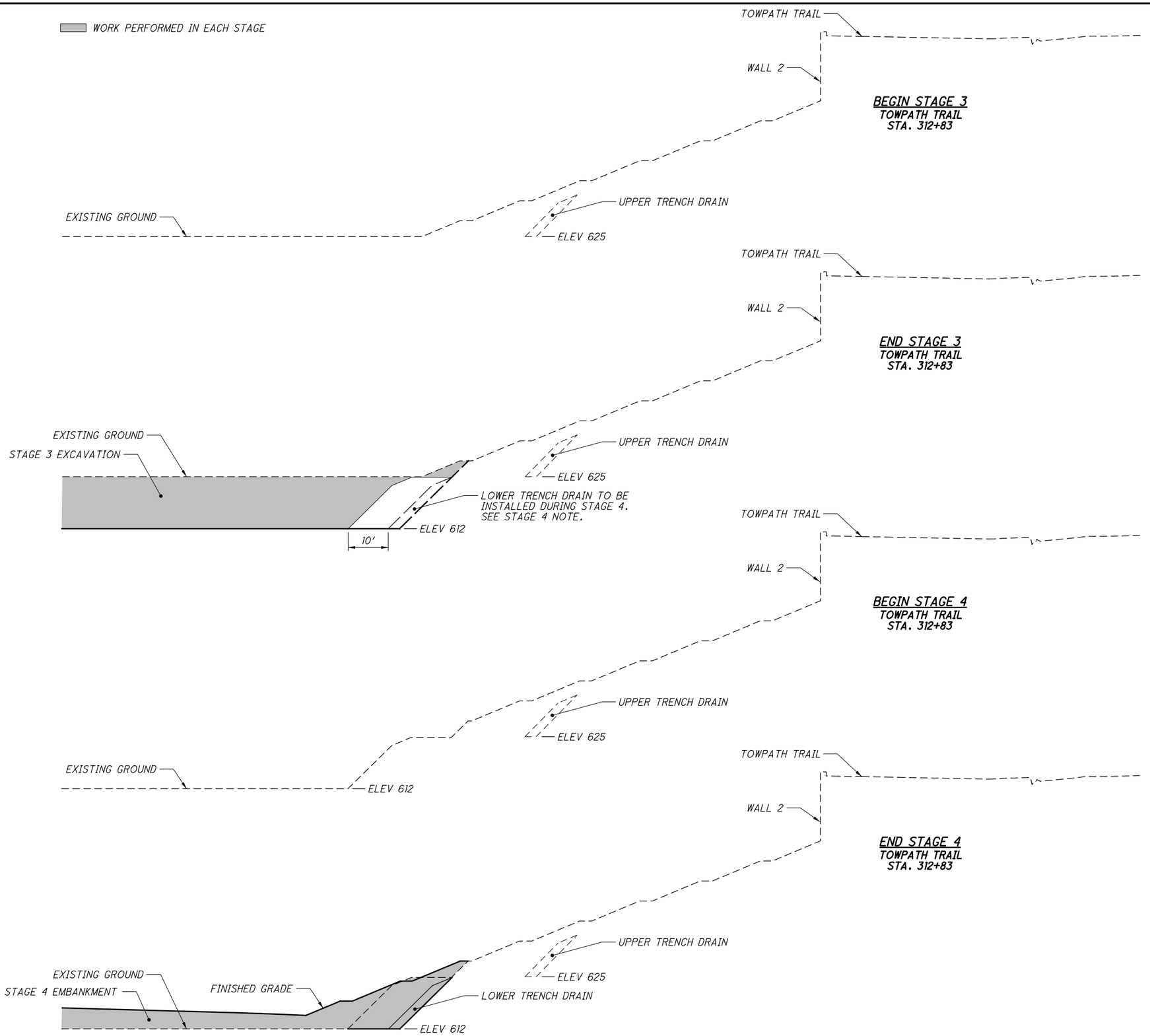
SEQUENCE OF CONSTRUCTION (CONTINUED)

WORK PERFORMED IN EACH STAGE



CALCULATED CDS
CHECKED RLE

GENERAL NOTES

SEQUENCE OF CONSTRUCTION - STA. 312+83

CUY-90-14.90

ITEM 203 EMBANKMENT, AS PER PLAN

A WELL-DRAINED EMBANKMENT AND EXCAVATION OPERATION MUST BE MAINTAINED AT ALL TIMES. SHOULD THE DEVELOPER ENCOUNTER UNSUITABLE, UNSTABLE, OR SATURATED SOILS, CONSTRUCT THE EMBANKMENT IN THE FOLLOWING SEQUENCE:

1. EXCAVATE UNSUITABLE, UNSTABLE, AND SATURATED SOILS AS DIRECTED BY THE DEPARTMENT.
2. STABILIZE THE AREA BY REPLACING WITH SPECIFIED MATERIALS ACCORDING TO 203.06.
3. FINE GRADE THE EMBANKMENT TO THE SPECIFIED GRADE.

ITEM 203 - GRANULAR MATERIAL, TYPE E, AS PER PLAN

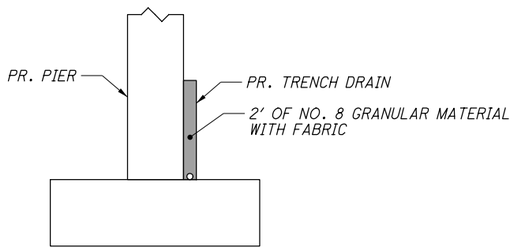
FOR THE UPPER AND LOWER TRENCH DRAINS, PROVIDE NO. 8 GRANULAR MATERIAL, 2 FT THICK AND PROVIDE FILTERWEAVE FW-700 FABRIC OR APPROVED EQUAL. PLACE THE FABRIC BELOW THE NO. 8 GRANULAR MATERIAL AND EXTEND THE FABRIC 2 FEET BEYOND THE GRANULAR MATERIAL.

ITEM 611 - 6" CONDUIT, TYPE F, AS PER PLAN

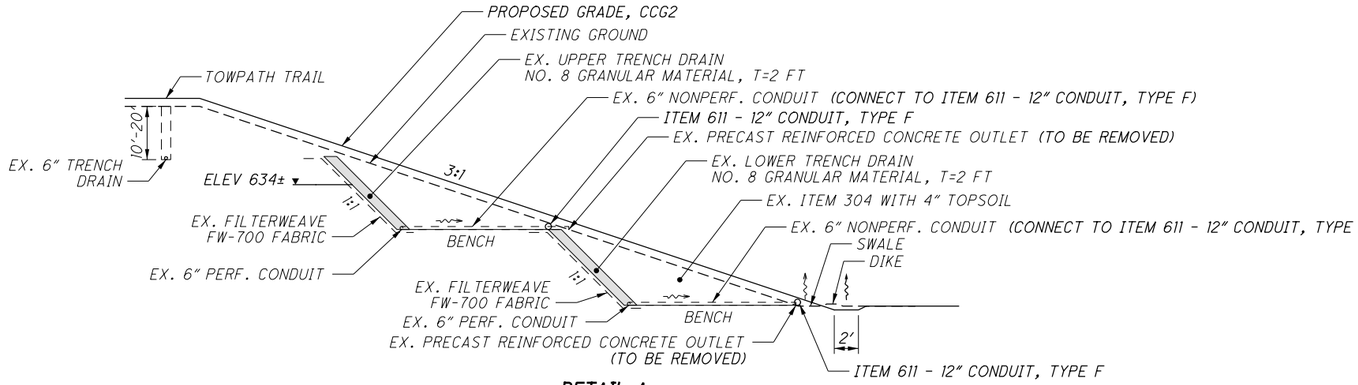
PROVIDE FABRIC-WRAPPED PERFORATED PIPE MEETING THE MATERIAL REQUIREMENTS OF SS 840.03.F.

TRENCH DRAINS AT PROPOSED PIERS

IF A PROPOSED PIER IS TO BE LOCATED WITHIN THE LIMITS OF THE PROPOSED TRENCH DRAINS, PROVIDE A TRENCH DRAIN SIMILAR TO THE DETAIL SHOWN BELOW. DEVELOPER TO SUBMIT DETAILS FOR REVIEW BY THE IOF.



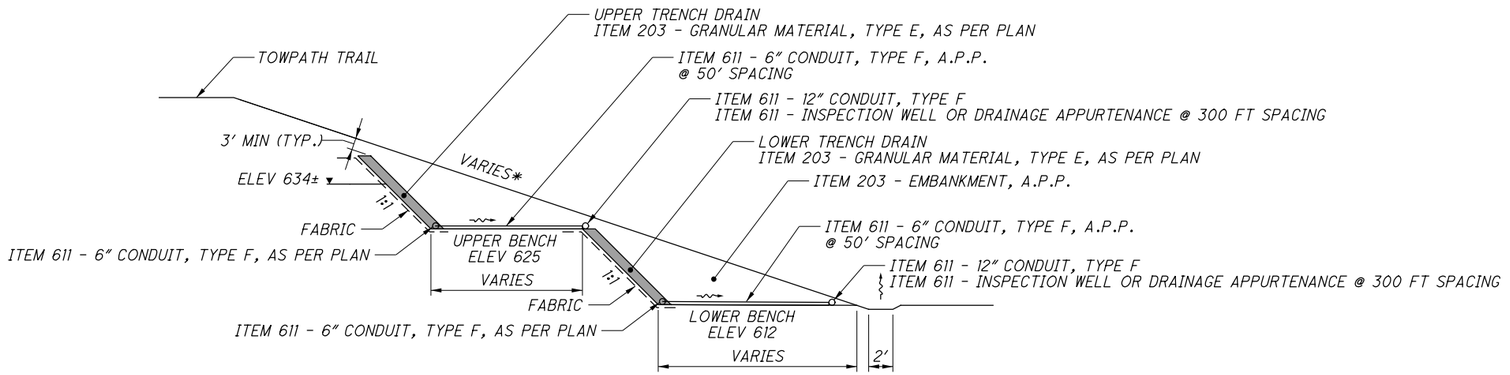
DETAIL D
DETAIL D - TRENCH DRAIN AT PIER (THIS PROJECT)
SECTION (NTS)



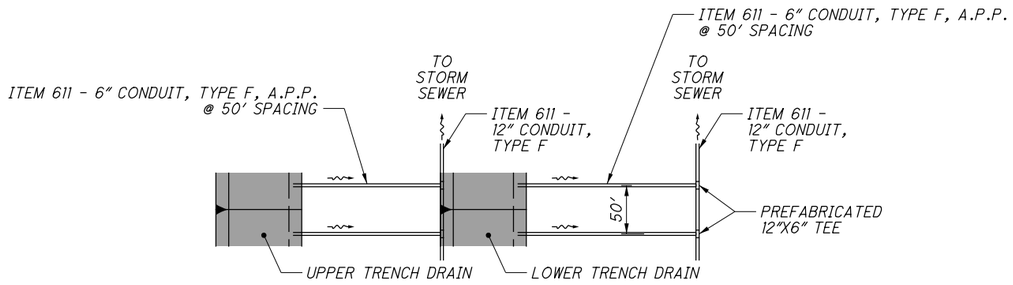
DETAIL A
CONNECT TO TRENCH DRAINS & LATERAL DRAINS INSTALLED FOR CCG1
PROFILE (NTS)

* FOR SLOPE DETAILS, SEE APPENDIX AE-02.

NOTE:
FOR CONSTRUCTION SEQUENCE, SEE SHEETS 2-5.



DETAIL B
TRENCH DRAINS & LATERAL DRAINS (THIS PROJECT)
PROFILE (NTS)



DETAIL C
TRENCH DRAINS & LATERAL DRAINS (THIS PROJECT)
PLAN (NTS)

CALCULATED KEW
CHECKED RLE

GENERAL NOTES
WEST SLOPE DRAINAGE

CUY-90-14.90

GAS RELIEF DUCTS

FOR PLAN DETAILS, SEE SHEETS 59-60.

1. DESCRIPTION
THIS WORK CONSISTS OF (1) FURNISHING AND INSTALLING VERTICAL GAS RELIEF DUCTS AT LOCATIONS SHOWN ON THE PLANS AND AS DESCRIBED IN THIS SPECIFICATION, (2) FURNISHING AND INSTALLING A GAS DISCHARGE COLLECTION SYSTEM, (3) CONSTRUCTING AND MAINTAINING EROSION AND SEDIMENT CONTROL FOR THE DURATION OF THE VERTICAL GAS RELIEF DUCT INSTALLATION PROCESS TO PREVENT SEDIMENT LADEN DRILL WATER FROM DIRECTLY ENTERING ANY STREAM OR WATER COURSE, (4) FURNISHING ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND INCIDENTALS NECESSARY FOR DETERMINING THE ELEVATIONS OF THE COMPLETED BOREHOLE, (5) PERFORMING ALL WORK NECESSARY TO MAKE THE GAS RELIEF SYSTEM FULLY FUNCTIONAL AND EFFECTIVE, AND (6) RESTORING THE GROUND SURFACE THAT BECOMES DISTURBED AS A RESULT OF THE VERTICAL GAS RELIEF DUCT INSTALLATION IN ACCORDANCE WITH C&MS 203.

1.1. GENERAL
SUBMIT A VERTICAL GAS RELIEF DUCTS DRILLING/INSTALLATION PLAN TO THE DEPARTMENT 14 DAYS PRIOR TO BEGINNING ANY WORK. THE PLAN IS TO INCLUDE (1) DETAILS OF THE EXPERIENCE OF THE PERSONNEL THAT WILL DIRECT FIELD ACTIVITIES AND OPERATE THE DRILLING EQUIPMENT, (2) THE METHOD AND EQUIPMENT PROPOSED FOR INSTALLING THE VERTICAL GAS RELIEF DUCTS, (3) THE EROSION AND SEDIMENT CONTROL PLAN, (4) THE SEQUENCE OF CONSTRUCTION, (5) DETAILED DESIGN PLANS OF A COLLECTION SYSTEM THAT DIRECTS THE GAS TO ONE COMMON OUTLET AND SHOWS ALL PROPOSED DIMENSIONS, MATERIALS, AND CONNECTIONS, AND (6) A PROPOSED PLAN FOR DEMONSTRATING THAT THE COMPLETED SYSTEM IS FULLY FUNCTIONAL AND EFFECTIVE. VERTICAL DUCT RELATED WORK IS NOT TO BE PERFORMED WITHOUT PRIOR APPROVAL OF THE INSTALLATION PLAN BY THE DEPARTMENT. PRIOR TO BEGINNING DRILLING WORK, THE DRILLING FOREMAN AND LEAD DRILLER MUST MEET WITH THE DEPARTMENT TO REVIEW THE DRILLING PROGRAM.

1.2. GAS DISCHARGE COLLECTION SYSTEM
THE GAS DISCHARGE COLLECTION SYSTEM CONSISTS OF A MANIFOLD ARRANGEMENT OF PIPES CONSTRUCTED AS NECESSARY TO DIRECT THE GAS TO AN OUTLET. ALL CONNECTIONS WILL CONSIST OF STANDARD WATER FITTINGS AND WILL BE WATERTIGHT. THE COLLECTION SYSTEM FOR THE VERTICAL DUCTS WILL CONSIST OF ALL NECESSARY TEES, PLUGS, STREET ELLS, OUTLET PIPE, AND STEEL GRATING REQUIRED FOR CONVEYING GAS FROM THE VERTICAL VENT PIPES TO THE DISCHARGE POINT. THE COLLECTION SYSTEM WILL BE LOCATED A MINIMUM OF 3 FEET BELOW THE FINISHED GROUND SURFACE. THE OUTLET PIPE FROM THE VERTICAL DUCTS TO THE DISCHARGE POINT WILL CONSIST OF SOLID WALL PIPE. THE COLLECTION SYSTEM WILL HAVE A MINIMUM 0.5% GRADE SLOPED UP TOWARD THE OUTLET POINT TO ENSURE GAS VENTING. STEEL GRATING WILL BE INSTALLED OVER THE OUTLET POINT. SEE DETAIL "A" SHOWN BELOW.

1.3. SITE RESTORATION
CLEAN THE DRILLING SITE OF ALL DRILL CUTTINGS, WASTE, RUBBISH, AND MISCELLANEOUS DEBRIS, AND DISPOSE OF THE MATERIALS OFF-SITE IN A LAWFUL MANNER. RESTORE THE ACCESS ROAD TO THE PRE-CONSTRUCTION CONDITION BY GRADING, REMOVAL, FILLING AND/OR SMOOTHING OF EROSION AND SEDIMENT CONTROL MEASURES, AND C&MS 203 EMBANKMENT CONSTRUCTION PROCEDURES.

2. MATERIALS
2.1. PLASTIC VENT PIPE
VERTICAL GAS RELIEF DUCTS MUST CONSIST OF NOMINAL 3.25-INCH DIAMETER PIPE IN ACCORDANCE WITH AASHTO M 252 EXCEPT AS FOLLOWS. PROVIDE SLOT-TYPE PERFORATIONS LOCATED AT 90° SPACING AROUND THE PIPE. THE PIPE STIFFNESS IS TO BE 60 PSI AT 5% DEFLECTION.

SLOTS ARE TO BE SPACED UNIFORMLY ALONG THE PIPE. THE MINIMUM SLOT OPENING WILL BE MEASURED ON THE INNER SURFACE OF THE PIPE. PROVIDE 25 SLOTS PER LINEAR FOOT, 0.04 INCH WIDE, PER ROW; RESULTING IN A MINIMUM OPENING AREA OF 1.00 SQUARE INCH PER LINEAR FOOT.

NON-PERFORATED PIPE IS TO BE PROVIDED FOR THE GAS DISCHARGE COLLECTION SYSTEM. THE NON-PERFORATED PIPE IS TO CONSIST OF NOMINAL 4 INCH, SCHEDULE 80 POLYVINYL CHLORIDE (PVC) PLASTIC PIPE CONFORMING TO THE REQUIREMENTS OF ASTM D 1785. AT THE OPTION OF THE DEVELOPER, THE TYPE, GRADE, AND DESIGN STRESS DESIGNATION OF THE PIPE CAN BE EITHER 1120, 1220, 2110, 2111, 2116, OR 2120 AS SPECIFIED IN ASTM D 1785.

PIPE FITTINGS MUST BE FACTORY-MADE, WELDED FITTINGS AND BE OF AT LEAST EQUAL STRENGTH AS THE PIPES.

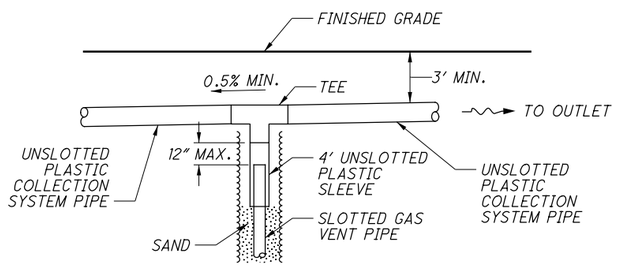
2.2. STEEL VENT GRATE
COVER THE OUTLET POINT OF THE GAS DISCHARGE COLLECTION SYSTEM WITH ½" X ½" MESH, 16-GAUGE STEEL, HOT GALVANIZED WIRE CLOTH.

2.3. AGGREGATE
FILL THE ANNULAR SPACE IN THE DRILL HOLE AROUND THE SLOTTED VERTICAL VENT PIPE WITH SAND CONFORMING TO C&MS 703.06.

3. INSTALLING VERTICAL GAS RELIEF DUCTS
3.1. DUCTS
INSTALL THE VERTICAL DUCTS AT LOCATIONS AS SHOWN ON THE PLANS. RELOCATE ALL DUCTS THAT WOULD INTERSECT WITH ANY PIER FOUNDATIONS FOR THE PROPOSED EASTBOUND CENTRAL VIADUCT SUBSTRUCTURE. BOREHOLES THAT ENCOUNTER BEDROCK AT DEPTHS SHALLOWER THAN SHOWN IN TABLE 1 CAN BE TERMINATED AT THE BEDROCK ELEVATION. THE EXACT LOCATION AND SEQUENCE OF PLACING VERTICAL DUCTS IS TO BE AS DETERMINED AND DOCUMENTED BY THE DEVELOPER. THE DEVELOPER MUST PREPARE AND SUBMIT TO THE DEPARTMENT A SET OF VERTICAL GAS RELIEF DUCT AS-BUILT PLANS 14 DAYS FOLLOWING THE COMPLETION OF INSTALLATION.

DRILL HOLES WITH A HOLLOW STEM AUGER HAVING AN INSIDE DIAMETER OF 3.75 INCHES OR LARGER AND TO THE DESIGNATED DEPTHS THROUGH EXISTING SUBSURFACE FORMATIONS. DRILL TO ALLOW THE INSERTION OF THE PLASTIC VENT PIPE TO THE FULL DEPTH OF HOLE PRIOR TO REMOVAL OF THE CASING AND/OR HOLLOW DRILL RODS. PLUG THE BOTTOM OF THE HOLLOW STEM AUGERS WITH A PIECE OF WOOD TO PREVENT SOIL FROM ENTERING INSIDE THE AUGERS. SECURELY PLUG THE BOTTOM END OF THE PLASTIC PIPE WITH AN END CAP FITTING OF AT LEAST EQUAL STRENGTH AS THE PIPE. INSTALL THE PLASTIC PIPE BY INSERTING THE PIPE INSIDE THE HOLLOW STEM AUGERS AND THEN RETRACTING THE DRILL. THE PLASTIC PIPE IS TO BE INSTALLED IN SUCH A MANNER THAT THE PLASTIC PIPE WILL BE JOINED WHERE NECESSARY TO FORM A CONTINUOUS TUBE AND WILL NOT BE TELESCOPED OR DAMAGED TO THE EXTENT THAT ITS VENTILATION EFFICIENCY WOULD BE IMPAIRED WHEN COMPLETED. REMOVE THE DRILL CASING ENSURING THAT THE PLASTIC PIPE IS NOT DAMAGED OR PULLED OUT ANY DISTANCE.

FURNISH WATER FOR THE DRILLING OPERATIONS. RE-CIRCULATE WATER TO REDUCE DISCHARGE AND TO PREVENT ENVIRONMENTAL IMPACTS. USE PUMPS AS NECESSARY FOR RECIRCULATION. WATER USED FOR DRILLING AND WATER DEVELOPED DURING DRILLING OPERATIONS MUST BE COMPLETELY CONTAINED BY THE DEVELOPER. DRILL CUTTINGS ARE TO BE REMOVED FROM THE SITE.

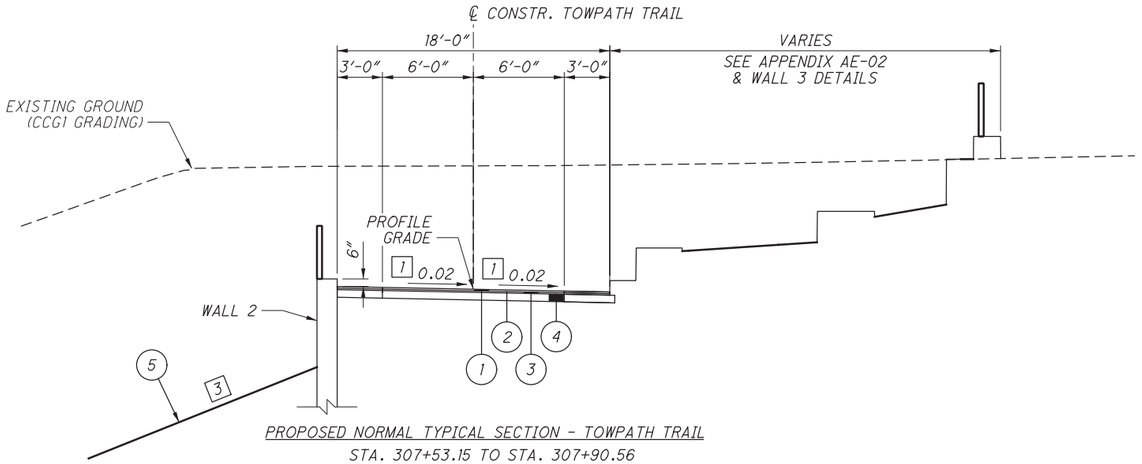


DETAIL A: GAS DISCHARGE COLLECTION SYSTEM
NTS

CALCULATED CDS
CHECKED RLE

GENERAL NOTES
GAS RELIEF DUCTS

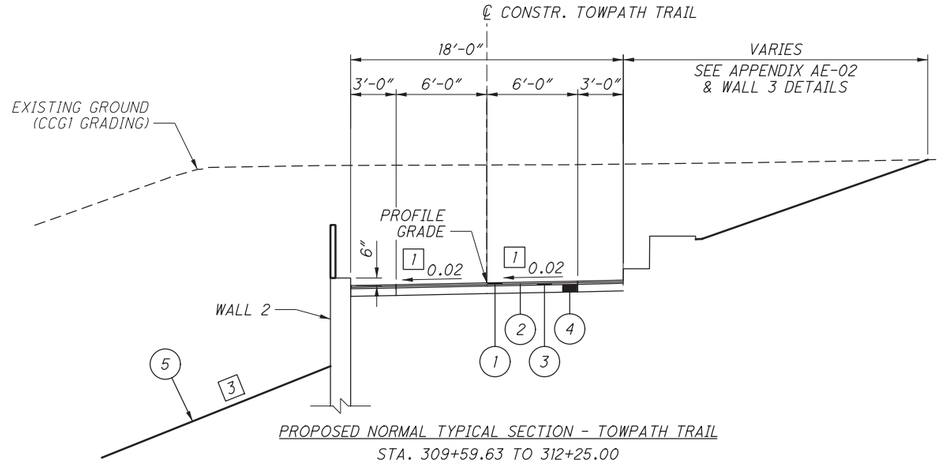
CUY-90-14.90



PROPOSED NORMAL TYPICAL SECTION - TOWPATH TRAIL

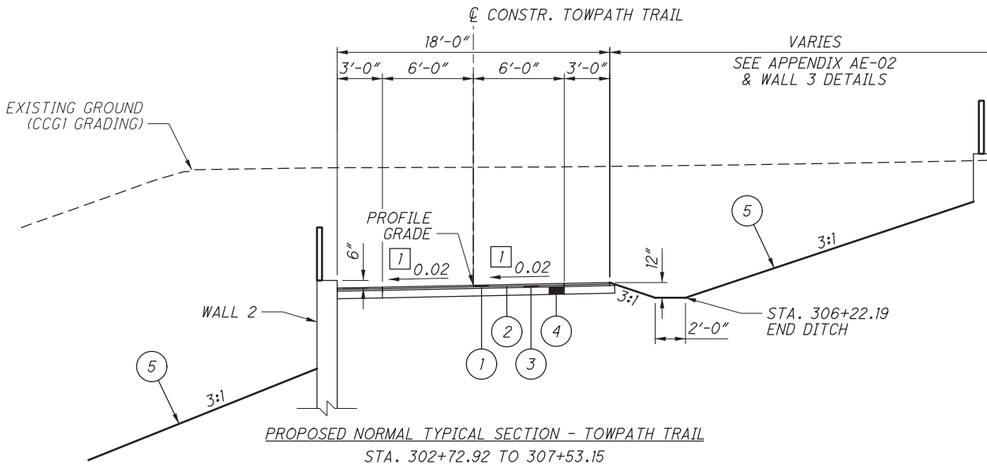
STA. 307+53.15 TO STA. 307+90.56
* STA. 307+90.56 TO STA. 308+21.28
STA. 308+21.28 TO STA. 309+59.63

* FOR PAVEMENT BUILDUP, SEE APPENDIX AE-02



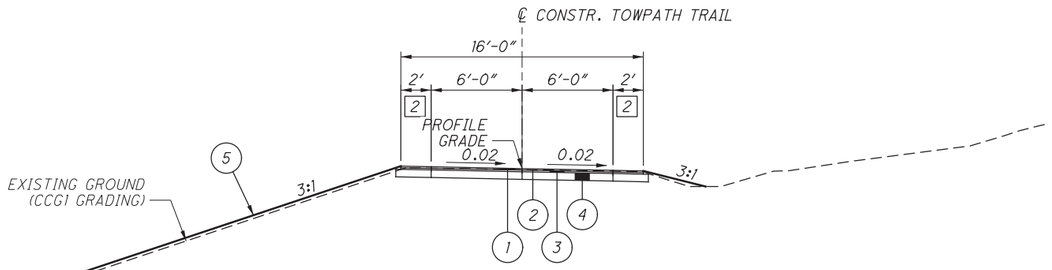
PROPOSED NORMAL TYPICAL SECTION - TOWPATH TRAIL

STA. 309+59.63 TO 312+25.00



PROPOSED NORMAL TYPICAL SECTION - TOWPATH TRAIL

STA. 302+72.92 TO 307+53.15



PROPOSED NORMAL TYPICAL SECTION - TOWPATH TRAIL

STA. 300+22.77 TO 302+72.92

[1] MATCH EXISTING CCGI CROSS SLOPE (-0.02) AT STA. 300+22.77

TRANSITION FROM -0.02 TO +0.02, STA. 302+22.92 TO STA. 303+22.92

+0.02, STA. 303+22.92 TO STA. 307+33.15

TRANSITION FROM +0.02 TO -0.02, STA. 307+33.15 TO STA. 307+73.15

-0.02, STA. 307+73.15 TO STA. 309+39.63

TRANSITION FROM -0.02 TO +0.02, STA. 309+39.63 TO STA. 309+79.63

+0.02, STA. 309+79.63 TO STA. 312+50.87

[2] TRANSITION FROM 2' TO 3' SHOULDER, STA. 305+71.72 TO STA. 306+01.72

[3] FOR SLOPE DETAILS, SEE APPENDIX AE-02.

PROPOSED LEGEND

(1) ITEM 448 - 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22

(2) ITEM SPECIAL - TACK COAT, TRACKLESS TACK FOR INTERMEDIATE COURSE

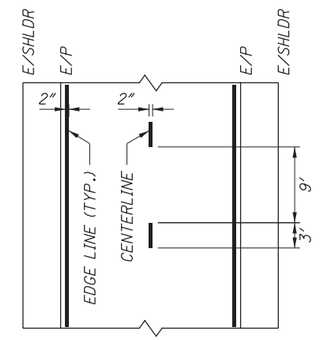
(3) ITEM 448 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22

(4) ITEM 304 - 6" AGGREGATE BASE

(5) FOR DETAILS, SEE APPENDIX AE-02.

TOWPATH TRAIL PAVEMENT MARKINGS

CENTER LINE MARKING WILL BE 2 INCHES WIDE WITH A 3 FOOT PAINTED SEGMENT AND 9 FOOT GAP.



CALCULATED DWB
CHECKED BAL

TYPICAL SECTIONS - TOWPATH TRAIL

CUY-90-14.90

PR. TOWPATH TRAIL

(1) P.I. Sta. 301+37.81
Δ = 85° 08′ 55″ (RT)
Dc = 38° 11′ 50″
R = 150.00′
T = 137.81′
L = 222.′
E = 53.69′
C = 202.96′
C.B. = S 33° 54′ 41″ E

(2) P.I. Sta. 302+56.61
Ls = 100.00′
f's = 19° 05′ 55″
LT = 67.06′
ST = 33.69′
x = 98.89′
y = 11.02′
k = 49.82′
p = 2.77′

(3) P.I. Sta. 306+93.20
Δ = 123° 15′ 03″ (LT)
Dc = 28° 38′ 52″
R = 200.00′
T = 370.28′
L = 430.23′
E = 220.84′
C = 351.94′
C.B. = S 33° 51′ 50″ E
28 mph

(4) P.I. Sta. 308+60.67
Δ = 39° 26′ 08″ (RT)
Dc = 19° 05′ 55″
R = 300.00′
T = 107.52′
L = 206.48′
E = 18.69′
C = 202.43′
C.B. = S 75° 46′ 17″ E
35 mph

(5) P.I. Sta. 311+52.91
Δ = 125° 17′ 16″ (LT)
Dc = 57° 17′ 45″
R = 100.00′
T = 193.28′
L = 218.67′
E = 117.62′
C = 177.63′
C.B. = N 61° 18′ 09″ E
20 mph

TOWPATH TRAIL REFERENCE POINTS				
DESC.	STATION	OFFSET	NORTHING	EASTING
PRC	300+00.00	C/L	663,994.5376	2,189,801.0259
CS	302+22.92	C/L	663,826.0975	2,189,914.2615
SC	303+22.92	C/L	663,733.4518	2,189,877.9515
PRC	307+53.15	C/L	663,441.2103	2,190,074.0618
PRC	309+59.63	C/L	663,391.4539	2,190,270.2847
PT	311+78.30	C/L	663,476.7505	2,190,426.0991
PC	312+78.85	C/L	663,577.2771	2,190,423.7455
PT	312+87.39	C/L	663,583.1971	2,190,428.8182
PI	313+42.10	C/L	663,590.3134	2,190,483.0648
POT	313+75.00	C/L	663,557.6744	2,190,478.9690

ADDENDUM	DATE
1	4/16/13

MATCH SCRANTON PENINSULA PROJECT (BY OTHERS) BEGIN WORK STA. 300+22.77

EX. N-S RAILROAD (ELEVATED TRACK)
EX. LIFT SPAN
EX. DOCK WALL
EX. DRILLED SHAFT CAP
EX. RETENTION SYSTEM
EX. PIER 1 SOUTH
EX. ACCESS RD.
EX. ANCHOR CAP
EX. BURIED SHORING
EX. WEST END PIER SOUTH
EX. WEST END PIER NORTH
EX. WB PIER 4
EX. WB PIER 3
EX. PIER 1 NORTH
EX. PIER 1A
EX. CPP ELEC. DUCT
EX. RR ACCESS DR.
PR. WALL 2
PR. WALL 3
PR. STAIRS
PR. RAMP
PR. PLANTER
℄ TOWPATH TRAIL
℄ ACCESS RD.
℄ R/W IR 90
℄ CONSTRUCTION WB IR 90
℄ CONSTRUCTION EB IR 90
℄ IR 90 (EXISTING CENTRAL VIADUCT)
N 18° 58′ 48″ E
CUYAHOGA RIVER
UNIVERSITY RD.
ABBEY AVE.
WEST 15TH ST.
WEST 13TH ST.
WEST 12TH ST.
WEST 11TH ST.
RAMP
Ex R/W
Ex LA-R/W
Ex A
PRC Sta. 300+00.00
CS Sta. 302+22.92
SC Sta. 303+22.92
PC Sta. 312+78.85
PT Sta. 311+78.30
POT Sta. 313+75.00
PRC Sta. 307+53.15
PRC Sta. 309+59.63
NOTE:
FOR STAIR AND PLANTER DETAILS, SEE APPENDIX AE-02

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HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED CDS
CHECKED RLE

TOWPATH TRAIL PLAN
CUYAHOGA RIVER WEST BANK

CUY-90-14.90

9
93

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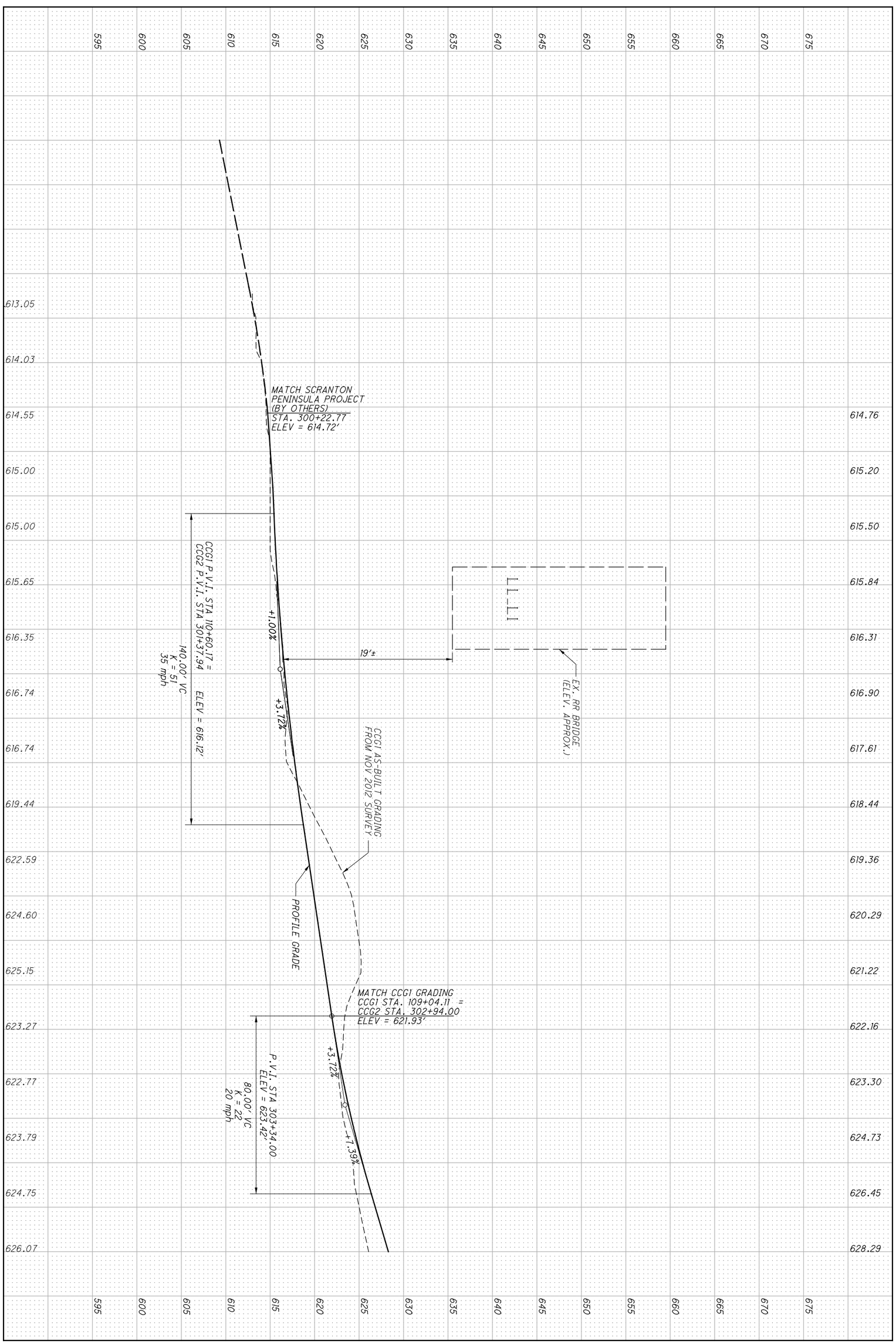

10/93	CUY-90-14.90	TOWPATH TRAIL PROFILE CUYAHOGA RIVER WEST BANK	CALCULATED CDS CHECKED BAL

628.29 630.14 631.99 633.84 635.68 637.53 639.38 641.23 643.07 644.92 646.77 648.62 650.47 652.31 654.16 655.58 656.20 656.58 657.19 658.16 659.50

675 670 665 660 655 650 645 640 635 630 625 620 615 610 605 600 595

P.V.I. STA 307+72.00 ELEV = 655.79′
45.00′ VC
K = 8
20 mph

MANHOLE RECONSTRUCTED TO GRADE
PR. GRATE ELEV 648.72′
STA 306+76.63, 1.02′ LT
EX. MH-3-48, GRATE ELEV 644.75
EX. 18″ SW 633.61
EX. 18″ NE 627.60
WITH 706.11 JOINTS

+7.39% +1.48% +1.48% +8.00%

P.V.I. STA 308+77.00
ELEV = 657.34′
112.00′ VC
K = 17
20 mph

CCGI AS-BUILT GRADING
FROM NOV 2012 SURVEY

PROFILE GRADE

626.07 627.58 629.11 630.88 633.09 637.16 640.11 641.27 642.12 643.16 644.11 644.11 644.49 645.09 645.24 644.67 644.93 646.65 648.98 654.36 662.61

304+00 305+00 306+00 307+00 308+00 309+00

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CALCULATED CDS
CHECKED BAL

TOWPATH TRAIL PROFILE
CUYAHOGA RIVER WEST BANK

CUY-90-14.90

CALCULATED CDS | CHECKED BAL

TOWPATH TRAIL PROFILE
CUYAHOGA RIVER WEST BANK

CUY-90-14.90

659.50 661.20 663.18 665.18 667.18 669.13 670.41 670.95 671.40 672.24 673.15 673.67 674.12 674.57 675.02

700 695 690 685 680 675 670 665 660 655 650 645 640 635 630 625 620

CCGI AS-BUILT GRADING
FROM NOV 2012 SURVEY

P.V.I. STA 310+39.00 ELEV = 670.30'
45.00' VC
K = 7
20 mph

+8.00%
+1.80%

P.V.I. STA 311+04.00
ELEV = 671.47'
NO CURVE

+3.65%

P.V.I. STA 311+54.00
ELEV = 673.30'
NO CURVE

+1.80%

MATCH LANDING
STA. 312+50.87
ELEV = 675.04'

TOWPATH TRAIL LANDING AREA
FOR DETAILS, SEE SHEET 26

PROFILE GRADE

P.V.I. STA 308+77.00
ELEV = 657.34'
112.00' VC
K = 17
20 mph

662.61 673.97 674.39 674.58 674.76 674.97 675.48 676.03 676.54 676.38 675.96 675.34 674.97 674.23 673.08 672.22 669.52 666.30 671.18 675.28

309+00 310+00 311+00 312+00 313+00

SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED DWB

CHECKED RLE

620
610
600
590
580
570

615.20
300+50.00
615.00

614.72
300+22.77
614.72

BEGIN WORK
STA. 300+22.77

300+00.00
614.03

120 100 80 60 40 20 0 20 40 60 80 100 120

CROSS SECTIONS - TOWPATH TRAIL
STA. 300+00.00 TO STA. 300+50.00

CUY-90-14.90

13
93

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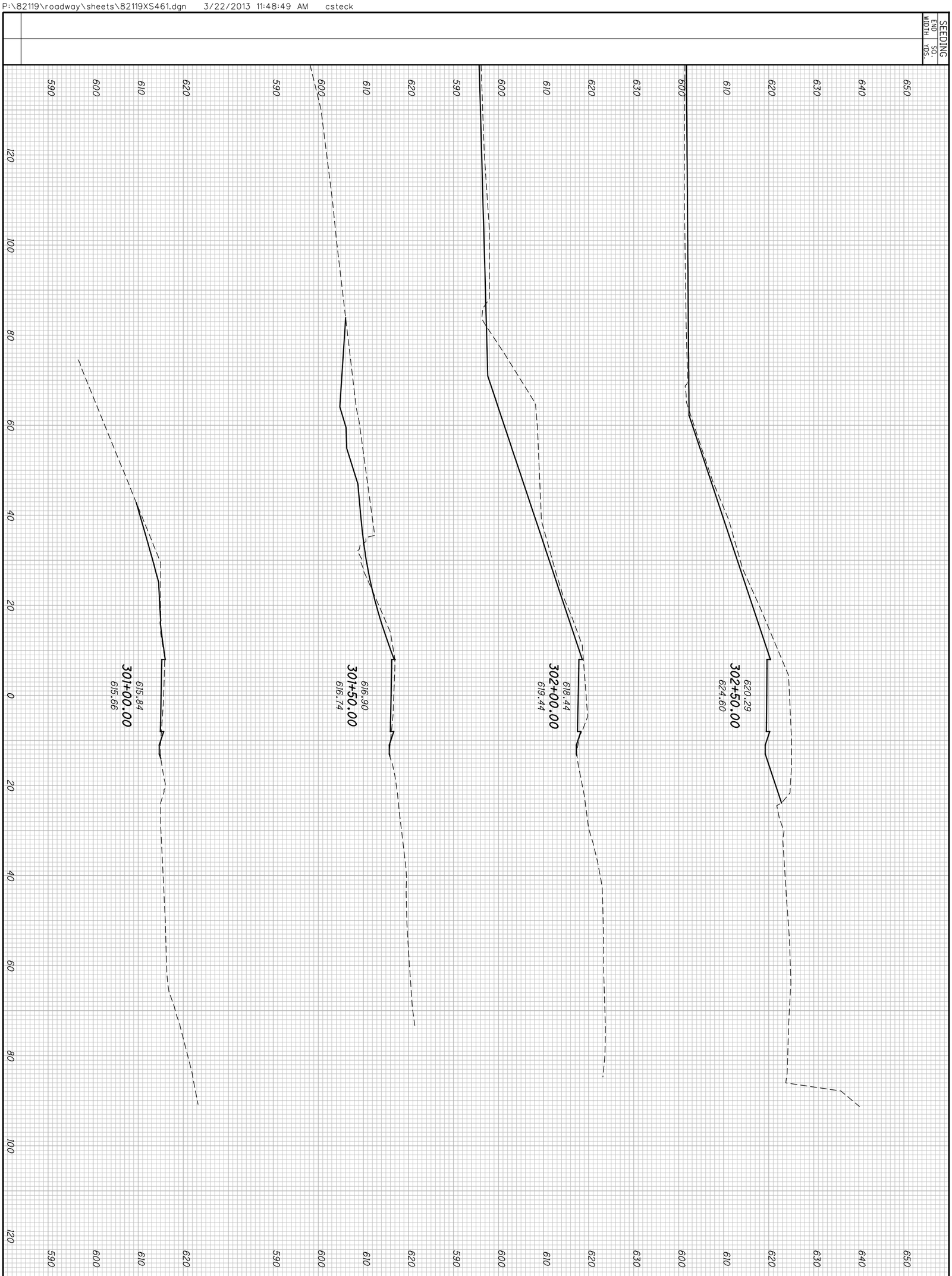


14 / 93	CUY-90-14.90	CROSS SECTIONS - TOWPATH TRAIL STA. 301+00.00 TO STA. 302+50.00	CALCULATED DWB CHECKED RLE

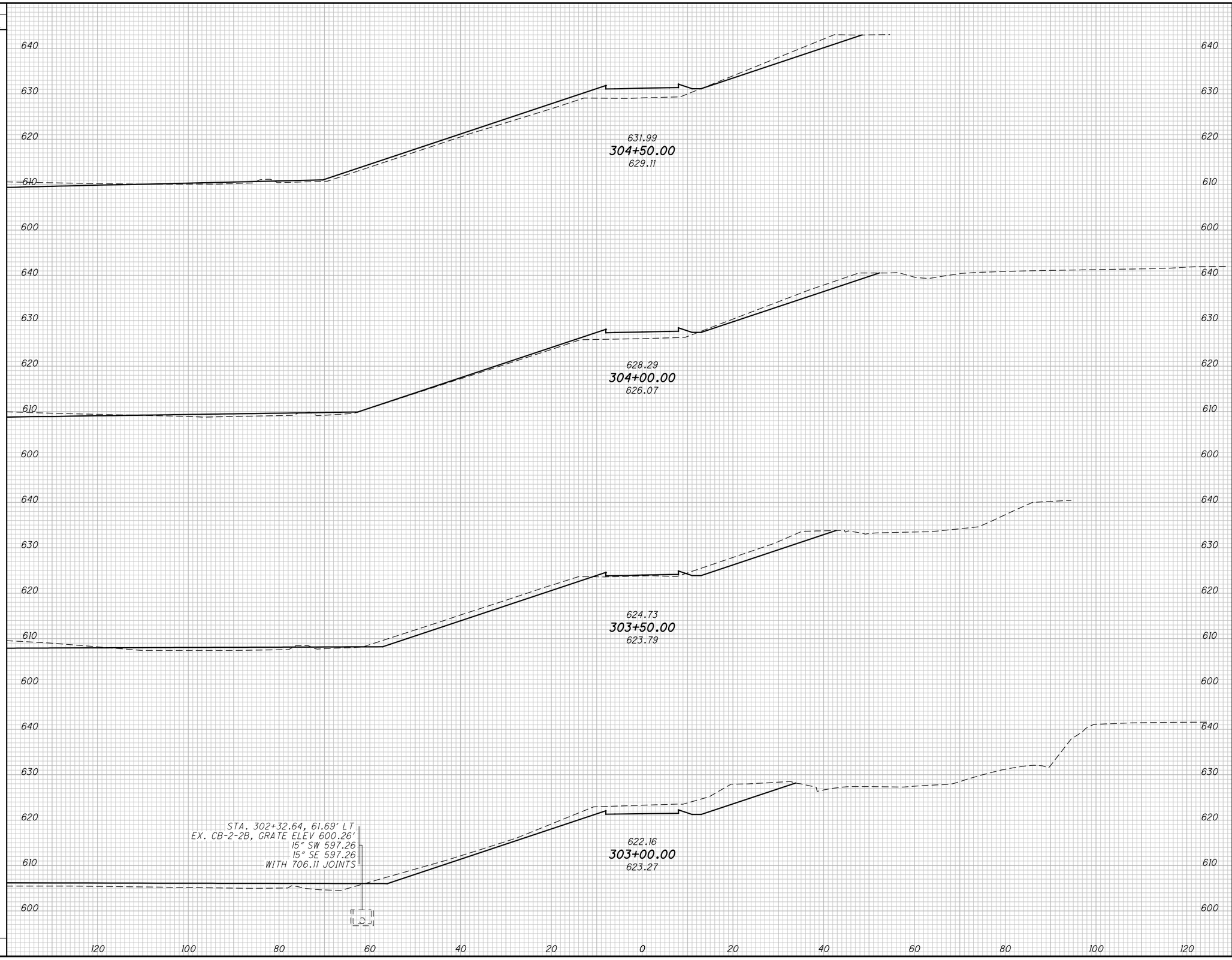
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED DWB

CHECKED RLE



CROSS SECTIONS - TOWPATH TRAIL
STA. 303+00.00 TO STA. 304+50.00

CUY-90-14.90

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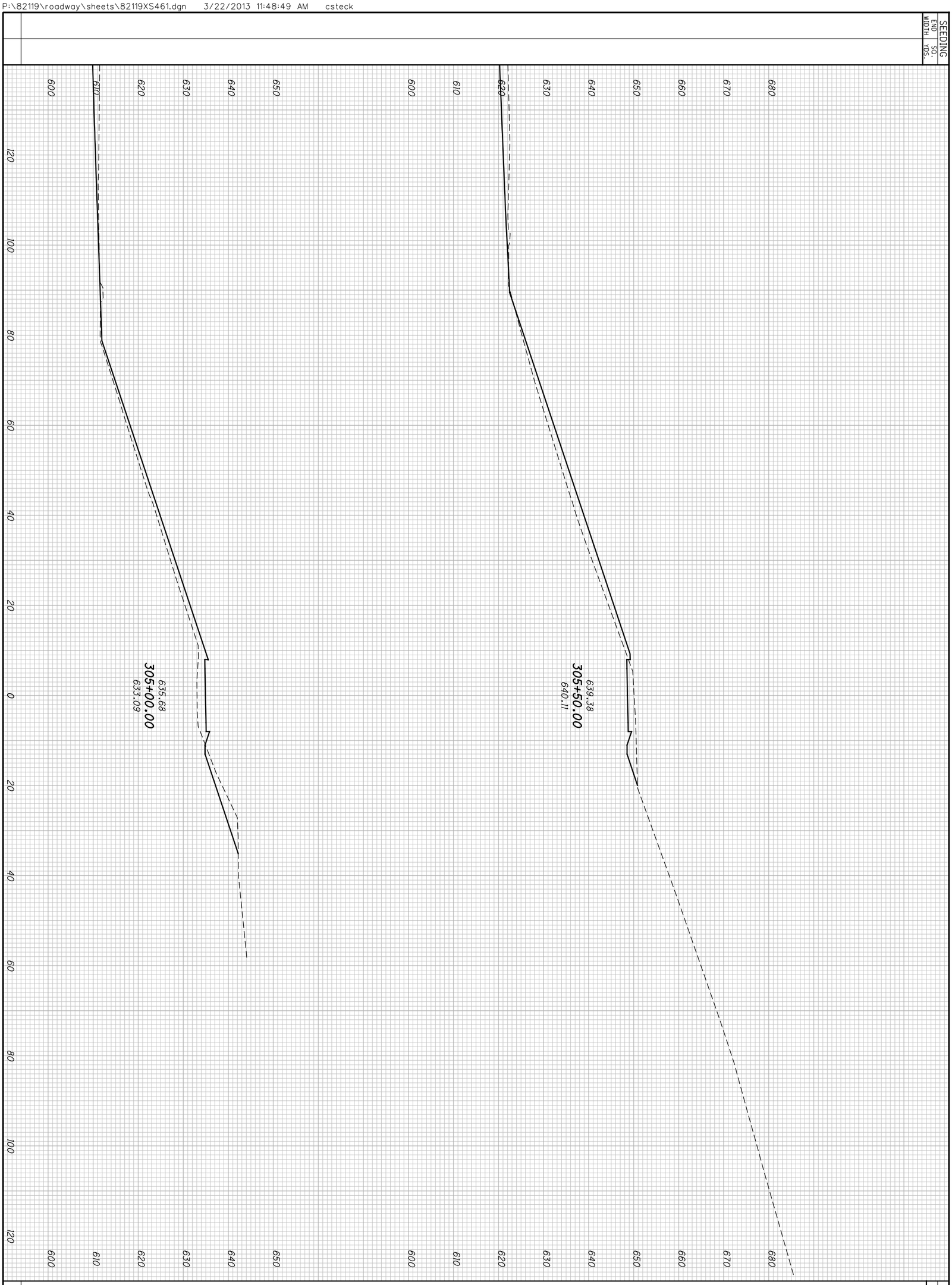


