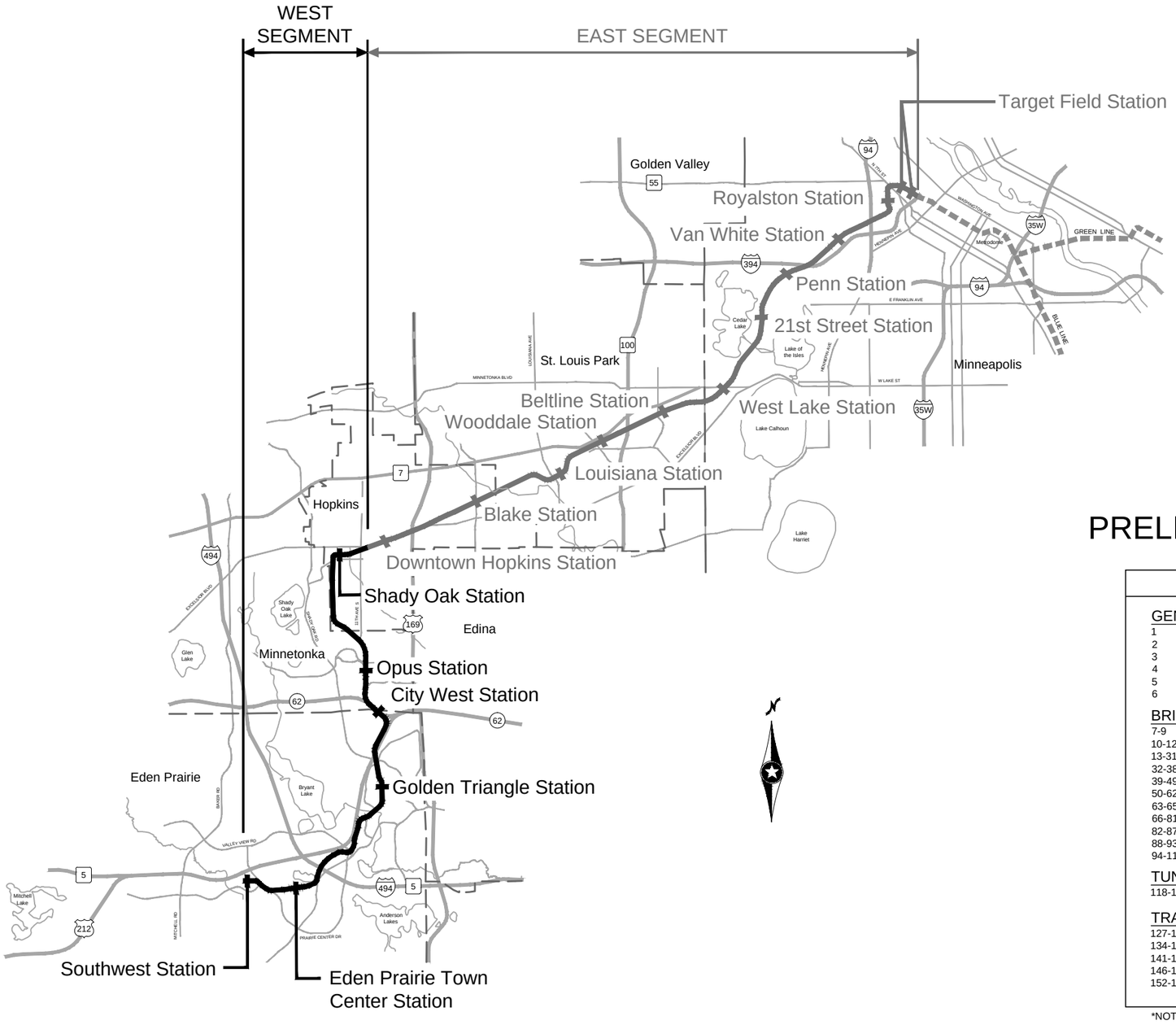


SOUTHWEST
Green Line LRT Extension

METROPOLITAN COUNCIL

WEST- VOLUME 2 (STRUCTURES)

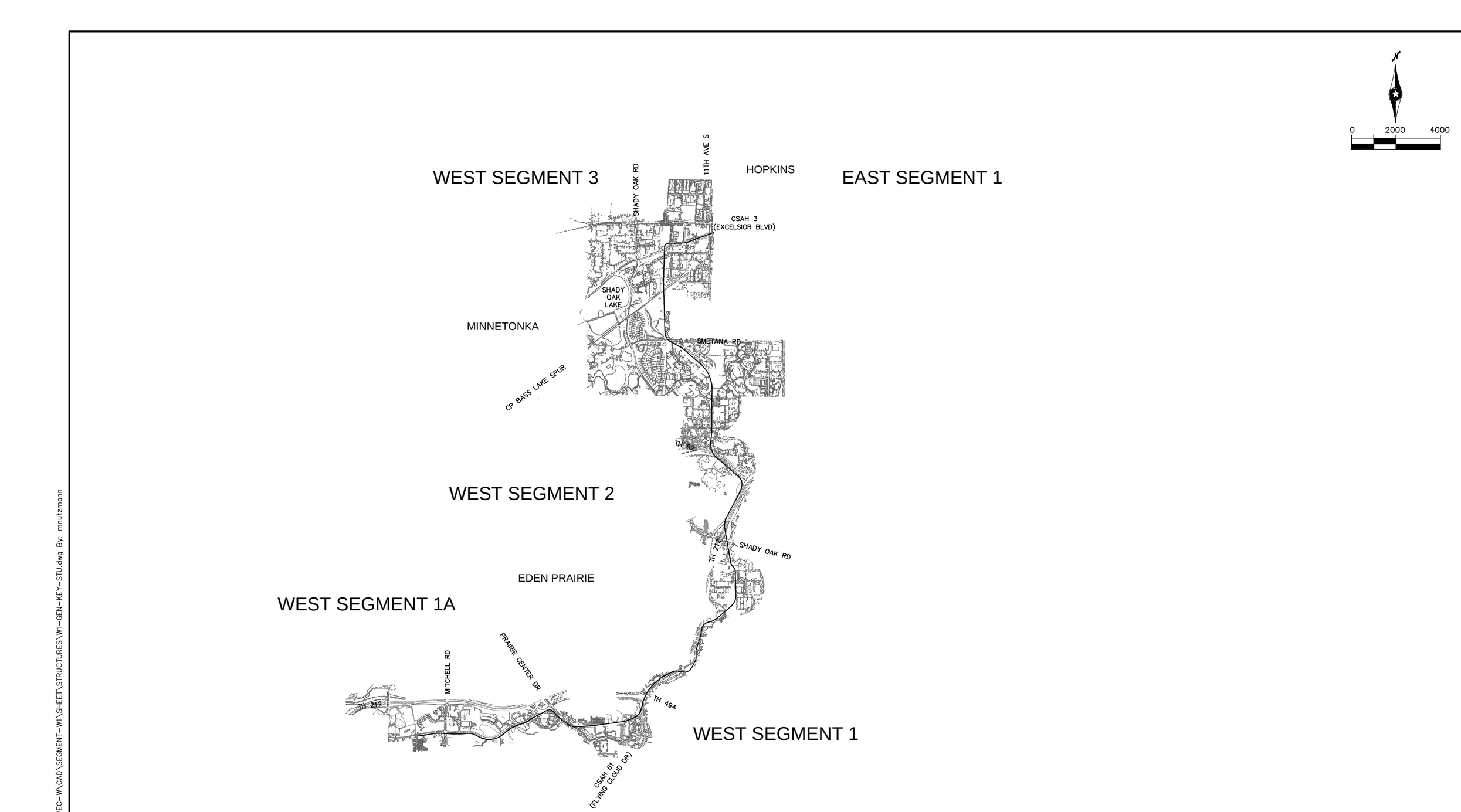
PRELIMINARY ENGINEERING (SEPTEMBER 2014)

*NOTE: THERE ARE 206 SHEETS TOTAL IN THIS VOLUME.

AECOM

PRELIMINARY - NOT FOR CONSTRUCTION

Aug, 28 2014 08:18 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-GEN-CVR-STU.dwg By: mnutzmann



Aug. 28 2014 08:51 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-GEN-KEY-STU.dwg By: mnutzmann

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

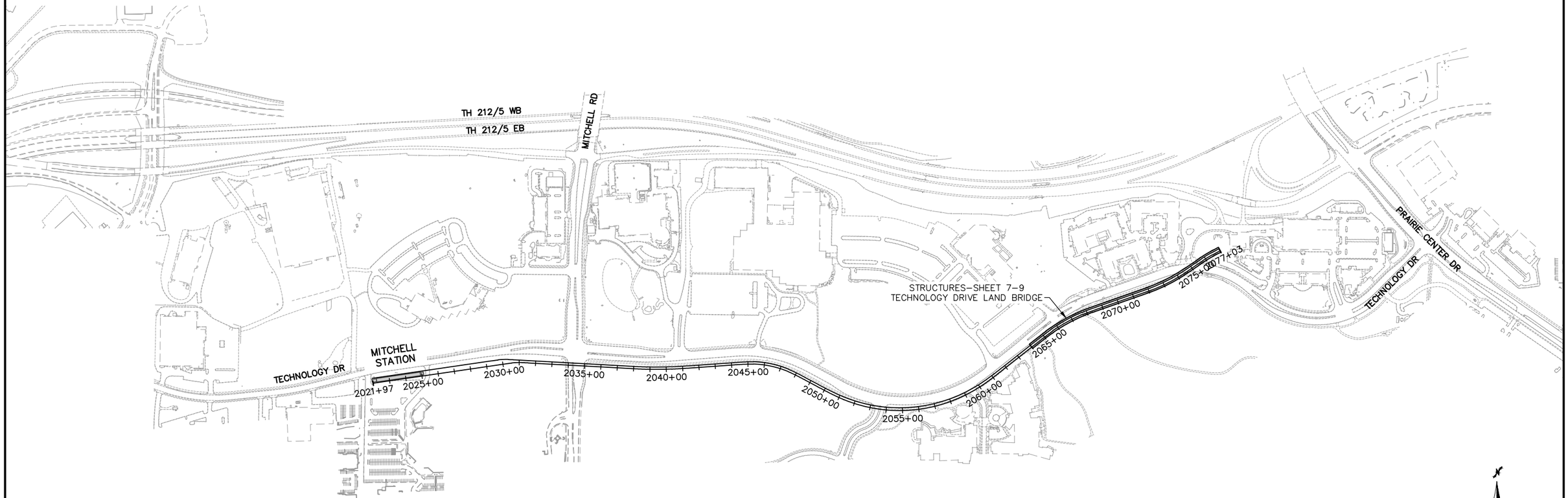
SOUTHWEST Green Line LRT Extension

WEST-VOLUME 2 (STRUCTURES)
GENERAL
SEGMENT KEY MAP

DISCIPLINE: STRUCTURES

SHEET NAME: W0-STU-KEY-001

SHEET 2 OF 204



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

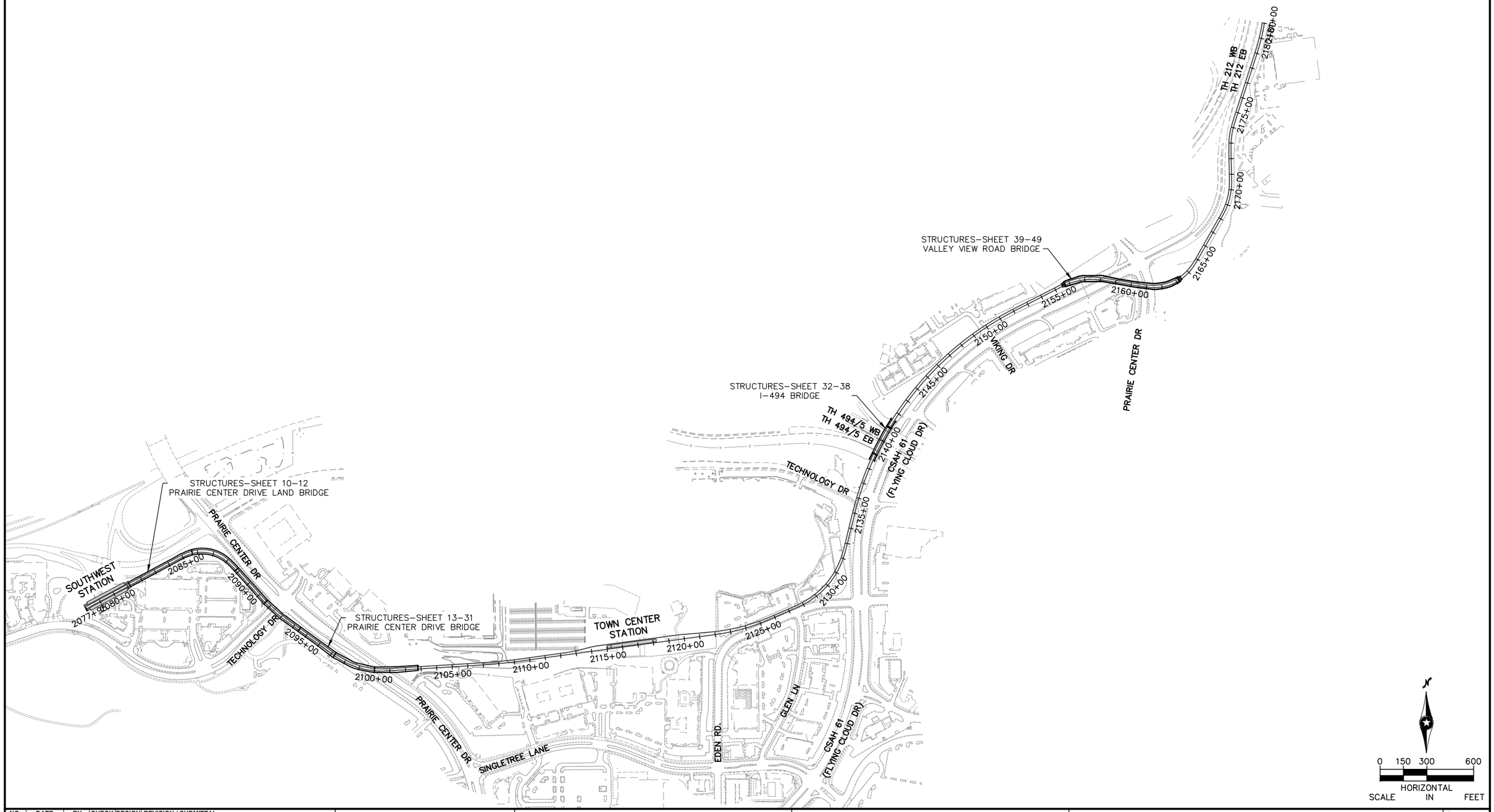
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1A
BRIDGE
SHEET INDEX

DISCIPLINE: STRUCTURES

SHEET NAME: W1A-STU-BRG-IDX-001

SHEET 3 OF 204

Aug, 28 2014 08:36 am V:\3200_pec-w\CAD\segment-w1a\SHEET\structures\W1A-STU-BRG-IDX.dwg By: mnutzmann



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
·	·	·	·	·	·
·	·	·	·	·	·
·	·	·	·	·	·
·	·	·	·	·	·
·	·	·	·	·	·
·	·	·	·	·	·
·	·	·	·	·	·
·	·	·	·	·	·
·	·	·	·	·	·
·	·	·	·	·	·

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

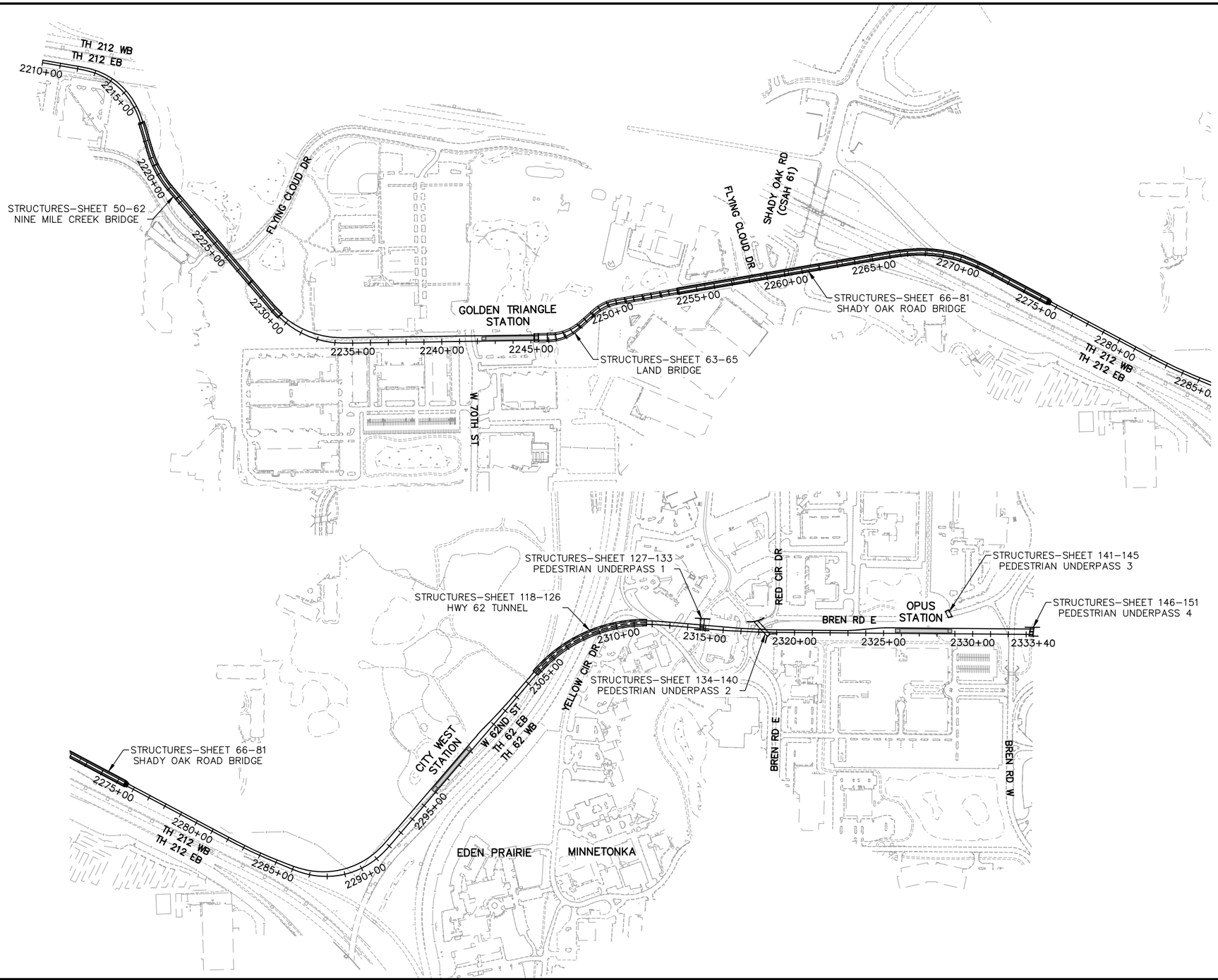
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1
BRIDGE
SHEET INDEX

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-IDX-001

SHEET 4 OF 204

Aug, 28 2014 08:25 am v:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-IDX.dwg By: mnutzmann



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

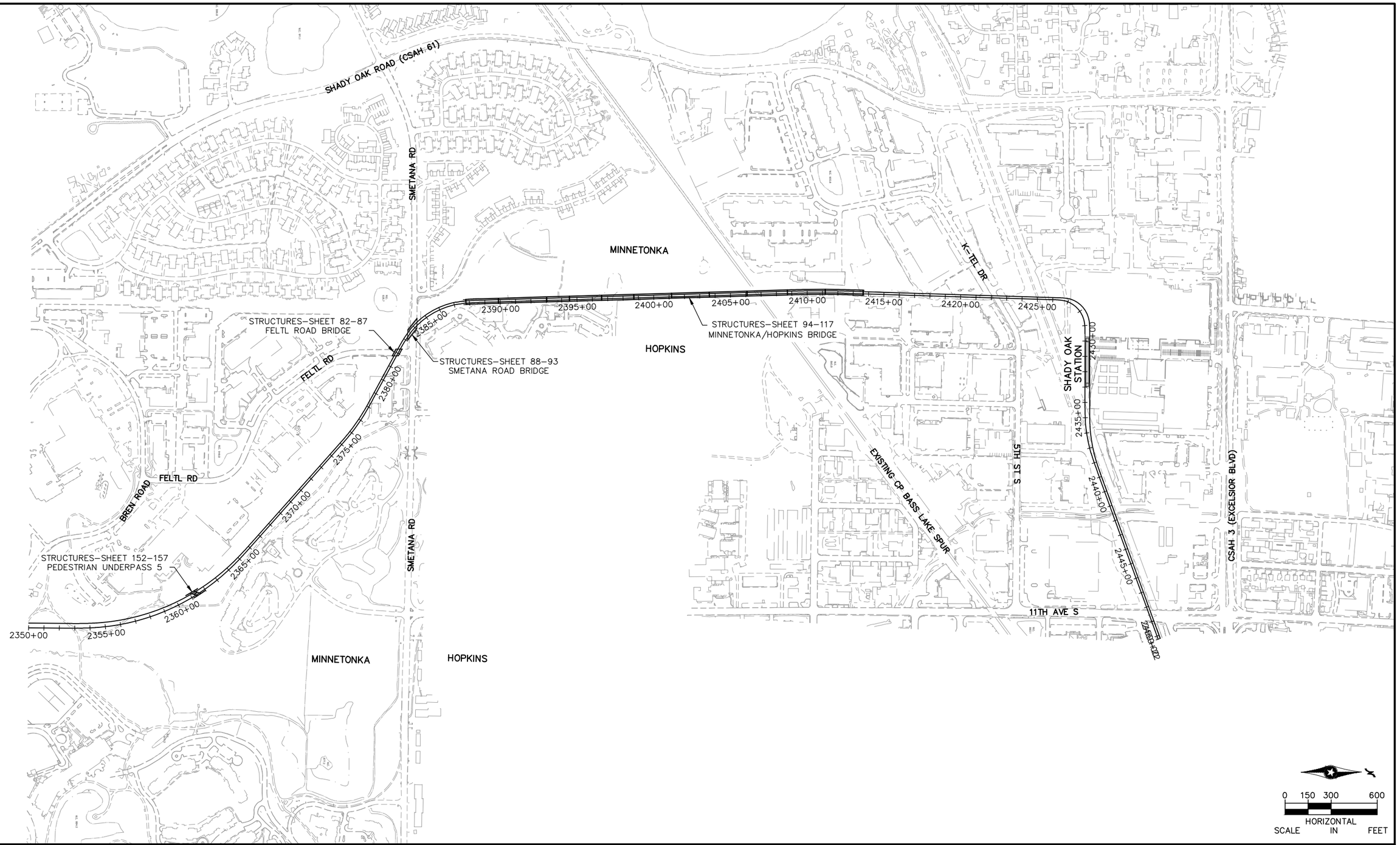
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2
BRIDGE
SHEET INDEX

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-IDX-001

SHEET 5 OF 204



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

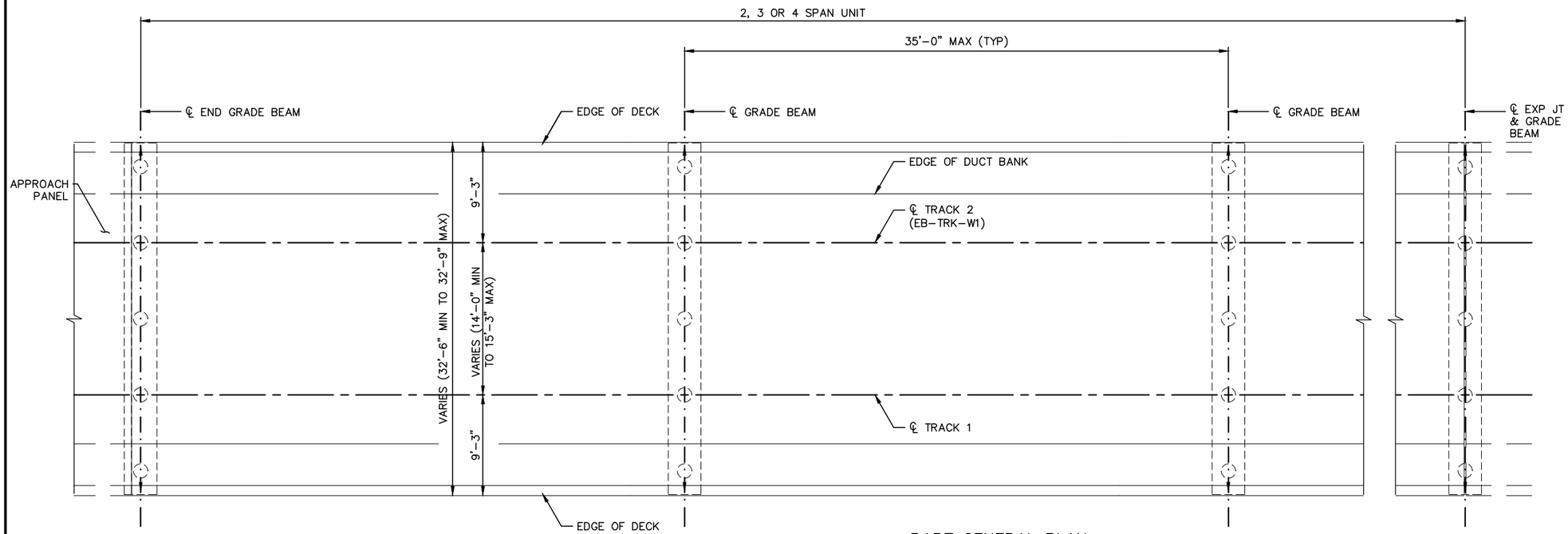
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 3
BRIDGE
SHEET INDEX

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-IDX-001

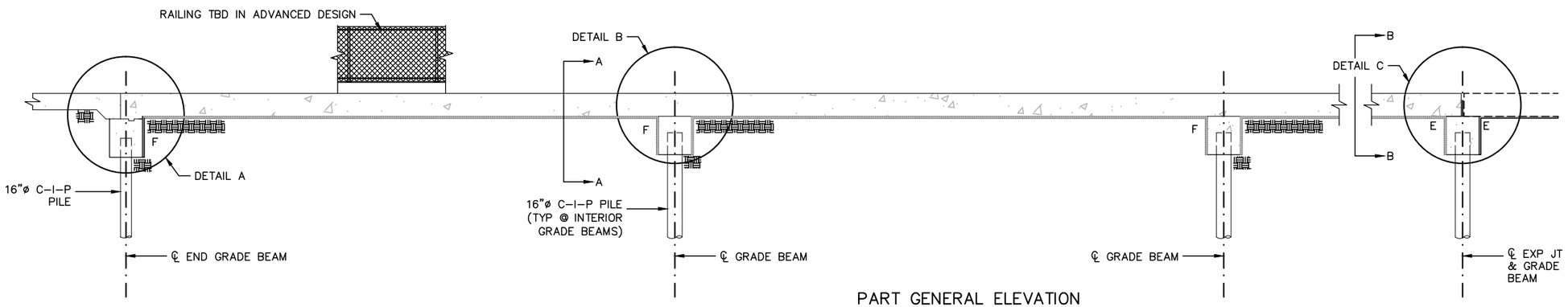
SHEET 6 OF 204



PART GENERAL PLAN

NOTES:

1. SEE TRACK PLANS FOR LIMITIS OF PILE SUPPORTED TRACK (LAND BRIDGE)



PART GENERAL ELEVATION

DESIGN DATA

2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
6TH EDITION AND CURRENT INTERIMS

SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA
(REVISION 2.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD

LRV & MV LOAD DIAGRAM SHOWN ON SHEET 8

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4000 PSI, n = 8
fy = 60000 PSI

DESIGN SPEED: OVER = 20 MPH (LRT)

APPROXIMATE DECK AREA: 42,500 SQ FT

LIST OF SHEETS

PROPOSED TYPE OF STRUCTURE

DECK:
2, 3, OR 4 CONTINUOUS CIP SLAB SPANS ON PILE SUPPORTED GRADE BEAMS
ALL BARS EPOXY COATED
BALLASTED TRACK

SUBSTRUCTURE:
INTEGRAL ABUTMENT SUPPORTED ON 16" CIP CONCRETE PILES
GRADE BEAMS SUPPORTED ON 16" CIP CONCRETE PILES

DEPTH OF STRUCTURE:
±3'-6" TOP OF LOW RAIL TO LOW BRIDGE

AESTHETICS:
TO BE DETERMINED

PILE SUPPORTED TRACK (BALLASTED) DETAILS

SOUTHWEST LIGHT RAIL OVER POOR SOIL CONDITIONS
0.1 MI SOUTHEAST OF THE INTERSECTION OF TH 212 AND PRAIRIE CENTER DRIVE IN EDEN PRAIRIE

MAX 35' CIP CONCRETE SLAB SPANS
VARIABLE RAILWAY (MIN 32'-6")
0°-0'-0" SKEW

BRIDGE ID NO 209

GENERAL PLAN

SEC 14/15 T 116N R 22W
CITY OF EDEN PRAIRIE HENNEPIN COUNTY

APPROVED: _____
STATE BRIDGE ENGINEER DATE

JOB NO: T9N635 STATE PROJECT NO: 9909-01 MNDOT REVIEW:

DES: AAM	DRA: BR
CHK: RJH	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

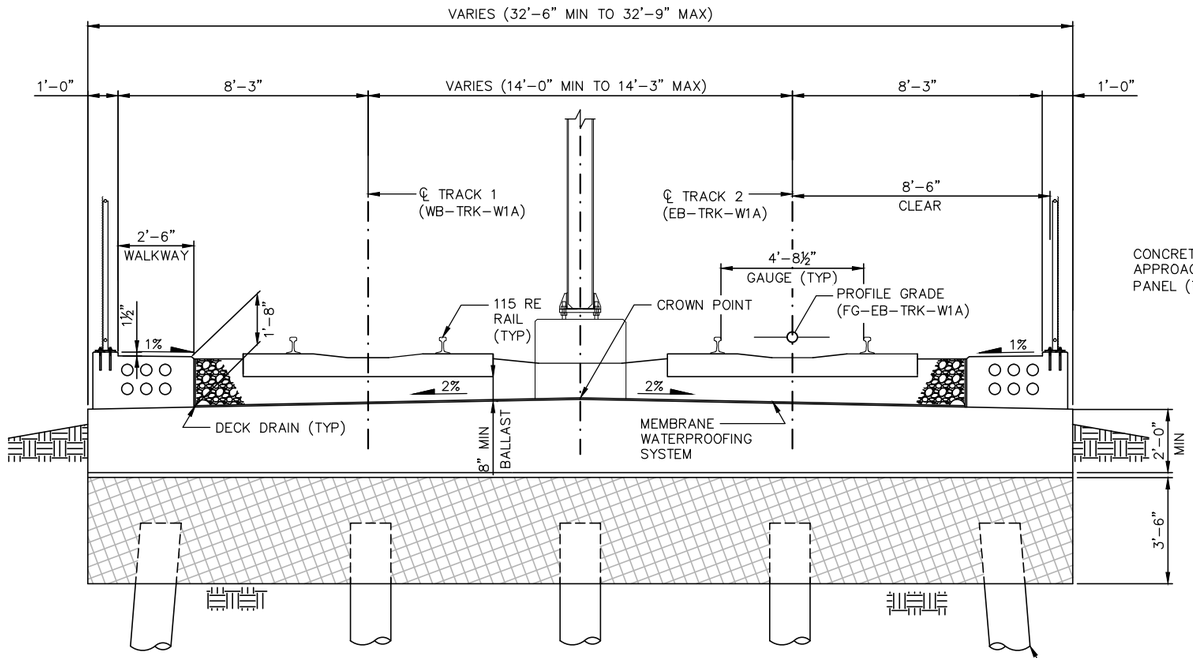
WEST - VOLUME 2 (STRUCTURES)
TECHNOLOGY DRIVE LAND BRIDGE
STA 2064+00 TO STA 2077+03
PART GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

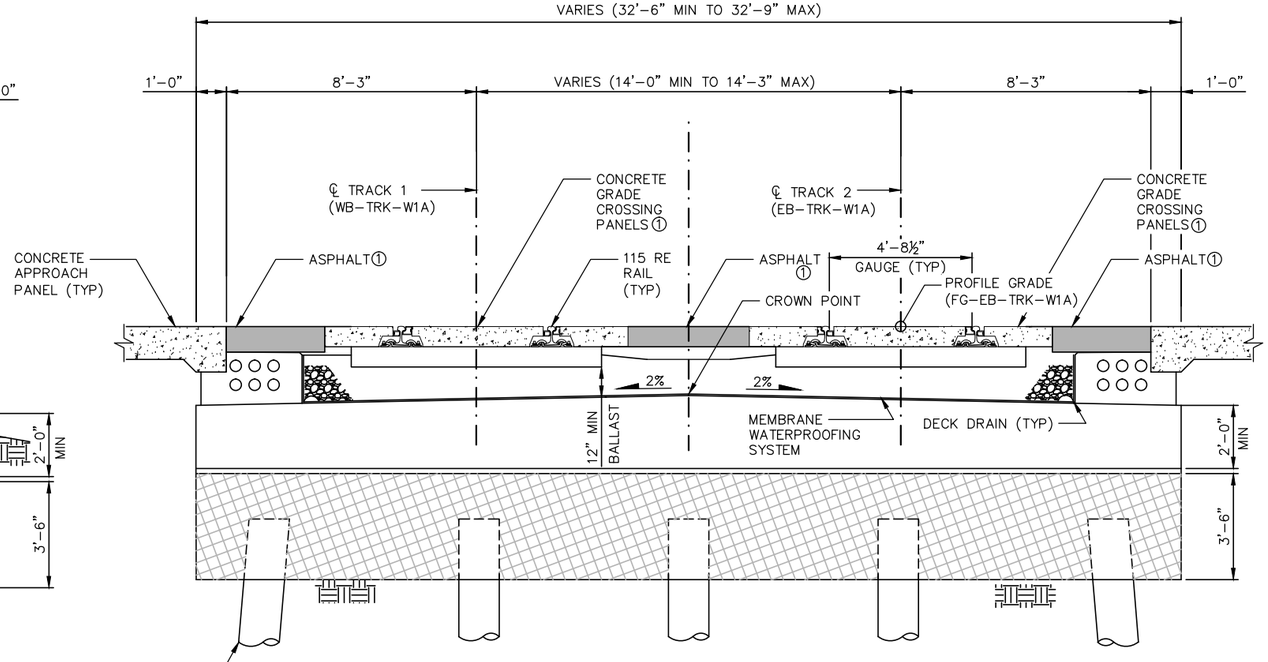
SHEET NAME: W1A-STU-BRG-LDBG-GPE

SHEET 7 OF 204

Aug. 26 2014 08:16 pm V:\3200_PEC-W\CAD\SEGMENT-W1A\SHEET\STRUCTURES\W1A-STU-BRG-LDBG.dwg By: rieckmanb



SECTION A–A – TYPICAL SECTION



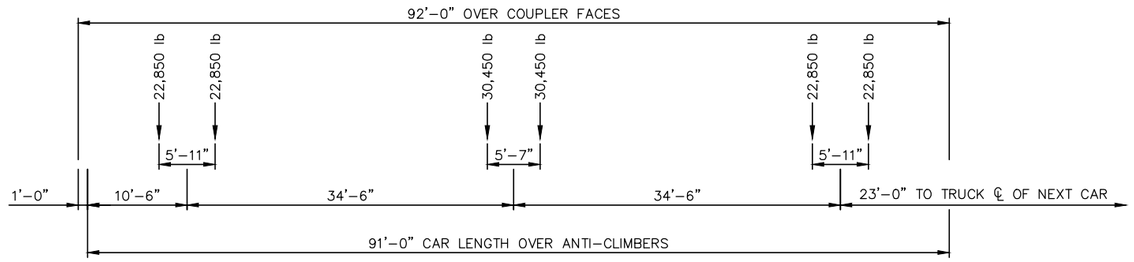
SECTION B–B – AT TECHNOLOGY DRIVE CROSSING

16" ø CIP PILE SPACING @ 7'-6" MAX ADJUST WHERE DECK WIDTH IS GREATER THAN 32'-6"

NOTES:

① SEE TRACK DRAWINGS FOR DETAILS

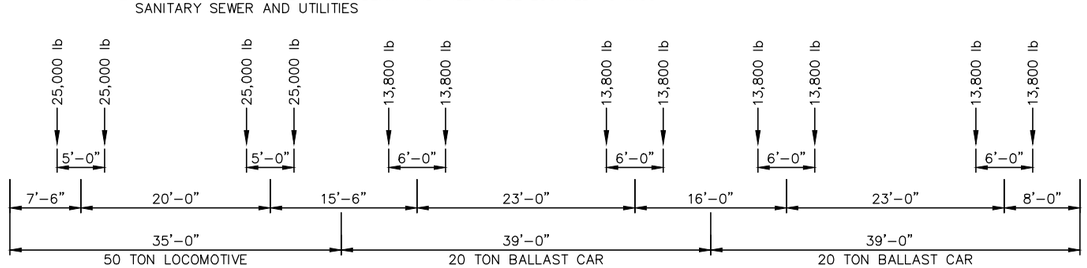
2. AT TECHNOLOGY DRIVE, GRADE BEAM AND PILE TO BE LOCATED TO MISS SANITARY SEWER AND UTILITIES



LIGHT RAIL VEHICLE LOADING DIAGRAM

NOTES:

1. THE LRT TRAIN SHALL CONSIST OF EITHER ONE, TWO OR THREE CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.



MAINTENANCE TRAIN LOADING DIAGRAM

NOTES:

1. THE MAINTENANCE TRAIN SHALL CONSIST OF ONE LOCOMOTIVE AND ONE, TWO, THREE OR FOUR BALLAST CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.

2. WEIGHT OF EMPTY BALLAST CAR IS 15,000 POUNDS.

DES: AAM	DRA: BR
CHK: RJH	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

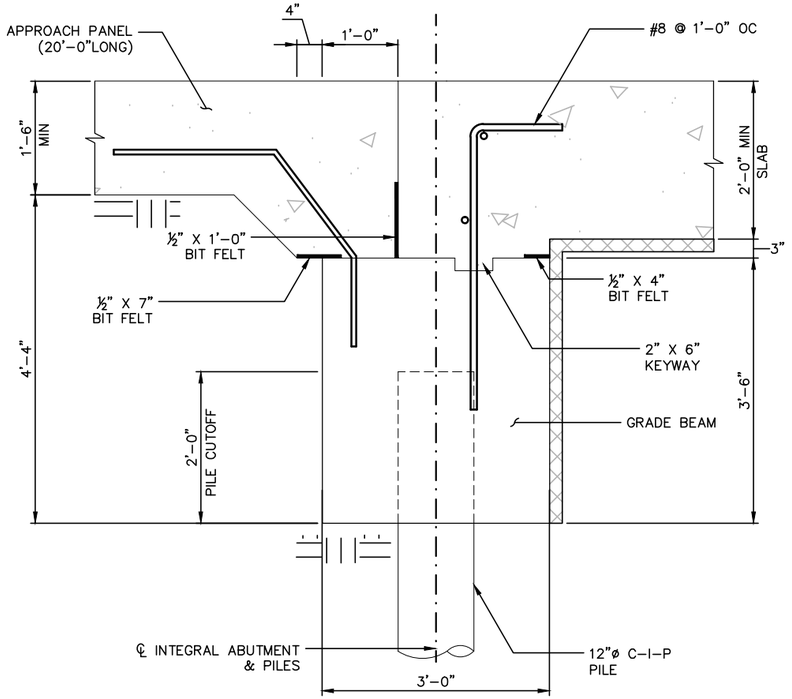
SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
TECHNOLOGY DRIVE LAND BRIDGE
STA 2064+00 TO STA 2077+03
PILE SUPPORTED TRACK DETAILS

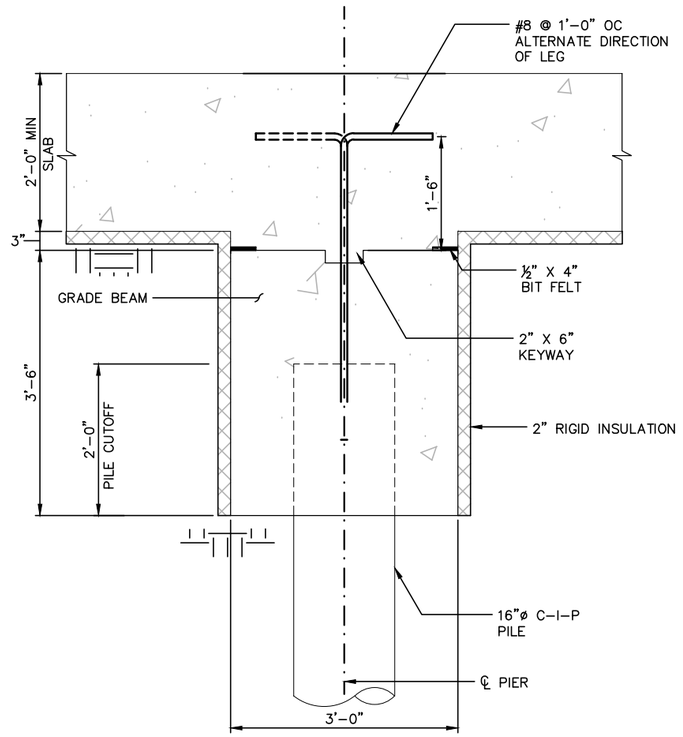
DISCIPLINE: STRUCTURES

SHEET NAME: W1A-STU-BRG-LDBG-DTL-001

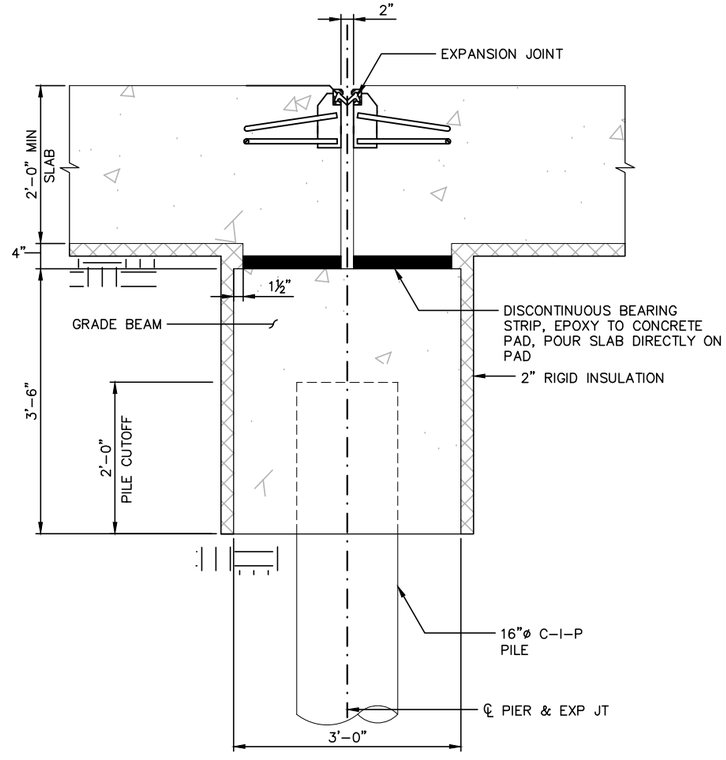
SHEET 8 OF 204



DETAIL A



DETAIL B



DETAIL C

DES: AAM	DRA: BR
CHK: RJH	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

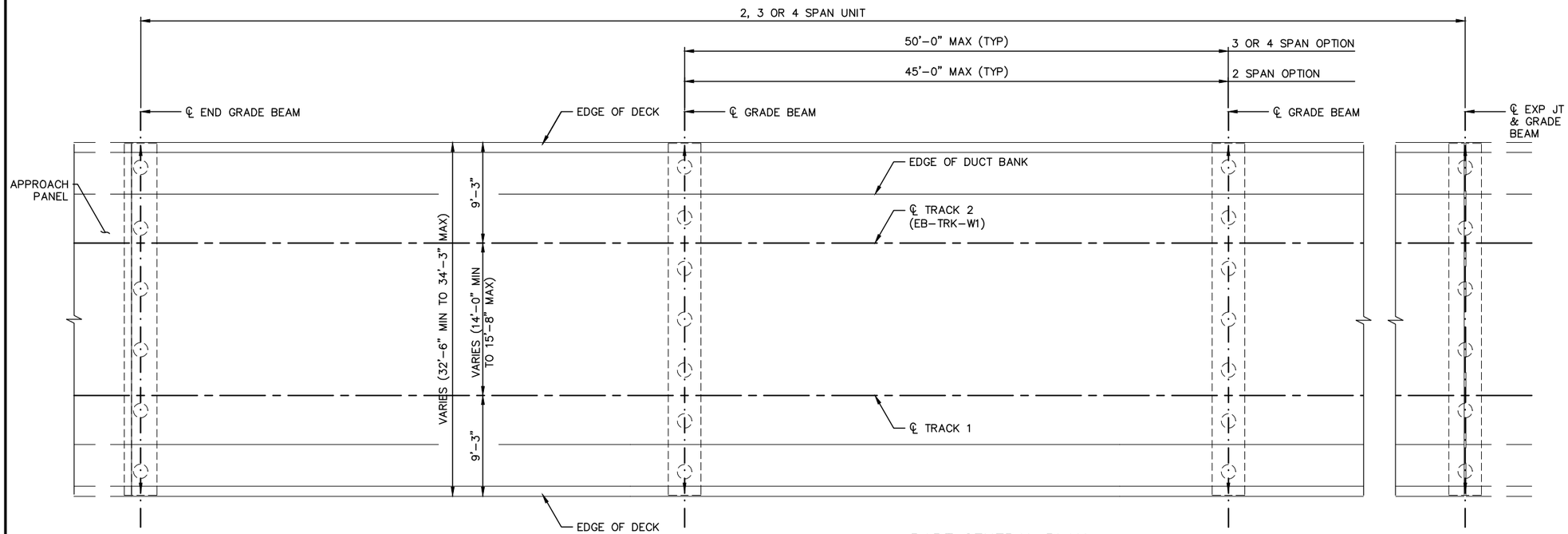
SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
TECHNOLOGY DRIVE LAND BRIDGE
STA 2064+00 TO STA 2077+03
PILE SUPPORTED TRACK DETAILS

DISCIPLINE: STRUCTURES

SHEET NAME: W1A-STU-BRG-LDBG-DTL-002

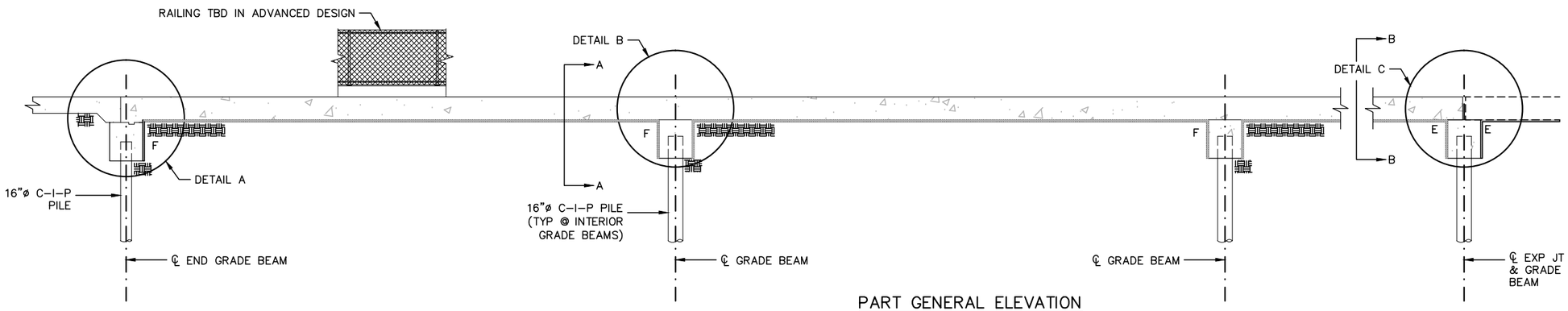
SHEET 9 OF 204



PART GENERAL PLAN

NOTES:

1. SEE TRACK PLANS FOR LIMITIS OF PILE SUPPORTED TRACK (LAND BRIDGE)



PART GENERAL ELEVATION

DESIGN DATA

2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
6TH EDITION AND CURRENT INTERIMS

SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA
(REVISION 2.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD

LRV & MV LOAD DIAGRAM SHOWN ON SHEET 11

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4000 PSI, n = 8
fy = 60000 PSI

DESIGN SPEED: OVER = 20 MPH (LRT)

APPROXIMATE DECK AREA: 14,240 SQ FT

LIST OF SHEETS

PROPOSED TYPE OF STRUCTURE

DECK:
2, 3, OR 4 CONTINUOUS CIP SLAB SPANS ON PILE SUPPORTED GRADE BEAMS
ALL BARS EPOXY COATED
DIRECT FIXATION TRACK

SUBSTRUCTURE:
INTEGRAL ABUTMENT SUPPORTED ON 16" CIP CONCRETE PILES
GRADE BEAMS SUPPORTED ON 16" CIP CONCRETE PILES

DEPTH OF STRUCTURE:
±3'-6" TOP OF LOW RAIL TO LOW BRIDGE

AESTHETICS:
TO BE DETERMINED

PILE SUPPORTED TRACK (DF) DETAILS

SOUTHWEST LIGHT RAIL OVER POOR SOIL CONDITIONS
0.1 MI SOUTHEAST OF THE INTERSECTION OF TH 212 AND PRAIRIE CENTER DRIVE IN EDEN PRAIRIE

MAX 50' CIP CONCRETE SLAB SPANS
VARIABLE RAILWAY (MIN 32'-6")
0°-0'-0" SKEW

BRIDGE ID NO 209 APPROACH
GENERAL PLAN

SEC 14/15 T 116N R 22W
CITY OF EDEN PRAIRIE HENNEPIN COUNTY

APPROVED: _____ STATE BRIDGE ENGINEER DATE

JOB NO: T9N635 STATE PROJECT NO: 9909-01 MNDOT REVIEW:

DES: AAM	DRA: BR
CHK: RJH	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

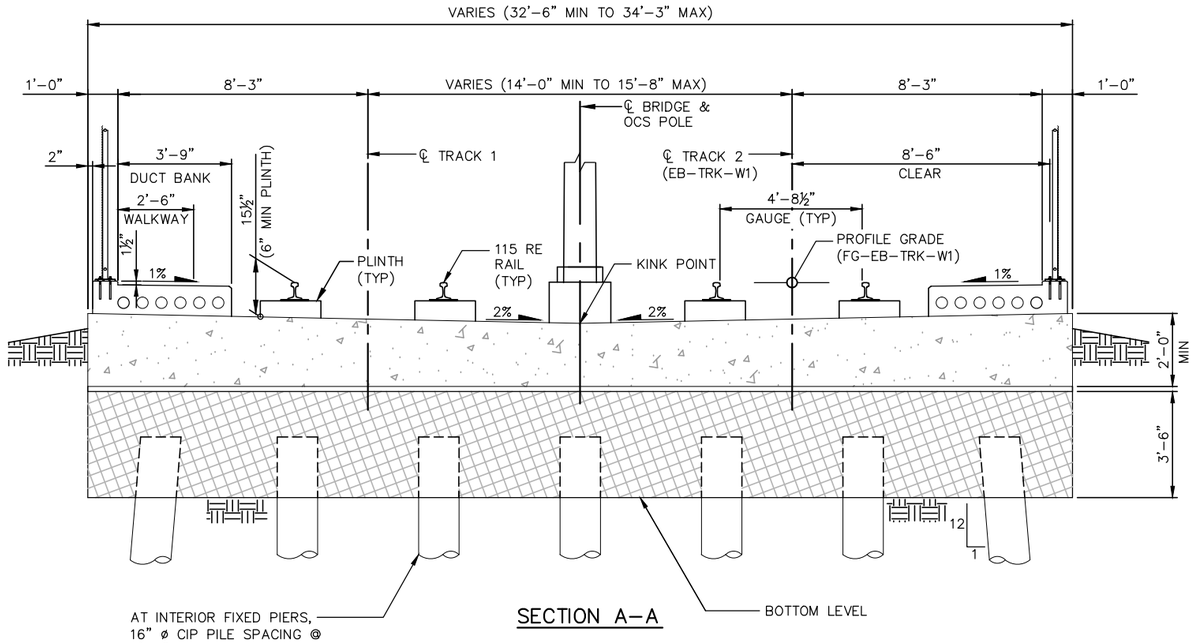
SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE LAND BRIDGE
STA 2080+90 TO STA 2085+66
PART GENERAL PLAN AND ELEVATION

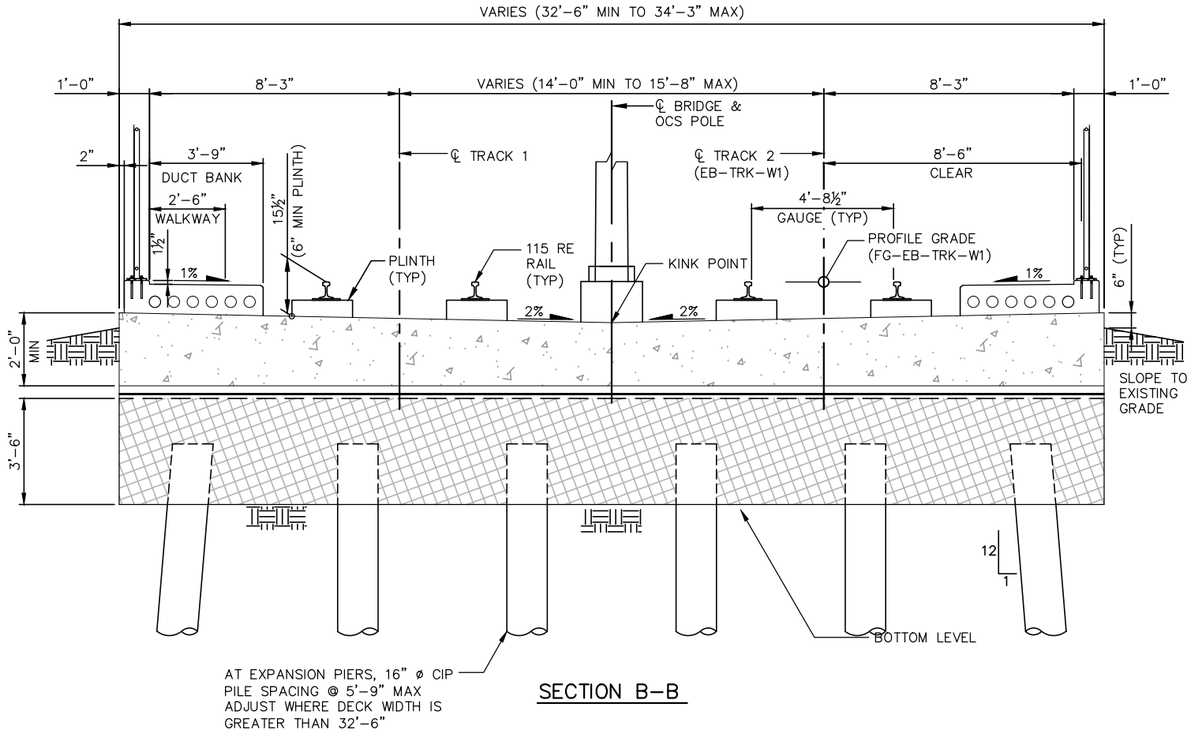
DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-LDBG-GPE

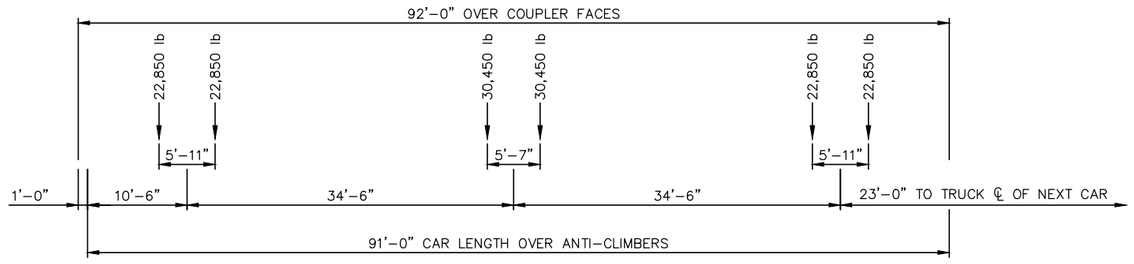
SHEET 10 OF 204



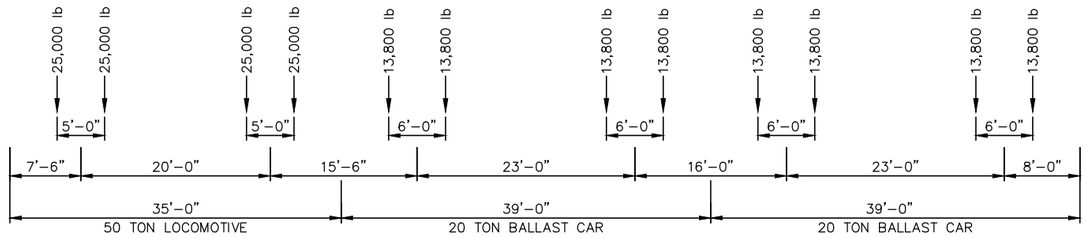
SECTION A-A



SECTION B-B



LIGHT RAIL VEHICLE LOADING DIAGRAM



MAINTENANCE TRAIN LOADING DIAGRAM

NOTES:

1. THE LRT TRAIN SHALL CONSIST OF EITHER ONE, TWO OR THREE CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.

NOTES:

1. THE MAINTENANCE TRAIN SHALL CONSIST OF ONE LOCOMOTIVE AND ONE, TWO, THREE OR FOUR BALLAST CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.
2. WEIGHT OF EMPTY BALLAST CAR IS 15,000 POUNDS.

DES: AAM	DRA: BR
CHK: RJH	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

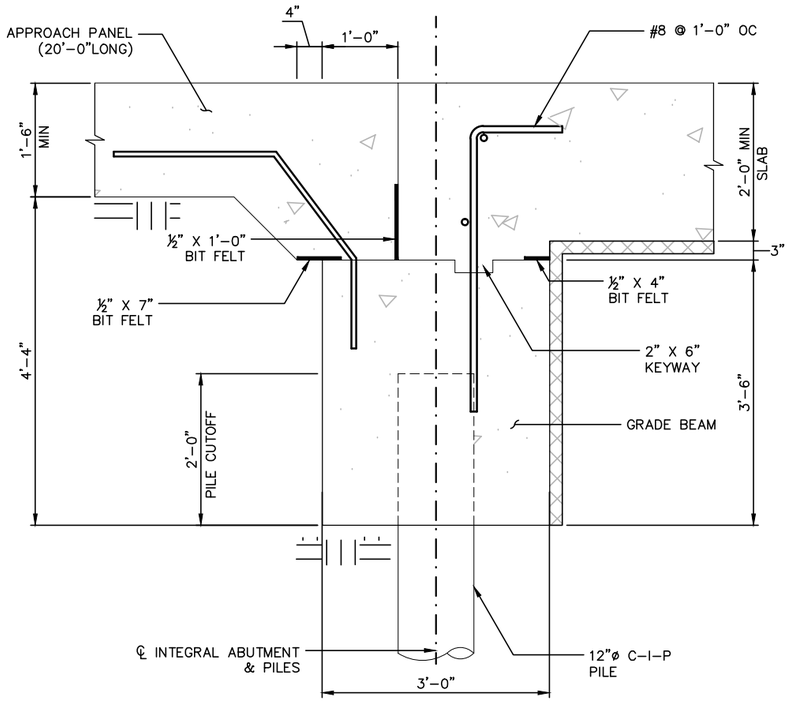
SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE LAND BRIDGE
STA 2080+90 TO STA 2085+66
PILE SUPPORTED TRACK DETAILS

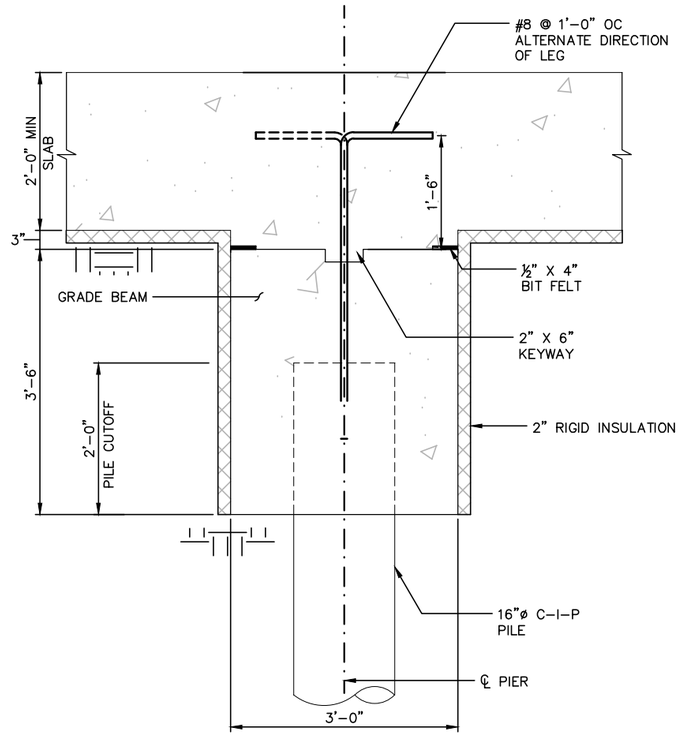
DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-LDBG-DTL-001

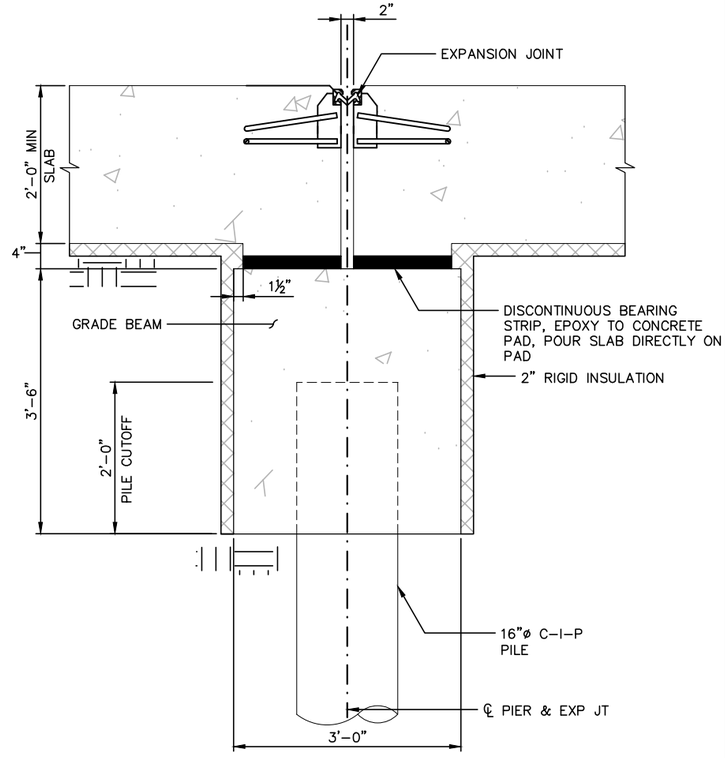
SHEET 11 OF 204



DETAIL A



DETAIL B



DETAIL C

Aug, 26 2014 08:18 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-LDBG.dwg By: rieckmanb

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

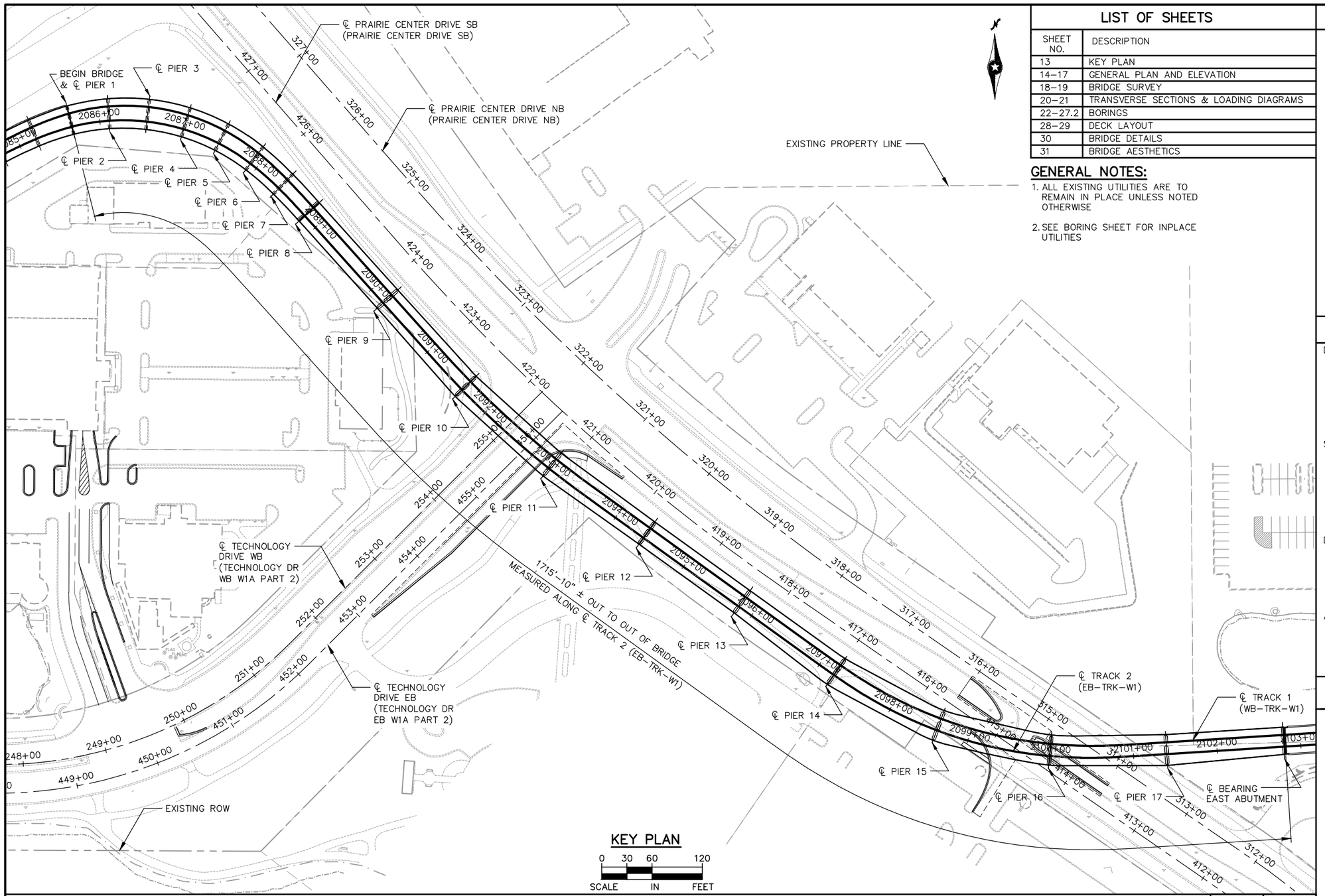
DES: AAM	DRA: BR
CHK: RJH	CHK: PLR

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE LAND BRIDGE
STA 2080+90 TO STA 2085+66
PILE SUPPORTED TRACK DETAILS

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-LDBG-DTL-002

SHEET 12 OF 204



LIST OF SHEETS

SHEET NO.	DESCRIPTION
13	KEY PLAN
14–17	GENERAL PLAN AND ELEVATION
18–19	BRIDGE SURVEY
20–21	TRANSVERSE SECTIONS & LOADING DIAGRAMS
22–27.2	BORINGS
28–29	DECK LAYOUT
30	BRIDGE DETAILS
31	BRIDGE AESTHETICS

GENERAL NOTES:

1. ALL EXISTING UTILITIES ARE TO REMAIN IN PLACE UNLESS NOTED OTHERWISE
2. SEE BORING SHEET FOR INPLACE UTILITIES

DESIGN DATA

2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
6TH EDITION AND CURRENT INTERIMS

SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA
(REVISION 2.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD

LRV & MV LOAD DIAGRAM SHOWN ON SHEET 21

MATERIAL DESIGN PROPERTIES:
- REINFORCED CONCRETE:
  - f'c = 4000 PSI, n = 8
  - fy = 60000 PSI
- PRESTRESSED CONCRETE:
  - f'c = 9000 PSI, n = 1
  - fpu = 270 KSI
  - 0.6" DIAMETER LOW RELAXATION STRANDS
  - 0.75 fpu FOR INITIAL PRESTRESS

DESIGN SPEED: OVER = 20/25/55 MPH (LRT)
UNDER = 40 MPH (PRAIRIE CENTER DRIVE)

APPROXIMATE DECK AREA: 59,747 SQ FT

PROPOSED TYPE OF STRUCTURE

DECK:
- SPANS 1–7: 2'–1" REINFORCED CONCRETE SLAB SPAN (CONTINUOUS)
- SPANS 8–17: 82MW PRESTRESSED CONCRETE BEAMS (SIMPLE SPANS) WITH 9" CAST–IN–PLACE CONCRETE DECK
- ALL BARS EPOXY COATED
- DIRECT FIXATION TRACK

SUBSTRUCTURE:
- PARAPET ABUTMENT SUPPORTED ON 12" CIP CONCRETE PILES
- HAMMERHEAD PIERS SUPPORTED ON 16" CIP CONCRETE PILES (PIERS 9–17)
- PILE BENTS SUPPORTED ON 16" CIP CONCRETE PILES (PIERS 1–7)

DEPTH OF STRUCTURE:
- ±3'–6" TOP OF LOW RAIL TO LOW BRIDGE (SPANS 1–7)
- ±9'–3" TOP OF LOW RAIL TO LOW BRIDGE (SPANS 8–19)
- 4± BEAM LINES (TYP) (SPANS 8–17)

AESTHETICS:
- TO BE DETERMINED

PRELIMINARY PLAN
BRIDGE NO. XXXXX

SOUTHWEST LIGHT RAIL OVER PRAIRIE CENTER DRIVE AND TECHNOLOGY DRIVE
0.1 MI SOUTHEAST OF THE INTERSECTION OF TH 212 AND PRAIRIE CENTER DRIVE IN EDEN PRAIRIE

140' PRESTRESSED CONCRETE BEAM SPANS
45' SLAB SPANS
32'–6" RAILWAY
0°–0'–0" SKEW

BRIDGE ID NO 501 MAIN SPANS & 209 APPROACH

KEY PLAN

SEC 14/15 T 116N R 22W
CITY OF EDEN PRAIRIE HENNEPIN COUNTY

APPROVED: _____ STATE BRIDGE ENGINEER DATE

JOB NO: T9N635 STATE PROJECT NO: 9909–01 MNDOT REVIEW:

DES: AAM	DRA: BR
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

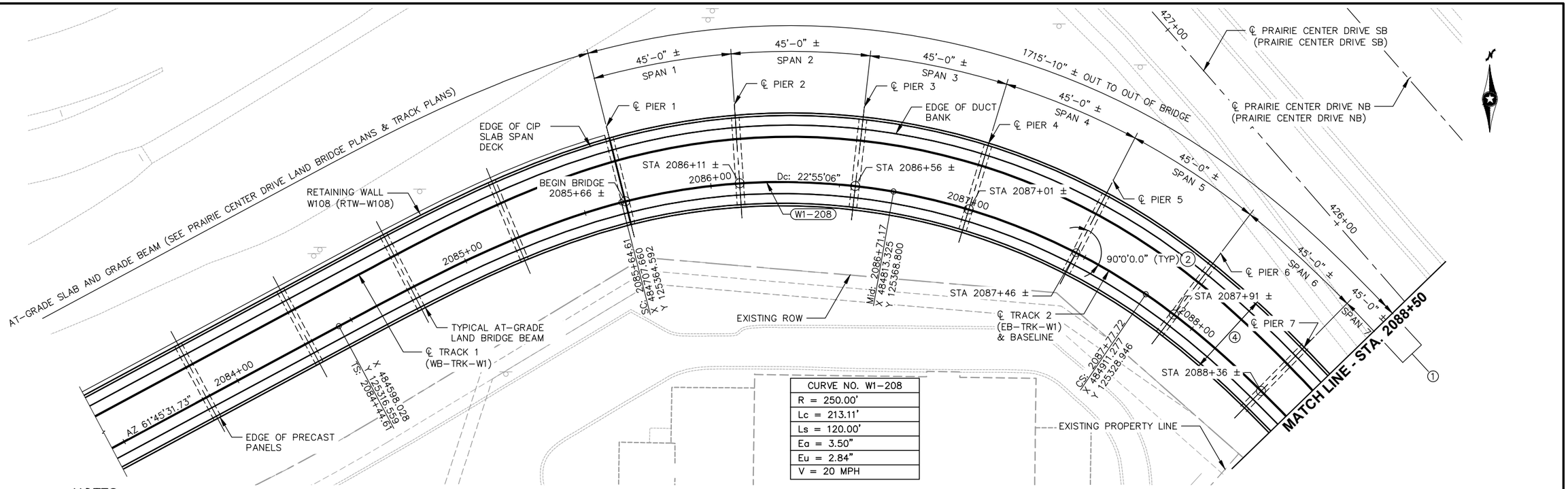
SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
KEY PLAN

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-GEN

SHEET 13 OF 204



CURVE NO. W1-208
R = 250.00'
Lc = 213.11'
Ls = 120.00'
Ea = 3.50"
Eu = 2.84"
V = 20 MPH

GENERAL PLAN

0 10 20 40
SCALE IN FEET

NOTES:

① MEASURED ALONG ℄ TRACK 2 (EB-TRK-W1)

② TTC TYP UNLESS SHOWN OTHERWISE

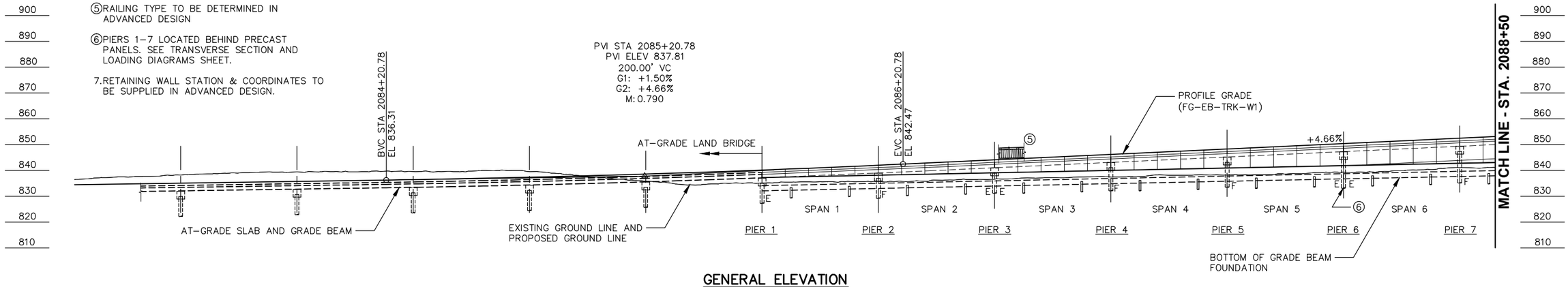
3. SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES

④ BRIDGE WIDTH 32'-6" MIN/ 37'-11" MAX

⑤ RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN

⑥ PIERS 1-7 LOCATED BEHIND PRECAST PANELS. SEE TRANSVERSE SECTION AND LOADING DIAGRAMS SHEET.

7. RETAINING WALL STATION & COORDINATES TO BE SUPPLIED IN ADVANCED DESIGN.



GENERAL ELEVATION

0 10 20 40
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

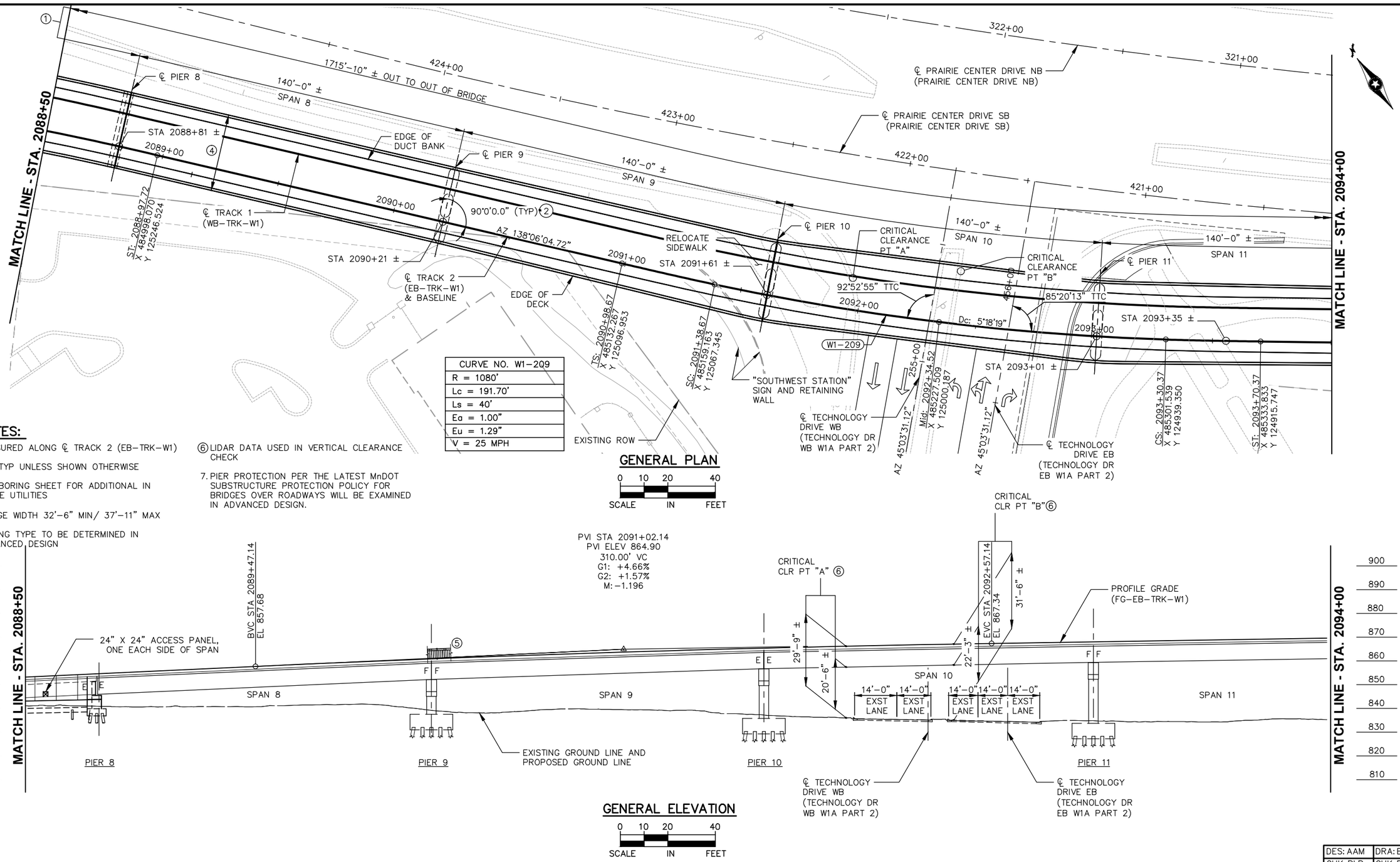
DES: AAM	DRA: BR
CHK: PLR	CHK: PLR

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-GPE-001

SHEET 14 OF 204



CURVE NO. W1–209
R = 1080'
Lc = 191.70'
Ls = 40'
Eq = 1.00"
Eu = 1.29"
V = 25 MPH

GENERAL PLAN

0 10 20 40

SCALE IN FEET

NOTES:

① MEASURED ALONG ℄ TRACK 2 (EB–TRK–W1)

② TTC TYP UNLESS SHOWN OTHERWISE

3. SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES

④ BRIDGE WIDTH 32'–6" MIN/ 37'–11" MAX

⑤ RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN

⑥ LIDAR DATA USED IN VERTICAL CLEARANCE CHECK

7. PIER PROTECTION PER THE LATEST MnDOT SUBSTRUCTURE PROTECTION POLICY FOR BRIDGES OVER ROADWAYS WILL BE EXAMINED IN ADVANCED DESIGN.

GENERAL ELEVATION

0 10 20 40

SCALE IN FEET

DES: AAM	DRA: BR
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

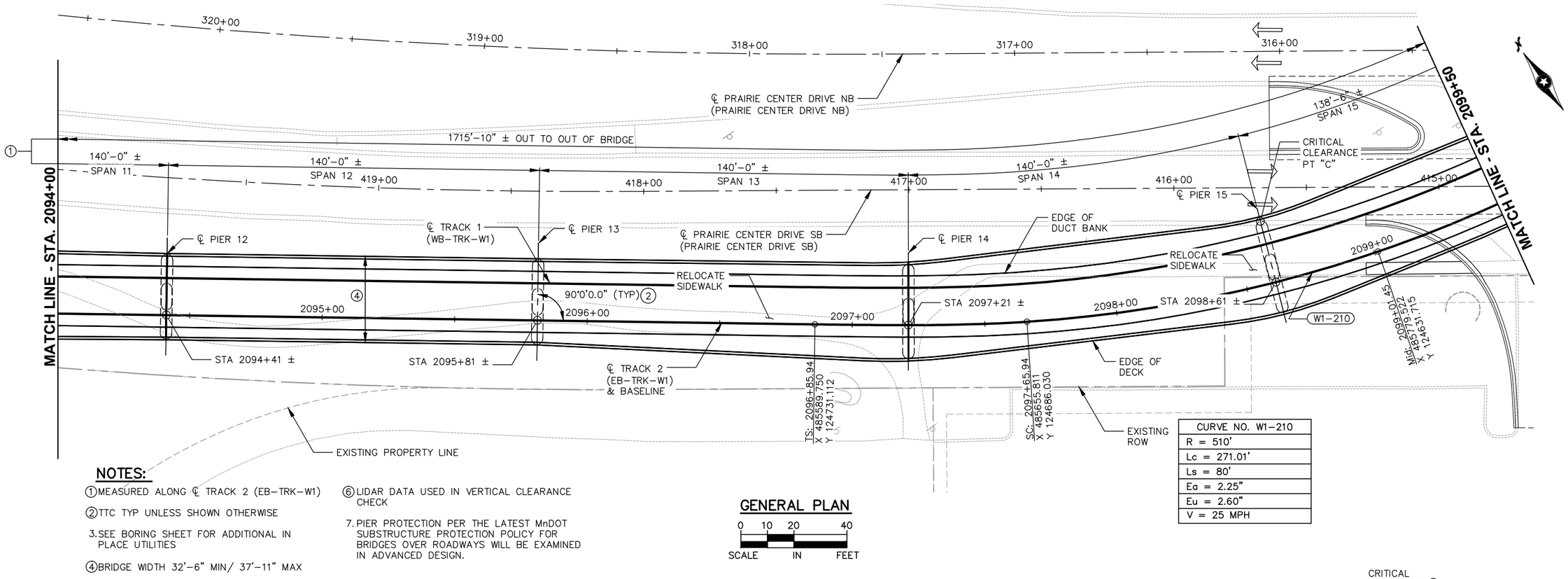
WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-GPE-002

SHEET 15 OF 204

Aug. 27 2014 07:03 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-PRCD-GPE.dwg By: rieckmanb



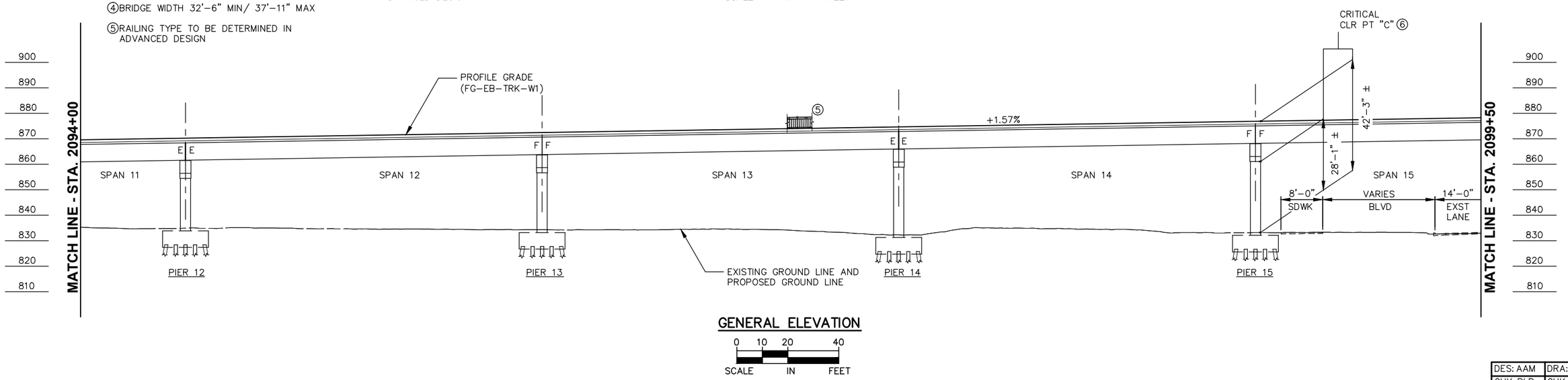
CURVE NO. W1-210
R = 510'
Lc = 271.01'
Ls = 80'
Ea = 2.25"
Eu = 2.60"
V = 25 MPH

NOTES:

1. MEASURED ALONG ℄ TRACK 2 (EB-TRK-W1)
2. TTC TYP UNLESS SHOWN OTHERWISE
3. SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES
4. BRIDGE WIDTH 32'-6" MIN/ 37'-11" MAX
5. RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN
6. LIDAR DATA USED IN VERTICAL CLEARANCE CHECK
7. PIER PROTECTION PER THE LATEST MnDOT SUBSTRUCTURE PROTECTION POLICY FOR BRIDGES OVER ROADWAYS WILL BE EXAMINED IN ADVANCED DESIGN.

GENERAL PLAN

SCALE 0 10 20 40 IN FEET



GENERAL ELEVATION

SCALE 0 10 20 40 IN FEET

DES: AAM	DRA: BR
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

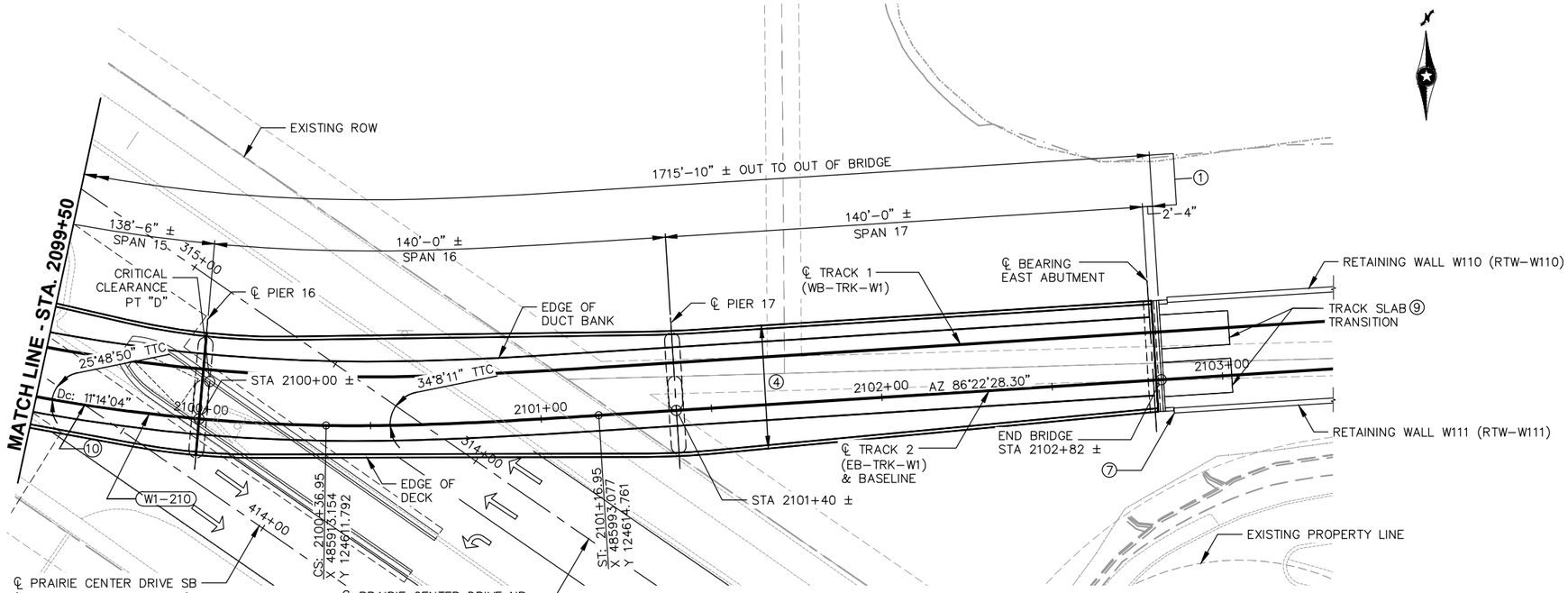
WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-GPE-003

SHEET 16 OF 204

Aug. 27, 2014 07:03 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-PRCD-GPE.dwg By: rieckmanb



GENERAL PLAN

SCALE 0 10 20 40 IN FEET

NOTES:

① MEASURED ALONG ℄ TRACK 2 (EB-TRK-W1)

② TTC TYP UNLESS SHOWN OTHERWISE

3. SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES

④ BRIDGE WIDTH 32'-6" MIN/ 37'-11" MAX

⑤ RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN

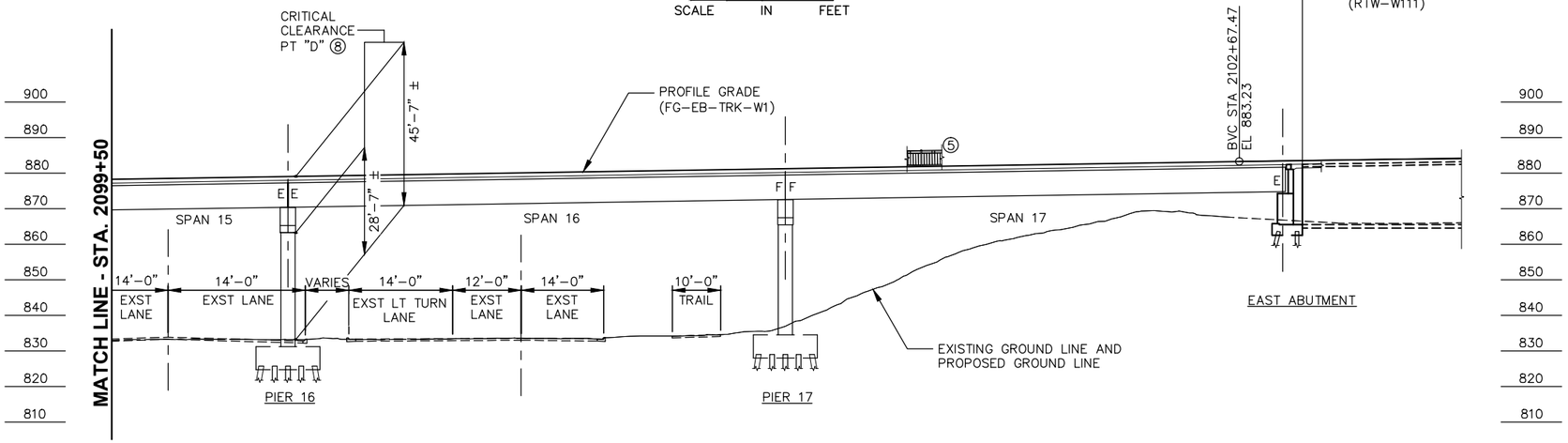
⑦ RETAINING WALL STATION & COORDINATES TO BE SUPPLIED IN ADVANCED DESIGN. RETAINING WALL WILL BEGIN AT EDGE OF ABUTMENT FOOTING.

⑧ LIDAR DATA USED IN VERTICAL CLEARANCE CHECK

⑨ SEE TRACK DRAWINGS FOR TRANSITION SLAB DETAILS

⑩ CONTROL POINT:
℄ TECHNOLOGY DRIVE SB: STA 414+63.38
℄ TRACK 2: STA 2099+65.95
X: 485842.4618
Y: 124617.7983
ANGLE: 25°48'50" TTC

11. PIER PROTECTION PER THE LATEST MnDOT SUBSTRUCTURE PROTECTION POLICY FOR BRIDGES OVER ROADWAYS WILL BE EXAMINED IN ADVANCED DESIGN.



GENERAL ELEVATION

SCALE 0 10 20 40 IN FEET

DES: AAM	DRA: BR
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-GPE-004

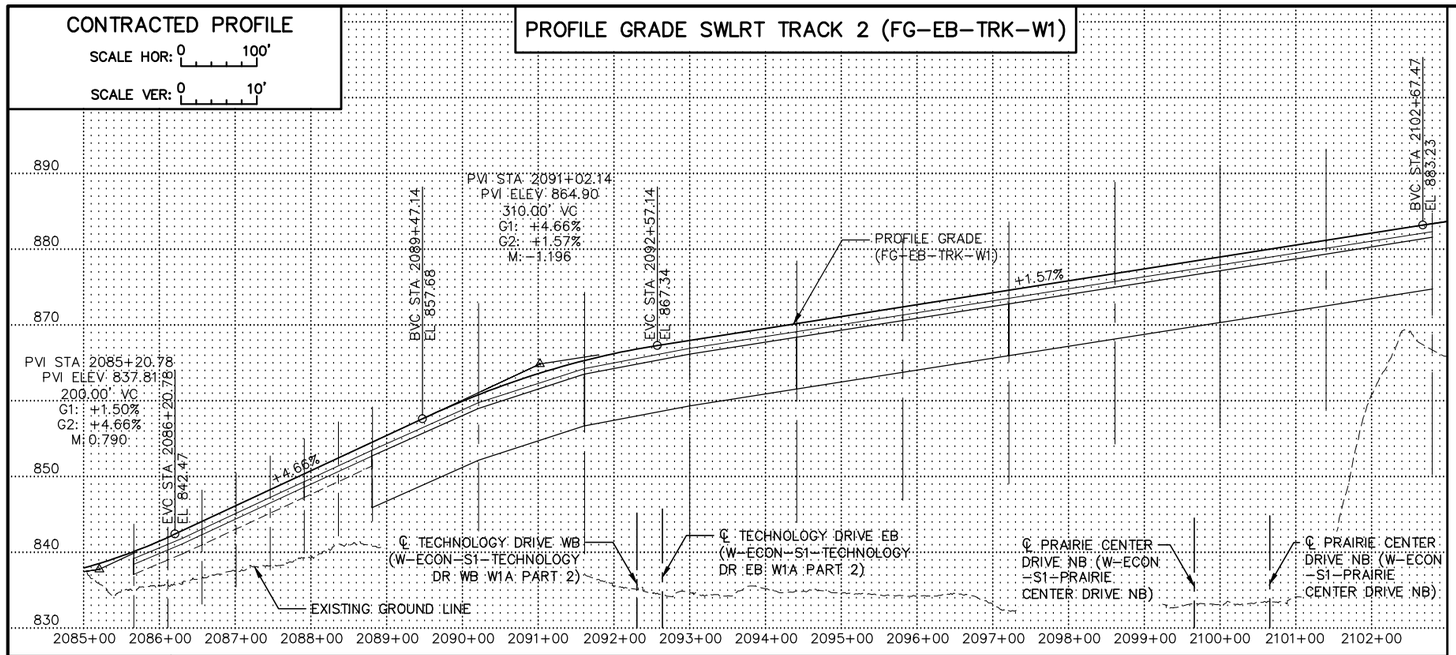
SHEET 17 OF 204

CONTRACTED PROFILE

SCALE HOR: 0 100'

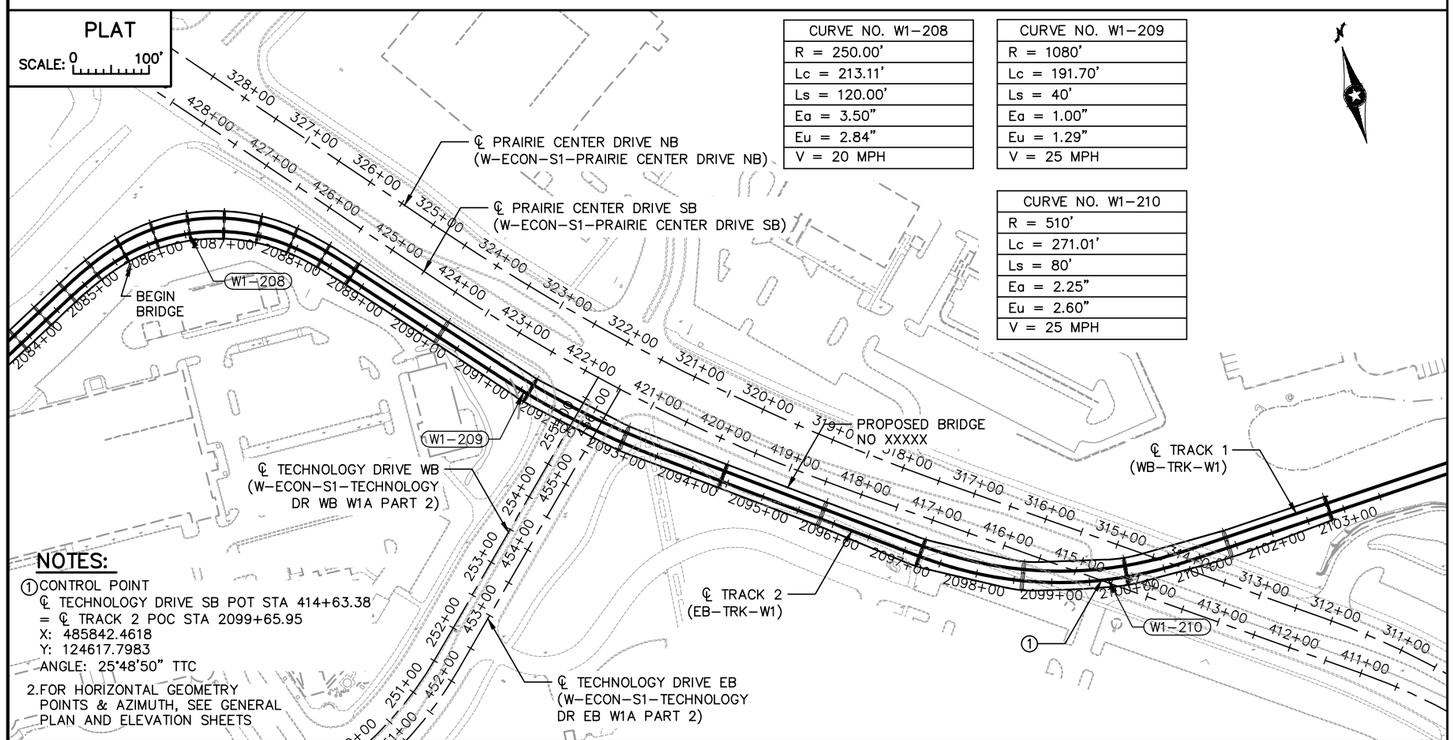
SCALE VER: 0 10'

PROFILE GRADE SWLRT TRACK 2 (FG-EB-TRK-W1)



PLAT

SCALE: 0 100'



CURVE NO. W1-208
R = 250.00'
Lc = 213.11'
Ls = 120.00'
Ea = 3.50"
Eu = 2.84"
V = 20 MPH

CURVE NO. W1-209
R = 1080'
Lc = 191.70'
Ls = 40'
Ea = 1.00"
Eu = 1.29"
V = 25 MPH

CURVE NO. W1-210
R = 510'
Lc = 271.01'
Ls = 80'
Ea = 2.25"
Eu = 2.60"
V = 25 MPH

NOTES:

1. CONTROL POINT
   ℄ TECHNOLOGY DRIVE SB POT STA 414+63.38
   = ℄ TRACK 2 POC STA 2099+65.95
   X: 485842.4618
   Y: 124617.7983
   ANGLE: 25°48'50" TTC
2. FOR HORIZONTAL GEOMETRY POINTS & AZIMUTH, SEE GENERAL PLAN AND ELEVATION SHEETS

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
2. OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION,TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS-SECTIONAL AREA ETC.
3. APPARENT HIGHWATER ELEVATION _____ OBTAINED FROM:
4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE: XX-XX-XXXX

STREAM OR DITCH DESIGNATION: XXX

DRAINAGE AREA: XXX SQ. MI.

MAX FLOOD ON RECORD: XXX C.F.S. (XX-XX-XX)

MAXIMUM OBSERVED HIGHWATER ELEVATION: XXX.X FT.

DESIGN FLOOD (XX TR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
DESIGN MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.
TOTAL STAGE INCREASE: XX FT.
LOW MEMBER AT OR ABOVE ELEVATION: XXX.X FT

WATERWAY AREA REQUIRED BELOW ELEV. XXX.X = XXX SQ. FT. AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
TOTAL STAGE INCREASE: X.X FT.
MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.

FLOWLINE ELEVATION: XXX FT. SKEW ANGLE: XX

ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. XXX.X (500 OR OT YR.FREQ.)

SCOUR CONFIRMATION RECOMMENDATION

DATE: XX-XX-XXXX

TOTAL SCOUR AT PIER EL. XXX.XX (500 OR OT YR. FREQ.)
SCOUR CODE: OBTAIN FROM HYDRAULIC ENGINEER

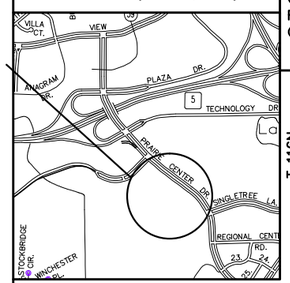
BRIDGE SURVEY = SHEETS MADE FROM SURVEY AND PHOTOGRAMMETRIC MAPPING

MnDOT NAME: 2701S BENCH MARK ELEVATION 829.569 FEET (NAVD88) LOCATION STAMPED 2701 S 1993 –IN EDEN PRAIRIE, 1.0 MILE WEST ALONG TH 5 FROM JUNCTION OF TH 5 AND INTERSTATE HIGHWAY 494, AT TH 5 MILEPOINT 49.75, IN SOUTHEAST CORNER OF TH 5 BOX CULVERT, 56.0 FEET SOUTH OF EASTBOUND TH 5, 0.5 FOOT WEST OF SOUTHEAST CORNER OF BOX CULVERT.

2ND MnDOT NAME: 2744N BENCH MARK ELEVATION 885.113 FEET (NAVD88) LOCATION STAMPED 2744 N 1980 – IN EDEN PRAIRIE, 0.5 MILE SOUTHWEST OF JUNCTION OF TH 212 AND INTERSTATE HIGHWAY 494, AT TH 212 MILEPOINT 158.9, 250 FEET SOUTH OF ENTRANCE TO EDEN PRAIRIE CENTER, 47.8 FEET SOUTHEAST OF SOUTHEAST CURB OF TH 212, 42.9 FEET NORTHEAST OF NORTH CURB ON ACCESS ROAD, 1.2 FEET NORTH OF WEST COLUMN OF SIGN (EDEN PRAIRIE CENTER) NOTHING ON SIGN AT PRESENT, IN WEST BASE OF SIGN.

INDEX MAP (ONE SQ MILE)

PROPOSED BRIDGE XXXXX



T 116N

R 22W

BRIDGE SURVEY

0.1 MI SOUTHEAST OF THE INTERSECTION OF TH 212 AND PRAIRIE CENTER DRIVE IN EDEN PRAIRIE

SOUTHWEST LIGHT RAIL OVER PRAIRIE CENTER DRIVE AND TECHNOLOGY DRIVE

SEC 14/15 T 116N R 22W

CITY OF EDEN PRAIRIE HENNEPIN COUNTY

BRIDGE XXXXX

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
BRIDGE SURVEY

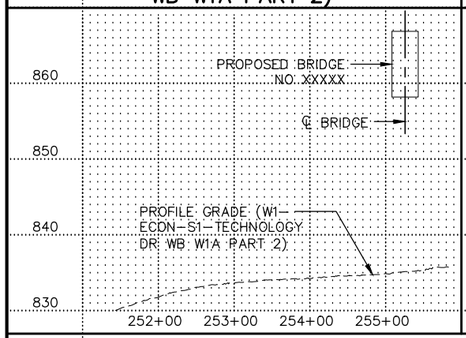
DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-SUR-001

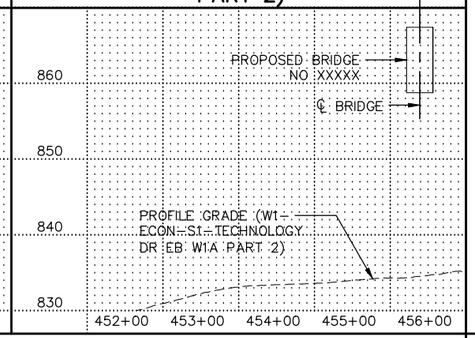
SHEET 18 OF 204

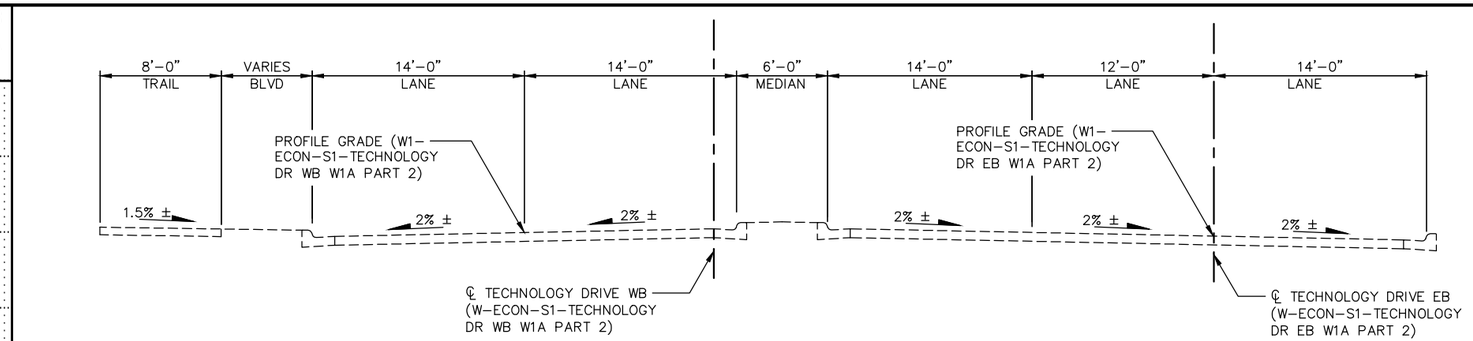
Aug. 27 2014 07:07 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-PRCD-SUR.dwg By: rieckmanb

PROFILE GRADE TECHNOLOGY DRIVE WB (W1-ECON-S1-TECHNOLOGY DR WB W1A PART 2)



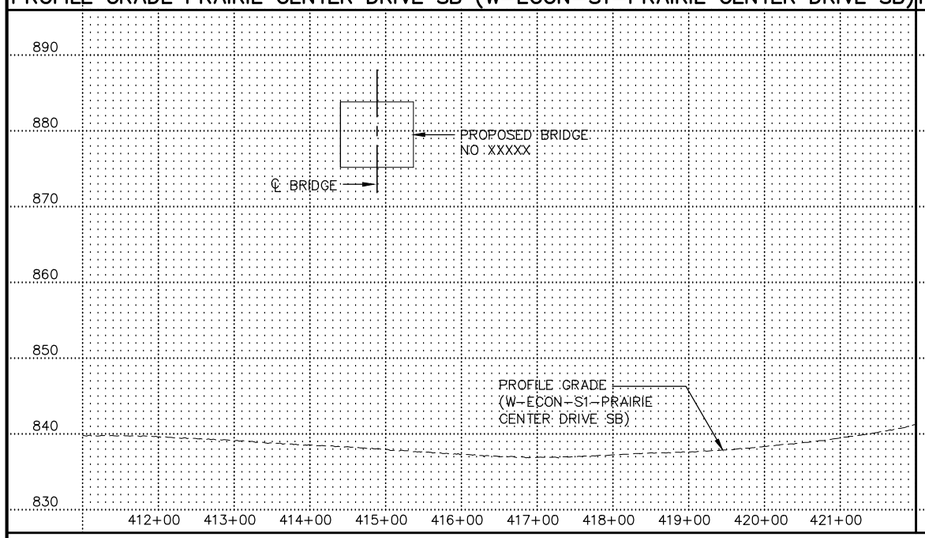
PROFILE GRADE TECHNOLOGY DRIVE EB (W1-ECON-S1-TECHNOLOGY DR EB W1A PART 2)



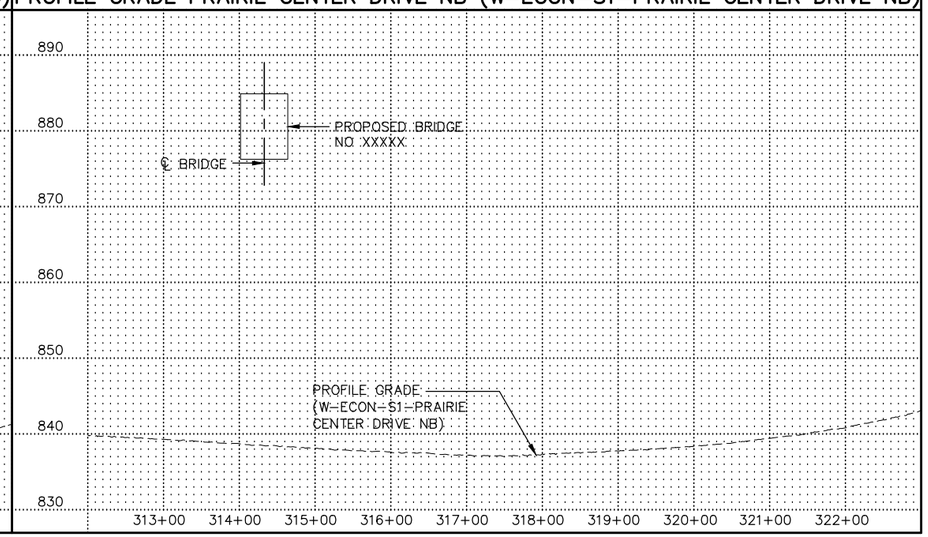


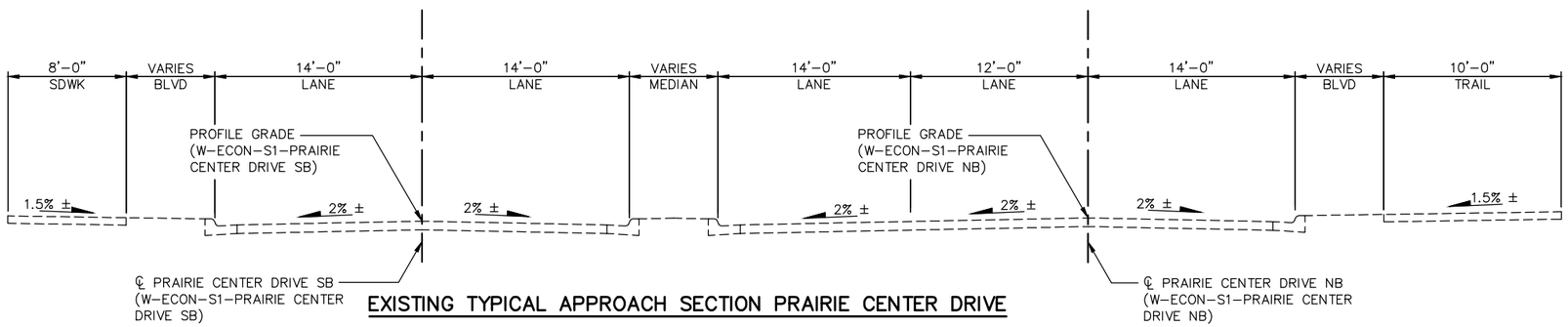
EXISTING TYPICAL APPROACH SECTION TECHNOLOGY DRIVE

PROFILE GRADE PRAIRIE CENTER DRIVE SB (W-ECON-S1-PRAIRIE CENTER DRIVE SB)



PROFILE GRADE PRAIRIE CENTER DRIVE NB (W-ECON-S1-PRAIRIE CENTER DRIVE NB)





EXISTING TYPICAL APPROACH SECTION PRAIRIE CENTER DRIVE

NOTES:

1. EXISTING GRADE PROFILES FOR TECHNOLOGY DRIVE AND PRAIRIE CENTER DRIVE ARE BASED ON LIDAR DATA.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
BRIDGE SURVEY

DISCIPLINE: STRUCTURES

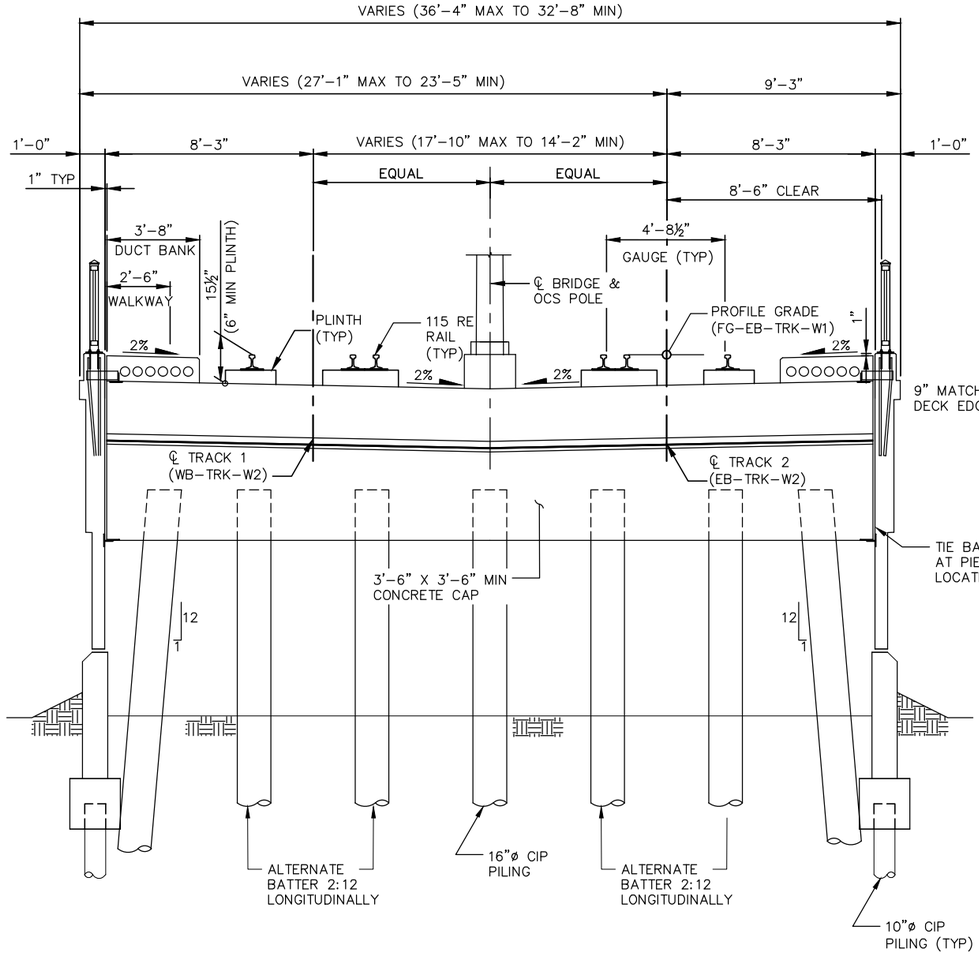
SHEET NAME: W1-STU-BRG-PRCD-LRT-SUR-002

SHEET 19 OF 204

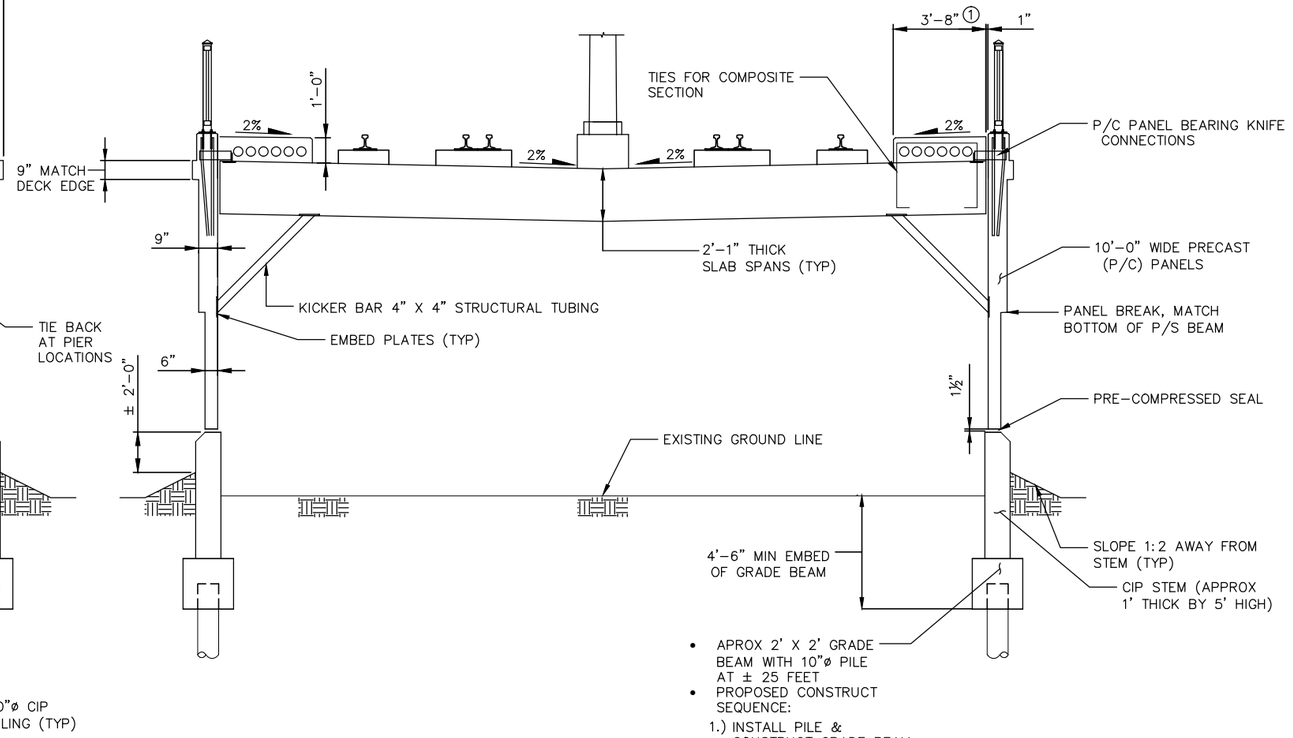
Aug, 27 2014 07:07 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-PRCD-SUR.dwg By: rieckmanb

NOTES:

① STRUCTURAL EDGE BEAM CONCRETE



AT TRESTLE BENT



BETWEEN PIERS

0 2 3 6
SCALE IN FEET

SPANS 1–7

DES: AAM	DRA: BR
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

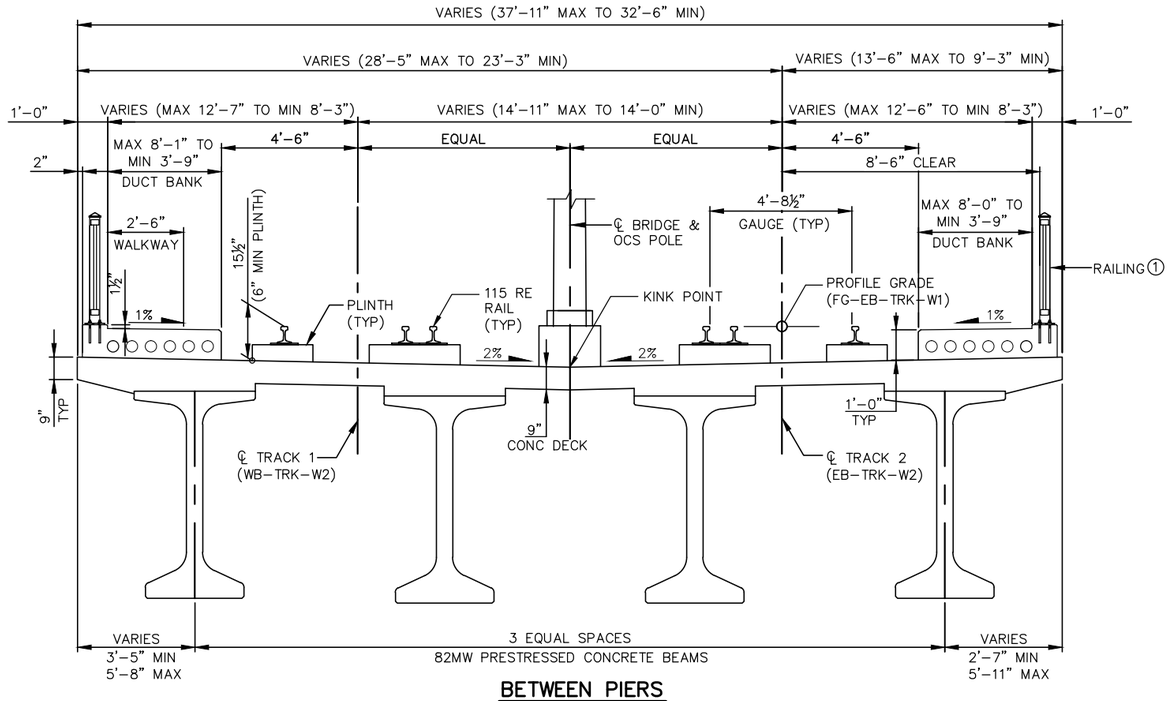
SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
TRANSVERSE SECTIONS & LOADING DIAGRAMS

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-SUP-001

SHEET 20 OF 204



BETWEEN PIERS

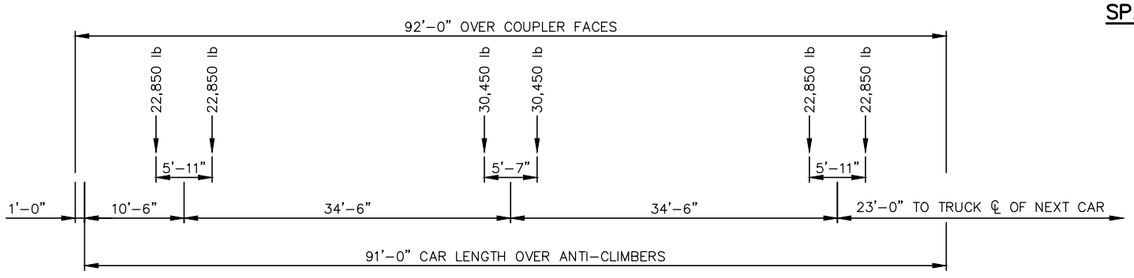
SCALE 0 1 2.5 5 IN FEET

NOTES:

① RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN

2. NUMBER AND SPACING OF BEAMS IS APPROXIMATE AND WILL BE SET DURING ADVANCED DESIGN

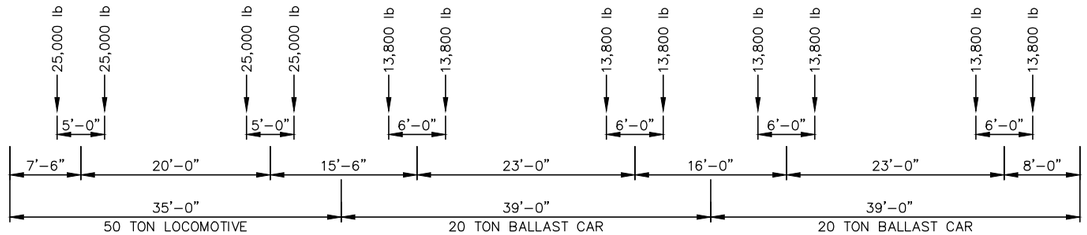
SPANS 8–17



LIGHT RAIL VEHICLE LOADING DIAGRAM

NOTES:

1. THE LRT TRAIN SHALL CONSIST OF EITHER ONE, TWO OR THREE CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.



MAINTENANCE TRAIN LOADING DIAGRAM

NOTES:

1. THE MAINTENANCE TRAIN SHALL CONSIST OF ONE LOCOMOTIVE AND ONE, TWO, THREE OR FOUR BALLAST CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.