16
93

CUY-90-14.90

CROSS SECTIONS - TOWPATH TRAIL
STA. 305+00.00 TO STA. 305+50.00

CALCULATED DWB
CHECKED RLE

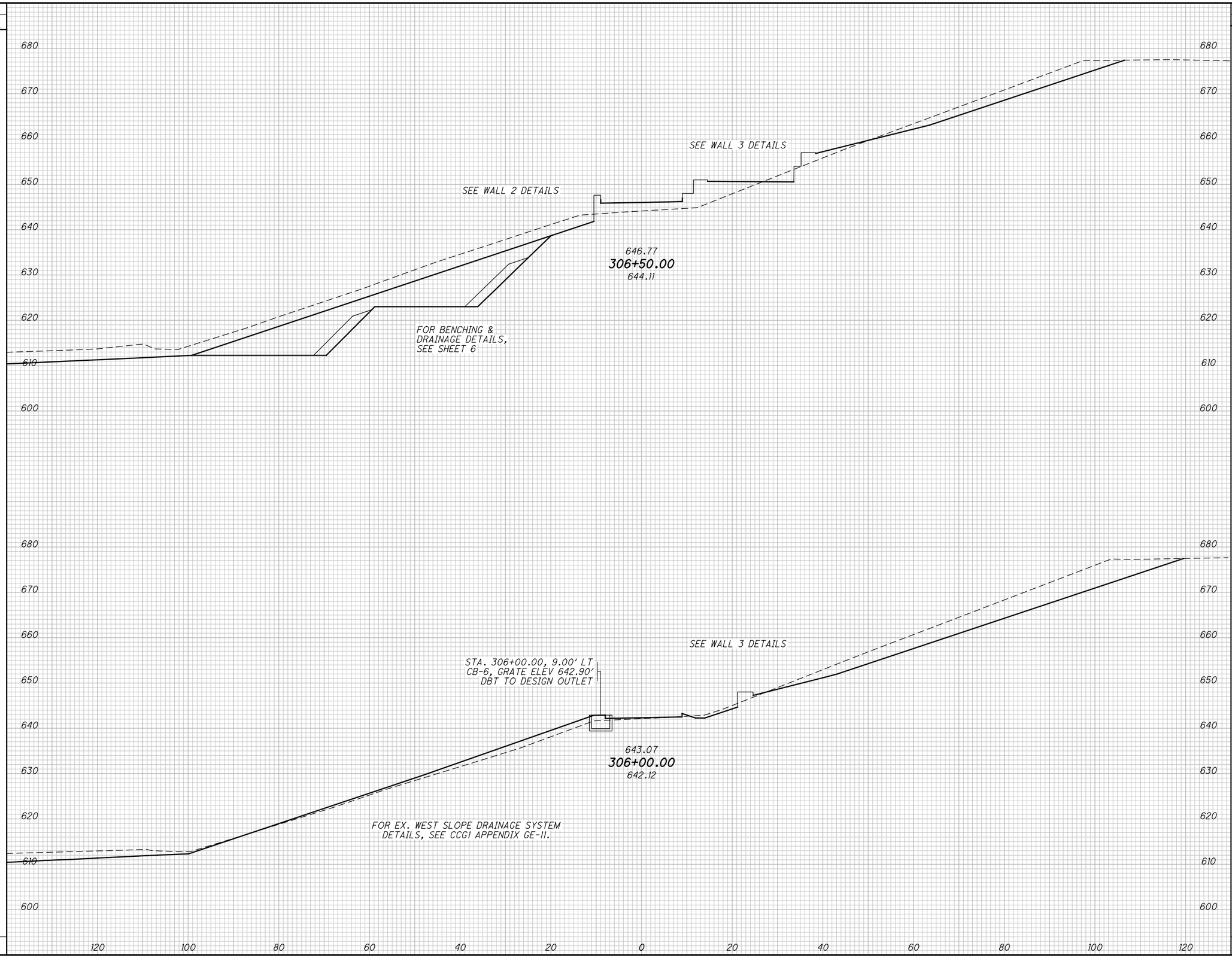
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED DWB

CHECKED RLE



CROSS SECTIONS - TOWPATH TRAIL
STA. 305+50.00 TO STA. 306+50.00

CUY-90-14.90

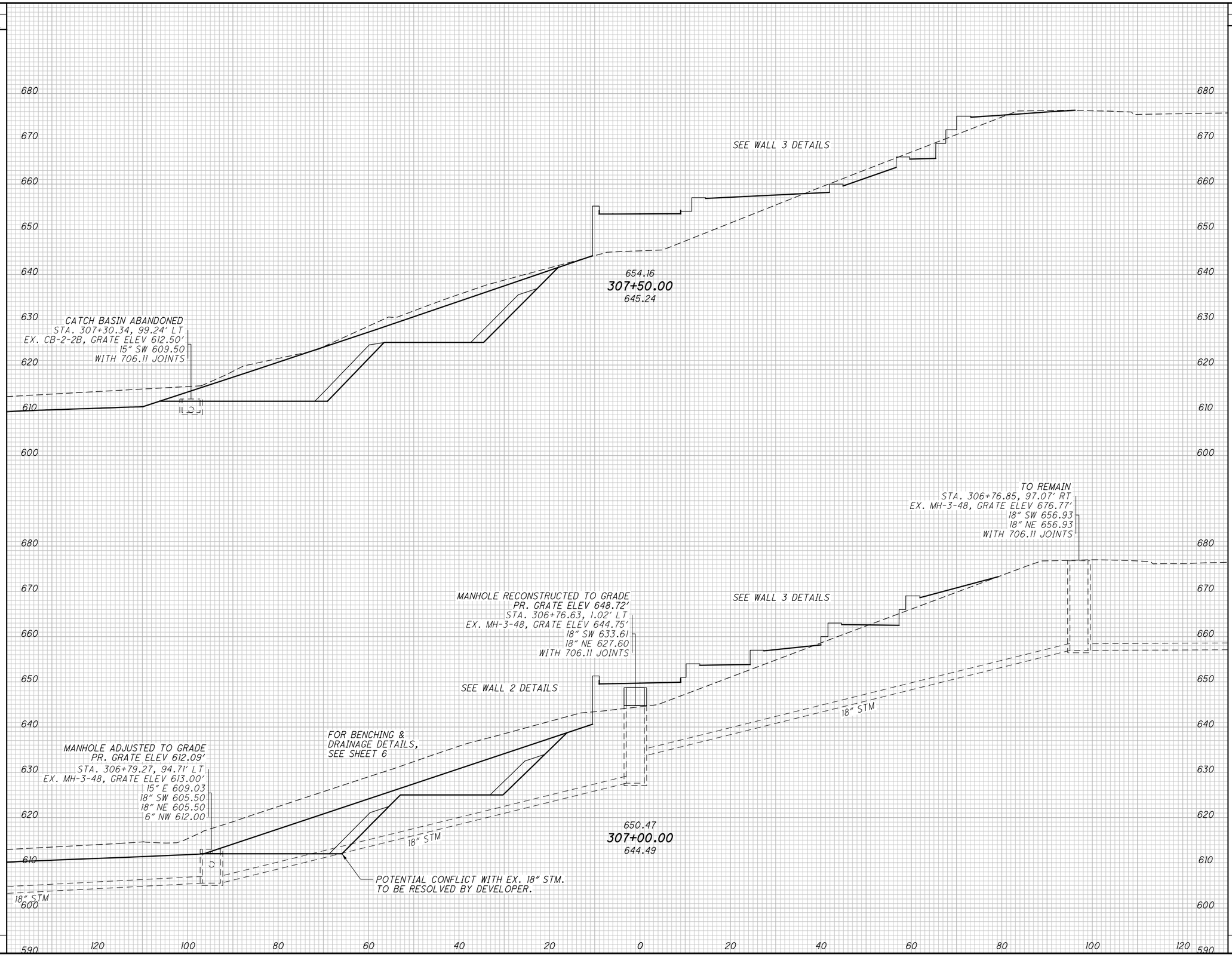
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED DWB

CHECKED RLE



CROSS SECTIONS - TOWPATH TRAIL
STA. 306+50.00 TO STA. 307+50.00

CUY-90-14.90

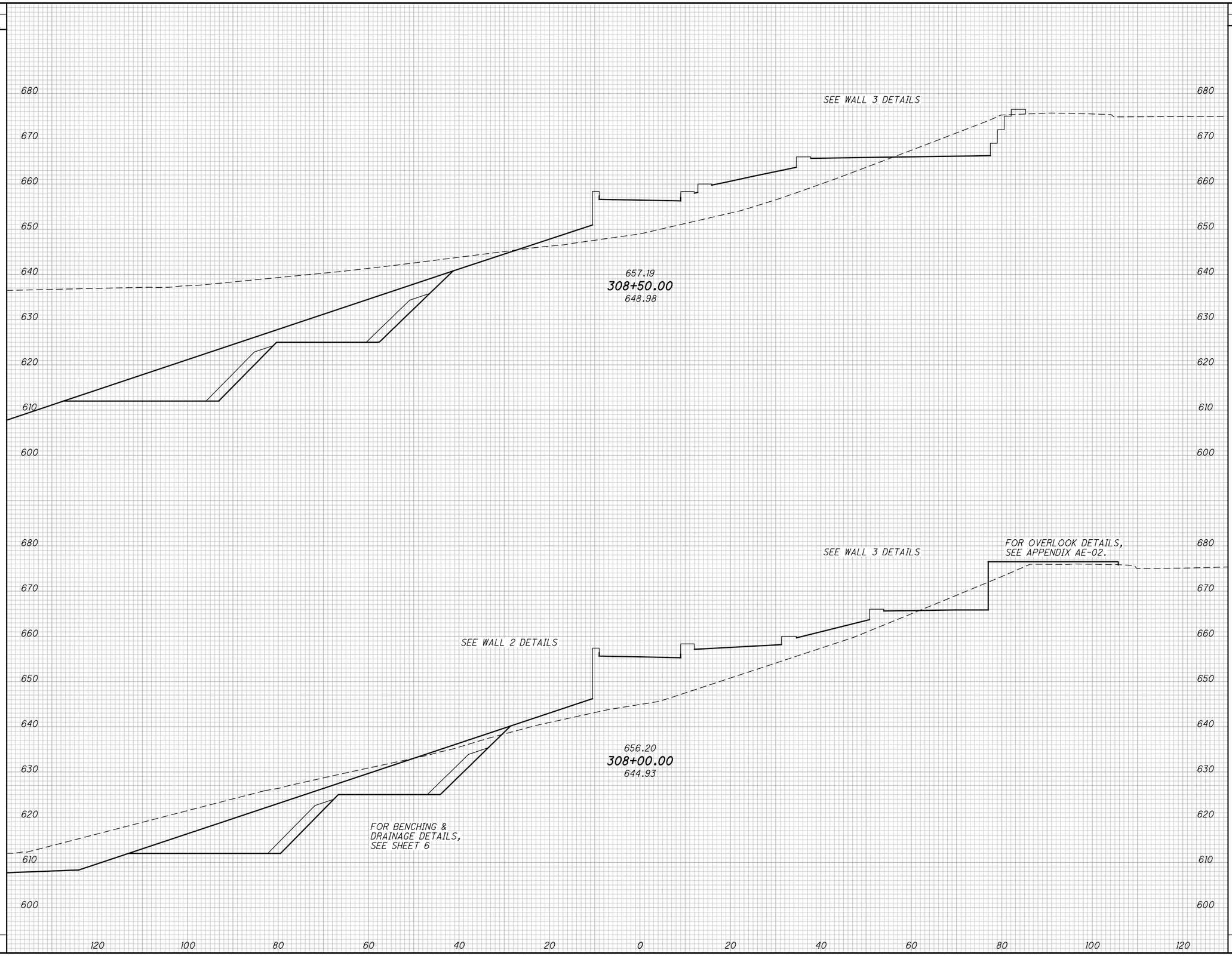
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED DWB

CHECKED RLE



CROSS SECTIONS - TOWPATH TRAIL
STA. 307+50.00 TO STA. 308+50.00

CUY-90-14.90

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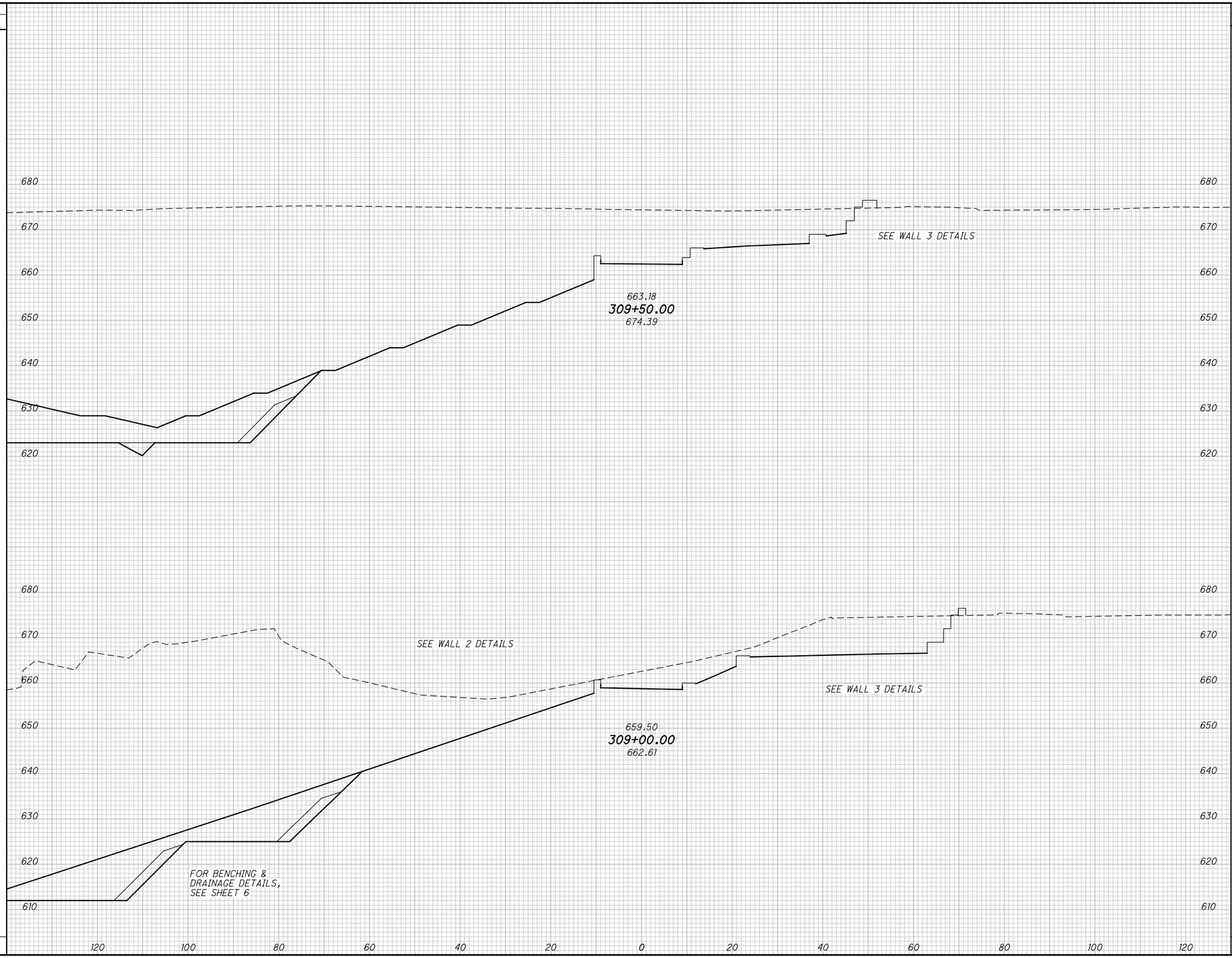
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED DWB

CHECKED RLE



CROSS SECTIONS - TOWPATH TRAIL
STA. 309+00.00 TO STA. 309+50.00

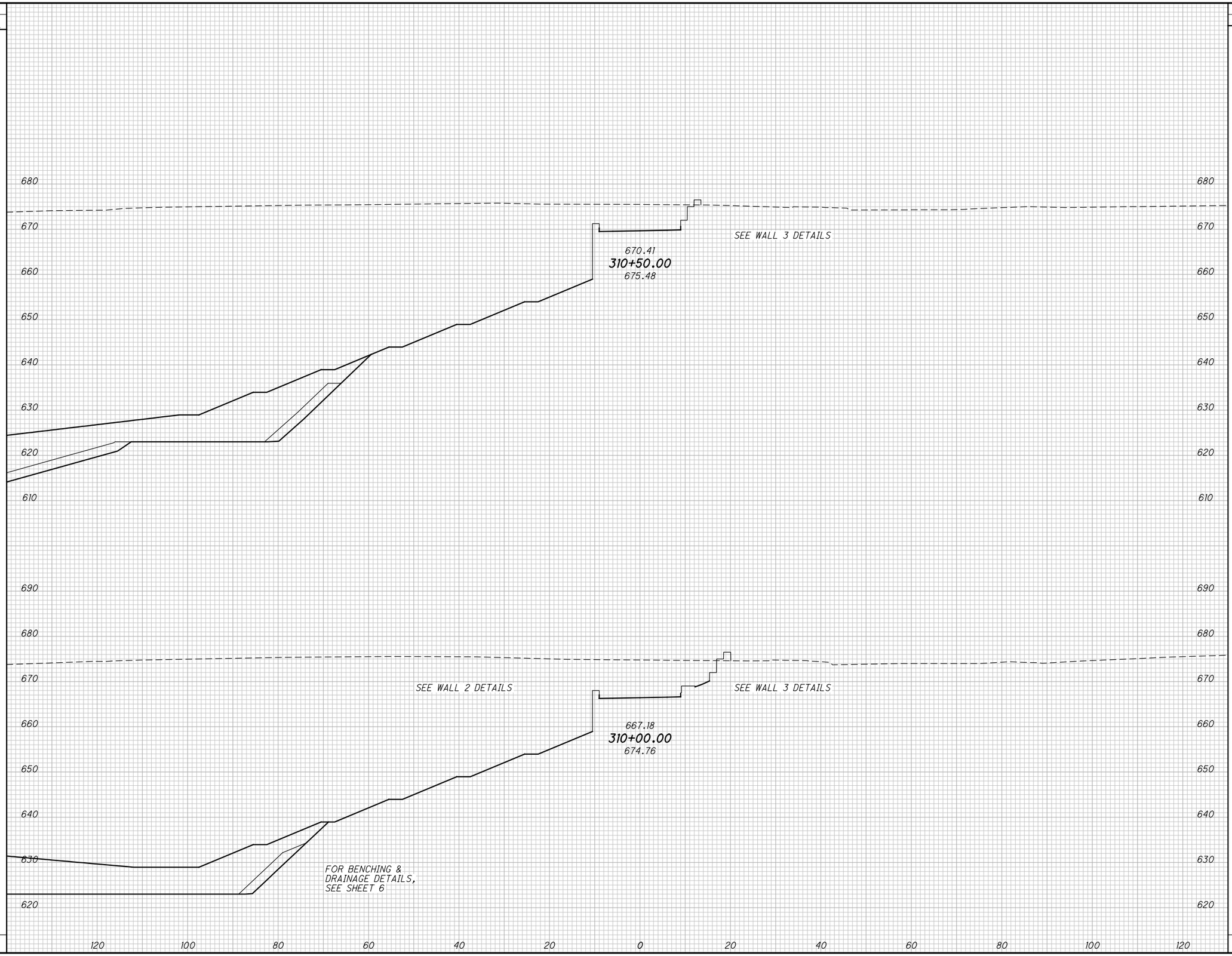
CUY-90-14.90

SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED	CHECKED
DWB	RLE



CROSS SECTIONS - TOWPATH TRAIL
STA. 310+00.00 TO STA. 310+50.00

CUY-90-14.90

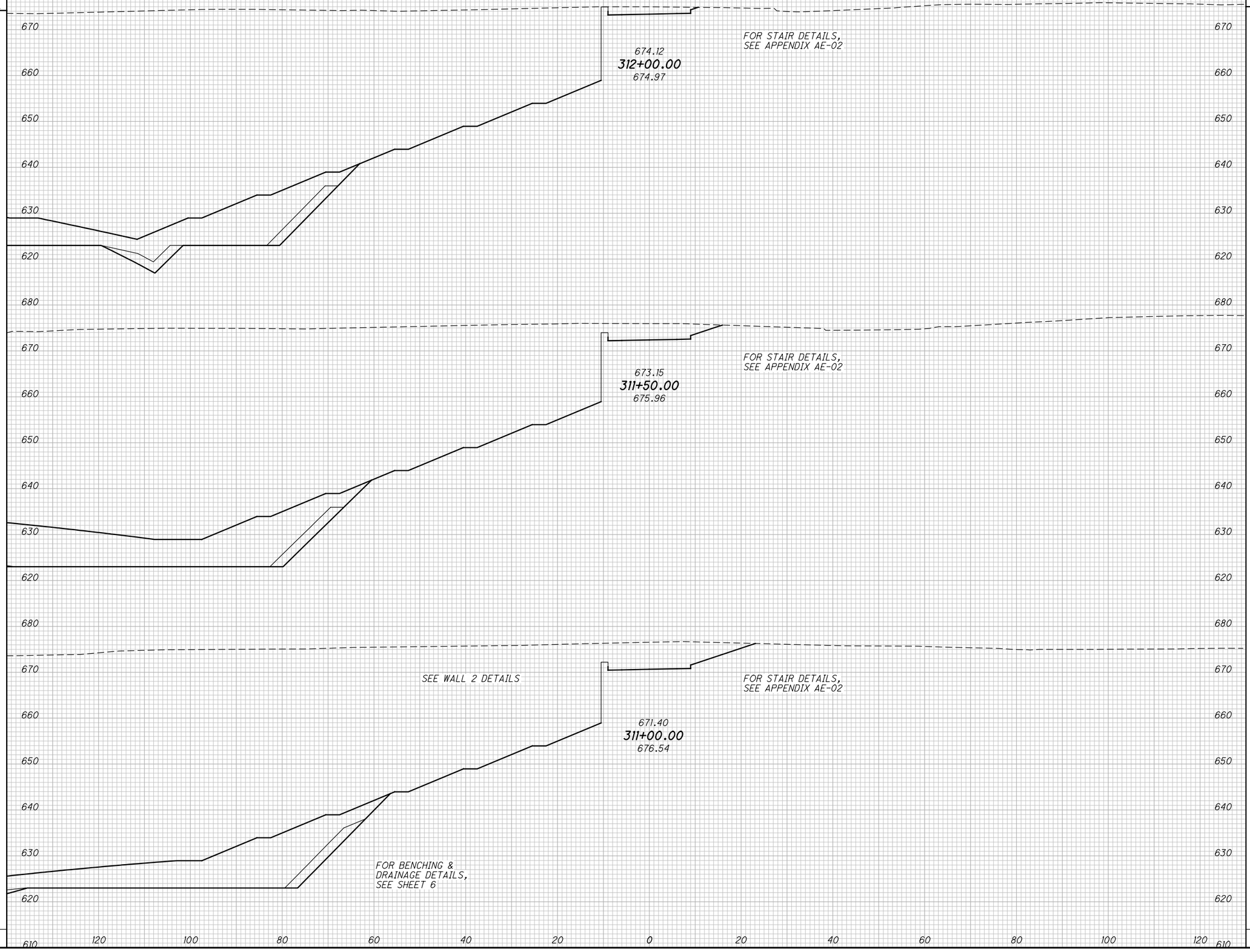
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED DWB

CHECKED RLE



CROSS SECTIONS - TOWPATH TRAIL
STA. 311+00.00 TO STA. 312+00.00

CUY-90-14.90

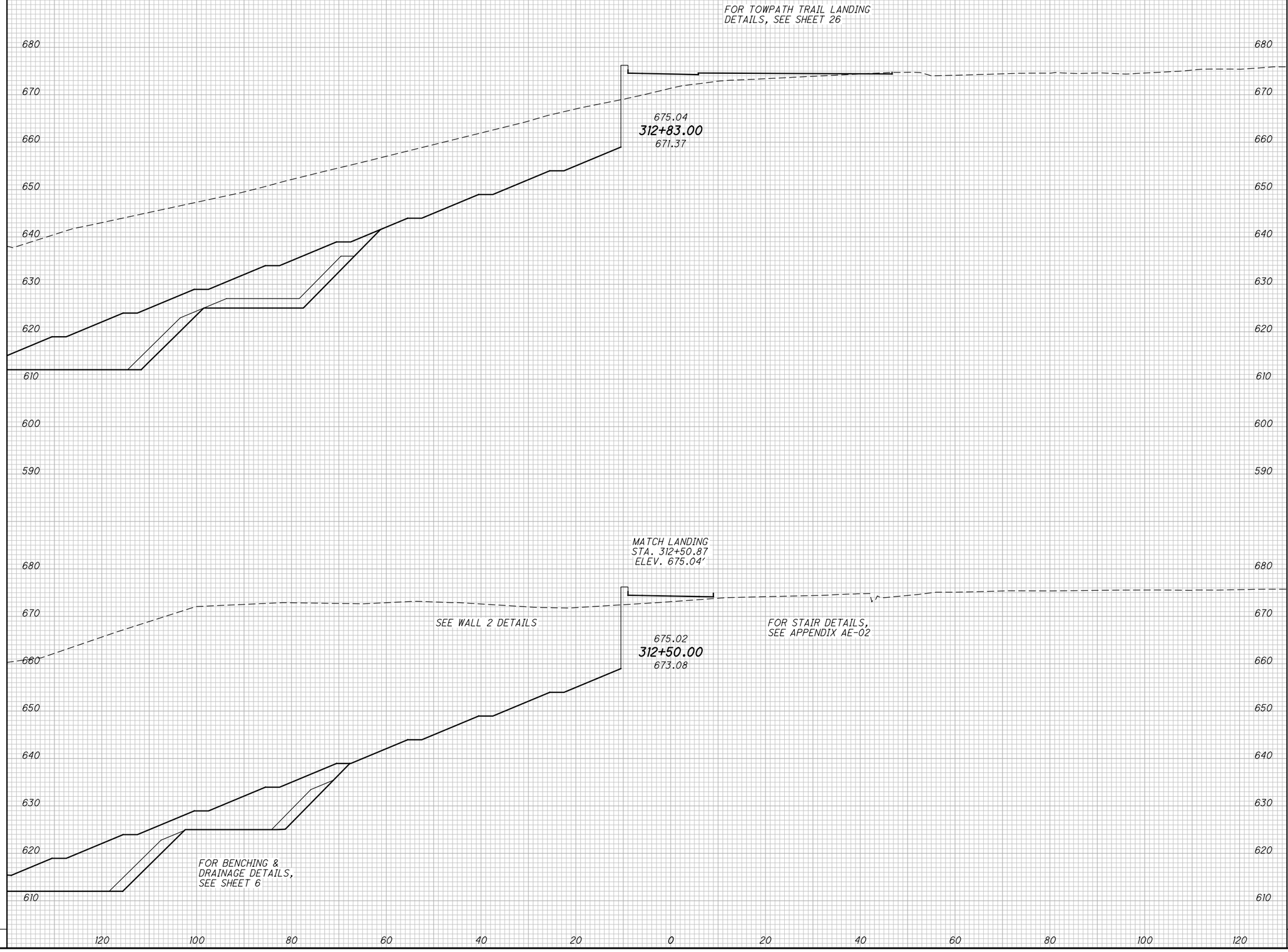
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED DWB

CHECKED RLE



CROSS SECTIONS - TOWPATH TRAIL
STA. 312+50.00 TO STA. 312+83.00

CUY-90-14.90

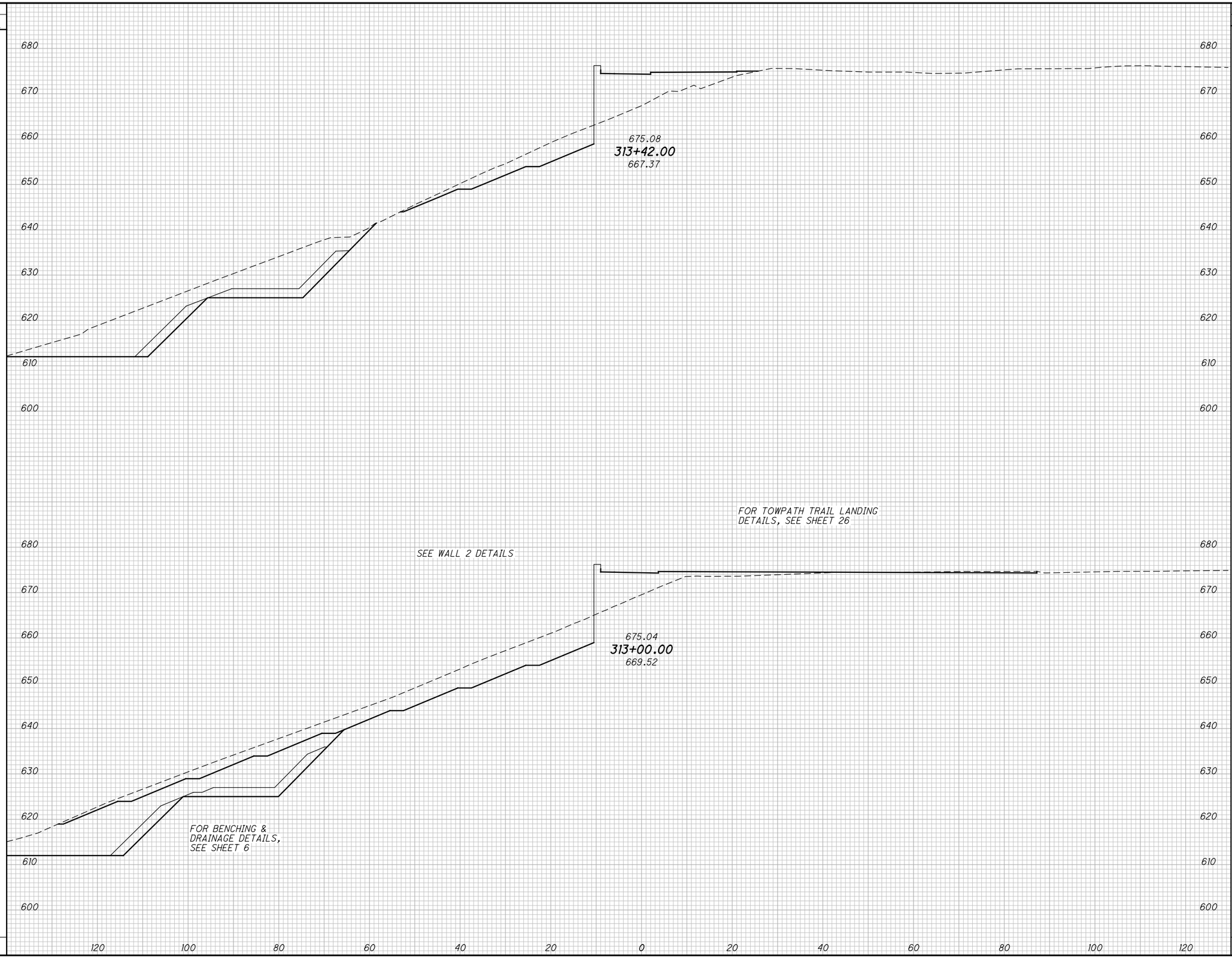
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED DWB

CHECKED RLE



CROSS SECTIONS - TOWPATH TRAIL
STA. 313+00.00 TO STA. 313+42.00

CUY-90-14.90

SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED DWB

CHECKED RLE

680
670
660
650
640
630
620
610

675.04
313+70.00
672.36

FOR TOWPATH TRAIL LANDING
DETAILS, SEE SHEET 26

SEE WALL 2 DETAILS

675.13
313+50.00
671.18

FOR BENCHING &
DRAINAGE DETAILS,
SEE SHEET 6

120 100 80 60 40 20 0 20 40 60 80 100 120

CROSS SECTIONS - TOWPATH TRAIL
STA. 313+50.00 TO STA. 313+70.00

CUY-90-14.90

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PR. WALL 2

PR. WALL 3

ABBEY AVE.

PR. STAIRS

311

ASPHALT TRAIL

PT Sta. 311+78.30

TOWPATH TRAIL
P.I. Sta. 311+52.91
Δ = 125° 17′ 16″ (LT)
Dc = 57° 17′ 45″
R = 100.00′
T = 193.28′
L = 218.67′
E = 117.62′
C = 177.63′
C.B. = N 61° 18′ 09″ E

NOTE:
FOR STAIR AND PLANTER DETAILS,
SEE APPENDIX AE-02

TOWPATH TRAIL
P.I. Sta. 312+84.09
Δ = 83° 52′ 03″ (RT)
Dc = 982° 16′ 10″
R = 5.83′
T = 5.24′
L = 8.54′
E = 2.01′
C = 7.80′
C.B. = N 40° 35′ 33″ E

℄ CONSTR.
TOWPATH TRAIL

PC Sta. 312+78.85

312

N1°20′28″W

+00
674.12

+25
674.57

+50.87
675.22

+50.87
675.04

+50.87
674.86

+75
676.68

+83.12
675.98

+87.39
676.10

PT Sta.
312+87.39

313

313+00
676.19

N82°31′35″E

313+25
676.20

TOE OF
WALL 2 CAP

S7°09′09″W

75.37′

PI Sta.
313+42.10

313+50
676.12

+62.41
675.95

676.46

676.30

POT Sta.
313+75.00

PR. WALL 2

12.5′ ITEM 606 -
ANCHOR ASSEMBLY, MGS TYPE T

STA. 27+97.81,
16.00′ LT
EX. 675.05*

STA. 10+41.46,
9.24′ LT
EX. 674.88*

STA. 11+25.00,
9.43′ LT
EX. 674.50*

STA. 11+57.75,
13.46′ LT
EX. 674.30*

STA. 11+75.90,
16.10′ LT
GRATE EX. 674.15

STA. 11+90.20,
15.25′ LT
EX. 674.26*

10

11

12

℄ CONSTR. W 13TH ST.

CONCRETE WALK

EX. GUY WIRE
TO REMAIN (TYP.)

STA. 12+17.08,
11.20′ LT
EX. 674.43*

STA. 12+27.26,
9.67′ LT
EX. 674.61*

STA. 12+26.26, ℄
EX. 674.66*

43.75′ EX. GUARDRAIL REMOVED

EX. 674.50*

STA. 12+24.08,
20.95′ RT
EX. 674.93*

UNIVERSITY DR.

DO NOT
DISTURB

EX. PARKING

* EXISTING ELEVATIONS
(PER CCGI PLANS) ARE AT
FACE OF CURB UNLESS
OTHERWISE NOTED.

HORIZONTAL
SCALE IN FEET
0 5 10 20

CALCULATED CDS
CHECKED RLE

PAVEMENT DETAIL
TOWPATH TRAIL LANDING AREA

CUY-90-14.90

26
93

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NOTE: EXISTING CONTOURS FROM NOV 2012 SURVEY.

ADDENDUM	DATE
1	4/16/13

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED CDS
CHECKED RLE

1 * STEEL SOLDIER PILES IN CONCRETE-FILLED DRILLED SHAFTS WITH STEEL PLATE LAGGING. PORTIONS OF THIS RETAINING WALL STRUCTURE THAT WAS USED TO SUPPORT A TEMPORARY EXCAVATION MAY HAVE BEEN LEFT IN PLACE.

EX. N-S RAILROAD (ELEVATED TRACK)
Ex LA-R/W
Ex R/W
UNIVERSITY RD.
℄ R/W IR 90
℄ CONSTRUCTION WB IR 90
℄ IR 90 (EXISTING CENTRAL VIADUCT)
EX. WB PIER 4
EX. WB PIER 3
EX. PIER 1 NORTH
EX. DOCK WALL
EX. DRILLED SHAFT CAP
EX. PIER 1 SOUTH
EX. ANCHOR CAP
EX. BURIED SHORING*
EX. ACCESS RD.
EX. 6" GAS
EX. WEST END PIER NORTH
EX. WEST END PIER SOUTH
EX. PIER 1A
EX. PIER 2A
CUYAHOGA RIVER
CCGI GRADING FOR TOWPATH TRAIL
W. 14TH ST.
WEST 15TH ST.
WEST 13TH ST.
WEST 12TH ST.
WEST 11TH ST.
ABBEY AVE.
RAMP
ABANDONED
CS
CONCRETE

EXISTING SITE PLAN
CUYAHOGA RIVER WEST BANK

CUY-90-14.90

27
93

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NOTE: EXISTING CONTOURS FROM NOV 2012 SURVEY.

ADDENDUM	DATE
1	4/16/13

MATCH SCRANTON PENINSULA PROJECT (BY OTHERS) BEGIN WORK STA. 300+22.77

EX. N-S RAILROAD (ELEVATED TRACK)

Ex LA-R/W

Ex R/W

Ex CH

CUYAHOGA RIVER

℄ R/W IR 90

℄ CONSTRUCTION WB IR 90

℄ CONSTRUCTION EB IR 90

℄ IR 90 (EXISTING CENTRAL VIADUCT)

℄ ACCESS RD.

UNIVERSITY RD.

PRC Sta. 300+00.00

CS Sta. 302+22.92

SC Sta. 303+22.92

EX. WB PIER 4

EX. DOCK WALL

EX. DRILLED SHAFT CAP

EX. PIER 7 SOUTH

EX. ANCHOR CAP

EX. BURIED SHORING

EX. ACCESS RD.

EX. WEST END PIER SOUTH

EX. 6" GAS

PR. WALL 2

NOTE:
FOR STAIR AND PLANTER DETAILS, SEE APPENDIX AE-02

PC Sta. 312+78.85

POT Sta. 313+75.00

PT Sta. 311+78.30

℄ TOWPATH TRAIL

PR. WALL 3

EX. PIER 7A

PR. WALL 1

PRC Sta. 307+53.51

PRC Sta. 309+59.63

ABBEY AVE.

WEST 15TH ST.

WEST 14TH ST.

WEST 13TH ST.

WEST 12TH ST.

WEST 11TH ST.

RAMP

1

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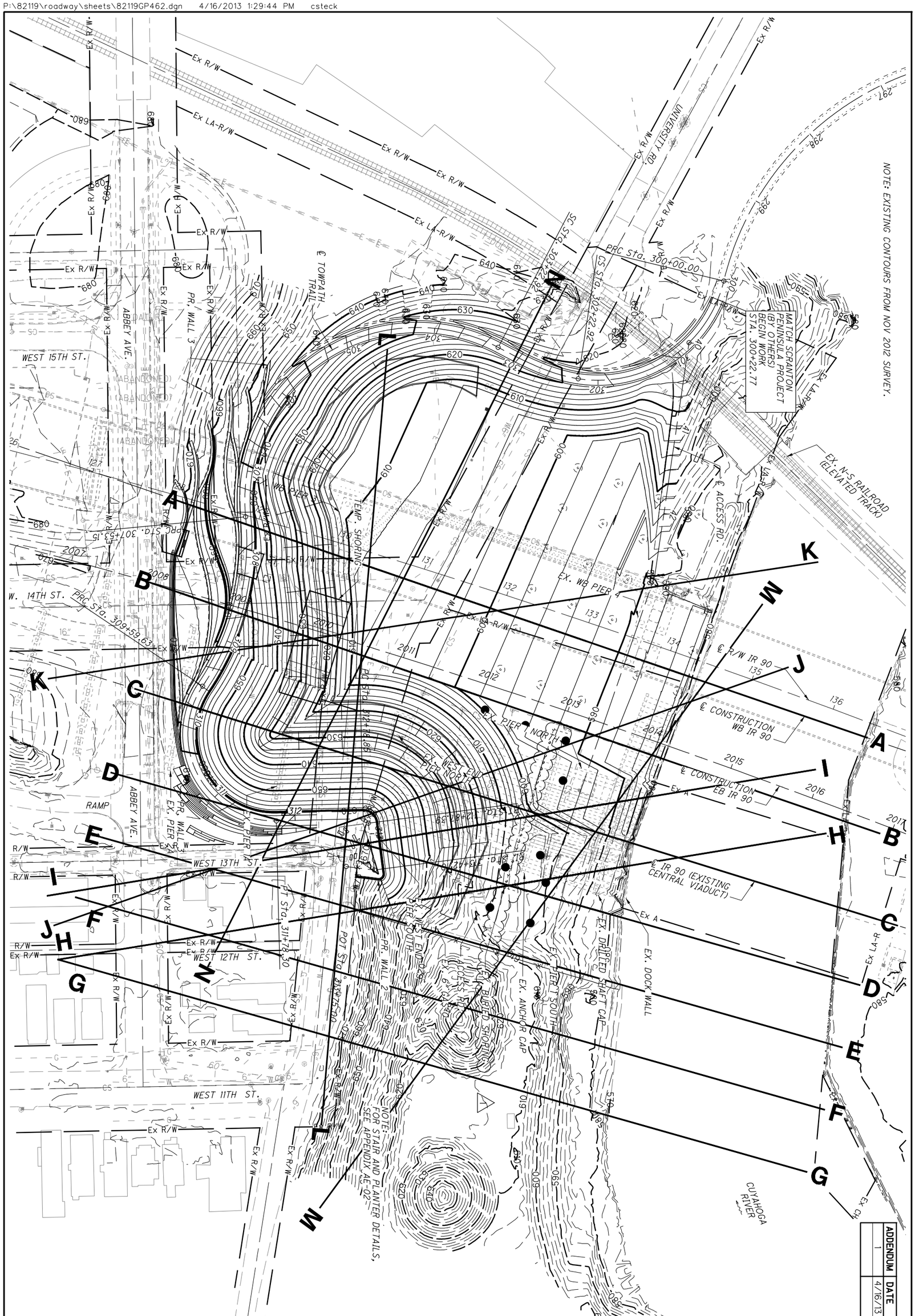
CALCULATED CDS
CHECKED RLE

HORIZONTAL SCALE IN FEET
0 25 50 100

PROPOSED GRADING PLAN
CUYAHOGA RIVER WEST BANK

CUY-90-14.90

28
93



ADDENDUM	DATE
1	4/16/13

29 / 93	CUY-90-14.90	PR. GRADING PROFILE LOCATIONS FOR STABILITY ANALYSES CUYAHOGA RIVER WEST BANK	CALCULATED CDS CHECKED RLE	0 50 25 100 HORIZONTAL SCALE IN FEET	N

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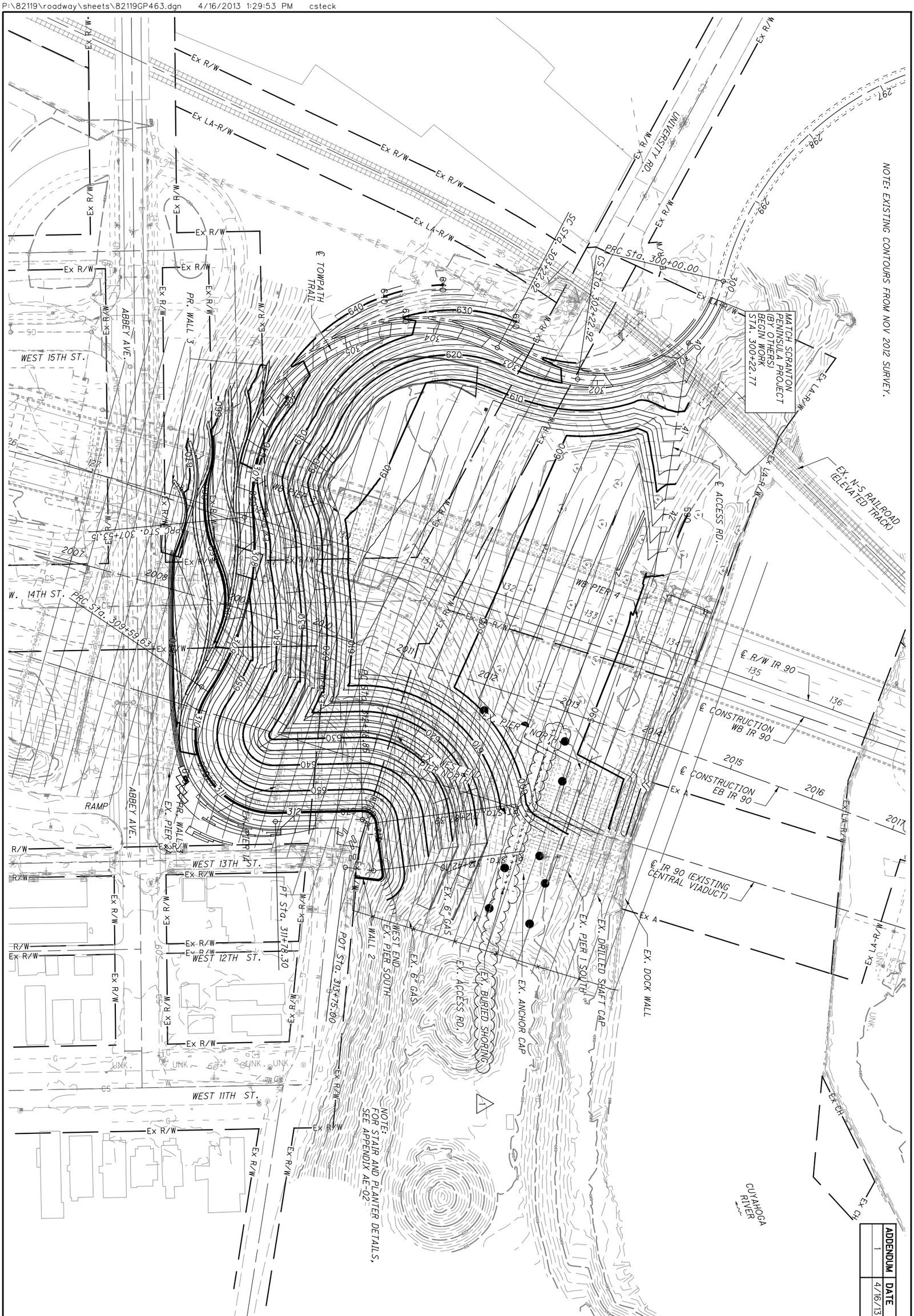

ADDENDUM	DATE
1	4/16/13

30/93	CUY-90-14.90	PROP. GRADING SECTION LOCATIONS CUYAHOGA RIVER WEST BANK	CALCULATED CDS / CHECKED RLE	0 50 / 25 100 HORIZONTAL SCALE IN FEET	N

SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED CDS

CHECKED RLE

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240

700 680 660 640 620 600 720 700 680 660 640 620 600

18" STM

2007+40.00
675.39

18" STM

2007+20.00
674.71

18" STM

WB PIER 2

2007+00.00
674.06

CROSS SECTIONS IR 90 EB
STA. 2007+00.00 TO STA. 2007+40.00

CUY-90-14.90

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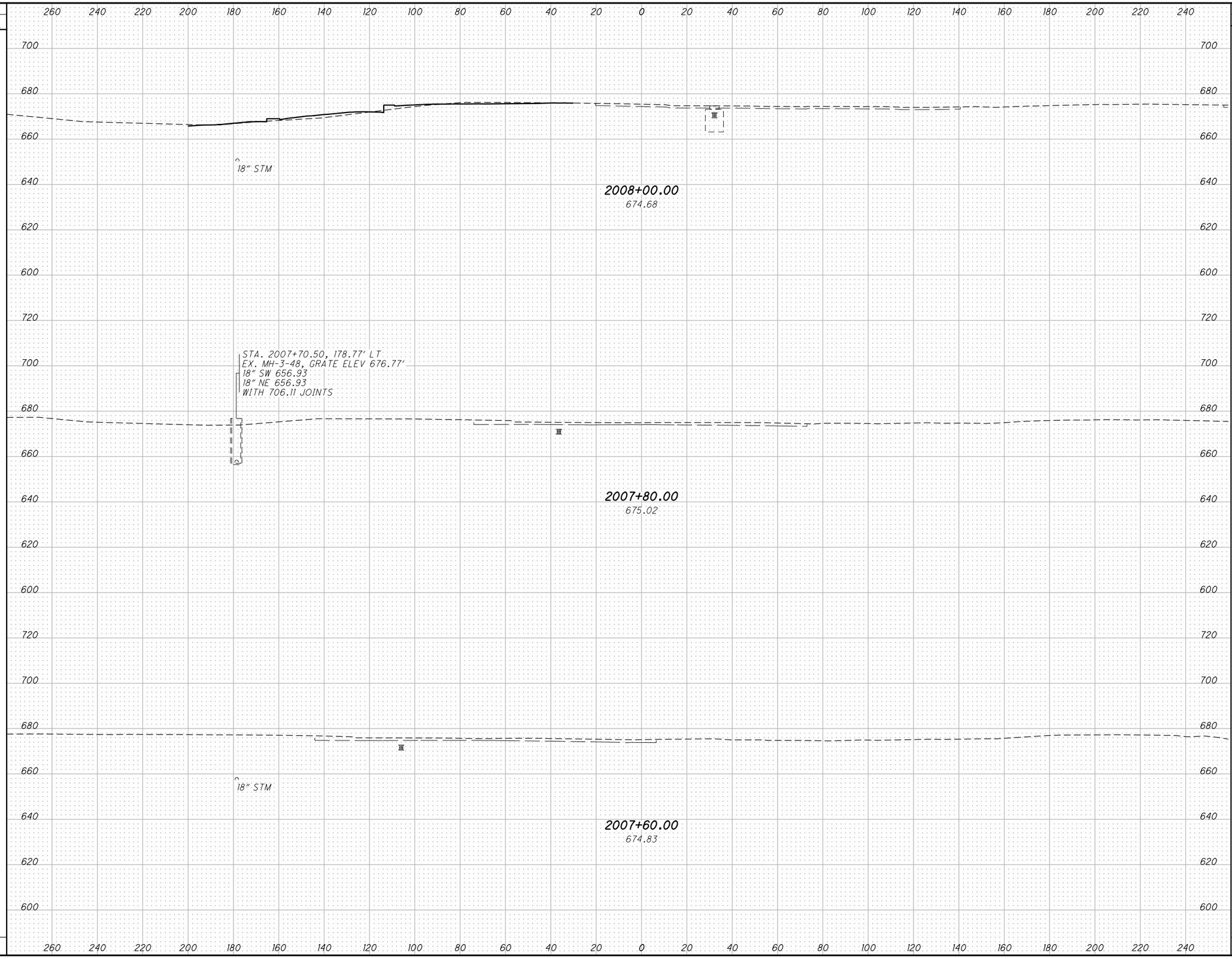
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED	CHECKED
CDS	RLE



CROSS SECTIONS IR 90 EB
STA. 2007+60.00 TO STA. 2008+00.00

CUY-90-14.90

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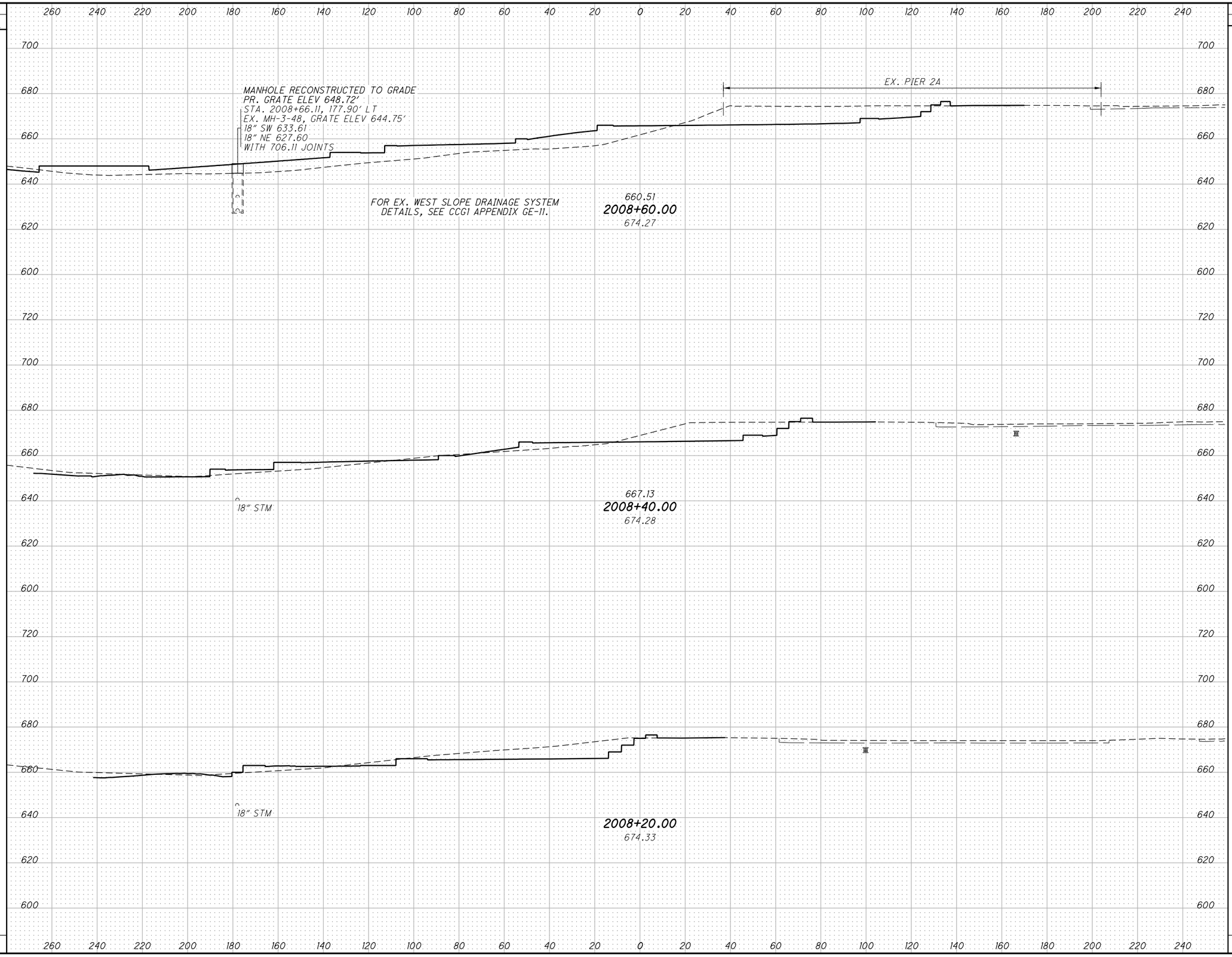
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED CDS

CHECKED RLE



CROSS SECTIONS IR 90 EB
STA. 2008+20.00 TO STA. 2008+60.00

CUY-90-14.90

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SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED CDS

CHECKED RLE

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240

700 680 660 640 620 600 720 700 680 660 640 620 600 720 700 680 660 640 620 600

18" STM

FOR EX. WEST SLOPE DRAINAGE SYSTEM DETAILS, SEE CCG1 APPENDIX GE-11.