2. WEIGHT OF EMPTY BALLAST CAR IS 15,000 POUNDS.

DES: AAM	DRA: BR
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

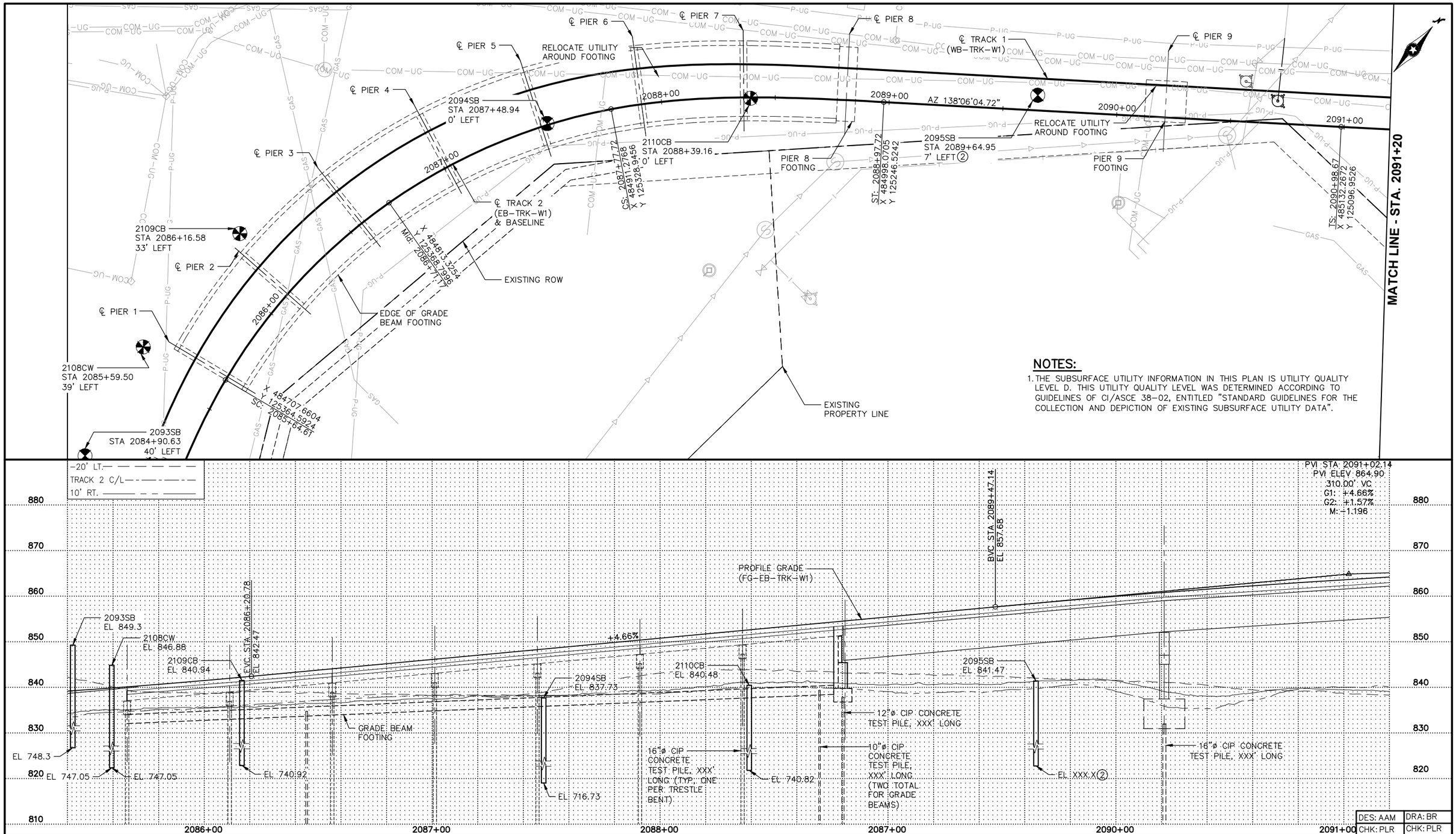
SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
TRANSVERSE SECTIONS & LOADING DIAGRAMS

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-SUP-002

SHEET 21 OF 204



DES: AAM | DRA: BR | CHK: PLR | CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

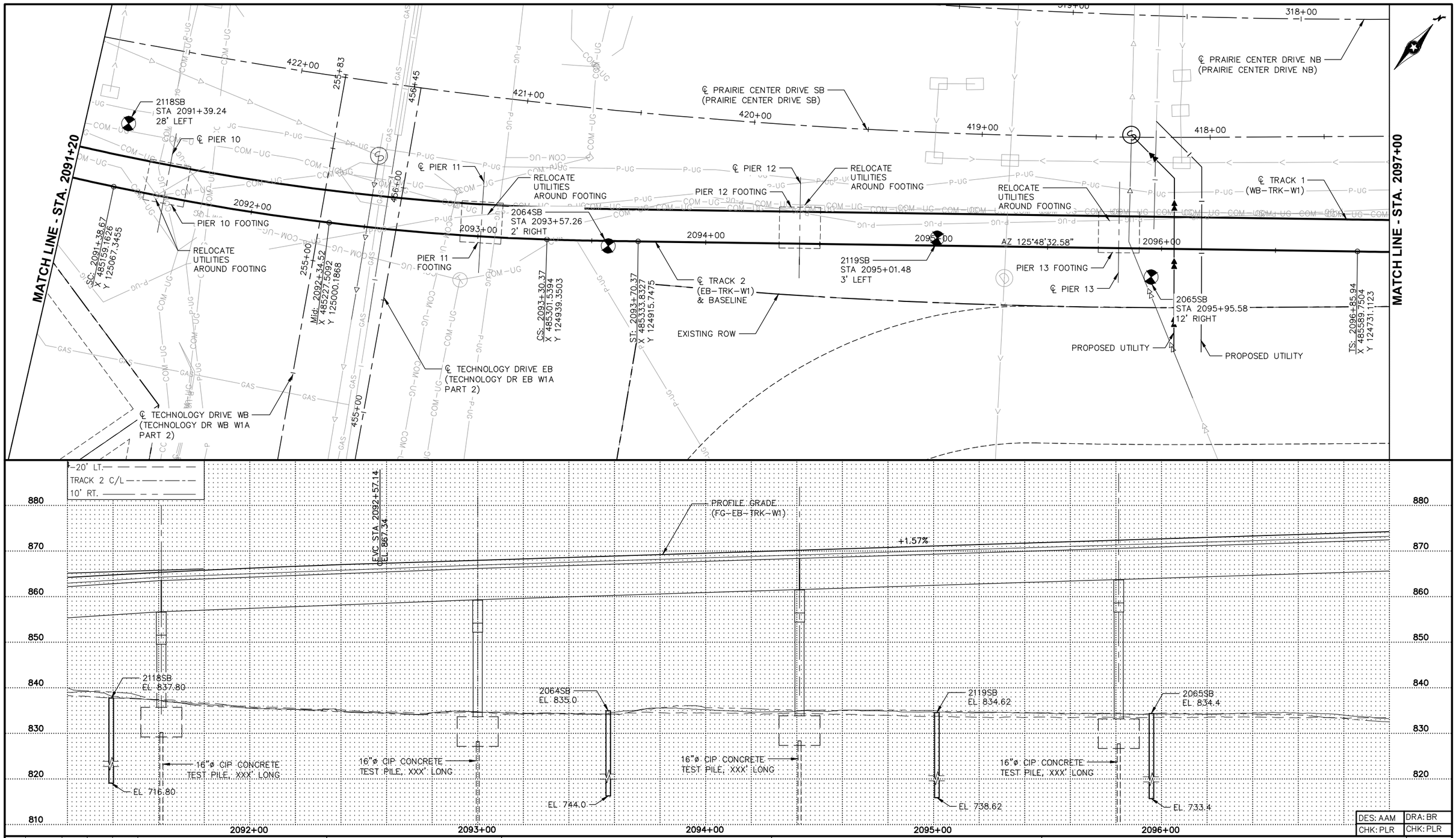
WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-SUR-BOR-001

SHEET 22 OF 204

Aug, 27 2014 07:10 pm V:\3200_PEC–W\CAD\SEGMENT–W1\SHEET\STRUCTURES\W1–STU–BRG–PRCD–SUR–BOR.dwg By: rieckmanb



Aug. 27 2014 07:10 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-PRCD-SUR-BOR.dwg By: rieckmanb

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DES: AAM | DRA: BR | CHK: PLR | CHK: PLR

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

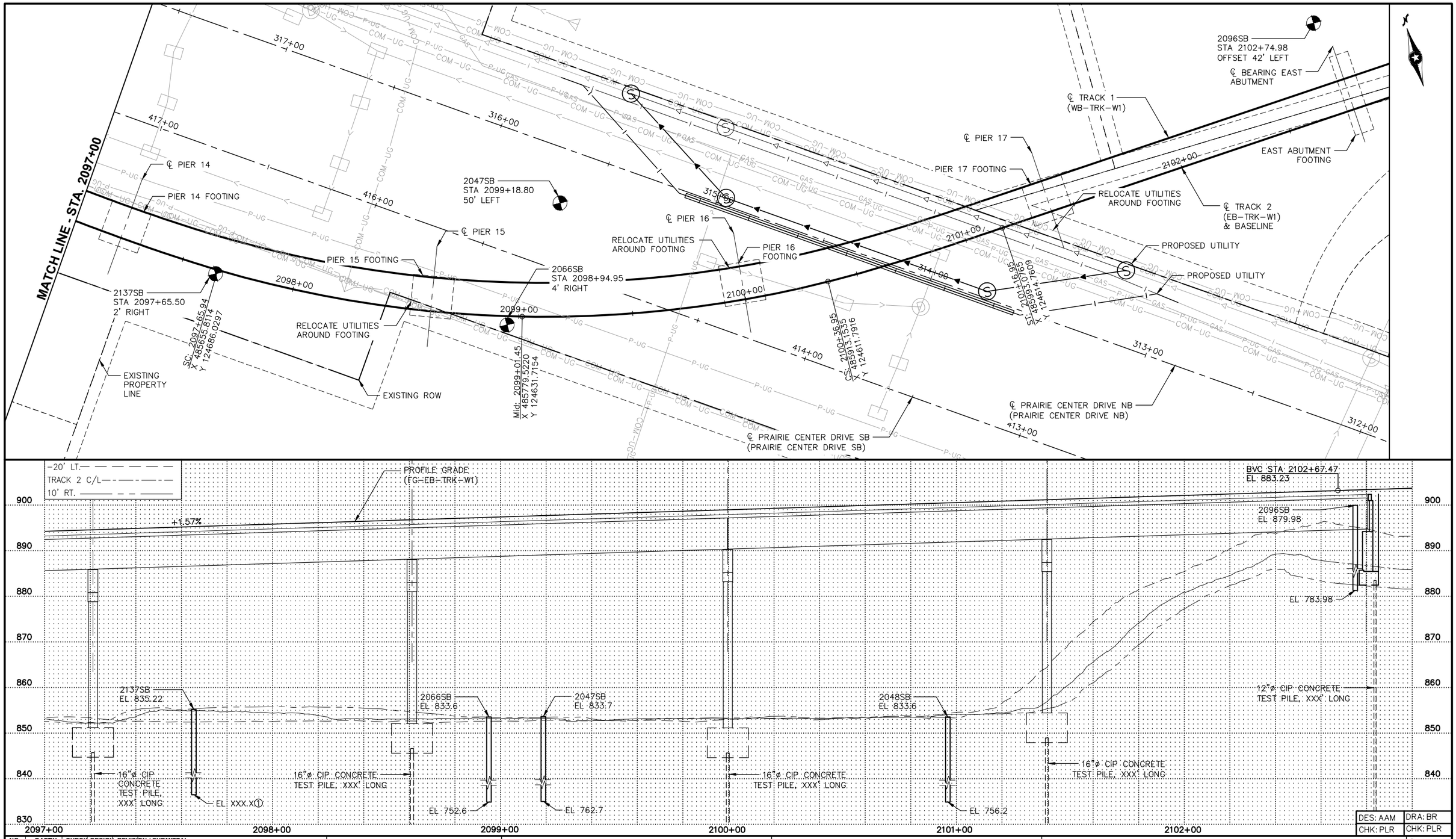
SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-SUR-BOR-002

SHEET 23 OF 204



Aug. 27 2014 07:10 pm V:\3200_PEC–W\CAD\SEGMENT–W1\SHEET\STRUCTURES\W1–STU–BRG–PRCD–SUR–BOR.dwg By: rieckmanb

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
BORINGS

DES: AAM | DRA: BR | CHK: PLR | CHK: PLR

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-SUR-BOR-003

SHEET 24 OF 204

2094SB
Elevation 837.73

Coh	N60		
		840	SANDY LEAN CLAY, trace roots, dark brown, wet. (CLS), topsoil fill
	9		SANDY LEAN CLAY, trace Gravel, dark brown and gray, moist. (CLS), fill With roots at 5 feet.
	6	830	
	22		CLAYEY SAND, trace Gravel, dark gray and brown, moist. (SC), fill
	18		SANDY LEAN CLAY, trace Gravel, gray, moist. (CLS), fill
	10		PEAT, decomposed with fibers, with shells, black, moist. (PT), swamp deposit
	8	820	
	7		
	8		FAT CLAY, gray, wet, medium to rather stiff. (CH), glaciofluvium
	10		
	9	810	
	1		
	WOH		FAT CLAY, gray, wet, very soft. (CH), glaciofluvium
	WOH		
	1	800	
	7		
	10		LEAN CLAY, with frequent layers of Silt, gray, wet, medium to rather stiff. (CL), glaciofluvium
	9		
	22	790	SILTY SAND, fine- to medium-grained, with Gravel, gray, waterbearing, very stiff. (SM), fill
	21		CLAYEY SAND, with Gravel, gray, wet, very stiff. (SC), till
	15	780	
			SANDY LEAN CLAY, trace Gravel, with Sand seams, gray, wet, stiff. (CL), till
	15		
	19	770	
	38		
	36		SILTY SAND, fine- to medium-grained, trace Gravel, gray, waterbearing, medium dense. (SM), till
	37	760	
	41		POORLY GRADED SAND with SILT, fine- to coarse-grained, with Gravel, gray, waterbearing, medium dense to dense. (SP-SM), outwash
	36		
	38	750	
	30		
		740	
	38		
		730	
	42		
		720	
			Bottom of Hole - 121 feet.
			Water observed at a depth of 22 feet while drilling.
		710	Boring immediately backfilled with betonite grout.

2095SB
Elevation 841.47

Coh	N60		
	8	840	SANDY LEAN CLAY, dark brown, moist. (CLS), topsoil fill
	12		SANDY LEAN CLAY, trace Gravel, brown and dark brown, moist. (CLS), fill
	20		CLAYEY SAND, trace Gravel, dark brown and gray, moist. (SC), fill
	15	830	
	5		SILTY CLAY, trace Gravel, brown, moist, (CL-ML), fill
	11		CLAYEY SAND, trace Gravel, gray and brown, moist. (SC), fill
	6		SLIGHTLY ORGANIC SILT, with fine-grained Sand, with shells, gray and black, moist. (OH), swamp deposit
	31	820	
	21		SILTY SAND, fine- to medium-grained, trace Gravel, brown,
	33		waterbearing, medium dense to dense. (SM), till
	31		
	18	810	POORLY GRADED SAND with SILT, fine- to medium-grained, trace Gravel, brown, waterbearing, dense to medium dense. (SP-SM), outwash
	18		
	18		
	28	800	POORLY GRADED SAND, fine- to medium-grained, with Gravel, brown,
	16		waterbearing, medium dense. (SP), outwash
	21		POORLY GRADED SAND, fine- to coarse-grained, with Gravel, occasional
	22	790	Cobbles, brown, waterbearing, medium dense. (SP), outwash
	28		
	29		
	24	780	
			POORLY GRADED SAND with SILT, fine- to coarse-grained, with Gravel,
	23		occasional Cobbles, brown, waterbearing, medium dense. (SP-SM),
	27		outwash
	29	770	Large Boulder and rock encountered from 70 to 72 feet.
	39		
	37		SILTY SAND, fine- to medium-grained, with frequent layers of Silt, brown, waterbearing, dense. (SM), till
	30	760	
			SANDY SILT, with frequent layers of Sand, reddish brown, wet, medium dense to dense. (ML), till
	46		
	36	750	
			SILTY SAND, fine- to medium-grained, with frequent layers of Silt and
	49		Lean Clay, reddish brown, wet, dense. (SM), till
		740	Bottom of Hole - 101 feet.
			Water observed at a depth of 17 feet while drilling.
		730	Boring immediately backfilled with bentonite grout.

2047SB
Elevation 833.7

Coh	N60		
		840	LEAN CLAY, black, wet.
	20		FILL: Clayey Sand, fine- to medium-grained, with Gravel, brown, moist.
	24	830	
	20		FILL: Sandy Lean Clay, trace Gravel, brown, moist.
	27		FILL: Silty Sand, fine- to medium-grained, with Lean Clay lenses, brown, moist.
	25		
	10	820	FILL: Silty Sand, fine- to medium-grained, trace Gravel, brown to 12 feet then gray, moist.
	12		SANDY LEAN CLAY, trace Gravel, gray, wet, rather stiff.
	15		POORLY GRADED SAND, fine- to medium-grained, trace Gravel, gray,
	19	810	waterbearing, medium dense.
	24		
	28		CLAYEY SAND, fine- to medium-grained, trace Gravel, gray, wet,
	33		medium dense to dense.
	31	800	
	36		
	29		SANDY LEAN CLAY, trace Gravel, gray, wet, very stiff.
	25		
	27	790	
	30		SILTY SAND, fine- to medium-grained, trace Gravel, gray, waterbearing,
	31		medium dense.
	39		SILT, brown and gray, waterbearing, dense.
	42		
	53	770	POORLY GRADED SAND, fine-grained, with occasional Silty Sand lenses, gray, waterbearing, very dense.
	50/5"		
	50/6"		
		760	END OF BORING.
			Water observed at 20 feet with 20 feet of hollow-stem auger in the ground.
		750	Boring immediately backfilled with bentonite grout.
			Bottom of Borehole at 71 ft
		740	
		730	
		720	
		710	
		700	
		690	
		680	
		670	

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

DES: N/A | DRA: BR
CHK: N/A | CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-SUR-BOR-004

SHEET 25 OF 204

2118SB
Elevation 837.80

Coh	N60	
		CLAYEY SAND, trace roots and Gravel, dark brown, moist. (SC), topsoil fill
	17	CLAYEY SAND, trace Gravel, dark brown, moist. (SC), fill
	17	PEAT, trace shells, black, wet. (PT), fill
	15	
	8	LEAN CLAY, trace Gravel, black, wet. (CL), fill
	62*	
	10	LEAN CLAY, trace Gravel, brown and gray, wet, rather stiff. (CL),
	11	alluvium
	7	
	12	
	8	
	8	
	8	
	7	FAT CLAY, gray, wet, rather stiff to soft. (CH), alluvium
	5	
	7	
	6	
	6	
	4	
	6	
	3	
	5	
	25	
	28	SANDY LEAN CLAY, trace Gravel, gray, wet, very stiff. (CL), till
	22	
	28	
	45*	POORLY GRADED SAND, fine- to medium-grained, gray, waterbearing,
	54	medium dense to very dense. (SP), outwash
	32	
	52	
	41	
	50	
	67	SANDY LEAN CLAY, trace Gravel, gray, wet, hard. (CL), till

Bottom of Hole – 121 feet.
Water level obscured due to drilling fluids used during mud rotary drilling operation.
Boring immediately backfilled with bentonite grout.

2064SB
Elevation 835.0

Coh	N60	
		CLAYEY SAND, trace roots, black and brown, frozen.
	13	FILL: Silty Sand, fine-grained, trace Gravel, grayish brown, frozen to moist.
	5	
	15	FILL: Sandy Lean Clay, trace Gravel and fibers, brown and black, moist.
	12	FILL: Sandy Lean Clay, trace fibers, gray, brown and black, moist.
	9	
▽	16	ORGANIC CLAY, with shells, light gray, moist.
	3	SANDY LEAN CLAY, trace Gravel, brown and gray, wet, soft.
	7	FAT CLAY, gray, moist to wet, rather soft to soft.
	10	
	9	
	4*	
	2	
	4	
	7	
	14*	SANDY LEAN CLAY, trace Gravel, gray, moist, stiff to very stiff.
	14*	
	15*	
	17	
	16	
	17	
	19	CLAYEY SAND, with Gravel, gray, waterbearing, very stiff.
	25*	SANDY LEAN CLAY, with Gravel, gray, moist, very stiff to hard.
	23	
	37	
	36	CLAYEY SAND, with Gravel, gray, waterbearing, hard.
		Heavy Gravel encountered at 78 feet.
	44*	POORLY GRADED GRAVEL, with medium-grained Sand, with frequent
	65*	cobbles, gray, waterbearing, dense to very dense.

END OF BORING.
Water observed at 17 feet while drilling.
Boring then backfilled with bentonite grout.
Bottom of Borehole at 91 ft

2065SB
Elevation 834.4

Coh	N60	
		SANDY LEAN CLAY, trace roots, black, frozen.
	21	FILL: Clayey Sand, trace Gravel, brown, frozen.
	11	FILL: Sandy Lean Clay, trace Gravel, brown and black, frozen to 5
	16	feet then moist.
	12	FILL: Sandy Lean Clay, with frequent Silt layers, gray to black, moist.
	15	PEAT, trace fibers, black, moist.
	8	ORGANIC SILT, with shells, trace fibers, gray, black, wet.
	10	LEAN CLAY, with layers of fat Clay, gray, moist, rather stiff to
▽	7	medium.
	9	
	9	
	11	SANDY LEAN CLAY, trace Gravel, gray, moist, rather stiff to stiff.
	14	
	13	
	11	
	12	
	14	
	16	
	18	SANDY LEAN CLAY, with Gravel, gray, moist, very stiff.
	20	
	20	
	18	CLAYEY SAND, with Gravel, gray, waterbearing, medium dense.
	23	SANDY LEAN CLAY, trace Gravel, with frequent layers of Fat Clay, gray, wet, very stiff.
	20	FAT CLAY, gray, wet, very stiff to hard.
	34	
	42	CLAYEY SAND, with Gravel, with Sand layers, gray, wet, dense to very dense.
	49	
	41	
	52	
	58	
	68	

END OF BORING.
Water observed at 22 feet while drilling.
Boring immediately backfilled with bentonite grout.
Bottom of Borehole at 101 ft

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

DES: N/A | DRA: BR
CHK: N/A | CHK: PLR

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-SUR-BOR-005

SHEET 26 OF 204

Aug, 27 2014 07:11 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-PRCD-SUR-BOR.dwg By: rieckmanb

2066SB
Elevation 833.6

Coh	N60	
		4 inches of Concrete.
	47	FILL: Clayey Sand, trace Gravel, brown, frozen to moist.
	15	FILL: Sandy Lean Clay, trace Gravel, brown and gray, moist.
	22	FILL: Clayey Sand, with Sand seams, with Gravel, brown and gray,
	19	moist.
	15	CLAYEY SAND, with layers of Lean Clay, gray, moist, stiff to rather stiff.
	11	
	9	SANDY LEAN CLAY, with Sand seams, gray, moist to 20 feet then wet,
	11*	rather stiff.
	11	POORLY GRADED SAND, fine- to medium-grained, with Gravel, gray,
	12	waterbearing, medium dense to dense.
	24	
	34	
	31	Layers of Lean Clay at 40 feet.
	32	SILTY SAND, with Gravel, with layers of Lean Clay, gray, waterbearing,
	37	hard.
	44	
	52	
	62	Silty Sand layers at 65 feet.
	28	POORLY GRADED SAND, fine- to coarse-grained, with Gravel, with layers
		of Lean Clay, gray, waterbearing, medium dense.
	49	SILT, with Sand, gray, wet, dense to very dense.
	75	END OF BORING.
		Water observed at 20 feet while drilling.
		Boring immediately backfilled with bentonite grout.
		Bottom of Borehole at 81 ft

2119SB
Elevation 834.62

Coh	N60	
	6	SANDY LEAN CLAY, trace Gravel, black, moist. (CLS), topsoil fill
	16	CLAYEY SAND, trace Gravel, with frequent layers of Lean Clay, brown, wet. (SC), fill
	16	
	14	ORGANIC CLAY, trace roots, trace shells, with wood pieces, black, moist. (OL), swamp deposit
	24	CLAYEY SAND, trace Gravel, brown, wet, very stiff. (SC), till
	10	
	12	SANDY LEAN CLAY, with Gravel, with Sand seams, gray, moist, very stiff. (CL), till
	10	
	11	LEAN CLAY, with layers of Fat Clay, gray, wet, rather stiff to stiff. (CL), till
	11	
	15	
	11	
	15	SANDY LEAN CLAY, trace Gravel, gray, wet, rather stiff to stiff. (CL), till
	10	
	14	
	11	
	13	CLAYEY SAND, with Gravel, gray, wet, stiff to hard. (SC), till
	40	
	18	
	19	FAT CLAY, trace Gravel, gray, moist, very stiff. (CH), till
	22	
	12	CLAYEY SAND, trace Gravel, gray, wet, rather stiff to stiff. (SC), till
	59	
	67	SILTY SAND, fine- to medium-grained, with Gravel, gray, wet, very dense. (SM), till
	58	
	80	
	55	Bottom of Hole - 96 feet.

2137SB
Elevation 835.22

Coh	N60	
	9	SANDY LEAN CLAY, trace roots, trace Gravel, dark brown, moist. (CLS), topsoil fill
	19	SANDY LEAN CLAY, trace Gravel, trace roots, dark brown and black, moist. (CLS), fill
	29	
	16	CLAYEY SAND, with Gravel, with lenses of Lean Clay, brown and gray,
	22	moist to 10 feet then wet. (SC), fill
	37*	SANDY LEAN CLAY, with Gravel, occasional Cobbles, brown and gray, wet. (CLS), fill
	16	CLAYEY SAND, with Gravel, with lenses of Lean Clay, gray and brown, wet.
	3	(SC), fill
	5	
	4	
	3	SLIGHTLY ORGANIC to ORGANIC SILT, with shells, trace fibers,
	3	trace roots, gray with layers of black, wet. (OL), swamp
	3	deposit
	3	
	4	
	4	
	5	SLIGHTLY ORGANIC SILT, trace roots, with shells, with wood
	3	pieces, dark gray and black, wet. (OL), swamp deposit
	9	
	10	CLAYEY SAND, with Gravel, gray, wet, rather stiff. (SC), till
	15	FAT CLAY, trace Gravel, gray, wet, rather stiff to very stiff. (CH),
	17	till
	21	
	26	SANDY LEAN CLAY, with Gravel, gray, wet, very stiff. (CL), till
	30	
	36	CLAYEY SAND, with Gravel, with frequent lenses of Lean Clay,
	35	gray, wet, medium dense to very dense. (SC), till
	54	Sand layer encountered at 90 feet.
	53	SANDY SILT, gray, wet, very dense. (ML), glaciofluvium
	77	
		SILTY SAND, fine- to medium-grained, with Gravel, brown and gray,
		waterbearing, very dense to dense. (SM), till
	48	Bottom of Hole - 111 feet. Water not observed while drilling.
		Boring immediately backfilled with bentonite grout.

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

DES: N/A	DRA: BR
CHK: N/A	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-SUR-BOR-006

SHEET 27 OF 204

Aug. 27 2014 07:11 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-PRCD-SUR-BOR.dwg By: rieckmanb

2096SB
Elevation 879.98

Coh	N60	
		LEAN CLAY with SAND, trace roots, dark brown, moist, (CLwS), topsoil
	10	LEAN CLAY with SAND, trace Gravel, brown, moist, rather stiff, (CLwS), till
	17	
	17	SILTY SAND, fine- to medium-grained, with Gravel, brown, moist, medium dense, (SM), till
	19	
	10	POORLY GRADED SAND, fine- to medium-grained, with Gravel, light brown to brown, moist, dense to medium dense, (SP), outwash Layer of Lean Clay at 17 feet.
	7	
	11	POORLY GRADED SAND with SILT, fine- to medium-grained, trace Gravel, brown, moist, medium dense, (SP-SM), outwash
	12	
	35	SANDY LEAN CLAY, fine- to medium-grained, trace Gravel, brown, moist, very stiff to hard, (CLS), till
	20	
	38*	
	34	
	18	
	39	CLAYEY SAND, trace Gravel, brown, moist, hard, (SC), till
	23	SILTY SAND, fine-grained, brown, moist, medium dense, (SM), till
	19	POORLY GRADED SAND, fine- to medium-grained, light brown to 70 feet then brown, moist to 75 feet then wet, medium dense to dense, (SP), outwash
	18	
	28	
	25	
	26	
	34	
	32	
	32	
	27	
▽	30*	
	47	
	47	POORLY GRADED SAND with SILT, fine- to medium-grained, with Gravel, gray, waterbearing, dense, (SP-SM), outwash
	31	SILT with SAND, with frequent layers of Fat Clay, gray, wet, dense, (MLwS), glaciofluvium
	41	Bottom of Hole = 96 feet. Water observed at 75 feet while drilling. Boring immediately backfilled with bentonite grout.

2093SB
Elevation 849.3

Coh	N60	
	8	SANDY LEAN CLAY, trace roots, trace Gravel, black, moist, (CLS), topsoil fill
	19	
	22	SANDY LEAN CLAY, trace roots, black and dark brown, moist, (CLS), fill
	32	
	31	SANDY LEAN CLAY, trace Gravel, gray, moist, (CLS), fill
	18	
	27	SILTY SAND, fine- to medium-grained, trace Gravel, brown, moist, (SM), fill
	27	
	27	
	20	
	50/6"*	SANDY LEAN CLAY, trace Gravel, with Sand seams, gray with layers of black, moist, (CLS), fill
	37	
	74	CLAYEY SAND, with Gravel, gray, moist, (SC), fill
	63	
	23	SILTY SAND, fine- to medium-grained, trace Gravel, brown, moist, (SM), fill
▽	9	
	12	CLAYEY SAND, with Gravel, gray, moist, (SC), fill
	19	
	7	SILTY SAND, fine-grained, brown, wet, dense, (SM), till
	11	SILTY SAND, fine- to medium-grained, with Gravel, brown, wet, very dense, (SM), till
	18	
	17	POORLY GRADED SAND with SILT, fine- to medium-grained, with Gravel, brown, wet to 40 feet then waterbearing, loose to medium dense, (SP-SM), outwash
	21	Large wood chunks encountered at 75 feet.
	16	
	30	SANDY LEAN CLAY, trace Gravel, gray, wet, very stiff, (CLS), till
	48	SILTY SAND, fine-grained, gray, waterbearing, dense, (SM), till
	41	POORLY GRADED SAND, fine- to medium-grained, trace Gravel, gray, waterbearing, dense to very dense, (SP), outwash
	52	
	57	Water observed at 40 feet while drilling. Boring immediately backfilled with bentonite grout.

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

DES: N/A | DRA: BR
CHK: N/A | CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

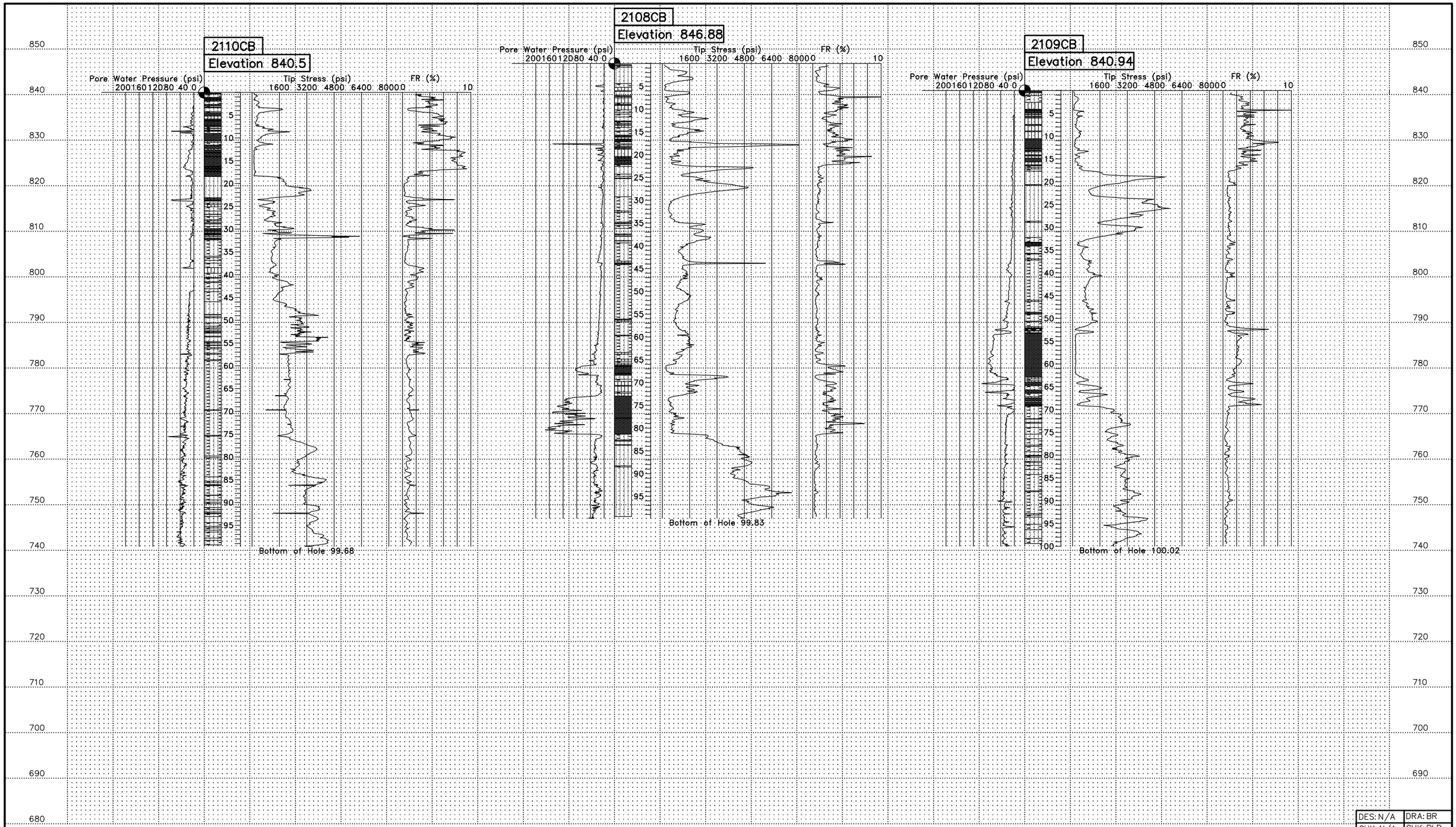
SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-SUR-BOR-007

SHEET 27.1 OF 204



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

DES: N/A | DRA: BR

CHK: N/A | CHK: PLR

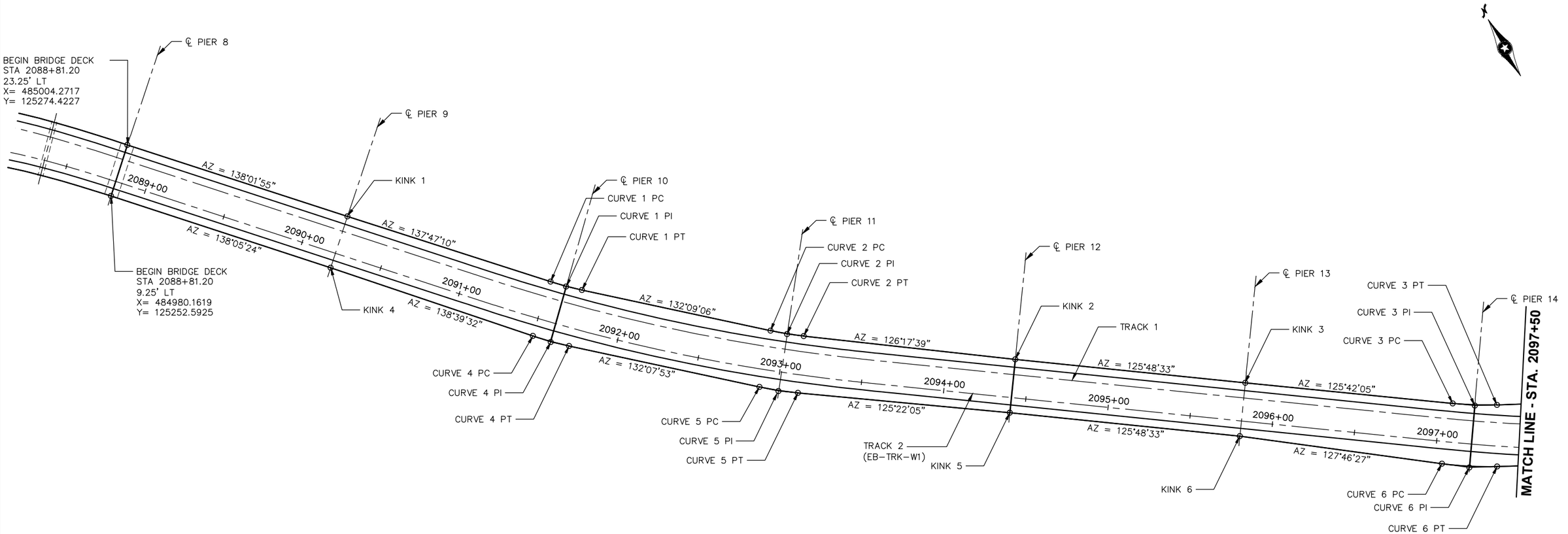
WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-SUR-BOR-008

SHEET 27.2 OF 204

Aug. 27 2014 07:11 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-PRCD-SUR-BOR.dwg By: rieckmanb



KINK 1	CURVE 1 RAD = 200'			CURVE 2 RAD = 200'			KINK 2	KINK 3	CURVE 3 RAD = 200'		
KINK	PC	PI	PT	PC	PI	PT	KINK	KINK	PC	PI	PT
STA 2090+21.20	STA 2091+51.09	STA 2091+61.14	STA 2091+71.19	STA 2092+90.64	STA. 2093+01.09	STA 2093+11.54	STA 2094+41.20	STA 2095+81.20	STA 2097+07.58	STA 2097+21.18	STA 2097+34.85
23.42' LT	23.59' LT	23.54' LT	23.89' LT	23.88' LT	23.53' LT	23.60' LT	23.25' LT	23.25' LT	23.45' LT	23.78' LT	24.86' LT
X= 485097.9587	X= 485184.7579	X= 485191.3706	X= 485198.6670	X= 485285.2226	X= 485292.8086	X= 485301.0559	X= 485404.8763	X= 485518.4123	X= 485620.9328	X= 485631.8126	X= 485643.6380
Y= 125170.2564	Y= 125074.5771	Y= 125067.2879	Y= 125060.6831	Y= 124982.3324	Y= 124975.4654	Y= 124969.4085	Y= 124893.1615	Y= 124811.2495	Y= 124737.5770	Y= 124729.7584	Y= 124723.4608

KINK 4	CURVE 4 RAD = 200'			CURVE 5 RAD = 200'			KINK 5	KINK 6	CURVE 6 RAD = 200'		
KINK	PC	PI	PT	PC	PI	PT	KINK	KINK	PC	PI	PT
STA 2090+21.20	STA 2091+50.07	STA 2091+61.34	STA 2091+72.62	STA 2092+89.38	STA 2093+01.06	STA 2093+12.74	STA 2094+41.20	STA 2095+81.20	STA 2097+04.55	STA 2097+21.18	STA 2097+37.69
9.25' RT	11.03' RT	11.21' RT	10.85' RT	10.83' RT	11.18' RT	10.70' RT	9.25' RT	9.25' RT	13.51' RT	13.54' RT	12.40' RT
X= 485073.6483	X= 485158.9848	X= 485166.5185	X= 485174.9768	X= 485262.3955	X= 485271.1598	X= 485280.7967	X= 485385.8610	X= 485499.3970	X= 485596.9988	X= 485610.2935	X= 485625.1222
Y= 125148.4363	Y= 125051.4400	Y= 125042.8769	Y= 125035.2259	Y= 124956.1503	Y= 124948.2225	Y= 124941.3820	Y= 124866.8049	Y= 124784.8929	Y= 124709.2557	Y= 124698.9529	Y= 124691.0152

DECK LAYOUT

SCALE 0 15 30 60 IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

DES: AAM | DRA: BR | CHK: PLR | CHK: PLR

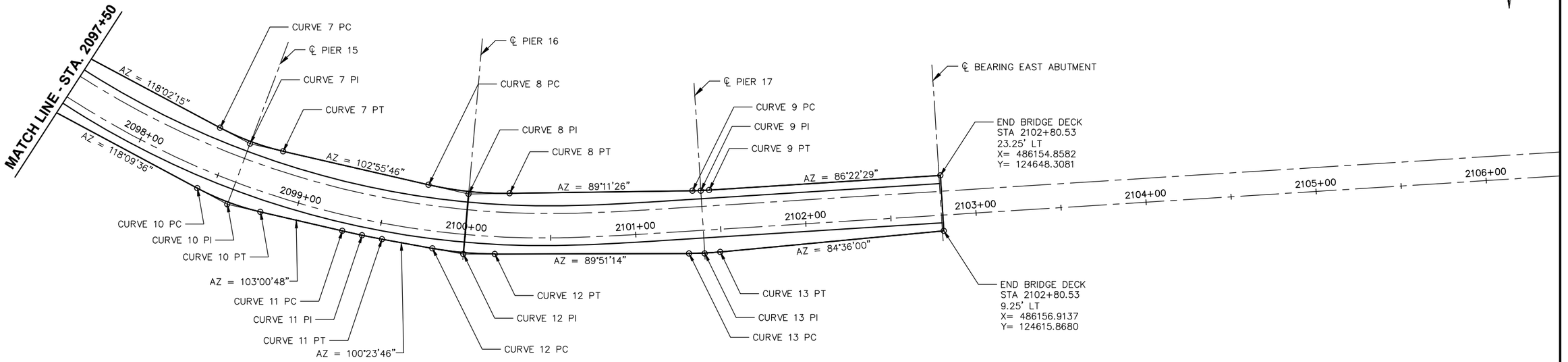
WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
DECK LAYOUT

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-DCK-001

SHEET 28 OF 204

Aug, 27 2014 07:11 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-PRCD-DCK.dwg By: rieckmanb



CURVE 7 RAD = 150'		
PC STA 2098+40.40 26.25' LT X= 485732.2510 Y= 124676.2702	PI STA 2098+61.20 25.40' LT X= 485749.8084 Y= 124666.9201	PT STA 2098+81.99 26.33' LT X= 485769.1959 Y= 124662.4693

CURVE 8 RAD = 200'		
PC STA 2099+74.51 26.57' LT X= 485854.5755 Y= 124642.8688	PI STA 2099+99.73 25.30' LT X= 485878.0588 Y= 124637.4778	PT STA 2100+24.95 25.72' LT X= 485902.1505 Y= 124637.8181

CURVE 9 RAD = 200'		
PC STA 2101+34.79 23.49' LT X= 486009.3913 Y= 124639.3332	PI STA 2101+39.70 23.31' LT X= 486014.3067 Y= 124639.4027	PT STA 2101+44.62 23.25' LT X= 486019.2129 Y= 124639.7135

CURVE 10 RAD = 150'		
PC STA 2098+41.86 11.61' RT X= 485718.8715 Y= 124640.8317	PI STA 2098+61.20 12.53' RT X= 485736.4539 Y= 124631.4200	PT STA 2098+80.53 11.59' RT X= 485755.8846 Y= 124626.9292

CURVE 11 RAD = 519.25'		
PC STA 2099+28.85 9.25' RT X= 485803.9580 Y= 124615.8188	PI STA 2099+40.50 9.25' RT X= 485815.5150 Y= 124613.1478	PT STA 2099+52.14 9.25' RT X= 485827.1819 Y= 124611.0073

CURVE 12 RAD = 200'		
PC STA 2099+81.68 10.12' RT X= 485856.7942 Y= 124605.5745	PI STA 2099+99.70 10.67' RT X= 485874.9431 Y= 124602.2448	PT STA 2100+17.72 10.17' RT X= 485893.3949 Y= 124602.2919

CURVE 13 RAD = 200'		
PC STA 2101+30.52 13.06' RT X= 486007.4385 Y= 124602.5827	PI STA 2101+39.70 13.41' RT X= 486016.6382 Y= 124602.6061	PT STA 2101+48.90 13.33' RT X= 486025.7969 Y= 124603.474

DECK LAYOUT

SCALE 0 15 30 60 IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

DES: AAM | DRA: BR

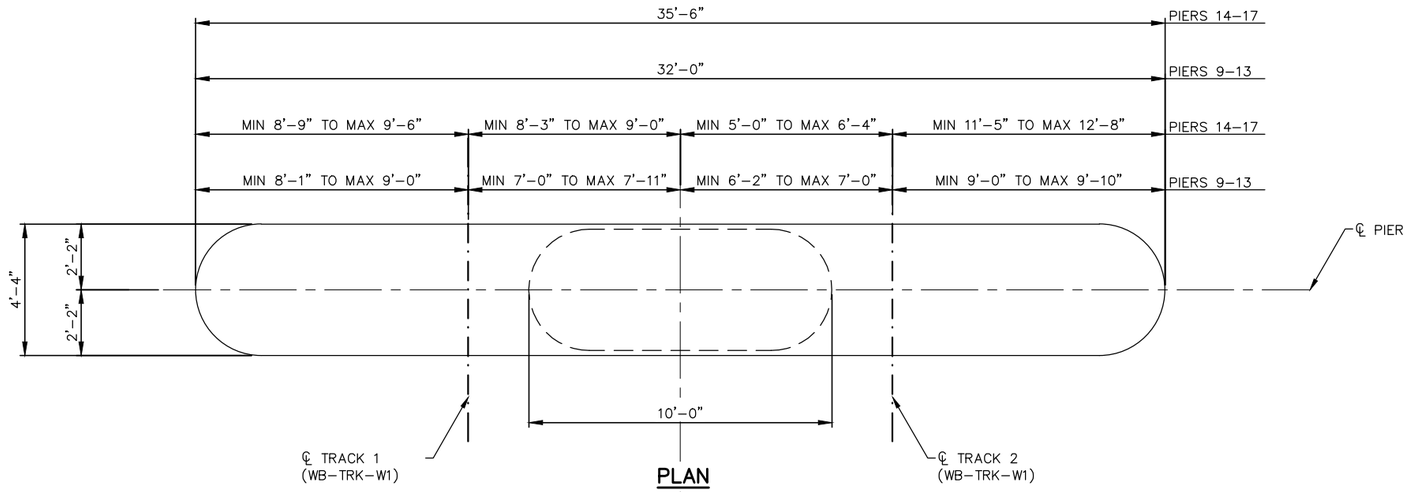
CHK: PLR | CHK: PLR

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
DECK LAYOUT

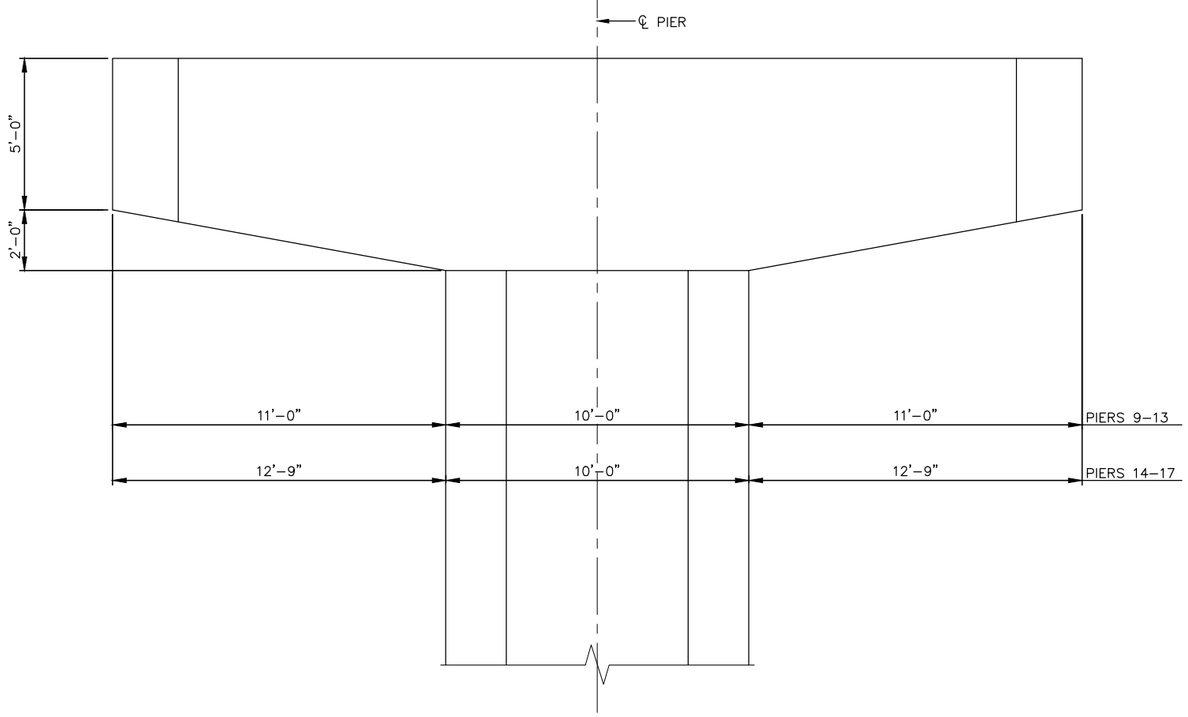
DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-DCK-002

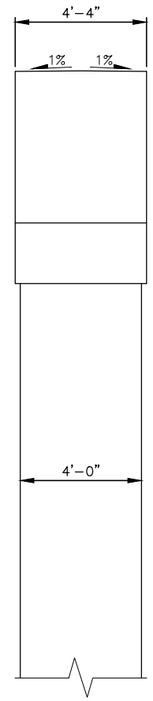
SHEET 29 OF 204



PLAN



ELEVATION



END VIEW

NOTES:

1. CAP AND COLUMN TO BE REINFORCED WITH GRADE 60 REINFORCEMENT BARS.

HAMMERHEAD PIERS 8-17

DES: AAM	DRA: BR
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
BRIDGE DETAILS

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-PRCD-LRT-DTL-001

SHEET 30 OF 204

AESTHETIC DETAILS TO BE DETERMINED DURING ADVANCED DESIGN

1. ABUTMENT SURFACE TREATMENT
2. ABUTMENT/WALL CORNER DETAIL
3. EXPOSED EDGE OF DECK
4. EXPOSED BARRIER
5. EXPOSED FASCIA BEAM
6. BOTTOM OF BEAMS
7. PIER COLUMN SURFACE TREATMENT
8. RAILING AND SCREENING

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

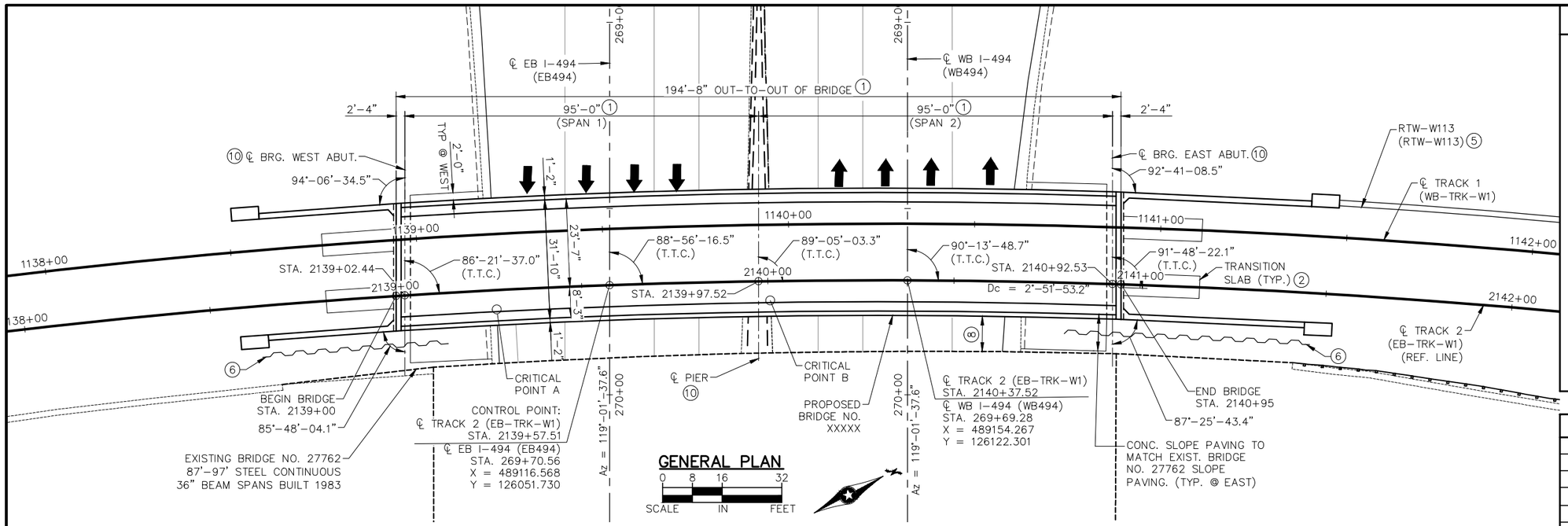
DES: N/A | DRA: BR
CHK: N/A | CHK: PLR

WEST - VOLUME 2 (STRUCTURES)
PRAIRIE CENTER DRIVE
BRIDGE XXXXX (LRT)
BRIDGE AESTHETICS

DISCIPLINE: **STRUCTURES**

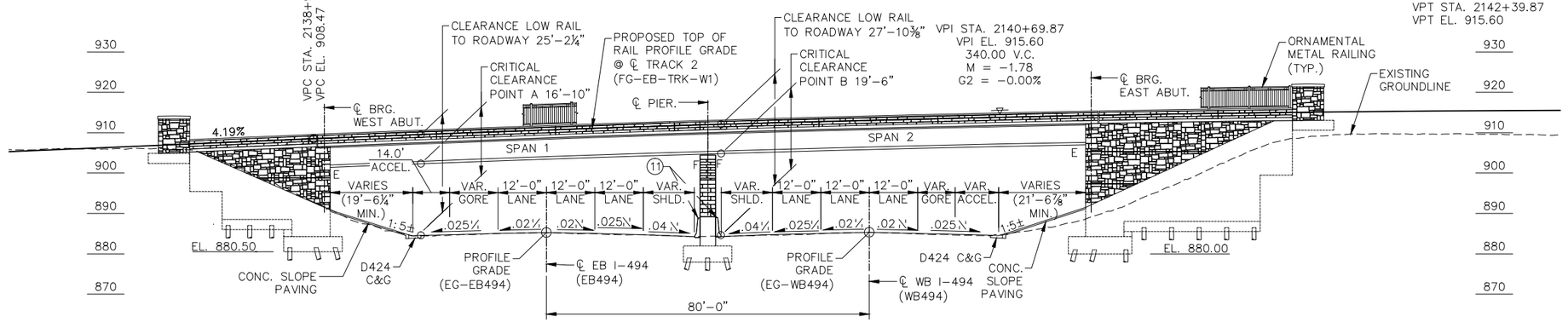
SHEET NAME: **W1-STU-BRG-PRCD-LRT-AES**

SHEET **31** OF **204**



GENERAL PLAN

SCALE 0 8 16 32 IN FEET



GENERAL ELEVATION

SCALE 0 8 16 32 IN FEET

NOTES:

1. ALL DIMENSIONS ARE MEASURED PERPENDICULAR TO ℄ BRG. ABUTMENTS AND ℄ PIER.
2. SEE TRACK PLANS FOR TRANSITION SLAB DETAILS.
3. UTILITIES ARE NOT SHOWN FOR CLARITY. SEE BORINGS – PLAN & PROFILE SHEET FOR IN PLACE UTILITIES.
4. VIBRATION MONITORING TO BE PROVIDED DURING PILE DRIVING (SEE SPECIAL PROVISIONS).
5. RETAINING WALL AND WINGWALL CONNECTION DETAILS TO BE DETERMINED DURING ADVANCED DESIGN.
6. TEMPORARY SHORING MAY BE REQUIRED AND IS BY CONTRACTOR DESIGN.
7. ABUTMENT EMBANKMENTS TO USE LIGHTWEIGHT CONSTRUCTION METHODS. CONSTRUCTION TYPE TO BE DETERMINED ADVANCED DESIGN.
8. VARIES 10'–5½" TO 9'–5"
9. TRAFFIC STAGING TO BE DETERMINED IN DURING ADVANCED DESIGN.
10. SUBSTRUCTURES SET PARALLEL AT 299°–01'–37.6"
11. PROVIDE A TL–5 BARRIER WITH A 54" PIER STRUT IN ACCORDANCE WITH ARTICLE 3.6.5 OF THE AASHTO BRIDGE DESIGN SPECIFICATIONS AND THE MNDOT BRIDGE OFFICE SUBSTRUCTURE PROTECTION POLICY.