639.08
2009+20.00
663.02

18" STM

FOR EX. WEST SLOPE DRAINAGE SYSTEM DETAILS, SEE CCG1 APPENDIX GE-11.

653.01
2009+00.00
667.33

TOWPATH TRAIL STA. 306+00.00, 9.00' LT =
I.R. 90 EB STA. 2008+87.77, 249.21' LT
CB-6, GRATE ELEV 642.90'
DBT TO DESIGN OUTLET

18" STM

FOR EX. WEST SLOPE DRAINAGE SYSTEM DETAILS, SEE CCG1 APPENDIX GE-11.

653.87
2008+80.00
672.11

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240

CROSS SECTIONS IR 90 EB
STA. 2008+80.00 TO STA. 2009+20.00

CUY-90-14.90

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SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED	CHECKED
CDS	RLE

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240

680 660 640 620 600 580 700 680 660 640 620 600 580 700 680 660 640 620 600 580

18" STM

FOR EX. WEST SLOPE DRAINAGE SYSTEM
DETAILS, SEE CCG1 APPENDIX GE-11.

615.17
2009+80.00
653.08

CATCH BASIN ABANDONED
STA. 2009+66.25, 151.15' LT
EX. CB-2-2B, GRATE ELEV 612.50'
15" SW 609.50
WITH 706.11 JOINTS

15" STM

FOR EX. WEST SLOPE DRAINAGE SYSTEM
DETAILS, SEE CCG1 APPENDIX GE-11.

MANHOLE ADJUSTED TO GRADE
PR. GRATE ELEV 612.09'
STA. 2009+58.14, 176.46' LT
EX. MH-3-48, GRATE ELEV 613.00'
6" W
15" E 609.03
18" SW 605.50
18" NE 605.50

623.15
2009+60.00
656.14

18" STM

631.12
2009+40.00
659.27

FOR EX. WEST SLOPE DRAINAGE SYSTEM
DETAILS, SEE CCG1 APPENDIX GE-11.

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240

CROSS SECTIONS IR 90 EB
STA. 2009+40.00 TO STA. 2009+80.00

CUY-90-14.90

35
93

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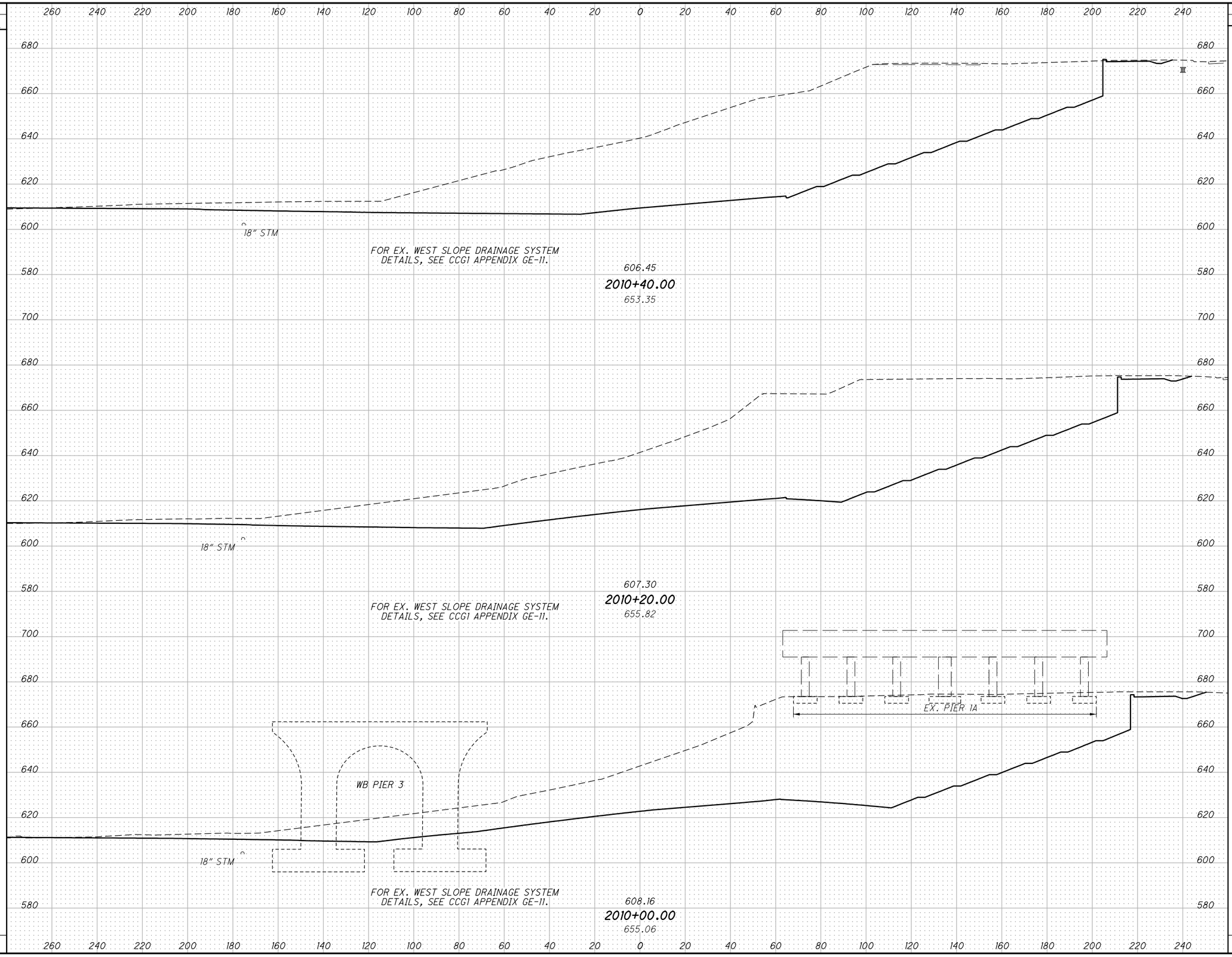
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED	CHECKED
CDS	RLE



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CROSS SECTIONS IR 90 EB
STA. 2010+00.00 TO STA. 2010+40.00

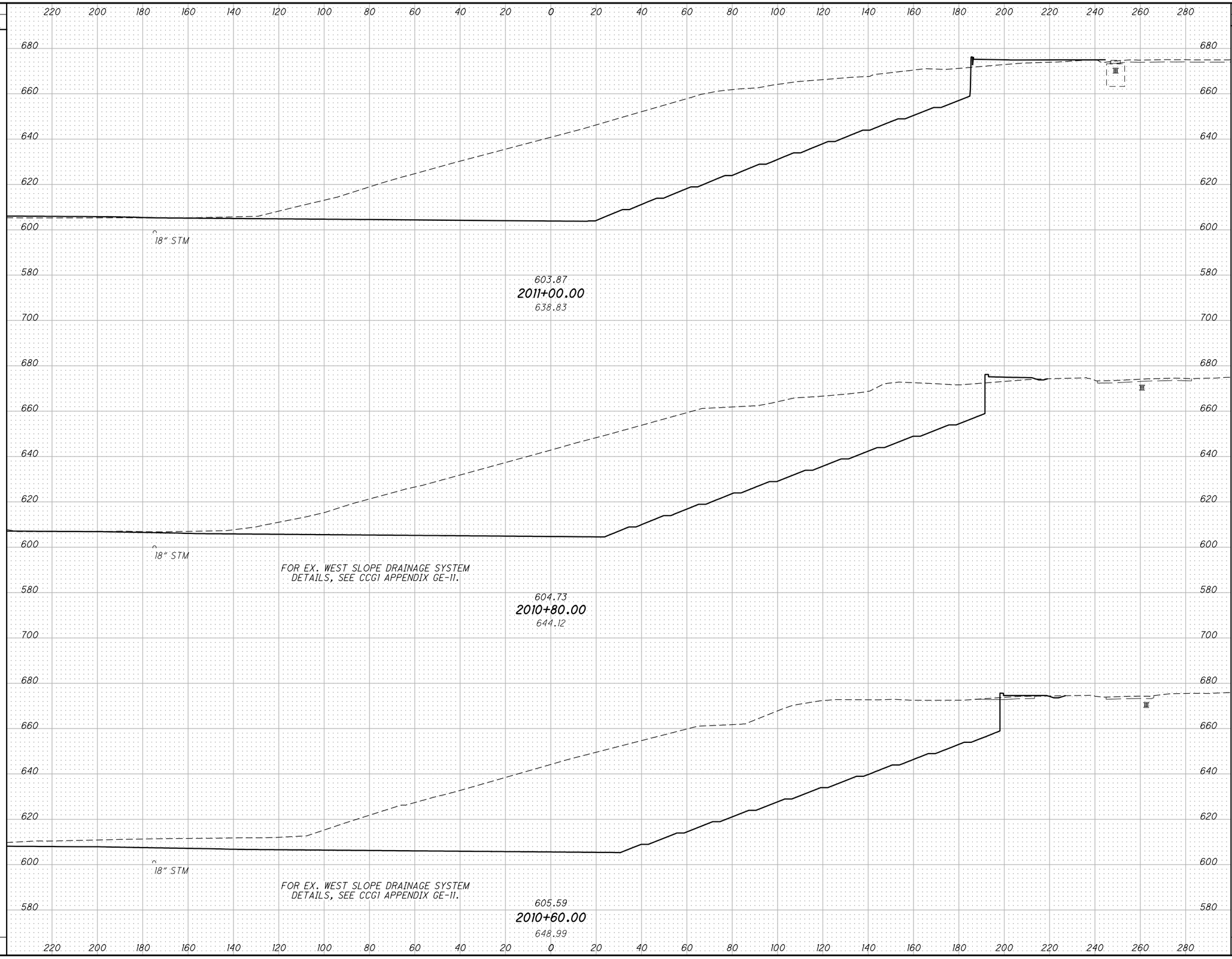
CUY-90-14.90

SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED	CHECKED
CDS	RLE



CROSS SECTIONS IR 90 EB
STA. 2010+60.00 TO STA. 2011+00.00

CUY-90-14.90

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SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED	CHECKED
CDS	RLE

220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

680 660 640 620 600 580 700 680 660 640 620 600 580

6" C

18" STM

600.52
2011+60.00
621.20

TO REMAIN
STA. 2011+35.41, 174.61' LT
EX. MH-3-48, GRATE ELEV 603.54'
15" NW 596.42
18" SW 596.32
18" NE 596.32
WITH 706.11 JOINTS

601.76
2011+40.00
627.33

EX. WEST END PIER NORTH

EX. WEST END PIER SOUTH

18" STM

603.00
2011+20.00
633.23

CROSS SECTIONS IR 90 EB
STA. 2011+20.00 TO STA. 2011+60.00

CUY-90-14.90

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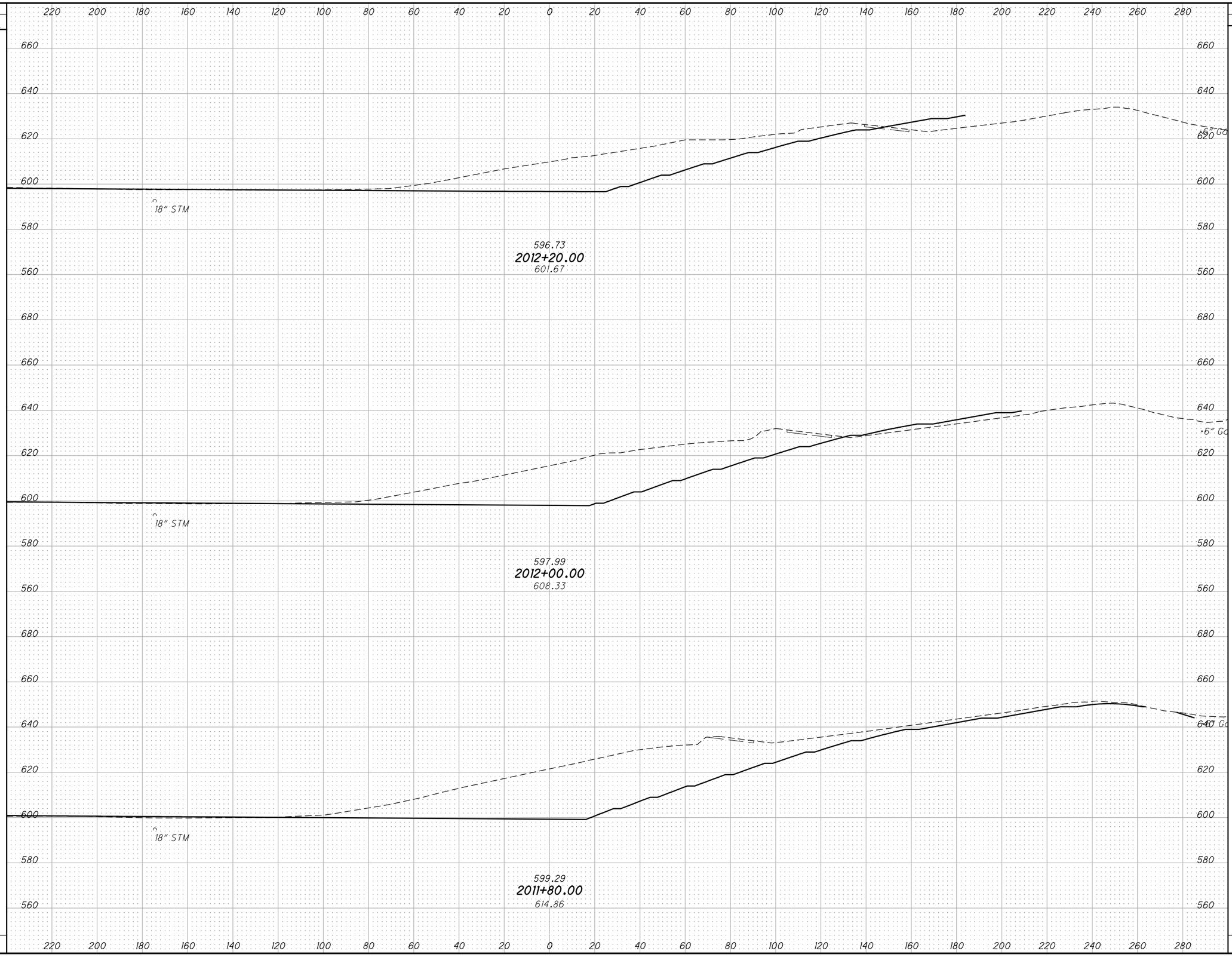
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED CDS

CHECKED RLE



CROSS SECTIONS IR 90 EB
STA. 2011+80.00 TO STA. 2012+20.00

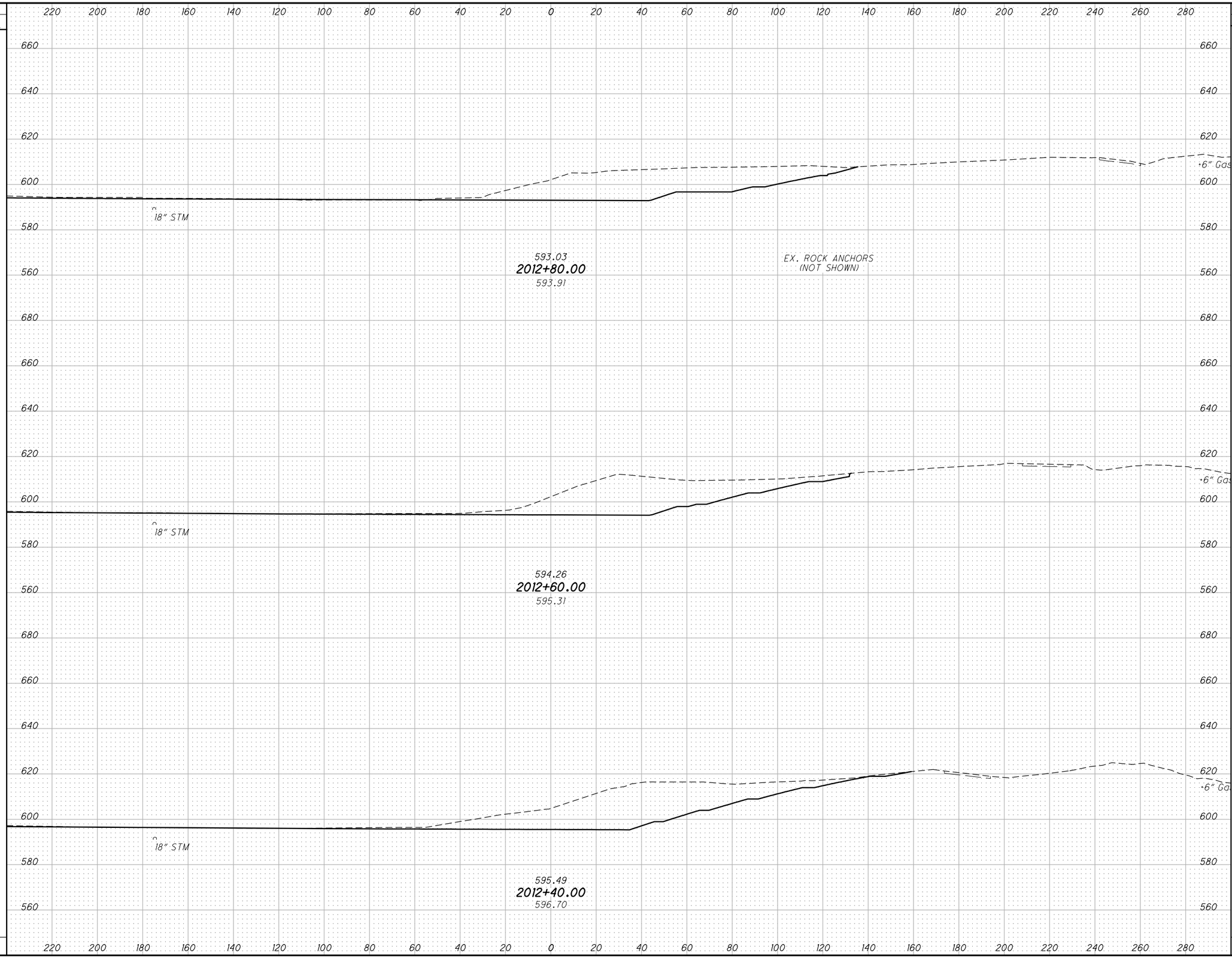
CUY-90-14.90

SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED	CHECKED
CDS	RLE



CROSS SECTIONS IR 90 EB
STA. 2012+40.00 TO STA. 2012+80.00

CUY-90-14.90

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SEEDING	
END WIDTH	SQ. YDS.

ADDENDUM	DATE
1	4/16/13

WB PIER 4

EX. PIER 1 NORTH

EX. PIER 1 SOUTH

18" STM

EX. RETENTION SYSTEM TIEBACKS (NOT SHOWN)

6" Gas

589.34
2013+40.00
589.67

18" STM

EX. RETENTION SYSTEM TIEBACKS (NOT SHOWN)

6" Gas

590.57
2013+20.00
591.12

18" STM

EX. ANCHOR CAP

EX. ROCK ANCHORS & BURIED SHORING (NOT SHOWN)

1

591.80
2013+00.00
592.64

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED	CHECKED
CDS	RLE

CROSS SECTIONS IR 90 EB
STA. 2013+00.00 TO STA. 2013+40.00

CUY-90-14.90

41
93

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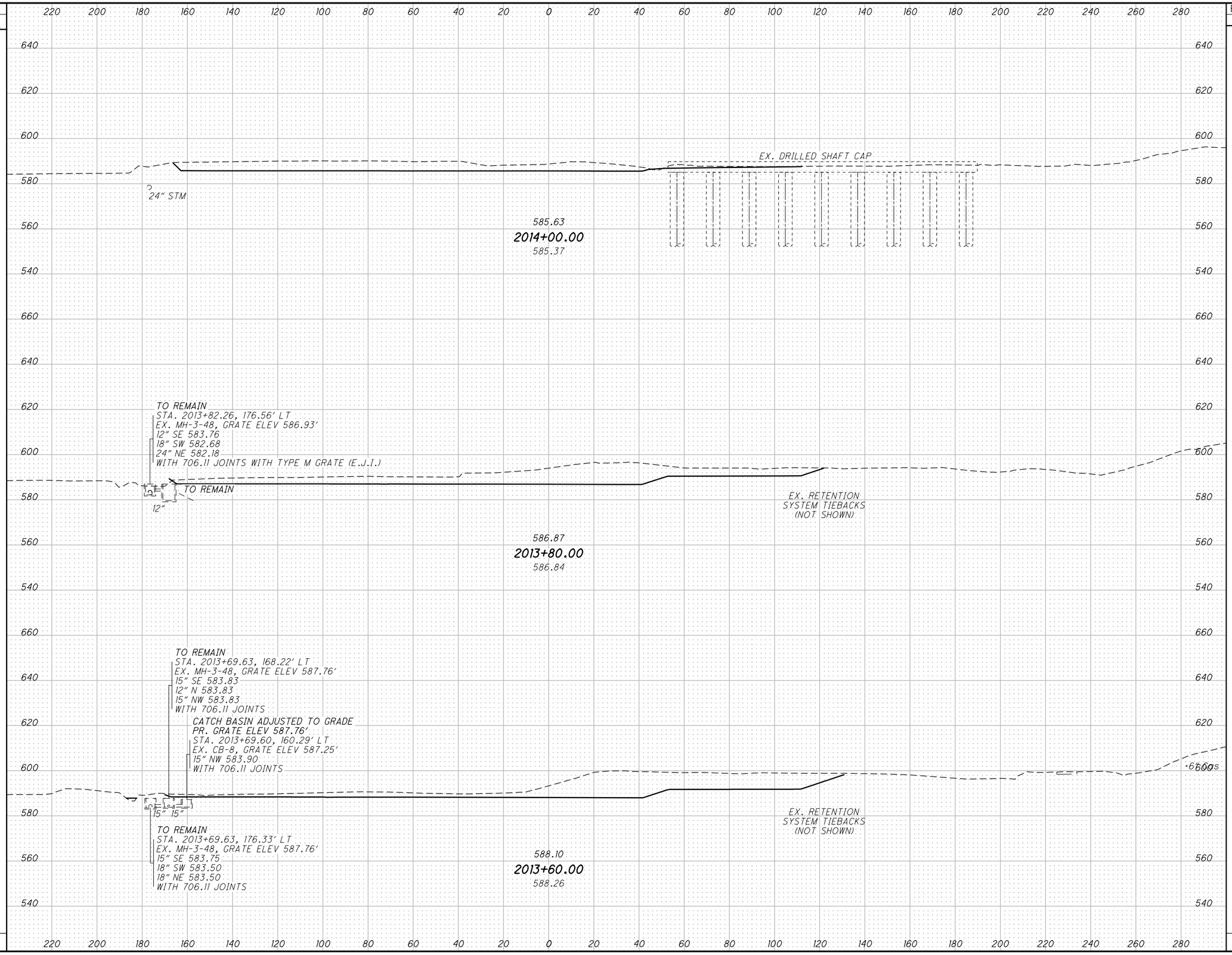
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED CDS

CHECKED RLE



CROSS SECTIONS IR 90 EB
STA. 2013+60.00 TO STA. 2014+00.00

CUY-90-14.90

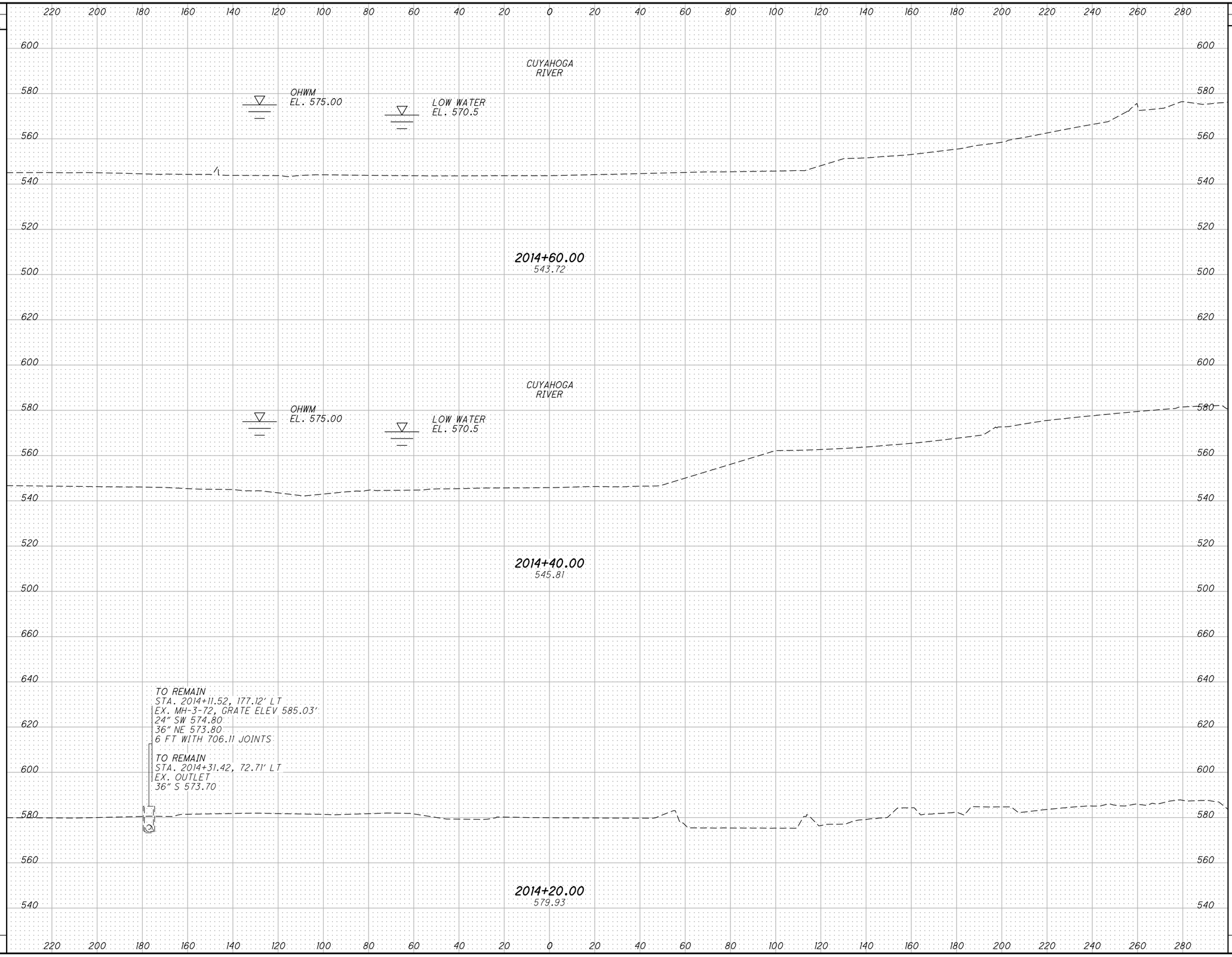
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED CDS

CHECKED RLE



CROSS SECTIONS IR 90 EB
STA. 2014+20.00 TO STA. 2014+60.00

CUY-90-14.90

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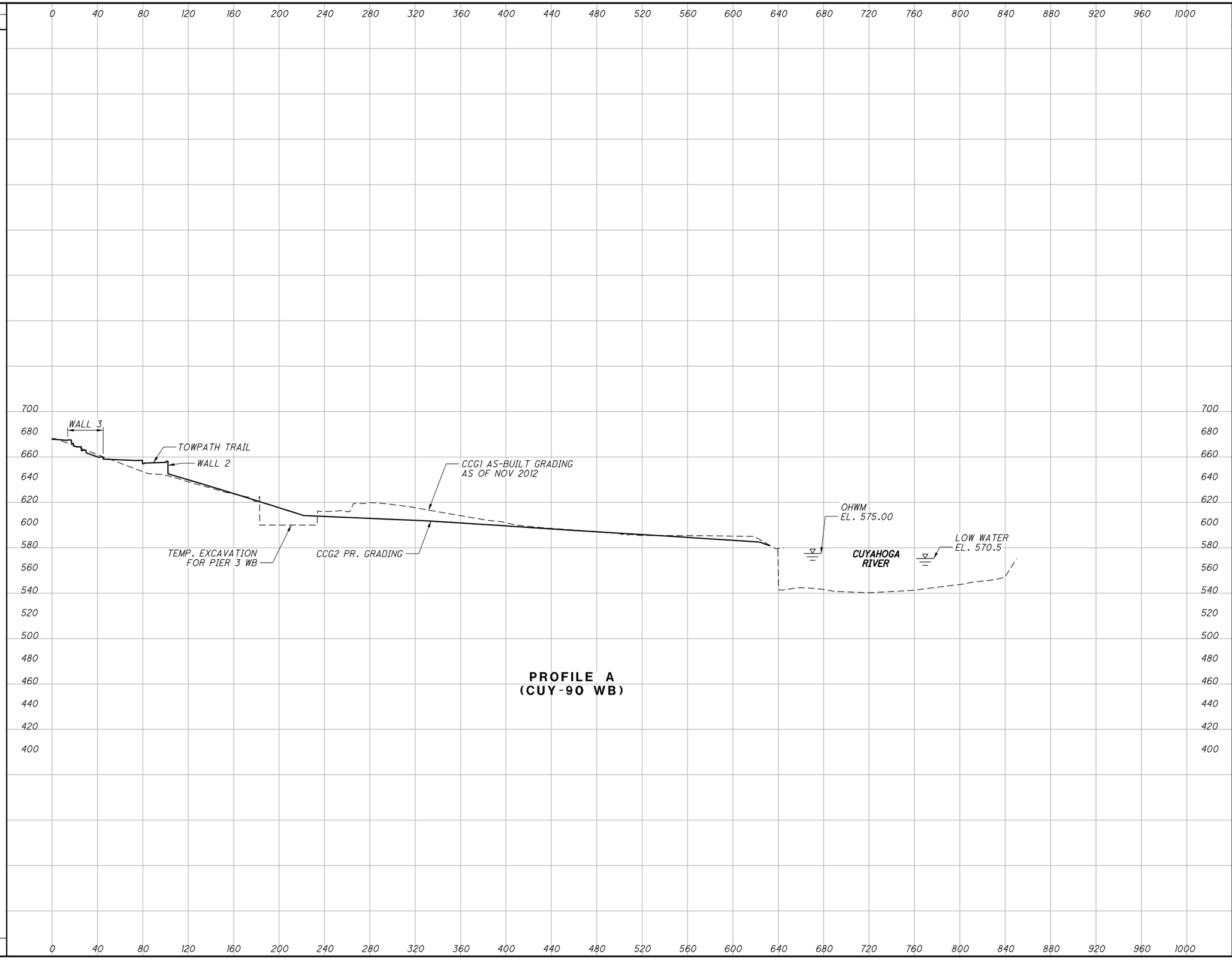
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED	CHECKED
CDS	JN



PROFILE A
(CUY-90 WB)

WEST BANK SLOPE GRADING
PROFILE A FOR STABILITY ANALYSIS

CUY-90-14.90

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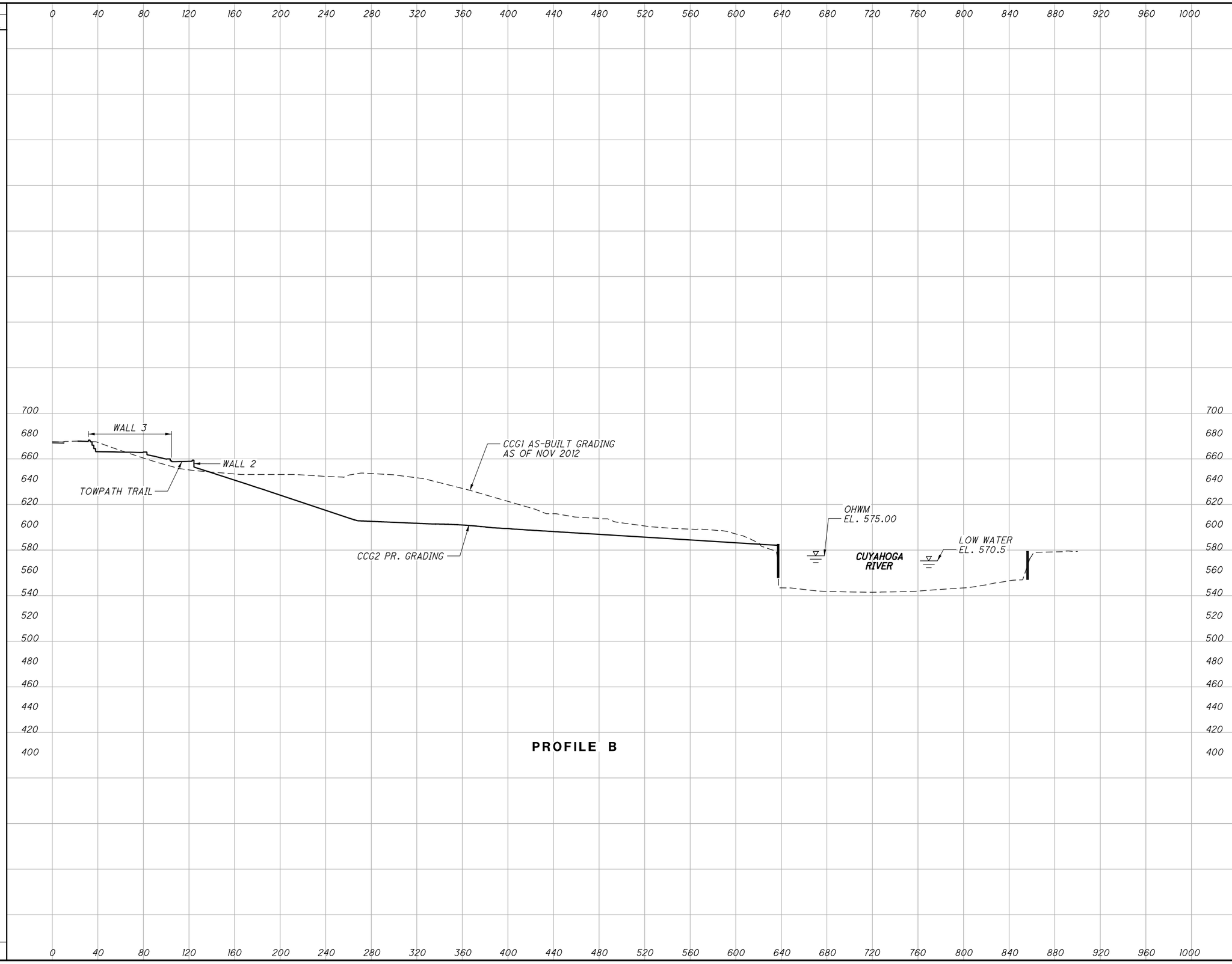
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED CDS
CHECKED JN



PROFILE B

WEST BANK SLOPE GRADING
PROFILE B FOR STABILITY ANALYSIS

CUY-90-14.90

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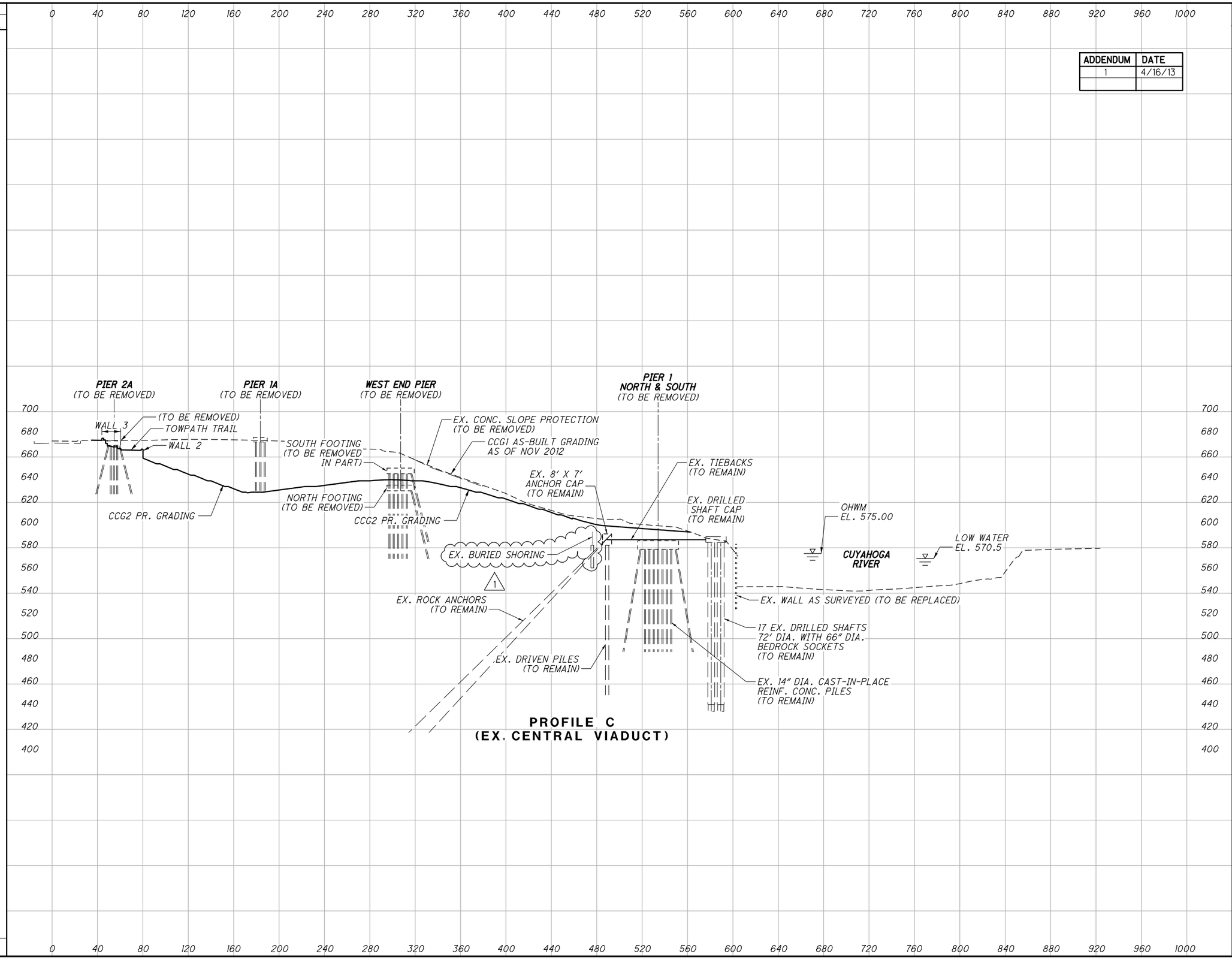
SEEDING	
END WIDTH	SQ. YDS.