DESIGN DATA

SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 2.0)

2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 6TH EDITION AND CURRENT INTERIMS.

LOAD AND RESISTANCE FACTOR DESIGN METHOD

LIVE LOADS:
TRACK – LRV & MV DIAGRAM SHOWN ON SHEET 35

DEAD LOAD INCLUDES 70 PSF ALLOWANCE FOR FUTURE BALLAST INCREASE

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4 ksi n = 8
fy = 60 ksi

PRESTRESSED CONCRETE:
f'c = 9.0 ksi n = 1
fpu = 270 ksi 0.6" DIA. LOW RELAXATION STRANDS
0.75 fpu FOR INITIAL PRESTRESS

DESIGN SPEED: OVER = 45 MPH (LRT)
UNDER = 70 MPH

APPROXIMATE DECK AREA: 6,620 SQ. FT.

LIST OF SHEETS

PROPOSED TYPE OF STRUCTURE

SUPERSTURCTURE:
MN63 PRESTRESSED CONCRETE BEAMS
WITH 9" CAST–IN–PLACE CONCRETE DECK
ALL BARS EPOXY COATED
BALLASTED TRACK
SIMPLE SPANS

SUBSTRUCTURE:
PARAPET ABUTMENTS SUPPORTED ON 12" CIP CONCRETE PILES WITH LIGHTWEIGHT EMBANKMENT CONSTRUCTION

TWO COLUMN PIER SUPPORTED ON 12" CIP CONCRETE PILES

DEPTH OF STRUCTURE:
8'–4"± TOP OF RAIL TO LOW BRIDGE
MN63 PCB 4± BEAM LINES

BRIDGE NO. XXXXX

SOUTHWEST LRT OVER I–494
0.2 MI. E OF JCT. I–494/T.H. 212 IN EDEN PRAIRIE

95'–0" – 95'–0" PRESTRESSED CONCRETE BEAM SPANS
RAILWAY 34'–2"
SKEW VARIES

BRIDGE I.D. NO. 501

GENERAL PLAN AND ELEVATION

SEC 11 T 116N R 22W
CITY OF EDEN PRAIRIE HENNEPIN COUNTY

APPROVED: _____
STATE BRIDGE ENGINEER DATE

2030 PROJECTED TRAFFIC VOLUMES

ROADWAY OVER		ROADWAY UNDER
N/A	AADT	118,000
N/A	DHV	9675
N/A	ADTT	7200

JOB NO. T9N635 STATE PROJECT NO. 9909–01 MNDOT REVIEW:

DES: DRF DR: ARH
CHK: RMS CHK: RMS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
BRIDGE OVER I-494
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES
SHEET NAME: W1-STU-BRG-001

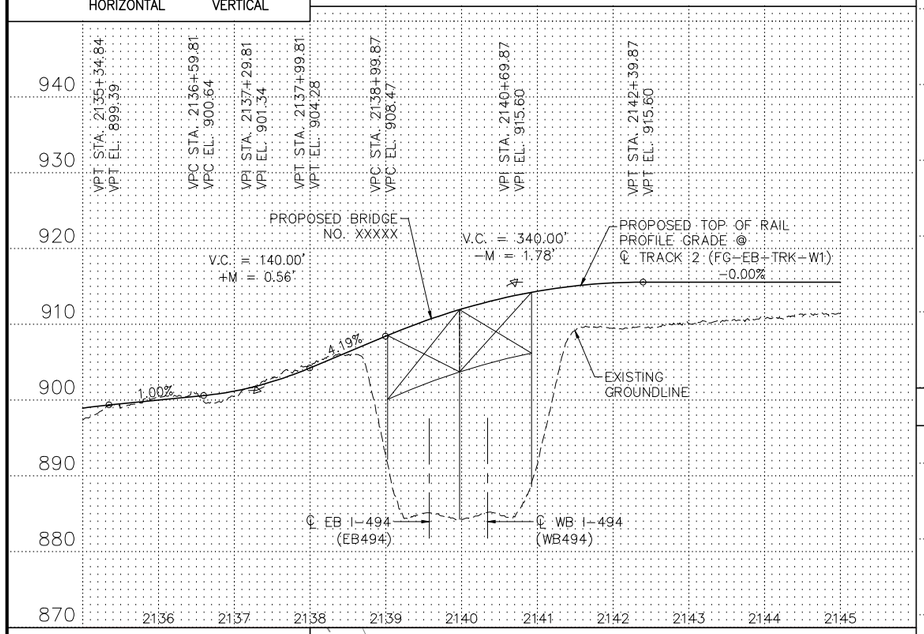
SHEET 32 OF 204

Aug. 27 2014 03:59 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-494-GPE.dwg By: ahauser

CONTRACTED PROFILE

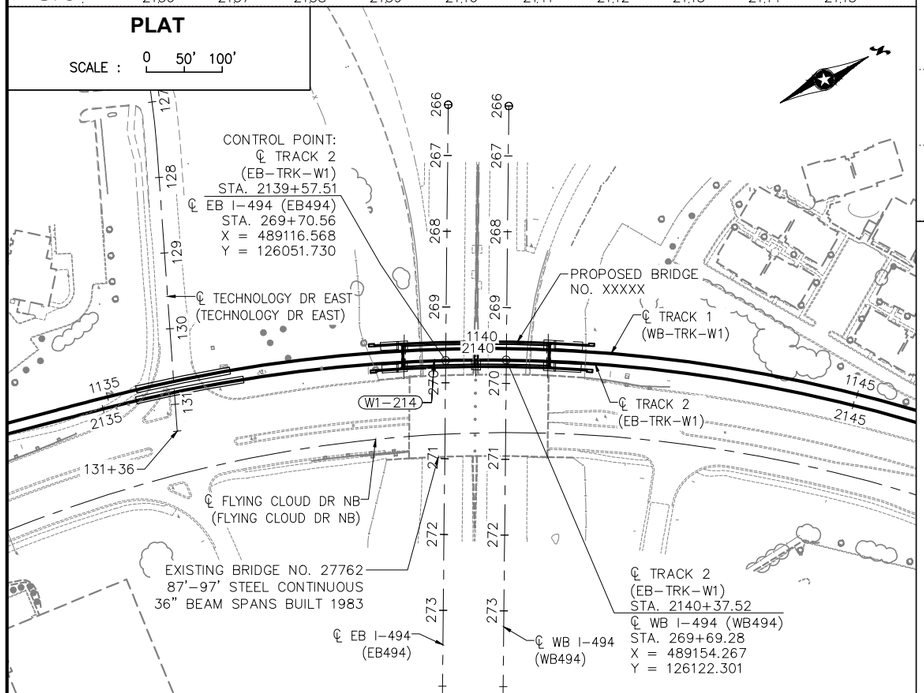
SCALE : 0 50' 100' HORIZONTAL; 0 5' 10' VERTICAL

PROFILE GRADE @ ℄ TRACK 2 (FG-EB-TRK-W1)

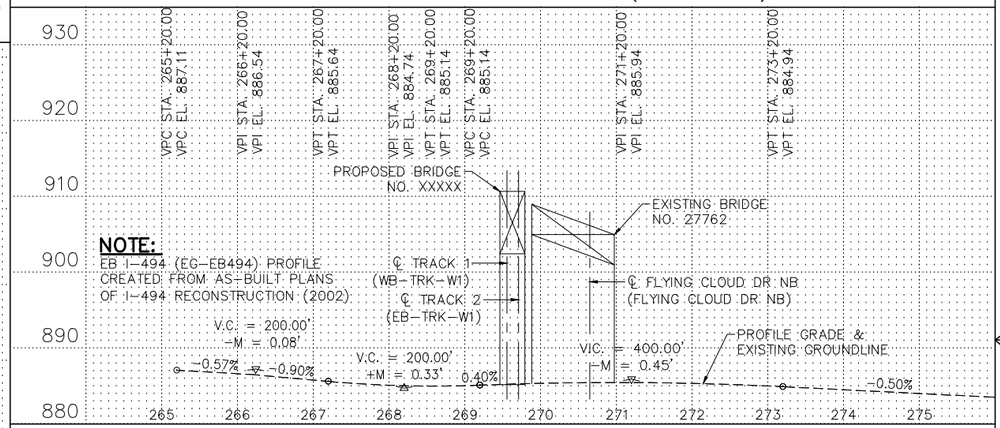


PLAT

SCALE : 0 50' 100'

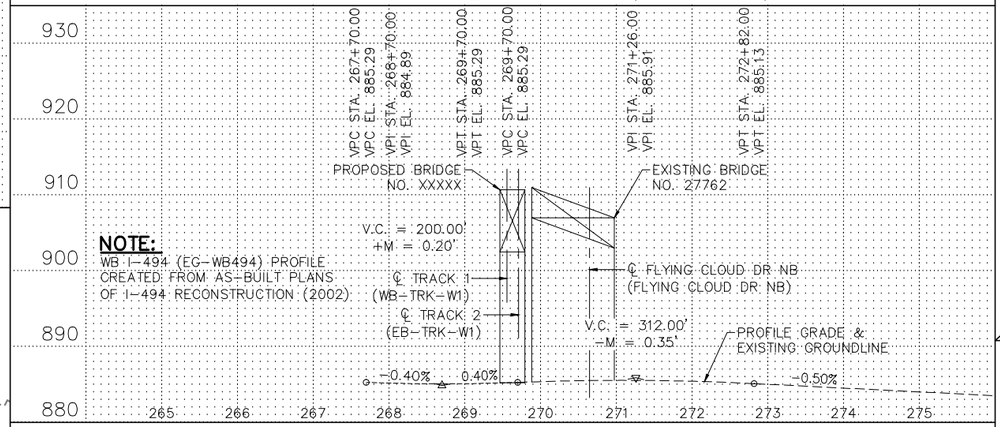


PROFILE GRADE @ ℄ EB I-494 (EG-EB494)



NOTE:
EB I-494 (EG-EB494) PROFILE CREATED FROM AS-BUILT PLANS OF I-494 RECONSTRUCTION (2002).

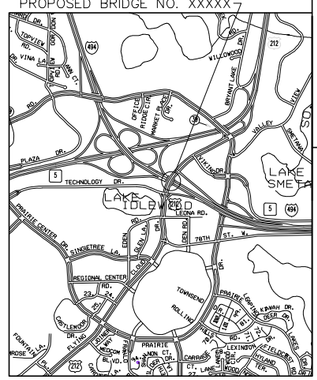
PROFILE GRADE @ ℄ WB I-494 (EG-WB494)



NOTE:
WB I-494 (EG-WB494) PROFILE CREATED FROM AS-BUILT PLANS OF I-494 RECONSTRUCTION (2002).

CURVE NO. W1-214
R = 2000'
Lc = 1588.32'
Ls = 130'
Ea = 2.00"
Eu = 2.01"
V = 45 MPH

PROPOSED BRIDGE NO. XXXXX



R22W
INDEX-MAP

T116N

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.

OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION,TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS-SECTIONAL AREA ETC.

APPARENT HIGHWATER ELEVATION OBTAINED FROM:

4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE –

STREAM OR DITCH DESIGNATION –

DRAINAGE AREA –

MAX. FLOOD ON RECORD –

MAXIMUM OBSERVED HIGHWATER ELEVATION –

DESIGN FLOOD (– YR. FREQ.) – C.F.S.

DESIGN STAGE ELEVATION –

DESIGN MEAN VELOCITY THROUGH STRUCTURE – F.P.S.

TOTAL STAGE INCREASE – F.P.S.

LOW MEMBER AT OR ABOVE ELEVATION –

FLOWLINE ELEVATION – SKEW ANGLE –

WATERWAY AREA REQUIRED BELOW ELEVATION – = – SQ.FT. AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ.) – C.F.S.

STAGE ELEVATION – FT.

TOTAL STAGE INCREASE – FT.

MEAN VELOCITY THROUGH STRUCTURE – F.P.S.

ESTIMATED DEPTH OF PIER SCOUR = – FT.

SCOUR CODE =-

BRIDGE SURVEY SHEETS MADE FROM SURVEY PERFORMED BY RANI ENGINEERING

MNDOT NAME: 2785BT
NORTHING (HEN. COUNTY COORDINATES): 126797.168
EASTING (HEN. COUNTY COORDINATES): 488167.836
BENCHMARK ELEVATION (NAVD88): 887.534
MONUMENT DESCRIPTION: VERTICAL CONTROL DISK IN BRIDGE RAILING
LOCATION: IN EDEN PRAIRIE, 0.3 MILES SOUTHEAST ALONG I-494 FROM JCT. OF I-494 AND VALLEY VIEW ROAD.
MONUMENT NAME: 2785BS
NORTHING (HEN. COUNTY COORDINATES): 125346.571
EASTING (HEN. COUNTY COORDINATES): 490673.794
BENCHMARK ELEVATION (NAVD88): 882.462
MONUMENT DESCRIPTION: SURVEY DISK IN BRIDGE RAILING
LOCATION: IN EDEN PRAIRIE, 0.6 MILES EAST ALONG I-494 FROM JCT. OF I-494 AND T.H. 212.

CITY OF EDEN PRAIRIE

BRIDGE SURVEY

AT MILE POINT – ON – (T.H., C.S.A.H.,C.R. etc.)

PROPOSED BRIDGE LOCATED 0.2 MILES EAST OF I-494/T.H. 212 IN EDEN PRAIRIE

SEC 11 TWP T116N R R22W

CITY OF EDEN PRAIRIE COUNTY HENNEPIN

DES: DRF	DR: ARH
CHK: RMS	CHK: RMS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

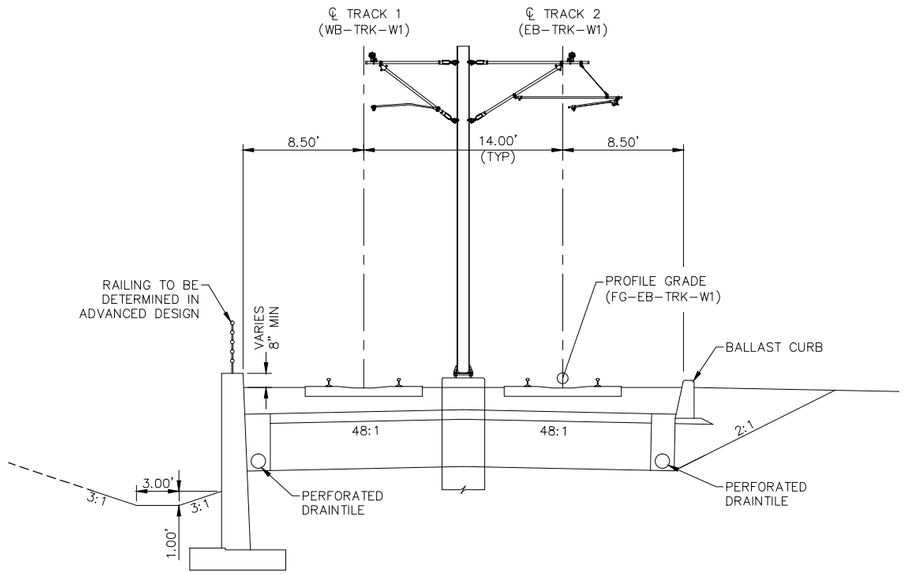
WEST – VOLUME 2 (STRUCTURES)
BRIDGE OVER I-494
BRIDGE NO. XXXXX (LRT)
BRIDGE SURVEY (SHEET 1 OF 2)

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-SUR

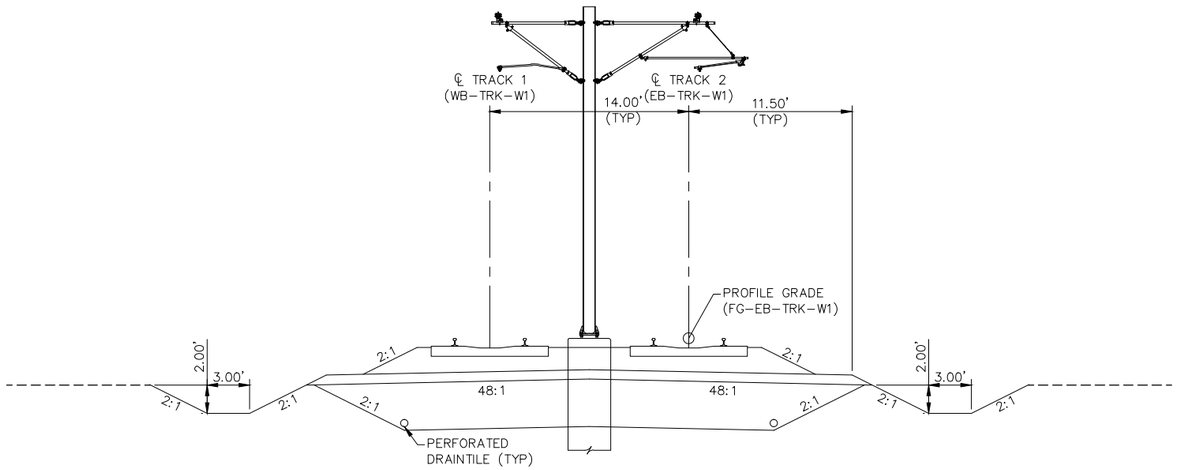
SHEET 33 OF 204

Aug, 27 2014 04:00 pm H: \Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-494-SUR.dwg By: ahauser



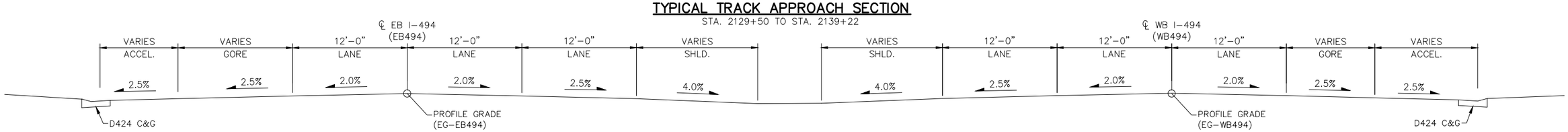
TYPICAL TRACK APPROACH SECTION

STA. 2141+66 TO STA. 2147+00



TYPICAL TRACK APPROACH SECTION

STA. 2129+50 TO STA. 2139+22



TYPICAL I–494 APPROACH SECTION

STA. 269+46 TO STA. 270+98

DES: DRF	DR: ARH
CHK: RMS	CHK: RMS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

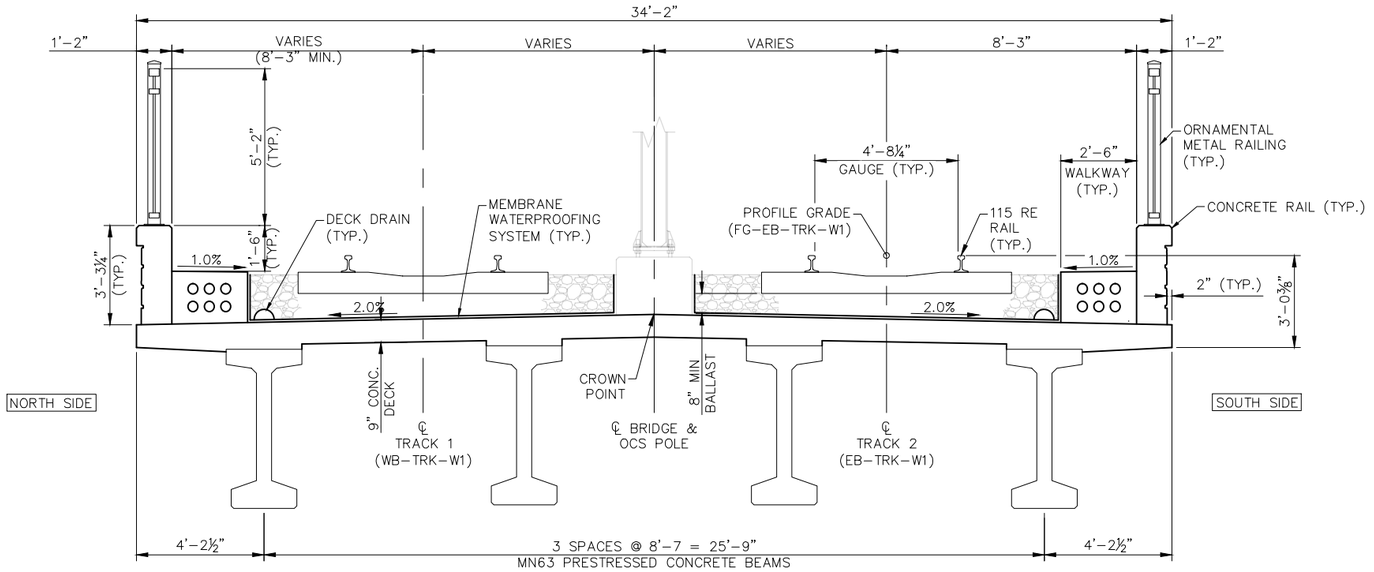
WEST – VOLUME 2 (STRUCTURES)
BRIDGE OVER I-494
BRIDGE NO. XXXXX (LRT)
BRIDGE SURVEY (SHEET 2 OF 2)

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-SUR

SHEET 34 OF 204

Aug. 27 2014 04:00 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-494-SUR.dwg By: ahauser

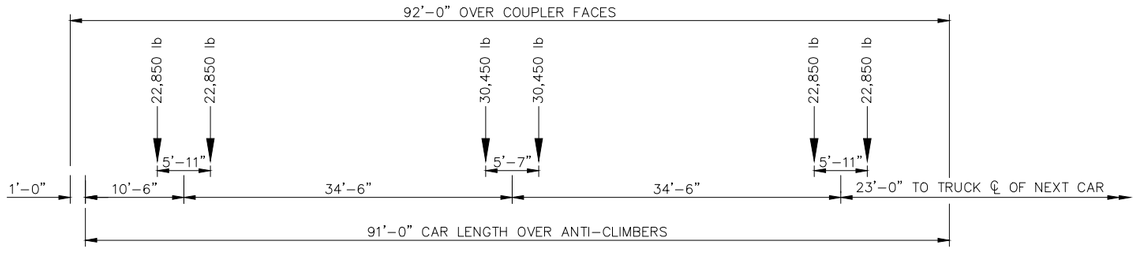


TRANSVERSE SECTION

0 1 3 5
SCALE IN FEET

NOTES:

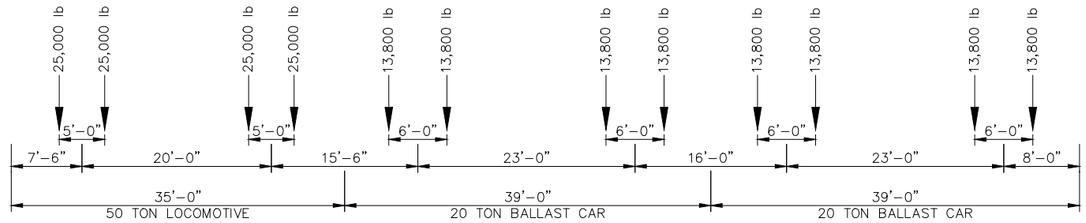
1. NUMBER AND SPACING OF BEAMS IS APPROXIMATE AND WILL BE SET DURING ADVANCED DESIGN.



LIGHT RAIL VEHICLE LOADING DIAGRAM

NOTES:

1. THE LRT TRAIN SHALL CONSIST OF EITHER ONE, TWO OR THREE CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.
2. AXLE LOAD IN POUNDS.
3. LOADING DIAGRAM REPRESENTS MAXIMUM LOAD AT EACH TRUCK IN ACCORDANCE WITH SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 2.0) FIGURE 8-2.



MAINTENANCE TRAIN LOADING DIAGRAM

NOTES:

1. THE MAINTENANCE TRAIN SHALL CONSIST OF ONE LOCOMOTIVE AND ONE, TWO, THREE, OR FOUR BALLAST CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.
2. AXLE LOAD IN POUNDS.
3. WEIGHT OF EMPTY BALLAST CAR IS 15,000 POUNDS.

DES: DRF	DR: ARH
CHK: RMS	CHK: RMS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM SRF Consulting Group, Inc.

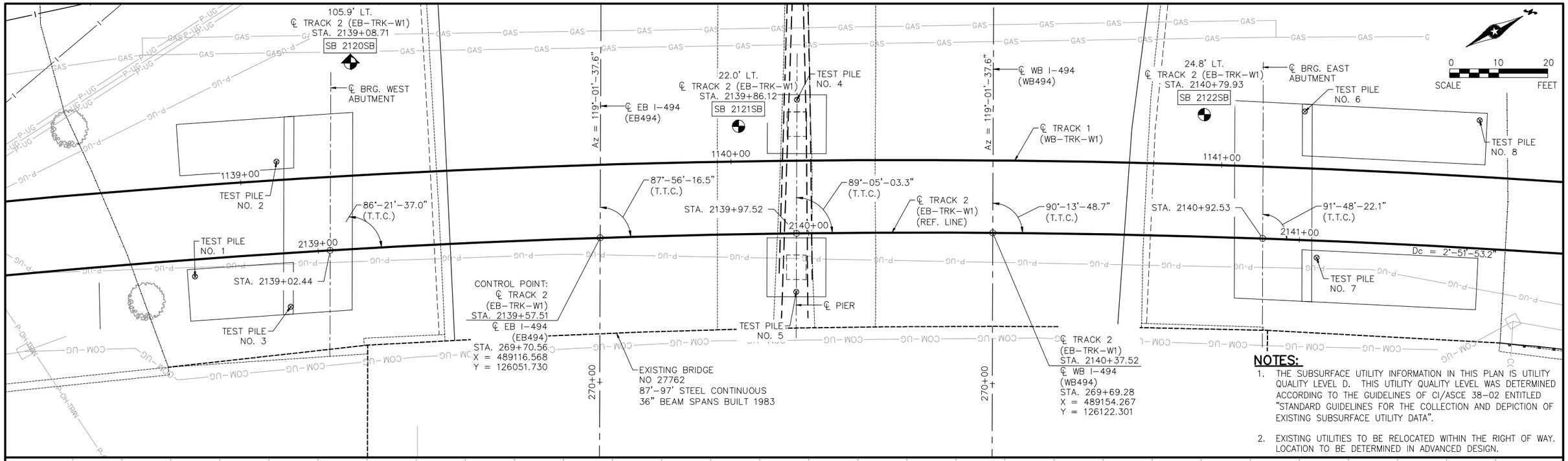
PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
BRIDGE OVER I-494
BRIDGE XXXXX (LRT)
TRANSVERSE SECT. & LOADING DIAGRAM

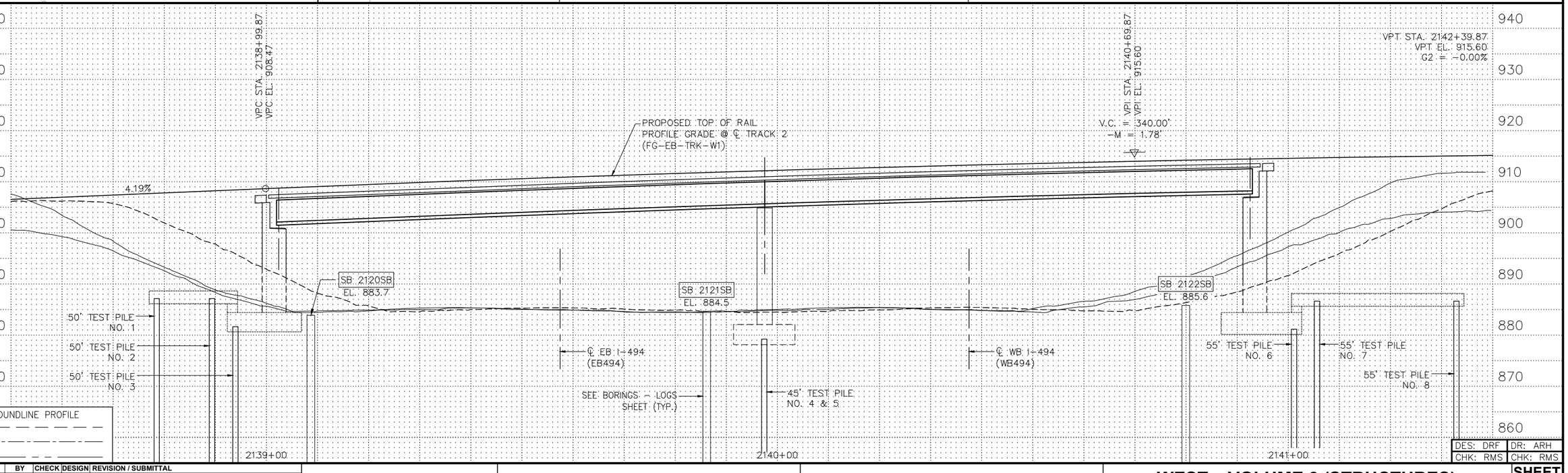
DISCIPLINE: STRUCTURES
SHEET NAME: W1-STU-BRG-001

SHEET 35 OF 204



NOTES:

1. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38–02 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
2. EXISTING UTILITIES TO BE RELOCATED WITHIN THE RIGHT OF WAY. LOCATION TO BE DETERMINED IN ADVANCED DESIGN.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DES: DRF | DR: ARH
CHK: RMS | CHK: RMS

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

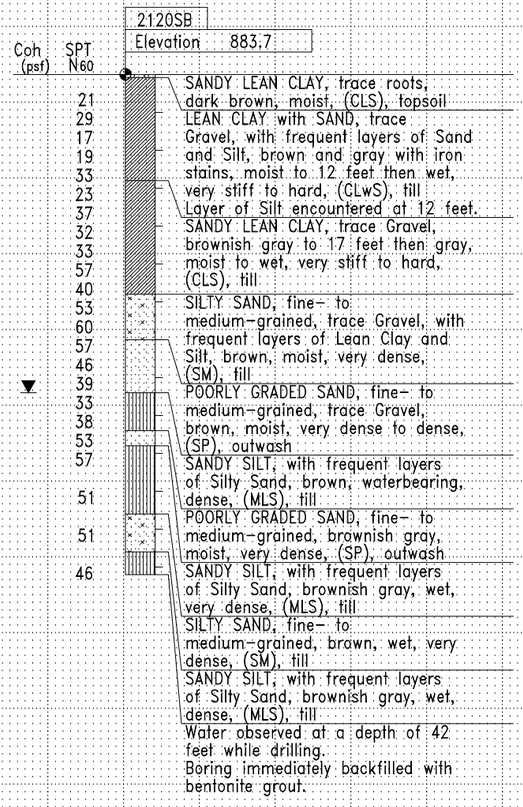
METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

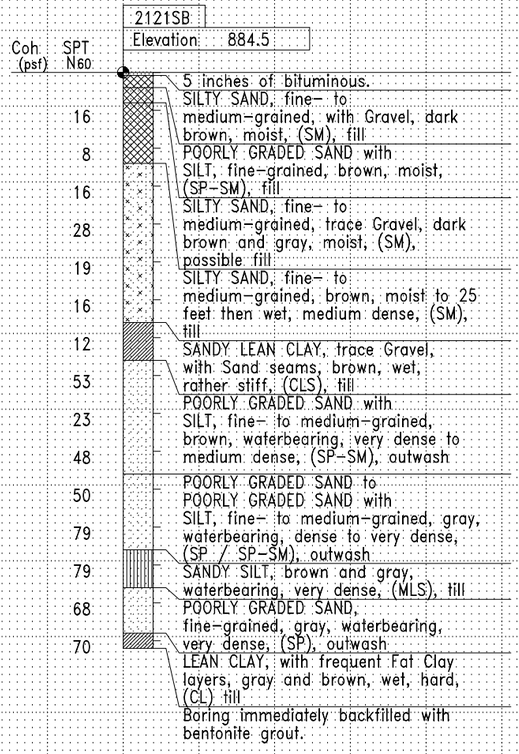
WEST – VOLUME 2 (STRUCTURES)
BRIDGE OVER I-494
BRIDGE XXXXX (LRT)
BORINGS - PLAN AND PROFILE

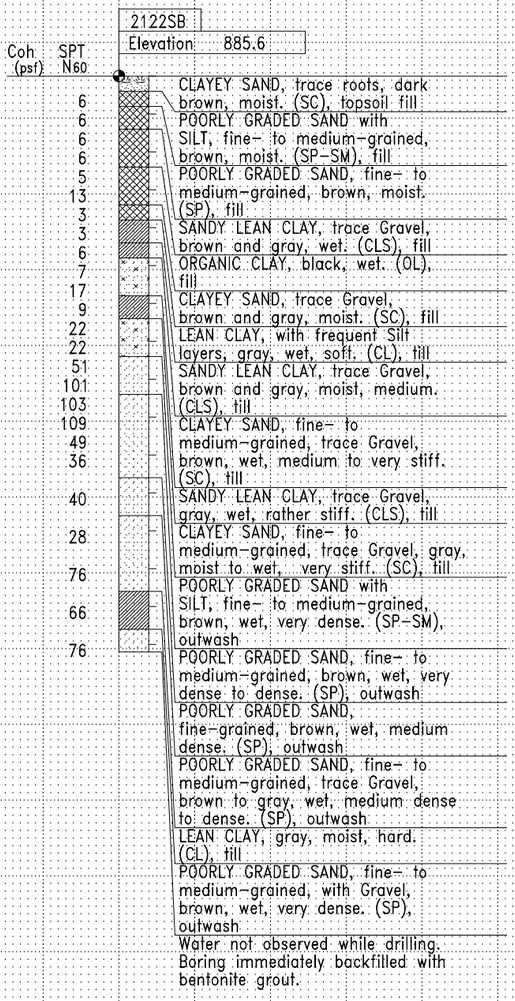
DISCIPLINE: STRUCTURES
SHEET NAME: W1-STU-BRG-BOR

SHEET 36 OF 204

Aug. 27 2014 04:01 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-494-BOR.dwg By: ahauser







NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

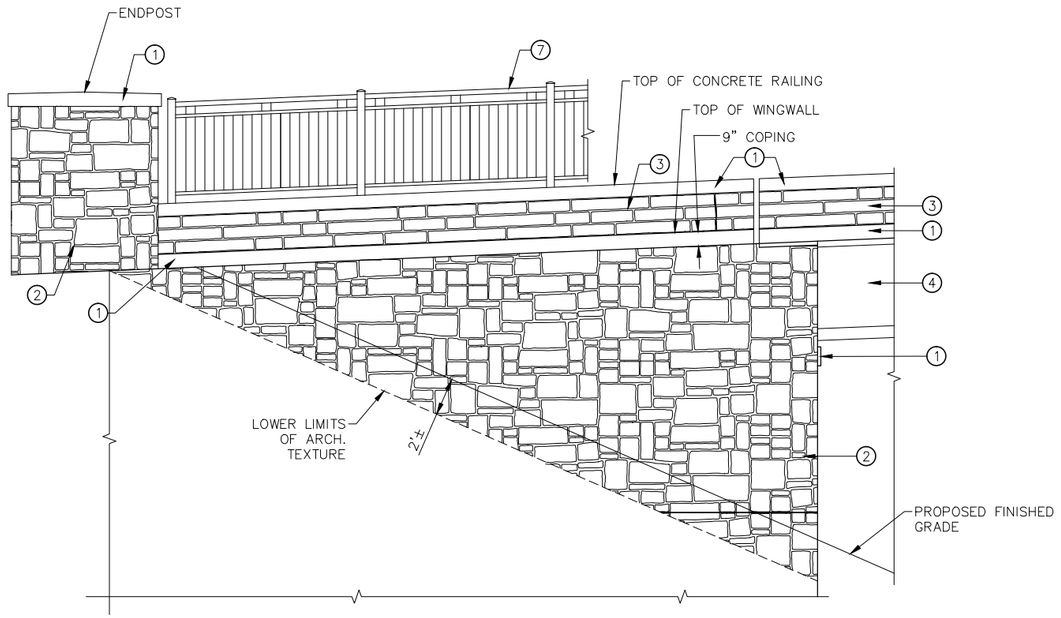
DES: DRF | DR: ARH
CHK: RMS | CHK: RMS

PRELIMINARY ENGINEERING

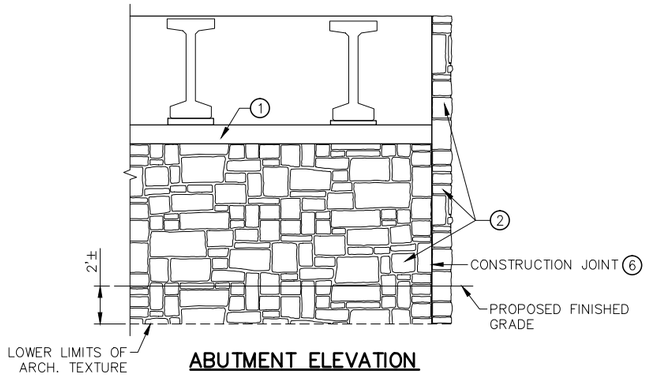
WEST – VOLUME 2 (STRUCTURES)
BRIDGE OVER I-494
BRIDGE XXXXX (LRT)
BORINGS - LOGS

DISCIPLINE: STRUCTURES
SHEET NAME: W1-STU-BRG-BOR

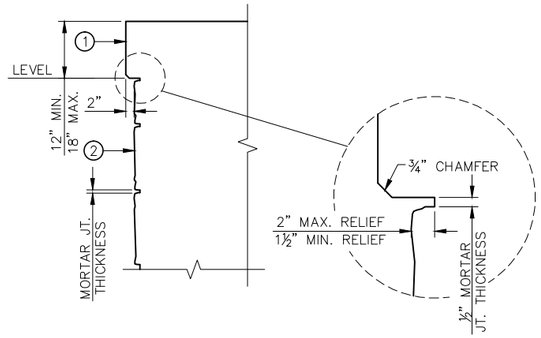
SHEET 37 OF 204



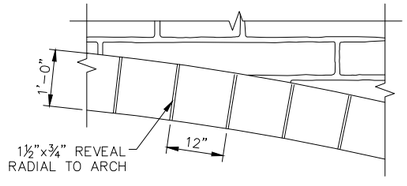
WINGWALL ELEVATION



ABUTMENT ELEVATION

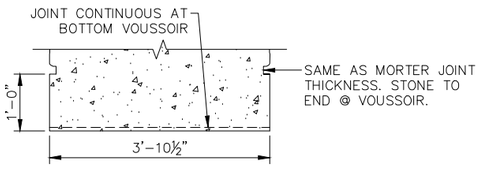


ABUTMENT SECTION

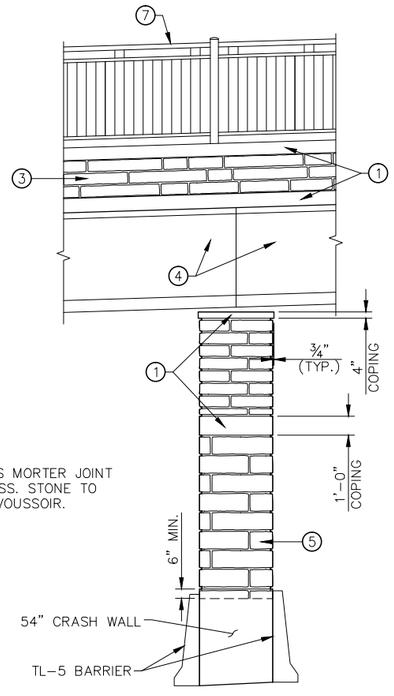


VOUSSOIR DETAIL

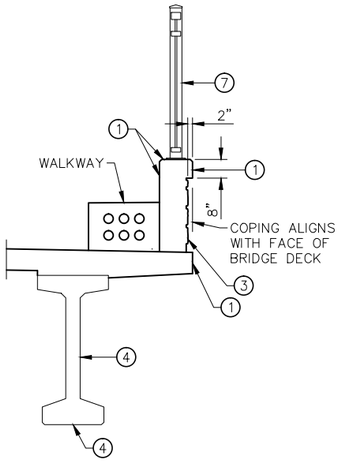
ARCH WITH SIMULATED VOUSSOIR
(SPECIAL SURFACE FINICH TREATMENT)



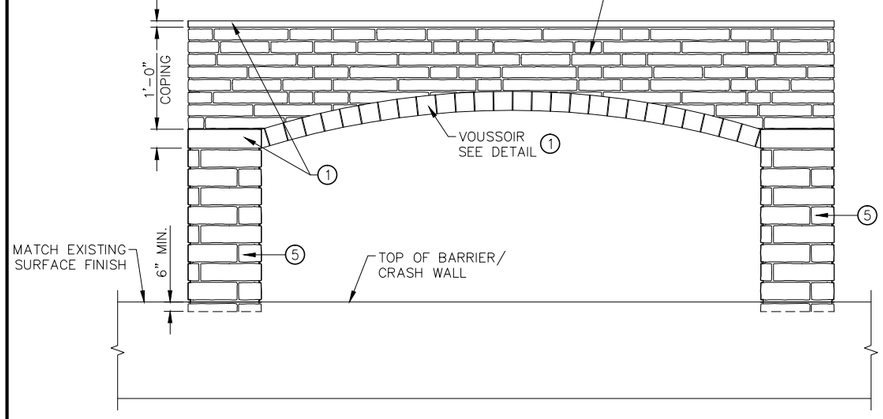
VOUSSOIR SECTION



PIER COLUMN ELEVATION



PARAPET DETAIL AT BRIDGE



PIER ELEVATION

NOTES:

1. SPECIAL SURFACE FINISH SHALL BE PER DBSB 2401.11, EXCEPT MNDOT GRAY MODIFIED COLOR SHALL BE USED.
2. ARCHITECTURAL CONCRETE TEXTURE (ASHLAR STONE), ARCHITECTURAL SURFACE FINISH (MULTI-COLOR) AND ANTI-GRAFFITI COATING.
3. ARCHITECTURAL CONCRETE TEXTURE (CUT STONE) (SMALL), ARCHITECTURAL SURFACE FINISH (MULTI-COLOR) AND ANTI-GRAFFITI COATING.
4. SPECIAL SURFACE FINISH SHALL BE APPLIED TO OUTSIDE FACE OF FASCIA GIRDERS AND THE BOTTOM FLANGE OF ALL GIRDERS. COLOR SHALL BE FEDERAL STD. COLOR 595B, COLOR 13522 (BEIGE). SEE SPEC. DBSB 2401.11.
5. ARCHITECTURAL CONCRETE TEXTURE (CUT STONE) (LARGE), ARCHITECTURAL SURFACE FINISH (MULTI-COLOR) AND ANTI-GRAFFITI COATING.
6. MATCH ALL ARCH. CONC. TEXTURE PATTERN ACROSS JOINTS AND AROUND CORNERS.
7. ORNAMENTAL METAL RAILING. PAINT TO A COLOR MATCHING FEDERAL STANDARD 595B COLOR NO. 10075 (BROWN) WITH GLOSS FINISH. PAINTING SHALL CONFORM TO DBSB-2178 (SHOP OR FIELD APPLIED ZINC-RICH PAINT SYSTEM) OF THE SPECIAL PROVISIONS, EXCEPT THAT THE BROWN COLOR SHALL BE USED.

DES: DRF	DR: ARH
CHK: RMS	CHK: RMS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

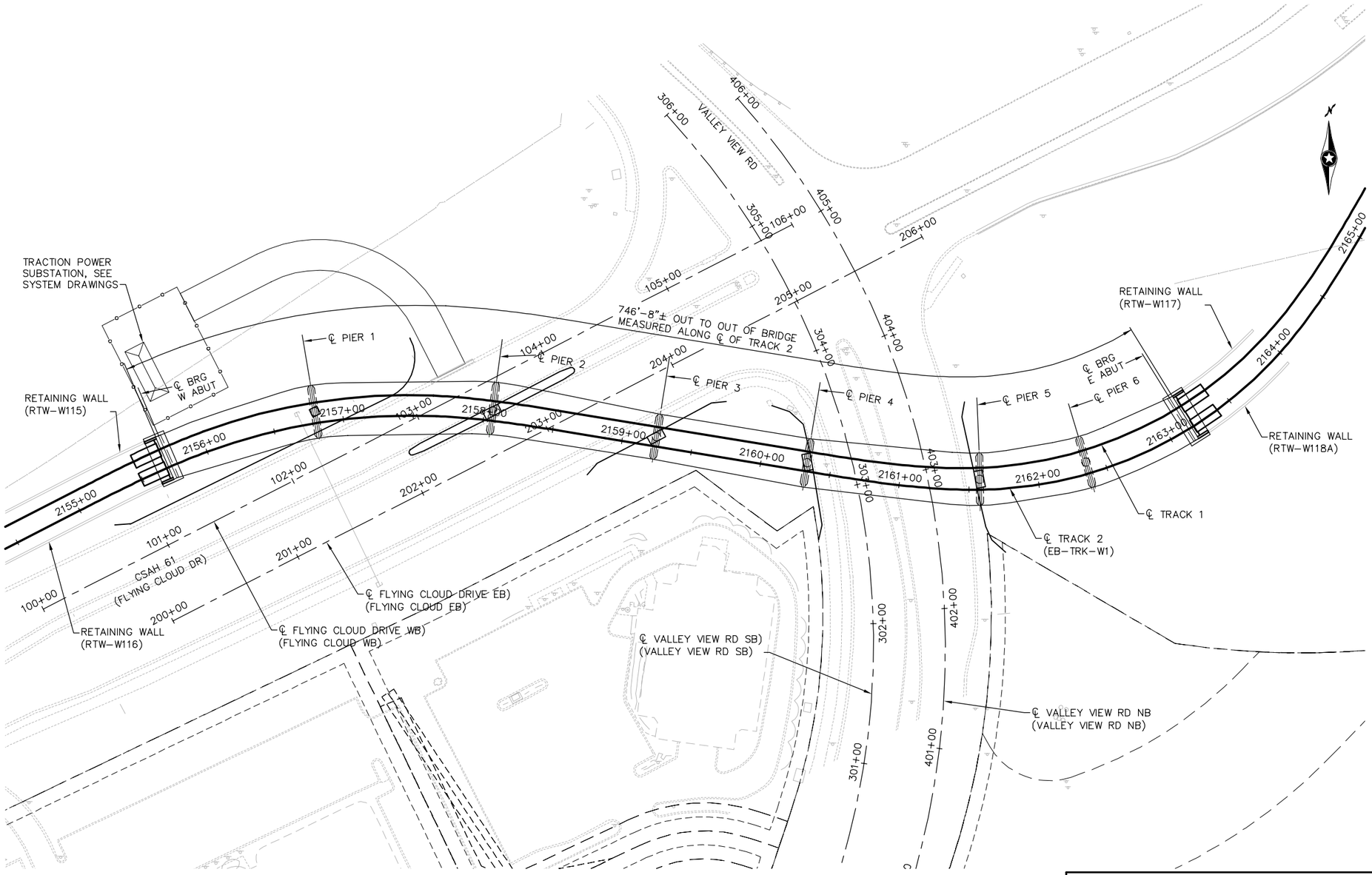
METROPOLITAN COUNCIL — SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
BRIDGE OVER I-494
BRIDGE XXXXX (LRT)
BRIDGE AESTHETICS

DISCIPLINE: STRUCTURES
SHEET NAME: W1-STU-BRG-ARCH

SHEET 38 OF 204

Aug. 27 2014 04:01 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-494-ARCH.dwg By: ahauser



KEY PLAN

0 20 40 80

SCALE IN FEET

DESIGN DATA

2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 6TH EDITION AND CURRENT INTERIMS

SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 2.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD

LRV & MV LOAD DIAGRAM SHOWN ON SHEET 44

MATERIAL DESIGN PROPERTIES:
- REINFORCED CONCRETE:
  - f'c = 4000 PSI n = 8
  - fy = 60000 PSI
- PRESTRESSED CONCRETE:
  - f'c = 9000 PSI n = 1
  - fpu = 270 ksi FOR 0.6"ø LOW RELAXATION STRANDS
  - 0.75 fpu FOR INITIAL PRESTRESS

DESIGN SPEED: OVER = NA MPH (LRT)
UNDER = XX MPH (FLYING CLOUD DRIVE)
UNDER = XX MPH (VALLEY VIEW ROAD)

DECK AREA 26,842 SQ. FT.

LIST OF SHEETS

PROPOSED TYPE OF STRUCTURE

DECK:
- MN63 PRESTRESSED CONCRETE BEAMS
- WITH 9" CAST–IN–PLACE CONCRETE DECK
- ALL BARS EPOXY COATED
- DIRECT FIXATION TRACK
- SIMPLE SPANS

SUBSTRUCTURE:
- PARAPET ABUTMENT SUPPORTED ON 12" CIP CONCRETE PILES
- 6'–0" DIA. CIP CONCRETE COLUMNS
- HAMMERHEAD PIERS SUPPORTED ON 16" CIP CONCRETE PILE

DEPTH OF STRUCTURE:
- ±7'–8" TOP OF LOW RAIL TO LOW BRIDGE
- 4± BEAM LINES (SPANS 1,3–4, 6–7)
- 5± BEAM LINE (SPANS 2 & 5)

AESTHETICS:
- SEE STANDARD AESTHETIC DETAILS SHEETS

20__ PROJECTED TRAFFIC VOLUMES

ROADWAY OVER	ROADWAY UNDER (FLYING CLOUD DRIVE)	ROADWAY UNDER (VALLEY VIEW ROAD)
N.A.	A.D.T. _____	A.D.T. _____
N.A.	D.H.V. _____	D.H.V. _____
N.A.	A.D.T.T. _____	A.D.T.T. _____

BRIDGE NO. XXXXX

SOUTHWEST LRT OVER VALLEY VIEW ROAD & FLYING CLOUD DRIVE 0.1 MI. WEST OF FLYING CLOUD DRIVE AND VALLEY VIEW ROAD IN EDEN PRAIRIE
108'–125'–118'–109'–125'–79'–78' PRESTRESSED CONCRETE BEAM SPANS
VARIABLE ROADWAY (32'–6" MIN)
0'–0'–0" SKEW

BRIDGE I.D. NO. 501

KEY PLAN

SEC 11 & 12 T 116 N R 22 W
CITY OF EDEN PRAIRIE HENNEPIN COUNTY

APPROVED: _____
STATE BRIDGE ENGINEER DATE

JOB NO. T9N635 STATE PROJECT NO. 9909–01 MNDOT REVIEW:

DES: DDL DRA: SWH
CHK: JFE CHK: JFE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
VALLEY VIEW ROAD
BRIDGE XXXXX (LRT)
KEY PLAN

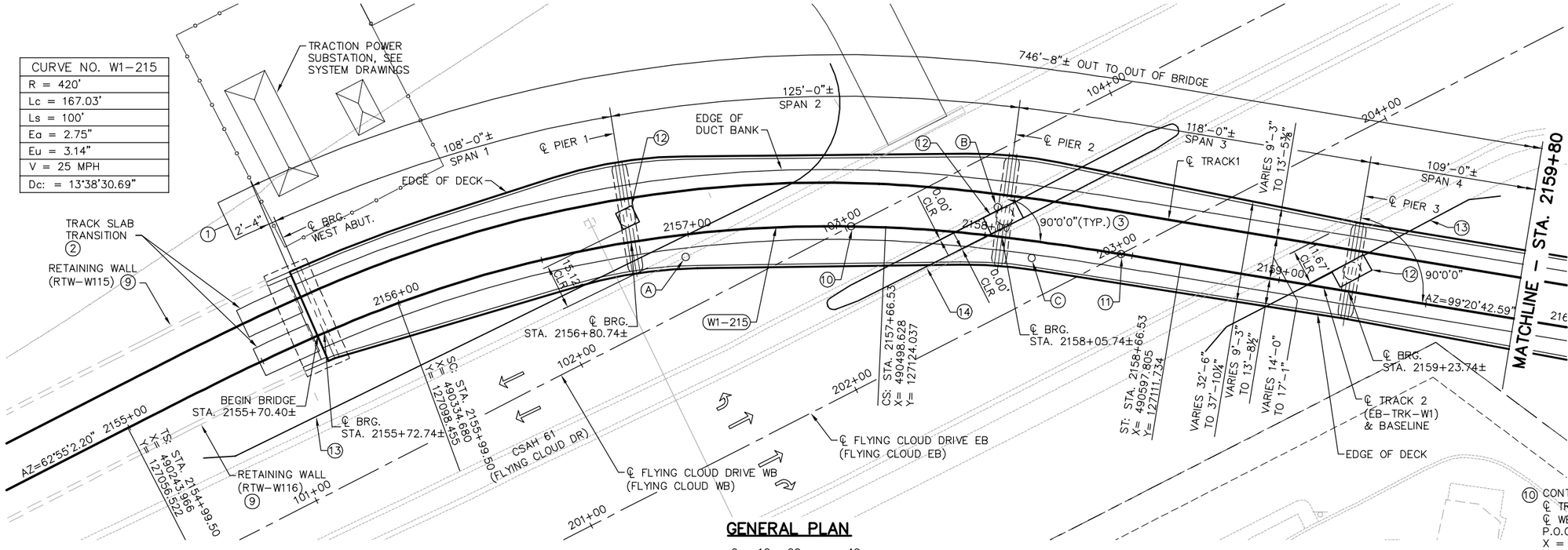
DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-FCVV-BL01

SHEET 39 OF 204

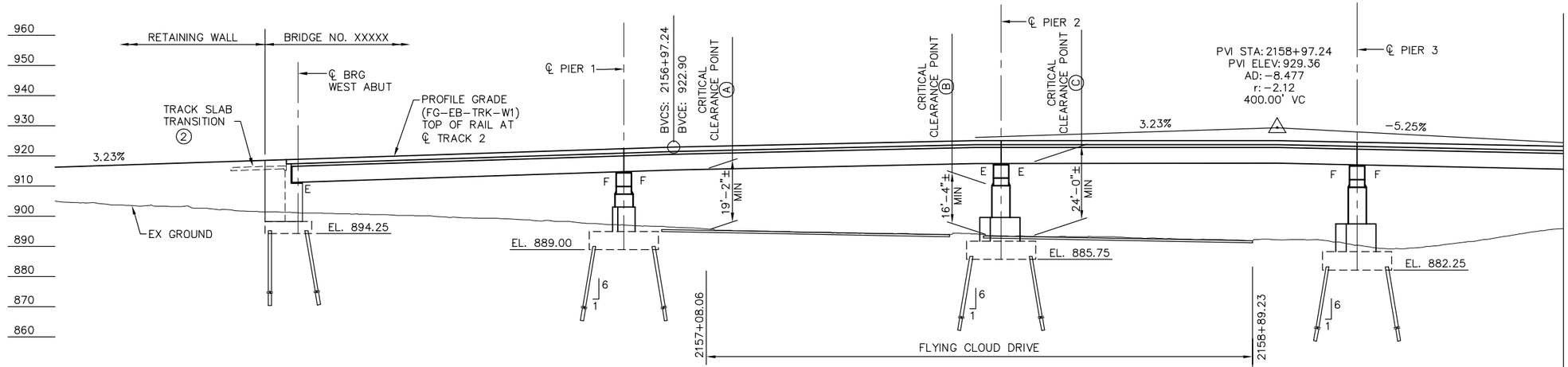
Aug, 05 2014 06:53 am V:\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-FCVV-BL01.dwg By: hills

CURVE NO. W1–215
R = 420'
Lc = 167.03'
Ls = 100'
Ea = 2.75"
Eu = 3.14"
V = 25 MPH
Dc: = 13°38'30.69"



GENERAL PLAN

SCALE 0 10 20 40 IN FEET



GENERAL ELEVATION

SCALE 0 10 20 40 IN FEET

NOTES:

1. ALL DIMENSIONS ARE MEASURED ALONG ℄ TRACK 2 (EB–TRK–W1)
2. SEE TRACK PLANS FOR TRANSITION SLAB DETAILS
3. T.C.C. TYP. UNLESS SHOWN OTHERWISE
4. SEE BRIDGE SURVEY SHEET FOR ADDITIONAL INPLACE UTILITIES
5. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38–02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
6. SEE BORING SHEETS FOR INPLACE UTILITIES.
7. TRAFFIC TO BE DETOURED DURING CONSTRUCTION.
8. VERTICAL CLEARANCE BASED ON LIDAR SURVEY DATA.
9. RETAINING WALL TIE IN STATION AND COORDINATES TO BE DETERMINED IN ADVANCED DESIGN.
10. CONTROL POINT
    ℄ TRACK 2 (EB–TRK–W1) P.O.T. STA 2157+54.90
    ℄ WB FLYING CLOUD DRIVE (FLYING CLOUD DRIVE WB)
    P.O.C. STA 103+01.97
    X = 490487.005
    Y = 127124.389
    ANGLE: 28°6'31.9" TTC
11. CONTROL POINT
    ℄ TRACK 2 (EB–TRK–W1) P.O.T. STA 2158+46.20
    ℄ EB FLYING CLOUD DRIVE (FLYING CLOUD DRIVE EB)
    P.O.C. STA 203+00.07
    X = 490577.739
    Y = 127115.002
    ANGLE: 36°13'7.4" TTC
12. PIERS SHALL BE DESIGNED WITH AN AREA GREATER THAN 30 SQ. FT. (BASED ON AREMA "HEAVY CONSTRUCTION") AND DESIGNED FOR 600 KIP COLLISION LOAD.
13. THRIE BEAM GUARDRAIL
14. THRIE BEAM BULLNOSE GUARDRAIL

DES: DDL	DRA: SWH
CHK: JFE	CHK: JFE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

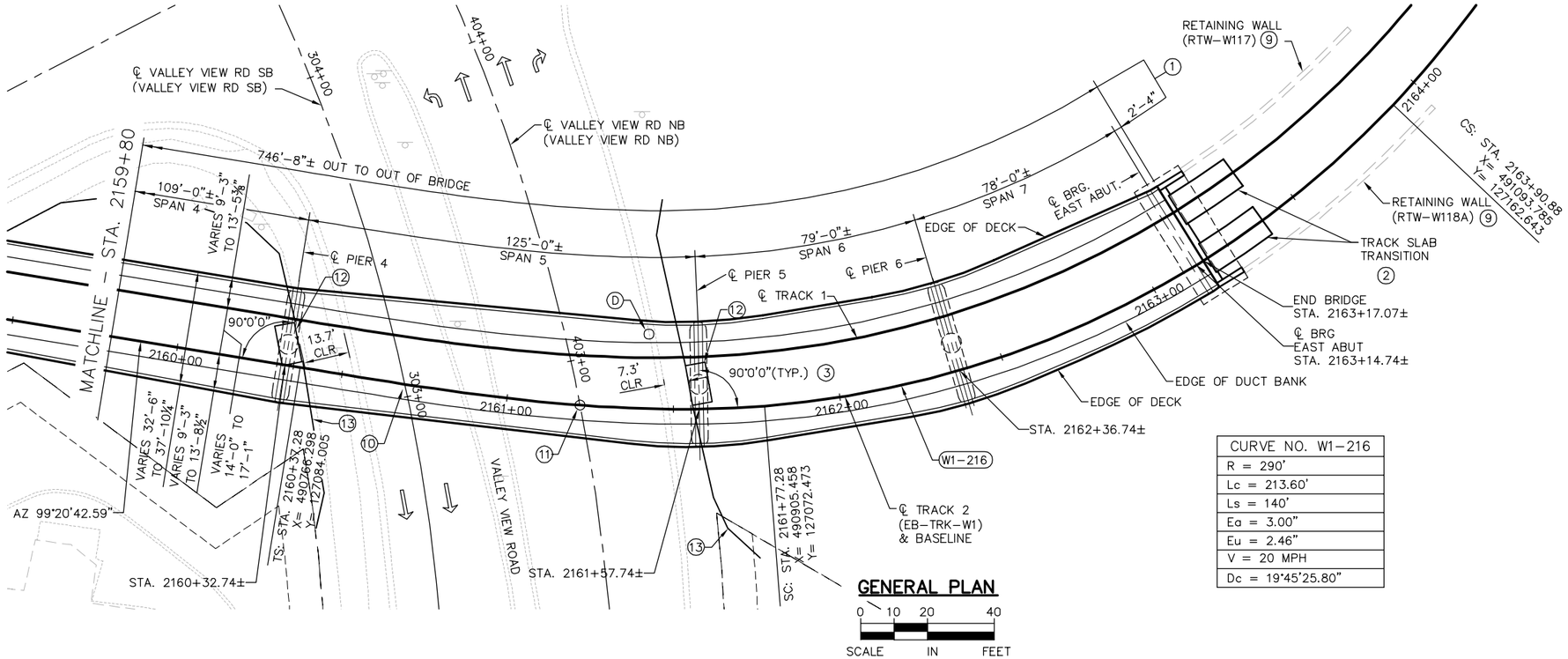
WEST - VOLUME 2 (STRUCTURES)
VALLEY VIEW ROAD
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-FCVV-GE01

SHEET 40 OF 204

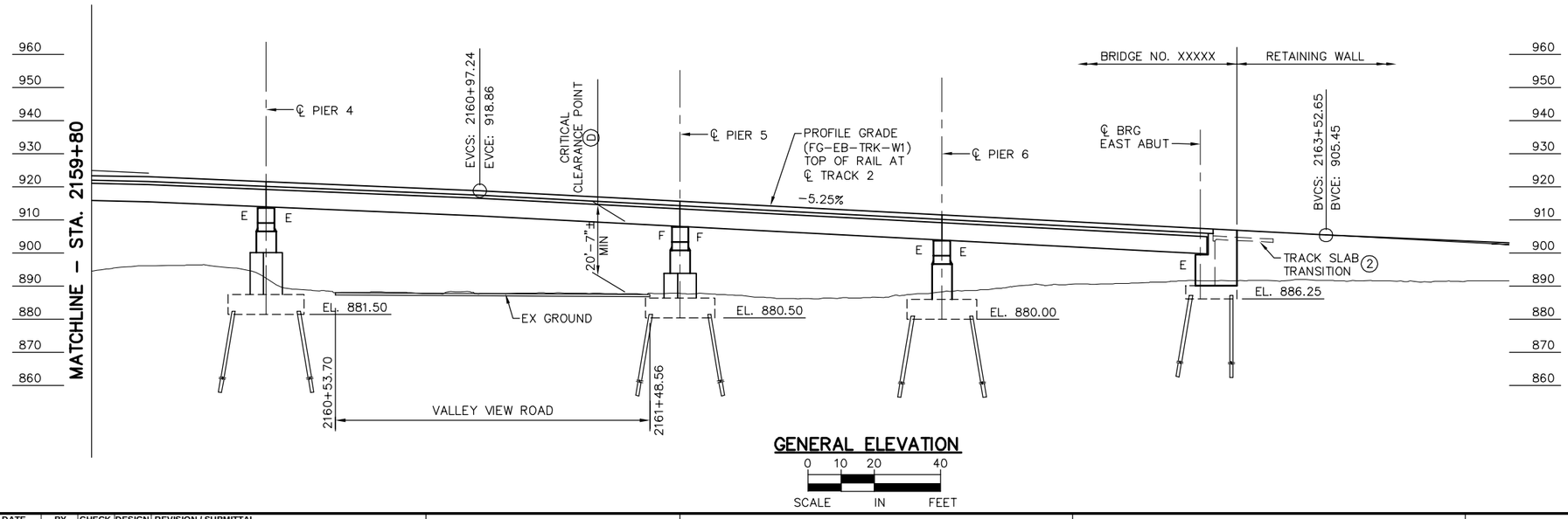
Aug, 27 2014 06:50 am V:\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-FCVV-GE01.dwg By: hills



GENERAL PLAN

SCALE IN FEET: 0 10 20 40

CURVE NO. W1-216
R = 290'
Lc = 213.60'
Ls = 140'
Eq = 3.00"
Eu = 2.46"
V = 20 MPH
Dc = 19°45'25.80"



GENERAL ELEVATION

SCALE IN FEET: 0 10 20 40

NOTES:

1. ALL DIMENSIONS ARE MEASURED ALONG ℄ TRACK 2 (EB-TRK-W1)
2. SEE TRACK PLANS FOR TRANSITION SLAB DETAILS
3. T.C.C. TYP. UNLESS SHOWN OTHERWISE
4. SEE BRIDGE SURVEY SHEET FOR ADDITIONAL INPLACE UTILITIES
5. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
6. SEE BORING SHEET FOR INPLACE UTILITIES.
7. TRAFFIC TO BE DETOURED DURING CONSTRUCTION.
8. VERTICAL CLEARANCE BASED ON LIDAR SURVEY DATA.
9. RETAINING WALL TIE IN STATION AND COORDINATES TO BE DETERMINED IN ADVANCED DESIGN.
10. CONTROL POINT
    ℄ TRACK 2 P.O.T. (EB-TRK-W1) STA 2160+69.11
    ℄ SB VALLEY VIEW ROAD P.O.C. (VALLEY VIEW RD SB)
    STA 303+03.80
    X = 490797.725
    Y = 127078.968
    ANGLE: 69°14'8.3" TTC
11. CONTROL POINT
    ℄ TRACK 2 P.O.T. (EB-TRK-W1) STA 2161+21.96
    ℄ NB VALLEY VIEW ROAD P.O.C. (VALLEY VIEW RD NB)
    STA 402+86.55
    X = 490850.188
    Y = 127072.724
    ANGLE: 74°36'24.7" TTC
12. PIERS SHALL BE DESIGNED WITH AN AREA GREATER THAN 30 SQ. FT. (BASED ON AREMA "HEAVY CONSTRUCTION") AND DESIGNED FOR 600 KIP COLLISION LOAD.
13. THRIE BEAM GUARDRAIL

DES: DDL	DRA: SWH
CHK: JFE	CHK: JFE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
VALLEY VIEW ROAD
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-FCVV-GE02

SHEET 41 OF 204

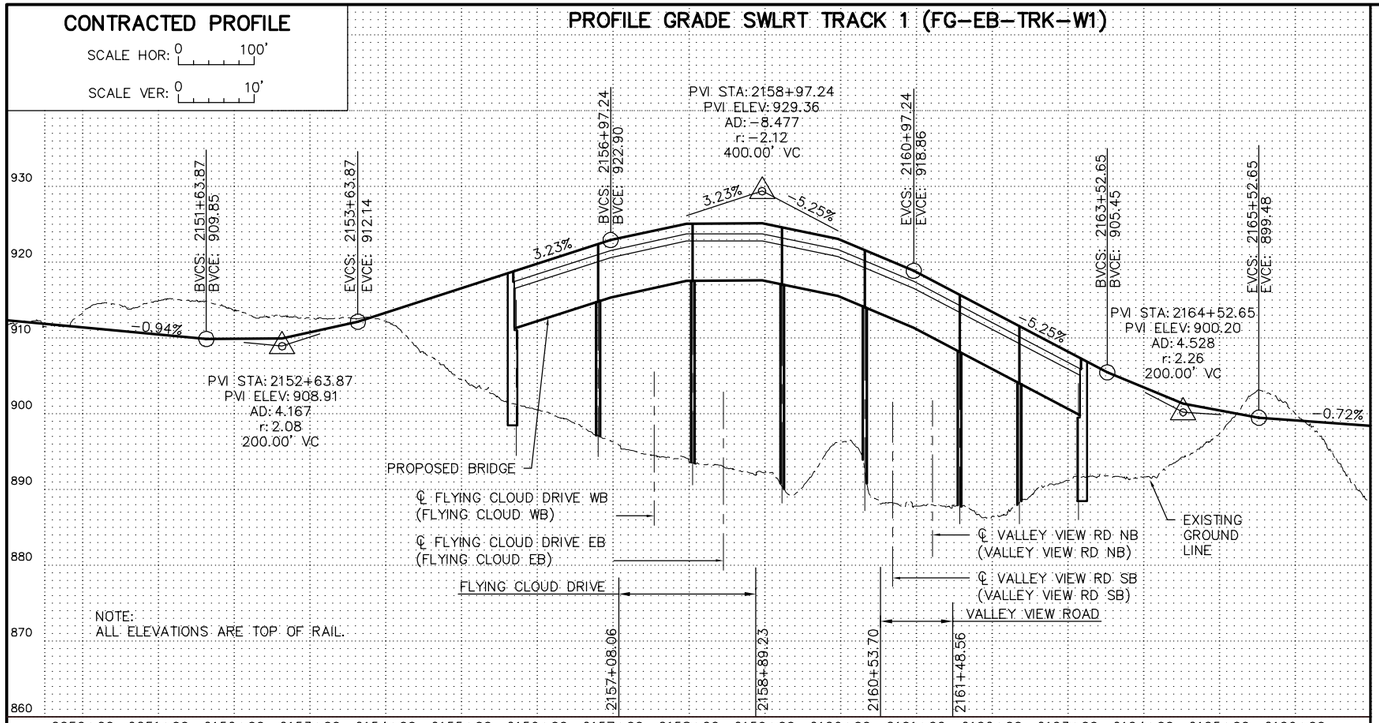
Aug. 27 2014 06:45 am V:\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-FCVV-GE02.dwg By: hills

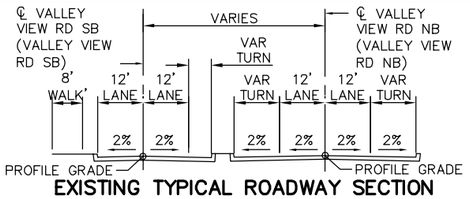
CONTRACTED PROFILE

SCALE HOR: 0 100'

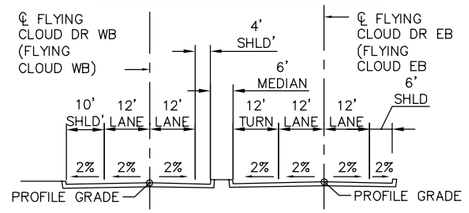
SCALE VER: 0 10'

PROFILE GRADE SWLRT TRACK 1 (FG-EB-TRK-W1)





EXISTING TYPICAL ROADWAY SECTION VALLEY VIEW ROAD



EXISTING TYPICAL ROADWAY SECTION FLYING CLOUD DRIVE

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

(1) CONTROL POINT
℄ TRACK 2 (EB-TRK-W1) P.O.T. STA 2157+54.90
℄ WB FLYING CLOUD DRIVE (FLYING CLOUD DRIVE WB) P.O.C. STA 103+01.97
X = 490487.005
Y = 127124.389
ANGLE: 28°6'31.9" TTC

(2) CONTROL POINT
℄ TRACK 2 (EB-TRK-W1) P.O.T. STA 2158+46.20
℄ EB FLYING CLOUD DRIVE (FLYING CLOUD DRIVE EB) P.O.C. STA 203+00.07
X = 490577.739
Y = 127115.002
ANGLE: 36°13'7.4" TTC

(3) CONTROL POINT
℄ TRACK 2 (EB-TRK-W1) P.O.T. STA 2160+69.11
℄ SB VALLEY VIEW ROAD (VALLEY VIEW RD SB) P.O.C. STA 303+03.80
X = 490797.725
Y = 127078.968
ANGLE: 69°14'8.3" TTC

(4) CONTROL POINT
℄ TRACK 2 (EB-TRK-W1) P.O.T. 2161+21.96
℄ NB VALLEY VIEW ROAD (VALLEY VIEW RD NB) P.O.C. STA 402+86.55
X = 490850.188
Y = 127072.724
ANGLE: 74°36'24.7" TTC

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.

2. OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION,TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS-SECTIONAL AREA ETC.

3. APPARENT HIGHWATER ELEVATION _____ OBTAINED FROM:

4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE: XX-XX-XXXX

STREAM OR DITCH DESIGNATION: XXX

DRAINAGE AREA: XXX SQ. MI.

MAX FLOOD ON RECORD: XXX C.F.S. (XX-XX-XX)

MAXIMUM OBSERVED HIGHWATER ELEVATION: XXX.X FT.

DESIGN FLOOD (XX TR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
DESIGN MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.
TOTAL STAGE INCREASE: XX.X FT.
LOW MEMBER AT OR ABOVE ELEVATION: XXX.X FT

WATERWAY AREA REQUIRED BELOW ELEV. XXX.X = XXX SQ. FT. AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
TOTAL STAGE INCREASE: X.X FT.
MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.

FLOWLINE ELEVATION: XXX FT. SKEW ANGLE: XX

ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. XXX.X (500 OR OT YR.FREQ.)

SCOUR CONFIRMATION RECOMMENDATION

DATE: XX-XX-XXXX

TOTAL SCOUR AT PIER EL. XXX.XX (500 OR OT YR. FREQ.)
SCOUR CODE: OBTAIN FROM HYDRAULIC ENGINEER

BRIDGE SURVEY = SHEETS MADE FROM 20XX XXXXXI SURVEYS

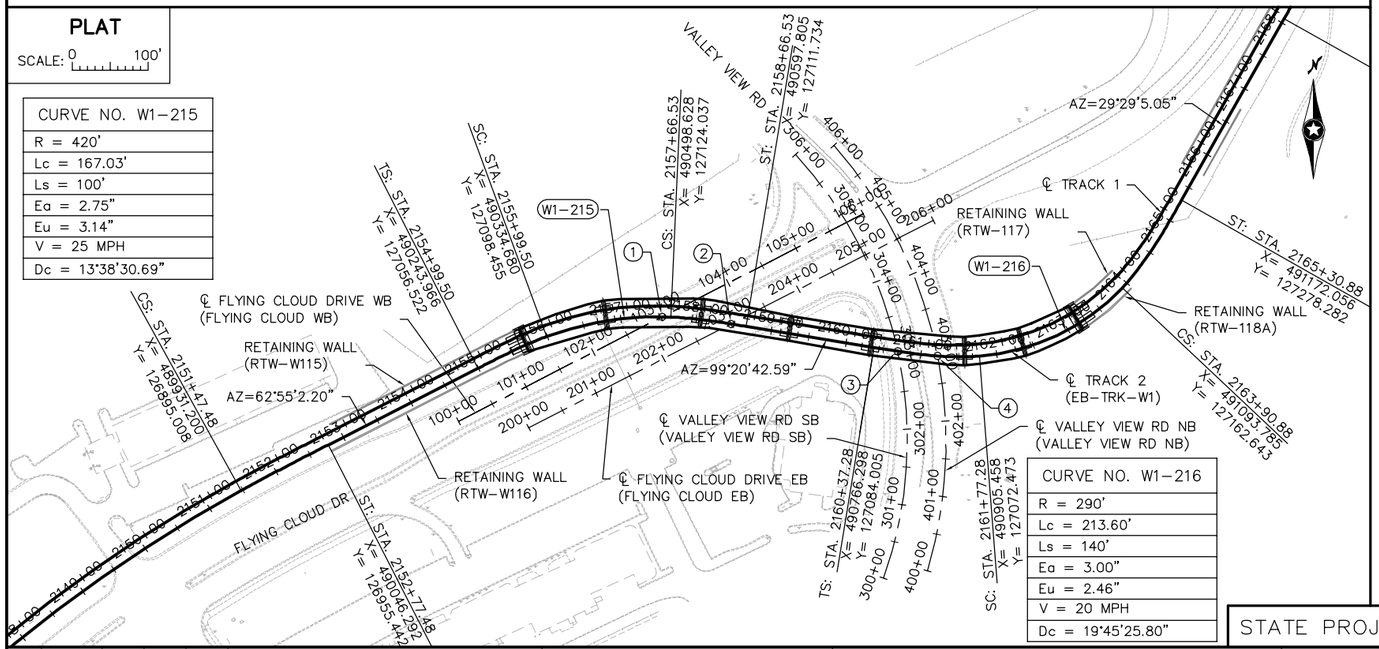
1ST BENCH MARK
MnDOT NAME: 2763 A 1
APPROX. NORTHING (HEN. COUNTY COORDINATES): 127407.646
APPROX. EASTING (HEN. COUNTY COORDINATES): 490672.548
BENCHMARK ELEVATION (NAVD88): 888.994

2ND BENCH MARK
MnDOT NAME: 2763 A 2
APPROX. NORTHING (HEN. COUNTY COORDINATES): 127559.699
APPROX. EASTING (HEN. COUNTY COORDINATES): 490380.189
BENCHMARK ELEVATION (NAVD88): 882.531

PLAT

SCALE: 0 100'

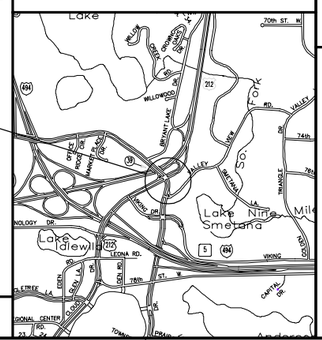
CURVE NO. W1-215
R = 420'
Lc = 167.03'
Ls = 100'
Ea = 2.75"
Eu = 3.14"
V = 25 MPH
Dc = 13°38'30.69"



CURVE NO. W1-216
R = 290'
Lc = 213.60'
Ls = 140'
Ea = 3.00"
Eu = 2.46"
V = 20 MPH
Dc = 19°45'25.80"

INDEX MAP

PROPOSED BRIDGE XXXXX


Lake
70th ST. W
494
212
Flying Cloud Dr
WILLOWOOD
BRYANT LAKE
Eden Prairie
Rd. 4
LAKELY
74th
Rd. 1
Rd. 18
Rd. 39
Rd. 61
Rd. 60
Rd. 62
Rd. 64
Rd. 65
Rd. 66
Rd. 67
Rd. 68
Rd. 69
Rd. 70
Rd. 71
Rd. 72
Rd. 73
Rd. 74
Rd. 75
Rd. 76
Rd. 77
Rd. 78
Rd. 79
Rd. 80
Rd. 81
Rd. 82
Rd. 83
Rd. 84
Rd. 85
Rd. 86
Rd. 87
Rd. 88
Rd. 89
Rd. 90
Rd. 91
Rd. 92
Rd. 93
Rd. 94
Rd. 95
Rd. 96
Rd. 97
Rd. 98
Rd. 99
Rd. 100
Rd. 101
Rd. 102
Rd. 103
Rd. 104
Rd. 105
Rd. 106
Rd. 107
Rd. 108
Rd. 109
Rd. 110
Rd. 111
Rd. 112
Rd. 113
Rd. 114
Rd. 115
Rd. 116
Rd. 117
Rd. 118
Rd. 119
Rd. 120
Rd. 121
Rd. 122
Rd. 123
Rd. 124
Rd. 125
Rd. 126
Rd. 127
Rd. 128
Rd. 129
Rd. 130
Rd. 131
Rd. 132
Rd. 133
Rd. 134
Rd. 135
Rd. 136
Rd. 137
Rd. 138
Rd. 139
Rd. 140
Rd. 141
Rd. 142
Rd. 143
Rd. 144
Rd. 145
Rd. 146
Rd. 147
Rd. 148
Rd. 149
Rd. 150
Rd. 151
Rd. 152
Rd. 153
Rd. 154
Rd. 155
Rd. 156
Rd. 157
Rd. 158
Rd. 159
Rd. 160
Rd. 161
Rd. 162
Rd. 163
Rd. 164
Rd. 165
Rd. 166
Rd. 167
Rd. 168
Rd. 169
Rd. 170
Rd. 171
Rd. 172
Rd. 173
Rd. 174
Rd. 175
Rd. 176
Rd. 177
Rd. 178
Rd. 179
Rd. 180
Rd. 181
Rd. 182
Rd. 183
Rd. 184
Rd. 185
Rd. 186
Rd. 187
Rd. 188
Rd. 189
Rd. 190
Rd. 191
Rd. 192
Rd. 193
Rd. 194
Rd. 195
Rd. 196
Rd. 197
Rd. 198
Rd. 199
Rd. 200
Rd. 201
Rd. 202
Rd. 203
Rd. 204
Rd. 205
Rd. 206
Rd. 207
Rd. 208
Rd. 209
Rd. 210
Rd. 211
Rd. 212
Rd. 213
Rd. 214
Rd. 215
Rd. 216
Rd. 217
Rd. 218
Rd. 219
Rd. 220
Rd. 221
Rd. 222
Rd. 223
Rd. 224
Rd. 225
Rd. 226
Rd. 227
Rd. 228
Rd. 229
Rd. 230
Rd. 231
Rd. 232
Rd. 233
Rd. 234
Rd. 235
Rd. 236
Rd. 237
Rd. 238
Rd. 239
Rd. 240
Rd. 241
Rd. 242
Rd. 243
Rd. 244
Rd. 245
Rd. 246
Rd. 247
Rd. 248
Rd. 249
Rd. 250
Rd. 251
Rd. 252
Rd. 253
Rd. 254
Rd. 255
Rd. 256
Rd. 257
Rd. 258
Rd. 259
Rd. 260
Rd. 261
Rd. 262
Rd. 263
Rd. 264
Rd. 265
Rd. 266
Rd. 267
Rd. 268
Rd. 269
Rd. 270
Rd. 271
Rd. 272
Rd. 273
Rd. 274
Rd. 275
Rd. 276
Rd. 277
Rd. 278
Rd. 279
Rd. 280
Rd. 281
Rd. 282
Rd. 283
Rd. 284
Rd. 285
Rd. 286
Rd. 287
Rd. 288
Rd. 289
Rd. 290
Rd. 291
Rd. 292
Rd. 293
Rd. 294
Rd. 295
Rd. 296
Rd. 297
Rd. 298
Rd. 299
Rd. 300
Rd. 301
Rd. 302
Rd. 303
Rd. 304
Rd. 305
Rd. 306
Rd. 307
Rd. 308
Rd. 309
Rd. 310
Rd. 311
Rd. 312
Rd. 313
Rd. 314
Rd. 315
Rd. 316
Rd. 317
Rd. 318
Rd. 319
Rd. 320
Rd. 321
Rd. 322
Rd. 323
Rd. 324
Rd. 325
Rd. 326
Rd. 327
Rd. 328
Rd. 329
Rd. 330
Rd. 331
Rd. 332
Rd. 333
Rd. 334
Rd. 335
Rd. 336
Rd. 337
Rd. 338
Rd. 339
Rd. 340
Rd. 341
Rd. 342
Rd. 343
Rd. 344
Rd. 345
Rd. 346
Rd. 347
Rd. 348
Rd. 349
Rd. 350
Rd. 351
Rd. 352
Rd. 353
Rd. 354
Rd. 355
Rd. 356
Rd. 357
Rd. 358
Rd. 359
Rd. 360
Rd. 361
Rd. 362
Rd. 363
Rd. 364
Rd. 365
Rd. 366
Rd. 367
Rd. 368
Rd. 369
Rd. 370
Rd. 371
Rd. 372
Rd. 373
Rd. 374
Rd. 375
Rd. 376
Rd. 377
Rd. 378
Rd. 379
Rd. 380
Rd. 381
Rd. 382
Rd. 383
Rd. 384
Rd. 385
Rd. 386
Rd. 387
Rd. 388
Rd. 389
Rd. 390
Rd. 391
Rd. 392
Rd. 393
Rd. 394
Rd. 395
Rd. 396
Rd. 397
Rd. 398
Rd. 399
Rd. 400
Rd. 401
Rd. 402
Rd. 403
Rd. 404
Rd. 405
Rd. 406
Rd. 407
Rd. 408
Rd. 409
Rd. 410
Rd. 411
Rd. 412
Rd. 413
Rd. 414
Rd. 415
Rd. 416
Rd. 417
Rd. 418
Rd. 419
Rd. 420
Rd. 421
Rd. 422
Rd. 423
Rd. 424
Rd. 425
Rd. 426
Rd. 427
Rd. 428
Rd. 429
Rd. 430
Rd. 431
Rd. 432
Rd. 433
Rd. 434
Rd. 435
Rd. 436
Rd. 437
Rd. 438
Rd. 439
Rd. 440
Rd. 441
Rd. 442
Rd. 443
Rd. 444
Rd. 445
Rd. 446
Rd. 447
Rd. 448
Rd. 449
Rd. 450
Rd. 451
Rd. 452
Rd. 453
Rd. 454
Rd. 455
Rd. 456
Rd. 457
Rd. 458
Rd. 459
Rd. 460
Rd. 461
Rd. 462
Rd. 463
Rd. 464
Rd. 465
Rd. 466
Rd. 467
Rd. 468
Rd. 469
Rd. 470
Rd. 471
Rd. 472
Rd. 473
Rd. 474
Rd. 475
Rd. 476
Rd. 477
Rd. 478
Rd. 479
Rd. 480
Rd. 481
Rd. 482
Rd. 483
Rd. 484
Rd. 485
Rd. 486
Rd. 487
Rd. 488
Rd. 489
Rd. 490
Rd. 491
Rd. 492
Rd. 493
Rd. 494
Rd. 495
Rd. 496
Rd. 497
Rd. 498
Rd. 499
Rd. 500
Rd. 501
Rd. 502
Rd. 503
Rd. 504
Rd. 505
Rd. 506
Rd. 507
Rd. 508
Rd. 509
Rd. 510
Rd. 511
Rd. 512
Rd. 513
Rd. 514
Rd. 515
Rd. 516
Rd. 517
Rd. 518
Rd. 519
Rd. 520
Rd. 521
Rd. 522
Rd. 523
Rd. 524
Rd. 525
Rd. 526
Rd. 527
Rd. 528
Rd. 529
Rd. 530
Rd. 531
Rd. 532
Rd. 533
Rd. 534
Rd. 535
Rd. 536
Rd. 537
Rd. 538
Rd. 539
Rd. 540
Rd. 541
Rd. 542
Rd. 543
Rd. 544
Rd. 545
Rd. 546
Rd. 547
Rd. 548
Rd. 549
Rd. 550
Rd. 551
Rd. 552
Rd. 553
Rd. 554
Rd. 555
Rd. 556
Rd. 557
Rd. 558
Rd. 559
Rd. 560
Rd. 561
Rd. 562
Rd. 563
Rd. 564
Rd. 565
Rd. 566
Rd. 567
Rd. 568
Rd. 569
Rd. 570
Rd. 571
Rd. 572
Rd. 573
Rd. 574
Rd. 575
Rd. 576
Rd. 577
Rd. 578
Rd. 579
Rd. 580
Rd. 581
Rd. 582
Rd. 583
Rd. 584
Rd. 585
Rd. 586
Rd. 587
Rd. 588
Rd. 589
Rd. 590
Rd. 591
Rd. 592
Rd. 593
Rd. 594
Rd. 595
Rd. 596
Rd. 597
Rd. 598
Rd. 599
Rd. 600
Rd. 601
Rd. 602
Rd. 603
Rd. 604
Rd. 605
Rd. 606
Rd. 607
Rd. 608
Rd. 609
Rd. 610
Rd. 611
Rd. 612
Rd. 613
Rd. 614
Rd. 615
Rd. 616
Rd. 617
Rd. 618
Rd. 619
Rd. 620
Rd. 621
Rd. 622
Rd. 623
Rd. 624
Rd. 625
Rd. 626
Rd. 627
Rd. 628
Rd. 629
Rd. 630
Rd. 631
Rd. 632
Rd. 633
Rd. 634
Rd. 635
Rd. 636
Rd. 637
Rd. 638
Rd. 639
Rd. 640
Rd. 641
Rd. 642
Rd. 643
Rd. 644
Rd. 645
Rd. 646
Rd. 647
Rd. 648
Rd. 649
Rd. 650
Rd. 651
Rd. 652
Rd. 653
Rd. 654
Rd. 655
Rd. 656
Rd. 657
Rd. 658
Rd. 659
Rd. 660
Rd. 661
Rd. 662
Rd. 663
Rd. 664
Rd. 665
Rd. 666
Rd. 667
Rd. 668
Rd. 669
Rd. 670
Rd. 671
Rd. 672
Rd. 673
Rd. 674
Rd. 675
Rd. 676
Rd. 677
Rd. 678
Rd. 679
Rd. 680
Rd. 681
Rd. 682
Rd. 683
Rd. 684
Rd. 685
Rd. 686
Rd. 687
Rd. 688
Rd. 689
Rd. 690
Rd. 691
Rd. 692
Rd. 693
Rd. 694
Rd. 695
Rd. 696
Rd. 697
Rd. 698
Rd. 699
Rd. 700
Rd. 701
Rd. 702
Rd. 703
Rd. 704
Rd. 705
Rd. 706
Rd. 707
Rd. 708
Rd. 709
Rd. 710
Rd. 711
Rd. 712
Rd. 713
Rd. 714
Rd. 715
Rd. 716
Rd. 717
Rd. 718
Rd. 719
Rd. 720
Rd. 721
Rd. 722
Rd. 723
Rd. 724
Rd. 725
Rd. 726
Rd. 727
Rd. 728
Rd. 729
Rd. 730
Rd. 731
Rd. 732
Rd. 733
Rd. 734
Rd. 735
Rd. 736
Rd. 737
Rd. 738
Rd. 739
Rd. 740
Rd. 741
Rd. 742
Rd. 743
Rd. 744
Rd. 745
Rd. 746
Rd. 747
Rd. 748
Rd. 749
Rd. 750
Rd. 751
Rd. 752
Rd. 753
Rd. 754
Rd. 755
Rd. 756
Rd. 757
Rd. 758
Rd. 759
Rd. 760
Rd. 761
Rd. 762
Rd. 763
Rd. 764
Rd. 765
Rd. 766
Rd. 767
Rd. 768
Rd. 769
Rd. 770
Rd. 771
Rd. 772
Rd. 773
Rd. 774
Rd. 775
Rd. 776
Rd. 777
Rd. 778
Rd. 779
Rd. 780
Rd. 781
Rd. 782
Rd. 783
Rd. 784
Rd. 785
Rd. 786
Rd. 787
Rd. 788
Rd. 789
Rd. 790
Rd. 791
Rd. 792
Rd. 793
Rd. 794
Rd. 795
Rd. 796
Rd. 797
Rd. 798
Rd. 799
Rd. 800
Rd. 801
Rd. 802
Rd. 803
Rd. 804
Rd. 805
Rd. 806
Rd. 807
Rd. 808
Rd. 809
Rd. 810
Rd. 811
Rd. 812
Rd. 813
Rd. 814
Rd. 815
Rd. 816
Rd. 817
Rd. 818
Rd. 819
Rd. 820
Rd. 821
Rd. 822
Rd. 823
Rd. 824
Rd. 825
Rd. 826
Rd. 827
Rd. 828
Rd. 829
Rd. 830
Rd. 831
Rd. 832
Rd. 833
Rd. 834
Rd. 835
Rd. 836
Rd. 837
Rd. 838
Rd. 839
Rd. 840
Rd. 841
Rd. 842
Rd. 843
Rd. 844
Rd. 845
Rd. 846
Rd. 847
Rd. 848
Rd. 849
Rd. 850
Rd. 851
Rd. 852
Rd. 853
Rd. 854
Rd. 855
Rd. 856
Rd. 857
Rd. 858
Rd. 859
Rd. 860
Rd. 861
Rd. 862
Rd. 863
Rd. 864
Rd. 865
Rd. 866
Rd. 867
Rd. 868
Rd. 869
Rd. 870
Rd. 871
Rd. 872
Rd. 873
Rd. 874
Rd. 875
Rd. 876
Rd. 877
Rd. 878
Rd. 879
Rd. 880
Rd. 881
Rd. 882
Rd. 883
Rd. 884
Rd. 885
Rd. 886
Rd. 887
Rd. 888
Rd. 889
Rd. 890
Rd. 891
Rd. 892
Rd. 893
Rd. 894
Rd. 895
Rd. 896
Rd. 897
Rd. 898
Rd. 899
Rd. 900
Rd. 901
Rd. 902
Rd. 903
Rd. 904
Rd. 905
Rd. 906
Rd. 907
Rd. 908
Rd. 909
Rd. 910
Rd. 911
Rd. 912
Rd. 913
Rd. 914
Rd. 915
Rd. 916
Rd. 917
Rd. 918
Rd. 919
Rd. 920
Rd. 921
Rd. 922
Rd. 923
Rd. 924
Rd. 925
Rd. 926
Rd. 927
Rd. 928
Rd. 929
Rd. 930
Rd. 931
Rd. 932
Rd. 933
Rd. 934
Rd. 935
Rd. 936
Rd. 937
Rd. 938
Rd. 939
Rd. 940
Rd. 941
Rd. 942
Rd. 943
Rd. 944
Rd. 945
Rd. 946
Rd. 947
Rd. 948
Rd. 949
Rd. 950
Rd. 951
Rd. 952
Rd. 953
Rd. 954
Rd. 955
Rd. 956
Rd. 957
Rd. 958
Rd. 959
Rd. 960
Rd. 961
Rd. 962
Rd. 963
Rd. 964
Rd. 965
Rd. 966
Rd. 967
Rd. 968
Rd. 969
Rd. 970
Rd. 971
Rd. 972
Rd. 973
Rd. 974
Rd. 975
Rd. 976
Rd. 977
Rd. 978
Rd. 979
Rd. 980
Rd. 981
Rd. 982
Rd. 983
Rd. 984
Rd. 985
Rd. 986
Rd. 987
Rd. 988
Rd. 989
Rd. 990
Rd. 991
Rd. 992
Rd. 993
Rd. 994
Rd. 995
Rd. 996
Rd. 997
Rd. 998
Rd. 999
Rd. 1000
Lake Susan
Lake Smetana
Lake Idlewild
Lake Nine
Mil
So. Fork
Eden Prairie
Rd. 4
Rd. 1
Rd. 18
Rd. 39
Rd. 61
Rd. 60
Rd. 62
Rd. 64
Rd. 65
Rd. 66
Rd. 67
Rd. 68
Rd. 69
Rd. 70
Rd. 71
Rd. 72
Rd. 73
Rd. 74
Rd. 75
Rd. 76
Rd. 77
Rd. 78
Rd. 79
Rd. 80
Rd. 81
Rd. 82
Rd. 83
Rd. 84
Rd. 85
Rd. 86
Rd. 87
Rd. 88
Rd. 89
Rd. 90
Rd. 91
Rd. 92
Rd. 93
Rd. 94
Rd. 95
Rd. 96
Rd. 97
Rd. 98
Rd. 99
Rd. 100
Rd. 101
Rd. 102
Rd. 103
Rd. 104
Rd. 105
Rd. 106
Rd. 107
Rd. 108
Rd. 109
Rd. 110
Rd. 111
Rd. 112
Rd. 113
Rd. 114
Rd. 115
Rd. 116
Rd. 117
Rd. 118
Rd. 119
Rd. 120
Rd. 121
Rd. 122
Rd. 123
Rd. 124
Rd. 125
Rd. 126
Rd. 127
Rd. 128
Rd. 129
Rd. 130
Rd. 131
Rd. 132
Rd. 133
Rd. 134
Rd. 135
Rd. 136
Rd. 137
Rd. 138
Rd. 139
Rd. 140
Rd. 141
Rd. 142
Rd. 143
Rd. 144
Rd. 145
Rd. 146
Rd. 147
Rd. 148
Rd. 149
Rd. 150
Rd. 151
Rd. 152
Rd. 153
Rd. 154
Rd. 155
Rd. 156
Rd. 157
Rd. 158
Rd. 159
Rd. 160
Rd. 161
Rd. 162
Rd. 163
Rd. 164
Rd. 165
Rd. 166
Rd. 167
Rd. 168
Rd. 169
Rd. 170
Rd. 171
Rd. 172
Rd. 173
Rd. 174
Rd. 175
Rd. 176
Rd. 177
Rd. 178
Rd. 179
Rd. 180
Rd. 181
Rd. 182
Rd. 183
Rd. 184
Rd. 185
Rd. 186
Rd. 187
Rd. 188
Rd. 189
Rd. 190
Rd. 191
Rd. 192
Rd. 193
Rd. 194
Rd. 195
Rd. 196
Rd. 197
Rd. 198
Rd. 199
Rd. 200
Rd. 201
Rd. 202
Rd. 203
Rd. 204
Rd. 205
Rd. 206
Rd. 207
Rd. 208
Rd. 209
Rd. 210
Rd. 211
Rd. 212
Rd. 213
Rd. 214
Rd. 215
Rd. 216
Rd. 217
Rd. 218
Rd. 219
Rd. 220
Rd. 221
Rd. 222
Rd. 223
Rd. 224
Rd. 225
Rd. 226
Rd. 227
Rd. 228
Rd. 229
Rd. 230
Rd. 231
Rd. 232
Rd. 233
Rd. 234
Rd. 235
Rd. 236
Rd. 237
Rd. 238
Rd. 239
Rd. 240
Rd. 241
Rd. 242
Rd. 243
Rd. 244
Rd. 245
Rd. 246
Rd. 247
Rd. 248
Rd. 249
Rd. 250
Rd. 251
Rd. 252
Rd. 253
Rd. 254
Rd. 255
Rd. 256
Rd. 257
Rd. 258
Rd. 259
Rd. 260
Rd. 261
Rd. 262
Rd. 263
Rd. 264
Rd. 265
Rd. 266
Rd. 267
Rd. 268
Rd. 269
Rd. 270
Rd. 271
Rd. 272
Rd. 273
Rd. 274
Rd. 275
Rd. 276
Rd. 277
Rd. 278
Rd. 279
Rd. 280
Rd. 281
Rd. 282
Rd. 283
Rd. 284
Rd. 285
Rd. 286
Rd. 287
Rd. 288
Rd. 289
Rd. 290
Rd. 291
Rd. 292
Rd. 293
Rd. 294
Rd. 295
Rd. 296
Rd. 297
Rd. 298
Rd. 299
Rd. 300
Rd. 301
Rd. 302
Rd. 303
Rd. 304
Rd. 305
Rd. 306
Rd. 307
Rd. 308
Rd. 309
Rd. 310
Rd. 311
Rd. 312
Rd. 313
Rd. 314
Rd. 315
Rd. 316
Rd. 317
Rd. 318
Rd. 319
Rd. 320
Rd. 321
Rd. 322
Rd. 323
Rd. 324
Rd. 325
Rd. 326
Rd. 327
Rd. 328
Rd. 329
Rd. 330
Rd. 331
Rd. 332
Rd. 333
Rd. 334
Rd. 335
Rd. 336
Rd. 337
Rd. 338
Rd. 339
Rd. 340
Rd. 341
Rd. 342
Rd. 343
Rd. 344
Rd. 345
Rd. 346
Rd. 347
Rd. 348
Rd. 349
Rd. 350
Rd. 351
Rd. 352
Rd. 353
Rd. 354
Rd. 355
Rd. 356
Rd. 357
Rd. 358
Rd. 359
Rd. 360
Rd. 361
Rd. 362
Rd. 363
Rd. 364
Rd. 365
Rd. 366
Rd. 367
Rd. 368
Rd. 369
Rd. 370
Rd. 371
Rd. 372
Rd. 373
Rd. 374
Rd. 375
Rd. 376
Rd. 377
Rd. 378
Rd. 379
Rd. 380
Rd. 381
Rd. 382
Rd. 383
Rd. 384
Rd. 385
Rd. 386
Rd. 387
Rd. 388
Rd. 389
Rd. 390
Rd. 391
Rd. 392
Rd. 393
Rd. 394
Rd. 395
Rd. 396
Rd. 397
Rd. 398
Rd. 399
Rd. 400
Rd. 401
Rd. 402
Rd. 403
Rd. 404
Rd. 405
Rd. 406
Rd. 407
Rd. 408
Rd. 409
Rd. 410
Rd. 411
Rd. 412
Rd. 413
Rd. 414
Rd. 415
Rd. 416
Rd. 417
Rd. 418
Rd. 419
Rd. 420
Rd. 421
Rd. 422
Rd. 423
Rd. 424
Rd. 425
Rd. 426
Rd. 427
Rd. 428
Rd. 429
Rd. 430
Rd. 431
Rd. 432
Rd. 433
Rd. 434
Rd. 435
Rd. 436
Rd. 437
Rd. 438
Rd. 439
Rd. 440
Rd. 441
Rd. 442
Rd. 443
Rd. 444
Rd. 445
Rd. 446
Rd. 447
Rd. 448
Rd. 449
Rd. 450
Rd. 451
Rd. 452
Rd. 453
Rd. 454
Rd. 455
Rd. 456
Rd. 457
Rd. 458
Rd. 459
Rd. 460
Rd. 461
Rd. 462
Rd. 463
Rd. 464
Rd. 465
Rd. 466
Rd. 467
Rd. 468
Rd. 469
Rd. 470
Rd. 471
Rd. 472
Rd. 473
Rd. 474
Rd. 475
Rd. 476
Rd. 477
Rd. 478
Rd. 479
Rd. 480
Rd. 481
Rd. 482
Rd. 483
Rd. 484
Rd. 485
Rd. 486
Rd. 487
Rd. 488
Rd. 489
Rd. 490
Rd. 491
Rd. 492
Rd. 493
Rd. 494
Rd. 495
Rd. 496
Rd. 497
Rd. 498
Rd. 499
Rd. 500
Rd. 501
Rd. 502
Rd. 503
Rd. 504
Rd. 505
Rd. 506
Rd. 507
Rd. 508
Rd. 509
Rd. 510
Rd. 511
Rd. 512
Rd. 513
Rd. 514
Rd. 515
Rd. 516
Rd. 517
Rd. 518
Rd. 519
Rd. 520
Rd. 521
Rd. 522
Rd. 523
Rd. 524
Rd. 525
Rd. 526
Rd. 527
Rd. 528
Rd. 529
Rd. 530
Rd. 531
Rd. 532
Rd. 533
Rd. 534
Rd. 535
Rd. 536
Rd. 537
Rd. 538
Rd. 539
Rd. 540
Rd. 541
Rd. 542
Rd. 543
Rd. 544
Rd. 545
Rd. 546
Rd. 547
Rd. 548
Rd. 549
Rd. 550
Rd. 551
Rd. 552
Rd. 553
Rd. 554
Rd. 555
Rd. 556
Rd. 557
Rd. 558
Rd. 559
Rd. 560
Rd. 561
Rd. 562
Rd. 563
Rd. 564
Rd. 565
Rd. 566
Rd. 567
Rd. 568
Rd. 569
Rd. 570
Rd. 571
Rd. 572
Rd. 573
Rd. 574
Rd. 575
Rd. 576
Rd. 577
Rd. 578
Rd. 579
Rd. 580
Rd. 581
Rd. 582
Rd. 583
Rd. 584
Rd. 585
Rd. 586
Rd. 587
Rd. 588
Rd. 589
Rd. 590
Rd. 591
Rd. 592
Rd. 593
Rd. 594
Rd. 595
Rd. 596
Rd. 597
Rd. 598
Rd. 599
Rd. 600
Rd. 601
Rd. 602
Rd. 603
Rd. 604
Rd. 605
Rd. 606
Rd. 607
Rd. 608
Rd. 609
Rd. 610
Rd. 611
Rd. 612
Rd. 613
Rd. 614
Rd. 615
Rd. 616
Rd. 617
Rd. 618
Rd. 619
Rd. 620
Rd. 621
Rd. 622
Rd. 623
Rd. 624
Rd. 625
Rd. 626
Rd. 627
Rd. 628
Rd. 629
Rd. 630
Rd. 631
Rd. 632
Rd. 633
Rd. 634
Rd. 635
Rd. 636
Rd. 637
Rd. 638
Rd. 639
Rd. 640
Rd. 641
Rd. 642
Rd. 643
Rd. 644
Rd. 645
Rd. 646
Rd. 647
Rd. 648
Rd. 649
Rd. 650
Rd. 651
Rd. 652
Rd. 653
Rd. 654
Rd. 655
Rd. 656
Rd. 657
Rd. 658
Rd. 659
Rd. 660
Rd. 661
Rd. 662
Rd. 663
Rd. 664
Rd. 665
Rd. 666
Rd. 667
Rd. 668
Rd. 669
Rd. 670
Rd. 671
Rd. 672
Rd. 673
Rd. 674
Rd. 675
Rd. 676
Rd. 677
Rd. 678
Rd. 679
Rd. 680
Rd. 681
Rd. 682
Rd. 683
Rd. 684
Rd. 685
Rd. 686
Rd. 687
Rd. 688
Rd. 689
Rd. 690
Rd. 691
Rd. 692
Rd. 693
Rd. 694
Rd. 695
Rd. 696
Rd. 697
Rd. 698
Rd. 699
Rd. 700
Rd. 701
Rd. 702
Rd. 703
Rd. 704
Rd. 705
Rd. 706
Rd. 707
Rd. 708
Rd. 709
Rd. 710
Rd. 711
Rd. 712
Rd. 713
Rd. 714
Rd. 715
Rd. 716
Rd. 717
Rd. 718
Rd. 719
Rd. 720
Rd. 721
Rd. 722
Rd. 723
Rd. 724
Rd. 725
Rd. 726
Rd. 727
Rd. 728
Rd. 729
Rd. 730
Rd. 731
Rd. 732
Rd. 733
Rd. 734
Rd. 735
Rd. 736
Rd. 737
Rd. 738
Rd. 739
Rd. 740
Rd. 741
Rd. 742
Rd. 743
Rd. 744
Rd. 745
Rd. 746
Rd. 747
Rd. 748
Rd. 749
Rd. 750
Rd. 751
Rd. 752
Rd. 753
Rd. 754
Rd. 755
Rd. 756
Rd. 757
Rd. 758
Rd. 759
Rd. 760
Rd. 761
Rd. 762
Rd. 763
Rd. 764
Rd. 765
Rd. 766
Rd. 767
Rd. 768
Rd. 769
Rd. 770
Rd. 771
Rd. 772
Rd.

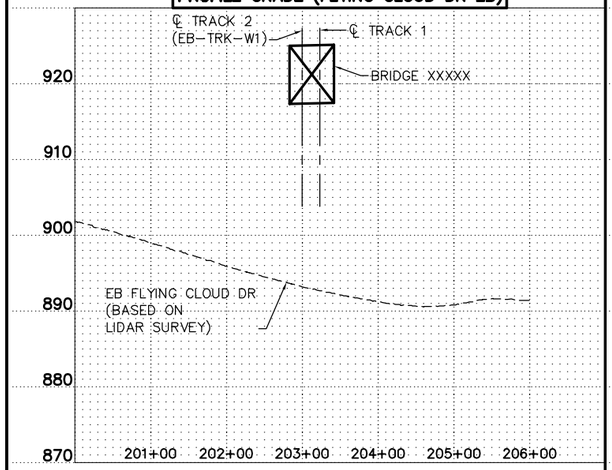
CONTRACTED PROFILE

SCALE HOR: 0 100'

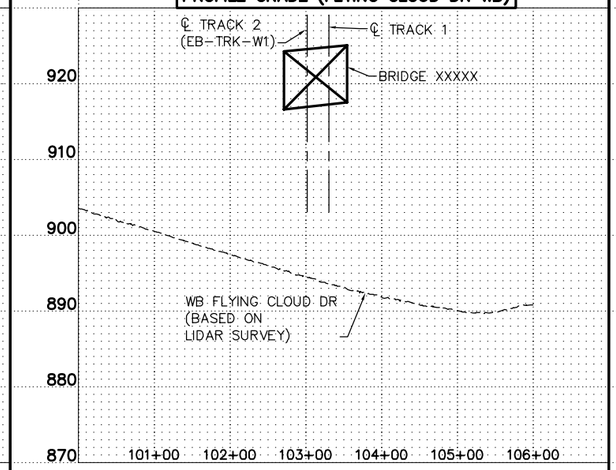
SCALE VER: 0 10'

PROFILES

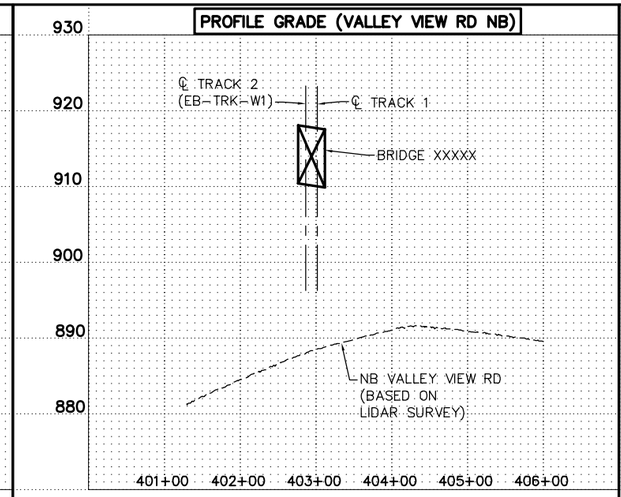
PROFILE GRADE (FLYING CLOUD DR EB)



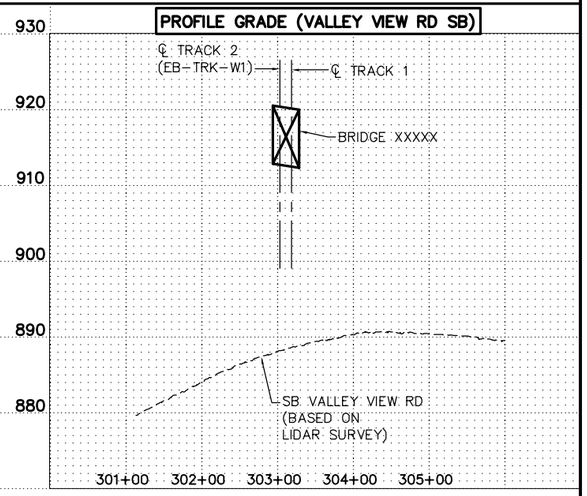
PROFILE GRADE (FLYING CLOUD DR WB)



PROFILE GRADE (VALLEY VIEW RD NB)



PROFILE GRADE (VALLEY VIEW RD SB)



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

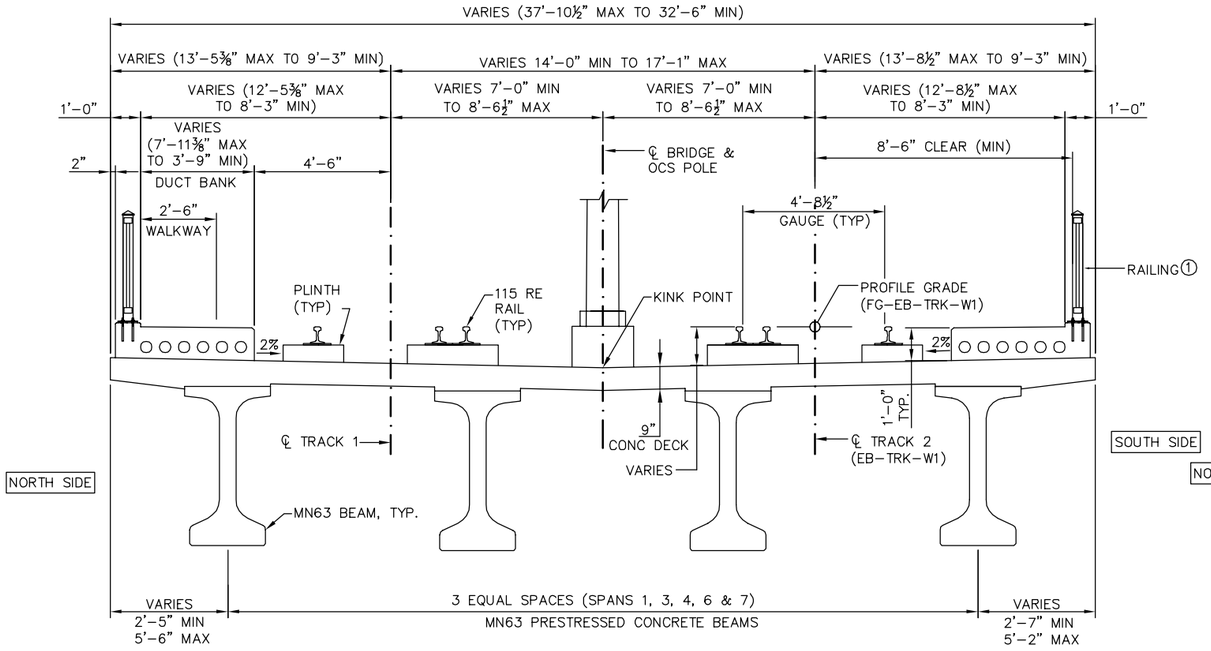
WEST - VOLUME 2 (STRUCTURES)
VALLEY VIEW ROAD
BRIDGE XXXXX (LRT)
BRIDGE SURVEY

DISCIPLINE: **STRUCTURES**

SHEET NAME: **W1-STU-BRG-FCVV-SUR2**

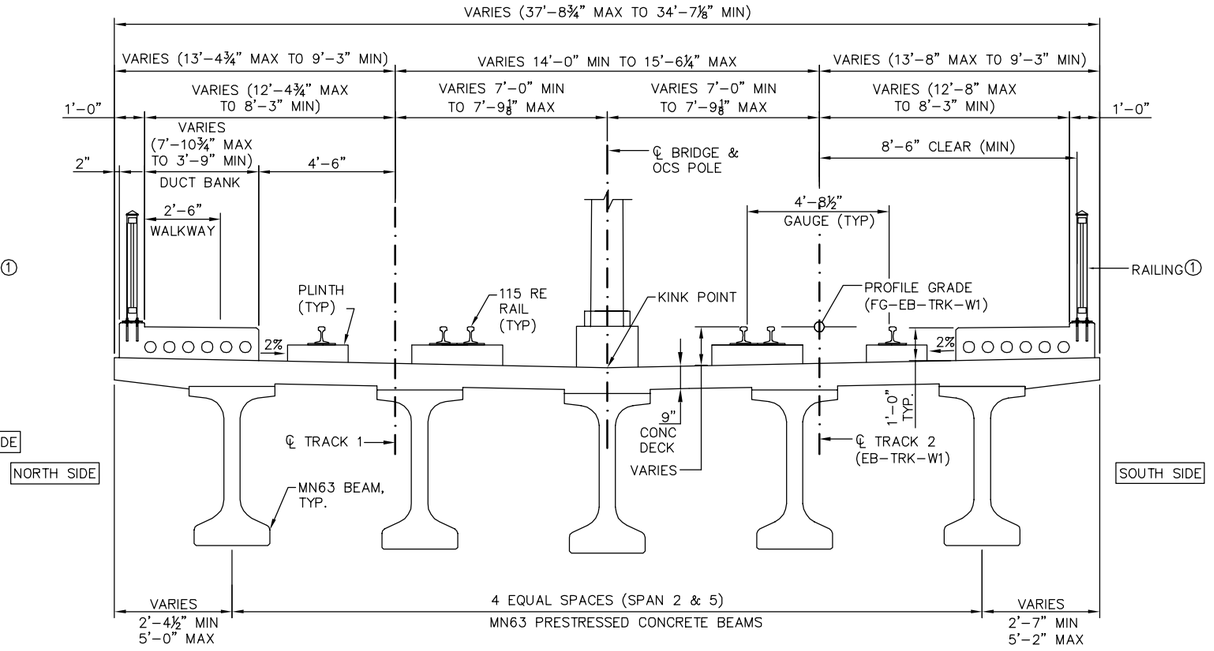
SHEET **43** OF **204**

Aug, 05 2014 07:12 am V:\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-FCVV-SUR2.dwg By: hills



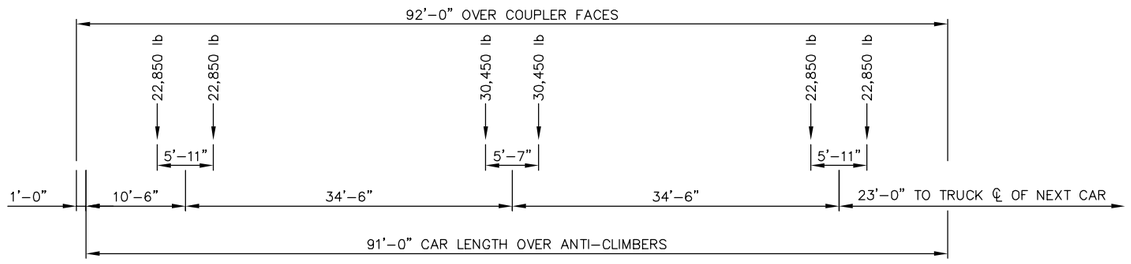
TRANSVERSE SECTION SPANS 1, 3, 4, 6 & 7

SCALE 0 2.5 5 IN FEET

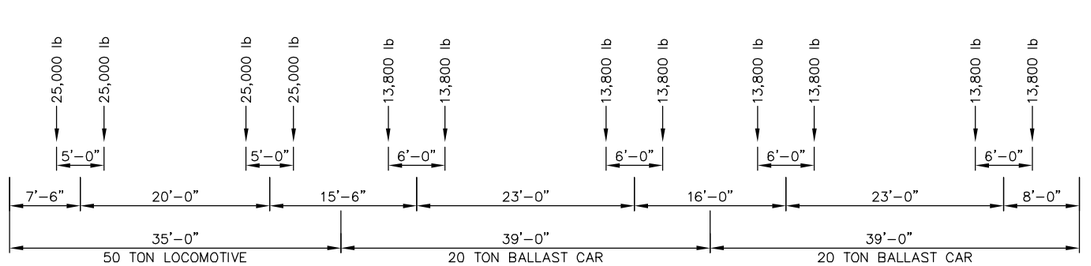


TRANSVERSE SECTION SPANS 2 & 5

SCALE 0 2.5 5 IN FEET



LIGHT RAIL VEHICLE LOADING DIAGRAM



MAINTENANCE TRAIN LOADING DIAGRAM

NOTES:

1. THE LRT TRAIN SHALL CONSIST OF EITHER ONE, TWO OR THREE CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.

NOTES:

① RAILING TO BE DETERMINED IN ADVANCED DESIGN.

2. NUMBER AND SPACING OF BEAMS IS APPROXIMATE AND WILL BE SET DURING FINAL DESIGN.

NOTES:

1. THE MAINTENANCE TRAIN SHALL CONSIST OF ONE LOCOMOTIVE AND ONE, TWO, THREE OR FOUR BALLAST CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.
2. WEIGHT OF EMPTY BALLAST CAR IS 15,000 POUNDS.