ADDENDUM	DATE
1	4/16/13



PROFILE C
(EX. CENTRAL VIADUCT)

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED	CHECKED
CDS	JN

WEST BANK SLOPE GRADING
PROFILE C FOR STABILITY ANALYSIS

CUY-90-14.90

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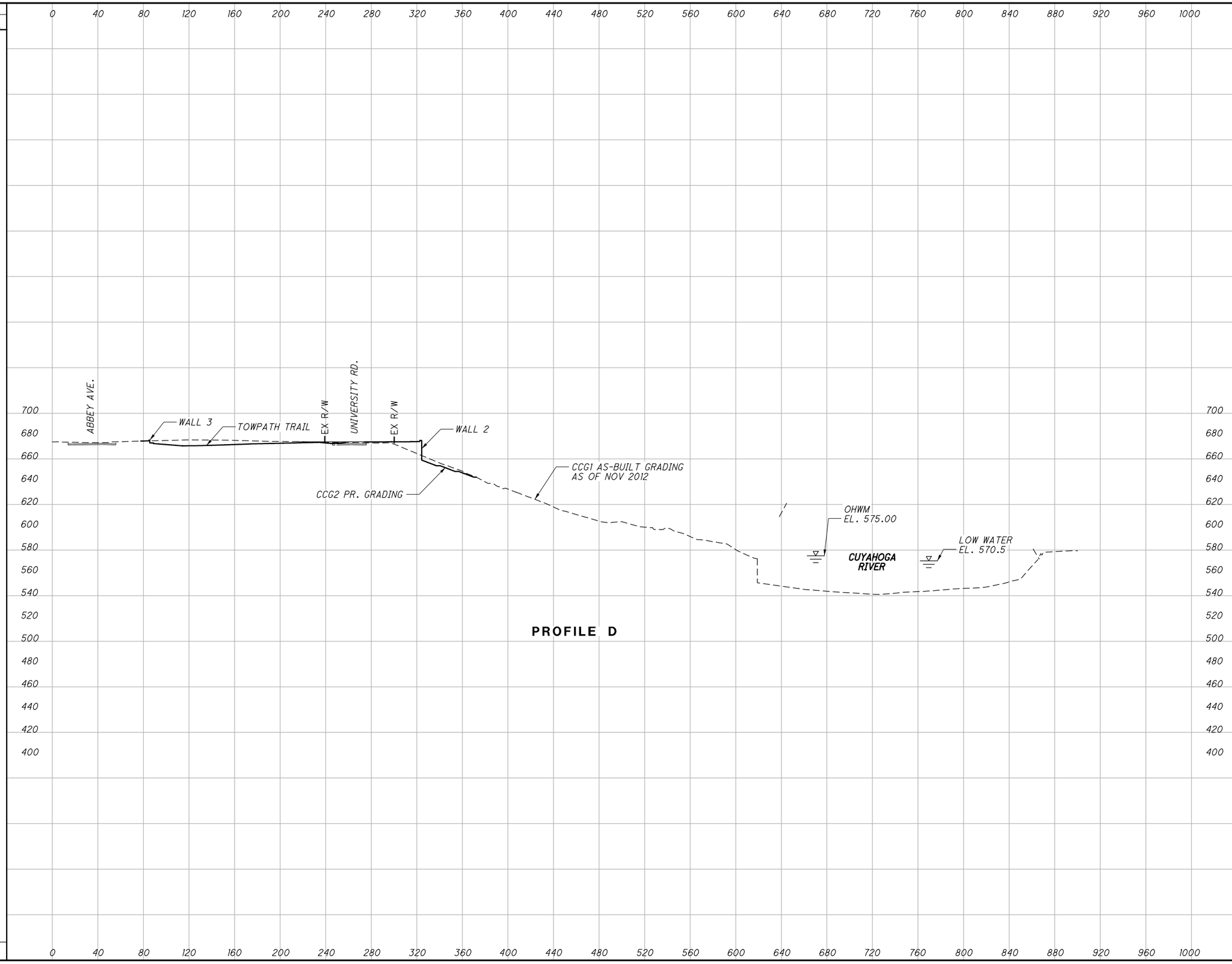
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED	CHECKED
CDS	JN



WEST BANK SLOPE GRADING
PROFILE D FOR STABILITY ANALYSIS

CUY-90-14.90

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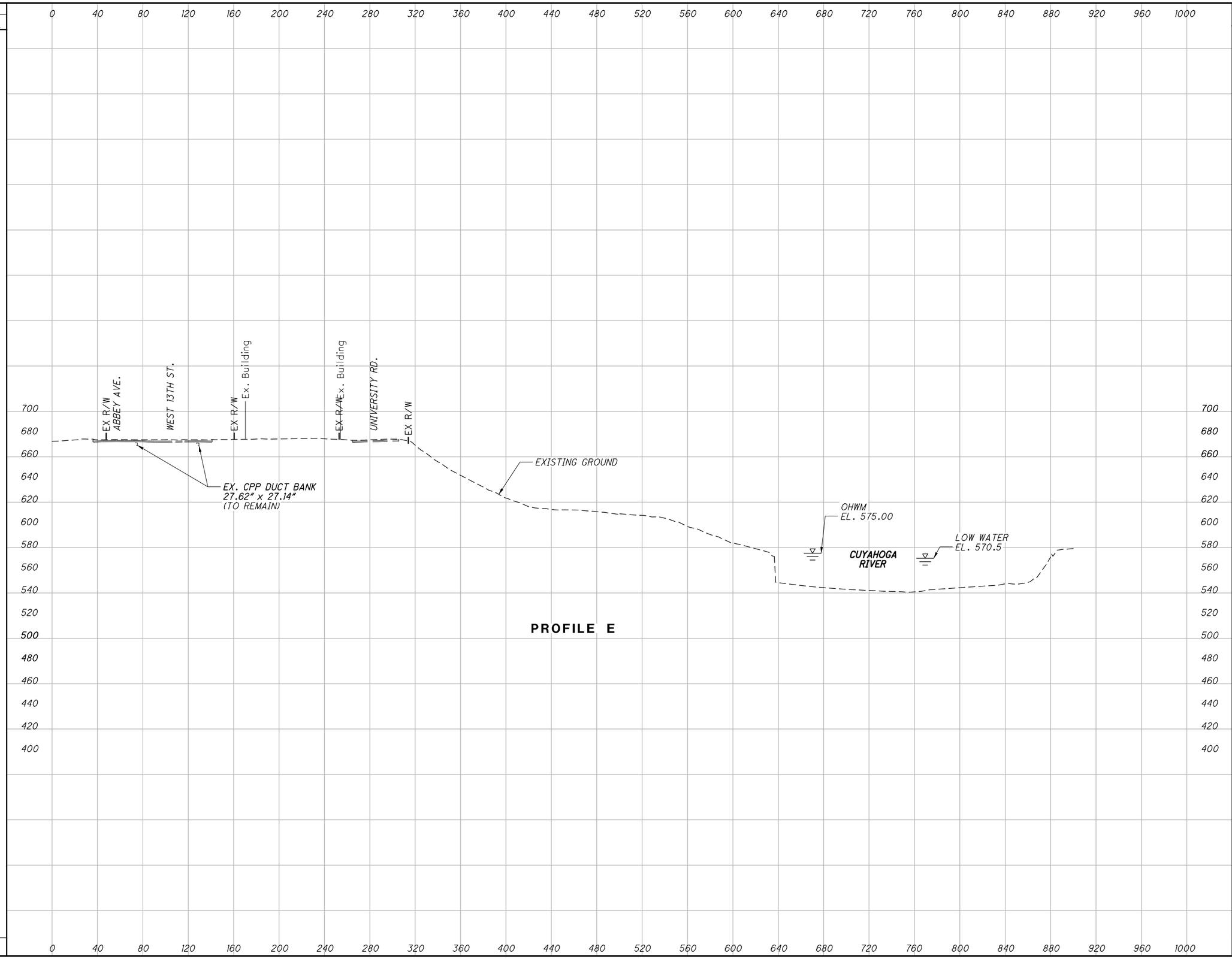
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED	CHECKED
CDS	JN



PROFILE E

WEST BANK SLOPE GRADING
PROFILE E FOR STABILITY ANALYSIS

CUY-90-14.90

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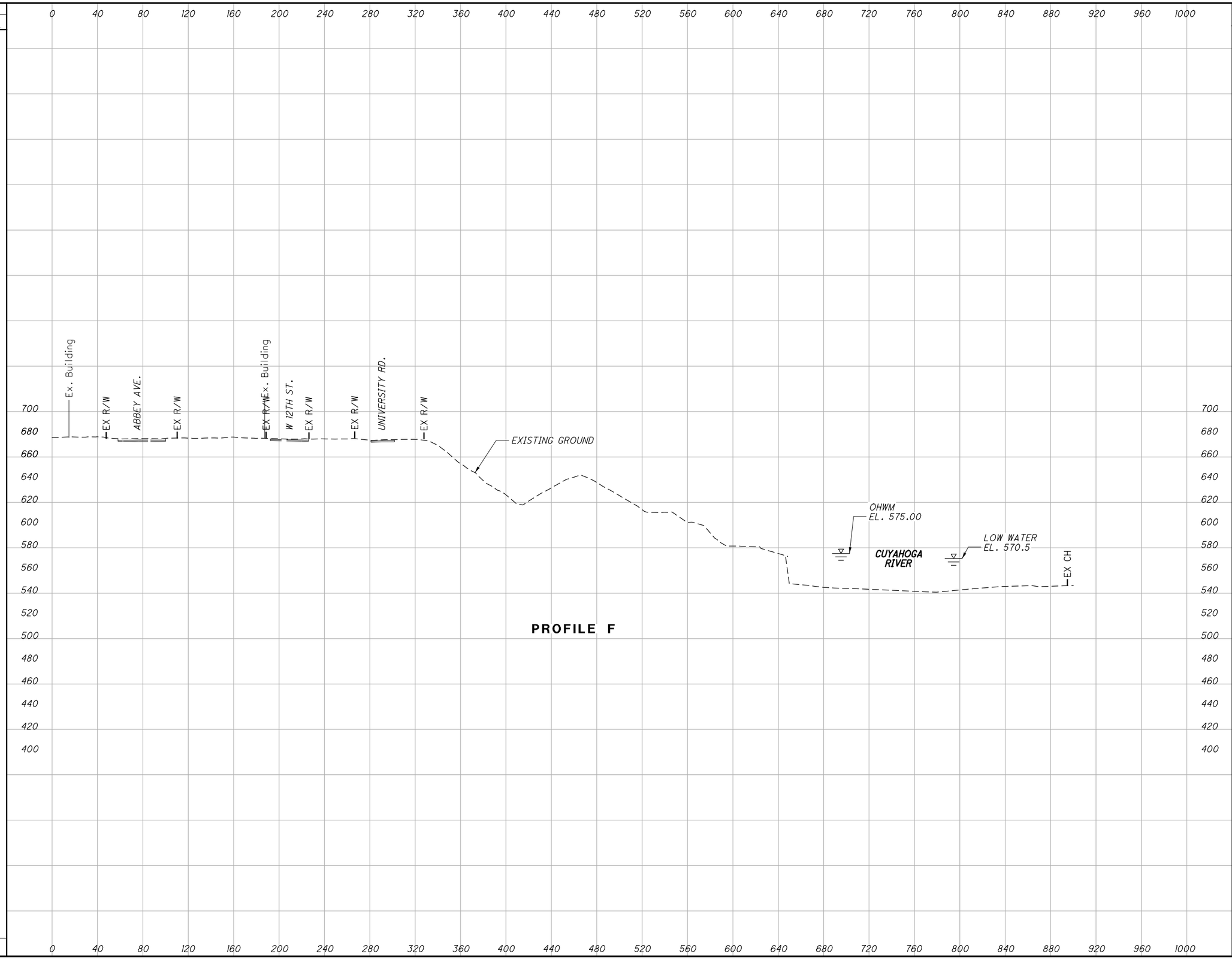
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED	CHECKED
CDS	JN



WEST BANK SLOPE GRADING
PROFILE F FOR STABILITY ANALYSIS

CUY-90-14.90

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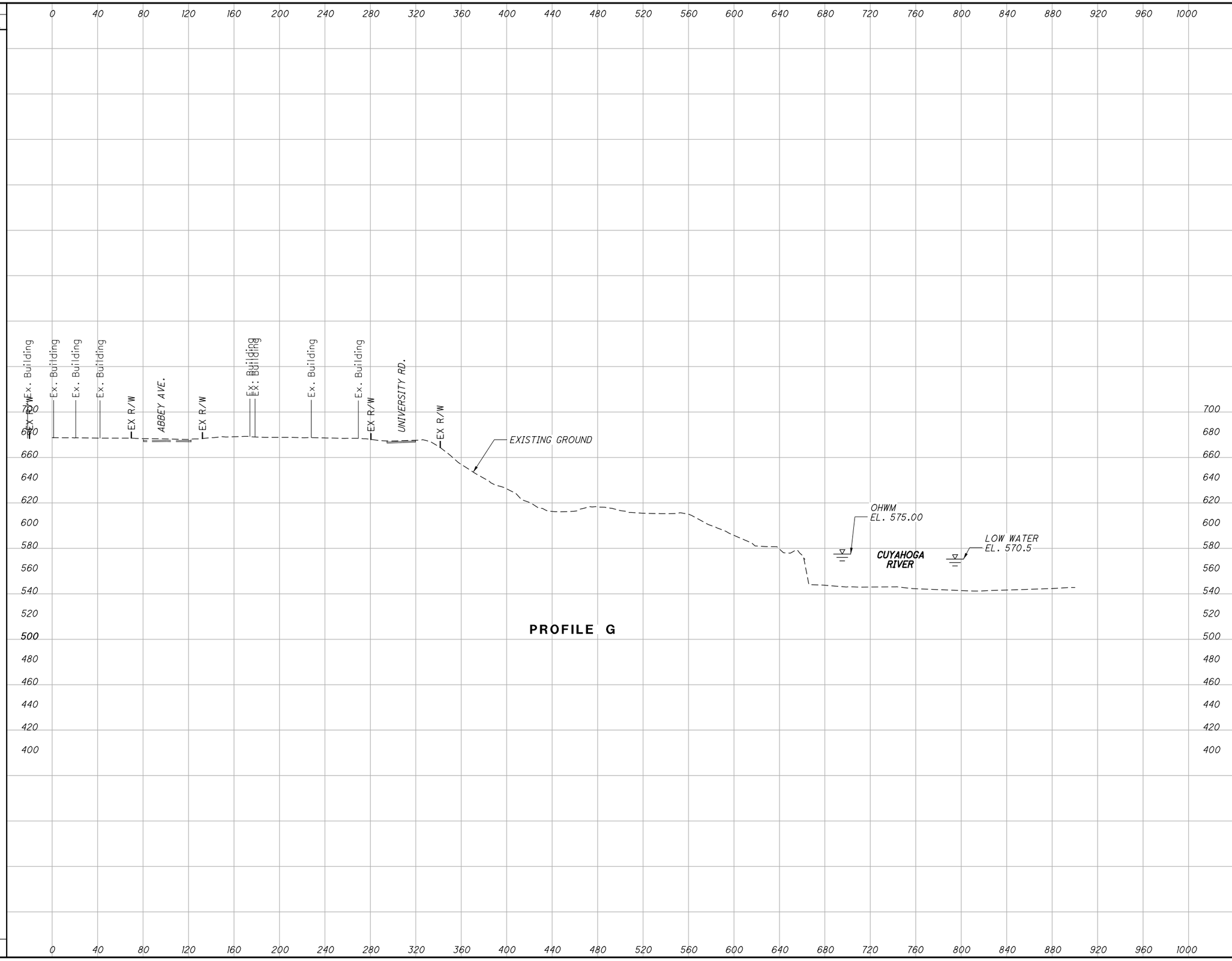
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED CDS
CHECKED JN



WEST BANK SLOPE GRADING
PROFILE G FOR STABILITY ANALYSIS

CUY-90-14.90

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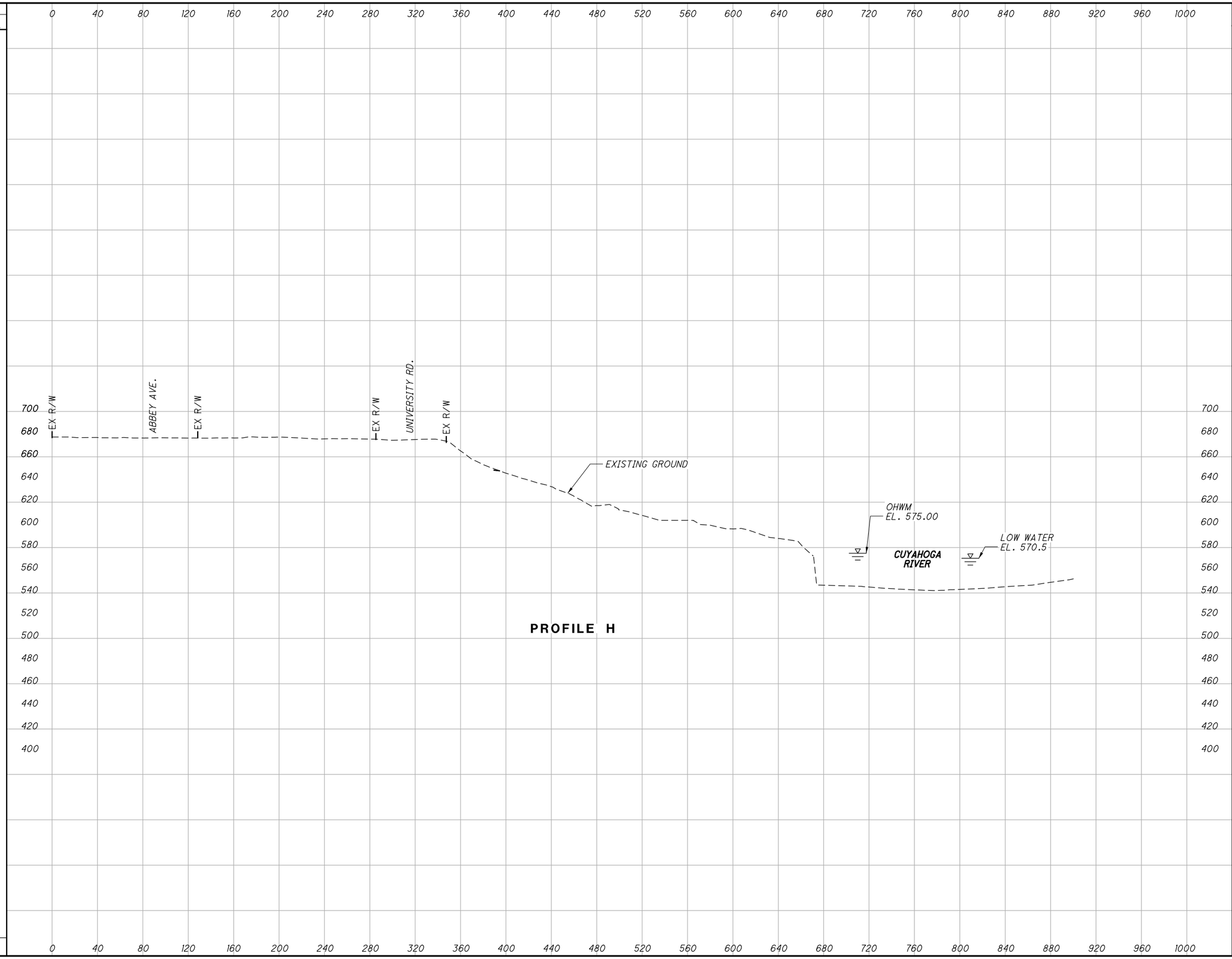
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED CDS
CHECKED JN



WEST BANK SLOPE GRADING
PROFILE H FOR STABILITY ANALYSIS

CUY-90-14.90

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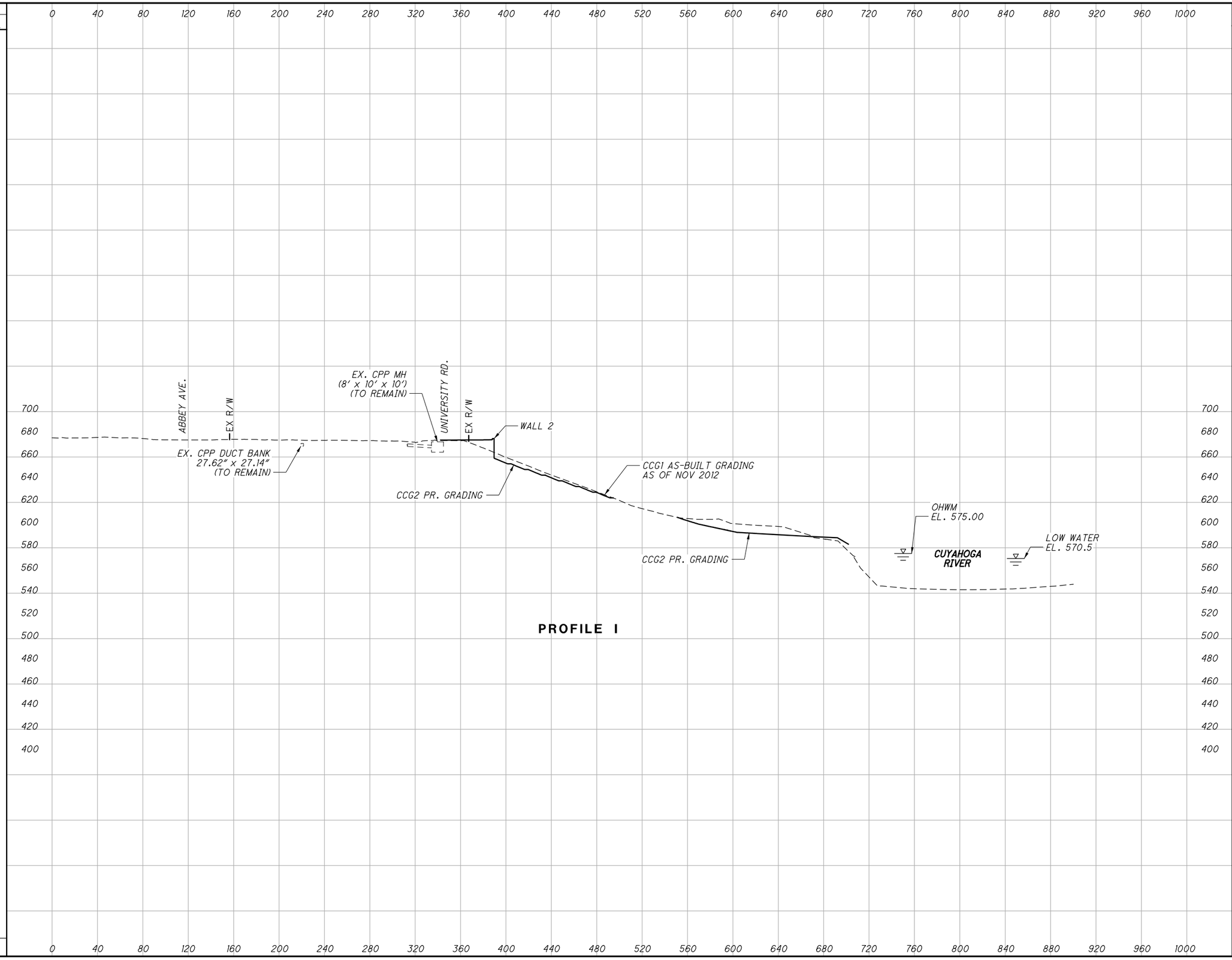
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED CDS
CHECKED JN



PROFILE I

WEST BANK SLOPE GRADING
PROFILE I FOR STABILITY ANALYSIS

CUY-90-14.90

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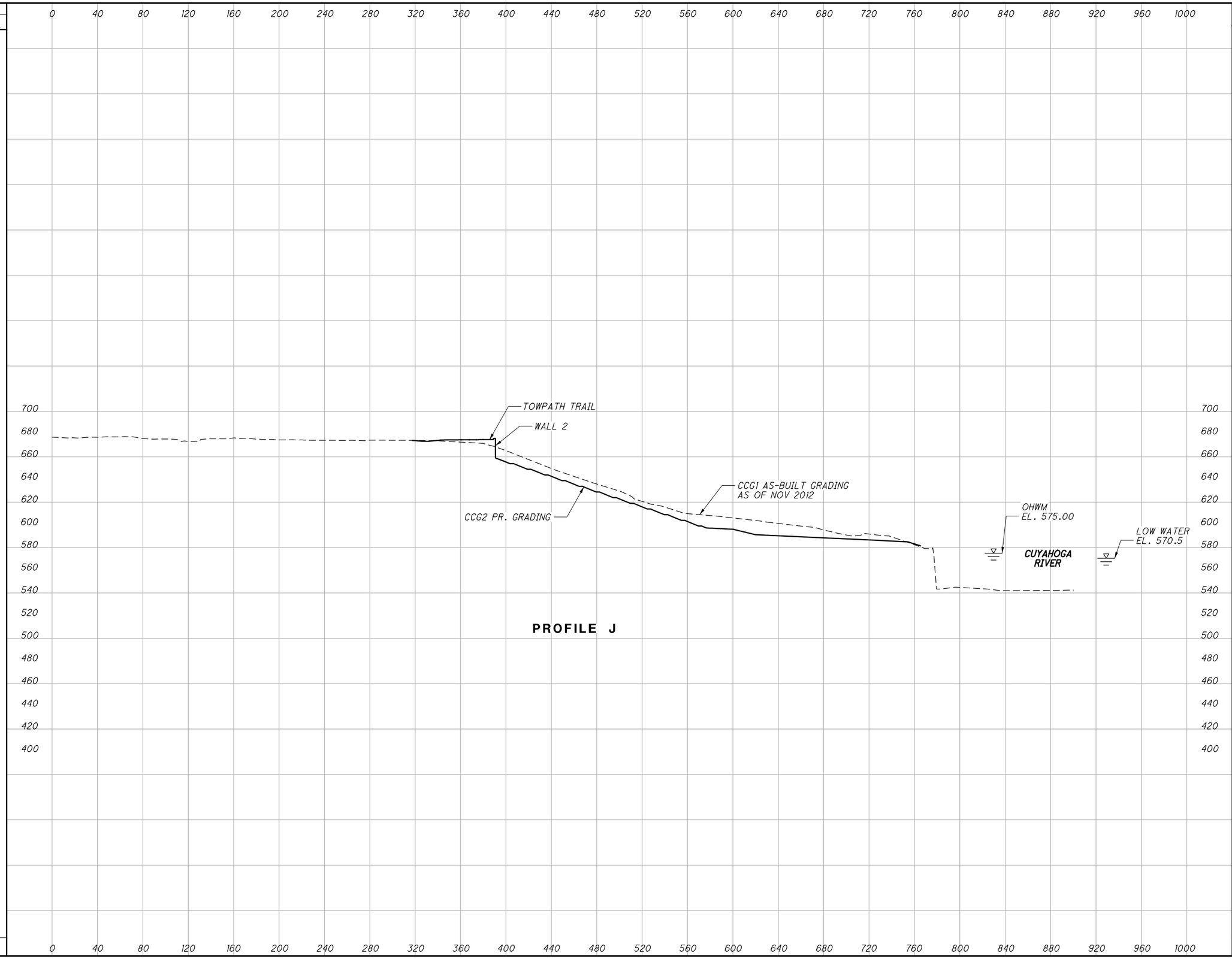
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED	CHECKED
CDS	JN



WEST BANK SLOPE GRADING
PROFILE J FOR STABILITY ANALYSIS

CUY-90-14.90

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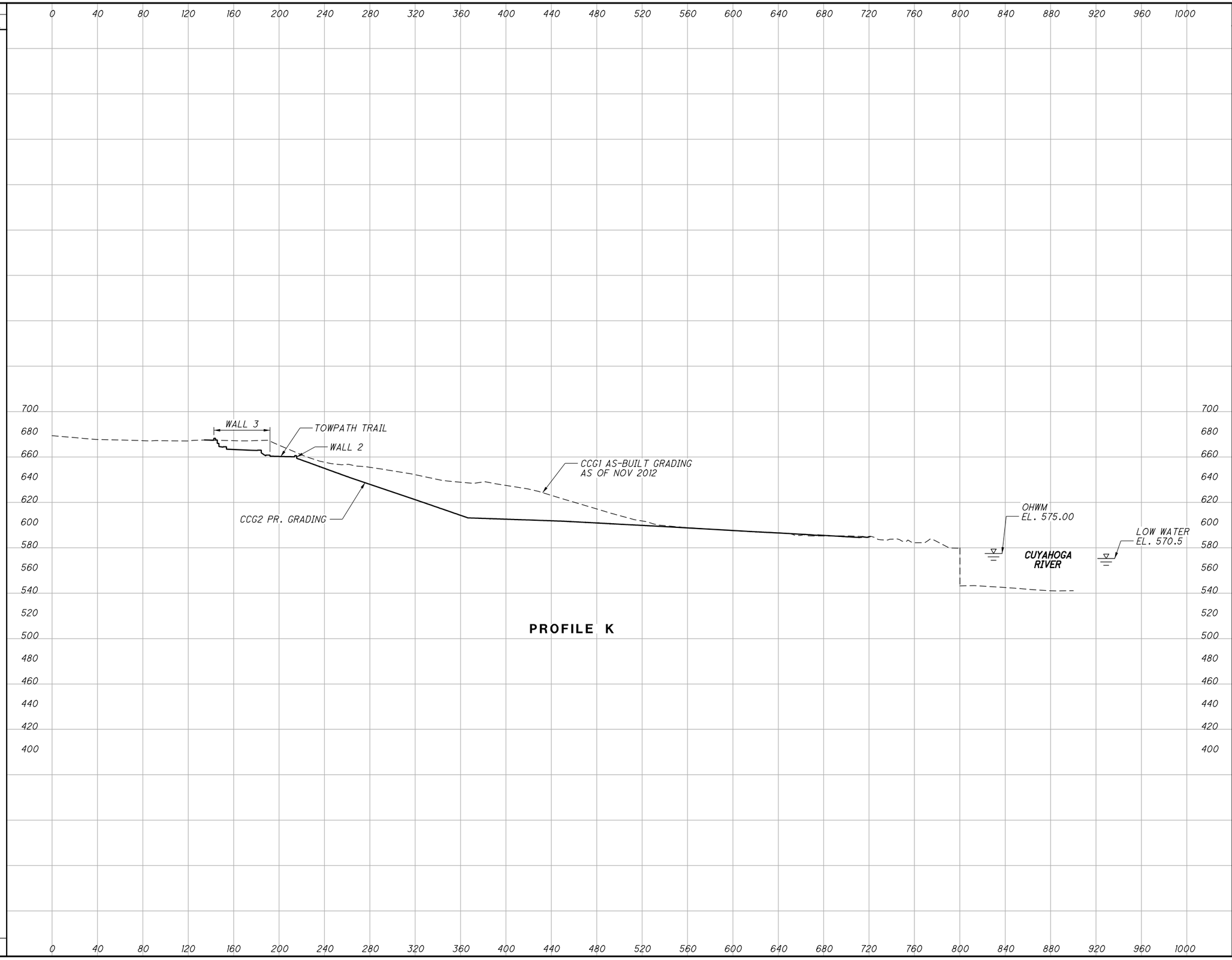
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED	CHECKED
CDS	JN



WEST BANK SLOPE GRADING
PROFILE K FOR STABILITY ANALYSIS

CUY-90-14.90

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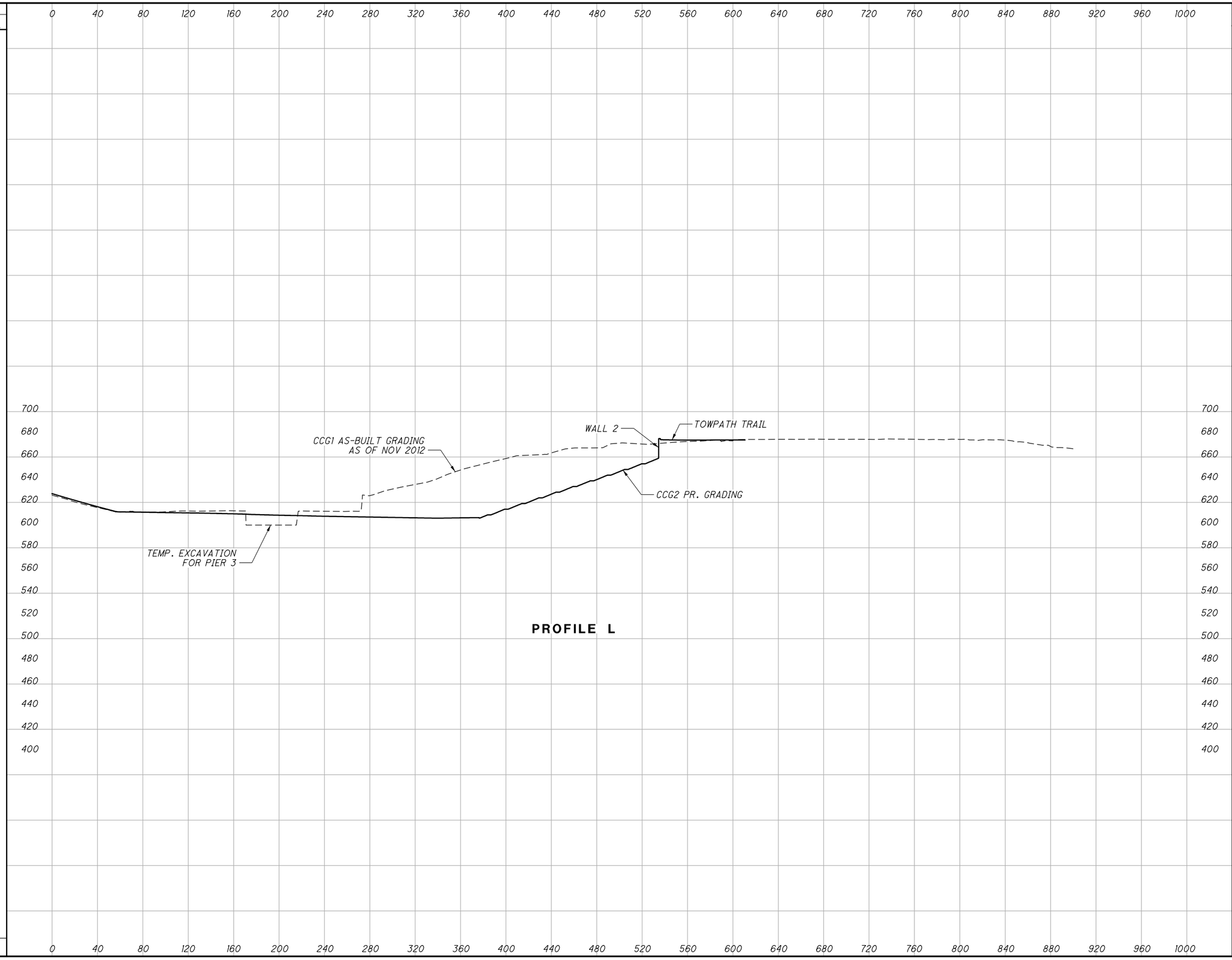
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED	CHECKED
CDS	JN



WEST BANK SLOPE GRADING
PROFILE L FOR STABILITY ANALYSIS

CUY-90-14.90

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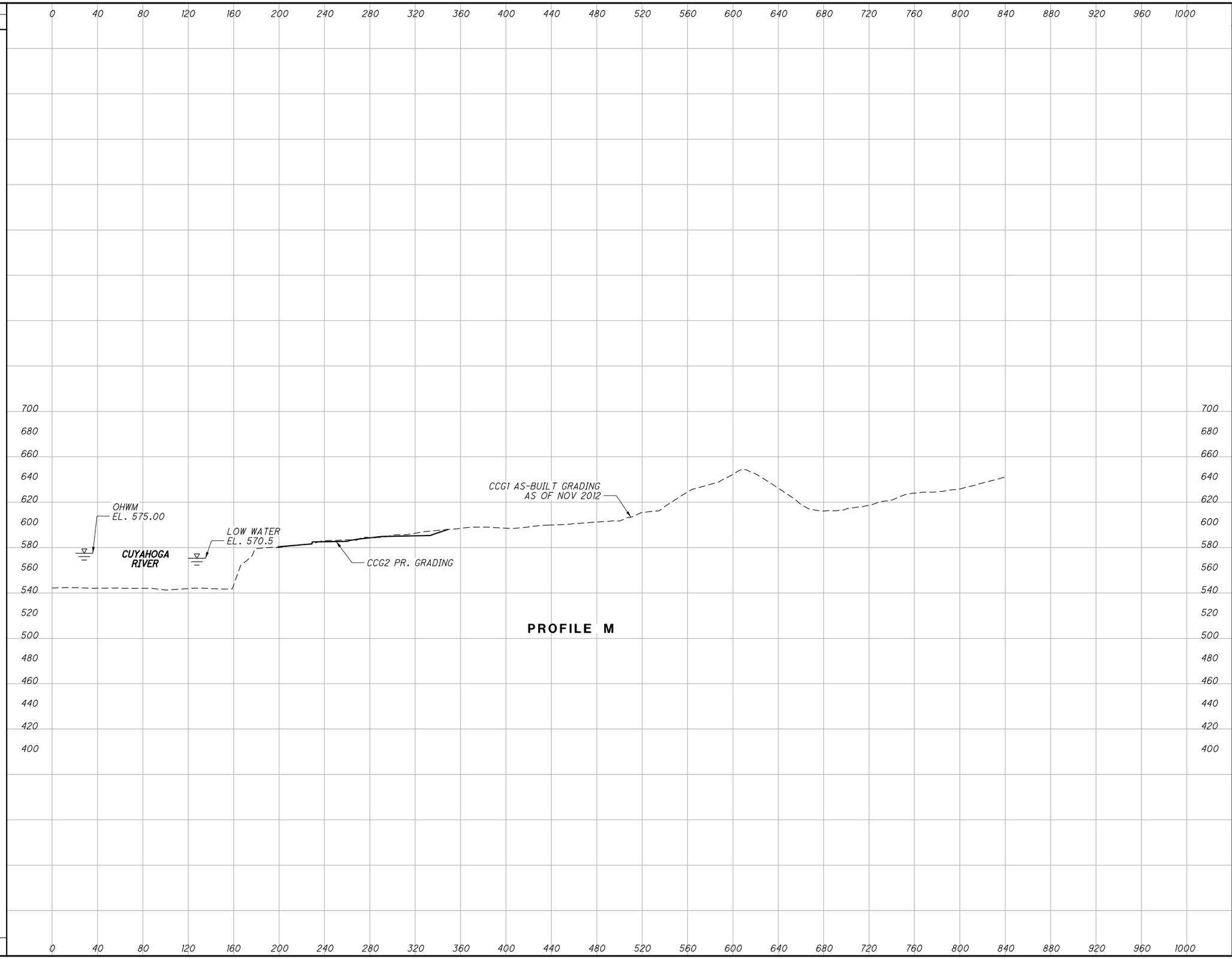
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED CDS

CHECKED JN



PROFILE M

WEST BANK SLOPE GRADING
PROFILE M FOR STABILITY ANALYSIS

CUY-90-14.90

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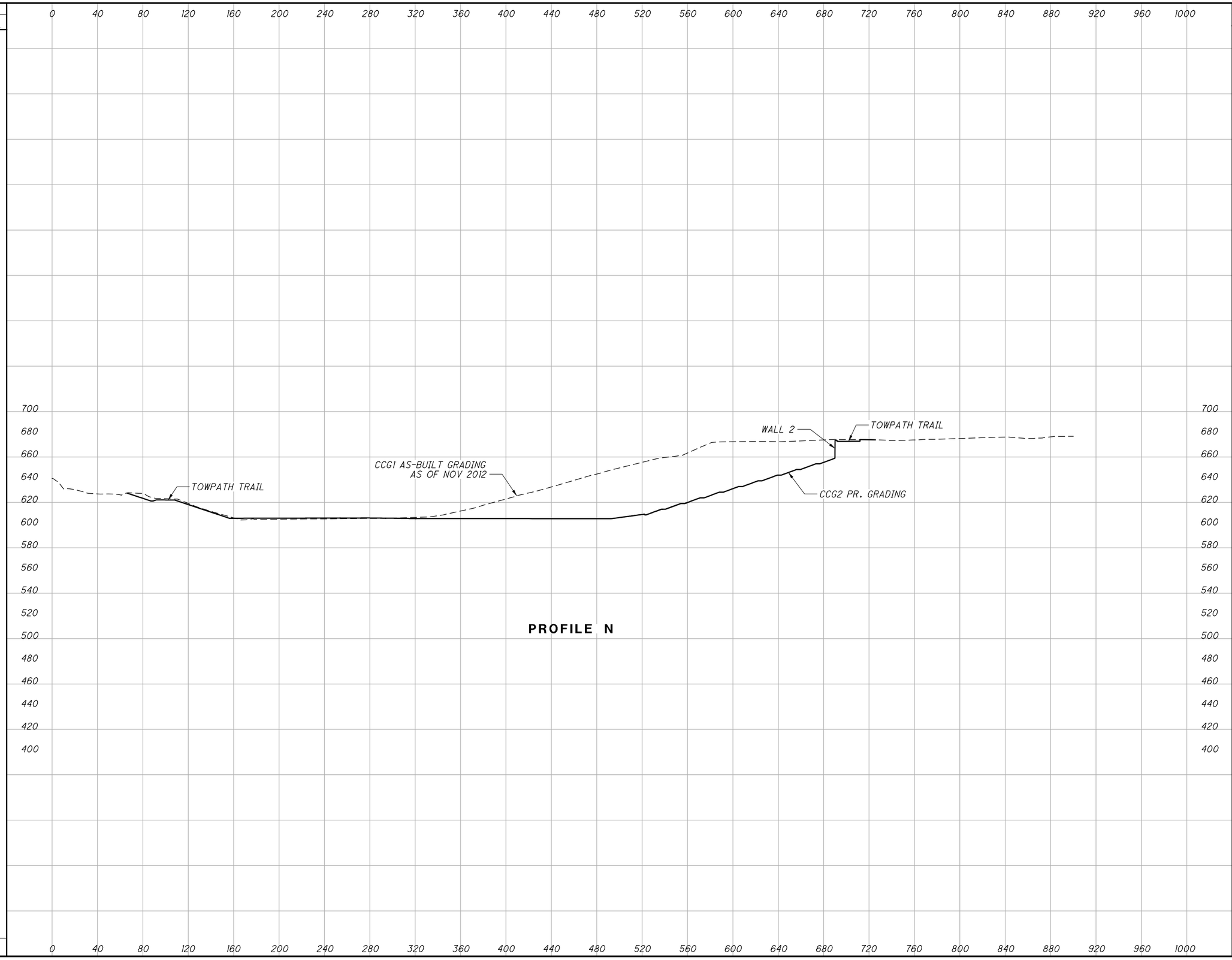
SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED	CHECKED
CDS	JN



WEST BANK SLOPE GRADING
PROFILE N FOR STABILITY ANALYSIS

CUY-90-14.90

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NOTE: EXISTING CONTOURS FROM NOV 2012 SURVEY.

LEGEND

- PR. TRENCH DRAIN
- EX. TRENCH DRAIN
- EX. SLOPE PROTECTION

ADDENDUM	DATE
1	4/16/13

HORIZONTAL SCALE IN FEET: 0, 25, 50, 100

CALCULATED CDS | CHECKED RLE

PROPOSED DRAINAGE & GAS RELIEF PLAN
CUYAHOGA RIVER WEST BANK

CUY-90-14.90

58
93

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GAS RELIEF DUCTS				
ID	STATION (I.R. 90 EB)	OFFSET	SIDE	GROUND ELEV.
1	2013+08.60	33.22	RT	591.16
2	2012+58.48	31.12	RT	594.24
3	2012+08.38	28.76	RT	599.16
4	2013+40.13	196.14	RT	600.23
5	2012+89.15	194.2	RT	608.06
6	2013+38.28	246.11	RT	601.88
7	2012+87.02	244.16	RT	601.28
8	2013+20.54	77.89	RT	594.20
9	2013+23.58	168.15	RT	603.84

ADDENDUM	DATE
1	4/16/13

LEGEND

- PR. TRENCH DRAIN
- EX. TRENCH DRAIN
- EX. SLOPE PROTECTION

N-S RAILROAD (ELEVATED TRACK)
CCGI VERTICAL GAS RELIEF DUCT (TYP.)
WB PIER 4
℄ R/W IR 90
℄ CONSTRUCTION WB IR 90
℄ CONSTRUCTION EB IR 90
CUYAHOGA RIVER
EX. PIER 1 NORTH
EX. ANCHOR CAP
EX. BURIED SHORING
EX. PIER 1 SOUTH
EX. DOCK WALL
EX. DRILLED SHAFT CAP
UNIVERSITY RD.
PRC Sta. 300+00.00
CS Sta. 302+22.92
SC Sta. 303+22.92
℄ ACCESS DRIVE
PR. VERTICAL GAS RELIEF DUCT (TYP.)
PT Sta. 312+87.38
PC Sta. 313+42.06
PR. VERTICAL GAS RELIEF DUCT (TYP.)
PR. LATERAL DRAIN (TYP.)
PR. TRENCH DRAINS
264.75' RT.
EX. WEST END PIER NORTH
EX. WEST END PIER SOUTH
EX. 6" GAS
PR. WALL 2
POT Sta. 313+75.00
PR. 12" DRAINS
WB PIER 3
EX. DRAINAGE BLANKETS
℄ TOWPATH TRAIL
PR. LOWER TRENCH DRAIN
PR. CB-6; DEVELOPER TO DESIGN OUTLET
PR. UPPER TRENCH DRAIN
PR. WALL 3
PR. LATERAL DRAIN (TYP.)
PC Sta. 312+78.85
PT Sta. 311+78.30
PIER 1A
PR. 6" DRAINS
PR. 12" DRAINS
PR. LATERAL DRAIN (TYP.)
PRC Sta. 307+59.63
EX. PIER 2A
ABBEY AVE.
WEST 15TH ST.
WEST 13TH ST.
WEST 12TH ST.
WEST 11TH ST.
N 0° 8' 41" E

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED CDS
CHECKED RLE

PROPOSED DRAINAGE & GAS RELIEF DETAIL
CUYAHOGA RIVER WEST BANK

CUY-90-14.90

SEEDING	
END WIDTH	SQ. YDS.

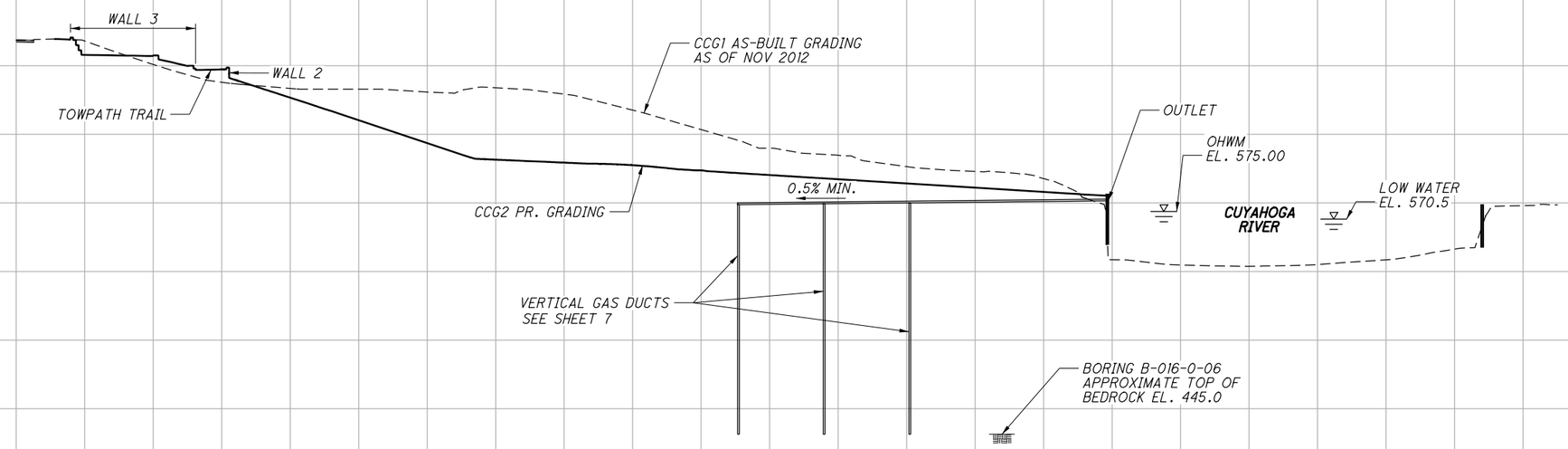
END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED	CHECKED
CDS	RLE

0 40 80 120 160 200 240 280 320 360 400 440 480 520 560 600 640 680 720 760 800 840 880 920 960 1000

700 680 660 640 620 600 580 560 540 520 500 480 460 440 420 400



GAS DUCT PROFILE
WEST BANK SLOPE GRADING

CUY-90-14.90

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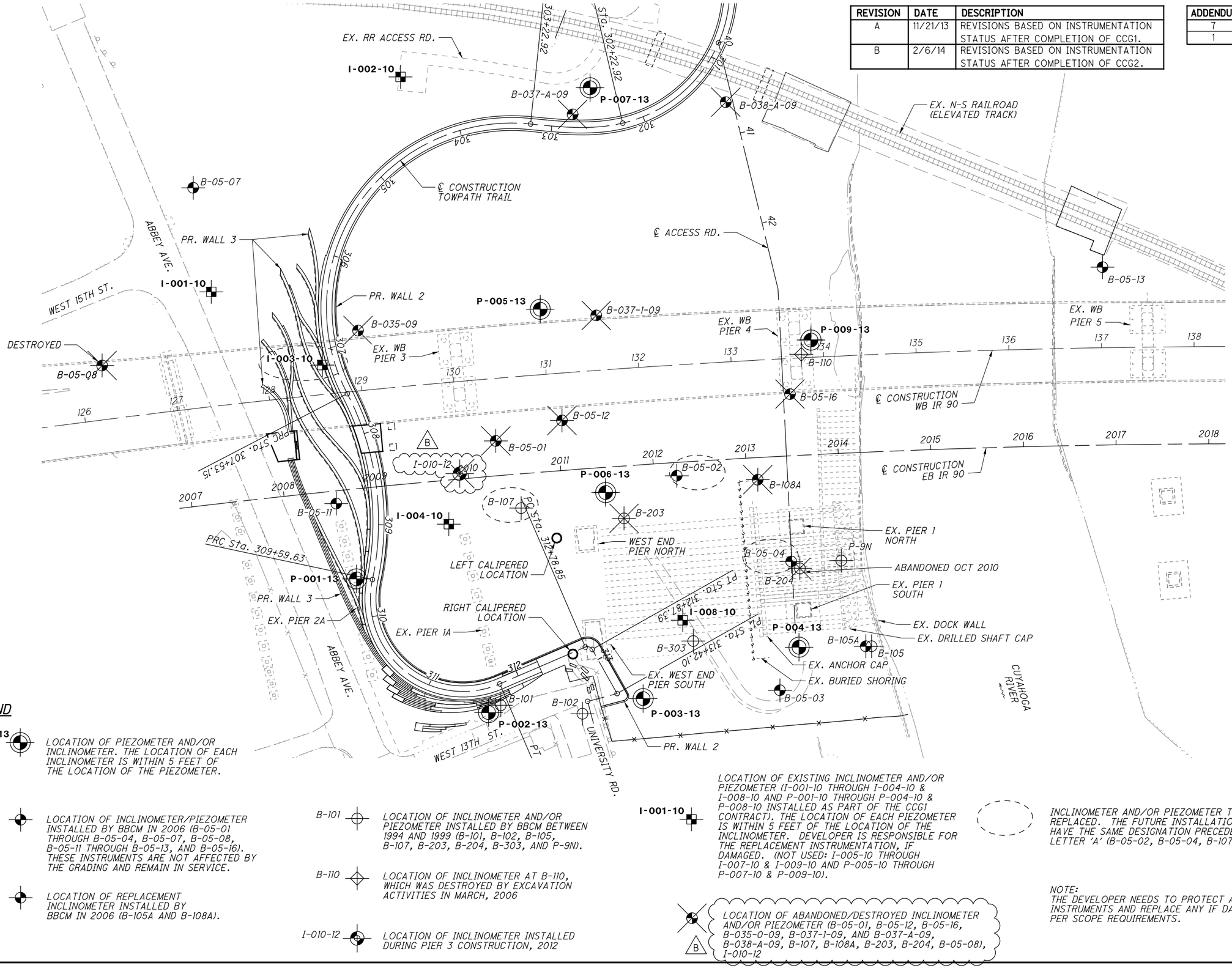
REVISION	DATE	DESCRIPTION
A	11/21/13	REVISIONS BASED ON INSTRUMENTATION STATUS AFTER COMPLETION OF CCG1.
B	2/6/14	REVISIONS BASED ON INSTRUMENTATION STATUS AFTER COMPLETION OF CCG2.

ADDENDUM	DATE
7	8/2/13
1	4/16/13



LEGEND

P-001-13 — LOCATION OF PIEZOMETER AND/OR INCLINOMETER. THE LOCATION OF EACH INCLINOMETER IS WITHIN 5 FEET OF THE LOCATION OF THE PIEZOMETER.

B-05-01 — LOCATION OF INCLINOMETER/PIEZOMETER INSTALLED BY BBCM IN 2006 (B-05-01 THROUGH B-05-04, B-05-07, B-05-08, B-05-11 THROUGH B-05-13, AND B-05-16). THESE INSTRUMENTS ARE NOT AFFECTED BY THE GRADING AND REMAIN IN SERVICE.

B-105A — LOCATION OF REPLACEMENT INCLINOMETER INSTALLED BY BBCM IN 2006 (B-105A AND B-108A).

B-101 — LOCATION OF INCLINOMETER AND/OR PIEZOMETER INSTALLED BY BBCM BETWEEN 1994 AND 1999 (B-101, B-102, B-105, B-107, B-203, B-204, B-303, AND P-9N).

B-110 — LOCATION OF INCLINOMETER AT B-110, WHICH WAS DESTROYED BY EXCAVATION ACTIVITIES IN MARCH, 2006

I-010-12 — LOCATION OF INCLINOMETER INSTALLED DURING PIER 3 CONSTRUCTION, 2012

I-001-10 — LOCATION OF EXISTING INCLINOMETER AND/OR PIEZOMETER (I-001-10 THROUGH I-004-10 & I-008-10 AND P-001-10 THROUGH P-004-10 & P-008-10 INSTALLED AS PART OF THE CCG1 CONTRACT). THE LOCATION OF EACH PIEZOMETER IS WITHIN 5 FEET OF THE LOCATION OF THE INCLINOMETER. DEVELOPER IS RESPONSIBLE FOR THE REPLACEMENT INSTRUMENTATION, IF DAMAGED. (NOT USED: I-005-10 THROUGH I-007-10 & I-009-10 AND P-005-10 THROUGH P-007-10 & P-009-10).

B — LOCATION OF ABANDONED/DESTROYED INCLINOMETER AND/OR PIEZOMETER (B-05-01, B-05-12, B-05-16, B-035-0-09, B-037-1-09, AND B-037-A-09, B-038-A-09, B-107, B-108A, B-203, B-204, B-05-08), I-010-12

INCLINOMETER AND/OR PIEZOMETER TO BE REPLACED. THE FUTURE INSTALLATION WILL HAVE THE SAME DESIGNATION PRECEDED BY LETTER 'A' (B-05-02, B-05-04, B-107, I-003-10)

NOTE:
THE DEVELOPER NEEDS TO PROTECT ALL THE INSTRUMENTS AND REPLACE ANY IF DAMAGED, PER SCOPE REQUIREMENTS.

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CDS CHECKED JN

INSTRUMENTATION PLAN
CUYAHOGA RIVER WEST BANK

CUY-90-14.90

1 / 4

61 / 93

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CCG2 - WEST BANK INSTRUMENTATION SUMMARY

IDENTIFICATION NUMBER	ACTIVE INCLINOMETER ?	INCLINOMETER DEPTH (FT)	ACTIVE PIEZOMETER?	VW OR PNEUMATIC?	# OF ACTIVE PIEZOMETERS	PIEZOMETER DEPTH(S) BELOW ORIGINAL EXISTING G.S. (FT)	INSTRUMENTATION INSTALLATION DATE	PRE-CCG1 EXIST. G.S. ELEVATION (FT)	ELEV. CHANGE DUE TO CCG1 (FT)	CCG1 PROP. / CCG2 EXIST. G.S. ELEVATION (FT)	ELEV. CHANGE DUE TO CCG2 (FT)	CCG2 PROP. G.S. ELEVATION (FT)	DISPOSITION
B-101 4	Y	190	Y	PNEUMATIC 1	2 1	50.3, 124.3	AUG-SEP 1994	676.6 (676.6) 3	-1.39	675.21	0.00	675.21	TO REMAIN IN SERVICE
B-102	Y	224	N	----	----	----	SEP-94	675.7	-0.64	675.06	0.04	675.10	ABANDONED
B-105	N	----	Y	PNEUMATIC 1	2 1	88, 105.7	AUG-94	585.4 (585.6) 3	-5.96	579.44	0	579.44	TO REMAIN IN SERVICE
B-105A	Y	156	N	----	----	----	MAY-06	585.7	-3.52	582.18	0	582.18	TO REMAIN IN SERVICE
B-107 6	N	210	N	PNEUMATIC 1	1 2	100	SEP-94	662.7 (662.3) 3	-8.84	653.86	-45.9	607.96	REPLACE
B-108A 6	N	168	N	----	----	----	APR-MAY 2006	603	-1.77	601.23	-10.23	591.00	REMOVE FROM SERVICE
B-203 6	Y	190	N	----	----	----	AUG-96	638	-0.71	637.29	-23.34	613.95	REMOVE FROM SERVICE; MAY HAVE BEEN DAMAGED BY CCG1
B-204 4	N	134	N	----	----	----	JUL-98	599	0.4	599.40	-3.65	595.75	REMOVE FROM SERVICE, DAMAGED
B-303 5	N	178	Y	PNEUMATIC 1	1 2	40.8	AUG 1994, JUL 1998	622.0 (627.0) 3	5.52	627.52	0	627.52	
P-9N	Y	148	N	----	----	----	FEB-99	588	0.02	588.02	0	588.02	TO REMAIN IN SERVICE
B-05-01 6	N	228	Y	VW	2	65, 95	APR-MAY 2006	675.4	-34.4	641	-33.26	607.74	REMOVE FROM SERVICE
B-05-02 6	Y	168	Y	VW	2	46, 122		617.9	-6.22	611.68	-15.29	596.39	REPLACE
B-05-03	Y	168	Y	VW	2	32, 112	APR-MAY 2006	605.1	-0.76	604.34	0	604.34	TO REMAIN IN SERVICE
B-05-04 4	Y	172	Y	VW	2	59, 119	MAR-MAY 2006	600.8	-0.72	600.08	-6.38	593.7	REPLACE, IF DAMAGED DURING CCG2
B-05-07	Y	224	Y	VW	2	102, 220	APR-JUN 2006	678.9	0.58	679.48	0	679.48	TO REMAIN IN SERVICE
B-05-08	N	224	N	VW	2	65.5, 110.5	APR-MAY 2006	679.9	-2.32	677.58	0	677.58	TO REMAIN IN SERVICE; MAY HAVE BEEN DAMAGED BY CCG1
B-05-11 4	Y	216	Y	VW	2	95, 130	APR-JUN 2006	675.1	-8.04	667.06	-1.09	665.97	TO REMAIN IN SERVICE
B-05-12 6	N	210	Y	VW	2	75, 120	APR-MAY 2006	652.7	-27.37	625.33	-21.26	604.07	REMOVE FROM SERVICE
B-05-13	Y	134	Y	VW	2	60, 135	MAY-JUN 2006	580	-0.33	579.67	----	----	TO REMAIN IN SERVICE; IN EAST BANK
B-05-16 7	N	162	N	----	----	----	JUN-06	598.5	----	----	----	----	ABANDONED, CCG1
B-035-0-09 7	----	----	N	VW	2	100, 230	JUL-09	674.6	----	----	----	----	ABANDONED, CCG1
B-037-1-09 7	----	----	N	VW	2	70, 185	AUG-09	645.5	----	----	----	----	ABANDONED, CCG1
B-037-A-09 7	----	----	N	VW	1	19	SEP-09	631.5	----	----	----	----	ABANDONED, CCG1
B-038-A-09 7	----	----	N	VW	1	25	OCT-09	614	----	----	----	----	ABANDONED, CCG1
I-001-10	Y	222					A	677.2	0.11	677.31	0.05	677.36	TO REMAIN IN SERVICE
P-001-10			Y	VW	2	60, 120	A	677.2	-0.15	677.05	0.31	677.36	TO REMAIN IN SERVICE
I-002-10	Y	200					A	642.55	1.45	644.00	0	644	TO REMAIN IN SERVICE
P-002-10			Y	VW	2	100, 220	A	642.55	1.45	644.00	0	644	TO REMAIN IN SERVICE
I-003-10 4	Y	200					B	674.68	-24.59	650.09	3.64	653.73	REPLACE
P-003-10 4			Y	VW	7	47, 55, 65, 75, 95, 125, 217	B	674.68	-26.95	647.73	6	653.73	REPLACE
I-004-10 6	Y	224					A	674.34	0.22	674.56	-39.11	635.45	REMOVE FROM SERVICE
P-004-10 6			Y	VW	2	90, 135	A	674.34	0.22	674.56	-39.11	635.45	REMOVE FROM SERVICE
I-008-10 4	Y	180					A	623.15	9.15	632.30	-3.36	628.94	TO REMAIN IN SERVICE
P-008-10 4			Y	VW	2	45, 170	A	623.15	9.15	632.30	-3.36	628.94	TO REMAIN IN SERVICE
I-010-12	Y	84	N	----	----	----	JUN 2012	674.76	-20.14	654.62	-29.54	625.08	(B) REMOVE FROM SERVICE

G.S. = GROUND SURFACE ELEVATION

ADDENDUM	DATE
7	8/2/13
6	7/22/13

NOTES

1 BBCM INSTALLED PNEUMATIC PIEZOMETERS AT THE LOCATIONS OF THE P BORINGS IN 1994. HOWEVER, THESE PIEZOMETERS WERE EVENTUALLY RENAMED TO THE NEAREST INCLINOMETERS (I.E. P-1 TO B-101, P-3 TO B-105, AND P-5 TO B-107).

2 THE PNEUMATIC WAS ACTUALLY INSTALLED IN AUGUST 1994 AT BORING P-2 IN THE VICINITY OF THE B-103 INCLINOMETER (NOW INACTIVE). HOWEVER, THE PIEZOMETER HAS SINCE BEEN RENAMED TO B-303 DUE TO ITS CLOSE PROXIMITY TO THE ACTIVE INCLINOMETER AT B-303, WHICH WAS INSTALLED IN JULY 1998.

3 ELEVATION IN PARENTHESES IS THE ELEVATION OF THE P BORING LOCATION WHERE THE PNEUMATIC PIEZOMETER WAS INSTALLED.

4 MAY BECOME DAMAGED DURING CCG2 WEST SLOPE GRADING.

5 PRIOR TO CCG1 VERY HIGH MOVEMENT AT THE SHEAR PLANE (CLOSE TO SHEARING OFF), RECOMMENDED REPLACEMENT.

6 WILL BE DAMAGED BY PROPOSED CCG2 WEST SLOPE GRADING.

7 PREVIOUSLY ABANDONED / REMOVED FROM SERVICE.

A WAS TO BE INSTALLED PRIOR TO START OF CCG1 EXCAVATION.

B WAS TO BE INSTALLED WHEN THE 3 INCLINOMETER AND 3 PIEZOMETER LOCATIONS BECAME ACCESSIBLE DURING CCG1. NOTIFICATION MADE TO THE DISTRICT GEOTECHNICAL ENGINEER AT 216-584-2144 WHEN EXCAVATION PROCEEDED TO ALLOW ACCESS TO THE INSTRUMENTATION SITES.

C WAS TO BE INSTALLED WHEN THE 2 INCLINOMETER AND 2 PIEZOMETER LOCATIONS WERE ACCESSIBLE UPON COMPLETION OF CCG1 STAGE 3 EXCAVATION. NOTIFICATION MADE TO DISTRICT GEOTECHNICAL ENGINEER AT 216-584-2144 WHEN EXCAVATION PROCEEDED TO ALLOW ACCESS TO THE INSTRUMENTATION SITES.

REVISION	DATE	DESCRIPTION
A	11/21/13	REVISIONS BASED ON INSTRUMENTATION STATUS AFTER COMPLETION OF CCG1.
B	2/6/14	REVISIONS BASED ON INSTRUMENTATION STATUS AFTER COMPLETION OF CCG2.

DRAWN CDS CHECKED JN

EXISTING INSTRUMENTATION SUMMARY
CUYAHOGA RIVER WEST BANK

CUY-90-14.90

ADDENDUM	DATE
7	8/2/13

DRAWN CDS | CHECKED JN

CCG2 - PROPOSED ADDITIONAL WEST BANK INSTRUMENTATION (INSTALLED BY OTHERS)

PROPOSED INSTRUMENTATION	PROPOSED INCLINOMETER (EACH)	INCLINOMETER DEPTH(S) BELOW CCG2 PROP. G.S. (FT)	INCLINOMETER ELEVATION (FT)	PROPOSED PIEZOMETER	VW OR PNEUMATIC?	PROPOSED PIEZOMETERS (EACH)	PIEZOMETER ELEVATION(S) (FT)	SCHEDULED INSTRUMENTATION INSTALLATION (SEE NOTES BELOW)	STATION (I.R. 90 EB)	OFFSET (FT) (SEE NOTE E)	CCG1 PROP. / CCG2 EXIST. G.S. ELEVATION (FT)	CCG2 PROP. G.S. ELEVATION (FT)
I-001-13	1	216.39	450					B	2008+68.78	96.69 RT	674.36	666.39
P-001-13				Y	VW	7	630, 620, 610, 600, 580, 550, 459	B	2008+68.78		674.36	666.39
I-002-13	1	225.29	450					A	2009+99.43	253.83 RT	675.29	675.29
P-002-13				Y	VW	6	628, 618, 607, 595, 550, 458	A	2009+99.43		675.29	675.29
I-003-13								A	2011+71.39	251.96 RT	654.02	653.67
P-003-13				Y	VW	4	628, 618, 595, 460	A	2011+71.39		654.02	653.67
I-004-13	1	174.79	425					A	2013+46.86	206.76 RT	599.79	599.79
P-004-13				Y	VW	2	545, 475	A	2013+46.86		599.79	599.79
7 I-005-13	1	153.53	452					A	2010+91.46	175.39 LT	606.3	605.83
P-005-13				Y	VW	1	500	A	2010+91.46		606.3	605.83
I-006-13	1	149.76	456					A	2011+46.55	27.18 RT	632.29	606.05
P-006-13				Y	VW	2	615, 505	A	2011+46.55		632.29	606.05
I-007-13	1	164.00	460					A	2011+60.85	409.81 LT	624	624.00
P-007-13				Y	VW	2	587, 467	A	2011+60.85		624	624.00
I-009-13	1	149.16	438					A	2013+76.60	123.68 LT	588.11	587.27
P-009-13				Y	VW	2	498, 433	A	2013+76.60		588.11	587.27
SUBTOTAL	7					26						

CCG2 - PROPOSED REPLACEMENT WEST BANK INSTRUMENTATION (INSTALLED BY OTHERS)

PROPOSED INSTRUMENTATION	PROPOSED INCLINOMETER	INCLINOMETER DEPTH(S) BELOW CCG2 PROP. G.S. (FT)	INCLINOMETER ELEVATION (FT)	PROPOSED PIEZOMETER?	VW OR PNEUMATIC?	# OF PROPOSED PIEZOMETERS	PIEZOMETER ELEVATION(S) (FT)	SCHEDULED INSTRUMENTATION INSTALLATION (SEE NOTES BELOW)	STATION (I.R. 90 EB)	OFFSET (FT)	CCG1 PROP. / CCG2 EXIST. G.S. ELEVATION (FT)	CCG2 PROP. G.S. ELEVATION (FT)
B-107	1	155.26	452.7	Y	VW	2	562.7, 542.7	C	2010+54.01	36.93 RT	653.86	607.96
B-05-02	1	160.69	435.7	Y	VW	2	571.9, 549.9	C	2012+24.52	14.37 RT	611.68	596.39
B-05-04	1	165.70	428	Y	VW	2	541.8, 481.8	C	2013+43.22	113.99 RT	600.08	593.70
I-003-10	1	203.73	450					B	2008+55.66	136.67 LT	650.09	653.73
P-003-10				Y	VW	7	628, 620, 610, 600, 580, 550, 458	B	2008+55.66	136.67 LT	647.73	653.73
SUBTOTAL	4					13						
TOTALS CARRIED TO GENERAL SUMMARY	11 7					39 7						

G.S. = GROUND SURFACE ELEVATION

NOTES

A INSTALL PRIOR TO START OF PROPOSED EXCAVATION.

B INSTALL WHEN THE LOCATIONS BECOME ACCESSIBLE UPON COMPLETION OF WALL CONSTRUCTION. NOTIFIY THE DISTRICT GEOTECHNICAL ENGINEER AT 216-584-2144 WHEN EXCAVATION HAS PROCEEDED TO ALLOW ACCESS TO THE INSTRUMENTATION SITES.

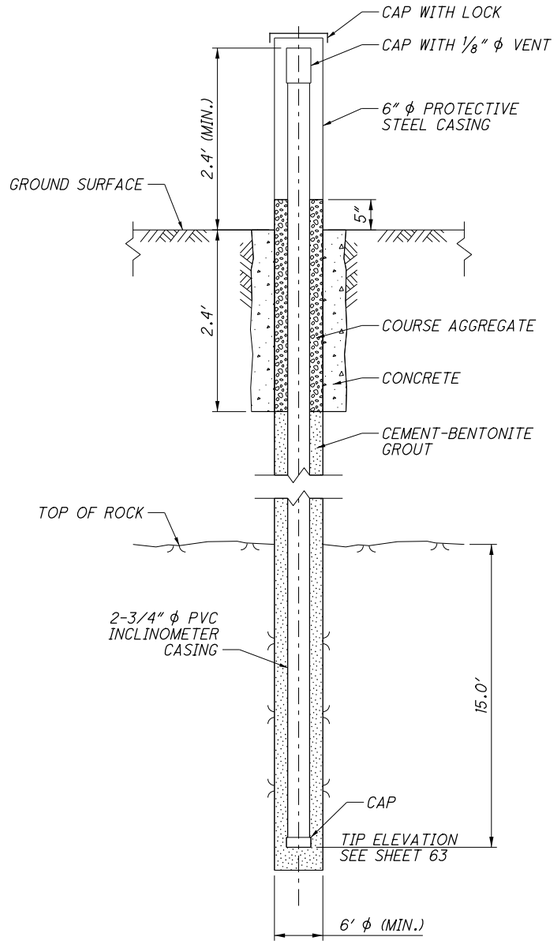
C INSTALL WHEN THE LOCATIONS ARE ACCESSIBLE UPON COMPLETION OF STAGE 3 EXCAVATION (SEE GENERAL NOTES FOR STAGE CONSTRUCTION SEQUENCE). NOTIFIY THE DISTRICT GEOTECHNICAL ENGINEER AT 216-584-2144 WHEN EXCAVATION HAS PROCEEDED TO ALLOW ACCESS TO THE INSTRUMENTATION SITES.

D ALL INSTRUMENTATION IN THE EXISTING STABILIZATION STRUCTURE MUST BE PROTECTED AND KEPT IN WORKING CONDITION. ANY INSTRUMENTATION DAMAGED MUST BE REPLACED BY THE DEVELOPER AT NO COST TO THE DEPARTMENT.

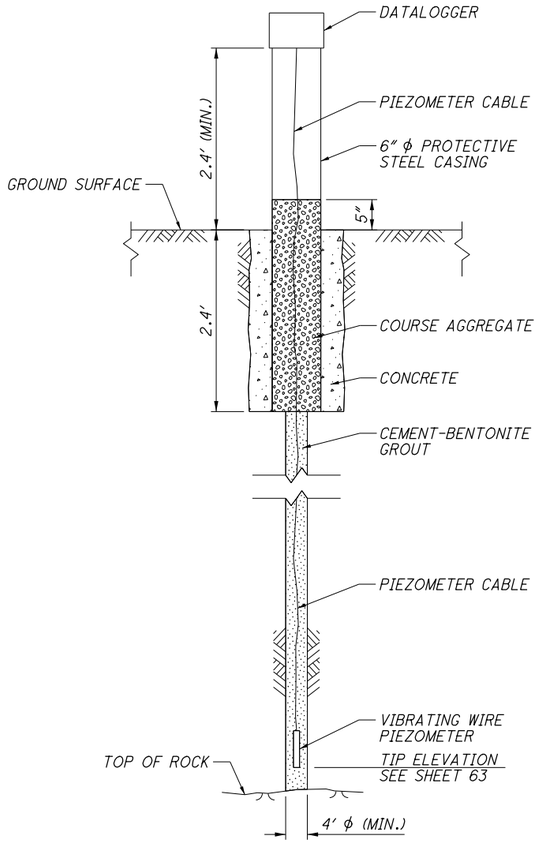
E THE LOCATION OF EACH PIEZOMETER WILL BE WITHIN 5 FEET OF THE LOCATION OF THE INCLINOMETER.

PROPOSED INSTRUMENTATION TABLE
CUYAHOGA RIVER WEST BANK

CUY-90-14.90



INCLINOMETER DETAIL
NTS



PIEZOMETER DETAIL
NTS

DRAWN CDS
CHECKED JN

INSTRUMENTATION DETAIL
CUYAHOGA RIVER WEST BANK

CUY-90-14.90

4 / 4

64
93

BENCHMARK DATA

GPC075 STA. 1998+14.98, ELEV. 692.921, OFFSET 111.49' RT.
WA09 STA. 2006+88.87, ELEV. 697.664, OFFSET 219.97' RT.
WA10 STA. 1996+37.27, ELEV. 694.496, OFFSET 46.03' RT.

ALL STATIONS AND OFFSETS GIVEN FROM ℄ CONSTRUCTION I.R. 90 E.B.

NOTES:

1. EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.
2. FOR TOWPATH TRAIL PLAN, ELEVATIONS AND ADDITIONAL INFORMATION, SEE TOWPATH TRAIL PLANS.
3. FOR STREETSCAPE AND LANDSCAPE PLANS, SEE APPENDIX AE-02.

LEGEND:

FOR BORING AND INSTRUMENTATION LEGEND, SEE SHEET (61/93).

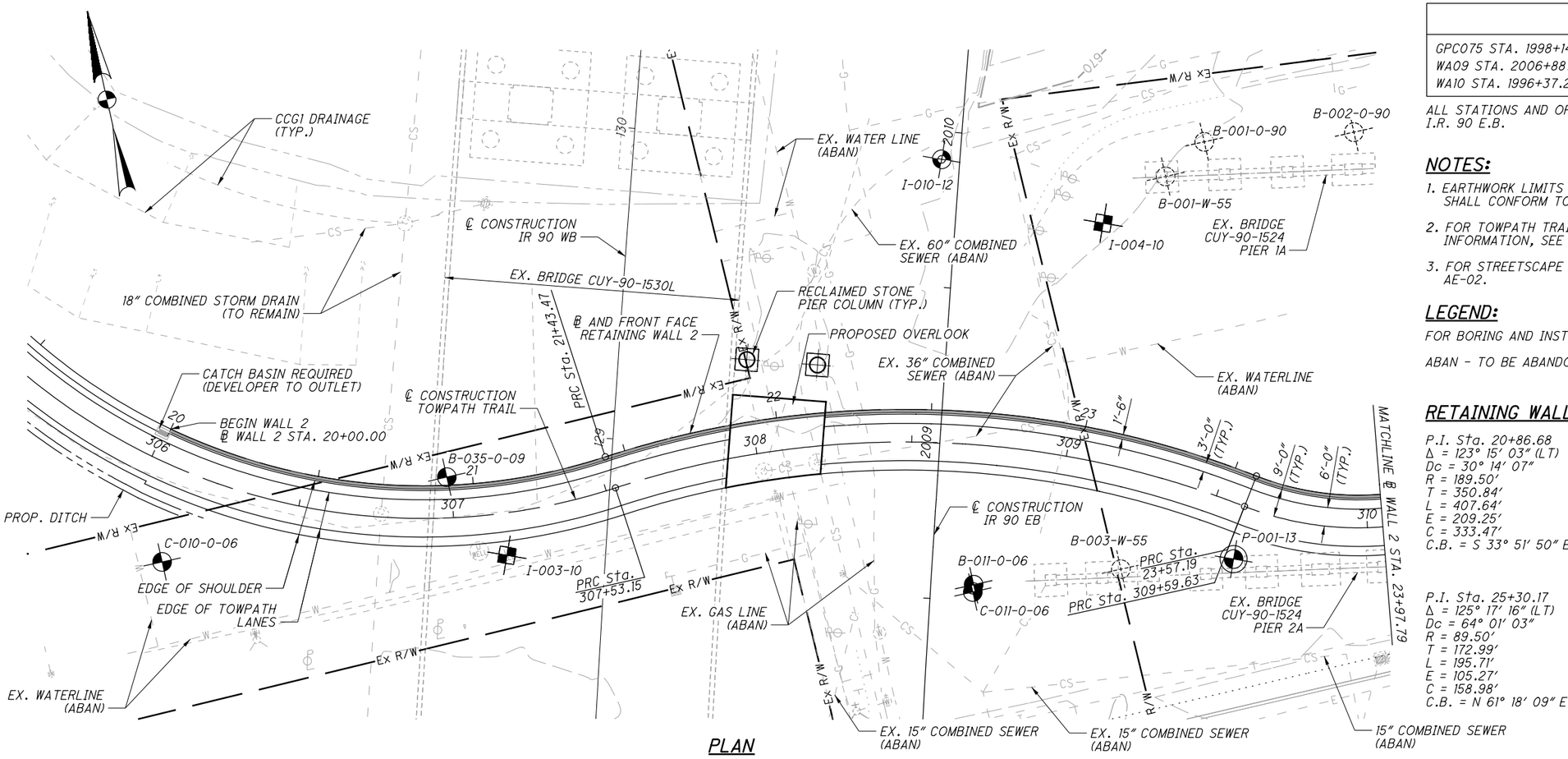
ABAN - TO BE ABANDONED

RETAINING WALL 2 CURVE DATA

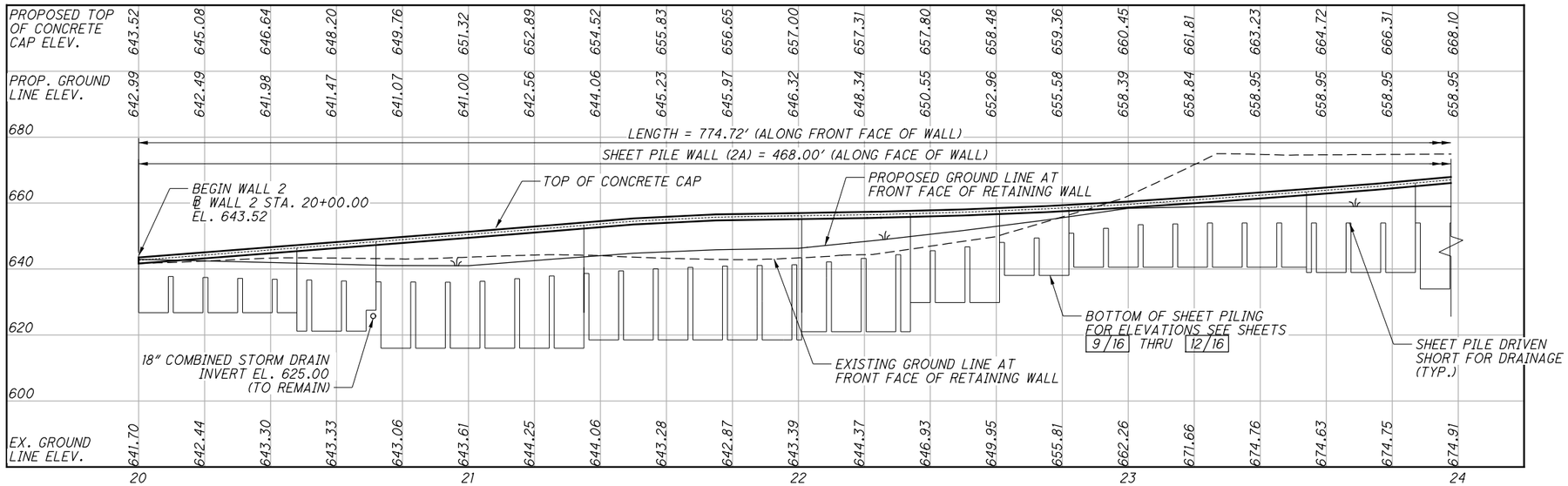
P.I. Sta. 20+86.68
Δ = 123° 15' 03" (LT)
Dc = 30° 14' 07"
R = 189.50'
T = 350.84'
L = 407.64'
E = 209.25'
C = 333.47'
C.B. = S 33° 51' 50" E

P.I. Sta. 22+54.76
Δ = = 39° 26' 08" (RT)
Dc = 18° 27' 10"
R = 310.50'
T = 111.28'
L = 213.71'
E = 19.34'
C = 209.52'
C.B. = S 75° 46' 17" E

P.I. Sta. 25+30.17
Δ = 125° 17' 16" (LT)
Dc = 64° 01' 03"
R = 89.50'
T = 172.99'
L = 195.71'
E = 105.27'
C = 158.98'
C.B. = N 61° 18' 09" E



PLAN



ELEVATION

(ALONG FRONT FACE OF WALL)

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
JN/BMG			

SITE PLAN
RETAINING WALL 2
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

1/16

65/93

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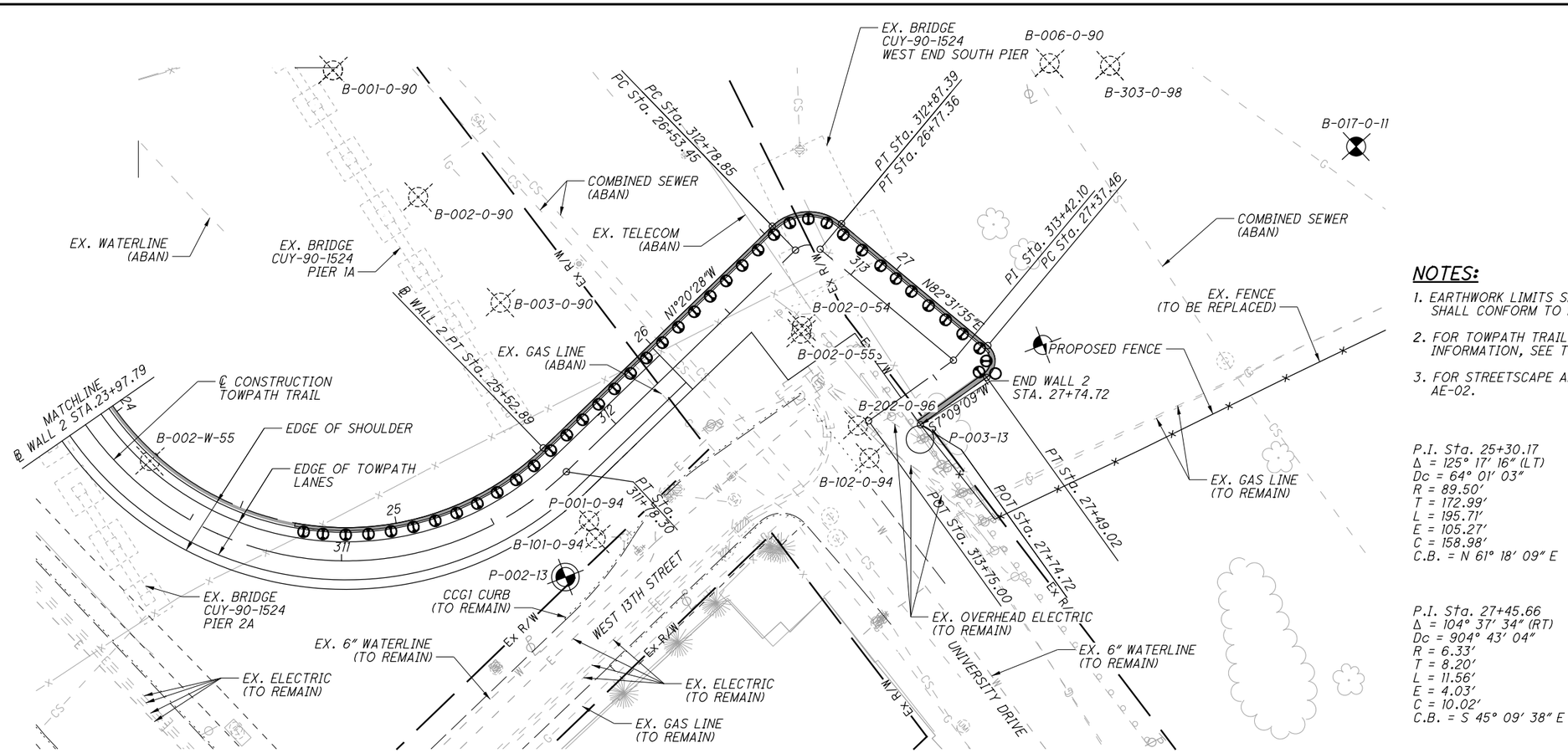

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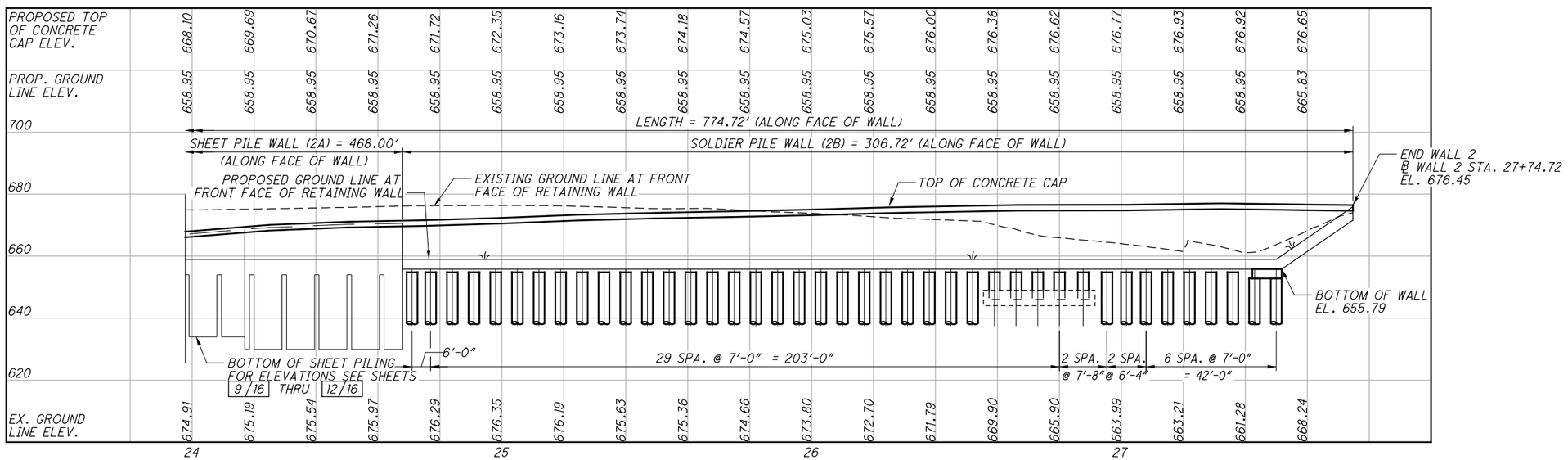

ELEVATION

(ALONG FRONT FACE OF WALL)

NOTES:

1. EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.
2. FOR TOWPATH TRAIL PLAN, ELEVATIONS AND ADDITIONAL INFORMATION, SEE TOWPATH TRAIL PLANS.
3. FOR STREETSCAPE AND LANDSCAPE PLANS, SEE APPENDIX AE-02.

P.I. Sta. 25+30.17
Δ = 125° 17' 16" (LT)
Dc = 64° 01' 03"
R = 89.50'
T = 172.99'
L = 195.71'
E = 105.27'
C = 158.98'
C.B. = N 61° 18' 09" E

P.I. Sta. 26+68.12
Δ = 83° 52' 03" (RT)
Dc = 350° 47' 52"
R = 16.33'
T = 14.67'
L = 23.91'
E = 5.62'
C = 21.83'
C.B. = N 40° 35' 33" E

P.I. Sta. 27+45.66
Δ = 104° 37' 34" (RT)
Dc = 904° 43' 04"
R = 6.33'
T = 8.20'
L = 11.56'
E = 4.03'
C = 10.02'
C.B. = S 45° 09' 38" E

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SITE PLAN
RETAINING WALL 2
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

2 / 16

66
93

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SUPPLEMENTAL SPECIFICATIONS:

REFER TO THE FOLLOWING PROJECT APPENDIX(S):
AE-02

DESIGN SPECIFICATIONS:

THESE STRUCTURES CONFORM TO THE LFRD BRIDGE DESIGN SPECIFICATIONS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 6TH EDITION, 2012, AND ODOT BRIDGE DESIGN MANUAL, 2007, WITH UPDATES THROUGH 2013.

DESIGN PARAMETERS:

RETAINED SOIL UNIT WEIGHT, γ SOIL = 120 pcf
RETAINED SOIL ANGLE OF INTERNAL FRICTION, ϕ = 29°
LIVE LOAD SURCHARGE = 240 psf

FOUDNATION SOIL UNIT WEIGHT, SOIL = 125 pcf
FOUNDATION SOIL ANGLE OF INTERNAL FRICTION, ϕ = 33°

DESIGN DATA:

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4,000 PSI (FACING AND FOOTING)
CONCRETE CLASS QC2 - COMPRESSIVE STRENGTH 4,500 PSI (OVERLOOK SLAB AND CAP)
CONCRETE CLASS QC2 - COMPRESSIVE STRENGTH 4,000 PSI (DRILLED SHAFT)
CONCRETE CLASS QC4 - COMPRESSIVE STRENGTH 4,500 PSI (COLUMN)
REINFORCING STEEL - ASTM A615 OR A996 GRADE 60, MINIMUM YIELD STRENGTH 60 KSI.
- ALL REINFORCING STEEL SHALL BE EPOXY COATED PER CMS 709.00
STRUCTURAL STEEL - ASTM A572 GRADE 50, YIELD STRENGTH 50 KSI
(SOLDIER PILES AND SHEET PILING)

ITEM 504 - STEEL SHEET PILING LEFT IN PLACE, AS PER PLAN:

THE STEEL SHEET PILING LEFT IN PLACE SHALL HAVE A MINIMUM SECTION MODULUS OF 30.2 CUBIC INCHES PER FOOT OF WALL. TO IMPROVE DRIVABILITY, USE SHEET PILING THAT HAS A MINIMUM CROSS SECTIONAL AREA OF 7.9 SQUARE INCHES PER FOOT OF WALL.

ITEM 513 - WELDED STUD SHEAR CONNECTORS:

⅞" ϕ x 6" STEEL STUDS SHALL BE WELDED TO THE FLANGES OF THE SOLDIER BEAMS FOR CONNECTION OF THE REINFORCED CONCRETE FACING. STUDS SHALL BE SPACED AT 8" VERTICALLY STARTING 6" BELOW THE TOP OF THE BEAM.

THE DEVELOPER BE RESPONSIBLE FOR THE PROTECTION OF ALL WELDED AND ACCEPTED STEEL STUDS AGAINST DAMAGE UNTIL PERMANENT CAST-IN-PLACE REINFORCED CONCRETE FACING IS CAST TO EMBED THESE STUDS. ALL DAMAGED STUDS SHALL BE REPLACED AT NO EXTRA COST TO THE DEPARTMENT.

ITEM 524 - DRILLED SHAFTS, 42" DIAMETER, AS PER PLAN:

DRILLED SHAFTS SHALL CONFORM TO CMS 524. THE WORK SHALL INCLUDE FURNISHING AND PLACING CLASS QC2 CONCRETE, REINFORCING STEEL, LOW STRENGTH MORTAR BACKFILL AND SOLDIER BEAMS AS SHOWN IN THE PLANS. MATERIAL FOR STRUCTURAL STEEL SOLDIER BEAMS SHALL CONFORM TO CMS 513. EACH INDIVIDUAL SOLDIER BEAM INSTALLED SHALL BE A CONTINUOUS ELEMENT. SPLICING OF THESE BEAMS IS NOT ACCEPTABLE. LOW STRENGTH MORTAR BACKFILL SHALL CONFORM TO CMS 613.

PLACE CLASS QC2 CONCRETE TO THE TOP OF THE DRILLED SHAFT CONCRETE ELEVATION SHOWN ON THE PLANS, THEN PLACE LOW STRENGTH MORTAR TO THE GROUND SURFACE.

ITEM 690 SPECIAL - FOAM CELLULAR CONCRETE FILL

A. DESCRIPTION: THIS WORK CONSISTS OF FURNISHING AND PLACING A LOW DENSITY, LIGHTWEIGHT, FLOWABLE, LOW ABSORBABILITY, CEMENTITIOUS FILL MATERIAL, HEREIN REFERRED TO AS FOAM CELLULAR CONCRETE FILL (FCCF).

B. QUALIFICATIONS:

SUPPLIER/PRODUCER: PROVIDE FCCF FROM A SUPPLIER/PRODUCER REGULARLY ENGAGED IN THE PLACEMENT OF FCCF MATERIAL, WHO HAS IN THE PAST THREE YEARS COMPLETED MASS FILLS HAVING A COMBINED QUANTITY OF AT LEAST 10,000 TOTAL CUBIC YARDS (7650 CUBIC METERS).

DOCUMENTATION FOR THE ABOVE QUALIFICATIONS SHALL BE SUBMITTED AT OR BEFORE THE PRECONSTRUCTION CONFERENCE ACCORDING TO 108.02

FCCF MATERIAL: PROVIDE FCCF MATERIAL, MEETING THE REQUIREMENTS OF SECTION C OF THIS SPECIFICATION, WHICH HAS BEEN SUCCESSFULLY PLACED ON AT LEAST FIVE PROJECTS THAT HAVE PERFORMED SATISFACTORILY FOR AT LEAST FIVE YEARS.

PREAPPROVAL OF THE FCCF MATERIAL WILL BE BASED ON DOCUMENTATION FOR THE ABOVE QUALIFICATIONS. THIS DOCUMENTATION SHALL BE SUBMITTED TO THE LABORATORY. PREAPPROVED FCCF MATERIALS WILL BE LISTED ON THE DEPARTMENT'S QUALIFIED PRODUCT LIST AND WILL NEED TO BE REAPPROVED YEARLY.

C. MATERIALS: FURNISH MATERIALS ACCORDING TO THE FOLLOWING REQUIREMENTS:

FOAM: USE A FOAMING AGENT CONFORMING TO ASTM C796.

CEMENT: USE PORTLAND CEMENT CONFORMING TO 701.04 OR 701.05.

WATER: USE WATER CONFORMING TO 499.02. POTABLE WATER IS SATISFACTORY FOR USE IN FCCF.

ADMIXTURES: USE ADMIXTURES CONFORMING TO 499.02 FOR WATER REDUCING, RETARDING, ACCELERATING, IMPROVING THE BOND, OR FOR OTHER SPECIFIC PROPERTIES, WHEN SPECIFICALLY APPROVED BY THE SUPPLIER/PRODUCER OF THE FCCF.

D. MIX DESIGN: DESIGN OF A PROPOSED FCCF MIX WILL BE PROVIDED BY THE SUPPLIER/PRODUCER. THE PROPOSED MIX DESIGN MUST MEET THE PROPERTIES OF TABLE A.

MIX DESIGNS MUST BE APPROVED BY THE LABORATORY PRIOR TO USE. A MINIMUM OF 30 DAYS PRIOR TO PLACING FCCF, SUBMIT A PROPOSED MIX DESIGN, WITH CERTIFIED TEST DATA FROM THE SUPPLIER/PRODUCER, TO THE LABORATORY, WITH A COPY TO THE ENGINEER.

E. QUALITY CONTROL: PERFORM CAST DENSITY MEASUREMENTS ON A MINIMUM OF 8 BATCHES PER PRODUCTION DAY. MAINTAIN A LOG OF THE CAST DENSITY MEASUREMENTS.

F. QUALITY ASSURANCE: QUALITY ASSURANCE WILL BE BASED ON THE CAST DENSITY AND COMPRESSIVE STRENGTH AT THE POINT OF PLACEMENT. ANY MIXES NOT MEETING THE TABLE A PROPERTIES WILL BE REJECTED.

1. CAST DENSITY: AT A MINIMUM, THE DEPARTMENT WILL CHECK ONE OF THE BATCHES EACH DAY, AS FOLLOWS:

   A. WEIGH A CONTAINER OF KNOWN VOLUME AND RECORD THE WEIGHT. A STANDARD CONCRETE CYLINDER MOLD MAY BE USED AS THE CONTAINER.
   B. FILL THE CONTAINER WITH FCCF, TAPPING THE CONTAINER SIDES BRISKLY WITH A RUBBER HAMMER DURING FILLING.
   C. OVERFILL THE CONTAINER, STRIKING OFF THE EXCESS FCCF. WIPE OFF THE OUTSIDE SURFACE OF THE CONTAINER.
   D. WEIGH THE FULL CONTAINER.
   E. SUBTRACT THE WEIGHT OF THE EMPTY CONTAINER FROM THE FULL CONTAINER.
   F. CALCULATE THE CAST DENSITY AND COMPARE IT TO THE MAXIMUM DENSITY FOR THE CLASS OF FCCF.

IF THE FCCF MATERIAL EXCEEDS THE MAXIMUM DENSITY FOR THE CLASS OF FCCF, ADJUST THE MIX AND RECHECK THE CAST DENSITY.

2. COMPRESSIVE STRENGTH: TAKE AT LEAST FOUR (4) TEST SPECIMENS FOR EACH 300 CUBIC YARDS (230 CUBIC METERS) OF FCCF PLACED OR FOR EACH DAY'S PRODUCTION. PREPARE, CURE, AND TEST THE SPECIMENS IN ACCORDANCE WITH ASTM C796 EXCEPT AS FOLLOWS:

   A. FILL AN APPROPRIATE 3-INCH BY 6-INCH (75 MM BY 150 MM) CYLINDER MOLD ACCORDING TO ASTM C796, EXCEPT STRIKE OFF THE EXCESS FCCF WITH A TROWEL.
   B. CURE THE MOLDS IN A CURING BOX.
   C. AFTER CURING, DO NOT OVEN DRY THE SPECIMENS THAT ARE TO BE LOAD TESTED. AIR DRY THE SPECIMENS FOR 1 TO 3 DAYS PRIOR TO TESTING.
   D. WHILE SPECIMENS MAY BE TESTED AT ANY AGE TO MONITOR THE COMPRESSIVE STRENGTH OF THE FCCF, TEST A MINIMUM OF TWO SPECIMENS AT 28 DAYS FOR ACCEPTANCE.
   E. PROVIDE THE 28 DAY TEST RESULTS TO THE ENGINEER.

REVIEW THE STATUS OF FCCF MATERIAL THAT FAILS TO MEET THE MINIMUM COMPRESSIVE STRENGTH FOR THE CLASS OF FCCF TO DETERMINE IF IT IS ACCEPTABLE AT THAT LOCATION.

G. CONSTRUCTION METHODS: PLACEMENT OF THE FCCF SHALL BE ACCORDING TO PROCEDURES PROVIDED BY THE SUPPLIER/PRODUCER.

1. PREPARATION: THE ENGINEER WILL EXAMINE THE SUBSOIL CONDITIONS IN THE PLACEMENT AREAS. CORRECT UNSUITABLE SOIL CONDITIONS PRIOR TO PLACING THE FCCF.

   PROPERLY FIX IN PLAN POSITION ITEMS TO BE ENCASED IN THE FCCF. COAT ANY ALUMINUM TO PREVENT OXIDATION FROM THE FRESH CONCRETE.

2. WEATHER: DO NOT PLACE FCCF IF THE SUBSOIL IS FROZEN. WHEN THE AMBIENT TEMPERATURE IS LESS THAN 32 °F (0 °C), FOLLOW THE MANUFACTURER'S RECOMMENDATIONS SUCH AS HEATED MIX WATER OR TYPE III CEMENT.

   TAKE PRECAUTIONS TO AVOID DAMAGE TO THE FCCF FROM FREEZING TEMPERATURES PER THE MANUFACTURER'S RECOMMENDATIONS.

3. MIXING AND CONVEYING: USE JOB-SITE MIXING AND CONVEYING EQUIPMENT FOR PROPORTIONING, MIXING AND PLACING THE FCCF APPROVED BY THE SUPPLIER/PRODUCER. MIX THE MATERIALS ACCORDING TO THE SUPPLIER/PRODUCER MIX DESIGN PROCEDURES AND, PROMPTLY AFTER MIXING, CONVEY THE FCCF TO ITS FINAL POSITION. AVOID EXCESSIVE HANDLING OF THE FCCF.

4. PLACEMENT: PLACE IN LIFTS AS RECOMMENDED BY THE SUPPLIER/PRODUCER. PLACE THE FCCF WITH THE FINAL SURFACE FINISH WITHIN ± 0.1 FOOT (30 MM) OF PLAN ELEVATION.

   DO NOT PLACE FCCF INTO AN AREA WITH STANDING WATER.

5. LOADING. DO NOT APPLY ANY LOAD ONTO THE FCCF UNTIL IT HAS ATTAINED A COMPRESSIVE STRENGTH OF AT LEAST 20 PSI.

TABLE A - FOAM CELLULAR CONCRETE FILL PROPERTIES	
PROPERTY	CLASS III
CAST DENSITY[1], MAX.	36 PCF.
COMPRESSIVE STRENGTH[2], MIN. @ 28 DAYS	80 PSI
WATER ABSORPTION, ASTM C796, MAX[3]	16%

1 - SPECIFIED IN SECTION F.1 OF THIS SPECIFICATION
2 - MODIFIED IN SECTION F.2 OF THIS SPECIFICATION
3 - EXPRESSED AS PERCENT OF CAST DENSITY

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GENERAL NOTES
RETAINING WALL 2
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

WEEP HOLES FOR SHEET PILING: WALL 2A

PURCHASE AND INSTALL A PREFABRICATED WEEP HOLE DRAINAGE UNIT SPECIFICALLY DESIGNED TO PROVIDE DRAINAGE THROUGH SHEET PILE WALLS. THE DESIGN OF THE PREFABRICATED WEEP HOLE DRAINAGE UNITS SHALL GENERALLY CONSIST OF A PVC TUBE WITH SCREEN AND FILTER FABRIC. INSTALL THE PREFABRICATED WEEP HOLE DRAINAGE UNITS AS RECOMMENDED BY THE MANUFACTURER AND AT THE LOCATIONS SHOWN IN THE PLANS.

CMS SPECIFICATION

THESE STRUCTURES ARE TO CONFORM TO THE 2013 ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS.

RETAINING WALL 2 TABLE OF SPECIFICATIONS

DESCRIPTION	CMS SPECIFICATION
EMBANKMENT	203
UNCLASSIFIED EXCAVATION	503
COFFERDAMS AND EXCAVATION BRACING	503
STEEL SHEET PILING LEFT IN PLACE	504
PILE DRIVING EQUIPMENT MOBILIZATION	505
EPOXY COATED REINFORCING STEEL	509
DOWELS	510
CLASS QC1 CONCRETE (FACING AND FOOTING)	511
CLASS QC2 CONCRETE (OVERLOOK SLAB AND CAP)	511
CLASS QC2 CONCRETE (DRILLED SHAFT)	511
CLASS QC4 MASS CONCRETE (COLUMN)	511
TYPE 2 WATERPROOFING	512
SEALING OF CONCRETE SURFACES (NON-EPOXY (CLEAR))	512
WELDED STUD SHEAR CONNECTORS	513
1" PREFORMED EXPANSION JOINT FILLER	516
POROUS BACKFILL WITH FILTER FABRIC	518
6" PERFORATED CORRUGATED PLASTIC PIPE	518
6" NON-PERFORATED CORRUGATED PLASTIC PIPE	518
DRILLED SHAFTS, 42" DIAMETER	524
DRILLED SHAFTS, 60" DIAMETER	524
LOW STRENGTH MORTAR BACKFILL	613
FOAM CELLULAR CONCRETE FILL	SEE PLAN NOTES
SOLDIER BEAM	513
GEOCOMPOSITE DRAINCORE WITH FILTER FABRIC	712.09, TYPE A
VINE CABLES (GUY WIRE)	725.19.H

ABBREVIATIONS:

CLR. - CLEAR
CMS - CONSTRUCTION AND MATERIALS SPECIFICATIONS
CONST. - CONSTRUCTION
EB - EASTBOUND
E.F. - EACH FACE
EL. OR ELEV. - ELEVATION
EX. - EXISTING
FT. - FOOT OR FEET
LT. - LEFT
MIN. - MINIMUM
MAX. - MAXIMUM
P.C.P.P. - PERFORATED CORRUGATED PLASTIC PIPE
P.E.J.F. - PREFORMED EXPANSION JOINT FILLER
PROP. - PROPOSED
RT. - RIGHT
SER. - SERIES
SPA. - SPACE OR SPACES
STA. - STATION
T&B - TOP AND BOTTOM
TYP. - TYPICAL
WB - WESTBOUND

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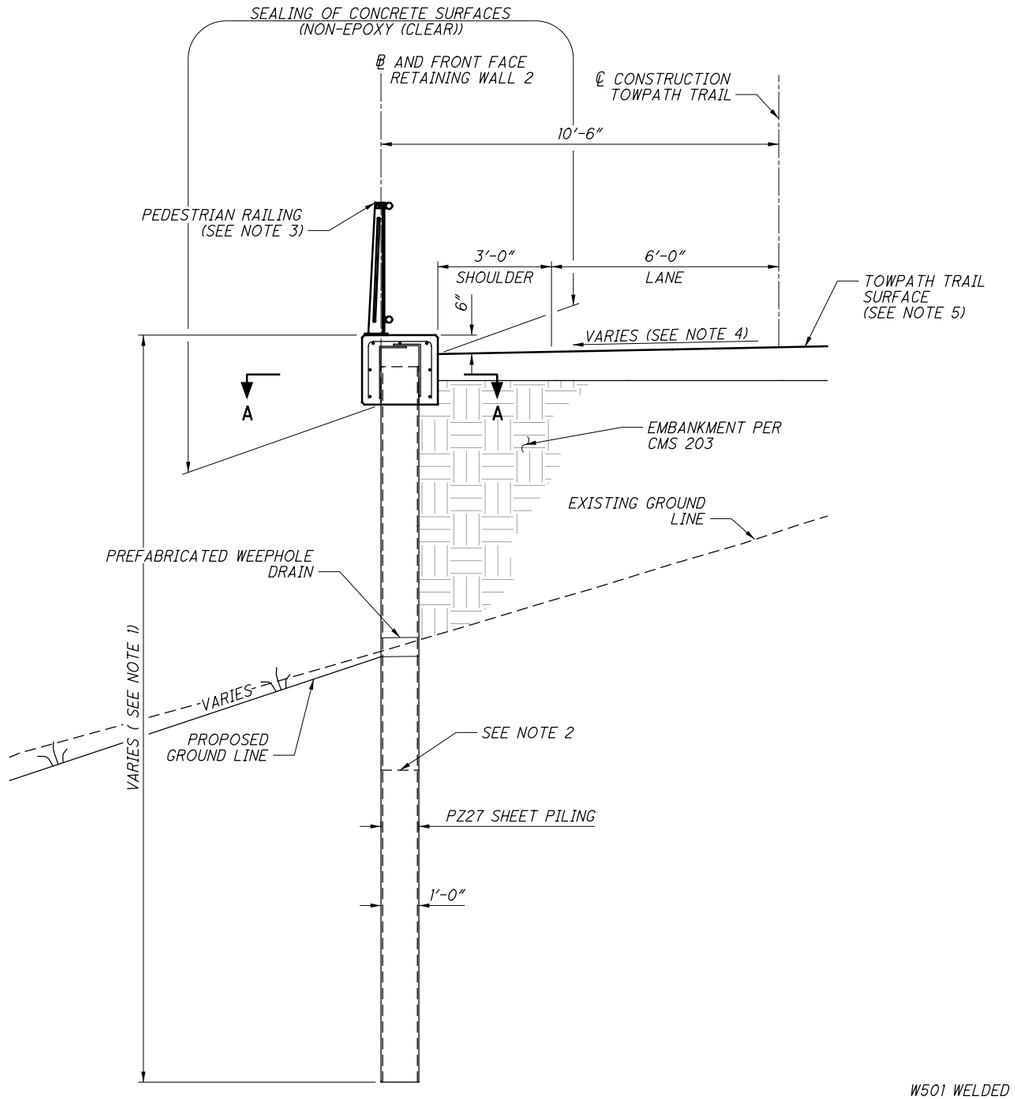
BMG/JN			

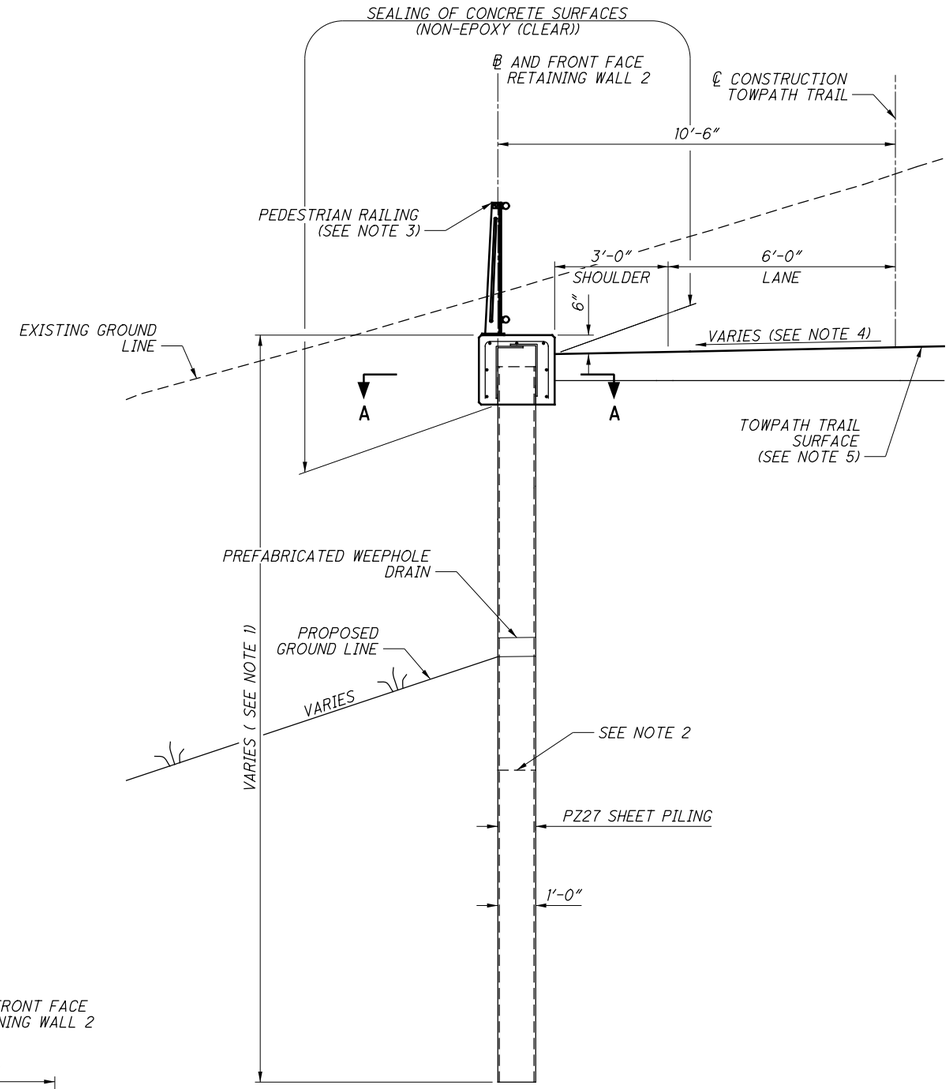
GENERAL NOTES
RETAINING WALL 2
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119



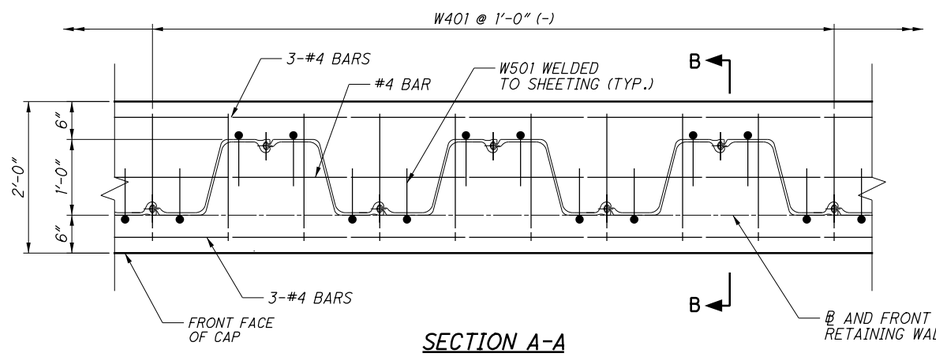
TYPICAL EMBANKMENT SECTION

(STA. 20+00.00 TO STA. 22+92.76)



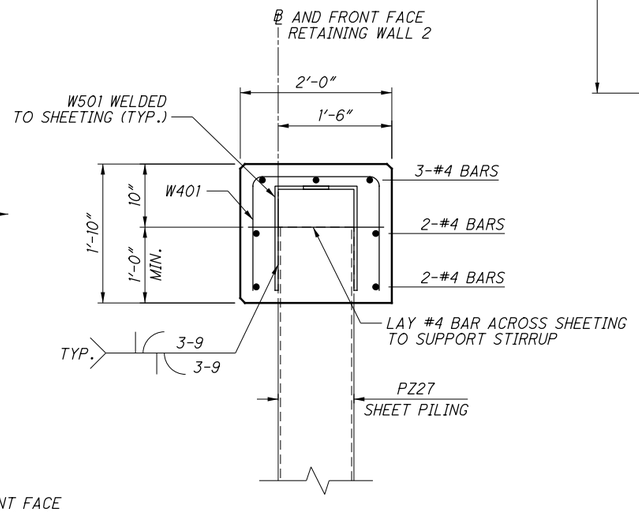
TYPICAL EXCAVATION SECTION

(STA. 22+92.76 TO STA. 24+68.00)



SECTION A-A

(TYP. WALL 2A)



SECTION B-B

NOTES:

1. FOR SHEET PILE WALL ELEVATIONS, SEE SHEETS 9/16 THRU 12/16.
2. TO ALLOW DRAINAGE TO OCCUR WITHIN THE SLOPE, EVERY 7TH SHEET PILE (EVERY 9 FEET) WILL ONLY BE DRIVEN TO A DEPTH 5′-0″ BELOW THE PROPOSED GROUND.
3. FOR RAILING POST SPACING AND DETAILS, SEE APPENDIX AE-02.
4. FOR TOWPATH TRAIL CROSS SLOPES, SEE TYPICAL SECTIONS.
5. FOR TOWPATH TRAIL PAVEMENT DETAILS, SEE ROADWAY TYPICAL SECTIONS.