DES: DDL	DRA: SWH
CHK: EEM	CHK: JFE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
VALLEY VIEW ROAD
BRIDGE XXXXX (LRT)
TRANSVERSE SECTION & LOADING DIAGRAMS

DISCIPLINE: STRUCTURES

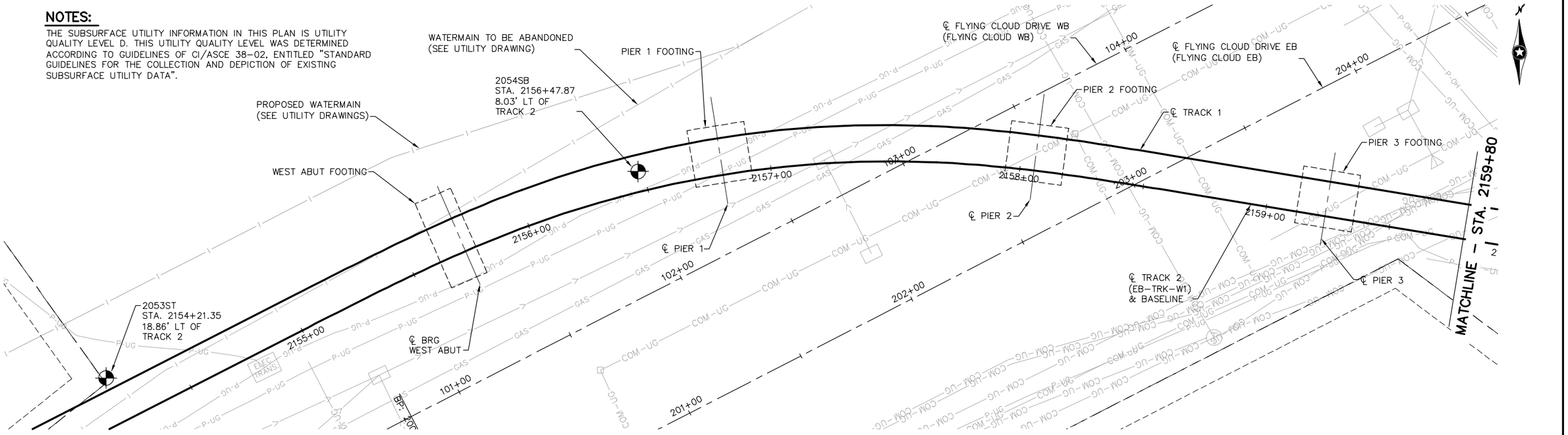
SHEET NAME: W1-STU-BRG-FCVV-TYP1

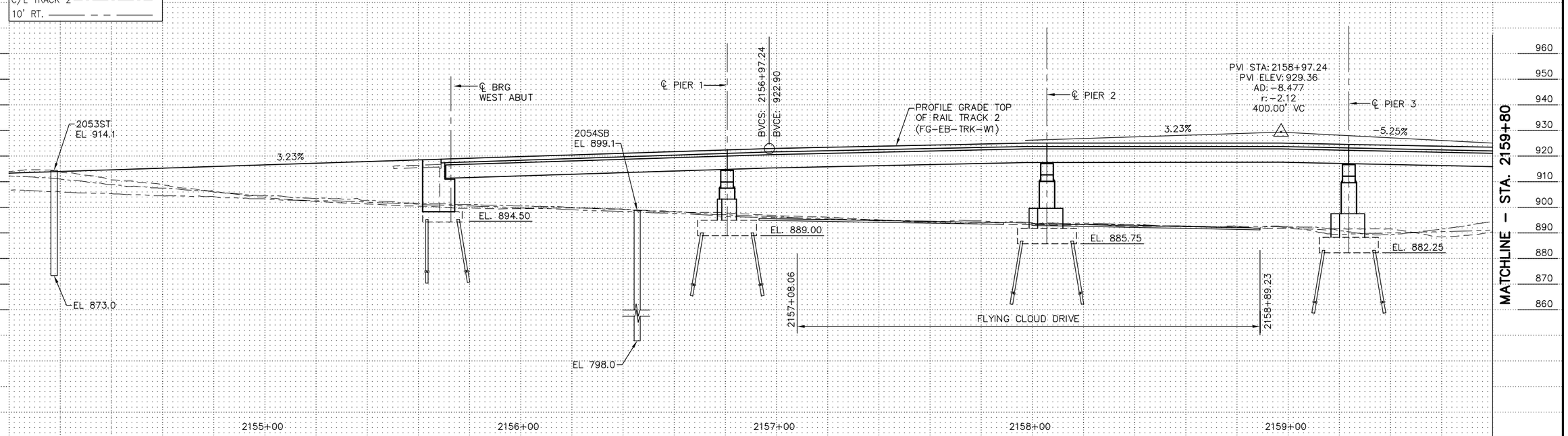
SHEET 44 OF 204

Aug. 27 2014 07:27 am V:\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-FCVV-TYP1.DWG By: hills

NOTES:

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".





NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

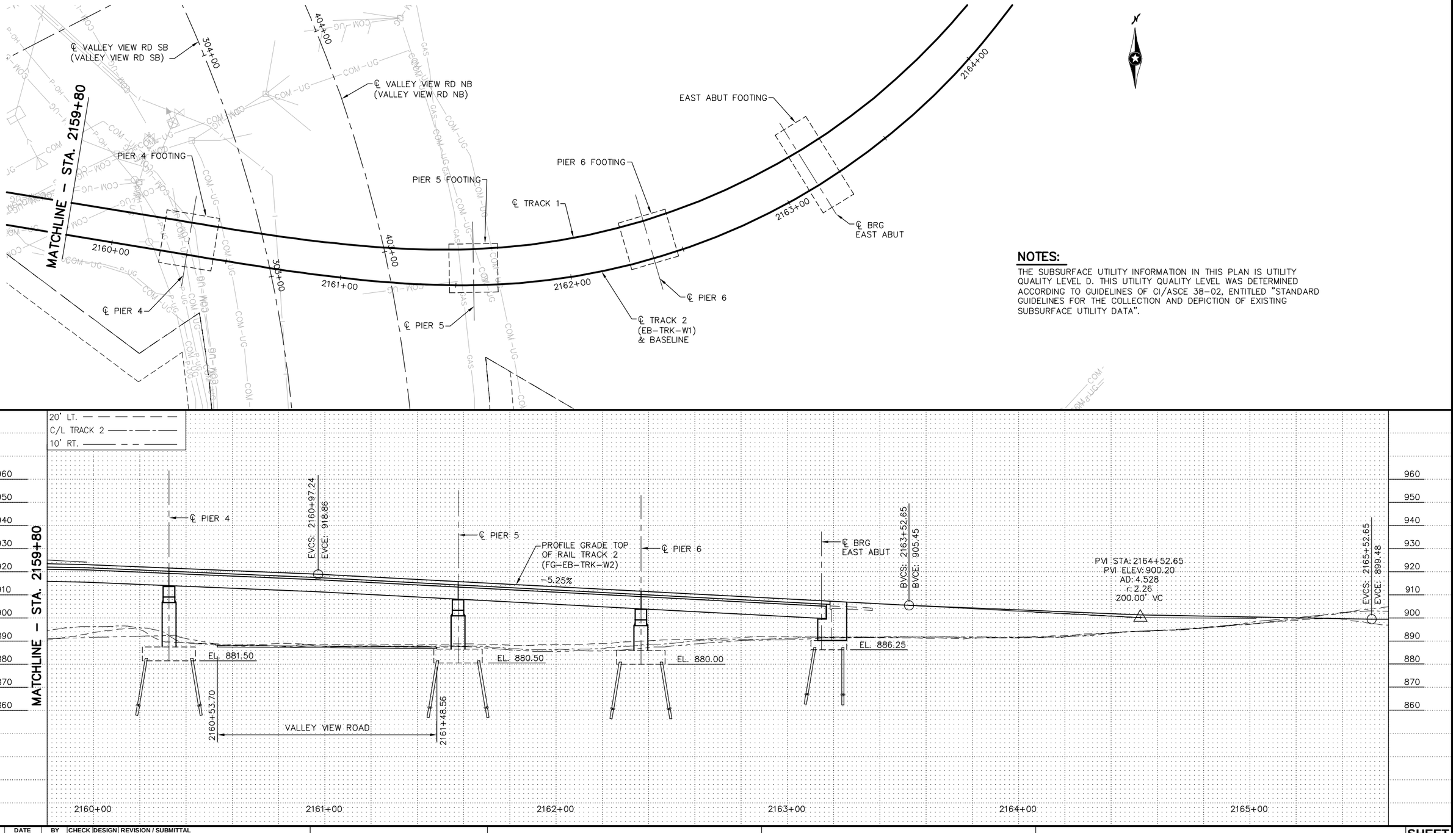
WEST - VOLUME 2 (STRUCTURES)
VALLEY VIEW ROAD
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-FCVV-SUR3

SHEET 45 OF 204

Aug. 27 2014 07:39 am V:\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-FCVV-SUR3.dwg By: hills



NOTES:

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38–02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
VALLEY VIEW ROAD
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-FCVV-SUR4

SHEET 46 OF 204

Aug. 05 2014 07:24 am V:\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-FCVV-SUR4.dwg By: hills

2053ST
Elevation 914.1

Coh N60		
		SANDY LEAN CLAY, trace roots, dark brown, wet.
13		SANDY LEAN CLAY, trace Gravel, brown, moist, stiff.
26		SILTY SAND, fine– to medium–grained, trace Gravel, brown, moist, medium dense. Sandy Lean Clay layer at 10 feet.
25		
27		
33		SANDY SILT, with occasional Silt lenses, brown, moist, dense.
31		
24		SILTY SAND, fine– to medium–grained, trace Gravel, brown, moist, medium dense. Sandy Lean Clay lenses at 35 feet.
33		
29		
28		
28		
25		
15		SANDY LEAN CLAY, trace Gravel, gray, wet, stiff.
		END OF BORING. Water not observed with 39 1/2 feet of hollow–stem auger in the ground. Boring immediately backfilled with bentonite grout. Bottom of Borehole at 41 ft

2054SB
Elevation 899.1

Coh N60		
		SILTY SAND, fine– to medium–grained, drak brown, moist.
38		SILTY SAND, fine– to medium–grained, with Gravel, with occasional Lean Clay lenses, brown, moist, medium dense.
15		
16		SILTY SAND, fine– to medium–grained, trace Gravel, brown to 20 feet then gray, moist, medium dense.
15		
16		
14		
17		
13		POORLY GRADED SAND, fine– to coarse–grained, with Gravel, brown, moist, medium dense to dense.
TW		
31		
36		
32		
24		
26		POORLY GRADED SAND, fine–grained, brown, moist, medium dense.
27		POORLY GRADED SAND, fine– to medium–grained, brown, moist to 56 feet then waterbearing, loose to dense.
8		
30		
29		
40		Coarse–grained at 50 feet.
32		
11		
23		
10		
25		
44		
42		
39		SILT, with fine Sand layers, gray, waterbearing, dense to very dense.
52		
54		
		END OF BORING. Water observed at 55 feet with 50 feet of hollow–stem auger in the ground. Boring immediately backfilled with bentonite grout. Bottom of Borehole at 101 ft

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

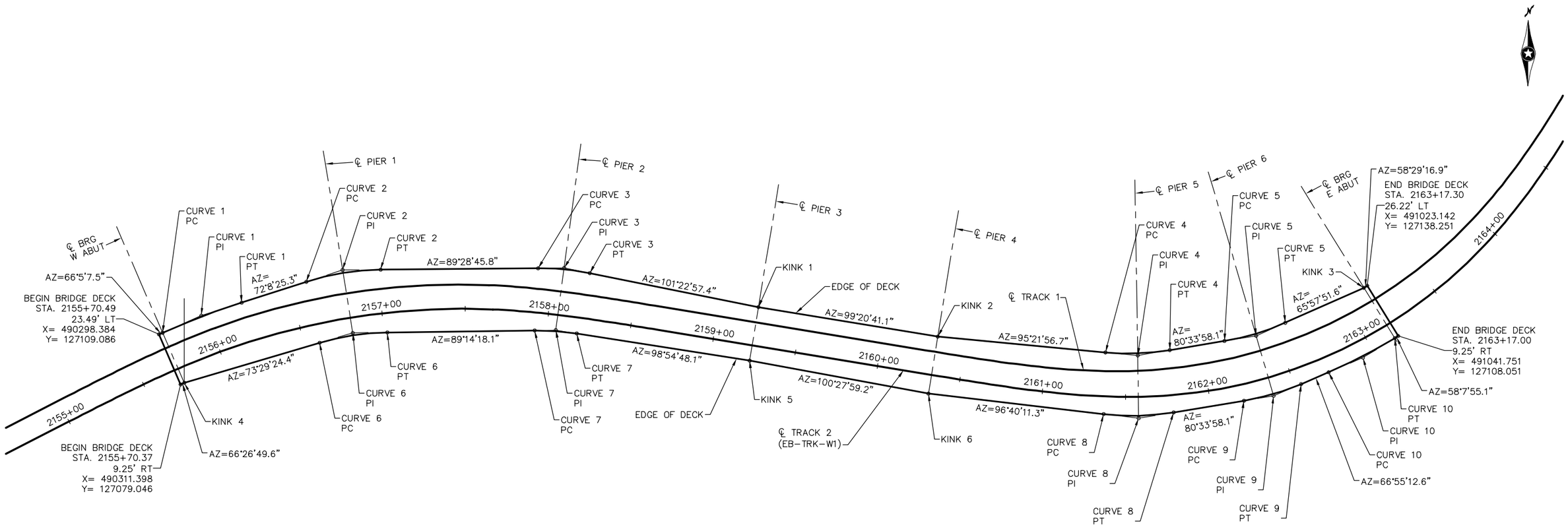
METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
VALLEY VIEW ROAD
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-FCVV-SUR5-BOR1

SHEET 47 OF 204



CURVE 1 RAD=480.41'			CURVE 2 RAD=150'			CURVE 3 RAD=150'			KINK 1	KINK 2	CURVE 4 RAD=150'			CURVE 5 RAD=150'			KINK 3
PC	PI	PT	PC	PI	PT	PC	PI	PT	KINK	KINK	PC	PI	PT	PC	PI	PT	KINK
STA. 2155+72.74	STA. 2155+96.96	STA. 2156+20.99	STA. 2156+59.43	STA. 2156+80.73	STA. 2157+02.03	STA. 2157+91.25	STA. 2158+06.12	STA. 2158+21.20	STA. 2159+23.74	STA. 2160+32.74	STA. 2161+36.86	STA. 2161+57.73	STA. 2161+78.86	STA. 2162+15.62	STA. 2162+36.74	STA. 2162+57.82	STA. 2163+14.74
23.50' LT	24.32' LT	23.83' LT	26.07' LT	28.95' LT	26.08' LT	26.55' LT	28.38' LT	27.30' LT	23.25' LT	23.25' LT	26.41' LT	24.85' LT	27.11' LT	27.69' LT	26.11' LT	28.03' LT	26.24' LT
X= 490300.517	X= 490323.744	X= 490347.928	X= 490386.740	X= 490408.510	X= 490431.380	X= 490525.826	X= 490541.463	X= 490556.793	X= 490658.033	X= 490765.586	X= 490866.148	X= 490885.544	X= 490904.762	X= 490937.583	X= 490956.541	X= 490974.083	X= 491021.153
Y= 127110.032	Y= 127120.332	Y= 127128.124	Y= 127140.630	Y= 127147.645	Y= 127147.852	Y= 127148.711	Y= 127148.853	Y= 127145.766	Y= 127125.385	Y= 127107.686	Y= 127098.241	Y= 127096.419	Y= 127099.612	Y= 127105.066	Y= 127108.216	Y= 127116.035	Y= 127137.031

KINK 4	CURVE 6 RAD=150'		CURVE 7 RAD=150'		KINK 5	KINK 6	CURVE 8 RAD=150'		CURVE 9 RAD=150'		CURVE 10 RAD=299.25'		
KINK 4	PC	PI	PT	PC	PI	PT	KINK	KINK	PC	PI	PT	PC	PI	PC
STA. 2155+72.74	STA. 2156+59.58	STA. 2156+80.74	STA. 2157+01.86	STA. 2157+92.80	STA. 2158+05.60	STA. 2158+18.45	STA. 2159+23.74	STA. 2160+32.74	STA. 2161+37.28	STA. 2161+57.74	STA. 2161+78.06	STA. 2162+19.49	STA. 2162+36.74	STA. 2162+53.98	STA. 2162+71.40	STA. 2162+93.09	STA. 2163+14.74
9.25' RT	11.38' RT	9.25' RT	11.77' RT	10.80' RT	9.25' RT	9.60' RT	9.25' RT	11.38' RT	10.63' RT	12.82' RT	10.33' RT	9.81' RT	11.40' RT	9.79' RT	9.25' RT	10.09' RT	9.25' RT
X= 490313.538	X= 490394.721	X= 490414.611	X= 490435.354	X= 490523.767	X= 490536.461	X= 490549.002	X= 490652.755	X= 490759.962	X= 490865.061	X= 490886.137	X= 490907.069	X= 490949.322	X= 490967.026	X= 490983.537	X= 491000.092	X= 491020.714	X= 491039.770
Y= 127079.977	Y= 127104.040	Y= 127109.935	Y= 127110.211	Y= 127111.387	Y= 127111.555	Y= 127109.588	Y= 127093.316	Y= 127073.512	Y= 127061.221	Y= 127058.757	Y= 127062.235	Y= 127069.255	Y= 127072.197	Y= 127079.233	Y= 127086.287	Y= 127095.074	Y= 127106.819

DECK LAYOUT

0 15 30 60

SCALE IN FEET

DES: DDL	DRA: SWH
CHK: JFE	CHK: JFE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

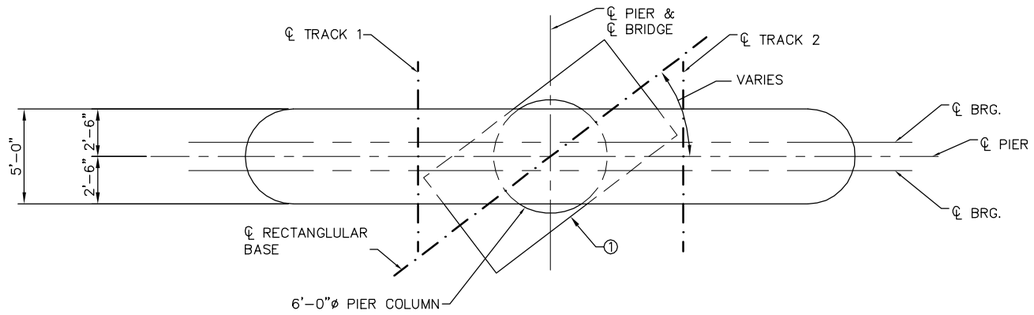
WEST - VOLUME 2 (STRUCTURES)
VALLEY VIEW ROAD
BRIDGE XXXXX (LRT)
DECK LAYOUT

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-FCVV-SUR6

SHEET 48 OF 204

Aug, 05 2014 07:31 am v:\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-FCVV-SUR6.dwg By: hills

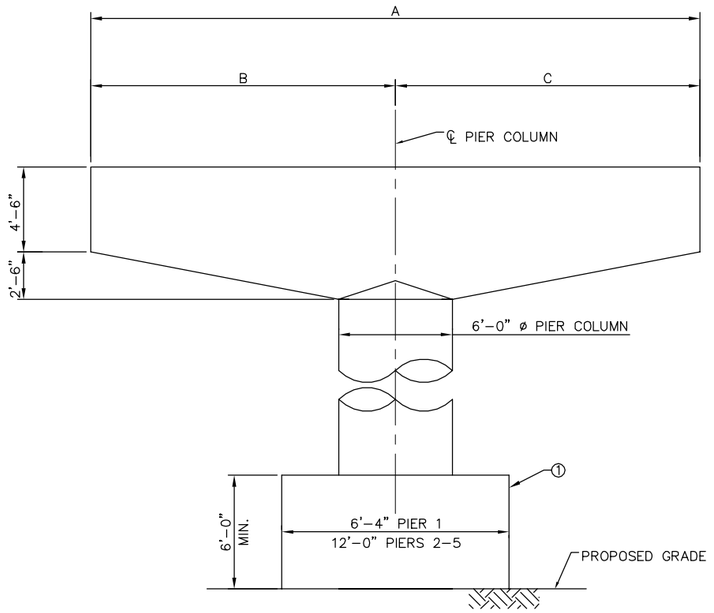


PIER PLAN

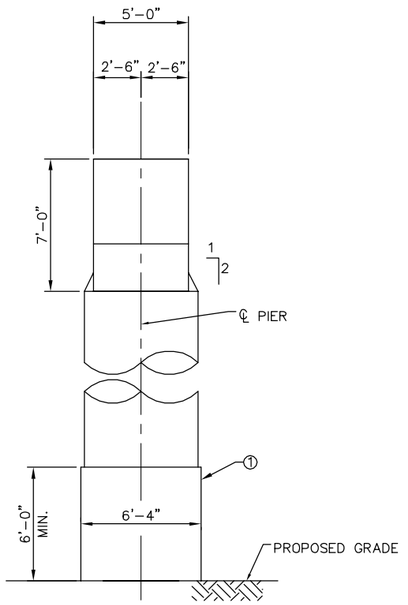
PIER CAP DIMENSIONS			
LOCATION	A	B	C
PIER 1	37'-6¾"	18'-9⅜"	18'-9⅜"
PIER 2	37'-0¼"	20'-3⅝"	16'-8⅝"
PIER 3	32'-2"	16'-1"	16'-1"
PIER 4	34'-3½"	17'-1¾"	17'-1¾"
PIER 5	37'-1¼"	18'-6⅝"	18'-6⅝"
PIER 6	37'-4"	18'-8"	18'-8"

AESTHETIC DETAILS TO BE DETERMINED DURING ADVANCED DESIGN:

1. ABUTMENT SURFACE
2. ABUTMENT/WAL CORNER DETAIL
3. EXPOSED EDGE OF DECK
4. EXPOSED BARRIER
5. EXPOSED FASCIA BEAM
6. BOTTOM OF BEAMS
7. PIER COLUMN SURFACE
8. RAILING



PIER ELEVATION



PIER SECTION

NOTES

① RECTANGULAR BASE REQUIRED AT PIER 1-5

DES: DDL	DRA: SWH
CHK: EEM	CHK: JFE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST

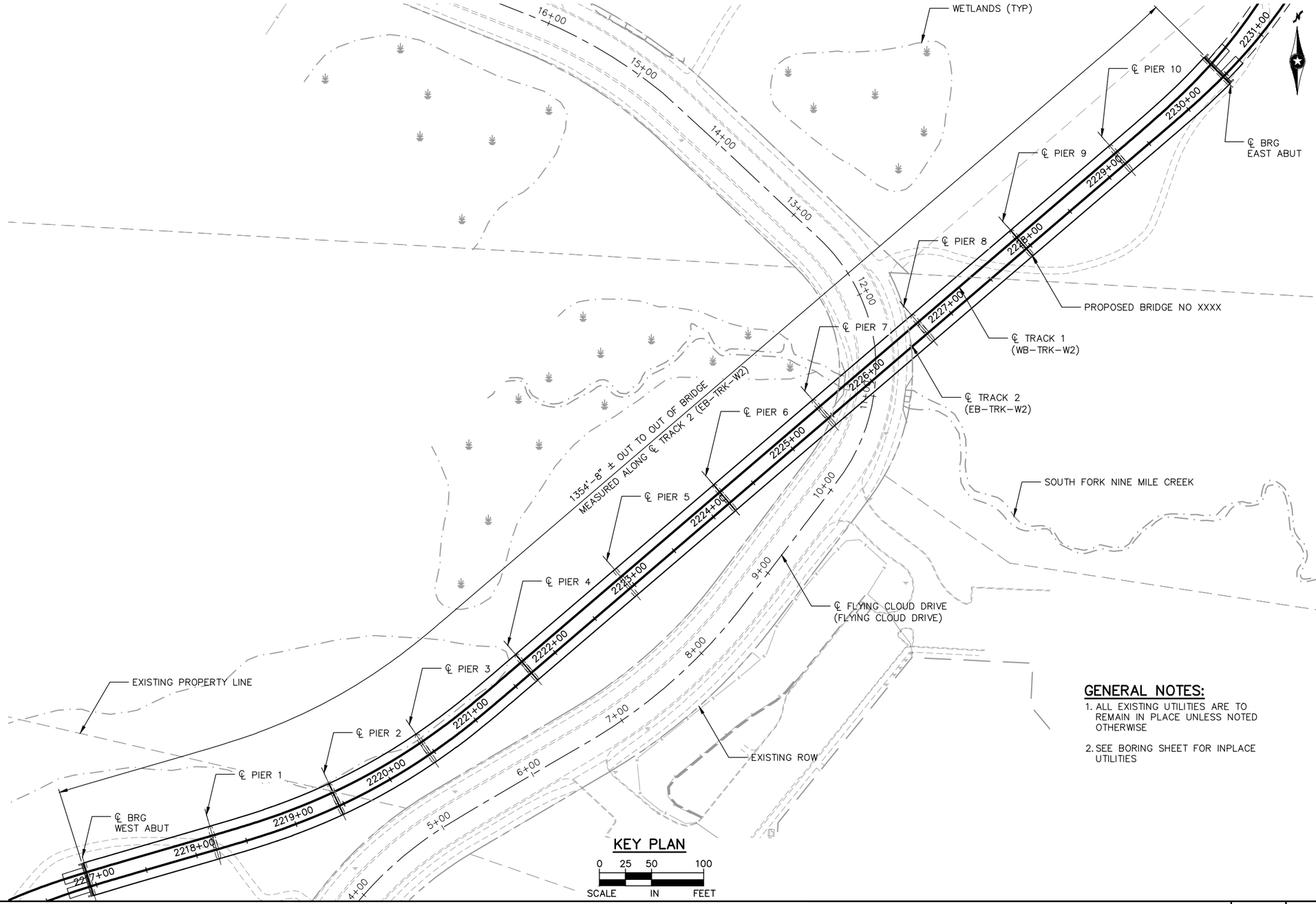
WEST - VOLUME 2 (STRUCTURES)
VALLEY VIEW ROAD
BRIDGE XXXXX (LRT)
AESTHETIC DETAILS

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-BRG-FCVV-AES1

SHEET 49 OF 204

Aug. 27 2014 08:29 am V:\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-BRG-FCVV-AES1.dwg By: hills



KEY PLAN

SCALE 0 25 50 100 IN FEET

GENERAL NOTES:

1. ALL EXISTING UTILITIES ARE TO REMAIN IN PLACE UNLESS NOTED OTHERWISE
2. SEE BORING SHEET FOR INPLACE UTILITIES

DESIGN DATA

2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
6TH EDITION AND CURRENT INTERIMS

SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA
(REVISION 2.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD

LRV & MV LOAD DIAGRAM SHOWN ON SHEET 55

MATERIAL DESIGN PROPERTIES:
- REINFORCED CONCRETE:
  - f'c = 4000 PSI, n = 8
  - fy = 60000 PSI
- PRESTRESSED CONCRETE:
  - f'c = 9000 PSI, n = 1
  - fpu = 270 KSI
  - 0.6" DIAMETER LOW RELAXATION STRANDS
  - 0.75 fpu FOR INITIAL PRESTRESS

DESIGN SPEED: OVER = 25/55 MPH (LRT)
UNDER = 30 MPH

APPROXIMATE DECK AREA: 44,000 SQ FT

LIST OF SHEETS

PROPOSED TYPE OF STRUCTURE

DECK:
- MN63 PRESTRESSED CONCRETE BEAMS (SIMPLE SPANS) WITH 9" CAST–IN–PLACE CONCRETE DECK
- ALL BARS EPOXY COATED
- DIRECT FIXATION TRACK

SUBSTRUCTURE:
- PARAPET ABUTMENTS SUPPORTED ON 12" CIP CONCRETE PILES
- HAMMERHEAD PIERS SUPPORTED ON 16" CIP CONCRETE PILES

DEPTH OF STRUCTURE:
- ±7'–8" TOP OF LOW RAIL TO LOW BRIDGE
- 4± BEAM LINES

AESTHETICS:
- TO BE DETERMINED

PRELIMINARY PLAN
BRIDGE NO. XXXXX

SOUTHWEST LIGHT RAIL OVER FLYING CLOUD DRIVE
0.5 MI NORTHEAST OF THE INTERSECTION OF TH 212 AND VALLEY VIEW ROAD IN EDEN PRAIRIE
105' & 125' PRESTRESSED CONCRETE BEAM SPANS
32'–6" RAILWAY
0°–0'–0" SKEW

BRIDGE ID NO 501

KEY PLAN

SEC 12 T 116N R 22W
CITY OF EDEN PRAIRIE HENNEPIN COUNTY

APPROVED: _____ STATE BRIDGE ENGINEER DATE

JOB NO: T9N635 STATE PROJECT NO: 9909–01 MNDOT REVIEW:

DES: AAM	DRA: BR
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

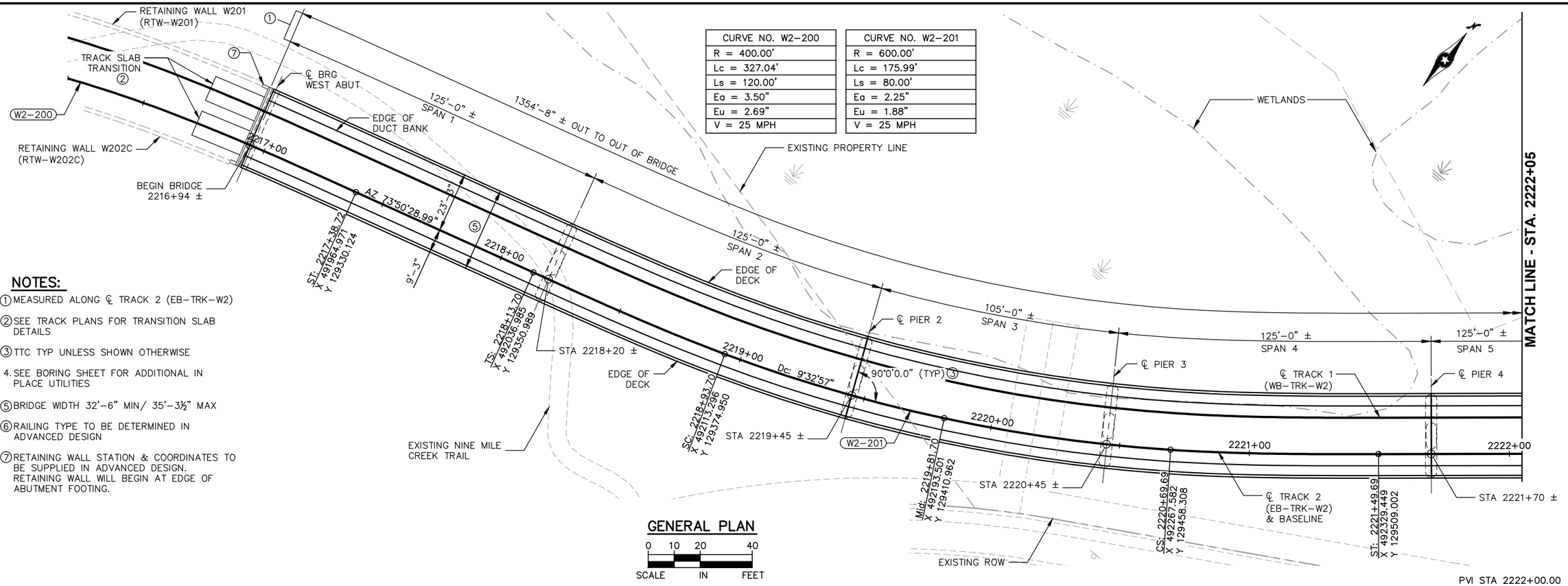
WEST - VOLUME 2 (STRUCTURES)
NINE MILE CREEK
BRIDGE XXXXX (LRT)
KEY PLAN

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRID-NMCK-LRT-GEN

SHEET 50 OF 204

Aug. 27 2014 09:00 pm V:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-NMCK.dwg By: rieckmanb



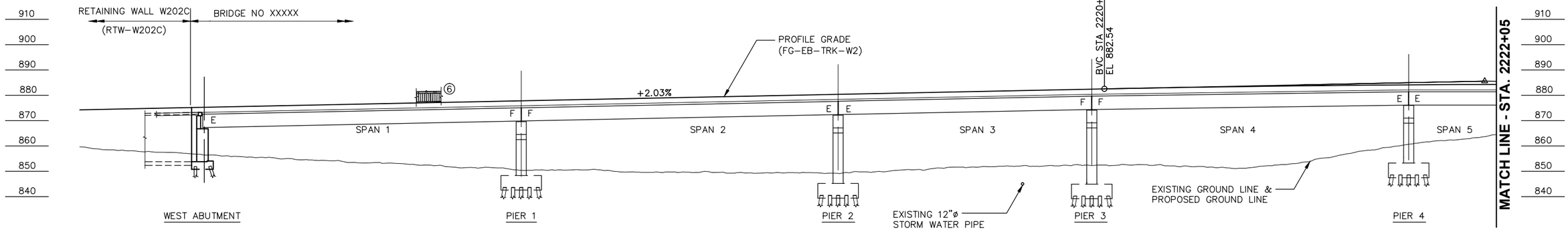
NOTES:

1. MEASURED ALONG ℄ TRACK 2 (EB–TRK–W2)
2. SEE TRACK PLANS FOR TRANSITION SLAB DETAILS
3. TTC TYP UNLESS SHOWN OTHERWISE
4. SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES
5. BRIDGE WIDTH 32'–6" MIN/ 35'–3½" MAX
6. RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN
7. RETAINING WALL STATION & COORDINATES TO BE SUPPLIED IN ADVANCED DESIGN. RETAINING WALL WILL BEGIN AT EDGE OF ABUTMENT FOOTING.

GENERAL PLAN

0 10 20 40
SCALE IN FEET

PVI STA 2222+00.00
PVI ELEV 885.59
300.00' VC
G1: +2.03%
G2: –1.35%
M: –1.268



GENERAL ELEVATION

0 10 20 40
SCALE IN FEET

DES: AAM	DRA: BR
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

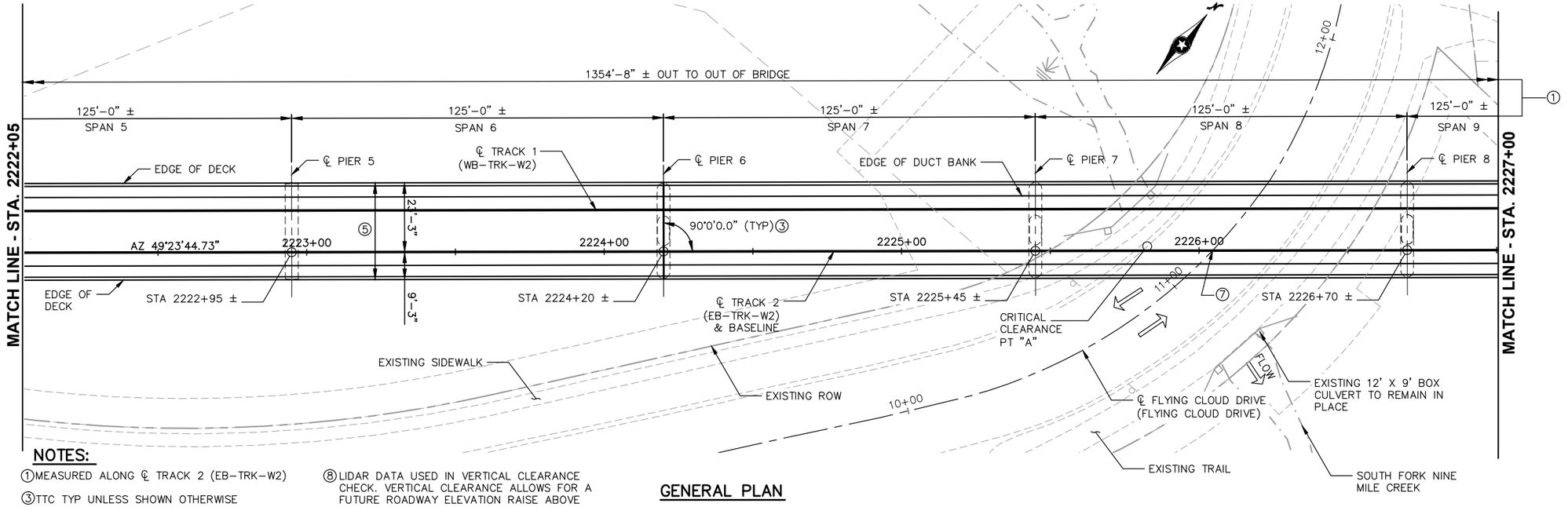
WEST - VOLUME 2 (STRUCTURES)
NINE MILE CREEK
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRID-NMCK-LRT-GPE-001

SHEET 51 OF 204

Aug, 27 2014 09:01 pm v:\3200_PEC–W\CAD\SEGMENT–W2\SHEET\STRUCTURES\W2–STU–BRG–NMCK.dwg By: rieckmanb

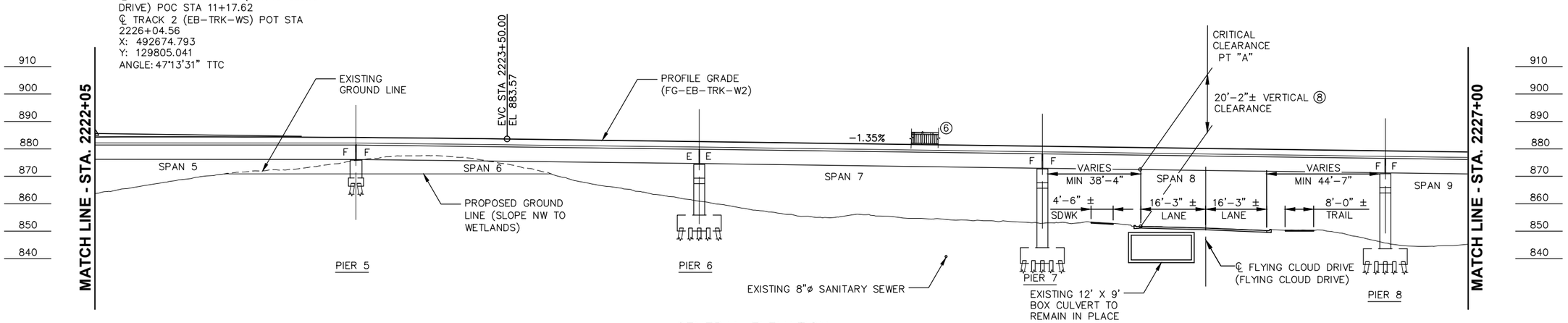


NOTES:

1. ①MEASURED ALONG ℄ TRACK 2 (EB-TRK-W2)
2. ③TTC TYP UNLESS SHOWN OTHERWISE
3. 4.SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES
4. ⑤BRIDGE WIDTH 32'-6" (SPANS 5-10)
5. ⑥RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN
6. ⑦CONTROL POINT
   ℄ FLYING CLOUD DRIVE (FLYING CLOUD DRIVE) POC STA 11+17.62
   ℄ TRACK 2 (EB-TRK-WS) POT STA 2226+04.56
   X: 492674.793
   Y: 129805.041
   ANGLE: 47°13'31" TTC
7. ⑧LIDAR DATA USED IN VERTICAL CLEARANCE CHECK. VERTICAL CLEARANCE ALLOWS FOR A FUTURE ROADWAY ELEVATION RAISE ABOVE THE 100 YEAR HWL. POTENTIAL OPPORTUNITY TO LOWER PROFILE AND DELETE SPAN 11 WILL BE ADDRESSED IN ADVANCED DESIGN.

GENERAL PLAN

0 10 20 40
SCALE IN FEET



GENERAL ELEVATION

0 10 20 40
SCALE IN FEET

DES: AAM	DRA: BR
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

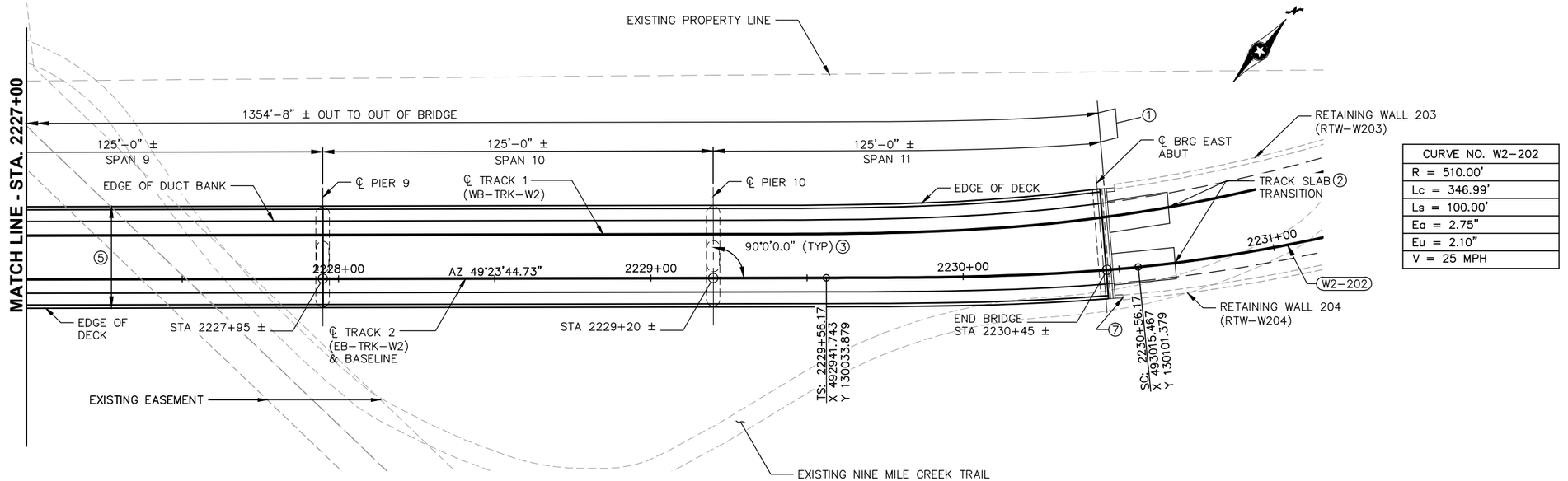
WEST - VOLUME 2 (STRUCTURES)
NINE MILE CREEK
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRID-NMCK-LRT-GPE-002

SHEET 52 OF 204

Aug. 27 2014 09:01 pm V:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-NMCK.dwg By: rieckmanb



GENERAL PLAN

SCALE 0 10 20 40 IN FEET

CURVE NO. W2-202
R = 510.00'
Lc = 346.99'
Ls = 100.00'
Ea = 2.75"
Eu = 2.10"
V = 25 MPH

NOTES:

①MEASURED ALONG ℄ TRACK 2 (EB-TRK-W2)

②SEE TRACK PLANS FOR TRANSITION SLAB DETAILS

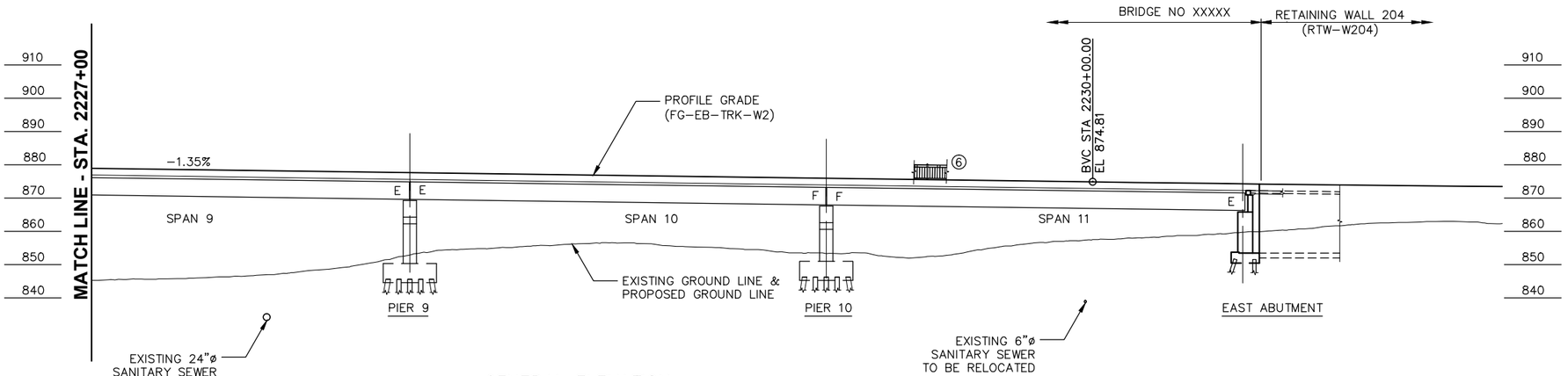
③TTC TYP UNLESS SHOWN OTHERWISE

4.SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES

⑤BRIDGE WIDTH 32'-6" MIN/ 35'-3½" MAX

⑥RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN

⑦RETAINING WALL STATION & COORDINATES TO BE SUPPLIED IN ADVANCED DESIGN. RETAINING WALL WILL BEGIN AT EDGE OF ABUTMENT FOOTING.



GENERAL ELEVATION

SCALE 0 10 20 40 IN FEET

DES: AAM	DRA: BR
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
NINE MILE CREEK
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRID-NMCK-LRT-GPE-003

SHEET 53 OF 204

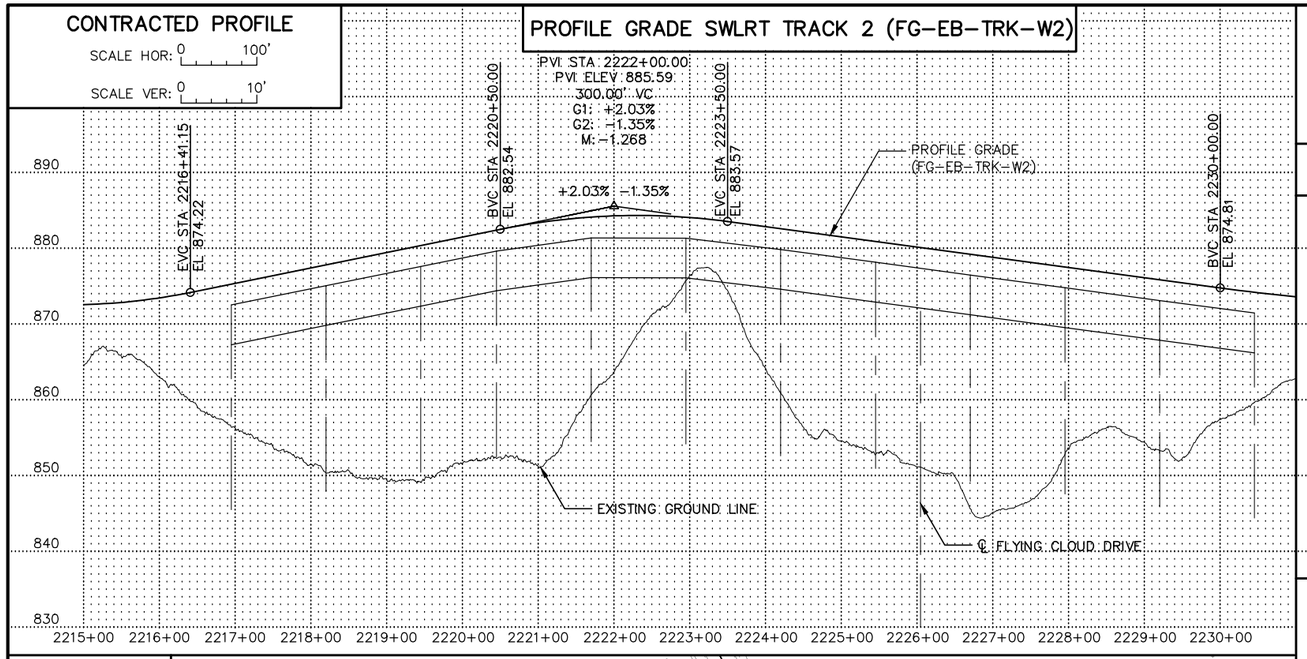
Aug. 27 2014 09:02 pm v:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-NMCK.dwg By: rieckmanb

CONTRACTED PROFILE

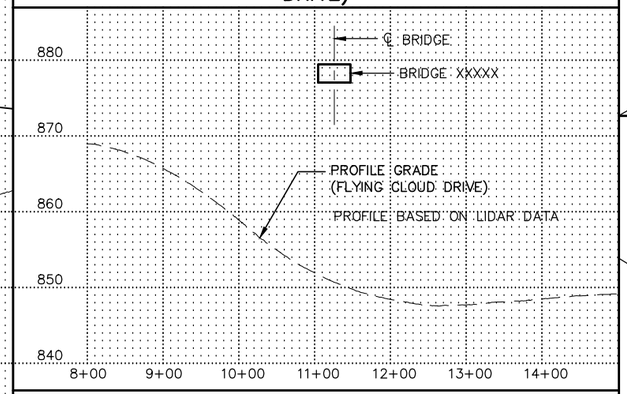
SCALE HOR: 0 100'

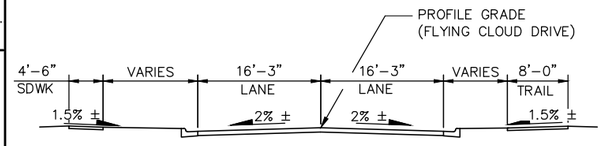
SCALE VER: 0 10'

PROFILE GRADE SWLRT TRACK 2 (FG-EB-TRK-W2)



PROFILE GRADE FLYING CLOUD DRIVE (FLYING CLOUD DRIVE)





EXISTING TYPICAL APPROACH SECTION FLYING CLOUD DRIVE

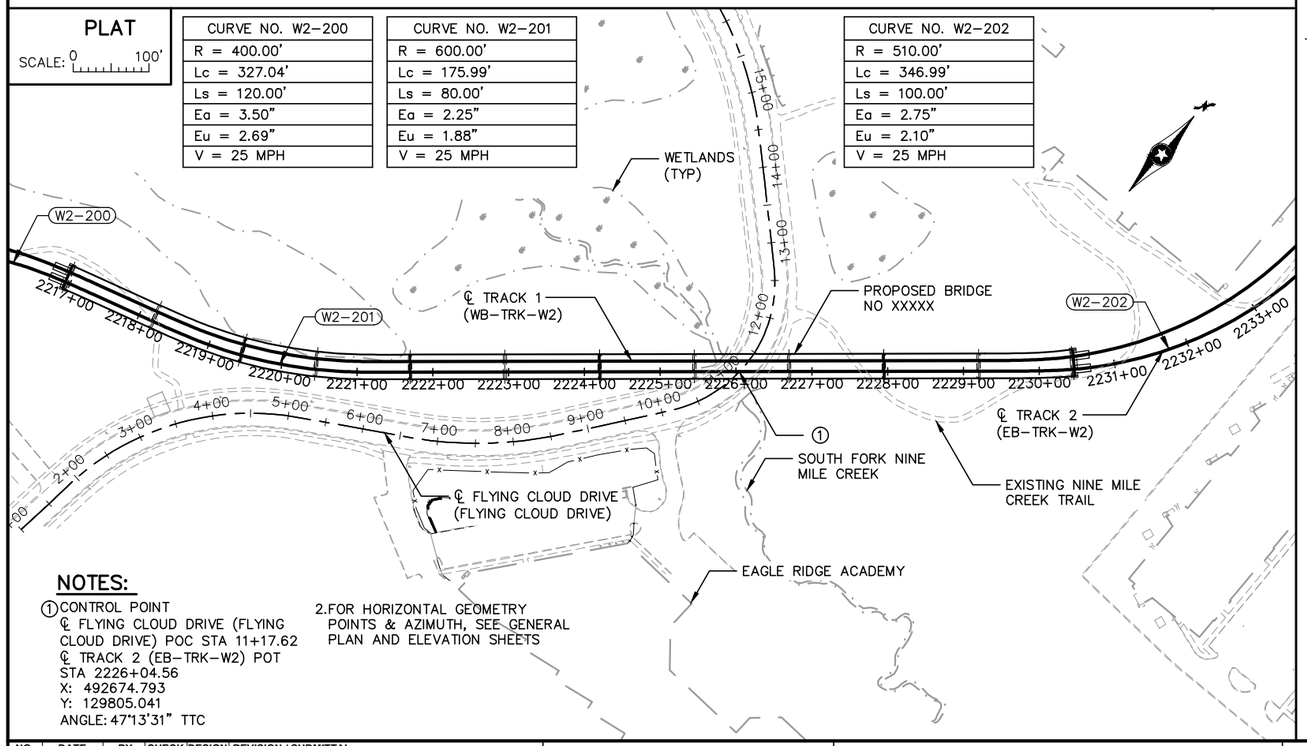
PLAT

SCALE: 0 100'

CURVE NO. W2-200
R = 400.00'
Lc = 327.04'
Ls = 120.00'
Ea = 3.50"
Eu = 2.69"
V = 25 MPH

CURVE NO. W2-201
R = 600.00'
Lc = 175.99'
Ls = 80.00'
Ea = 2.25"
Eu = 1.88"
V = 25 MPH

CURVE NO. W2-202
R = 510.00'
Lc = 346.99'
Ls = 100.00'
Ea = 2.75"
Eu = 2.10"
V = 25 MPH



NOTES:

1. CONTROL POINT
   ℄ FLYING CLOUD DRIVE (FLYING CLOUD DRIVE) POC STA 11+17.62
   ℄ TRACK 2 (EB-TRK-W2) POT
   STA 2226+04.56
   X: 492674.793
   Y: 129805.041
   ANGLE: 47°13'31" TTC
2. FOR HORIZONTAL GEOMETRY POINTS & AZIMUTH, SEE GENERAL PLAN AND ELEVATION SHEETS

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
2. OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION,TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS-SECTIONAL AREA ETC.
3. APPARENT HIGHWATER ELEVATION _____ OBTAINED FROM:
4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE: 06-06-2014

STREAM OR DITCH DESIGNATION: SOUTH FORK NINE MILE CREEK

STRUCTURE NOT BEING REPLACED NO DESIGN REQUIRED

100-YEAR FLOOD ELEVATION: 847.04 FT

MAXIMUM OBSERVED HIGHWATER ELEVATION: XXX.X FT.

DESIGN FLOOD (XX TR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
DESIGN MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.
TOTAL STAGE INCREASE: XX FT.
LOW MEMBER AT OR ABOVE ELEVATION: XXX.X FT

WATERWAY AREA REQUIRED BELOW ELEV. XXX.X = XXX SQ. FT. AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
TOTAL STAGE INCREASE: X.X FT.
MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.

FLOWLINE ELEVATION: XXX FT. SKEW ANGLE: XX

ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. XXX.X (500 OR OT YR. FREQ.)

SCOUR CONFIRMATION RECOMMENDATION

DATE: XX-XX-XXXX

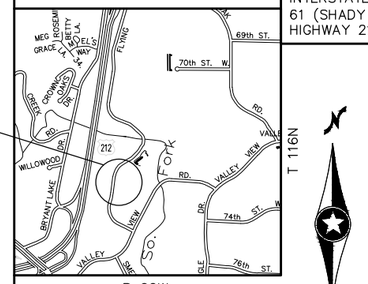
TOTAL SCOUR AT PIER EL. XXX.XX (500 OR OT YR. FREQ.)
SCOUR CODE: OBTAIN FROM HYDRAULIC ENGINEER

BRIDGE SURVEY = SHEETS MADE FROM SURVEY AND PHOTOGRAMMETRIC MAPPING

MnDOT NAME: 2763A1 BENCH MARK ELEVATION 888.994 FEET (NAVD88) LOCATION STAMPED 2763 A 1 1979 – IN EDEN PRAIRIE, 0.5 MILE NORTH OF JUNCTION OF TRUNK HIGHWAY 212 AND INTERSTATE HIGHWAY 494, IN NORTHEAST CORNER OF VALLEY VIEW ROAD, BRIDGE NUMBER 27087 OVER TRUNK HIGHWAY 212, AT TRUNK HIGHWAY 212 MILEPOINT 159.9.

2ND MnDOT NAME: 2763C1 BENCH MARK ELEVATION 899.073 FEET (NAVD88) LOCATION STAMPED 2763 C 1 1979 – IN EDEN PRAIRIE, 1.6 MILES NORTH OF JUNCTION OF TRUNK HIGHWAY 212 AND INTERSTATE HIGHWAY 494, IN SOUTHEAST CORNER OF COUNTY ROAD 61 (SHADY OAK ROAD) BRIDGE NUMBER 27089 OVER TRUNK HIGHWAY 212, AT TRUNK HIGHWAY 212 MILEPOINT 120.3.

INDEX MAP (ONE SQ MILE)



BRIDGE SURVEY

0.5 MI NORTHEAST OF THE INTERSECTION OF TH 212 AND VALLEY VIEW ROAD IN EDEN PRAIRIE

SOUTHWEST LIGHT RAIL OVER FLYING CLOUD DRIVE

SEC 12 T 116N R 22W

CITY OF EDEN PRAIRIE HENNEPIN COUNTY

BRIDGE XXXXX

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

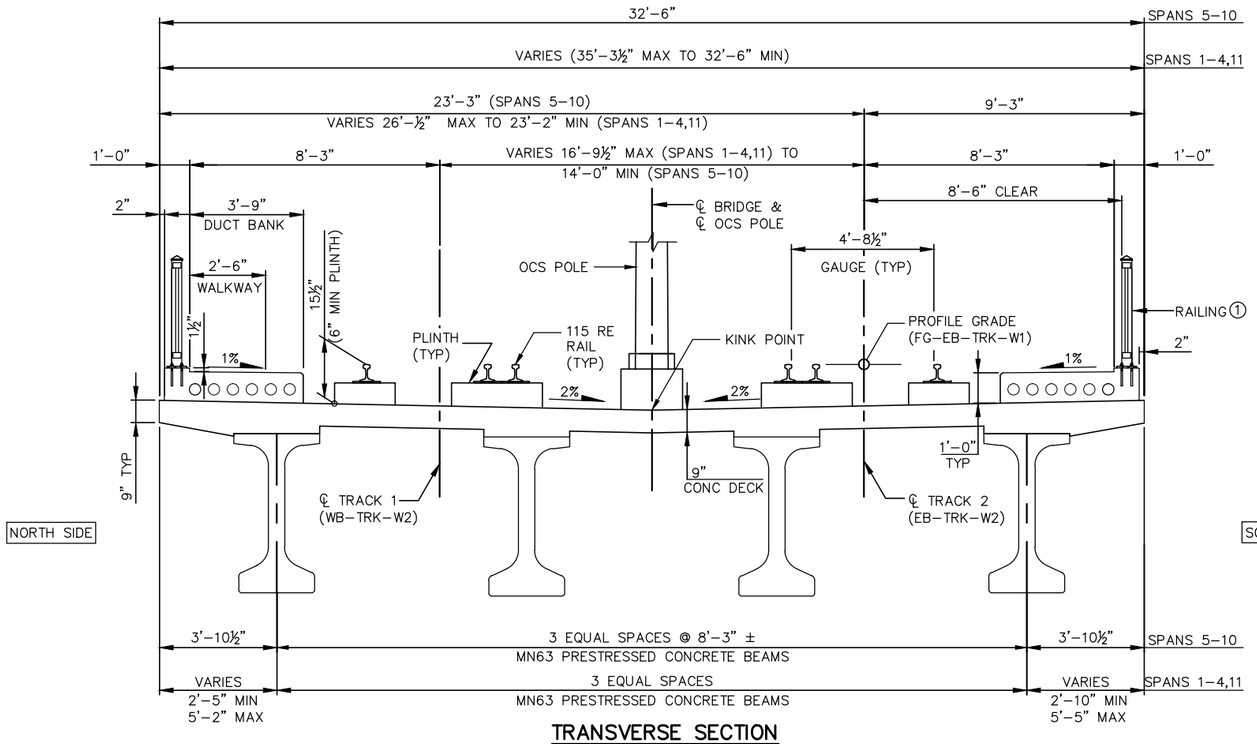
SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
NINE MILE CREEK
BRIDGE XXXXX (LRT)
BRIDGE SURVEY

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRID-NMCK-LRT-SUR

SHEET 54 OF 204



TRANSVERSE SECTION

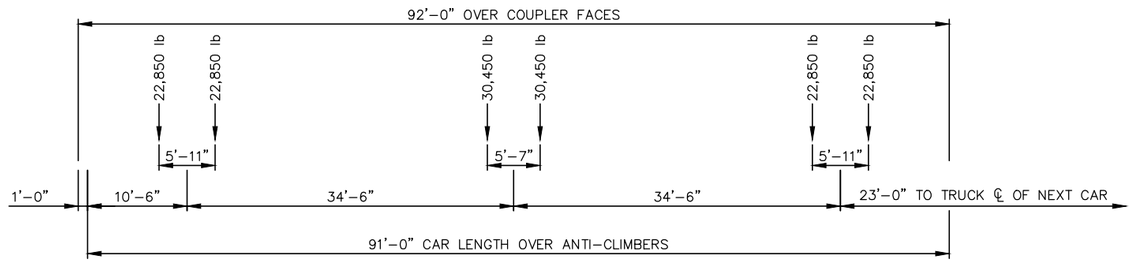
0 1 2.5 5

SCALE IN FEET

NOTES:

① RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN

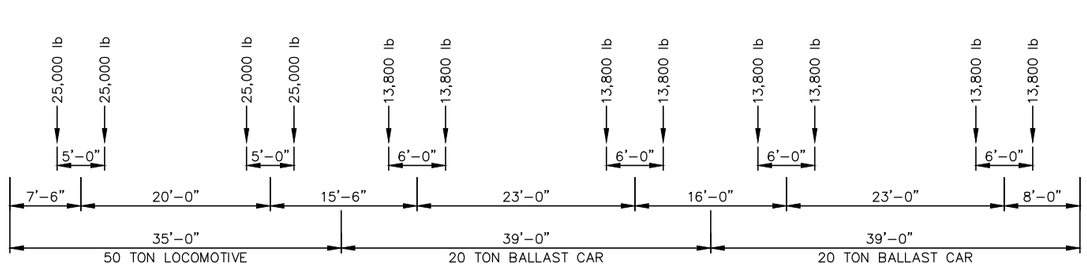
2. NUMBER AND SPACING OF BEAMS IS APPROXIMATE AND WILL BE SET DURING ADVANCED DESIGN



LIGHT RAIL VEHICLE LOADING DIAGRAM

NOTES:

1. THE LRT TRAIN SHALL CONSIST OF EITHER ONE, TWO OR THREE CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.



MAINTENANCE TRAIN LOADING DIAGRAM

NOTES:

1. THE MAINTENANCE TRAIN SHALL CONSIST OF ONE LOCOMOTIVE AND ONE, TWO, THREE OR FOUR BALLAST CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.