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BMG/JN			

SHEET PILE WALL DETAILS

RETAINING WALL 2
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

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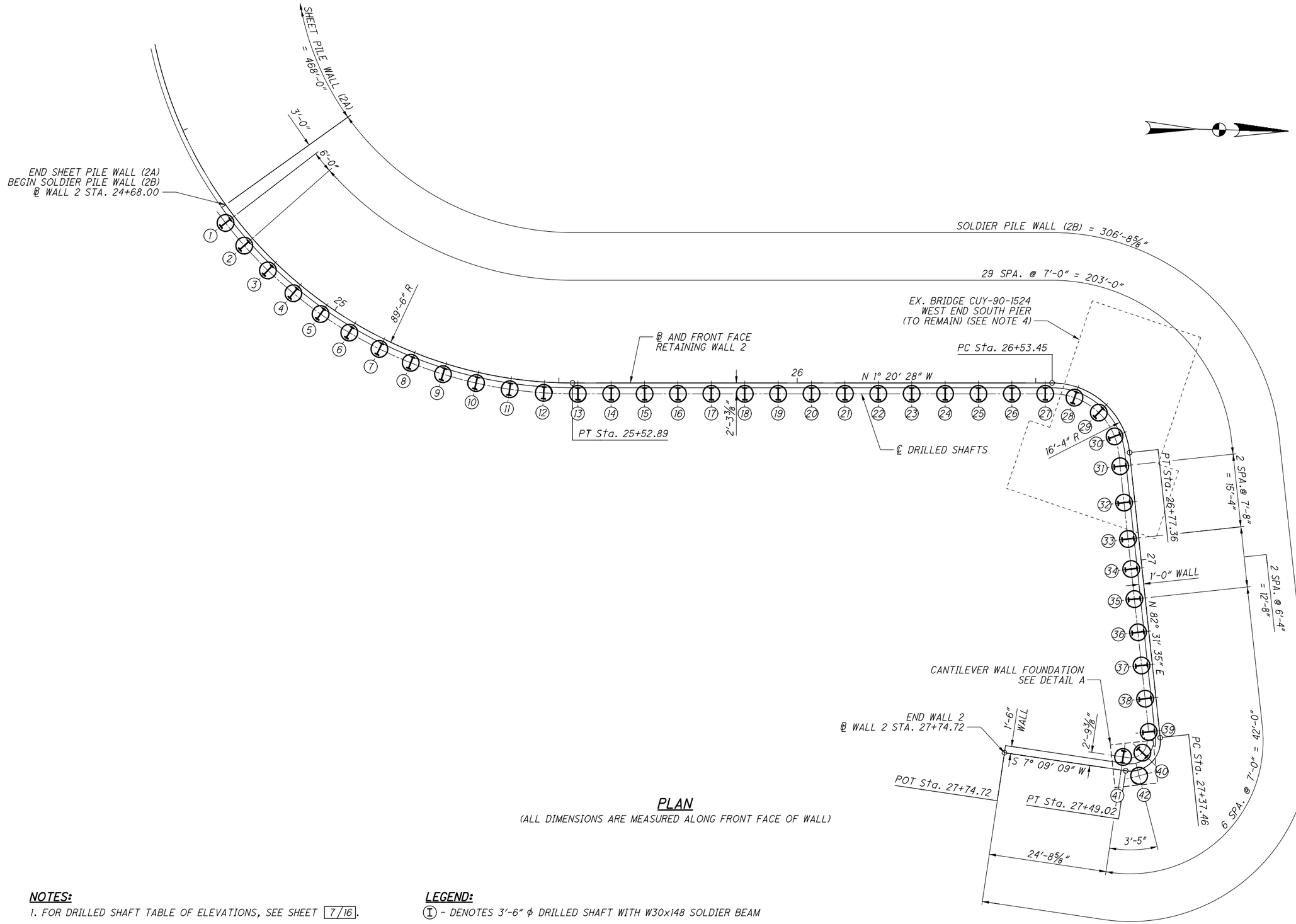

PLAN

(ALL DIMENSIONS ARE MEASURED ALONG FRONT FACE OF WALL)

NOTES:

1. FOR DRILLED SHAFT TABLE OF ELEVATIONS, SEE SHEET 7/16.
2. FOR WALL 2 CURVE DATA, SEE SHEETS 1/16 AND 2/16.
3. FOR DETAIL A, SEE SHEET 14/16.
4. DRILLED SHAFTS 28 THRU 32 ARE TO BE DRILLED 3'-0" INTO THE WEST END SOUTH PIER FOUNDATION.

LEGEND:

Ⓘ - DENOTES 3'-6" ϕ DRILLED SHAFT WITH W30x148 SOLDIER BEAM

(#) - DRILLED SHAFT NUMBER

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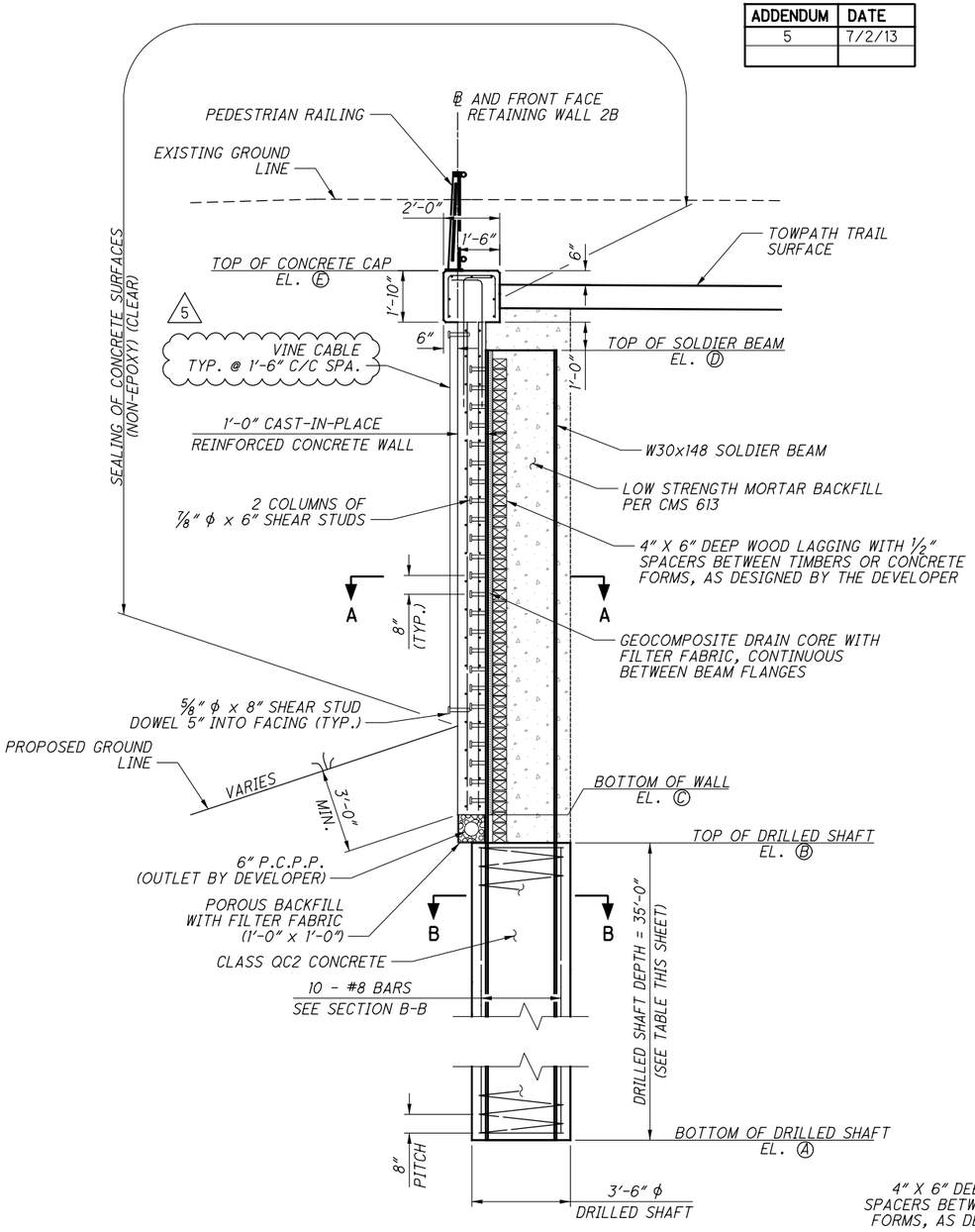
WALL SCHEMATIC
RETAINING WALL 2
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

ADDENDUM	DATE
5	7/2/13



TYPICAL CUT SOLDIER PILE WALL SECTION

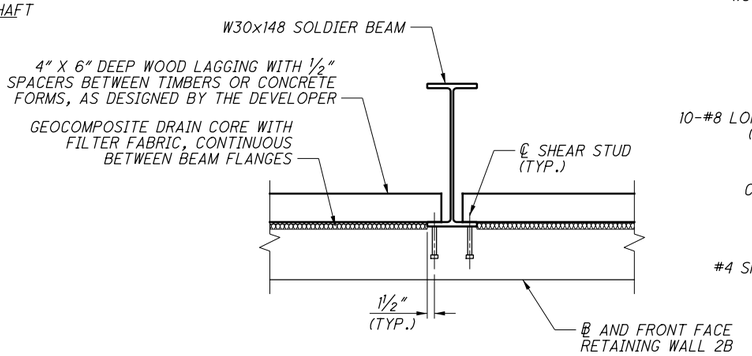
(STA. 24+68.00 TO 26+27.50)

NOTES:

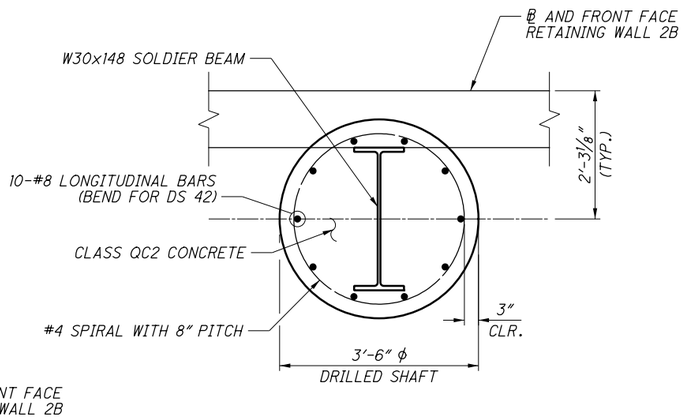
1. THE PLAN CONCRETE WALL THICKNESS IS 12 INCHES WITH A 2'-0" CONCRETE CAP. THESE ARE THE MINIMUM REQUIRED DIMENSIONS. HOWEVER, DUE TO MISALIGNMENT OF SOLDIER BEAMS, THE DEVELOPER MAY PROVIDE ADDITIONAL THICKNESSES BUT AT NO COST TO THE DEPARTMENT.
2. FOR ADDITIONAL DRILLED SHAFT INFORMATION, SEE SHEET 15/16.

TABLE OF ELEVATIONS - WALL 2

DRILLED SHAFT NUMBER	STATION @ WALL 2	BOTTOM OF DRILLED SHAFT ELEV. (A)	TOP OF SHAFT CONCRETE ELEV. (B)	BOTTOM OF WALL ELEV. (C)	TOP OF SOLDIER BEAM ELEV. (D)	TOP OF CAP ELEV. (E)	ESTIMATED LENGTH OF SOLDIER BEAM (FEET)	SOLDIER BEAM SIZE
1	24+71.00	619.79	654.79	655.79	668.65	671.48	48.86	W30x148
2	24+77.00	619.79	654.79	655.79	668.79	671.62	49.00	W30x148
3	24+84.00	619.79	654.79	655.79	669.01	671.84	49.22	W30x148
4	24+91.00	619.79	654.79	655.79	669.23	672.06	49.44	W30x148
5	24+98.00	619.79	654.79	655.79	669.45	672.28	49.66	W30x148
6	25+05.00	619.79	654.79	655.79	669.72	672.55	49.93	W30x148
7	25+12.00	619.79	654.79	655.79	670.00	672.83	50.21	W30x148
8	25+19.00	619.79	654.79	655.79	670.29	673.12	50.50	W30x148
9	25+26.00	619.79	654.79	655.79	670.56	673.39	50.77	W30x148
10	25+33.00	619.79	654.79	655.79	670.73	673.57	50.94	W30x148
11	25+40.00	619.79	654.79	655.79	670.91	673.74	51.12	W30x148
12	25+47.00	619.79	654.79	655.79	671.09	673.92	51.30	W30x148
13	25+54.00	619.79	654.79	655.79	671.23	674.07	51.44	W30x148
14	25+61.00	619.79	654.79	655.79	671.36	674.20	51.57	W30x148
15	25+68.00	619.79	654.79	655.79	671.49	674.32	51.70	W30x148
16	25+75.00	619.79	654.79	655.79	671.62	674.45	51.83	W30x148
17	25+82.00	619.79	654.79	655.79	671.78	674.61	51.99	W30x148
18	25+89.00	619.79	654.79	655.79	671.94	674.78	52.15	W30x148
19	25+96.00	619.79	654.79	655.79	672.11	674.94	52.32	W30x148
20	26+03.00	619.79	654.79	655.79	672.28	675.11	52.49	W30x148
21	26+10.00	619.79	654.79	655.79	672.47	675.30	52.68	W30x148
22	26+17.00	619.79	654.79	655.79	672.66	675.49	52.87	W30x148
23	26+24.00	619.79	654.79	655.79	672.85	675.68	53.06	W30x148
24	26+31.00	619.79	654.79	655.79	674.99	675.83	55.20	W30x148
25	26+38.00	619.79	654.79	655.79	675.13	675.96	55.34	W30x148
26	26+45.00	619.79	654.79	655.79	675.26	676.09	55.47	W30x148
27	26+52.00	619.79	654.79	655.79	675.39	676.23	55.60	W30x148
28	26+59.00	647.00	654.79	655.79	675.53	676.36	28.53	W30x148
29	26+66.00	647.00	654.79	655.79	675.66	676.50	28.66	W30x148
30	26+73.00	647.00	654.79	655.79	675.69	676.52	28.69	W30x148
31	26+80.00	647.00	654.79	655.79	675.70	676.54	28.70	W30x148
32	26+87.67	647.00	654.79	655.79	675.71	676.55	28.71	W30x148
33	26+95.33	619.79	654.79	655.79	675.73	676.56	55.94	W30x148
34	27+01.67	619.79	654.79	655.79	675.74	676.57	55.95	W30x148
35	27+08.00	619.79	654.79	655.79	675.83	676.66	56.04	W30x148
36	27+15.00	619.79	654.79	655.79	675.93	676.77	56.14	W30x148
37	27+22.00	619.79	654.79	655.79	676.04	676.87	56.25	W30x148
38	27+29.00	619.79	654.79	655.79	676.14	676.98	56.35	W30x148
39	27+36.00	619.79	654.79	655.79	676.14	676.97	56.35	W30x148
40	27+43.00	619.79	652.79	655.79	676.04	676.88	56.25	W30x148
41	27+50.00	619.79	652.79	655.79	675.95	676.78	56.16	W30x148
42	27+46.50	619.79	652.79	655.79	-	676.83	-	-



SECTION A-A



SECTION B-B

(DRILLES SHAFTS 1 THRU 42)

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WALL DETAILS
RETAINING WALL 2
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

7 / 16

71 / 93

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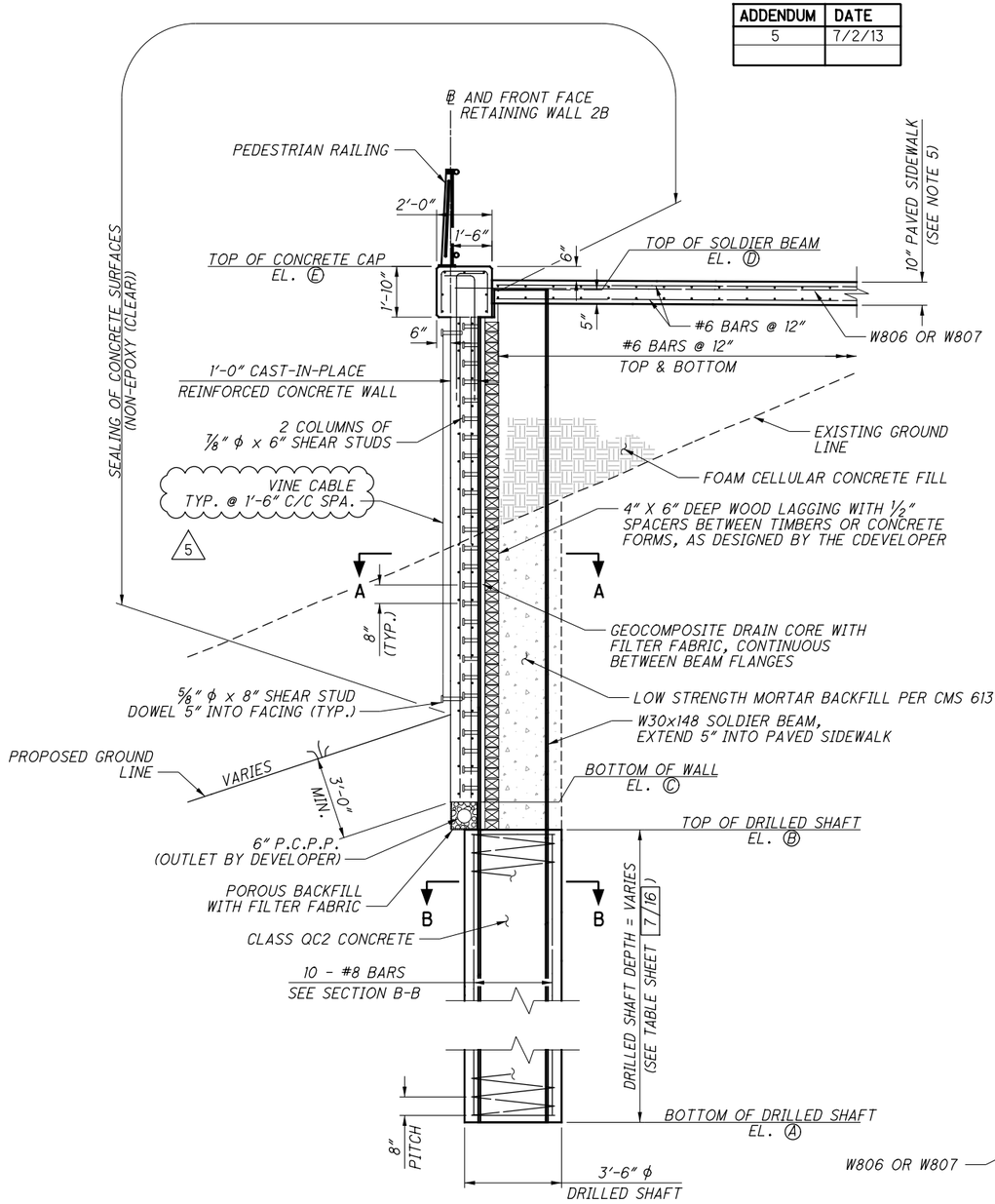
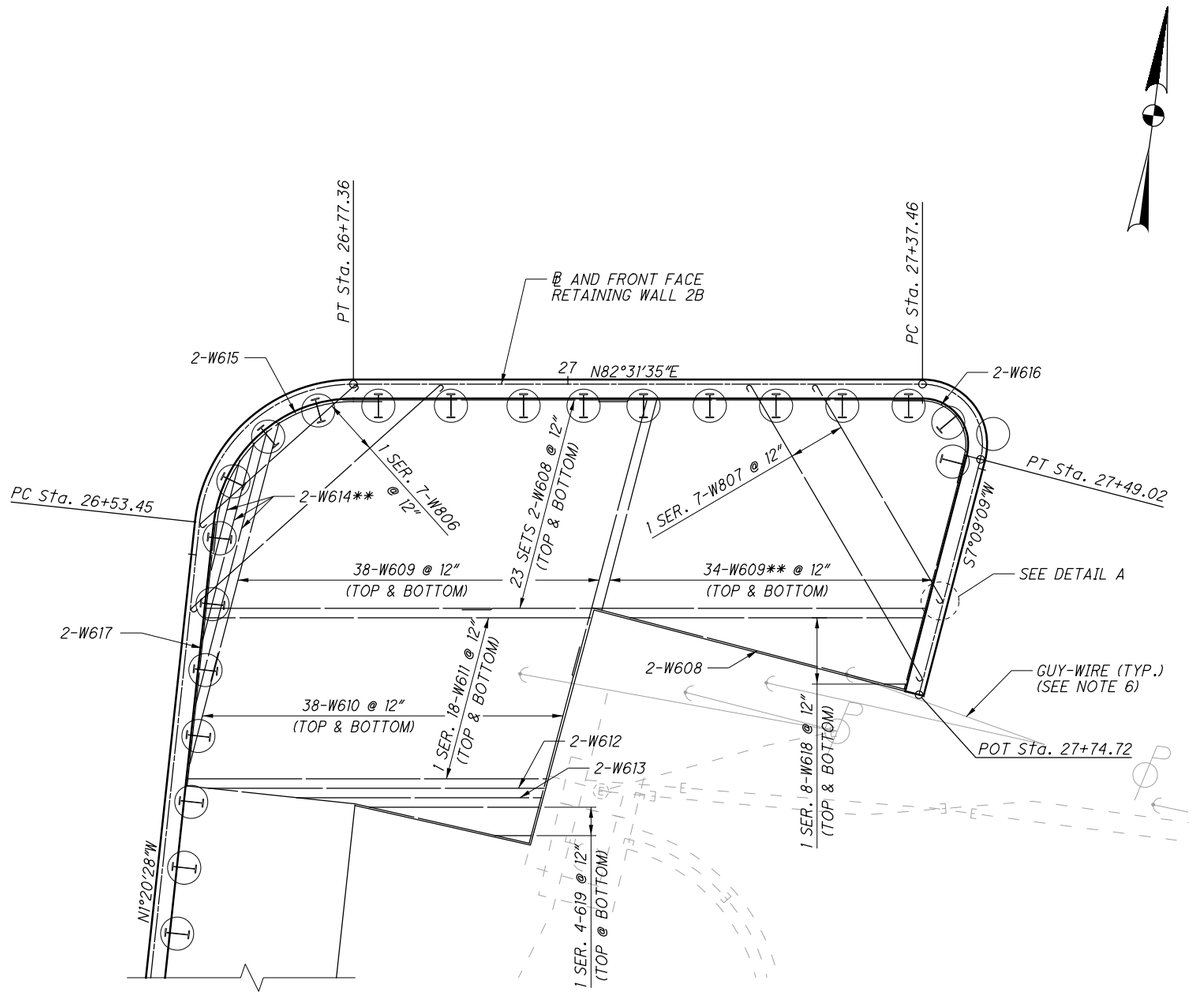
ADDENDUM	DATE
5	7/2/13

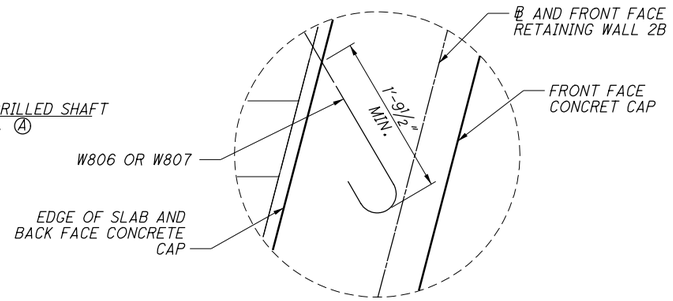


TYPICAL FILL SOLDIER PILE WALL SECTION

(STA. 26+27.50 TO 27+39.50)



PLAN



DETAIL A

LAP LENGTH	
NO. 6 BAR	3'-0" MIN.

LEGEND:

* - FIELD BEND AS NECESSARY

** - FIELD TRIM AS NECESSARY

NOTES:

1. THE PLAN CONCRETE WALL THICKNESS IS 12 INCHES WITH A 2'-0" CONCRETE CAP. THESE ARE THE MINIMUM REQUIRED DIMENSIONS. HOWEVER, DUE TO MISALIGNMENT OF SOLDIER BEAMS, THE DEVELOPER MAY PROVIDE ADDITIONAL THICKNESSES BUT AT NO COST TO THE STATE.
2. FOR SECTIONS A-A AND B-B, SEE SHEET 7/16.
3. FOR DRILLED SHAFT SPACING, SEE SHEET 6/16.
4. FOR TABLE OF WALL ELEVATIONS, SEE SHEET 7/16.
5. FOR SLAB COLOR AND SURFACE TREATMENT, SEE APPENDIX AE-02.
6. BLOCK OUT ALL GUY WIRES LOCATED WITHIN SLAB LIMITS WITH A 6" DIAMETER PVC PIPE. THE PVC PIPE IS TO BE CUT FLUSH WITH THE SURFACE OF THE SLAB. ADJUST REINFORCING STEEL AS REQURIED TO MISS THE PVC PIPE.

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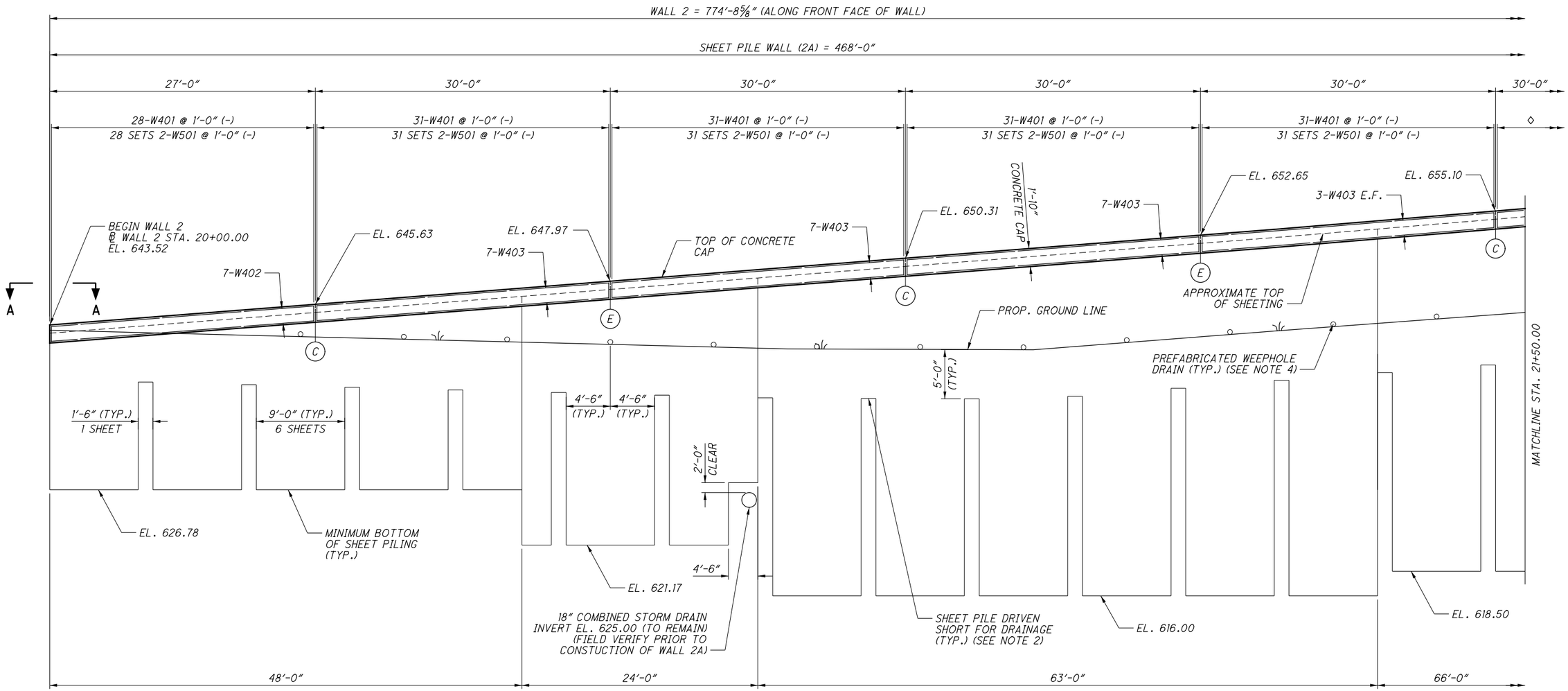
WALL DETAILS
RETAINING WALL 2
ALONG TOWPATH TRAIL

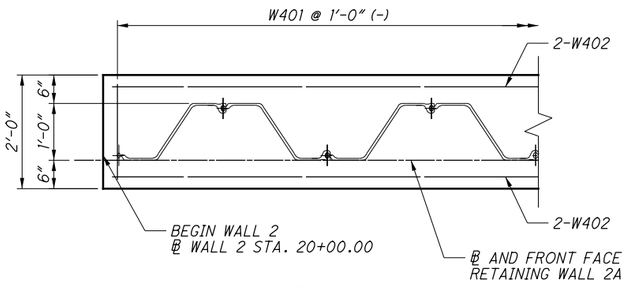
CUY-90-14.90
PID No. 82119

8 / 16

72 / 93



PART ELEVATION



SECTION A-A

LEGEND:

(C) - CONTRACTION JOINT, SEE SHEET 14/16

(E) - EXPANSION JOINT, SEE SHEET 14/16

◇ - 31-W401 @ 1'-0" (-)
31 SETS 2-W501 @ 1'-0" (-)

NOTES:

1. FOR SHEET PILE WALL TYPICAL SECTION AND DETAILS, SEE SHEET 5/16.
2. TO ALLOW DRAINAGE TO OCCUR WITHIN THE SLOPE, EVERY 7TH SHEET PILE WILL ONLY BE DRIVEN TO A DEPTH 5'-0" BELOW THE PROPOSED GROUND.
3. ALL DIMENSIONS ARE ALONG ℄ WALL 2.
4. FOR ADDITIONAL WEEPHOLE DRAIN NOTES, SEE SHEET 4/16.

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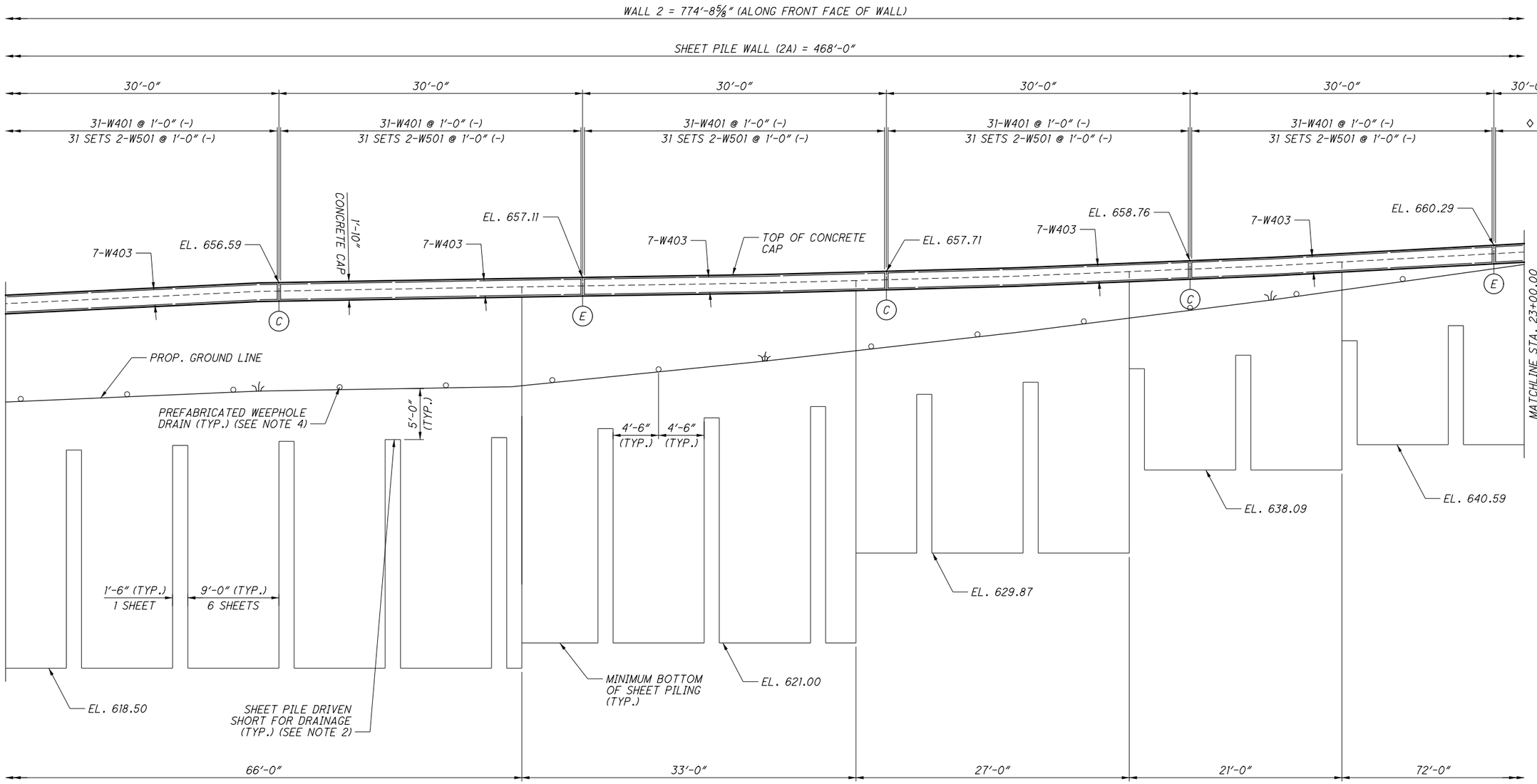
WALL ELEVATION
RETAINING WALL 2
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

9 / 16

73 / 93



PART ELEVATION

LEGEND:

(C) - CONTRACTION JOINT, SEE SHEET 14/16

(E) - EXPANSION JOINT, SEE SHEET 14/16

◊ - 31 W401 @ 1'-0" (-)
31 SETS 2-W501 @ 1'-0" (-)

NOTES:

1. FOR SHEET PILE WALL TYPICAL SECTION AND DETAILS, SEE SHEET 5/16.
2. TO ALLOW DRAINAGE TO OCCUR WITHIN THE SLOPE, EVERY 7TH SHEET PILE WILL ONLY BE DRIVEN TO A DEPTH 5'-0" BELOW THE PROPOSED GROUND.
3. ALL DIMENSIONS ARE ALONG ℄ WALL 2.
4. FOR ADDITIONAL WEEPHOLE DRAIN NOTES, SEE SHEET 4/16.

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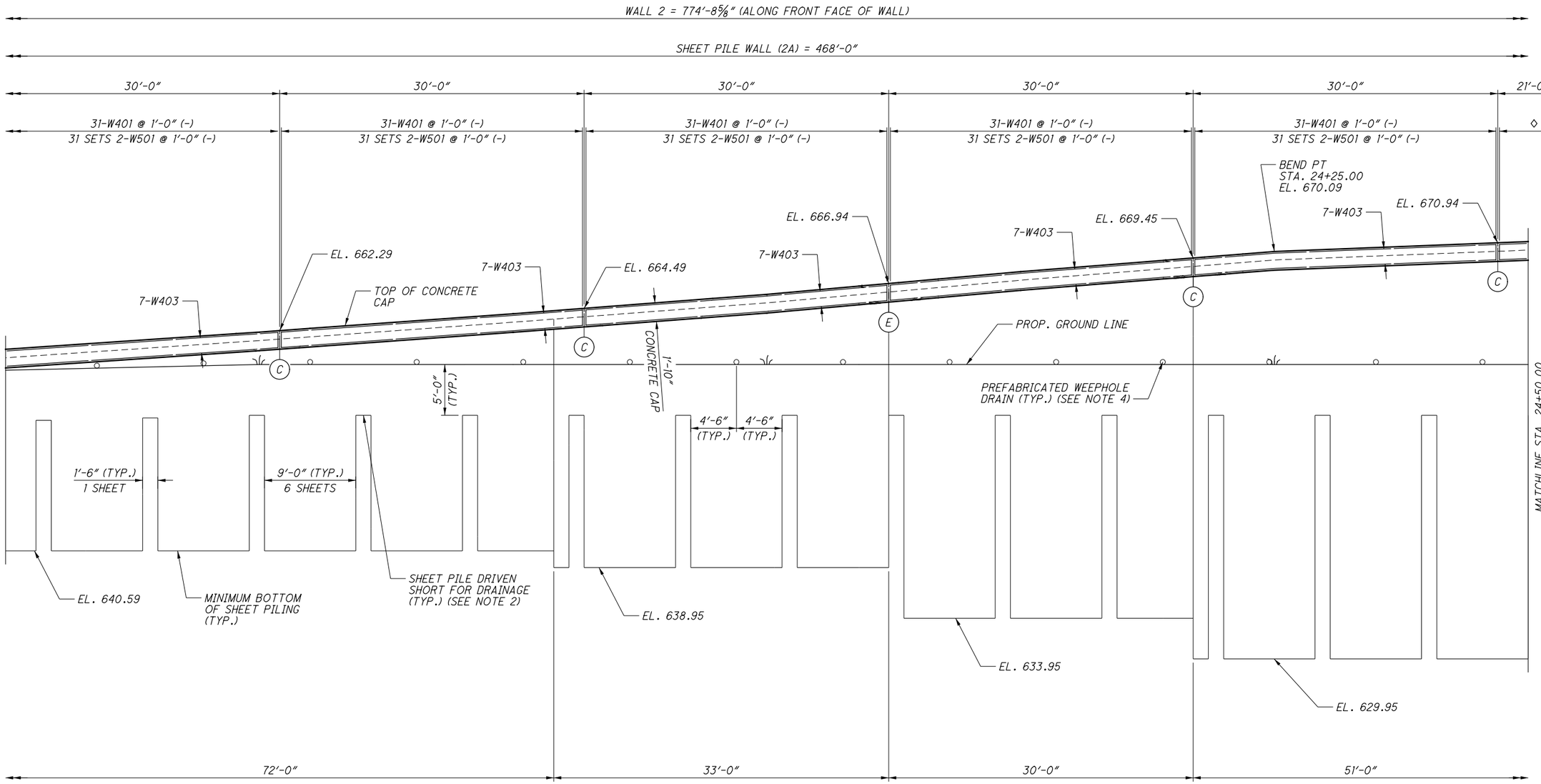
CHECKED	REVISED	STRUCTURE FILE NUMBER	
BMG/JN			

WALL ELEVATION
RETAINING WALL 2
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

10 / 16

74 / 93



PART ELEVATION

LEGEND:

(C) - CONTRACTION JOINT, SEE SHEET 14/16

(E) - EXPANSION JOINT, SEE SHEET 14/16

◇ - 22-W401 @ 1'-0" (-)
22 SETS 2-W501 @ 1'-0" (-)

NOTES:

1. FOR SHEET PILE WALL TYPICAL SECTION AND DETAILS, SEE SHEET 5/16.
2. TO ALLOW DRAINAGE TO OCCUR WITHIN THE SLOPE, EVERY 7TH SHEET PILE WILL ONLY BE DRIVEN TO A DEPTH 5'-0" BELOW THE PROPOSED GROUND.
3. ALL DIMENSIONS ARE ALONG ℄ WALL 2.
4. FOR ADDITIONAL WEEPHOLE DRAIN NOTES, SEE SHEET 4/16.

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WALL ELEVATION
RETAINING WALL 2
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

11 / 16

75
93

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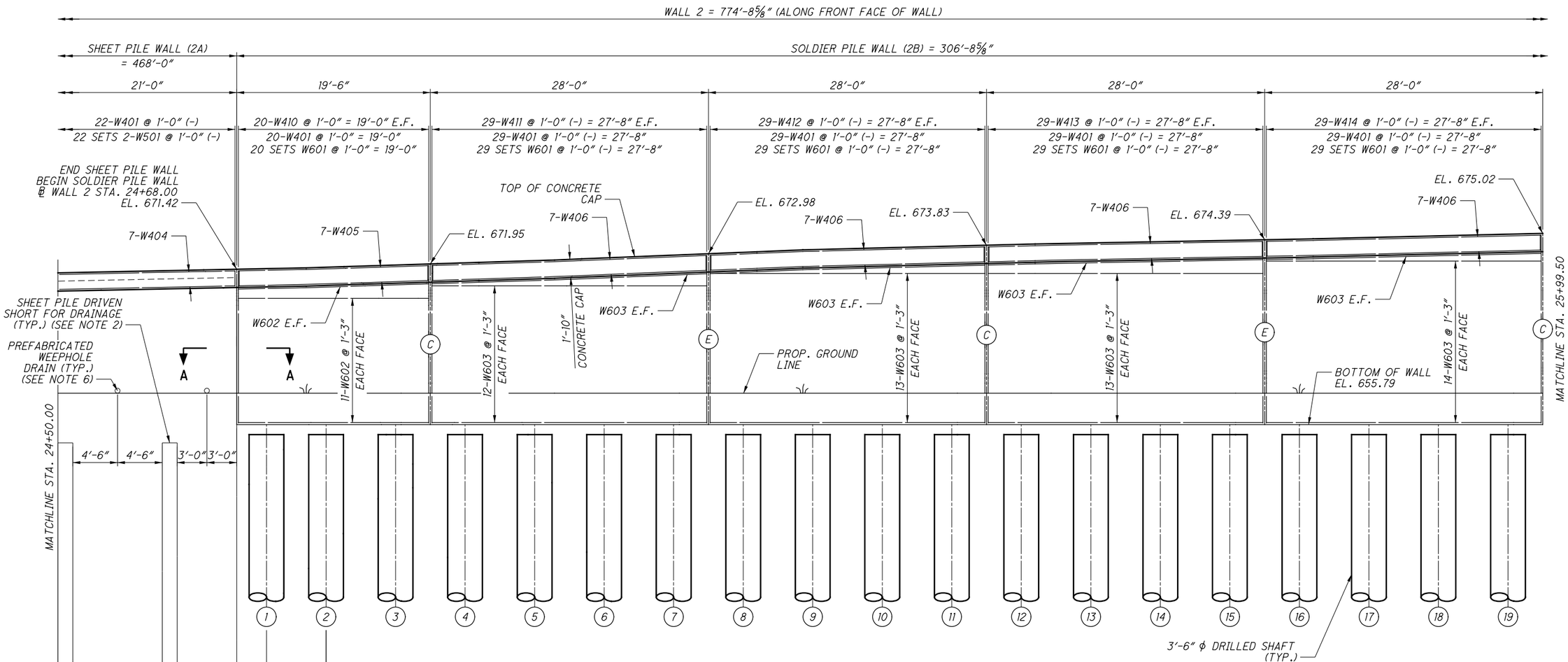
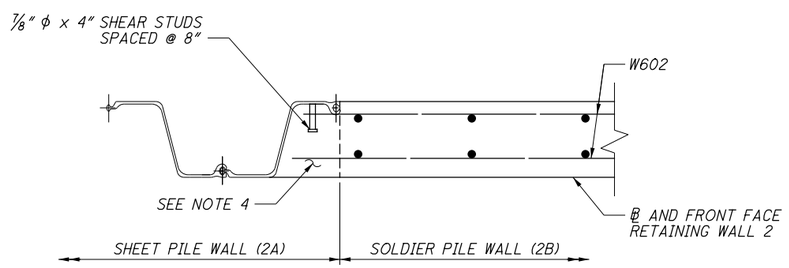


PART ELEVATION



SECTION A-A

LEGEND:

(C) - CONTRACTION JOINT, SEE SHEET 14/16

(E) - EXPANSION JOINT, SEE SHEET 14/16

NOTES:

1. FOR SHEET PILE WALL TYPICAL SECTION AND DETAILS, SEE SHEET 5/16.
2. TO ALLOW DRAINAGE TO OCCUR WITHIN THE SLOPE, EVERY 7TH SHEET PILE WILL ONLY BE DRIVEN TO A DEPTH 5'-0" BELOW THE PROPOSED GROUND.
3. FOR SOLDIER PILE WALL TYPICAL SECTION AND DETAILS, SEE SHEET 7/16.
4. FILL THE FIRST RECESSED PORTION OF THE SHEET PILE WITH WITH CONCRETE PER CMS 511 - CLASS QC1, CONCRETE (FACING).
5. ALL DIMENSIONS ARE ALONG ℄ WALL 2.
6. FOR ADDITIONAL WEEPHOLE DRAIN NOTES, SEE SHEET 4/16.