2. WEIGHT OF EMPTY BALLAST CAR IS 15,000 POUNDS.

DES: AAM	DRA: BR
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

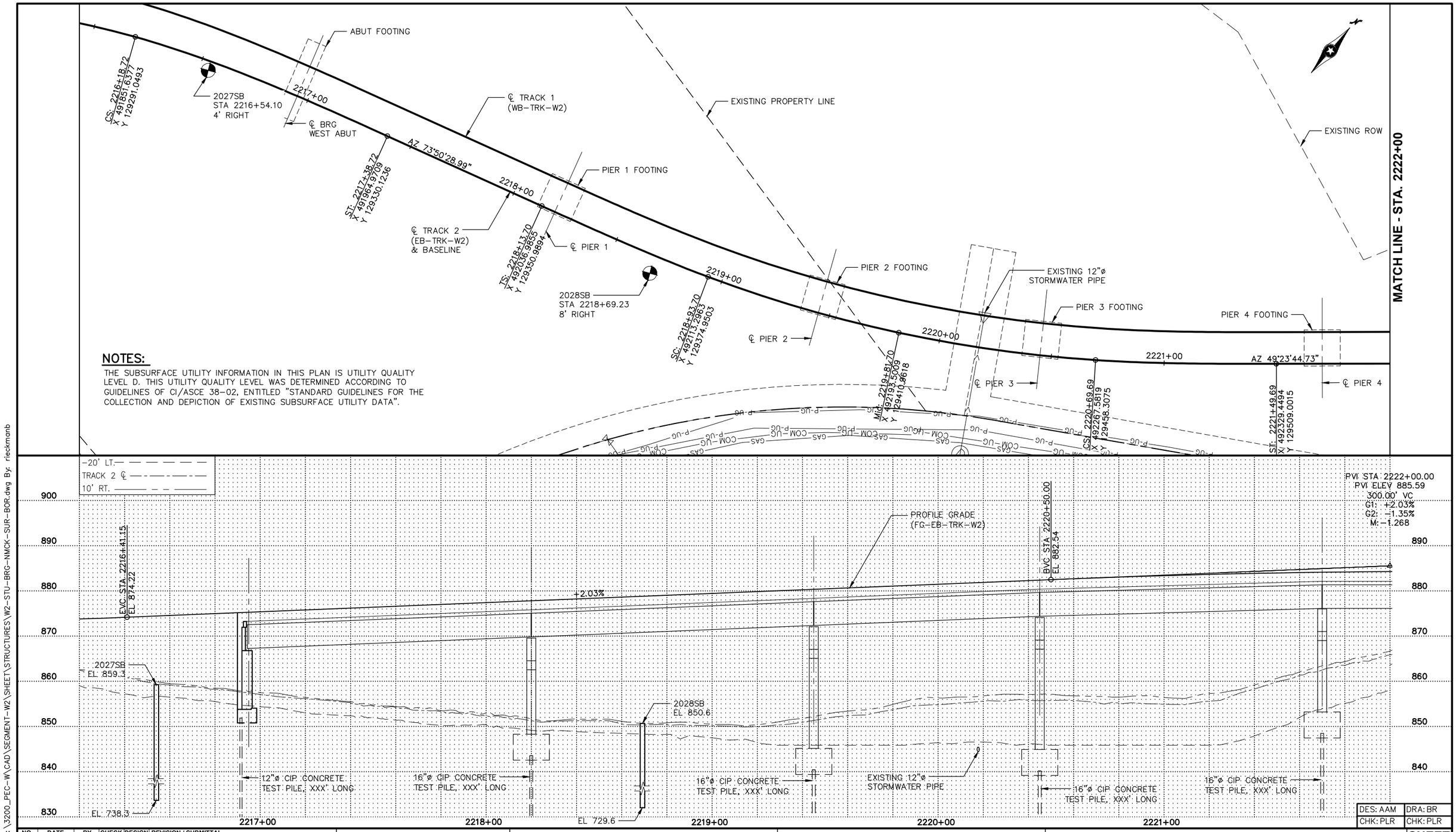
SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
NINE MILE CREEK
BRIDGE XXXXX (LRT)
TRANSVERSE SECTION & LOADING DIAGRAMS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRID-NMCK-LRT-SUP

SHEET 55 OF 204



NOTES:

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38–02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DES: AAM | DRA: BR | CHK: PLR | CHK: PLR

PRELIMINARY ENGINEERING

WEST - VOLUME 2 (STRUCTURES)
NINE MILE CREEK
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

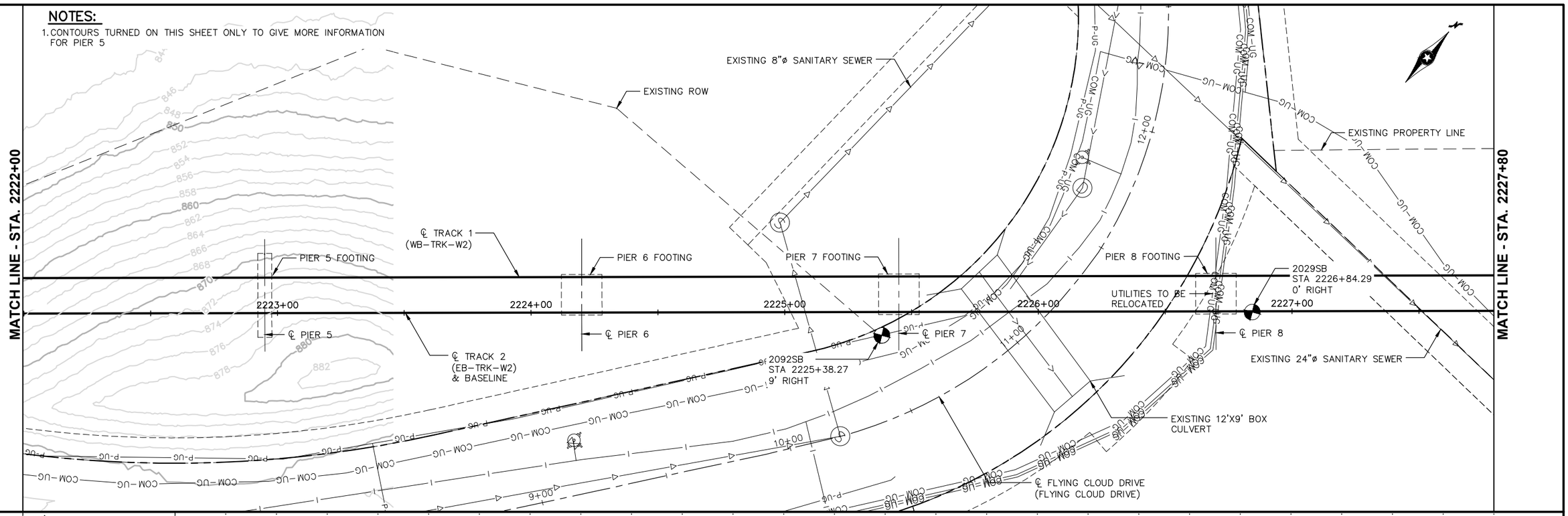
SHEET NAME: W2-STU-BRID-NMCK-LRT-SUR-BOR-001

SHEET 56 OF 204

Aug. 27 2014 09:06 pm V:\3200_PEC–W\CAD\SEGMENT–W2\SHEET\STRUCTURES\W2–STU–BRG–NMCK–SUR–BOR.dwg By: rieckmanb

NOTES:

1. CONTOURS TURNED ON THIS SHEET ONLY TO GIVE MORE INFORMATION FOR PIER 5



DES: AAM	DRA: BR
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
NINE MILE CREEK
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRID-NMCK-LRT-SUR-BOR-002

SHEET 57 OF 204

Aug. 27 2014 09:06 pm V:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-NMCK-SUR-BOR.dwg By: rieckmanb

MATCH LINE - STA. 2227+80

EXISTING PROPERTY LINE

PROPOSED SANITARY SEWER

EXISTING 6"ø SANITARY SEWER TO BE RELOCATED

EAST ABUT FOOTING

℄ TRACK 1 (WB–TRK–W2)

PIER 9 FOOTING

PIER 10 FOOTING

2228+00

2229+00

2230+00

2231+00

2232+00

2233+00

℄ PIER 9

℄ PIER 10

℄ BRG EAST ABUT

℄ TRACK 2 (EB–TRK–W2) & BASELINE

2030SB
STA 2227+91.81
12' RIGHT

TS: 2229+56.17
X 492941.7427
Y 130033.8790

SC: 2230+56.17
X 493015.4666
Y 130101.3790

Mid: 2232+29.96
X 493112.0981
Y 130244.4650

EXISTING ROW

COM–UG

GAS

-20' LT.
TRACK 2 ℄
10' RT.

PVI STA 2231+00.00
PVI ELEV 873.47
200.00' VC
G1: -1.35%
G2: -0.70%
M: 0.162

BVC STA 2230+00.00
EL. 874.81

EVC STA 2232+00.00
EL. 872.77

PROFILE GRADE (FG–EB–TRK–W2)

-0.70%

2030SB
EL. 846.2

16"ø CIP CONCRETE TEST PILE, XXX' LONG

EL. 745.2

16"ø CIP CONCRETE TEST PILE, XXX' LONG

12"ø CIP CONCRETE TEST PILE, XXX' LONG

EXISTING 6"ø SANITARY SEWER TO BE RELOCATED

900
890
880
870
860
850
840
830

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
NINE MILE CREEK
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRID-NMCK-LRT-SUR-BOR-003

DES: AAM | DRA: BR | CHK: PLR | CHK: PLR

SHEET 58 OF 204

Aug. 27 2014 09:06 pm V:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-NMCK-SUR-BOR.dwg By: rieckmanb

2027 SB
Elevation 859.3

Coh	N60	
	23	LEAN CLAY, brown, moist.
	11	FILL: Clayey Sand, fine- to medium-grained, with Gravel, brown, moist to wet.
	6	FILL: Clayey Sand, fine- to medium-grained, trace Gravel, brown, wet.
	10	
	2	Sand lenses at 12 feet.
	4	FILL: Poorly Graded Sand with Silt, fine- to medium-grained, with Lean
	2	Clay lenses at 15 feet, gray, waterbearing.
	3	PEAT, with fibers and roots, black, wet.
	TW	
	5	Trace of fibers at 25 feet, Occasional Sand lenses.
	6	ORGANIC LEAN CLAY, with fibers and shells, black, wet.
	6	
	5	
	TW	
	6	
	3	
	5	Occasional layers of Peat.
	13	SILTY SAND, fine- to medium-grained, trace Gravel, gray, waterbearing.
	7	SILT, trace roots and organics, gray, waterbearing.
	22	SILTY SAND, fine- to medium-grained, with Gravel, gray to 60 feet then brown, waterbearing, medium dense to very dense.
	71	
	47	SILTY CLAY, with Silt layers, gray, wet, hard.
	79	POORLY GRADED SAND, fine- to coarse-grained, with Gravel, gray, waterbearing, very dense.
	19	SANDY LEAN CLAY, trace Gravel, gray, wet, very stiff.
	24	
	27	CLAYEY SAND, fine- to medium-grained, with Sand lenses from 85 to 95 feet, gray, wet, medium dense to dense.
	51	
	20	
	18	
	36	SILTY SAND, fine- to medium-grained, with Gravel, brown, waterbearing, medium dense to dense.
	26	END OF BORING.

Water observed at 15 feet with 15 feet of hollow-stem auger in the ground.
Boring immediately backfilled with bentonite grout.
Bottom of Borehole at 121 ft

2028 SB
Elevation 850.6

Coh	N60	
	15	LEAN CLAY, dark brown, moist.
	9	FILL: Sandy Lean Clay, trace Gravel, brown, wet.
	4	FILL: Organic Clay, with Peat layers, with wood fibers, dark brown and
	4	black, wet.
	9	FILL: Lean Clay, with Silty Sand lenses, gray, wet.
	12	PEAT, with fibers, black, wet.
	TW	
	6*	
	2	ORGANIC CLAY, with fibers and shells, gray, wet.
	TW	
	1	Peat and Sand layers at 27 feet.
	7	ELASTIC SILT, gray, wet, loose.
	15	POORLY GRADED SAND with SILT, fine- to medium-grained, with Gravel,
	16	gray, waterbearing, medium dense.
	22	POORLY GRADED SAND with SILT, fine- to coarse-grained, with Gravel,
	23	brown, waterbearing, medium dense to dense.
	20	
	31	
	25	
	21	Fine grained at 50 feet with occasional Lean Clay lenses.
	25	LEAN CLAY, gray, wet, very stiff.
	12	SANDY LEAN CLAY, trace Gravel, gray, wet, rather stiff to very stiff.
	19	
	19	
	32	Waterbearing Sand layer at 80 feet.
	23	Silty Sand layer from 84 to 86 feet.
	30	
	10	Silty Sand layer at 94 feet.
	17	
	23*	
	11	END OF BORING.

Boring immediately backfilled with bentonite grout.
Bottom of Borehole at 121 ft

2029SB
Elevation 844.6

Coh	N60	
	23	LEAN CLAY, dark brown, moist.
	46	FILL: Lean Clay, with Gravel, brwon, moist.
	26	FILL: Silty Sand, fine- to medium-grained, with Gravel, brown, moist.
	26	
	13	
	6	LEAN CLAY, with fibers, gray, wet.
	8	POORLY GRADED SAND, fine- to coarse-grained, with Gravel, brown, waterbearing, loose.
	9	SANDY LEAN CLAY, trace Gravel, gray, wet, rather stiff.
	11	CLAYEY SAND, fine- to medium-grained, trace of Gravel, brown, wet, medium dense.
	12	POORLY GRADED SAND, fine- to coarse-grained, with Gravel, brown, waterbearing, medium dense.
	17	
	25	SANDY LEAN CLAY, trace Gravel, brown, wet, stiff to very stiff.
	16	

END OF BORING.
Water observed at 15 feet with 15 feet of hollow-stem auger in the ground.
Boring immediately backfilled with bentonite grout.
Bottom of Borehole at 51 ft

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM: D2488.

DES: N/A | DRA: BR
CHK: N/A | CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
NINE MILE CREEK
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRID-NMCK-LRT-SUR-BOR-004

SHEET 59 OF 204

Aug. 27 2014 09:06 pm V:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-NMCK-SUR-BOR.dwg By: rieckmanb

2030SB
Elevation 846.2

Coh	N60	
		SILTY SAND, fine– to medium–grained, dark brown, dry.
	10	FILL: Poorly Graded Sand, fine– to medium–grained, with Gravel, brown,
	14	moist.
	11	SANDY LEAN CLAY, trace Gravel, gray, wet, rather stiff to stiff.
	10	
	14	
	9	
	TW	
	11	
▽	50/6"	
	22	CLAYEY SAND, fine– to medium–grained, with Gravel, gray and brown,
	39	wet, medium dense to dense.
	38	
	38	Occasional Lean Clay and Silty Sand lenses.
	41	
	48	POORLY GRADED SAND with SILT, fine– to medium–grained, with occasional
	43	Clay lenses, with Gravel, brown, medium dense to very dense.
	30	
	60	CLAYEY SAND, fine– to medium–grained, with Gravel, brown, waterbearing,
	34	very dense.
	36	SILTY SAND, fine– to medium–grained, with Gravel, brown, waterbearing,
		medium dense to dense.
	30	
	21	
	42	Sandy Silt layers at 65 feet.
	21	CLAYEY SAND, fine– to medium–grained, with Gravel, brown, waterbearing,
		medium dense to dense.
	32	
	29	SANDY LEAN CLAY, trace Gravel, gray, wet, very stiff.
	21	
	21	POORLY GRADED SAND, fine– to medium–grained, with Gravel, brown and
	23	gray, waterbearing, medium dense to dense.
	41	
		END OF BORING.
		Water observed at 22 1/2 feet with 22 1/2 feet.
		Boring immediately backfilled with bentonite grout.
		Bottom of Borehole at 101 ft

2092SB
Elevation 855.2

Coh	N60	
		Silty Sand, trace roots, dark brown,
	16	moist. (SM), topsoil fill
	30	Poorly Graded Sand with Silt, fine– to medium–grained, with Gravel,
	18	with frequent lenses of Lean Clay, brown, moist. (SP–SM), fill
	20	
▽	3	Silty Sand, fine– to medium–grained, with Gravel, brown and gray,
	6	moist. (SM), fill
	17	
	22	Sandy Lean Clay, trace Gravel, gray and black, moist. (CL), fill
	*	
	21	Highly Organic Silt, wtih fibers, trace shells, black. (OH), swamp
	9	deposit
	6	
	10	SILTY SAND, fine– to coarse–grained, with Gravel, light gray, wet to
	11	waterbearing, medium dense. (SM), till
	16	
	18	POORLY GRADED SAND, fine– to coarse–grained, with Gravel, light
	24	gray, waterbearing, medium dense. (SP) outwash
	23	
	23	
	26	SANDY LEAN CLAY, trace Gravel, gray, wet, medium to rather stiff.
		(CL), till
	31	CLAYEY SAND, with Gravel, brownish gray to gray, wet, stiff to
		very stiff. (SC), till
	33	SANDY LEAN CLAY, trace Gravel, gray, wet, very stiff. (CL), till
	37	CLAYEY SAND, with Gravel, with frequent layers of Lean Clay,
	39	brownish gray, wet, very stiff to hard. (CL), till
	34	SILTY SAND, fine– to medium–grained, reddish brown, wet, dense.
	47	(SM), till
	41	
	48	SILTY SAND, fine– to medium–grained, with frequent layers of
	48	Silt, reddish brown, wet, dense. (SM), till
		Water observed at 15 feet while drilling
		Boring then sealed with bentonite grout.

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

DES: N/A | DRA: BR
CHK: N/A | CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

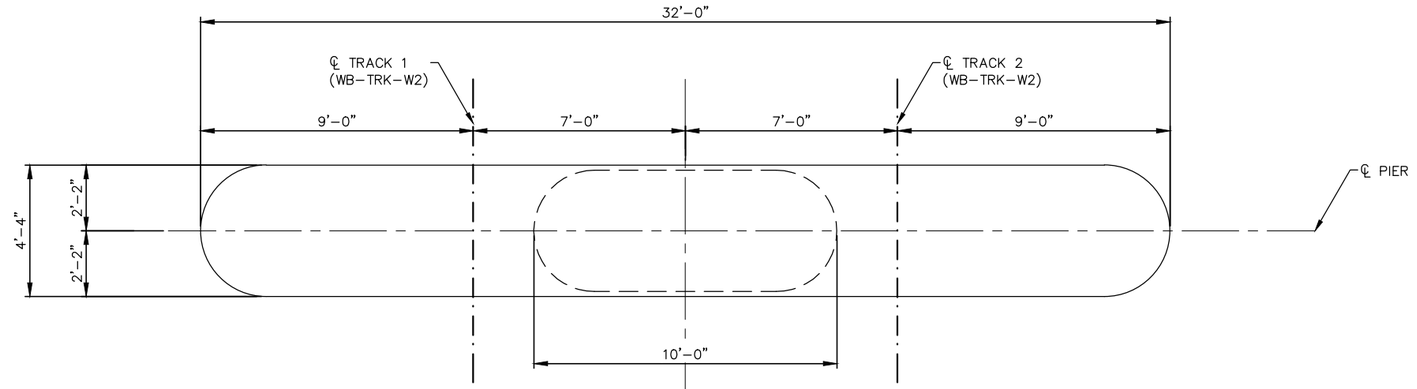
SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
NINE MILE CREEK
BRIDGE XXXXX (LRT)
BORINGS

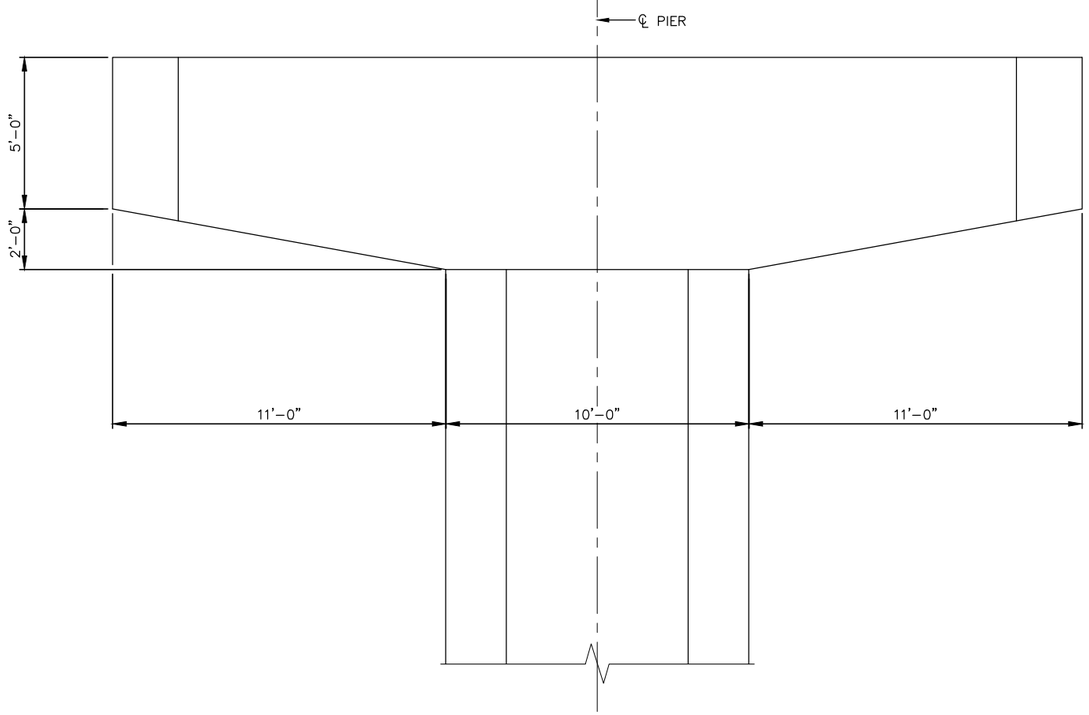
DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRID-NMCK-LRT-SUR-BOR-005

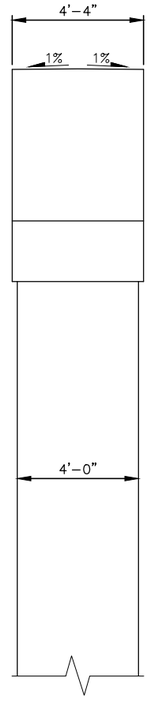
SHEET 60 OF 204



PLAN



ELEVATION



END VIEW

NOTES:

1. CAP AND COLUMN TO BE REINFORCED WITH GRADE 60 REINFORCEMENT BARS.

HAMMERHEAD PIERS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
NINE MILE CREEK
BRIDGE XXXXX (LRT)
BRIDGE DETAILS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-NMCK-LRT-DTL

DES: AAM	DRA: BR
CHK: PLR	CHK: PLR

SHEET 61 OF 204

AESTHETIC DETAILS TO BE DETERMINED DURING ADVANCED DESIGN

1. ABUTMENT SURFACE TREATMENT
2. ABUTMENT/WALL CORNER DETAIL
3. EXPOSED EDGE OF DECK
4. EXPOSED BARRIER
5. EXPOSED FASCIA BEAM
6. BOTTOM OF BEAMS
7. PIER COLUMN SURFACE TREATMENT
8. RAILING AND SCREENING

DES: N/A	DRA: BR
CHK: N/A	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

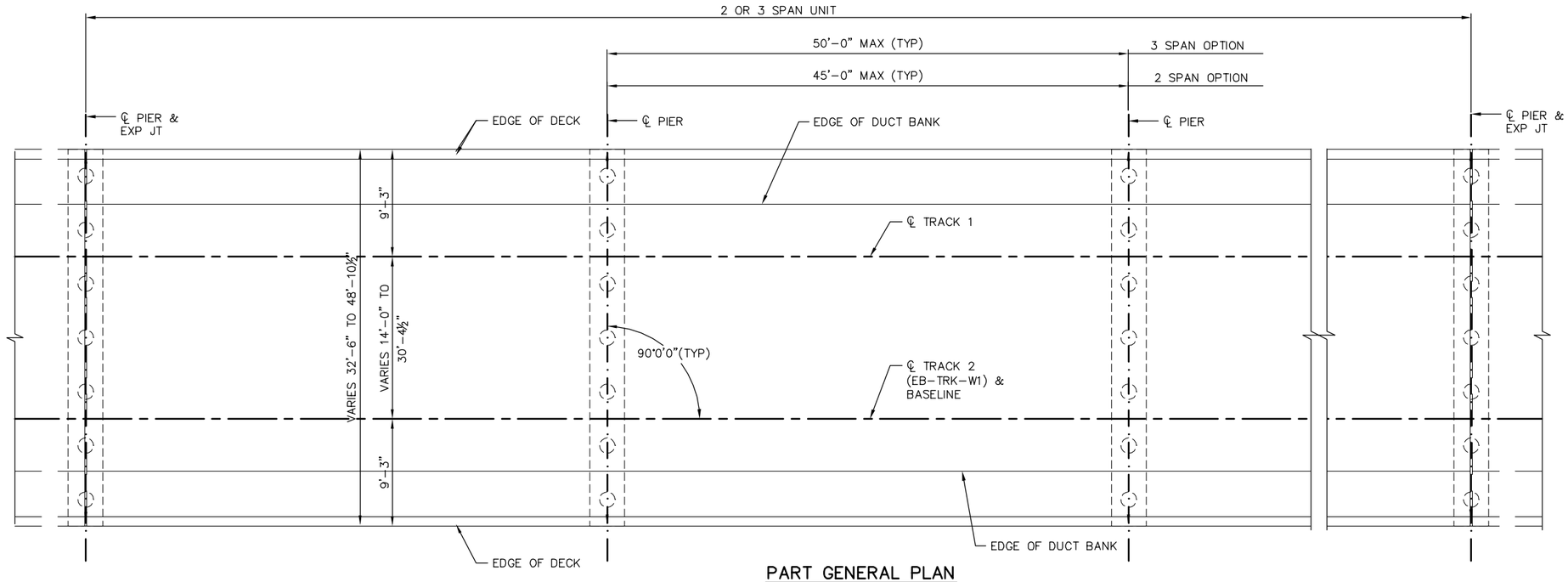
WEST - VOLUME 2 (STRUCTURES)
NINE MILE CREEK
BRIDGE XXXXX (LRT)
AESTHETICS

DISCIPLINE: **STRUCTURES**

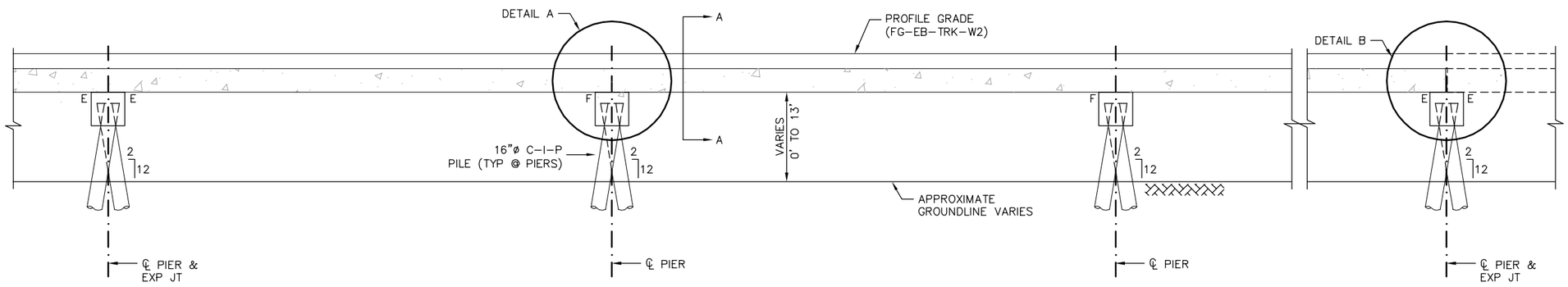
SHEET NAME: **W2-STU-BRG-NMCK-LRT-AES**

SHEET **62** OF **204**

Aug. 27 2014 09:06 pm V:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-NMCK-AES.dwg By: rieckmanb



PART GENERAL PLAN



PART GENERAL ELEVATION

NOTES:

1. SEE TRACK PLANS FOR LIMITS OF LAND BRIDGE.
2. FINAL LOCATION OF SUBSTRUCTURES WILL AVOID IN-PLACE UTILITIES AND WILL BE DETERMINED IN ADVANCED DESIGN.
3. EXTENTS OF LAND BRIDGE WILL BE BASED ON FINAL GEOTECHNICAL REPORT AND DETERMINED IN ADVANCED DESIGN.

DESIGN DATA

2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 6TH EDITION AND CURRENT INTERIMS

SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 2.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD

LRV & MV LOAD DIAGRAM SHOWN ON SHEET 64

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4000 PSI n = 8
fy = 60000 PSI

DESIGN SPEED: OVER = N/A MPH (LRT)
UNDER = N/A

DECK AREA 31,278 SQ. FT.

LIST OF SHEETS

PROPOSED TYPE OF STRUCTURE

DECK:
2 OR 3 SPAN CONTINUOUS CIP CONCRETE SLAB SPANS
ALL BARS EPOXY COATED
DIRECT FIXATION TRACK

SUBSTRUCTURE:
INTEGRAL ABUTMENT SUPPORTED ON 12" CIP CONCRETE PILES

PILE BENT PIERS SUPPORTED ON 16" CIP CONCRETE PILES

DEPTH OF STRUCTURE:
±3'-6" TOP OF LOW RAIL TO LOW BRIDGE

AESTHETICS:
SEE STANDARD AESTHETIC DETAIL SHEETS

BRIDGE NO. XXXXX

SOUTHWEST LRT OVER POOR SOILS
0.1 MI. NORTH OF JCT. T.H. 212 AND SHADY OAK ROAD IN EDEN PRAIRIE

50' CIP CONCRETE SLAB SPANS
VARIABLE ROADWAY (32'-6" MIN)
0°-0'-0" SKEW

BRIDGE I.D. NO. 209

GENERAL PLAN

SEC 1 T 116 N R 22 W
CITY OF EDEN PRAIRIE HENNEPIN COUNTY

APPROVED: _____ STATE BRIDGE ENGINEER DATE

JOB NO. T9N635 STATE PROJECT NO. 9909-01 MNDOT REVIEW:

DES: DDL	DRA: SWH
CHK: JFE	CHK: JFE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extention

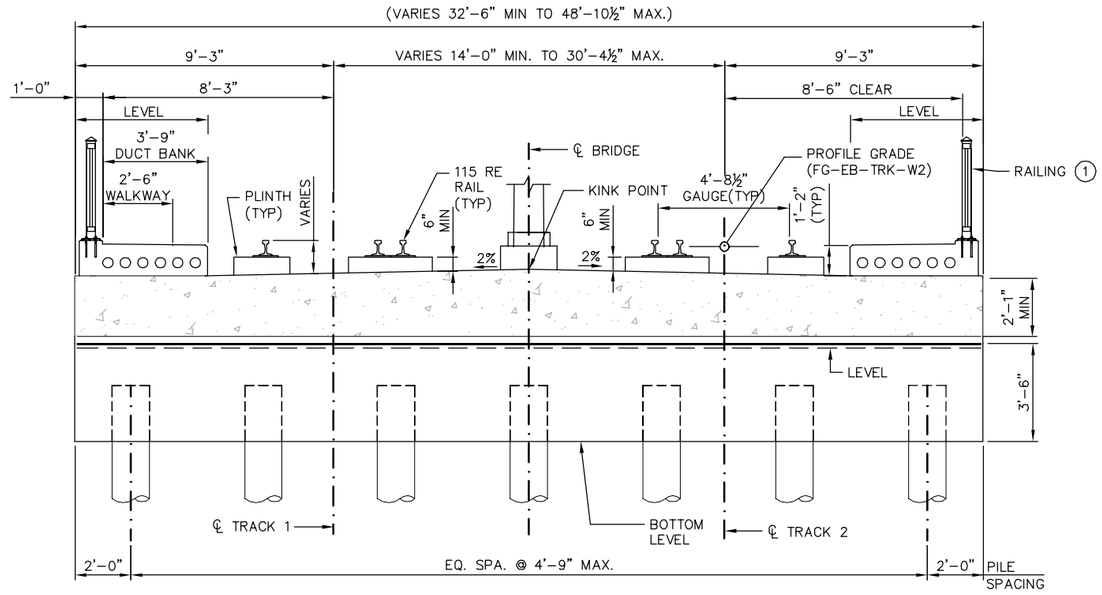
WEST - VOLUME 2 (STRUCTURES)
PART GENERAL PLAN AND ELEVATION
LAND BRIDGE
STA. 2245+16.91 TO STA. 2253+91.47

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-LAND (1 OF 3)

SHEET 63 OF 204

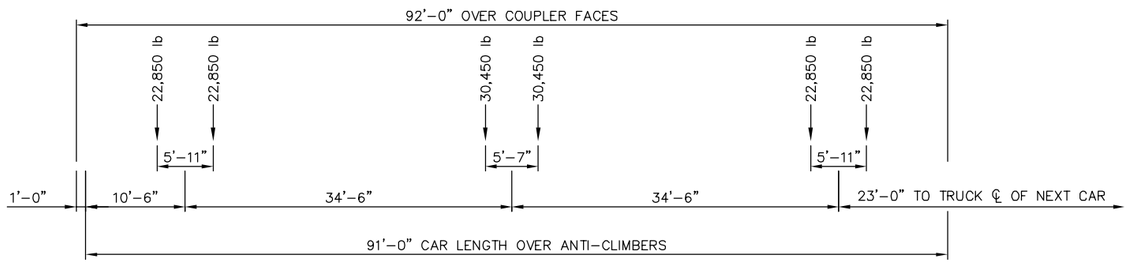
Aug, 05 2014 08:01 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-LAND.dwg By: hills



SECTION A-A

NOTES:

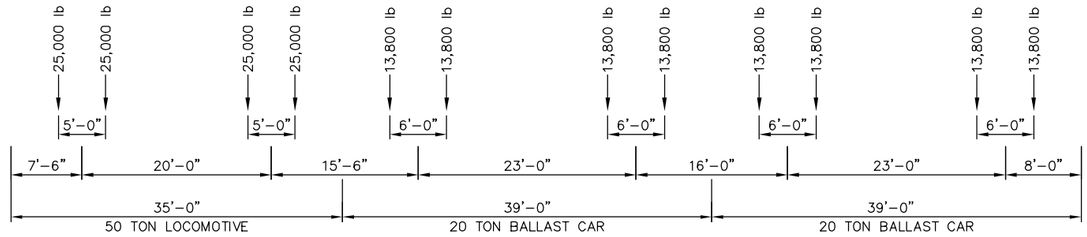
(1) RAILING TO BE DETERMINED IN ADVANCED DESIGN.



LIGHT RAIL VEHICLE LOADING DIAGRAM

NOTES:

1. THE LRT TRAIN SHALL CONSIST OF EITHER ONE, TWO OR THREE CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.



MAINTENANCE TRAIN LOADING DIAGRAM

NOTES:

1. THE MAINTENANCE TRAIN SHALL CONSIST OF ONE LOCOMOTIVE AND ONE, TWO, THREE OR FOUR BALLAST CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.
2. WEIGHT OF EMPTY BALLAST CAR IS 15,000 POUNDS.

DES: DDL	DRA: SWH
CHK: JFE	CHK: JFE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

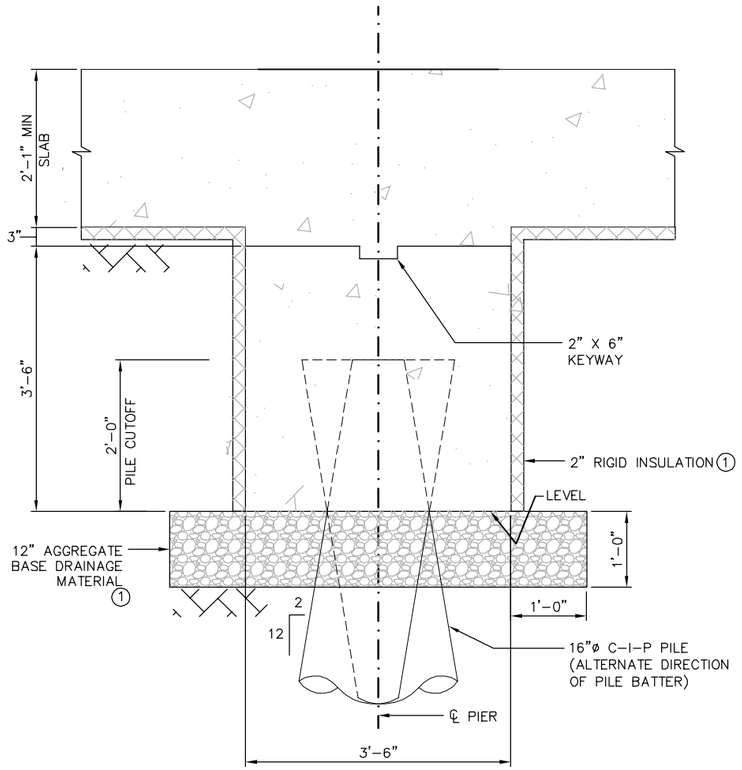
WEST - VOLUME 2 (STRUCTURES)
LAND BRIDGE DETAILS
STA. 2245+16.91 TO STA. 2253+91.47

DISCIPLINE: STRUCTURES

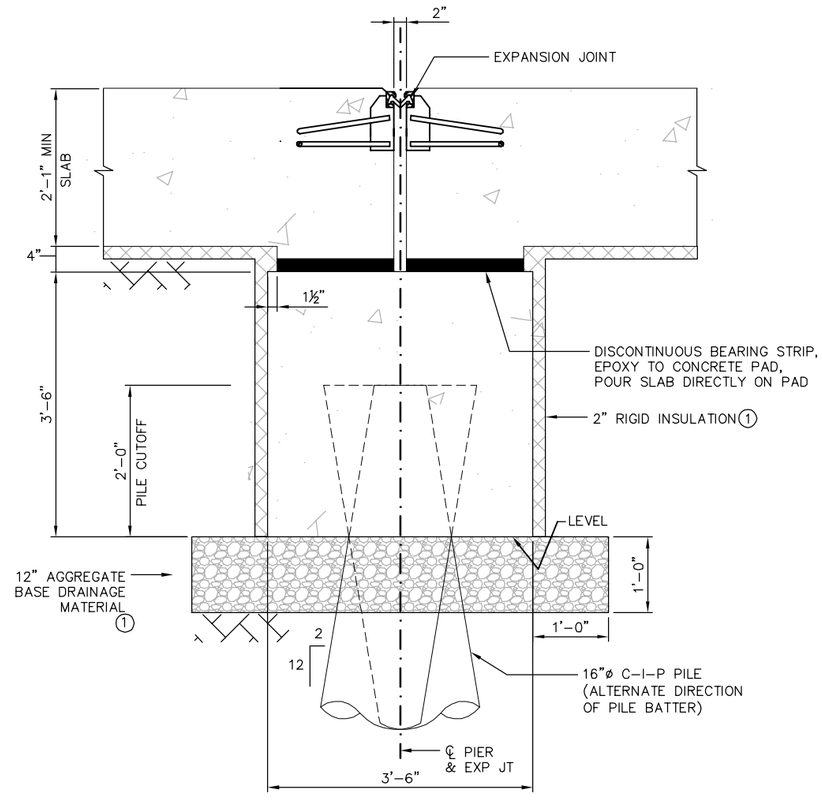
SHEET NAME: W2-STU-BRG-LAND (2 OF 3)

SHEET 64 OF 204

Aug, 05 2014 08:01 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-LAND.dwg By: hills



DETAIL A



DETAIL B

NOTES:

(1) PROVIDE ONLY AT LOCATIONS WHERE PILE CAP AND OR SLAB IS IN CONTACT WITH GOUND LINE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
LAND BRIDGE DETAILS
STA. 2245+16.91 TO STA. 2253+91.47

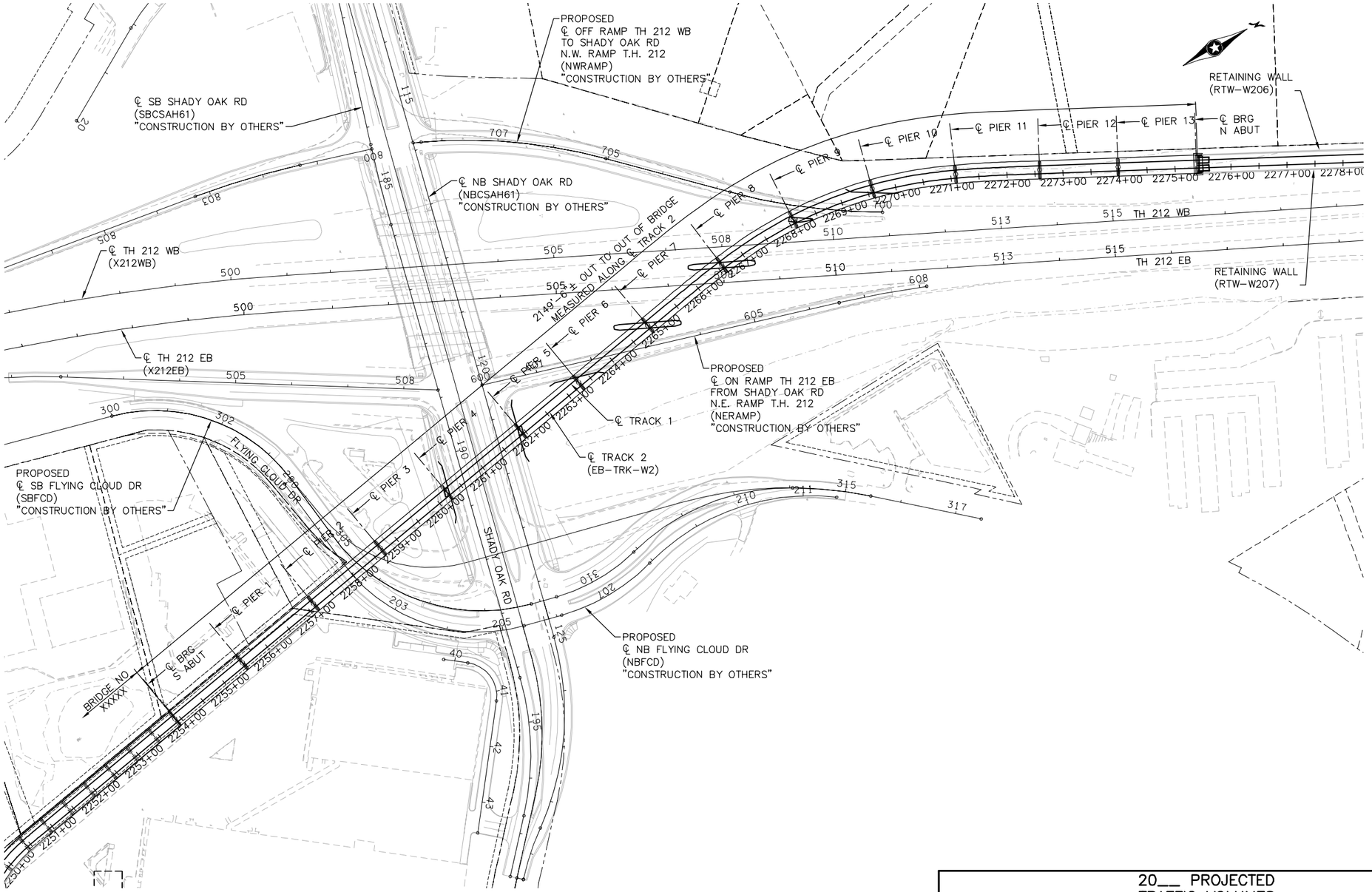
DES: DDL	DRA: SWH
CHK: JFE	CHK: JFE

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-LAND (3 OF 3)

SHEET 65 OF 204

Aug, 05 2014 08:02 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-LAND.dwg By: hills



KEY PLAN

0 50 100 200

DESIGN DATA

2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 6TH EDITION AND CURRENT INTERIMS

SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 2.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD

LRV & MV LOAD DIAGRAM SHOWN ON SHEET 74

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4000 PSI n = 8
fy = 60000 PSI

PRESTRESSED CONCRETE:
f'c = 9000 PSI n = 1
fpu = 270 ksi FOR 0.6"ø LOW RELAXATION STRANDS
0.75 fpu FOR INITIAL PRESTRESS

DESIGN SPEED: OVER = N/A MPH (LRT)
UNDER = XX MPH (FLYING CLOUD DRIVE)
UNDER = XX MPH (SHADY OAK ROAD)
UNDER = XX MPH (TH 212)

DECK AREA 70,310 SQ. FT.

LIST OF SHEETS

PROPOSED TYPE OF STRUCTURE

DECK:
110MW PRESTRESSED CONCRETE BEAMS
WITH 9" CAST-IN-PLACE CONCRETE DECK
ALL BARS EPOXY COATED
DIRECT FIXATION TRACK
SIMPLE SPANS

SUBSTRUCTURE:
PARAPET ABUTMENT SUPPORTED ON 12" CIP CONCRETE PILES

8'-0" DIA. CIP CONCRETE COLUMNS

HAMMERHEAD PIERS SUPPORTED ON 12" CIP CONCRETE PILES

DEPTH OF STRUCTURE:
±11'-8" TOP OF LOW RAIL TO LOW BRIDGE
4 ± BEAM LINES

AESTHETICS:
IN ACCORDANCE WITH THE "AESTHETIC DESIGN GUIDE" FOR THE TH212 CORRIDOR.

SEE STANDARD AESTHETIC DETAIL SHEET

BRIDGE NO. XXXXX

SOUTHWEST LRT OVER SHADY OAK ROAD & TH 212
0.1 MI. NORTH OF JCT. T.H. 212 AND SHADY OAK ROAD
IN EDEN PRAIRIE
155'-165'-155'-155'-171'-135'-160'-
170'-150'-150'-150'-150'-140'-140'
PRESTRESSED CONCRETE BEAM SPANS
VARIABLE ROADWAY (32'-6" MIN)
0°-0'-0" SKEW
BRIDGE I.D. NO. 501

KEY PLAN

SEC 1 T 116 N R 22 W
CITY OF EDEN PRAIRIE HENNEPIN COUNTY

APPROVED: _____
STATE BRIDGE ENGINEER DATE

20__ PROJECTED TRAFFIC VOLUMES

ROADWAY OVER	ROADWAY UNDER (FLYING CLOUD DRIVE)	ROADWAY UNDER (SHADY OAK RD ROAD)	ROADWAY UNDER (TH 212)
N.A.	A.D.T. _____	A.D.T. _____	A.D.T. _____
N.A.	D.H.V. _____	D.H.V. _____	D.H.V. _____
N.A.	A.D.T.T. _____	A.D.T.T. _____	A.D.T.T. _____

JOB NO. T9N635 STATE PROJECT NO. 9909-01 MNDOT REVIEW:

DES: DDL	DRA: SWH
CHK: JFE	CHK: JFE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

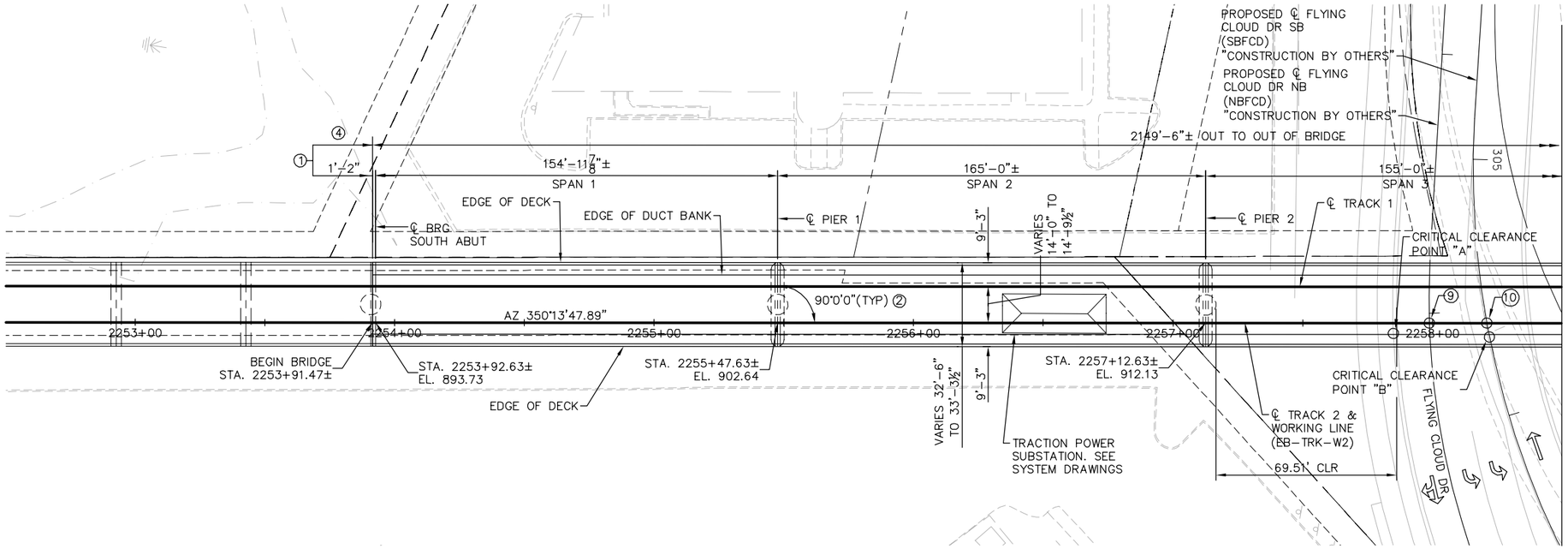
WEST - VOLUME 2 (STRUCTURES)
SHADY OAK ROAD
BRIDGE XXXXX (LRT)
KEY PLAN

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-T212-BL01

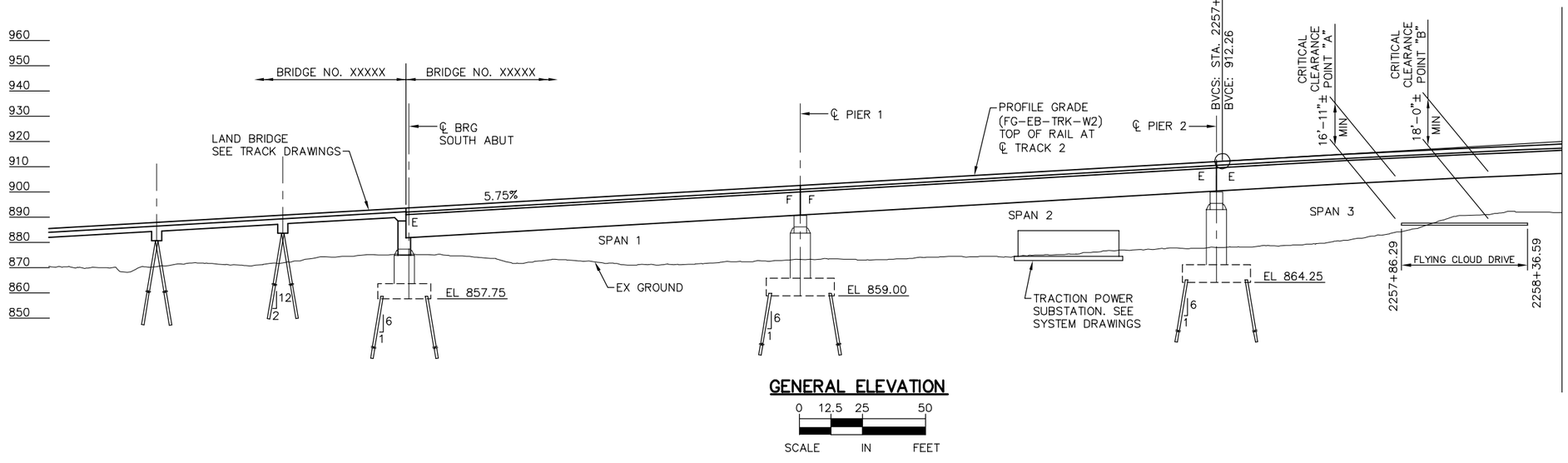
SHEET 66 OF 204

Aug, 05 2014 08:19 am v:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-T212-BL01.dwg By: hills



GENERAL PLAN

SCALE 0 12.5 25 50 IN FEET



GENERAL ELEVATION

SCALE 0 12.5 25 50 IN FEET

NOTES:

1. ALL DIMENSIONS ARE MEASURED ALONG ℄ TRACK 2 (EB-TRK-W2)
2. TYP. UNLESS SHOWN OTHERWISE
3. SEE BRIDGE SURVEY SHEET FOR ADDITIONAL INPLACE UTILITIES
4. SEE TH 212 LAND BRIDGE PRELIMINARY PLANS
5. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
6. SEE BORING SHEETS FOR INPLACE UTILITIES.
7. TRAFFIC TO BE DETOURED DURING CONSTRUCTION.
8. VERTICAL CLEARANCE BASED ON LIDAR SURVEY DATA.
9. CONTROL POINT
   ℄ TRACK 2 (EB-TRK-W2) P.O.T. STA 2257+98.79
   ℄ NB FLYING CLOUD DRIVE (NBFCD) P.O.C. STA 202+03.76
   X = 492804.467
   Y = 132732.933
   ANGLE: 88°6'37.2" TTC
10. CONTROL POINT
    ℄ TRACK 2 (EB-TRK-W2) P.O.T. STA 2258+20.97
    ℄ NB FLYING CLOUD DRIVE (SBFCD) P.O.C. STA 305+63.36
    X = 492800.703
    Y = 132754.790
    ANGLE: 79°42'37.9" TTC

DES: DDL	DRA: SWH
CHK: JFE	CHK: JFE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

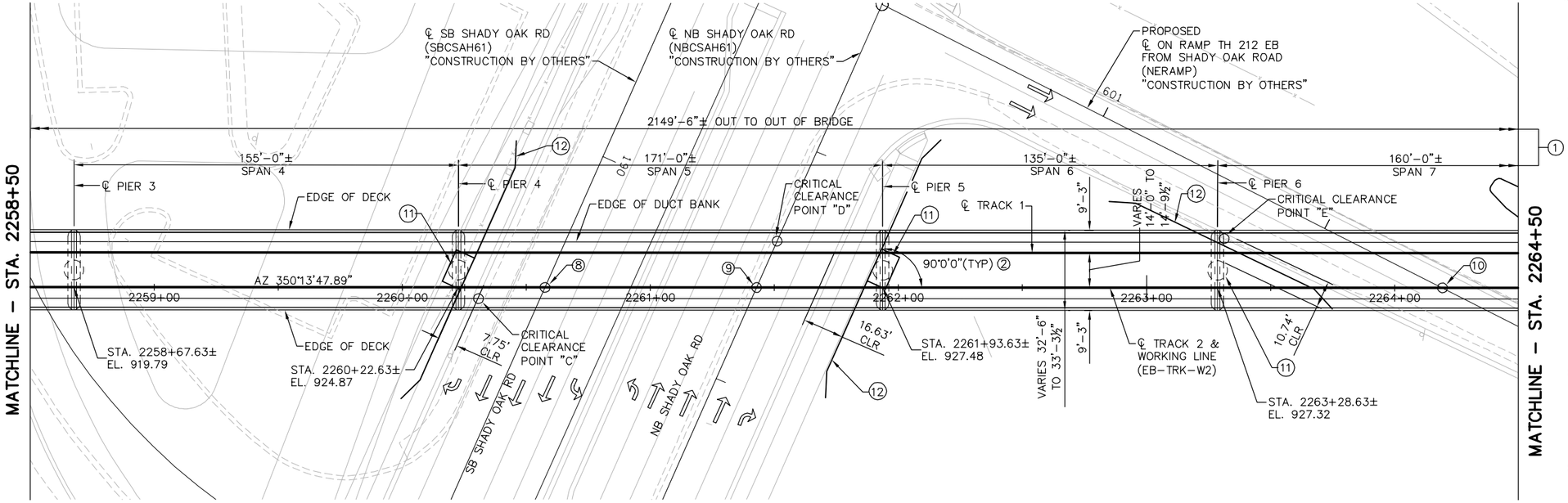
WEST - VOLUME 2 (STRUCTURES)
SHADY OAK ROAD
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-T212-GE01

SHEET 67 OF 204

Aug. 05 2014 08:30 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-T212-GE01.dwg By: hills



GENERAL PLAN

0 12.5 25 50

SCALE IN FEET

NOTES:

1. ALL DIMENSIONS ARE MEASURED ALONG ℄ TRACK 2 (EB-TRK-W2)
2. TYP. UNLESS SHOWN OTHERWISE
3. SEE BRIDGE SURVEY SHEET FOR ADDITIONAL INPLACE UTILITIES
4. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
5. SEE BORING SHEETS FOR INPLACE UTILITIES.
6. TRAFFIC TO BE DETOURED DURING CONSTRUCTION.
7. VERTICAL CLEARANCE BASED ON LIDAR SURVEY DATA.

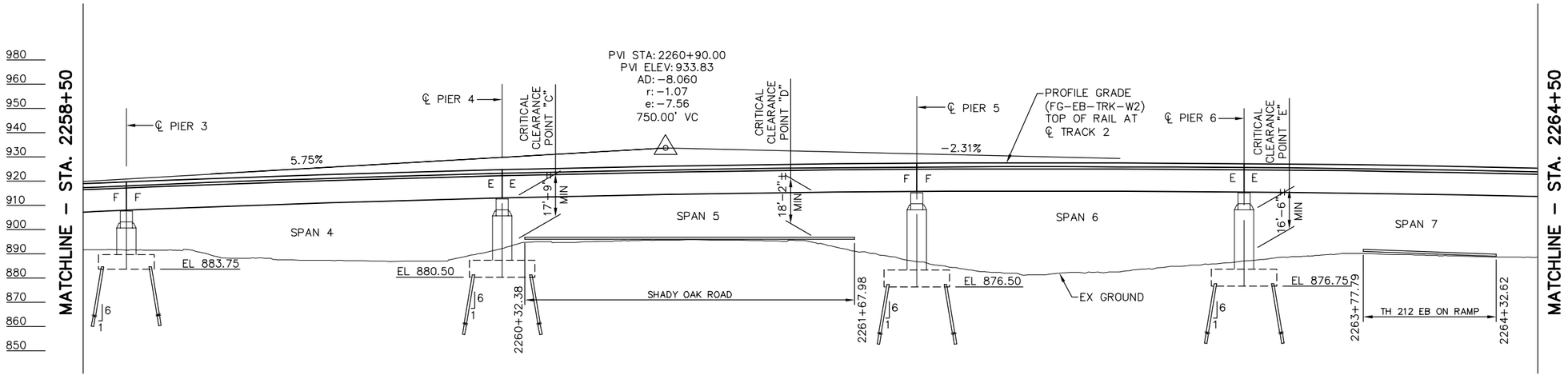
⑧ CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.T. STA 2260+57.53
℄ SB SHADY OAK RD (SBCSAH61) P.O.C.
STA 190+57.65
X = 492760.561
Y = 132987.916
ANGLE: 66°7'53.7 TTC

⑨ CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.T. STA 2261+42.82
℄ NB SHADY OAK RD (NBCSAH61) P.O.C.
STA 121+59.85
X = 492746.087
Y = 133071.974
ANGLE: 66°7'53.7" TTC

⑩ CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.T. STA 2264+19.31
℄ ON RAMP TH212 EB (NERAMP) P.O.C.
STA 602+53.18
X = 492699.168
Y = 133344.454
ANGLE: 26°48'3.8" TTC

⑪ PIERS SHALL BE DESIGNED WITH AN AREA GREATER THAN 30 SQ. FT. (BASED ON AREMA "HEAVY CONSTRUCTION") AND DESIGNED FOR 600 KIP COLLISION LOAD.