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WALL ELEVATION
RETAINING WALL 2
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

12 / 16

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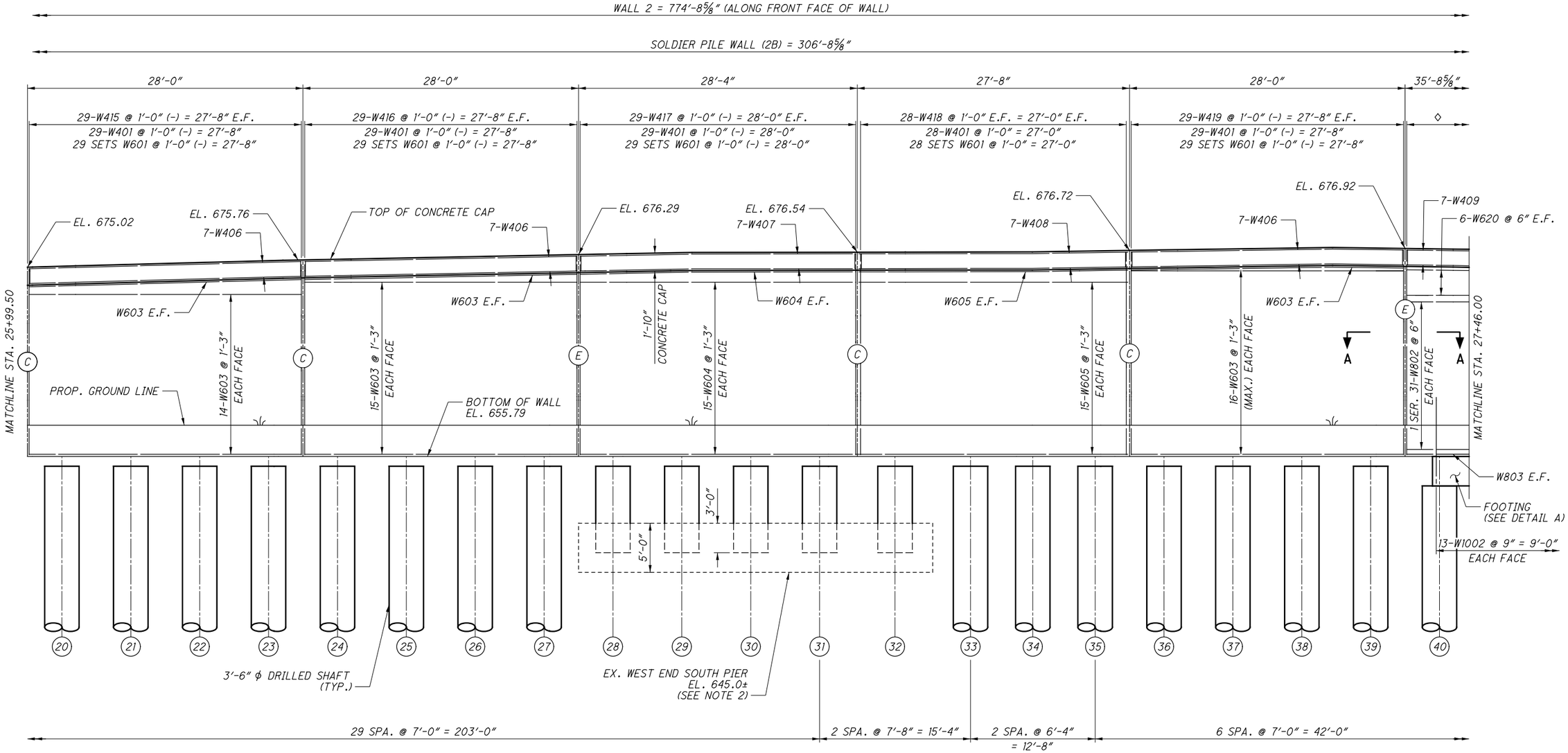
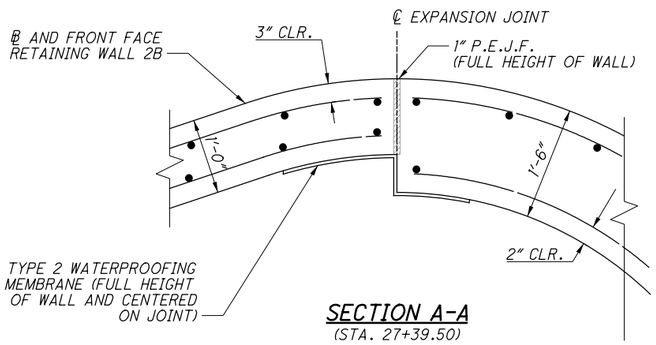


PART ELEVATION



SECTION A-A
(STA. 27+39.50)

LEGEND:

◇ - 13-W502 @ 1'-0" E.F.
13-W401 @ 1'-0"
13 SETS W601 @ 1'-0"

(C) - CONTRACTION JOINT, SEE SHEET 14/16

(E) - EXPANSION JOINT, SEE SHEET 14/16

NOTES:

1. FOR SOLDIER PILE WALL TYPICAL SECTION AND DETAILS, SEE SHEETS 7/16 , 8/16 AND 14/16.
2. DRILLED SHAFTS 28 THRU 32 ARE TO BE DRILLED 3'-0' INTO THE EXISTING WEST END SOUTH PIER FOUNDATION.
3. FOR DETAIL A, SEE SHEET 14/16.
4. ALL DIMENSIONS ARE ALONG ℄ WALL 2.

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WALL ELEVATION
RETAINING WALL 2
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

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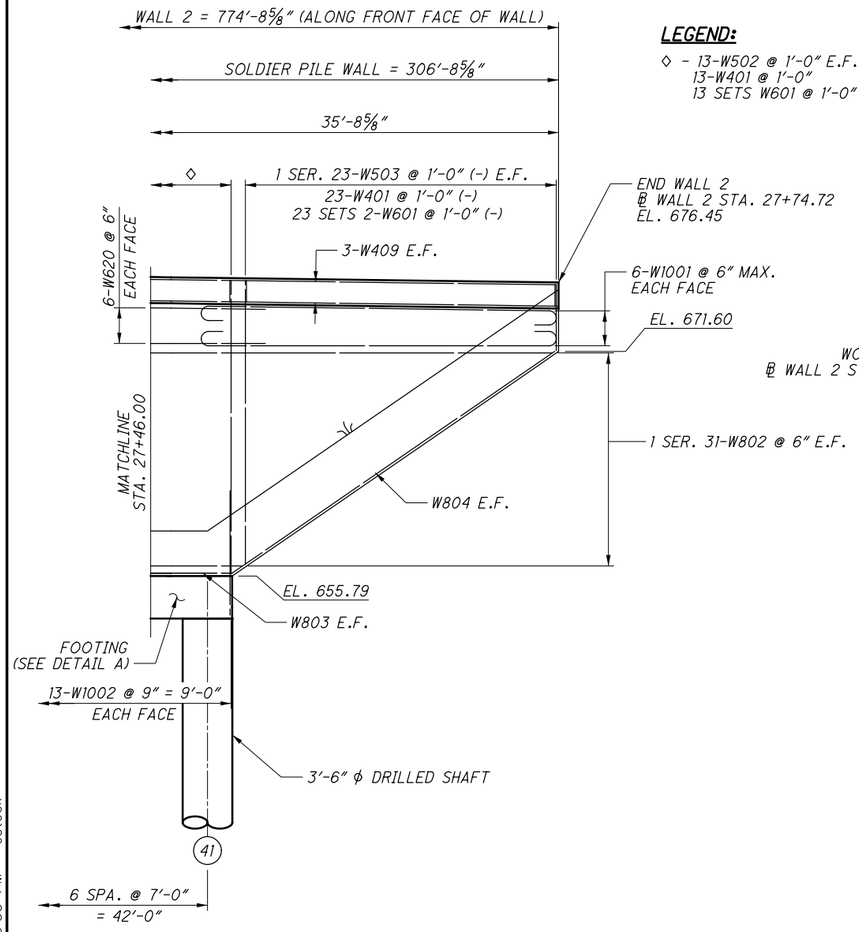
ADDENDUM	DATE
5	7/2/13

NOTES:

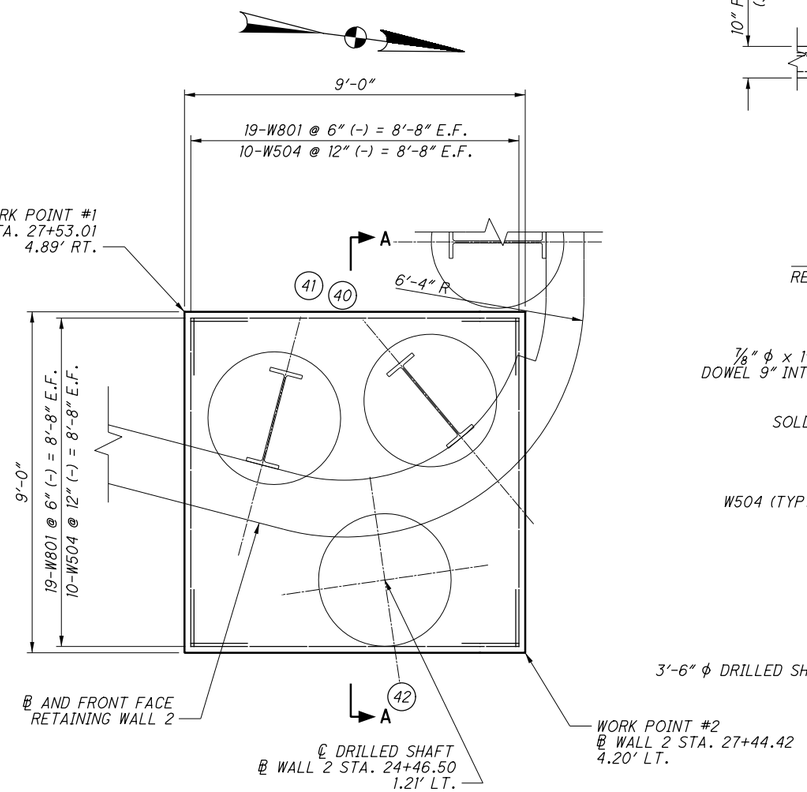
1. SECURELY ATTACH THE WATERPROOFING MEMBRANE TO THE WOOD LAGGING WITH SCREWS OR MASONRY ANCHORS AND 1" OUTSIDE DIAMETER FENDER WASHERS. PLACE THE MEMBRANE SO THAT THE ADHESIVE SIDE FACES THE CAST-IN-PLACE CONCRETE. THE SURFACE PREPARATION OUTLINED IN CMS 512.08 IS NOT REQUIRED. ALL LABOR AND MATERIALS FOR THIS WORK IS INCLUDED WITH ITEM 512 - TYPE 2 WATERPROOFING, AS PER PLAN.
2. FOR SLAB COLOR AND SURFACE TREATMENT, SEE APPENDIX AE-02.
3. ALL DIMENSIONS ARE ALONG ℄ WALL 2.

LEGEND:

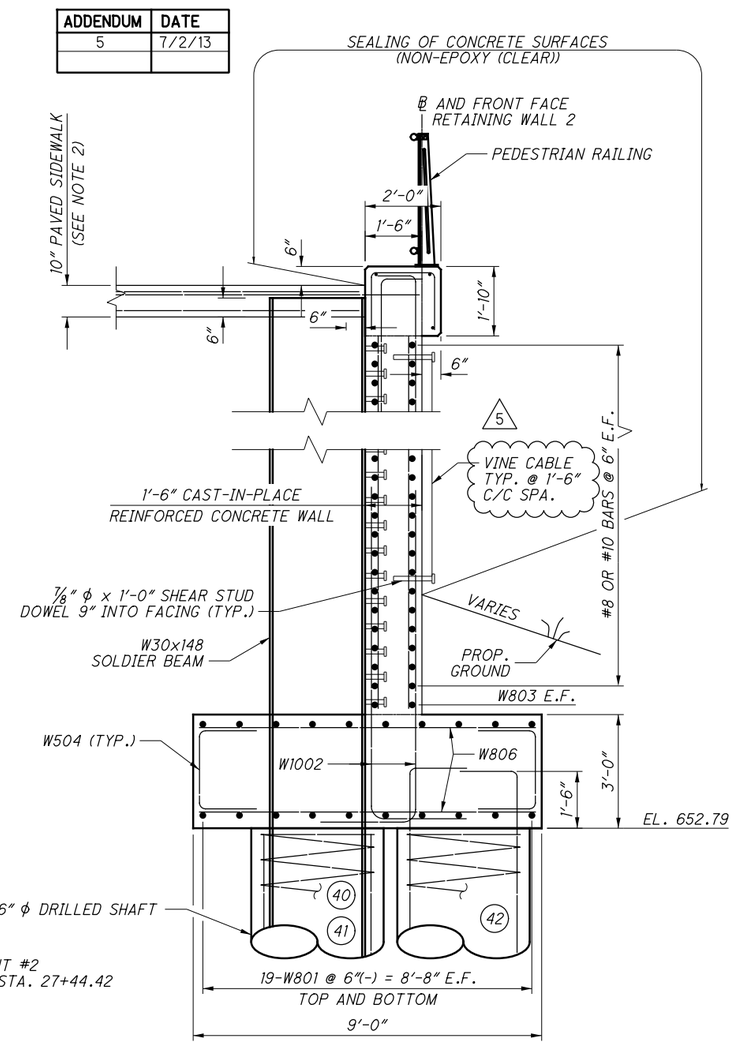
◇ - 13-W502 @ 1'-0" E.F.
13-W401 @ 1'-0"
13 SETS W601 @ 1'-0"



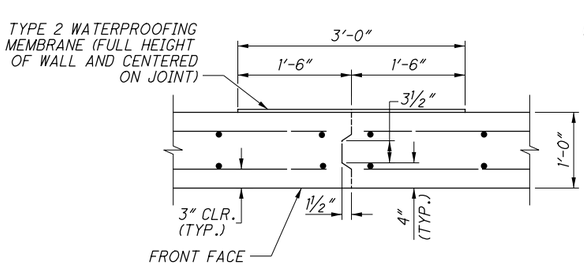
PART ELEVATION



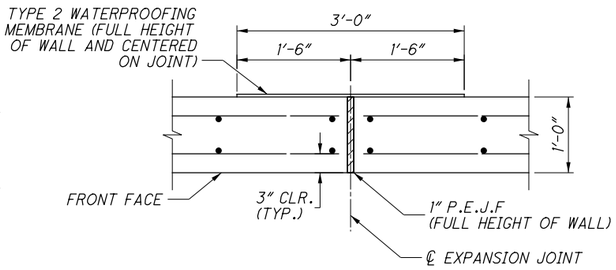
DETAIL A



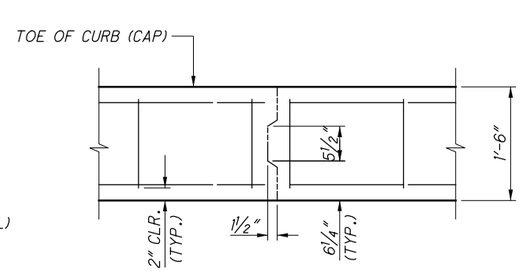
TYPICAL SOLDIER PILE WALL SECTION
(DRAINAGE DETAILS NOT SHOWN)
(STA. 27+39.50 TO STA. 27+74.72)



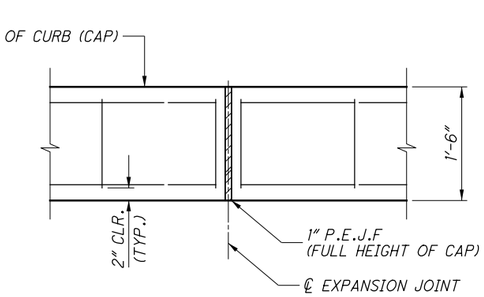
SOLDIER PILE WALL CONTRACTION JOINT



SOLDIER PILE WALL EXPANSION JOINT



CONCRETE CAP CONTRACTION JOINT



CONCRETE CAP EXPANSION JOINT

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WALL ELEVATION
RETAINING WALL 2
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

14 / 16

78 / 93

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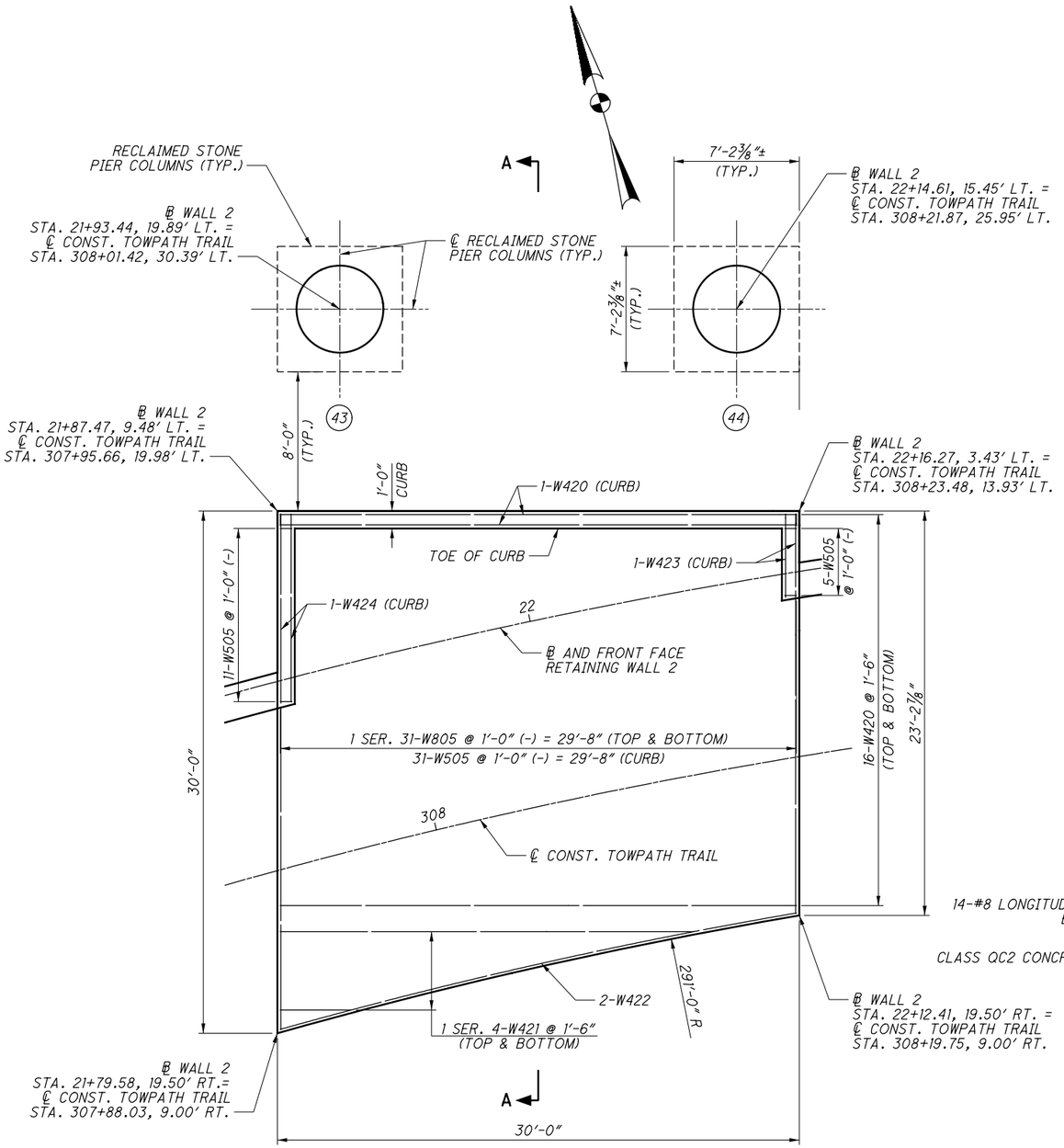
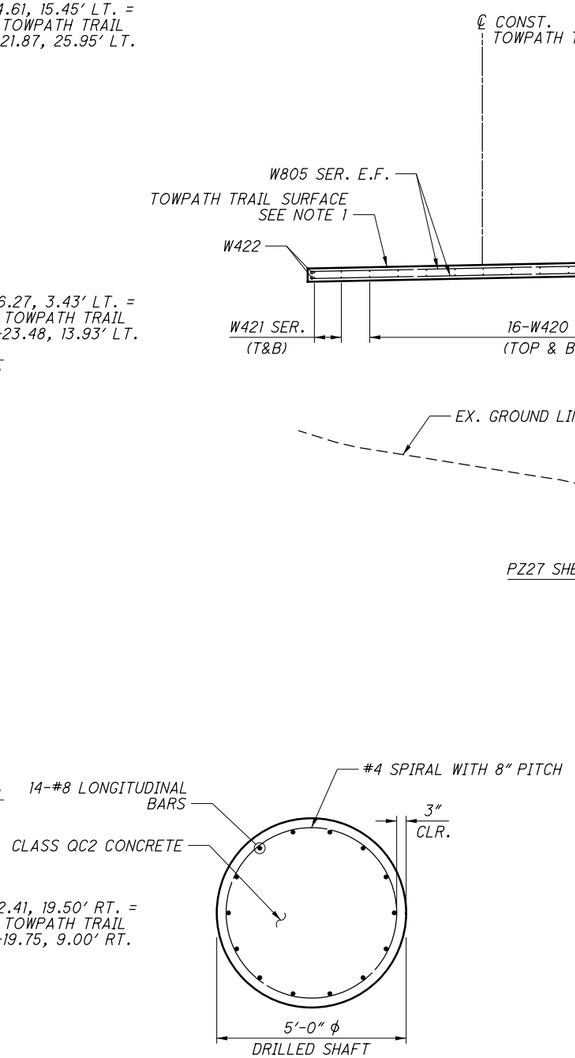
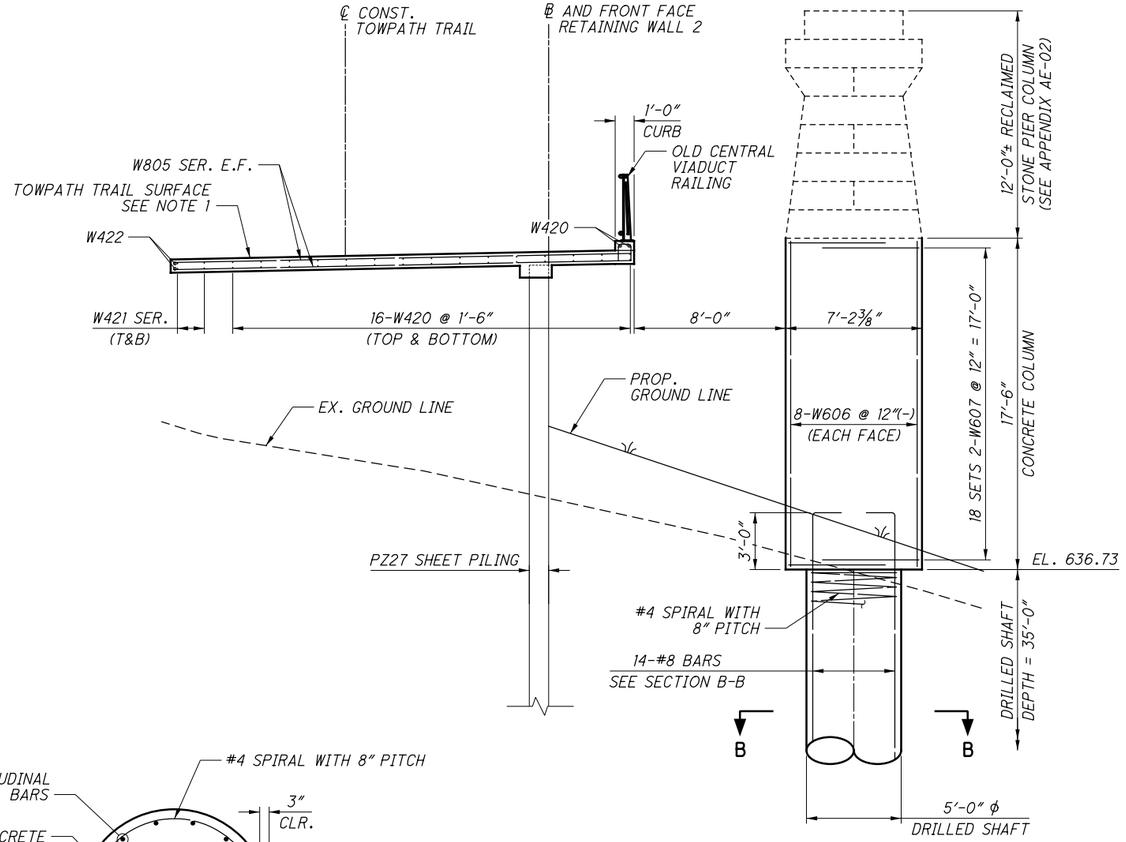


PLAN



SECTION B-B



SECTION A-A

TABLE OF ELEVATIONS - OVERLOOK SLAB				
DRILLED SHAFT NUMBER	STATION ℄ WALL 2	OFFSET (FT.)	BOTTOM OF DRILLED SHAFT ELEV.	TOP OF SHAFT CONCRETE ELEV.
43	21+93.44	19.89' LT.	601.73	636.73
44	22+14.61	15.45' LT.	601.73	636.73

NOTE:

1. FOR RAILING POST SPACINGS, PIER COLUMN AND TOWPATH TRAIL CONCRETE SURFACE TREATMENT AND ADDITIONAL DETAILS, SEE APPENDIX AE-02.

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OVERLOOK SLAB PLAN AND SECTION
RETAINING WALL 2
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

15 / 16

79
93

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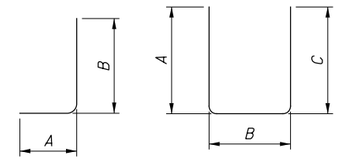
MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC
RETAINING WALL 2											
W401	800	4'-6"	2405	2	1'-6"	1'-8"	1'-6"				
W402	7	26'-8"	125	STR							
W403	94	29'-8"	1863	STR							
W404	7	20'-8"	97	STR							
W405	7	19'-2"	90	STR							
W406	49	27'-8"	906	STR							
W407	7	28'-0"	131	STR							
W408	7	27'-4"	128	STR							
W409	7	35'-4"	165	STR							
W410	40	15'-3"	407	STR							
W411	58	15'-10"	613	STR							
W412	58	16'-10"	652	STR							
W413	58	17'-8"	684	STR							
W414	58	18'-3"	707	STR							
W415	58	18'-10"	730	STR							
W416	58	19'-7"	759	STR							
W417	58	20'-2"	781	STR							
W418	56	20'-5"	764	STR							
W419	58	20'-7"	797	STR							
W420	34	29'-8"	674	STR							
	2 SR	4'-1"									
W421	OF	TO	74	STR							6'-6 3/4"
	4	23'-9"									
W422	2	30'-5"	41	STR							
W423	2	4'-8"	6	STR							
W424	2	10'-9"	14	STR							
W501	968	2'-4"	2356	1	1'-0"	1'-6"					
W502	26	20'-7"	558	STR							
	2 SR	4'-7"									0'-8 1/2"
W503	OF	TO	588	STR							0'-8 1/4"
	23	19'-11"									
W504	40	5'-4"	223	2	1'-6"	2'-7"	1'-6"				
W505	47	2'-1"	102	2	0'-10"	0'-8"	0'-10"				
W601	632	6'-4"	6012	1	1'-0"	5'-6"					
W602	24	19'-2"	691	STR							
W603	208	27'-8"	8644	STR							
W604	32	28'-0"	1346	STR							
W605	32	27'-4"	1314	STR							
W606	28	17'-2"	722	STR							
W607	36	16'-8"	901	2	5'-1"	6'-10"	5'-1"				
W608	94	40'-0"	5648	STR							
W609	144	30'-0"	6489	STR							
W610	76	21'-6"	2454	STR							
	2 SR	37'-10"									
W611	OF	TO	2122	STR							0'-2"
	18	40'-8"									
W612	2	35'-5"	106	STR							
W613	2	25'-10"	78	STR							
W614	6	29'-8"	267	STR							
W615	2	27'-3"	82	34	3'-0"	82°52'03"	3'-0"			14'-8"	
W616	2	14'-6"	44	34	3'-0"	104°37'34"	3'-0"			4'-8"	
W617	2	27'-10"	84	STR							
	2 SR	2'-3"									
W618	OF	TO	398	STR							4'-1"
	8	30'-10"									
	2 SR	3'-10"									
W619	OF	TO	130	STR							4'-8"
	4	17'-10"									
W620	12	14'-5"	260	STR							

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC
RETAINING WALL 2											
W801	76	8'-8"	1759	STR							
	2 SR	12'-9"									
W802	OF	TO	3918	STR							0'-8 3/4"
	31	34'-7"									
W803	2	12'-1"	65	STR							
W804	2	27'-9"	148	STR							
	2 SR	22'-11"									
W805	OF	TO	4345	STR							0'-2 3/4"
	31	29'-7"									
	1 SR	23'-11"			22'-3"						
W806	OF	TO	572	17	TO						2'-2 3/4"
	7	37'-3"			35'-7"						
	1 SR	28'-3"			26'-7"						
W807	OF	TO	617	17	TO						1'-7 1/4"
	7	37'-10"			36'-2"						
W1001	12	27'-10"	1437	17	25'-0"						
W1002	26	10'-6"	1175	1	1'-10"	9'-0"					
	SUB-TOTAL		69,268								



NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGIT WHERE FOUR ARE USED INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, S601:

   S: LOCATION OF THE BARS IN THE STRUCTURE (SUPERSTRUCTURE)
   6: BAR SIZE DIMENSION NO. 6
   01: SEQUENCE NUMBER

2. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE NOTED. "STD." WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BAR BEND AT THE END OF THE BAR. ALL REINFORCING STEEL IS TO BE EPOXY COATED. STRAIGHT ARE INDICATED BY " STR".

3. FOR BAR TYPE 34, DIMENSION B IS AN ANGLE MEASURED IN DEGREES, MINUTES AND SECONDS.

4. ALL REINFORCING STEEL SHALL BE EPOXY COATED, EXCEPT W501 WHICH IS TO BE "BLACK STEEL."

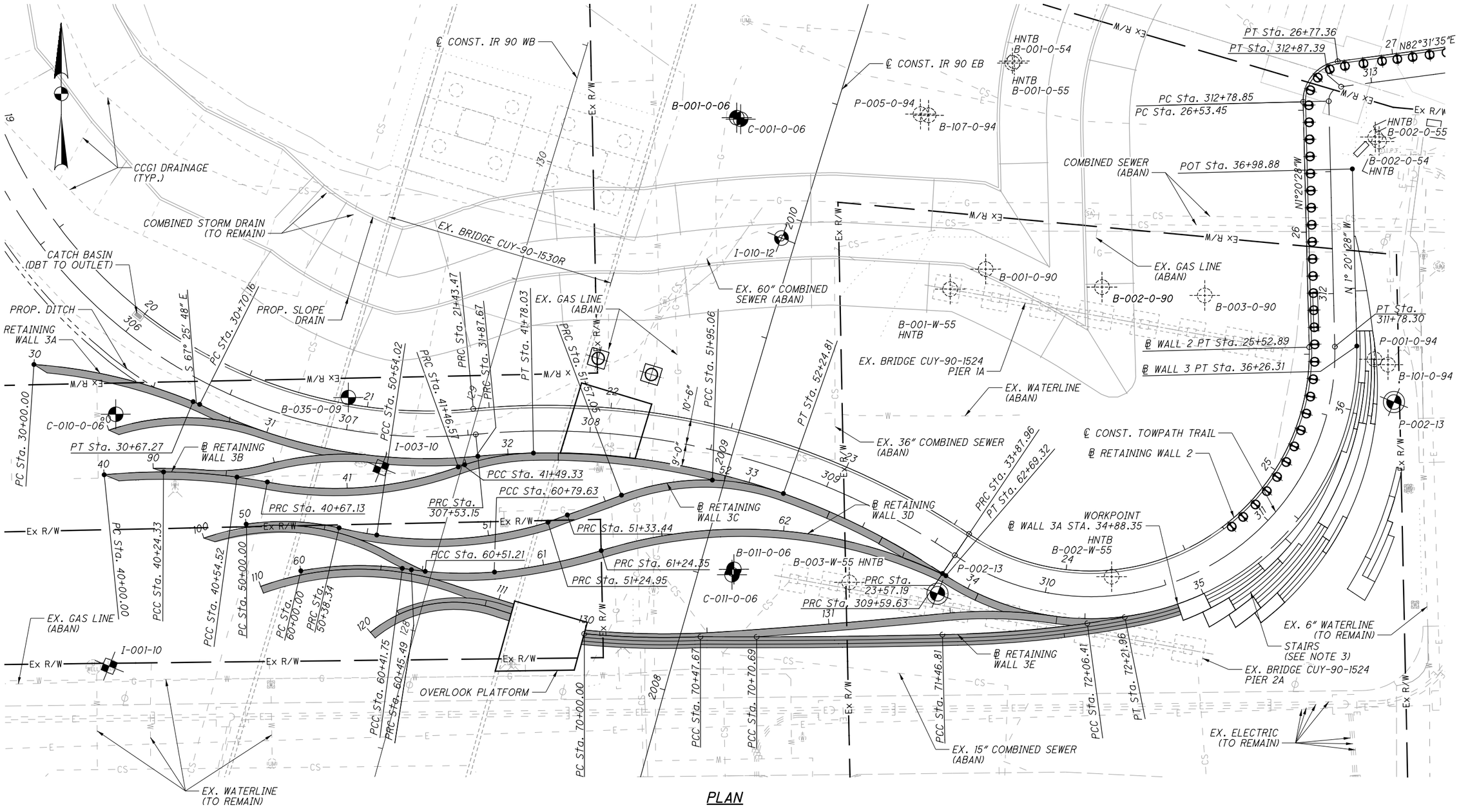
E.L. ROBINSON
the Challenge Line Choice
1901 Watermark Drive, Suite 310 - Columbus, Ohio 43215

DESIGNED CMH | DRAWN CMH | REVIEWED RLE | DATE 03/2013
CHECKED BMG | REVISED | STRUCTURE FILE NUMBER

REINFORCING STEEL LIST

RETAINING WALL 2
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119



PLAN

LEGEND:

FOR BORING AND INSTRUMENTATION LEGEND, SEE SHEET (61/93).

ABAN - TO BE ABANDONED

▭ - GABION WALL

NOTES:

1. EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.
2. FOR TOWPATH TRAIL PLAN, ELEVATIONS AND ADDITIONAL INFORMATION, SEE TOWPATH TRAIL PLANS.
3. FOR STAIR DETAILS, SEE APPENDIX AE-02.

BENCHMARK DATA

GPC075 STA. 1998+14.98, ELEV. 692.921, OFFSET 111.49' RT.
WA09 STA. 2006+88.87, ELEV. 697.664, OFFSET 219.97' RT.
WA10 STA. 1996+37.27, ELEV. 694.496, OFFSET 46.03' RT.

ALL STATIONS AND OFFSETS GIVEN FROM ℄ CONSTRUCTION I.R. 90 E.B.

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Engineering One Call Now, Choice
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DESIGNED	DRAWN	REVIEWED	DATE
FIB	FIB	RLE	01/2013
CHECKED	REVISED	STRUCTURE FILE NUMBER	
BMG/JN			

SITE PLAN
RETAINING WALL 3
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

1 / 13

81 / 93

SUPPLEMENTAL SPECIFICATIONS:

REFER TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION(S):
838 DATED 04-15-2005, AND MODIFIED BY NOTE BELOW

REFER TO THE FOLLOWING PROJECT APPENDIX(S):
AE-02

DESIGN SPECIFICATIONS:

THESE STRUCTURES CONFORM TO THE LFRD BRIDGE DESIGN SPECIFICATIONS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 6TH EDITION, 2012, AND ODOT BRIDGE DESIGN MANUAL, 2007, WITH UPDATES THROUGH 2013.

DESIGN PARAMETERS:

RETAINED SOIL UNIT WEIGHT, γ SOIL = 120 pcf
RETAINED SOIL ANGLE OF INTERNAL FRICTION, ϕ = 29°
LIVE LOAD SURCHARGE = 240 psf

FOUNDATION SOIL UNIT WEIGHT, SOIL = 125 pcf
FOUNDATION SOIL ANGLE OF INTERNAL FRICTION, ϕ = 33°

DESIGN DATA:

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4,000 PSI (FOOTING)
CONCRETE CLASS QC2 - COMPRESSIVE STRENGTH 4,500 PSI (OVERLOOK SLAB AND CAP)
REINFORCING STEEL - ASTM A615 OR A996 GRADE 60, MINIMUM YIELD STRENGTH 60 KSI.
- ALL REINFORCING STEEL SHALL BE EPOXY COATED PER CMS 709.00

ITEM 838 - GABION, AS PER PLAN:

THE GABIONS ARE TO CONSTRUCTED IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 838 WITH THE FOLLOWING ADDITIONAL REQUIREMENTS. CONSTRUCT THE EXPOSED FACE BASKETS AND THE SUBGRADE BASKETS IN ACCORDANCE WITH THE REQUIREMENTS SHOWN ON SHEETS 28/45 AND 29/45 OF APPENDIX AE-02.

1. ALL GABION BASKETS WITH EXPOSED SURFACES ARE TO BE CONSTRUCTED OF SIX (6) GAUGE, 316 STAINLESS STEEL WELDED WIRE MESH. EXPOSED GABION BASKETS ARE TO HE HAND FILLED IN A NEAT AND ORDERLY FASHION WITH REGULAR SIZED STONES.

2. ALL GABION BASKETS WITHOUT EXPOSED SURFACES SHALL BE CONSTRUCTED PER ODOT SUPPLEMENTAL SPECIFICATION 838.

3. ALL GABION BASKETS WITH EXPOSED FACES ALONG CURVES SHALL BE PLACED SUCH THAT THE MAXIMUM GAP BETWEEN ADJACENT BASKETS IS ½".

CMS SPECIFICATION

THESE STRUCTURES ARE TO CONFORM TO THE 2013 ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS.

TABLE OF SPECIFICATIONS

DESCRIPTION	CMS SPECIFICATION
EMBANKMENT	203
UNCLASSIFIED EXCAVATION	503
COFFERDAMS AND EXCAVATION BRACING	503
PILE DRIVING EQUIPMENT MOBILIZATION	505
EPOXY COATED REINFORCING STEEL	509
CLASS QC1 CONCRETE (FOOTING)	511
CLASS QC2 CONCRETE (OVERLOOK SLAB AND CAP)	511
SEALING OF CONCRETE SURFACES (NON-EPOXY (CLEAR))	512
POROUS BACKFILL WITH FILTER FABRIC	518
6" PIPE, UNDERDRAIN WITH FABRIC WRAP	605
6" MINIMUM COLORED AGGREGATE BED	703
4 MIL. MINIMUM POLYETHELENE SHEETING	705.06
FILTER FABRIC, TYPE A	712.09, TYPE A
GABIONS	838 MODIFIED
FOAM CELLULAR CONCRETE FILL	PLAN NOTE, SHEET 67/93

ABBREVIATIONS:

CLR. - CLEAR
CMS - CONSTRUCTION AND MATERIALS SPECIFICATIONS
CONST. - CONSTRUCTION
DBT - DESIGN BUILD TEAM
EB - EASTBOUND
E.F. - EACH FACE
EL. OR ELEV. - ELEVATION
EX. - EXISTING
FT. - FOOT OR FEET
LT. - LEFT
MIN. - MINIMUM
MAX. - MAXIMUM
PROP. - PROPOSED
RT. - RIGHT
SER. - SERIES
SPA. - SPACE OR SPACES
STA. - STATION
T&B - TOP AND BOTTOM
TYP. - TYPICAL
WB - WESTBOUND

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
RETAINING WALL 3											
W401	42	30'-8"	860	STR							
	2 SR	1'-3"									
W402	OF	TO	172	STR							3'-3 ¼"
	9	27'-5"									
W403	20	32'-0"	428	STR							
W404	90	30'-0"	1804	STR							
W405	21	3'-2"	44	3	0'-8"	0'-8 ½"					
W406	2	8'-5"	11	STR							
W407	2	9'-8"	13	STR							
	2 SR	20'-0"									
W501	OF	TO	1649	STR							0'-3 ¾"
	32	29'-5"									
W502	18	32'-8"	613	STR							
W503	307	5'-5"	1734	2	1'-3"	3'-2"	1'-3"				
W504	36	6'-10"	257	1	0'-10"	6'-2"					
W505	47	8'-1"	396	1	0'-10"	7'-5"					
W506	14	5'-3"	77	STR							
W507	14	23'-0"	336	STR							
W508	14	6'-5"	94	STR							
W509	14	5'-8"	83	1	2'-11"	2'-11"					
W510	14	6'-8"	97	1	3'-5"	3'-5"					
	2 SR	15'-11"				13'-1"					
W601	OF	TO	1554	2	1'-7"	TO	1'-7"				0'-0 ¼"
	32	16'-4"				13'-6"					
W602	30	33'-4"	1502	2	1'-7"	30'-6"	1'-7"				
		SUB-TOTAL	11,724								

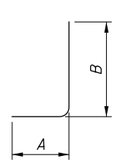
NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGIT WHERE FOUR ARE USED INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, W601:

   W: LOCATION OF THE BARS IN THE WALL
   6: BAR SIZE DIMENSION NO. 6
   01: SEQUENCE NUMBER

2. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE NOTED. "STD." WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BAR BEND AT THE END OF THE BAR. ALL REINFORCING STEEL IS TO BE EPOXY COATED. STRAIGHT ARE INDICATED BY " STR".

3. ALL REINFORCING SHALL BE EPOXY COATED, GRADE 60.



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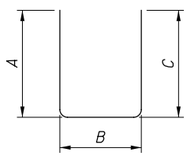

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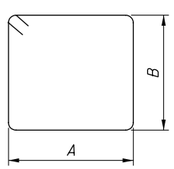

TYPE-3

E.L. ROBINSON
the Challenge line. Choice.
1901 Watermark Drive, Suite 310 - Columbus, Ohio 43215

DATE 01/2013
REVIEWED RLE
STRUCTURE FILE NUMBER
DRAWN CMH
REVISED
DESIGNED CMH
CHECKED BMG/JN

GENERAL NOTES
RETAINING WALL 3
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

2 / 13

82
93

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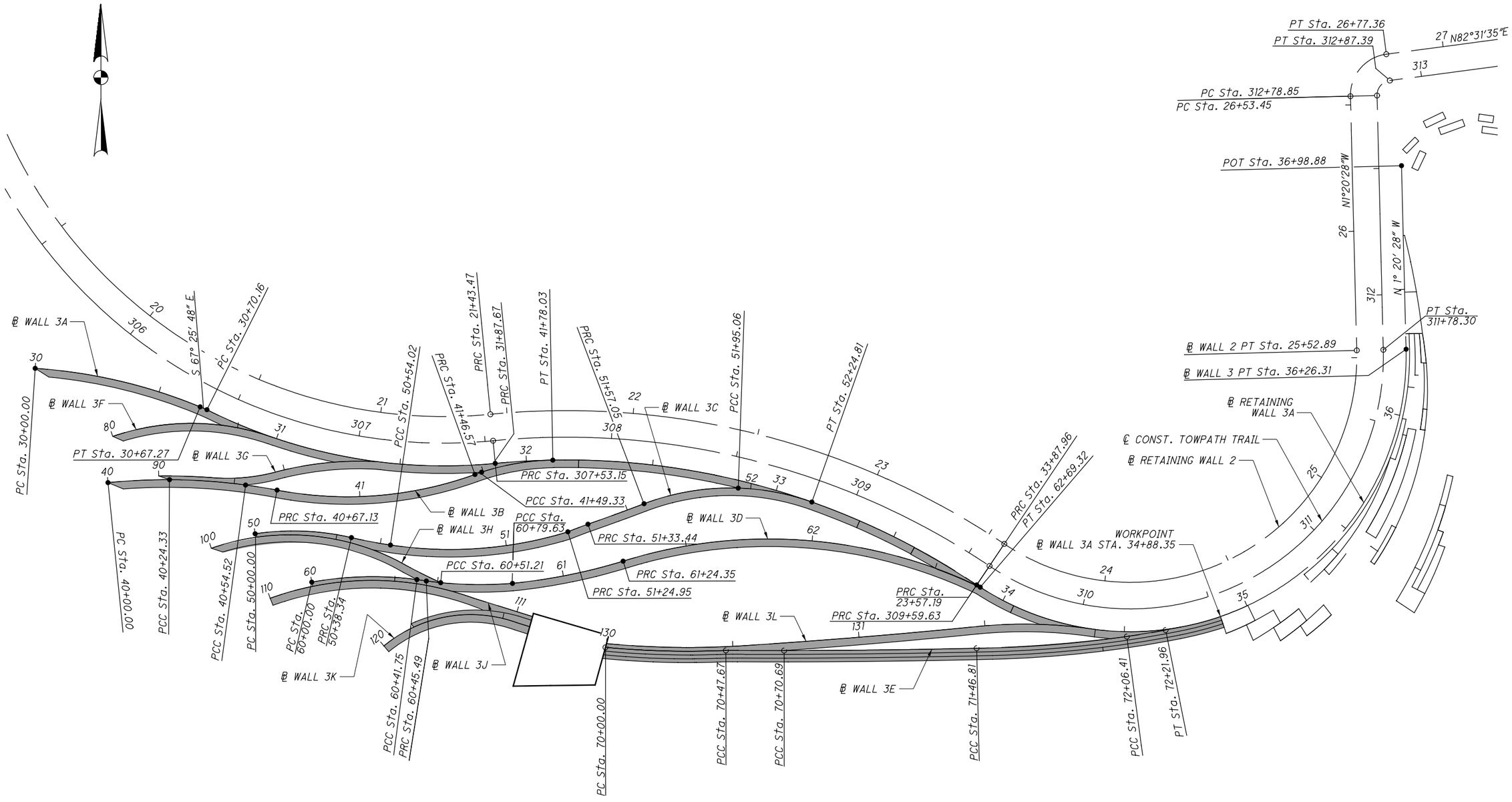

SCHEMATIC PLAN

LEGEND:

GABION WALL

NOTE:

1. FOR WALL CURVE DATA AND GEOMETRY, SEE SHEETS 4/13 AND 5/13.

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the Challenge is a Choice.
1801 Watermark Drive, Suite 310 - Columbus, Ohio 43215

DESIGNED	DRAWN	REVIEWED	DATE
FIB	FIB	RLE	01/2013
CHECKED	REVISED	STRUCTURE FILE NUMBER	
BMG/JN			

SCHEMATIC PLAN
RETAINING WALL 3
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

3 / 13

83
93

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WALL 3A CURVE DATA

P.I. Sta. 30+33.94
Δ = 18° 42′ 00″ (RT)
Dc = 27° 47′ 52″
R = 206.12′
T = 33.94′
L = 67.27′
E = 2.78′
C = 66.97′
C.B. = S 76° 46′ 48″ E

P.I. Sta. 31+30.51
Δ = 32° 12′ 57″ (LT)
Dc = 27° 24′ 51″
R = 209.00′
T = 60.36′
L = 117.51′
E = 8.54′
C = 115.97′
C.B. = S 79° 22′ 53″ E

P.I. Sta. 32+91.97
Δ = 39° 26′ 08″ (RT)
Dc = 19° 41′ 21″
R = 291.00′
T = 104.30′
L = 200.29′
E = 18.13′
C = 196.36′
C.B. = S 75° 46′ 17″ E

P.I. Sta. 35+98.64
Δ = 125° 17′ 16″ (LT)
Dc = 52° 33′ 54″
R = 109.00′
T = 210.68′
L = 238.35′
E = 128.20′
C = 193.62′
C.B. = N 61° 18′ 09″ E

WALL 3B CURVE DATA

P.I. Sta. 40+12.18
Δ = 5° 58′ 33″ (RT)
Dc = 24° 33′ 38″
R = 233.28′
T = 12.18′
L = 24.33′
E = 0.32′
C = 24.32′
C.B. = N 87° 21′ 07″ E

P.I. Sta. 40+39.44
Δ = 7° 24′ 49″ (RT)
Dc = 24° 33′ 38″
R = 233.28′
T = 15.11′
L = 30.18′
E = 0.49′
C = 30.16′
C.B. = S 85° 57′ 12″ E

P.I. Sta. 40+60.82
Δ = 3° 05′ 51″ (RT)
Dc = 24° 33′ 38″
R = 233.28′
T = 6.31′
L = 12.61′
E = 0.09′
C = 12.61′
C.B. = S 80° 41′ 52″ E

P.I. Sta. 41+07.82
Δ = 30° 37′ 21″ (LT)
Dc = 38° 32′ 55″
R = 148.63′
T = 40.69′
L = 79.44′
E = 5.47′
C = 78.50′
C.B. = N 85° 32′ 23″ E

P.I. Sta. 41+47.95
Δ = 1° 39′ 04″ (RT)
Dc = 59° 40′ 59″
R = 96.00′
T = 1.38′
L = 2.77′
E = 0.01′
C = 2.77′
C.B. = N 71° 03′ 14″ E

P.I. Sta. 41+63.79
Δ = 17° 07′ 32″ (RT)
Dc = 59° 40′ 59″
R = 96.00′
T = 14.45′
L = 28.69′
E = 1.08′
C = 28.59′
C.B. = N 80° 26′ 32″ E

WALL 3C CURVE DATA

P.I. Sta. 50+19.40
Δ = 21° 37′ 47″ (RT)
Dc = 56° 25′ 11″
R = 101.55′
T = 19.40′
L = 38.34′
E = 1.84′
C = 38.11′
C.B. = S 87° 37′ 52″ E

P.I. Sta. 50+46.18
Δ = 4° 37′ 42″ (LT)
Dc = 29° 30′ 18″
R = 194.19′
T = 7.85′
L = 15.69′
E = 0.16′
C = 15.68′
C.B. = S 79° 07′ 49″ E

P.I. Sta. 50+90.08
Δ = 25° 28′ 27″ (LT)
Dc = 35° 55′ 05″
R = 159.52′
T = 36.06′
L = 70.92′
E = 4.02′
C = 70.34′
C.B. = N 85° 49′ 06″ E

P.I. Sta. 51+29.20
Δ = 3° 01′ 47″ (RT)
Dc = 35° 39′ 45″
R = 160.66′
T = 4.25′
L = 8.50′
E = 0.06′
C = 8.49′
C.B. = N 69° 14′ 17″ E

P.I. Sta. 51+45.25
Δ = 1° 28′ 06″ (LT)
Dc = 6° 13′ 10″
R = 921.25′
T = 11.81′
L = 23.61′
E = 0.08′
C = 23.61′
C.B. = N 70° 01′ 07″ E

P.I. Sta. 51+76.31
Δ = 22° 43′ 47″ (RT)
Dc = 59° 48′ 08″
R = 95.81′
T = 19.26′
L = 38.01′
E = 1.92′
C = 37.76′
C.B. = N 80° 38′ 57″ E

P.I. Sta. 52+10.05
Δ = 17° 29′ 53″ (RT)
Dc = 58° 49′ 25″
R = 97.40′
T = 14.99′
L = 29.75′
E = 1.15′
C = 29.63′
C.B. = S 79° 14′ 13″ E

WALL 3D CURVE DATA

P.I. Sta. 60+21.05
Δ = 17° 52′ 12″ (RT)
Dc = 42° 48′ 07″
R = 133.86′
T = 21.05′
L = 41.75′
E = 1.64′
C = 41.58′
C.B. = N 88° 40′ 33″ E

P.I. Sta. 60+43.62
Δ = 1° 35′ 58″ (RT)
Dc = 42° 48′ 07″
R = 133.86′
T = 1.87′
L = 3.74′
E = 0.01′
C = 3.74′
C.B. = S 81° 35′ 22″ E

P.I. Sta. 60+48.35
Δ = 2° 05′ 04″ (LT)
Dc = 36° 24′ 38″
R = 157.36′
T = 2.86′
L = 5.73′
E = 0.03′
C = 5.72′
C.B. = S 83° 09′ 58″ E

P.I. Sta. 60+65.46
Δ = 10° 20′ 53″ (LT)
Dc = 36° 24′ 38″
R = 157.36′
T = 14.25′
L = 28.42′
E = 0.64′
C = 28.38′
C.B. = S 89° 22′ 57″ E

P.I. Sta. 61+02.06
Δ = 11° 12′ 51″ (LT)
Dc = 25° 04′ 43″
R = 228.46′
T = 22.43′
L = 44.72′
E = 1.10′
C = 44.65′
C.B. = N 78° 44′ 13″ E

P.I. Sta. 62+00.45
Δ = 43° 01′ 47″ (RT)
Dc = 29° 40′ 53″
R = 193.04′
T = 76.10′
L = 144.97′
E = 14.46′
C = 141.59′
C.B. = S 85° 45′ 30″ E

WALL 3E CURVE DATA

P.I. Sta. 70+23.87
Δ = 7° 51′ 57″ (LT)
Dc = 16° 29′ 58″
R = 347.26′
T = 23.87′
L = 47.67′
E = 0.82′
C = 47.64′
C.B. = S 88° 27′ 19″ E

P.I. Sta. 70+59.18
Δ = 0° 22′ 58″ (LT)
Dc = 1° 39′ 47″
R = 3,445.13′
T = 11.51′
L = 23.01′
E = 0.02′
C = 23.01′
C.B. = S 89° 47′ 37″ E

P.I. Sta. 71+08.75
Δ = 1° 16′ 24″ (LT)
Dc = 1° 40′ 22″
R = 3,425.39′
T = 38.07′
L = 76.13′
E = 0.21′
C = 76.13′
C.B. = N 89° 22′ 42″ E

P.I. Sta. 71+76.64
Δ = 6° 15′ 21″ (LT)
Dc = 10° 29′ 47″
R = 545.86′
T = 29.83′
L = 59.60′
E = 0.81′
C = 59.57′
C.B. = N 85° 36′ 49″ E

P.I. Sta. 72+14.19
Δ = 3° 43′ 03″ (LT)
Dc = 23° 54′ 25″
R = 239.66′
T = 7.78′
L = 15.55′
E = 0.13′
C = 15.55′
C.B. = N 80° 37′ 37″ E

WALL 3F CURVE DATA

P.I. Sta. 80+32.98
Δ = 37° 52′ 22″ (RT)
Dc = 59° 36′ 05″
R = 96.13′
T = 32.98′
L = 63.54′
E = 5.50′
C = 62.39′
C.B. = S 89° 51′ 30″ E

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E.L. ROBINSON
the Challenge to a Choice
1901 Watermark Drive, Suite 310 - Columbus, Ohio 43215

DESIGNED	DRAWN	REVIEWED	DATE
CMH	CMH	RLE	01/2013
CHECKED	REVISED		STRUCTURE FILE NUMBER
BMG/JN			

CURVE DATA
RETAINING WALL 3
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

GEOMETRY TABLE - WALL 3

DESCRIPTION	WALL STATION	NORTHING	EASTING	BEARING
WALL 3A				
PC	30+00.00	663470.0465	2189893.0713	-
PT	30+67.27	663454.7303	2189958.2697	S 67° 25′ 48″ E
PC	30+70.16	663453.6221	2189960.9359	-
PRC	31+87.67	663432.2515	2190074.9227	-
PRC	33+87.96	663383.9878	2190265.2589	-
PT	36+26.31	663476.9611	2190435.0966	-
POT	36+98.88	663549.5123	2190433.3980	-
WALL 3B				
PC	40+00.00	663424.8359	2189921.8128	-
PCC	40+24.33	663425.9595	2189946.1072	-
PCC	40+54.52	663423.8309	2189976.1958	-
PRC	40+67.13	663421.7926	2189988.6402	-
PRC	41+46.57	663427.8972	2190066.8988	-
PCC	41+49.33	663428.7954	2190069.5153	-
PT	41+78.03	663433.5421	2190097.7058	-
WALL 3C				
PC	50+00.00	663404.5508	2189979.9565	-
PRC	50+38.34	663402.9756	2190018.0336	-
PCC	50+54.02	663400.0183	2190033.4347	-
PRC	51+24.95	663405.1474	2190103.5875	-
PRC	51+33.44	663408.1587	2190111.5305	-
PRC	51+57.05	663416.2263	2190133.7186	-
PCC	51+95.06	663422.3613	2190170.9762	-
PT	52+24.81	663416.8277	2190200.0859	-
WALL 3D				
PC	60+00.00	663385.3961	2190002.3270	-
PCC	60+41.75	663386.3571	2190043.8971	-
PRC	60+45.49	663385.8105	2190047.5938	-
PCC	60+51.21	663385.1294	2190053.2779	-
PCC	60+79.63	663384.8234	2190081.6583	-
PRC	61+24.35	663393.5433	2190125.4436	-
PT	62+69.32	663383.0709	2190266.6438	-
WALL 3E				
PC	70+00.00	663359.4783	2190118.4115	-
PCC	70+47.67	663358.1941	2190166.0310	-
PCC	70+70.69	663358.1112	2190189.0436	-
PCC	71+46.81	663358.9373	2190265.1652	-
PCC	72+06.41	663363.4934	2190324.5609	-
PT	72+21.96	663366.0254	2190339.9005	-
WALL 3F				
PC	80+00.00	663443.1140	2189923.6776	-
PT	80+63.54	663442.9597	2189986.0705	-
WALL 3G				
PC	90+00.00	663427.4461	2189941.8520	-
PRC	90+20.66	663426.7898	2189962.4991	-
PRC	90+46.91	663429.0580	2189988.5129	-
PT	90+87.22	663432.9590	2190028.4658	-

GEOMETRY TABLE - WALL 3

DESCRIPTION	WALL STATION	NORTHING	EASTING	BEARING
WALL 3H				
PC	100+00.00	663398.8316	2189962.6310	-
PRC	100+75.91	663393.7876	2190036.3038	-
PT	100+94.97	663385.1294	2190053.2779	-
WALL 3J				
PC	110+00.00	663379.0465	2189985.8847	-
PT	110+82.01	663378.9916	2190066.2672	-
POT	111+06.45	663371.6908	2190089.5920	-
WALL 3K				
PC	120+00.00	663360.1569	2190030.8179	-
PT	120+55.69	663369.3039	2190083.2627	-
POT	120+61.15	663367.6753	2190088.4660	-
WALL 3L				
PC	130+00.00	663360.9474	2190118.8062	-
PCC	130+54.60	663360.0793	2190173.3445	-
PRC	131+46.86	663367.5348	2190265.3001	-
PT	131+92.25	663366.5269	2190310.5615	-

WALL 3G CURVE DATA

P.I. Sta. 90+10.34
Δ = 5° 02′ 34″ (RT)
Dc = 24° 24′ 13″
R = 234.78′
T = 10.34′
L = 20.66′
E = 0.23′
C = 20.66′
C.B. = S 88° 10′ 46″ E

P.I. Sta. 90+33.92
Δ = 19° 55′ 30″ (LT)
Dc = 75° 55′ 12″
R = 75.47′
T = 13.26′
L = 26.24′
E = 1.16′
C = 26.11′
C.B. = N 85° 01′ 00″ E

P.I. Sta. 90+67.23
Δ = 18° 06′ 01″ (RT)
Dc = 44° 54′ 09″
R = 127.60′
T = 20.32′
L = 40.31′
E = 1.61′
C = 40.14′
C.B. = N 84° 25′ 24″ E

WALL 3H CURVE DATA

P.I. Sta. 100+40.18
Δ = 46° 29′ 15″ (RT)
Dc = 61° 14′ 24″
R = 93.56′
T = 40.18′
L = 75.91′
E = 8.26′
C = 73.85′
C.B. = S 86° 05′ 00″ E

P.I. Sta. 100+85.44
Δ = 4° 23′ 31″ (LT)
Dc = 23° 02′ 34″
R = 248.65′
T = 9.53′
L = 19.06′
E = 0.18′
C = 19.05′
C.B. = S 62° 58′ 29″ E

WALL 3J CURVE DATA

P.I. Sta. 110+42.73
Δ = 39° 42′ 07″ (RT)
Dc = 48° 24′ 32″
R = 118.36′
T = 42.73′
L = 82.01′
E = 7.48′
C = 80.38′
C.B. = S 89° 57′ 39″ E

WALL 3K CURVE DATA

P.I. Sta. 120+30.64
Δ = 59° 21′ 42″ (RT)
Dc = 106° 35′ 06″
R = 53.76′
T = 30.64′
L = 55.69′
E = 8.12′
C = 53.24′
C.B. = N 80° 06′ 23″ E

WALL 3L CURVE DATA

P.I. Sta. 130+27.36
Δ = 9° 02′ 53″ (LT)
Dc = 16° 34′ 15″
R = 345.76′
T = 27.36′
L = 54.60′
E = 1.08′
C = 54.55′
C.B. = S 89° 05′ 17″ E

P.I. Sta. 131+00.74
Δ = 2° 02′ 46″ (LT)
Dc = 2° 13′ 04″
R = 2,583.45′
T = 46.14′
L = 92.26′
E = 0.41′
C = 92.26′
C.B. = N 85° 21′ 53″ E

P.I. Sta. 131+69.67
Δ = 13° 52′ 05″ (RT)
Dc = 30° 33′ 28″
R = 187.50′
T = 22.80′
L = 45.38′
E = 1.38′
C = 45.27′
C.B. = S 88° 43′ 27″ E

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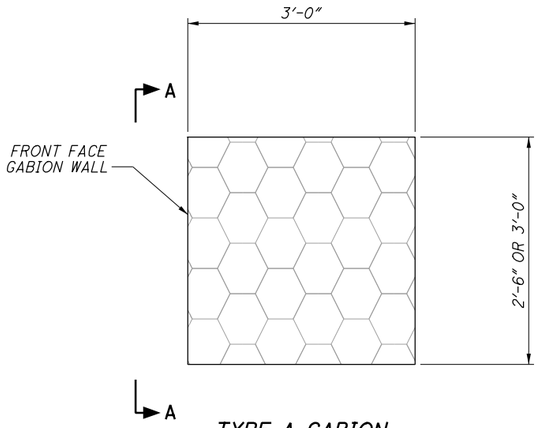
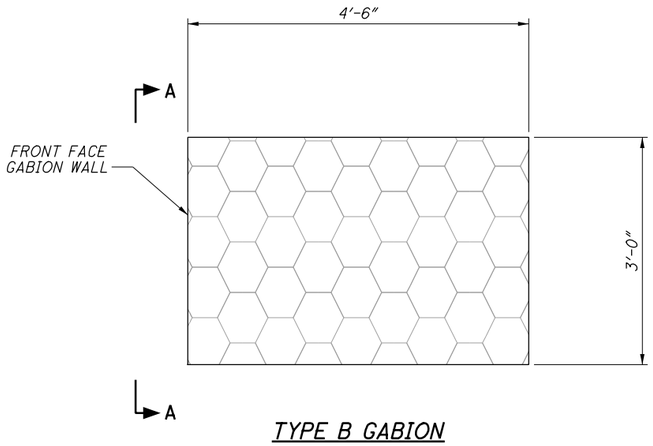
WALL GEOMETRY
RETAINING WALL 3
ALONG TOWPATH TRAIL

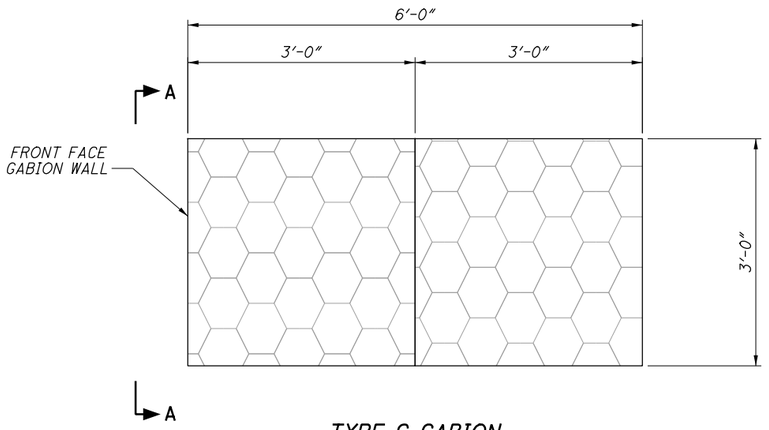
CUY-90-14.90
PID No. 82119



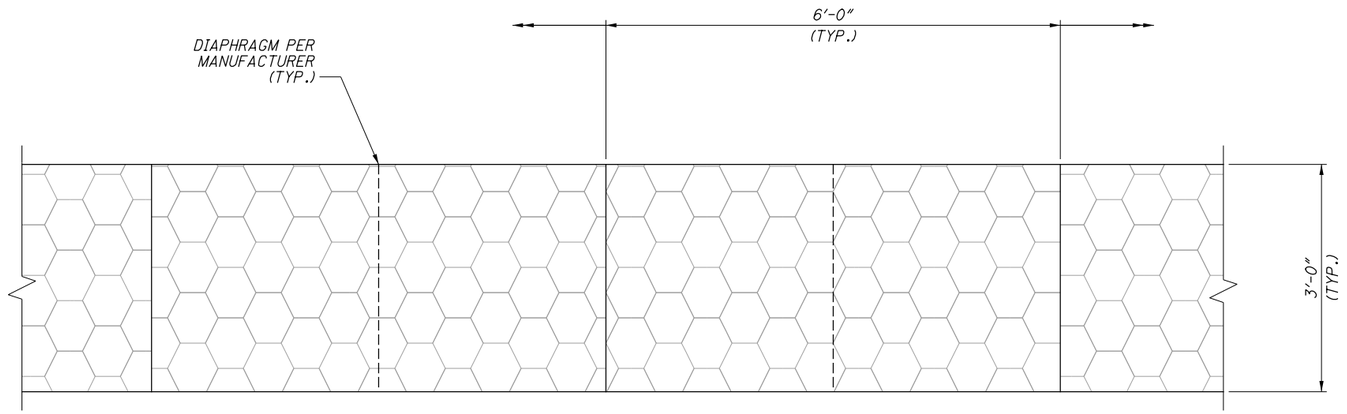
TYPE A GABION



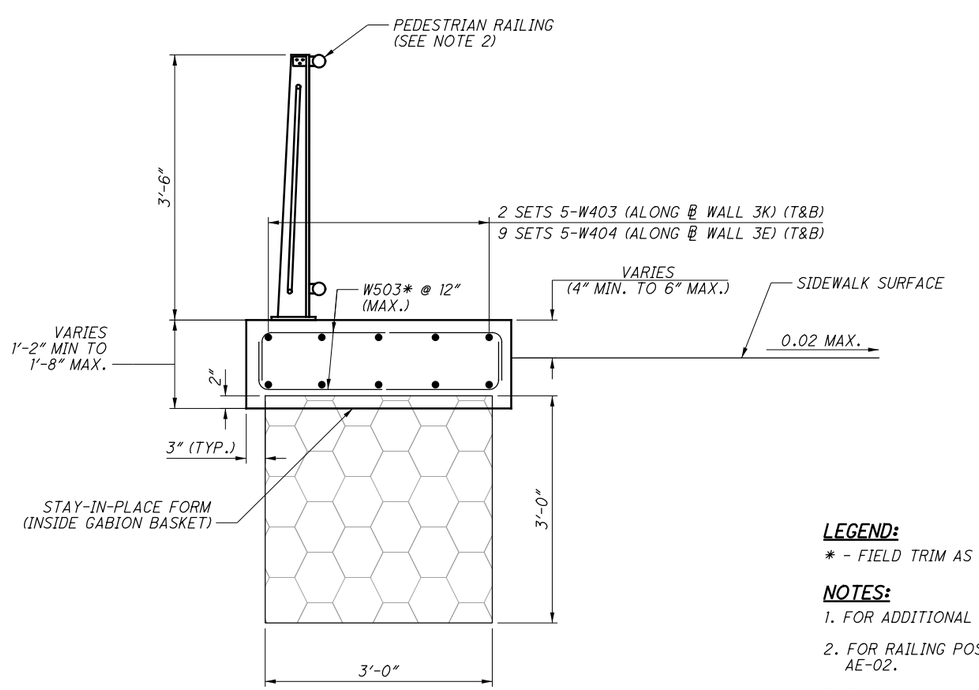
TYPE B GABION



TYPE C GABION



VIEW A-A



CONCRETE CAP DETAIL

LEGEND:

* - FIELD TRIM AS NECESSARY

NOTES:

1. FOR ADDITIONAL GABION REQUIREMENTS, SEE SHEET 2/13.
2. FOR RAILING POST DETAILS AND SPACING, SEE APPENDIX AE-02.
3. FOR GABION WALL FINISH DETAILS, SEE APPENDIX AE-02.

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GABION DETAILS
RETAINING WALL 3
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

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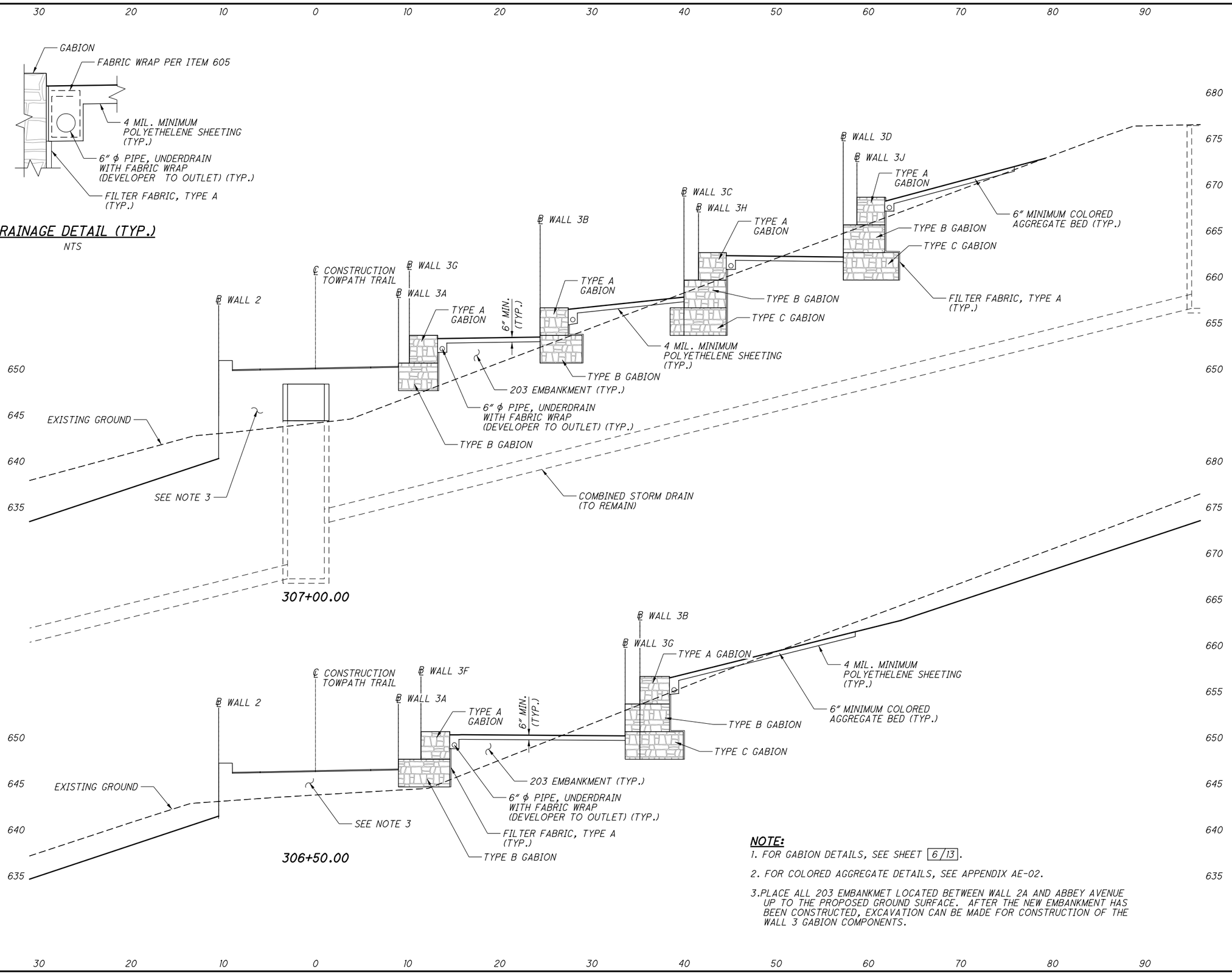
DRAINAGE DETAIL (TYP.)

NTS



NOTE:

1. FOR GABION DETAILS, SEE SHEET 6/13.
2. FOR COLORED AGGREGATE DETAILS, SEE APPENDIX AE-02.
3. PLACE ALL 203 EMBANKMET LOCATED BETWEEN WALL 2A AND ABBEY AVENUE UP TO THE PROPOSED GROUND SURFACE. AFTER THE NEW EMBANKMENT HAS BEEN CONSTRUCTED, EXCAVATION CAN BE MADE FOR CONSTRUCTION OF THE WALL 3 GABION COMPONENTS.

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BMG/JN			

RETAINING WALL 3 CROSS SECTIONS

RETAINING WALL 3
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

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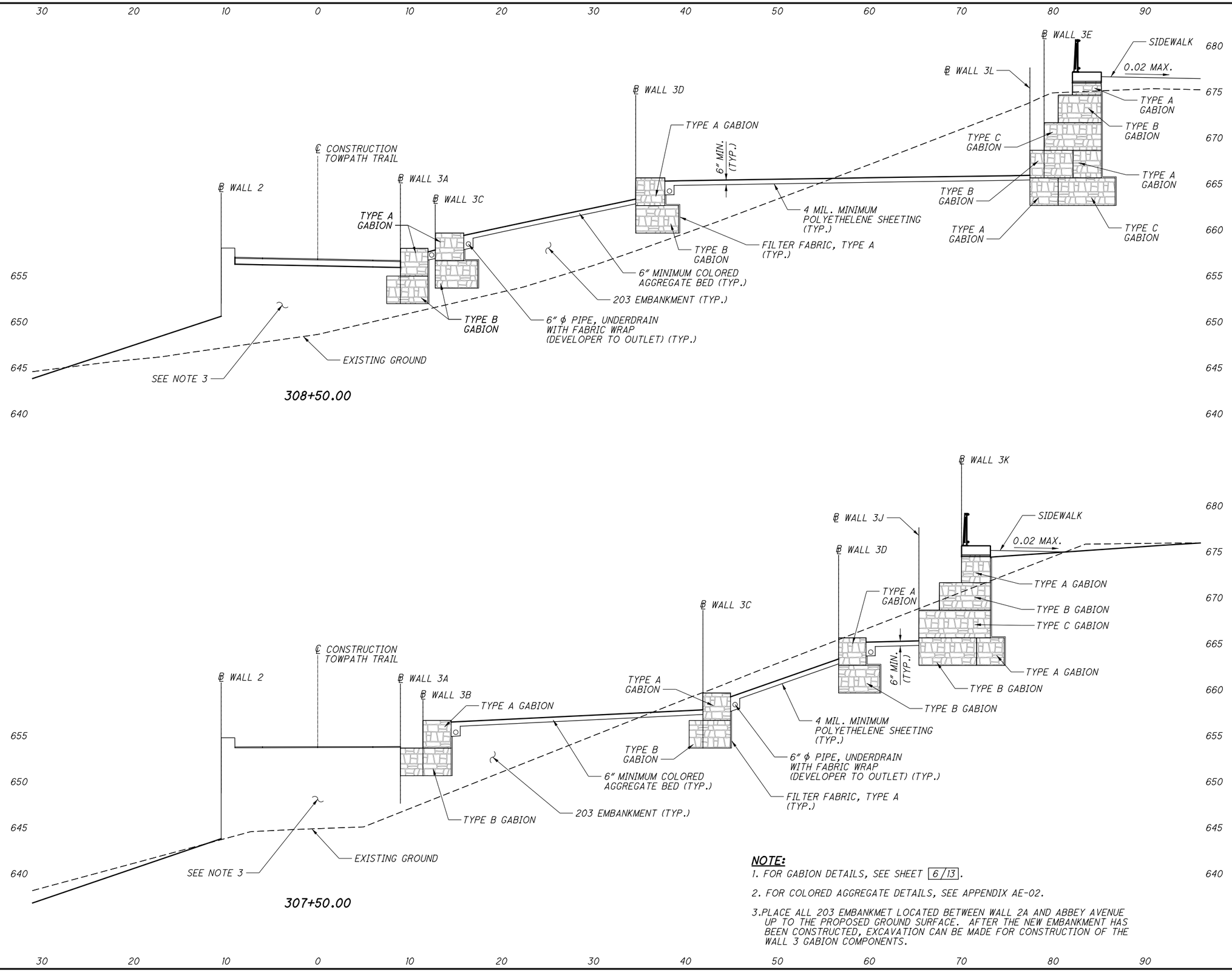

NOTE:

1. FOR GABION DETAILS, SEE SHEET 6/13.
2. FOR COLORED AGGREGATE DETAILS, SEE APPENDIX AE-02.
3. PLACE ALL 203 EMBANKMET LOCATED BETWEEN WALL 2A AND ABBEY AVENUE UP TO THE PROPOSED GROUND SURFACE. AFTER THE NEW EMBANKMENT HAS BEEN CONSTRUCTED, EXCAVATION CAN BE MADE FOR CONSTRUCTION OF THE WALL 3 GABION COMPONENTS.

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RETAINING WALL 3 CROSS SECTIONS

RETAINING WALL 3
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

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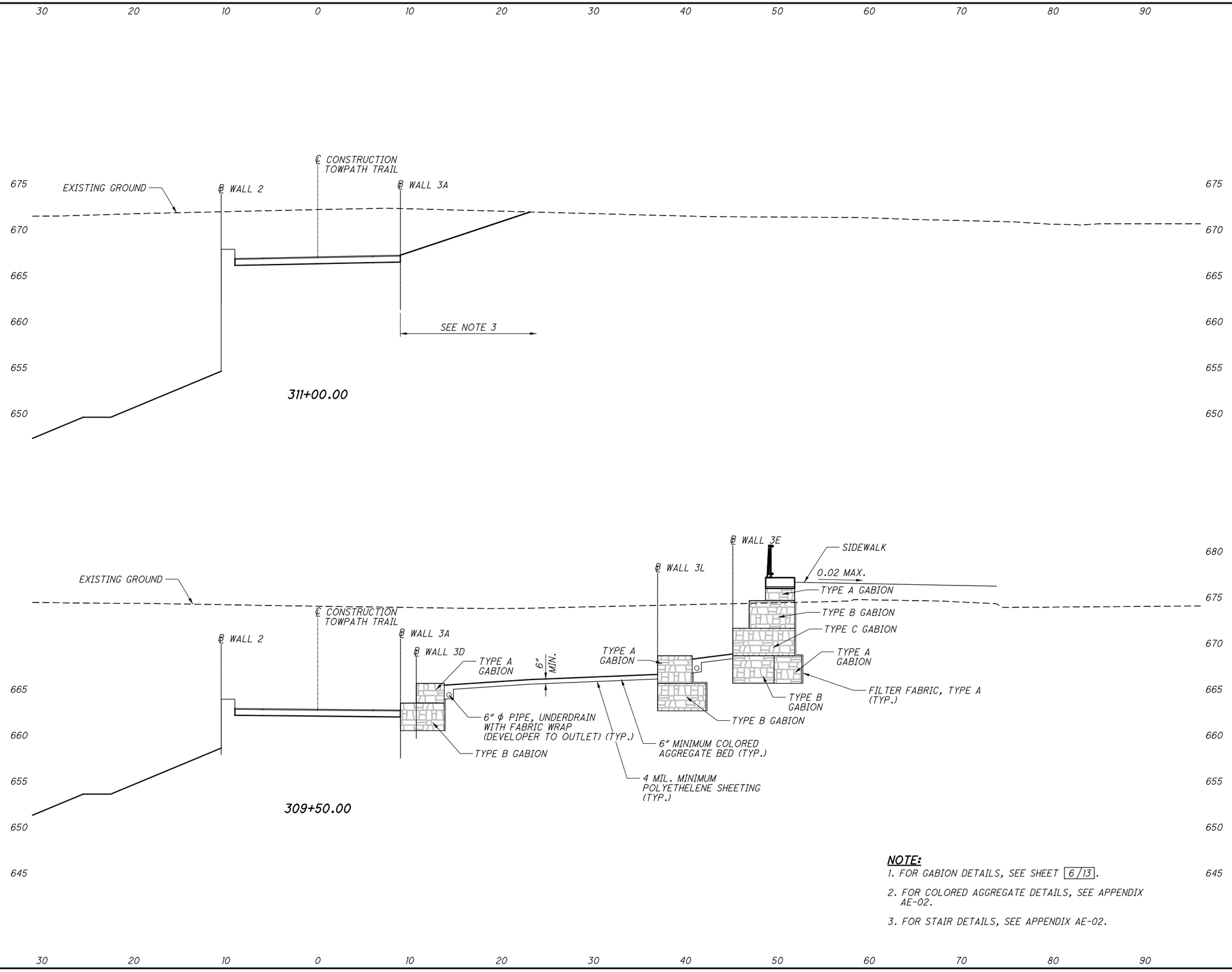

NOTE:

1. FOR GABION DETAILS, SEE SHEET 6/13.
2. FOR COLORED AGGREGATE DETAILS, SEE APPENDIX AE-02.
3. FOR STAIR DETAILS, SEE APPENDIX AE-02.

P:\82119\structures\WALL_403\sheets\82119WX431.dgn 3/22/2013 11:50:47 AM csteck

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RETAINING WALL 3 CROSS SECTIONS

RETAINING WALL 3
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

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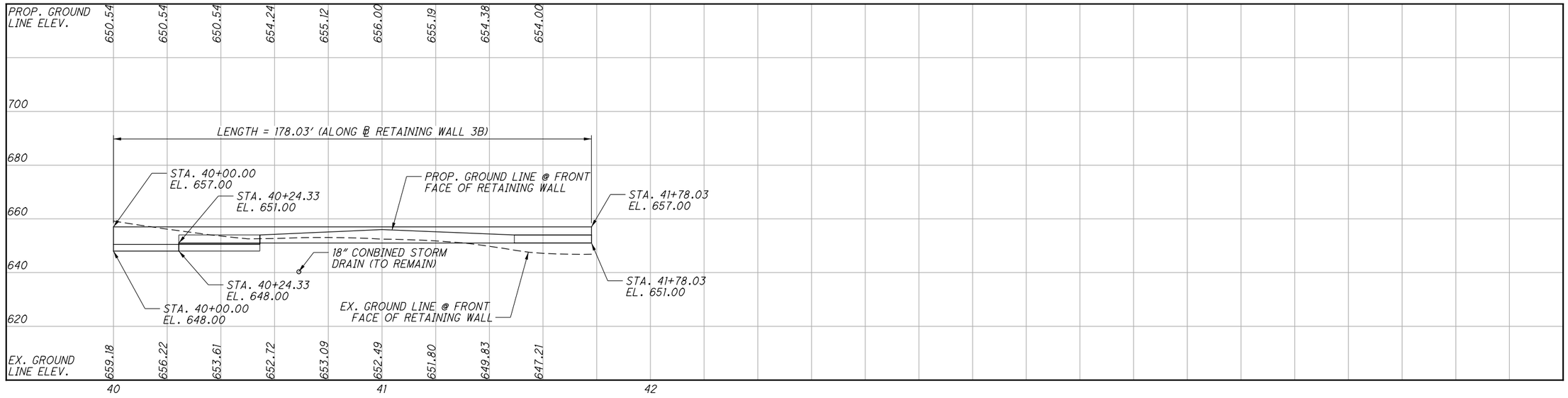
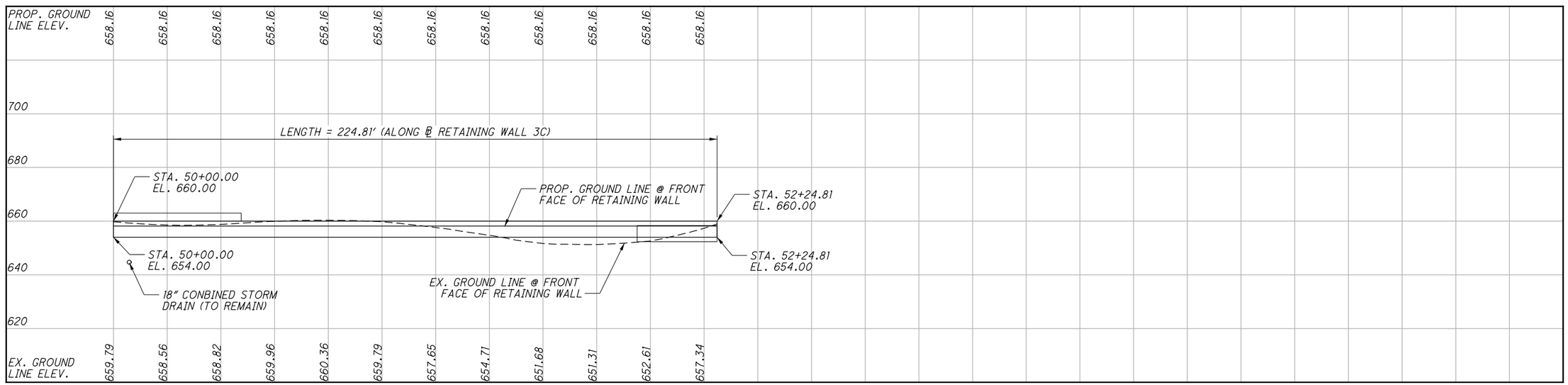


PROFILE

(ALONG ℄ RETAINING WALL 3B)



PROFILE

(ALONG ℄ RETAINING WALL 3C)

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BMG/JN			

WALL PROFILE
RETAINING WALL 3
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

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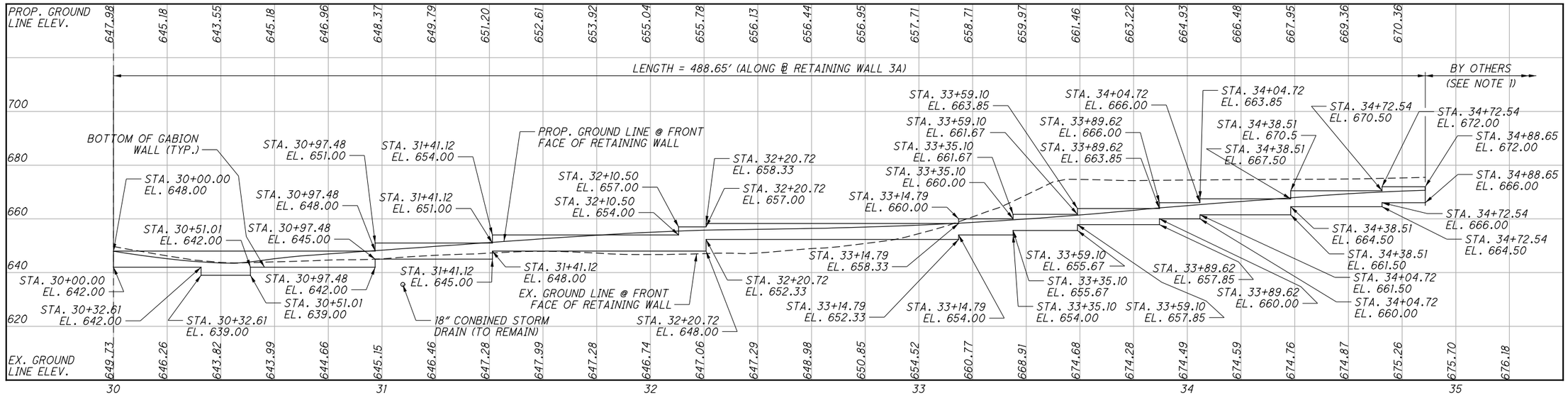
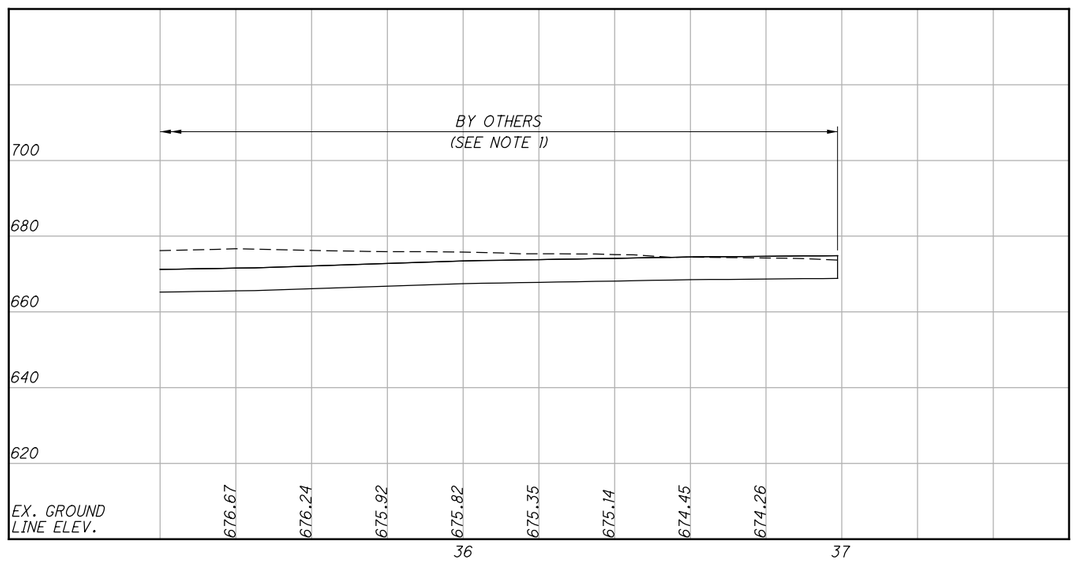


PROFILE

(ALONG ℄ RETAINING WALL 3A)



PROFILE

(ALONG ℄ RETAINING WALL 3A)

NOTE:

1. FOR ADDITIONAL PROFILE INFORMATION PERTAINING TO THE STAIRS, SEE APPENDIX AE-02.
2. FOR GABION BASKET WIDTHS, SEE TYPICAL SECTIONS, SHEETS 7/13 THRU 9/13.

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WALL PROFILE
RETAINING WALL 3
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

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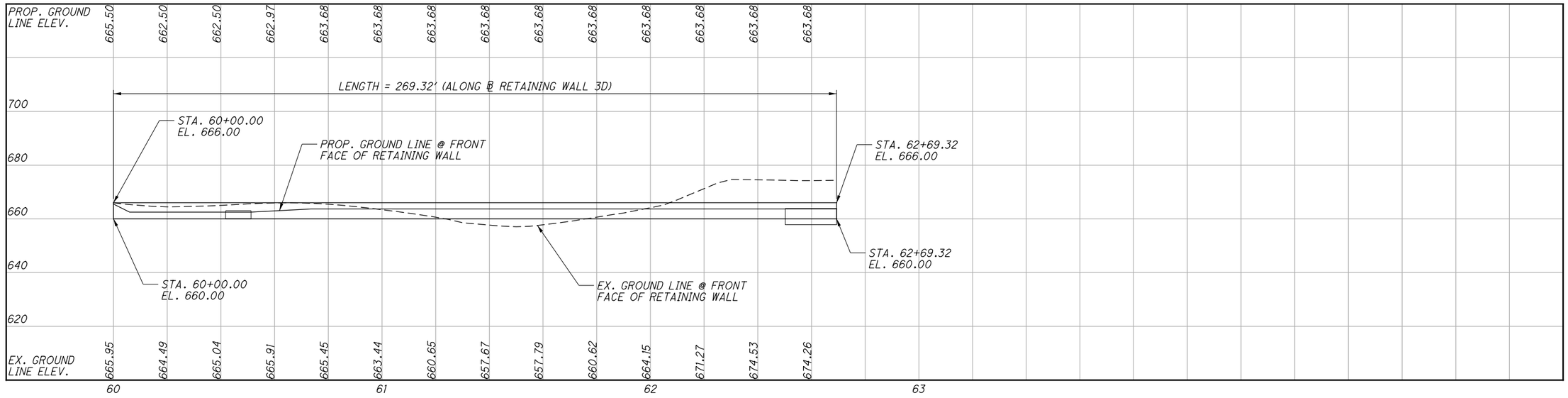
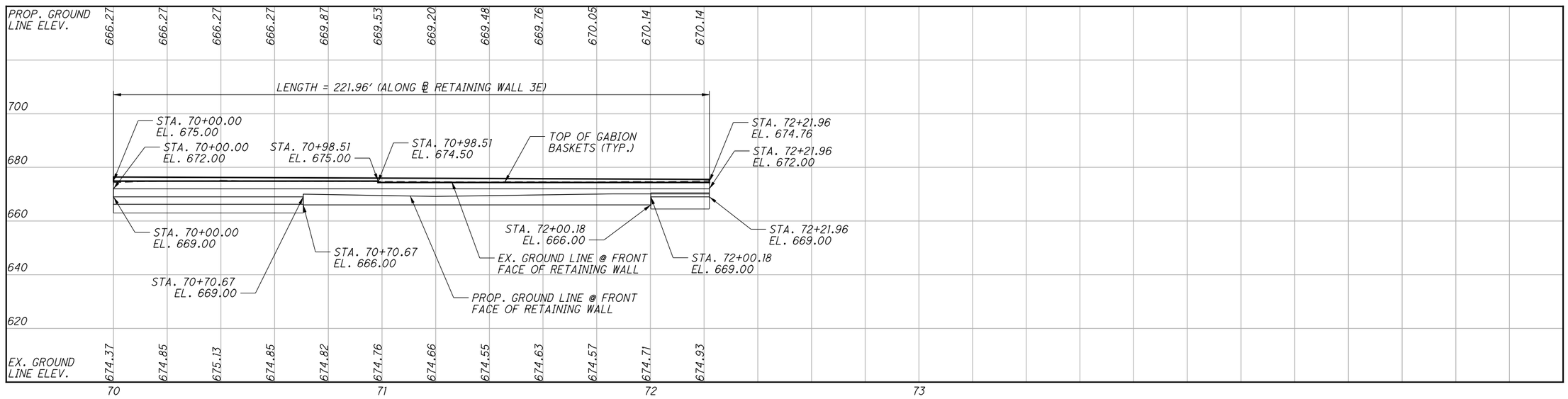


PROFILE

(ALONG ℄ RETAINING WALL 3D)



PROFILE

(ALONG ℄ RETAINING WALL 3E)

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BMG/JN			

WALL PROFILE
RETAINING WALL 3
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

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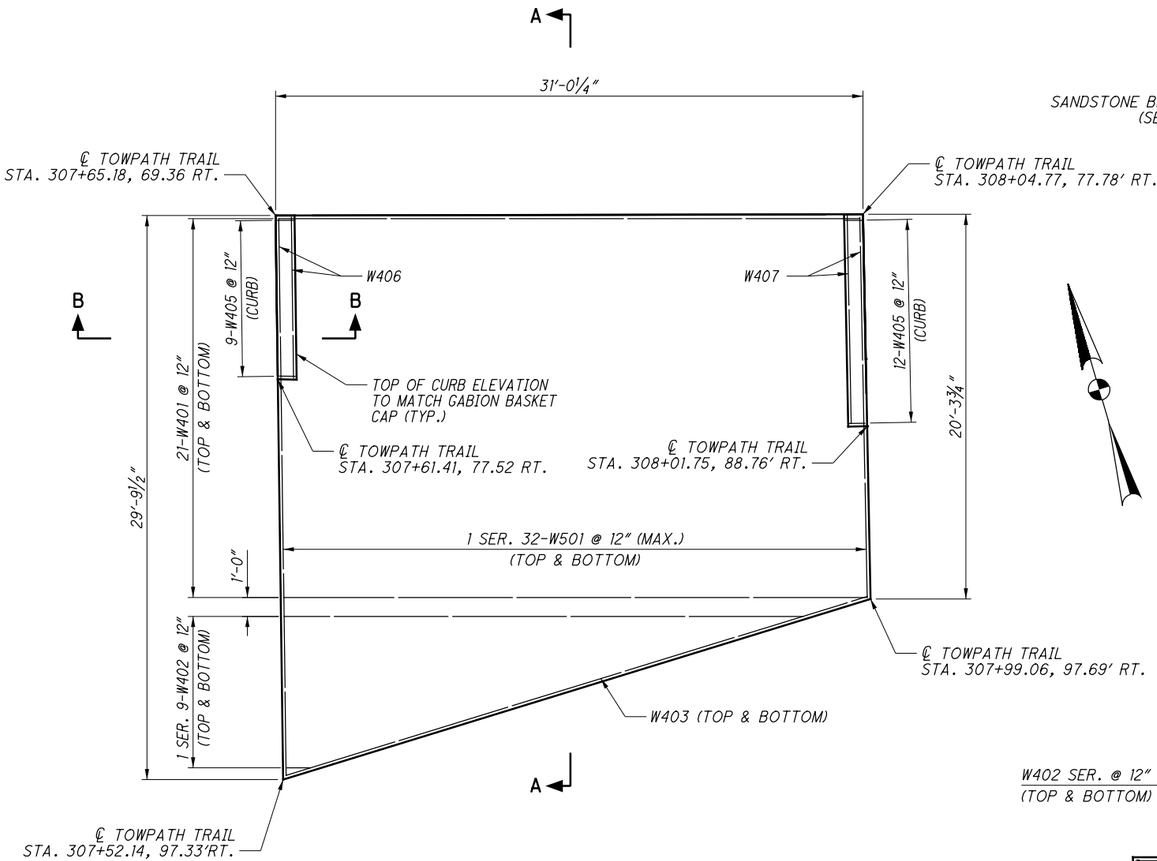
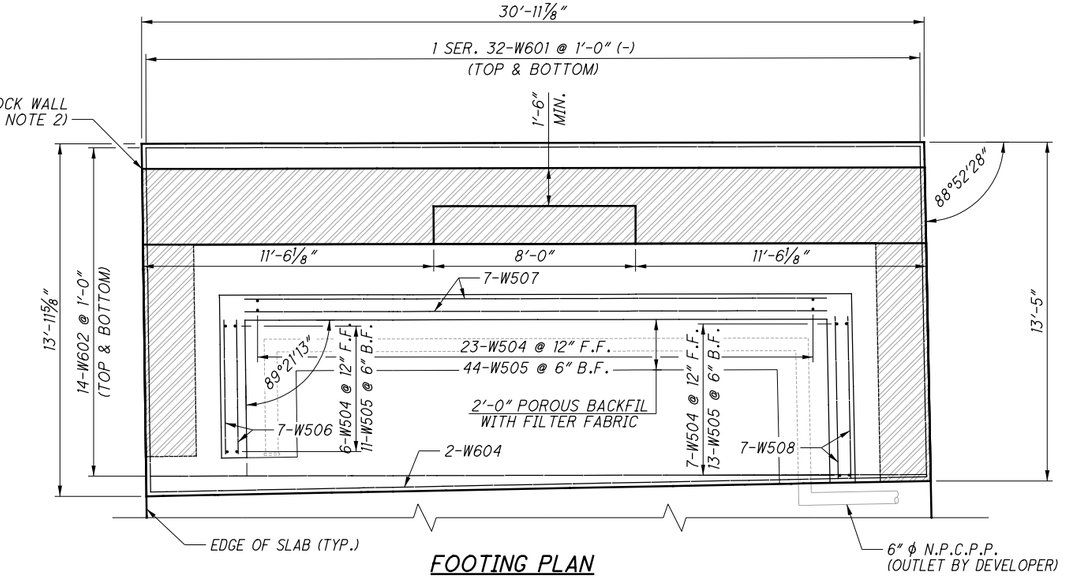
93



SLAB PLAN

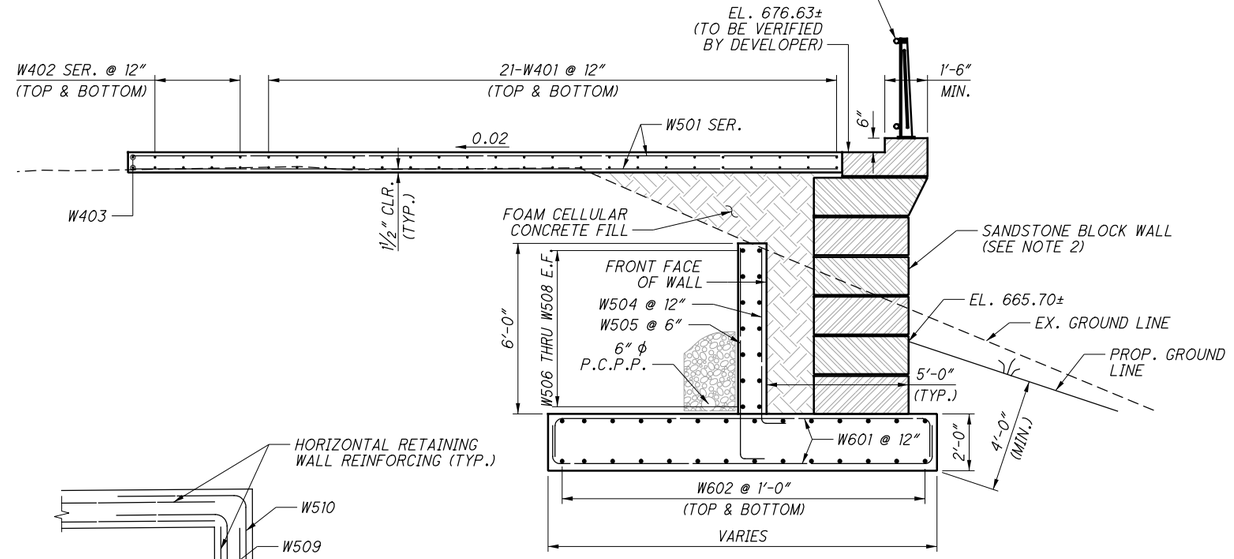


FOOTING PLAN

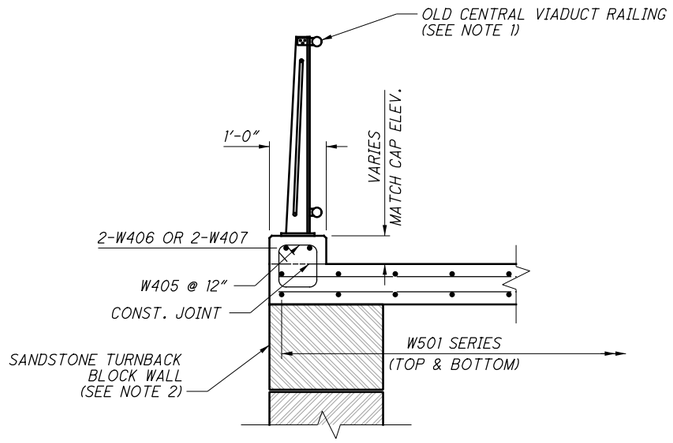
(WALL CORNER REINFORCING NOT SHOWN,
SEE TYPICAL CORNER DETAIL)

LEGEND:

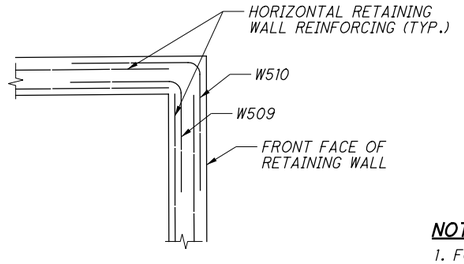
- FOAM CELLULAR CONCRETE FILL
- SANDSTONE BLOCK WALL



SECTION A-A



SECTION B-B



TYPICAL CORNER DETAIL

(W509 AND W510 BARS TO LAP WITH
HORIZONTAL NO. 5 BARS AT EACH CORNER)

NOTES:

1. FOR RAILING POST DETAILS AND SPACING, SEE APPENDIX AE-02.
2. NOMINAL SANDSTONE BLOCK HEIGHT IS 16" TO 18". THE MINIMUM DEPTH FOR THE SANDSTONE BLOCKS IS 26". DEVELOPER TO DETERMINE FOOTING ELEVATION BASED ON ACTUALSANDSTONE BLOCK DIMENSIONS. FOR ALL SANDSTONE BLOCK MATERIAL AND CONSTRUCTION REQUIREMENTS COMPLY WITH ALL RELATED 602 ITEMS IN THE APPENDIX AE-02.

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OVERLOOK SLAB PLAN AND SECTIONS

RETAINING WALL 3
ALONG TOWPATH TRAIL

CUY-90-14.90
PID No. 82119

13 / 13

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