⑫ THRIE BEAM GUARDRAIL



GENERAL ELEVATION

0 12.5 25 50

SCALE IN FEET

DES: DDL	DRA: SWH
CHK: JFE	CHK: JFE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

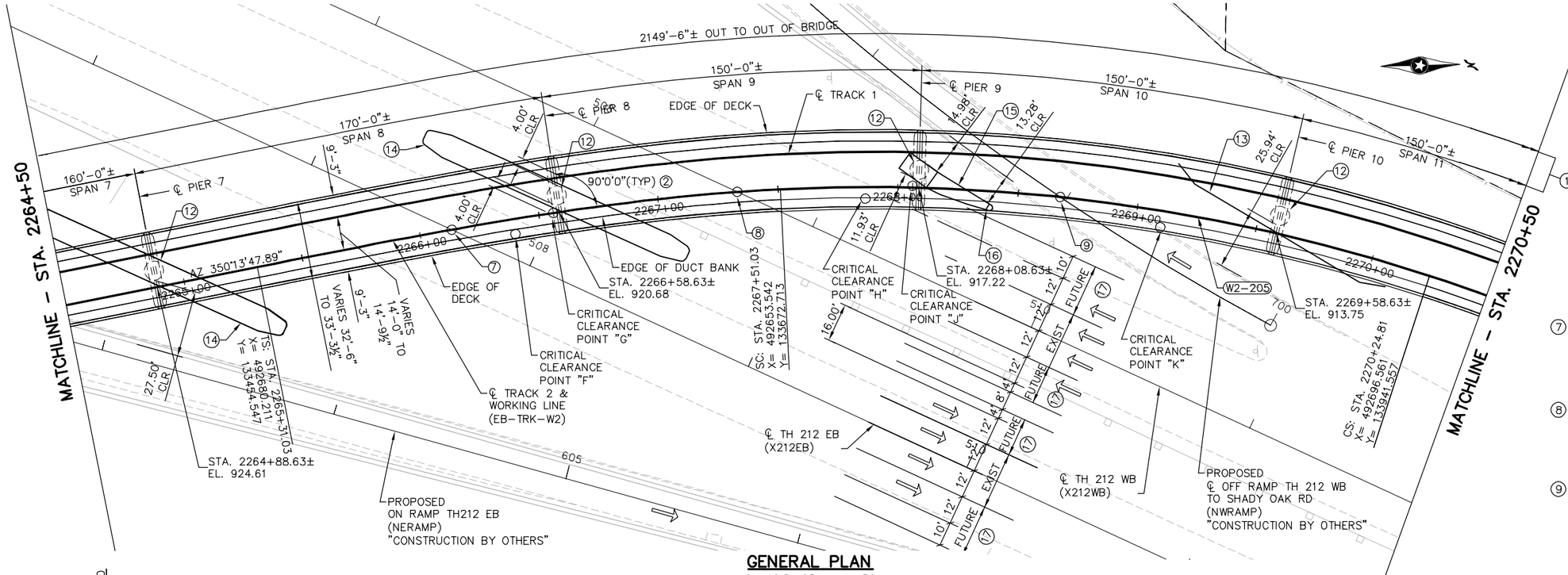
WEST - VOLUME 2 (STRUCTURES)
SHADY OAK ROAD
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-T212-GE02

SHEET 68 OF 204

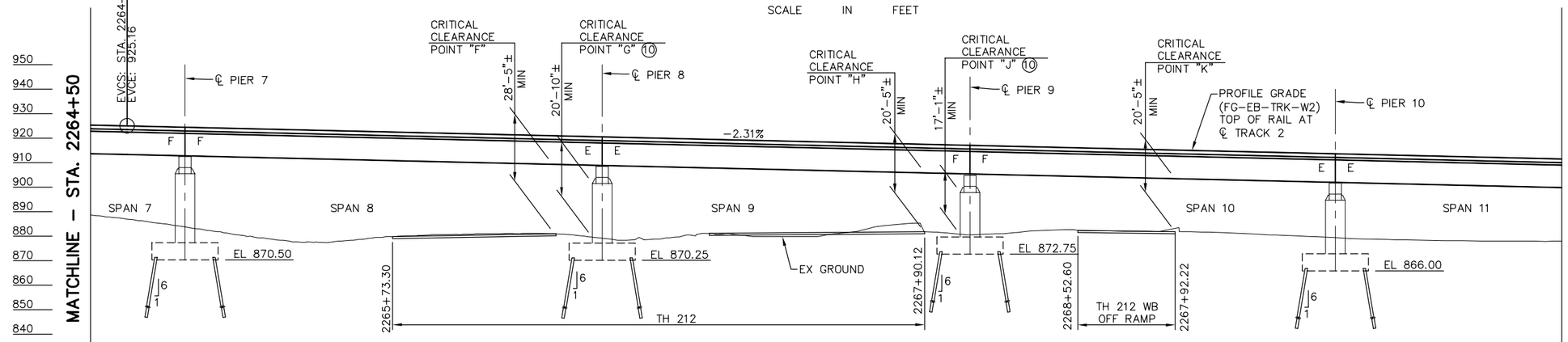
Aug. 05 2014 08:37 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-T212-GE02.dwg By: hills



GENERAL PLAN

0 12.5 25 50

SCALE IN FEET



GENERAL ELEVATION

0 12.5 25 50

SCALE IN FEET

NOTES:

1. ALL DIMENSIONS ARE MEASURED ALONG ℄ TRACK 2 (EB–TRK–W2)
2. TYP. UNLESS SHOWN OTHERWISE
3. SEE BRIDGE SURVEY SHEET FOR ADDITIONAL INPLACE UTILITIES
4. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38–02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
5. SEE BORING SHEETS FOR INPLACE UTILITIES.
6. TRAFFIC TO BE DETOURED DURING CONSTRUCTION.

⑦ CONTROL POINT
℄ TRACK 2 (EB–TRK–W2) P.O.T. STA 2266+13.33
℄ TH 212 EB (X212EB) P.O.C. STA 507+64.26
X = 492666.801
Y = 133535.744
ANGLE: 35°1'23.0" TTC

⑧ CONTROL POINT
℄ TRACK 2 (EB–TRK–W2) P.O.T. STA 2267+33.17
℄ TH 212 WB (X212WB) P.O.C. STA 508+65.52
X = 492654.174
Y = 133654.868
ANGLE: 28°55'55.8" TTC

⑨ CONTROL POINT
℄ TRACK 2 (EB–TRK–W2) P.O.T. STA 2268+67.54
℄ TH 212 WB OFF RAMP (NWRAMP)
P.O.C. STA 701+02.55
X = 492659.804
Y = 133788.941
ANGLE: 28°7'10.6" TTC

⑩ CLEARANCE SHOWN AT TH212 FUTURE WIDENING

11. VERTICAL CLEARANCE BASED ON LIDAR SURVEY DATA.

⑫ PIERS SHALL BE DESIGNED WITH AN AREA GREATER THAN 30 SQ. FT. (BASED ON AREMA "HEAVY CONSTRUCTION") AND DESIGNED FOR 600 KIP COLLISION LOAD.

⑬ THRIE BEAM GUARDRAIL

⑭ THRIE BEAM BULLNOSE GUARDRAIL

⑮ CONCRETE MEDIAN BARRIER PER MNDOT STANDARD PLATE 8308A

⑯ MNDOT APPROVED CRASH CUSHION

⑰ POTENTIAL FUTURE WIDENING

CURVE NO. W2–205
R = 750.00'
Lc = 273.78'
Ls = 220.00'
Ea = 4.00"
Eu = 4.45"
V = 40 MPH
Dc = 7°38'21.98"

DES: DDL	DRA: SWH
CHK: JFE	CHK: JFE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

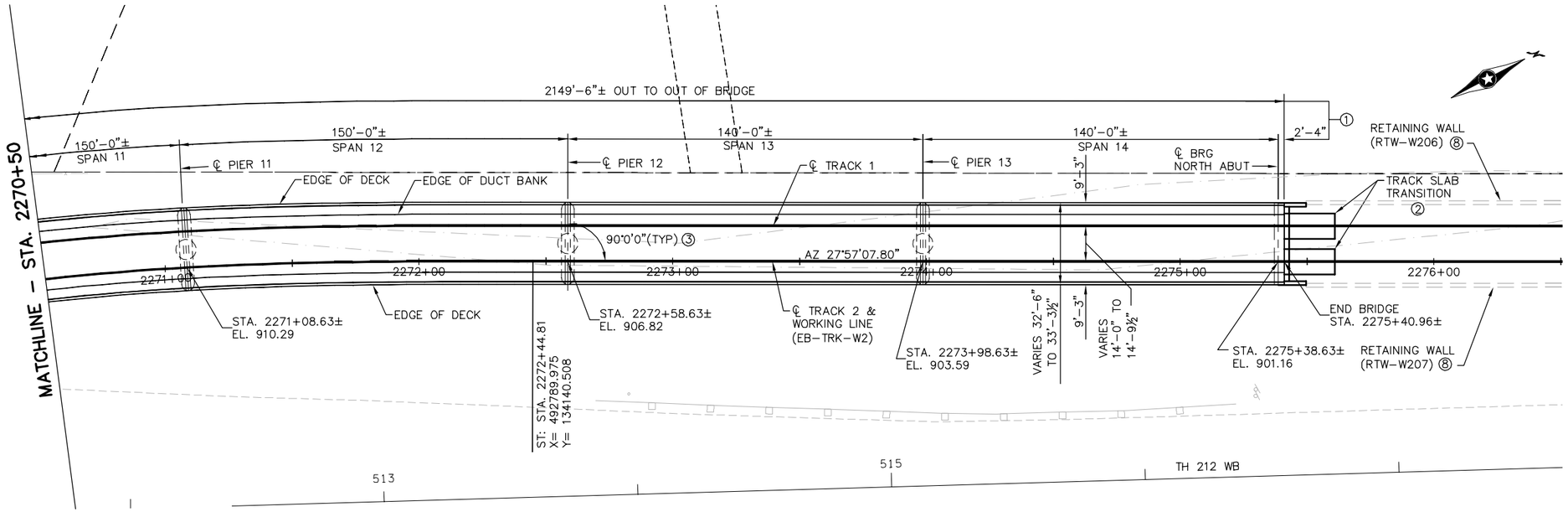
WEST - VOLUME 2 (STRUCTURES)
SHADY OAK ROAD
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-T212-GE03

SHEET 69 OF 204

Aug, 05 2014 08:40 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-T212-GE03.dwg By: hills



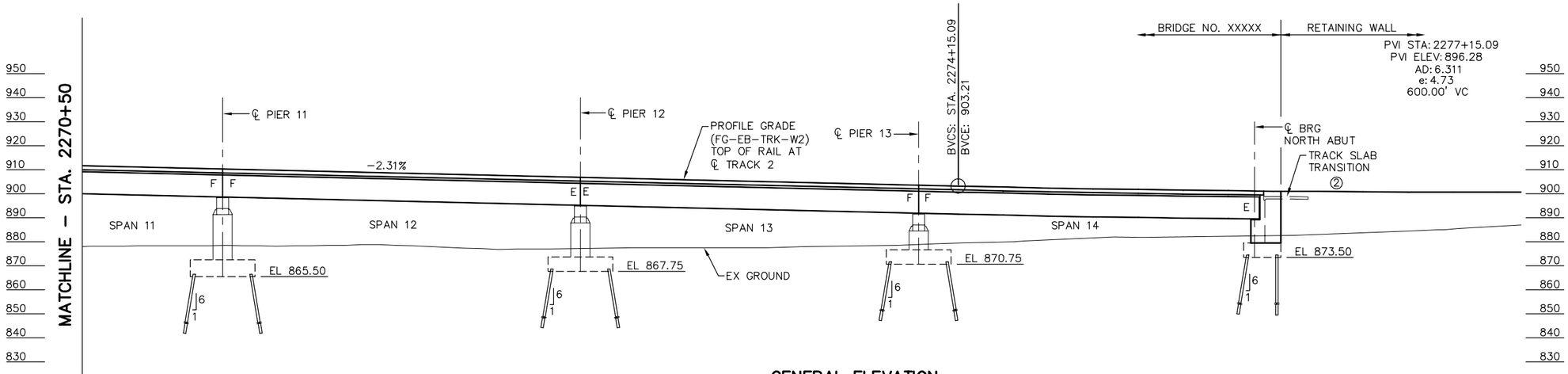
GENERAL PLAN

0 12.5 25 50

SCALE IN FEET

NOTES:

1. ALL DIMENSIONS ARE MEASURED ALONG ℄ TRACK 2 (EB-TRK-W2)
2. SEE TRACK PLANS FOR TRANSITION SLAB DETAILS
3. TYP. UNLESS SHOWN OTHERWISE
4. SEE BRIDGE SURVEY SHEET FOR ADDITIONAL INPLACE UTILITIES
5. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
6. SEE BORING SHEETS FOR INPLACE UTILITIES.
7. TRAFFIC TO BE DETOURED DURING CONSTRUCTION.
8. RETAINING WALL TIE IN STATION AND COORDINATES TO BE COORDINATED IN ADVANCED DESIGN.



GENERAL ELEVATION

0 12.5 25 50

SCALE IN FEET

DES: DDL	DRA: SWH
CHK: JFE	CHK: JFE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
SHADY OAK ROAD
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-T212-GE04

SHEET 70 OF 204

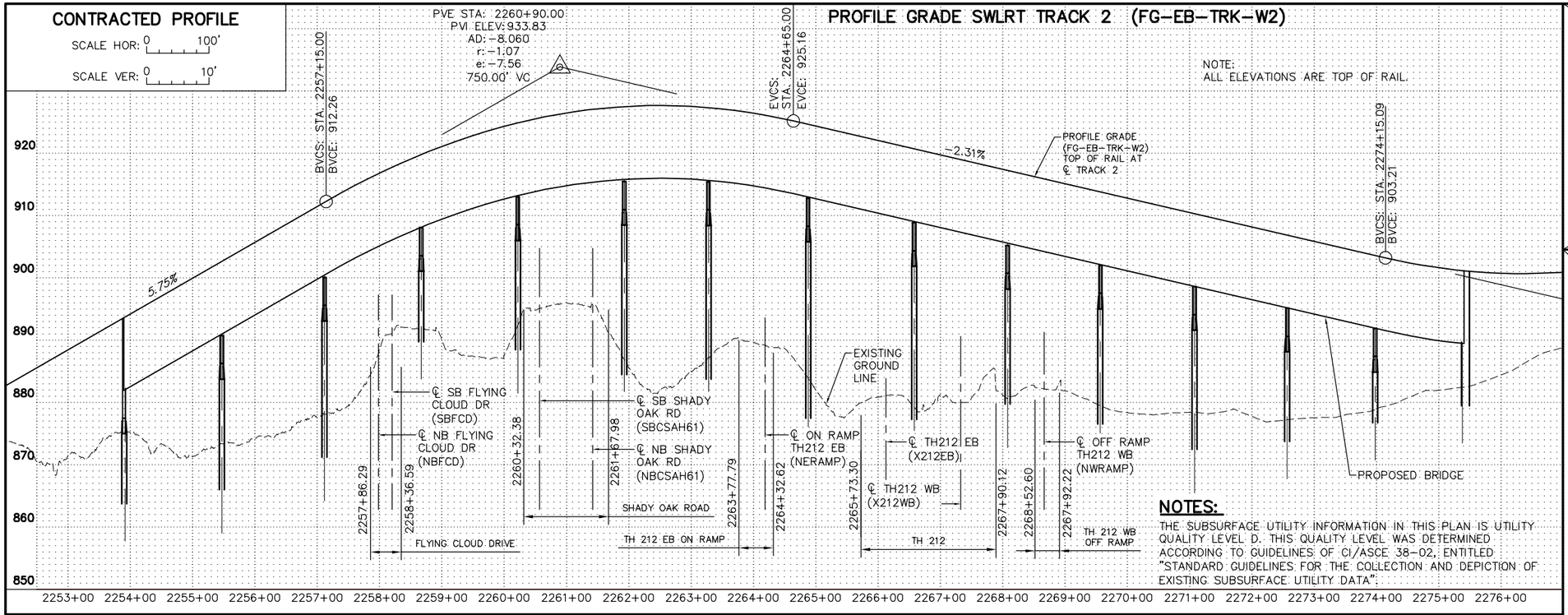
Aug, 05 2014 08:43 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-T212-GE04.dwg By: hills

CONTRACTED PROFILE

SCALE HOR: 0 100'

SCALE VER: 0 10'

PROFILE GRADE SWLRT TRACK 2 (FG-EB-TRK-W2)

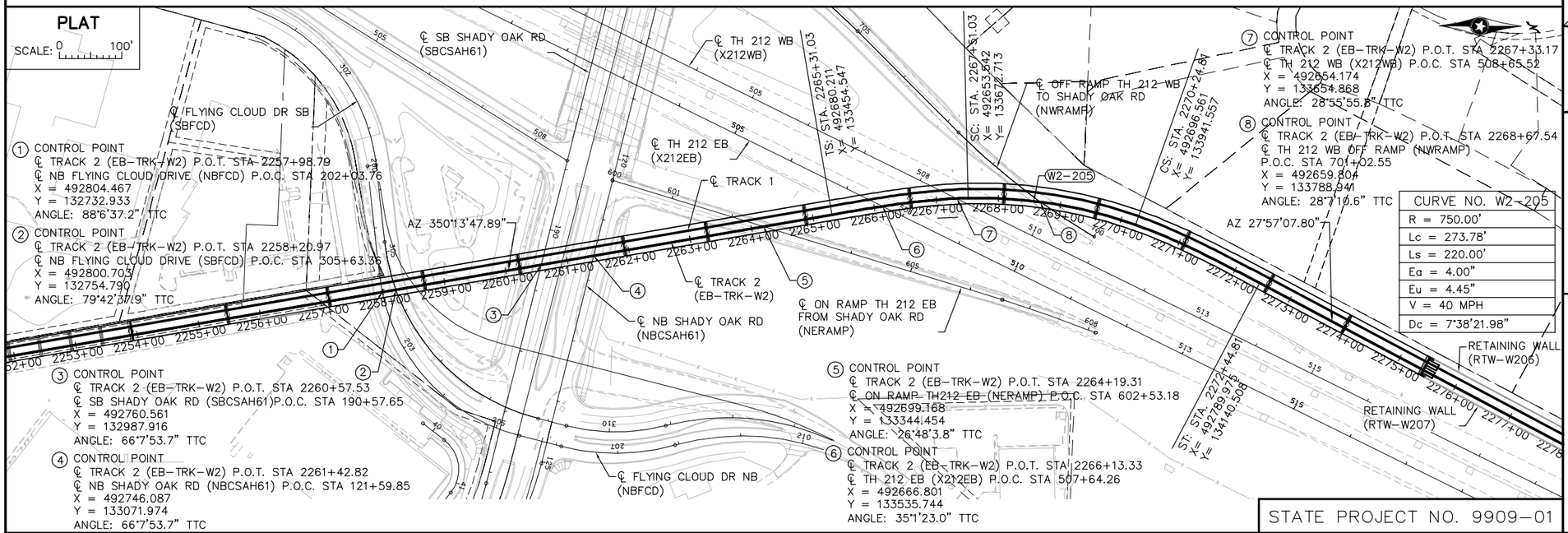


NOTES:

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

PLAT

SCALE: 0 100'



1 CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.T. STA 2257+98.79
℄ NB FLYING CLOUD DRIVE (NBFCD) P.O.C. STA 202+03.76
X = 492804.467
Y = 132732.933
ANGLE: 88°6'37.2" TTC

2 CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.T. STA 2258+20.97
℄ NB FLYING CLOUD DRIVE (SBFCD) P.O.C. STA 305+63.36
X = 492800.705
Y = 132754.790
ANGLE: 79°42'57.9" TTC

3 CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.T. STA 2260+57.53
℄ SB SHADY OAK RD (SBCSAH61) P.O.C. STA 190+57.65
X = 492760.561
Y = 132987.916
ANGLE: 66°7'53.7" TTC

4 CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.T. STA 2261+42.82
℄ NB SHADY OAK RD (NBCSAH61) P.O.C. STA 121+59.85
X = 492746.087
Y = 133071.974
ANGLE: 66°7'53.7" TTC

5 CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.T. STA 2264+19.31
℄ ON RAMP TH212 EB (NERAMP) P.O.C. STA 602+53.18
X = 492699.168
Y = 133344.454
ANGLE: 26°48'3.8" TTC

6 CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.T. STA 2266+13.33
℄ TH 212 EB (X212EB) P.O.C. STA 507+64.26
X = 492666.801
Y = 133535.744
ANGLE: 35°1'23.0" TTC

7 CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.T. STA 2267+33.17
℄ TH 212 WB (X212WB) P.O.C. STA 508+65.52
X = 492654.174
Y = 133654.868
ANGLE: 28°55'55.8" TTC

8 CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.T. STA 2268+67.54
℄ TH 212 WB OFF RAMP (NWRAMP)
P.O.C. STA 701+02.55
X = 492659.804
Y = 133788.941
ANGLE: 28°7'10.6" TTC

CURVE NO. W2-205
R = 750.00'
Lc = 273.78'
Ls = 220.00'
Ea = 4.00"
Eu = 4.45"
V = 40 MPH
Dc = 7°38'21.98"

STATE PROJECT NO. 9909-01

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
2. OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION,TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS-SECTIONAL AREA ETC.
3. APPARENT HIGHWATER ELEVATION _____ OBTAINED FROM:
4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE: XX-XX-XXXX

STREAM OR DITCH DESIGNATION: XXX

DRAINAGE AREA: XXX SQ. MI.

MAX FLOOD ON RECORD: XXX C.F.S. (XX-XX-XX)

MAXIMUM OBSERVED HIGHWATER ELEVATION: XXX.X FT.

DESIGN FLOOD (XX TR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
DESIGN MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.
TOTAL STAGE INCREASE: XX.X FT.
LOW MEMBER AT OR ABOVE ELEVATION: XXX.X FT

INDEX MAP

WATERWAY AREA REQUIRED BELOW ELEV. XXX.X = XXX SQ. FT. AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
TOTAL STAGE INCREASE: X.X FT.
MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.

FLOWLINE ELEVATION: XXX FT. SKEW ANGLE: XX

ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. XXX.X (500 OR OT YR.FREQ.)

SCOUR CONFIRMATION RECOMMENDATION

DATE: XX-XX-XXXX

TOTAL SCOUR AT PIER EL. XXX.XX (500 OR OT YR FREQ.)
SCOUR CODE: OBTAIN FROM HYDRAULIC ENGINEER

BRIDGE SURVEY = SHEETS MADE FROM 20XX XXXXXI SURVEYS

1ST BENCH MARK
MNDOT NAME: 2763 C 1
APPROX. NORTHING (HEN. COUNTY COORDINATES): 133037.136
APPROX. EASTING (HEN. COUNTY COORDINATES): 492530.677
BENCHMARK ELEVATION (NAVD88): 899.073

2ND BENCH MARK
MNDOT NAME: 2773 F
APPROX. NORTHING (HEN. COUNTY COORDINATES): 135659.858
APPROX. EASTING (HEN. COUNTY COORDINATES): 493993.897
BENCHMARK ELEVATION (NAVD88): 954.066

BRIDGE SURVEY

0.1 MI NORTH OF JCT. T.H. 212
AND SHADY OAK ROAD
IN EDEN PRAIRIE

SOUTHWEST LRT OVER FLYING CLOUD DRIVE, SHADY OAK ROAD & TH 212

SEC 1 T 116 N R 22 W

CITY OF EDEN PRAIRIE HENNEPIN COUNTY

BRIDGE XXXXX

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
SHADY OAK ROAD
BRIDGE XXXXX (LRT)
BRIDGE SURVEY (1 OF 3)

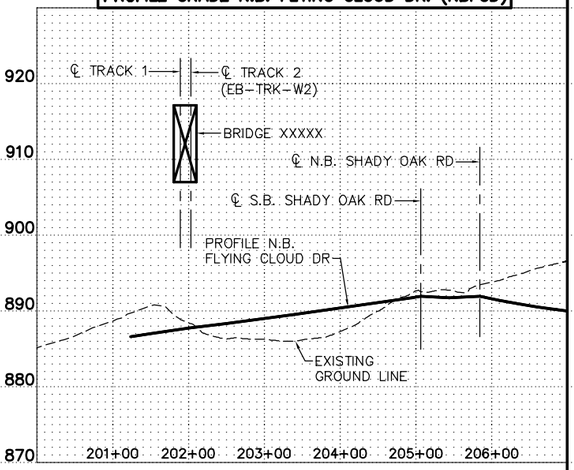
DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-T212-SUR1

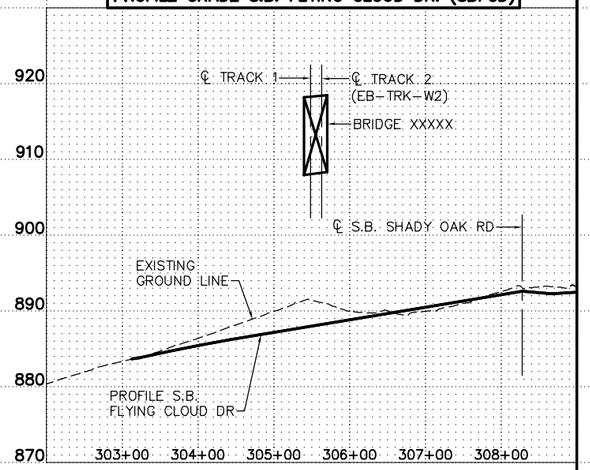
SHEET 71 OF 204

Aug, 05 2014 08:46 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-T212-SUR1.dwg By: hills

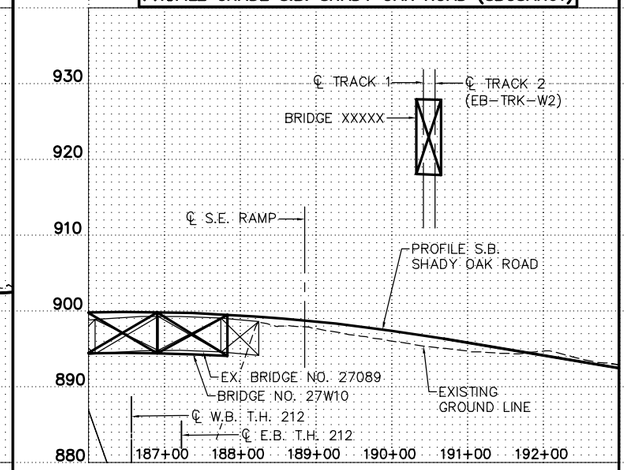
PROFILE GRADE N.B. FLYING CLOUD DR. (NBFCD)



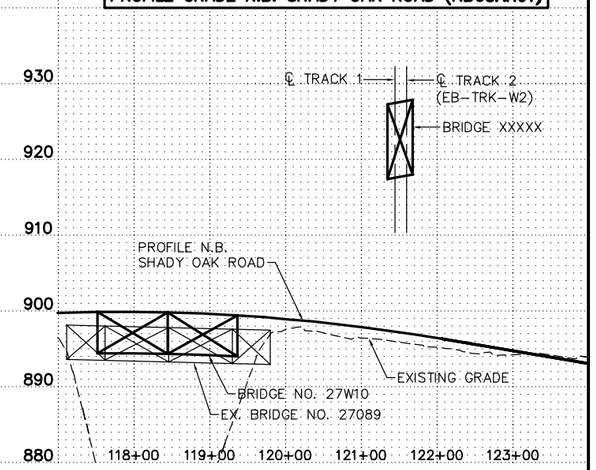
PROFILE GRADE S.B. FLYING CLOUD DR. (SBFCD)



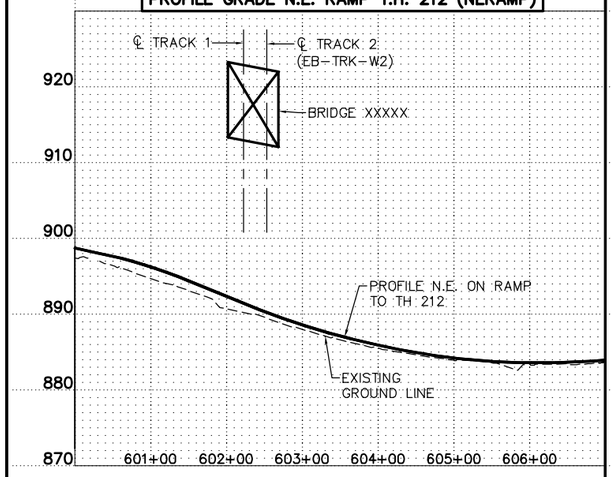
PROFILE GRADE S.B. SHADY OAK ROAD (SBCSAH61)



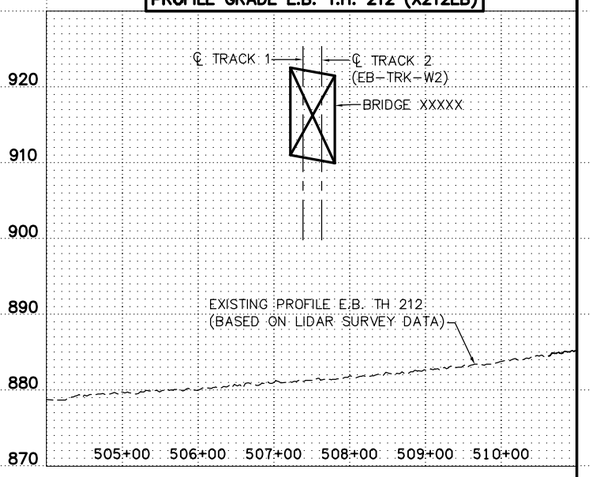
PROFILE GRADE N.B. SHADY OAK ROAD (NBCSAH61)



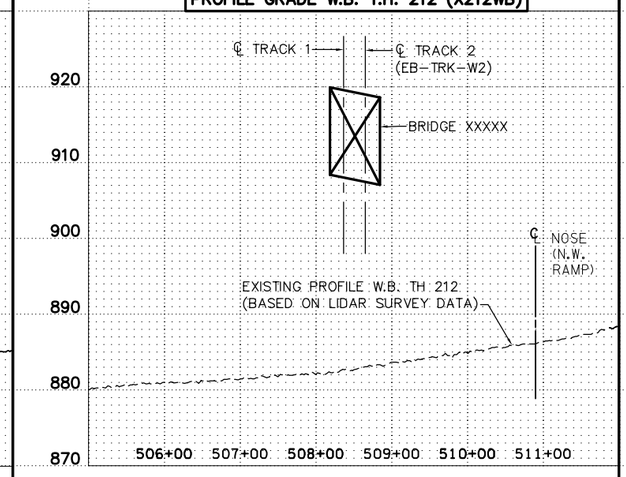
PROFILE GRADE N.E. RAMP T.H. 212 (NERAMP)



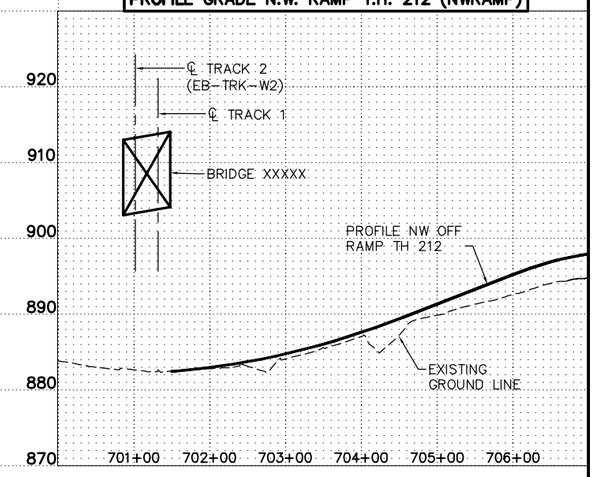
PROFILE GRADE E.B. T.H. 212 (X212EB)



PROFILE GRADE W.B. T.H. 212 (X212WB)

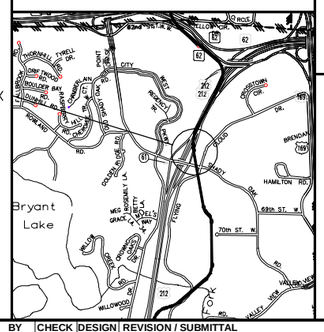


PROFILE GRADE N.W. RAMP T.H. 212 (NWRAMP)



PROPOSED BRIDGE XXXXX

INDEX MAP



CONTRACTED PROFILE

SCALE HOR: 0 100'

SCALE VER: 0 10'

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

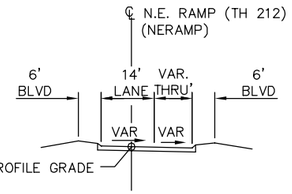
WEST - VOLUME 2 (STRUCTURES)
SHADY OAK ROAD
BRIDGE XXXXX (LRT)
BRIDGE SURVEY (2 OF 3)

DISCIPLINE: STRUCTURES

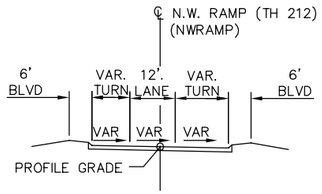
SHEET NAME: W2-STU-BRG-T212-SUR2

SHEET 72 OF 204

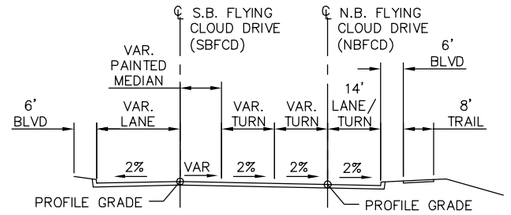
Aug, 05 2014 08:49 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-T212-SUR2.dwg By: hills



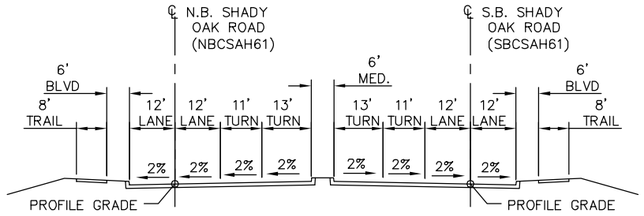
EXISTING TYPICAL ROADWAY SECTION
N.E. RAMP (T.H. 212)



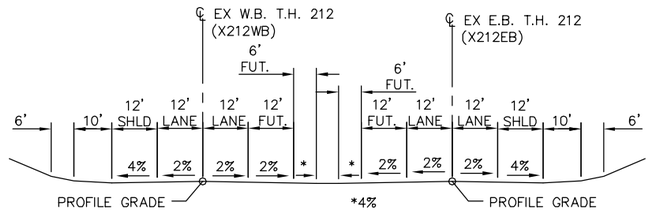
EXISTING TYPICAL ROADWAY SECTION
N.W. RAMP (T.H. 212)



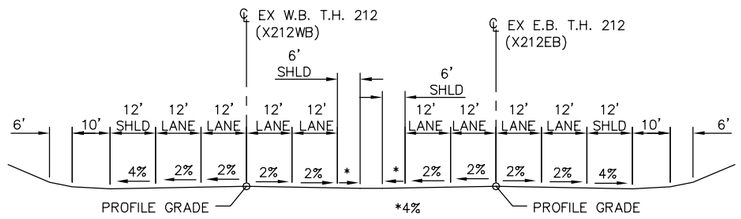
EXISTING TYPICAL ROADWAY SECTION
FLYING CLOUD DRIVE



EXISTING TYPICAL ROADWAY SECTION
SHADY OAK ROAD



EXISTING TYPICAL ROADWAY SECTION
T.H. 212



FUTURE TYPICAL ROADWAY SECTION
T.H. 212

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

DES: DDL | DRA: SWH
CHK: JFE | CHK: JFE

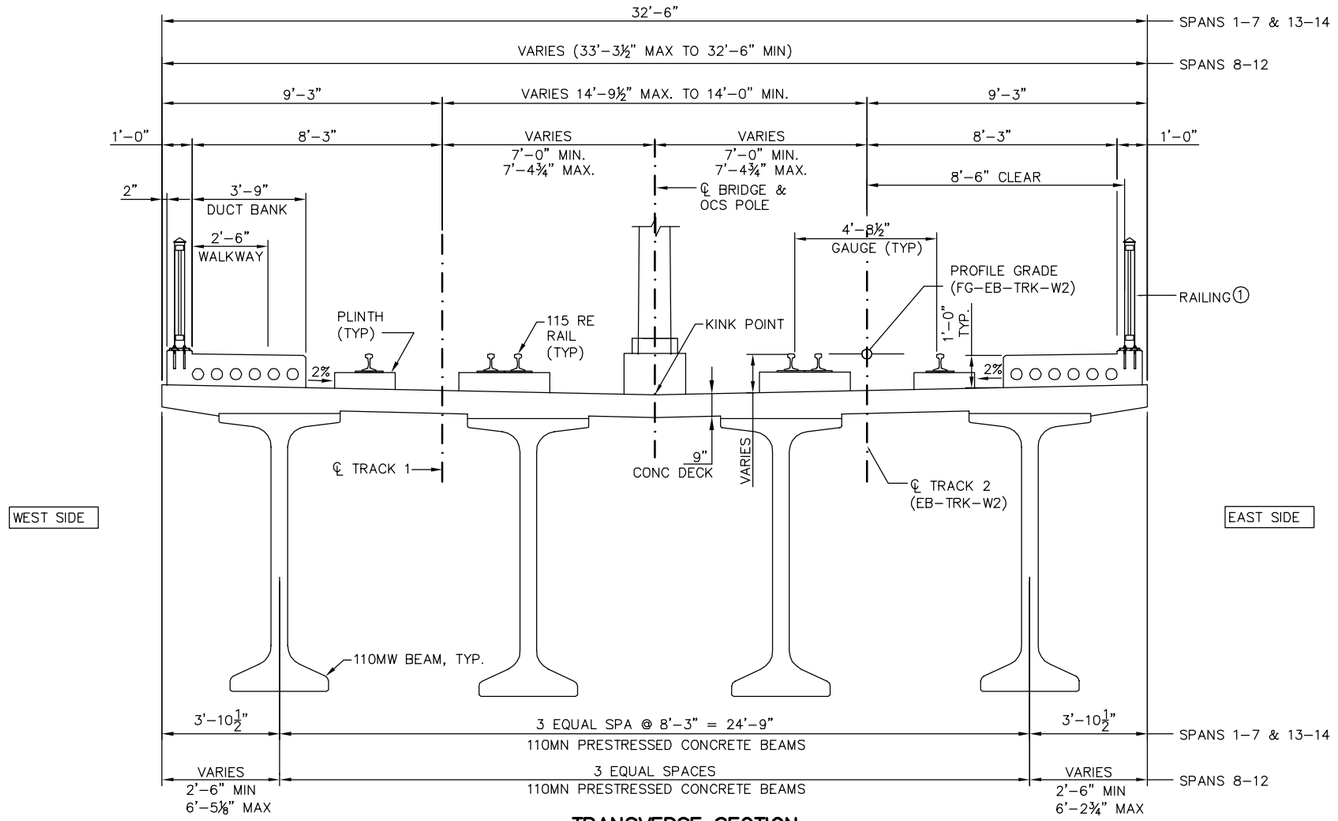
WEST - VOLUME 2 (STRUCTURES)
SHADY OAK ROAD
BRIDGE XXXXX (LRT)
BRIDGE SURVEY (3 OF 3)

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-T212-SUR8

SHEET 73 OF 204

Aug, 05 2014 08:51 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-T212-SUR8.dwg By: hills



TRANSVERSE SECTION

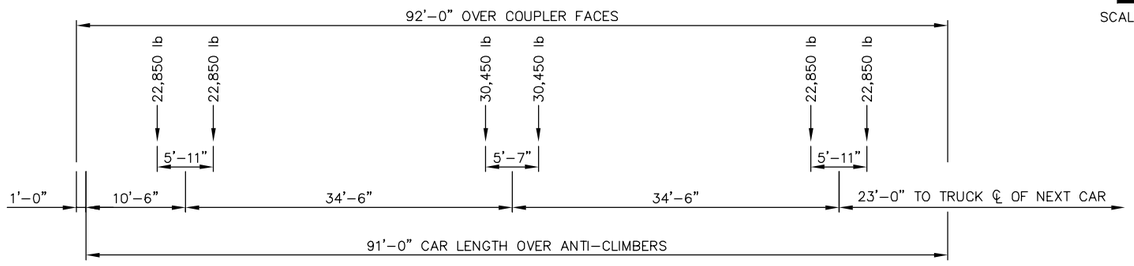
0 2.5 5

SCALE IN FEET

NOTES:

① RAILING PER MnDOT TH212 AESTHETIC DESIGN GUIDE. THE RAILING SHALL BE SIMILAR TO AND COMPLIMENT THE RAILING DETAILS FOR MNDOT BRIDGE 27W10.

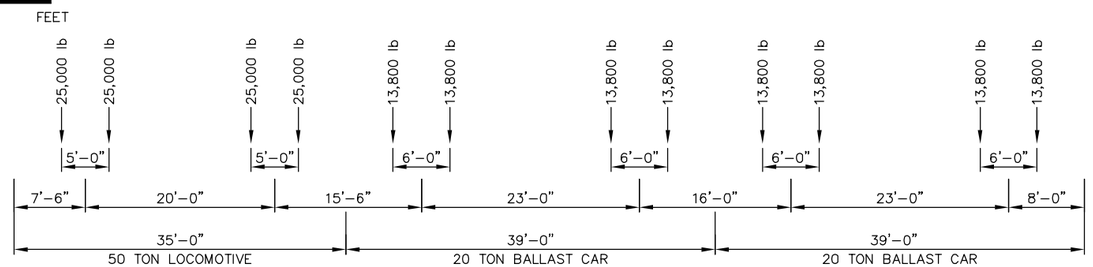
2. NUMBER AND SPACING OF BEAMS IS APPROXIMATE AND WILL BE SET DURING FINAL DESIGN.



LIGHT RAIL VEHICLE LOADING DIAGRAM

NOTES:

1. THE LRT TRAIN SHALL CONSIST OF EITHER ONE, TWO OR THREE CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.



MAINTENANCE TRAIN LOADING DIAGRAM

NOTES:

1. THE MAINTENANCE TRAIN SHALL CONSIST OF ONE LOCOMOTIVE AND ONE, TWO, THREE OR FOUR BALLAST CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.

2. WEIGHT OF EMPTY BALLAST CAR IS 15,000 POUNDS.

DES: DDL	DRA: SWH
CHK: EEM	CHK: EEM

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

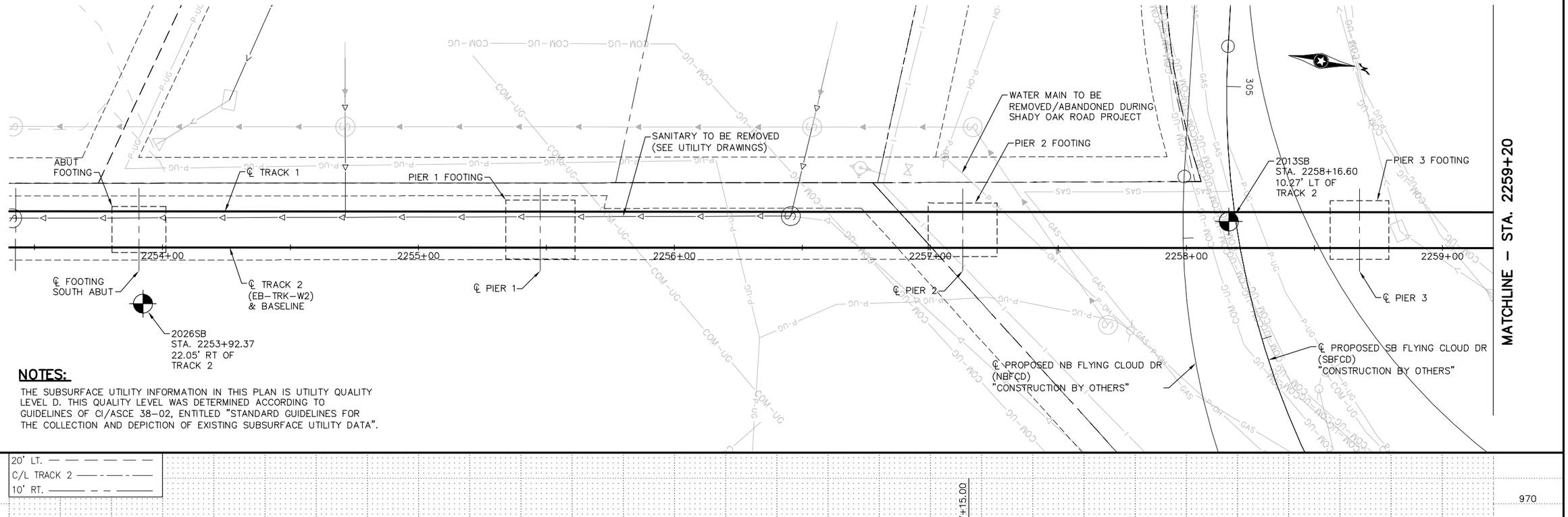
WEST - VOLUME 2 (STRUCTURES)
SHADY OAK ROAD
BRIDGE XXXXX (LRT)
TRANSVERSE SECTION & LOADING DIAGRAMS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-T212-TYP1

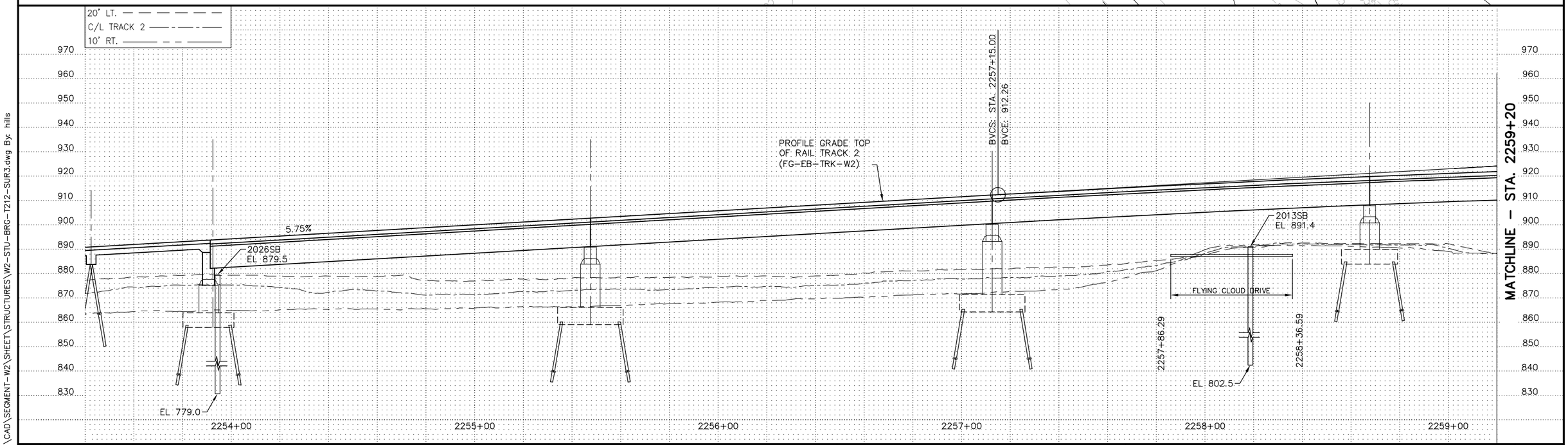
SHEET 74 OF 204

Aug, 05 2014 08:52 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-T212-TYP1.dwg By: hills



NOTES:

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

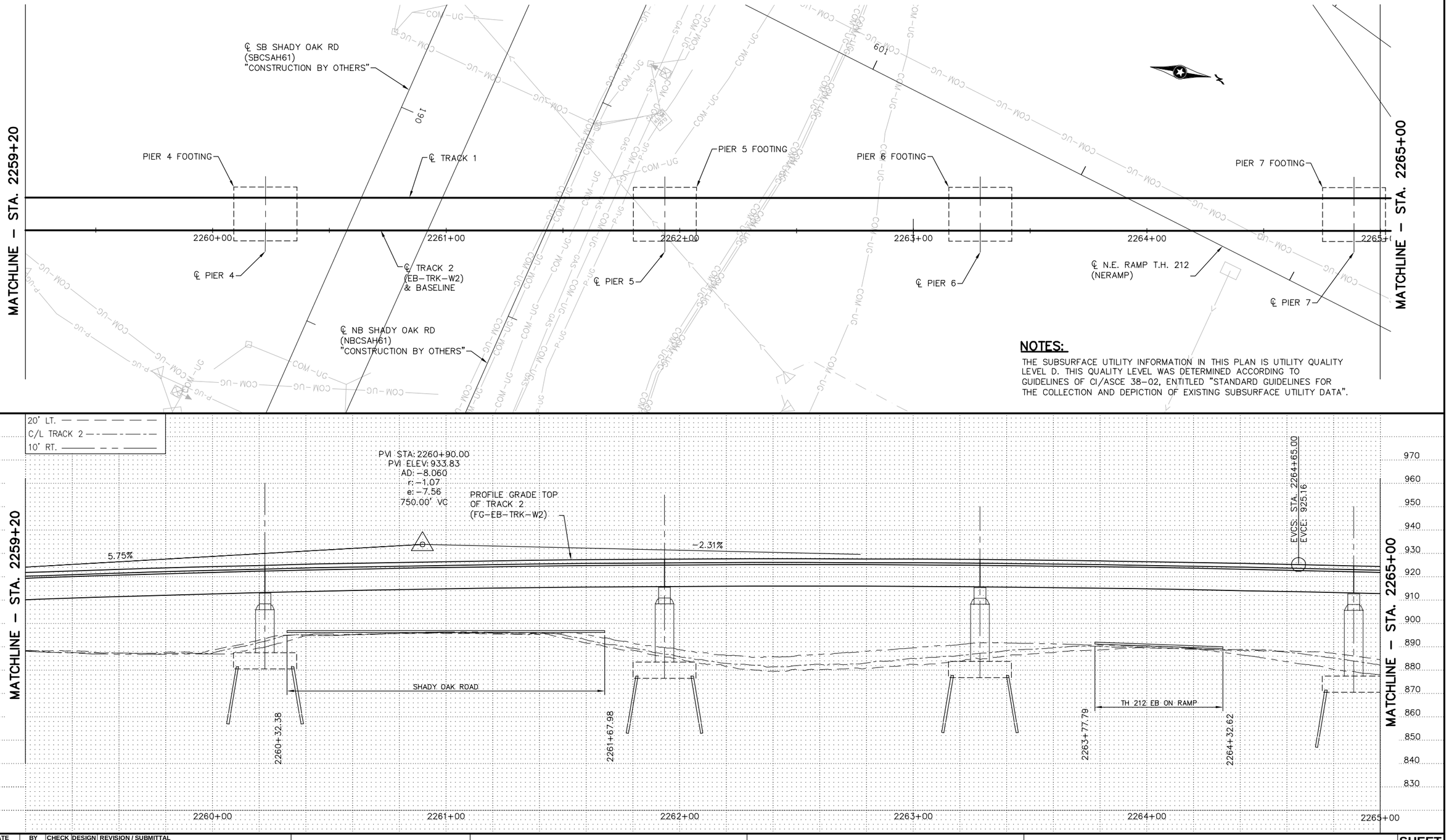
WEST - VOLUME 2 (STRUCTURES)
SHADY OAK ROAD
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-T212-SUR3

SHEET 75 OF 204

Aug. 05 2014 08:56 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-T212-SUR3.dwg By: hills



NOTES:

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38–02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

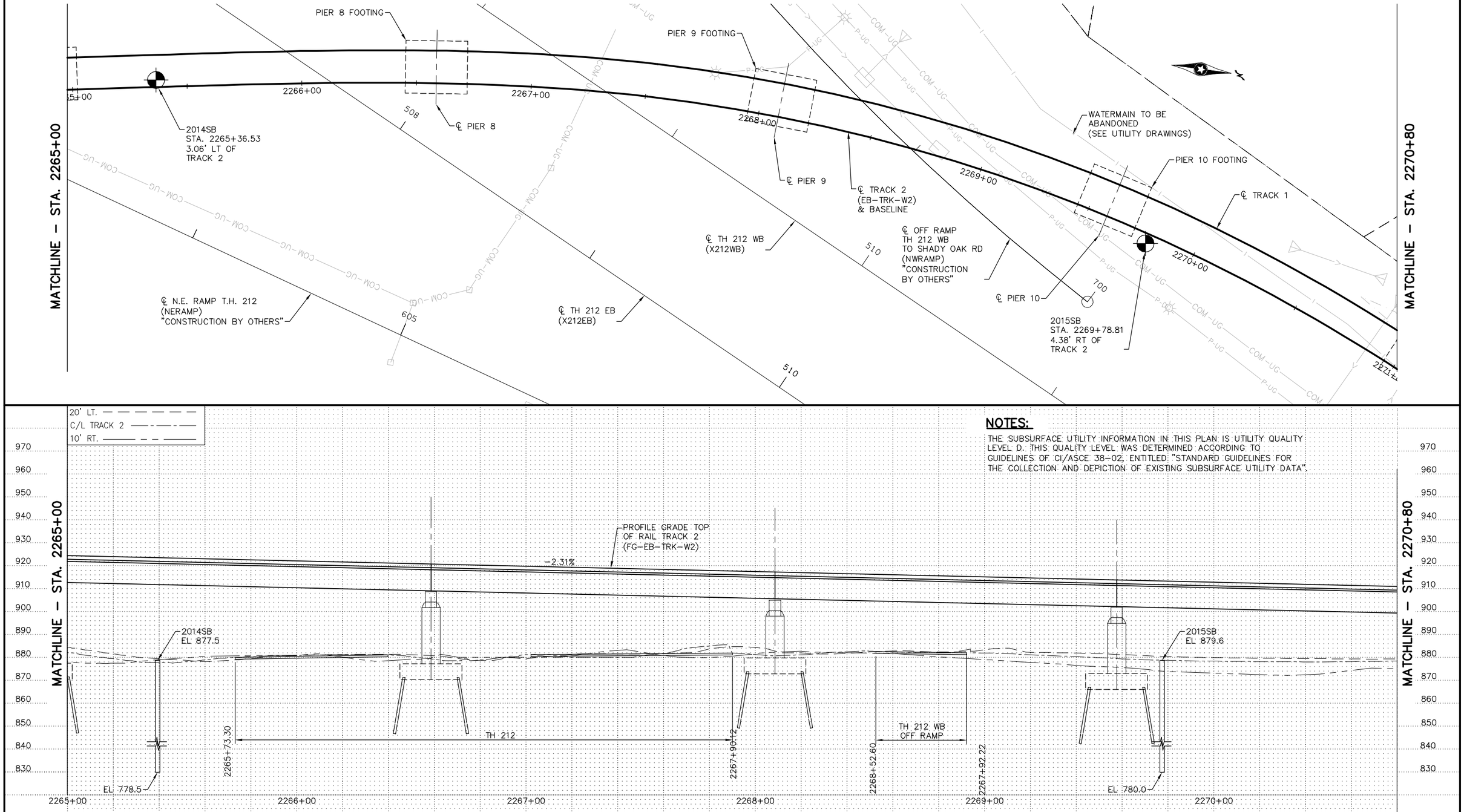
WEST - VOLUME 2 (STRUCTURES)
SHADY OAK ROAD
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-T212-SUR4

SHEET 76 OF 204

Aug, 05 2014 09:19 am V:\CAD\SEGMENT–W2\SHEET\STRUCTURES\W2–STU–BRG–T212–SUR4.dwg By: hills



NOTES:

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38–02, ENTITLED: "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

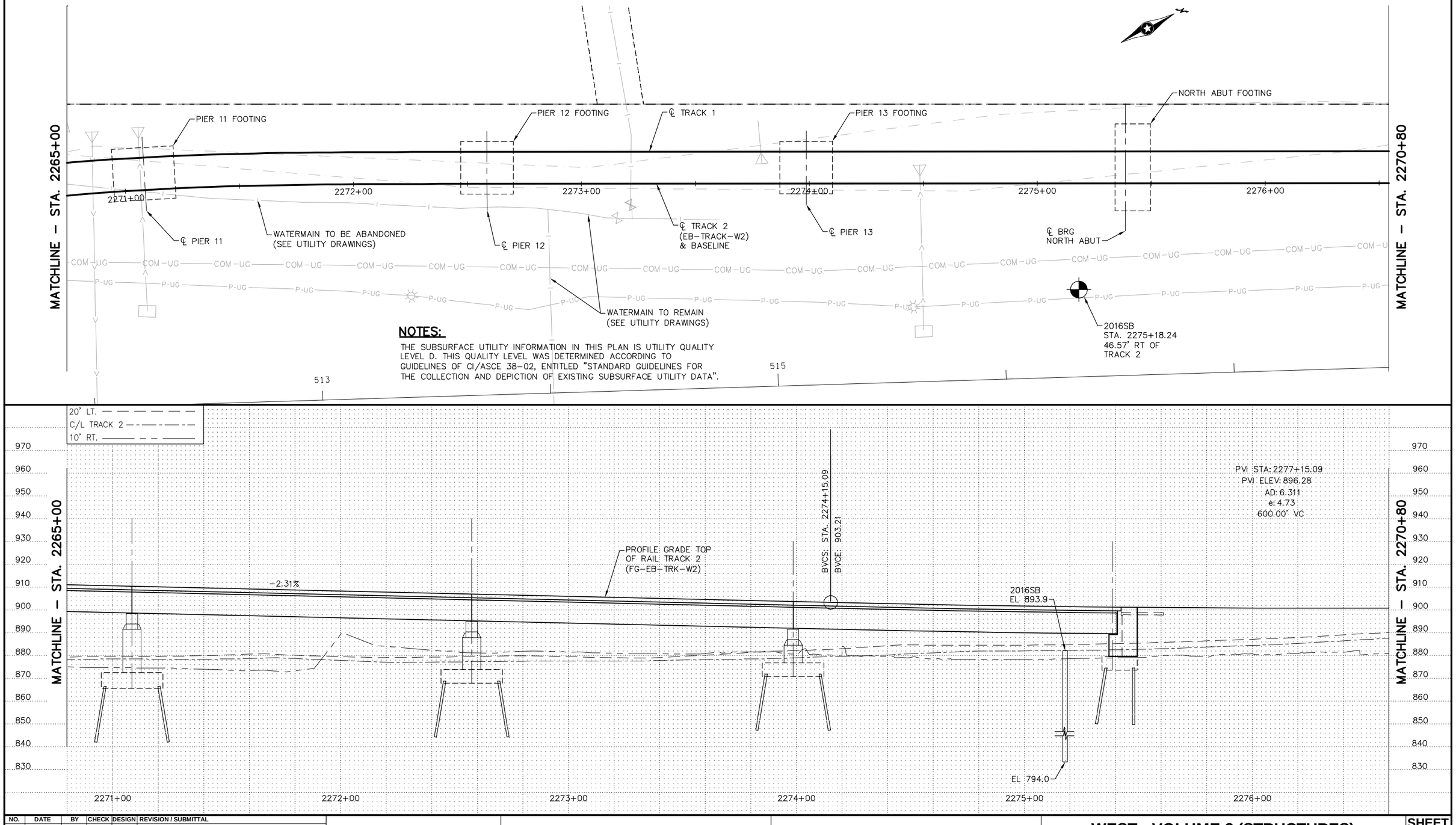
WEST - VOLUME 2 (STRUCTURES)
SHADY OAK ROAD
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-T212-SUR5

SHEET 77 OF 204

Aug. 05 2014 09:21 am V:\CAD\SEGMENT–W2\SHEET\STRUCTURES\W2-STU-BRG-T212-SUR5.dwg By: hills



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
SHADY OAK ROAD
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-T212-SUR6

SHEET 78 OF 204

Aug. 27 2014 08:34 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-T212-SUR6.dwg By: hills

2026SB
Elevation 879.5

Coh N60	
	SILTY SAND, fine- to medium-grained, with Gravel, dark brown, moist.
8	FILL: Poorly Graded Sand with Silt, fine- to medium-grained, with Gravel, brown, moist.
20	
14	FILL: Silty Sand, fine- to medium-grained, with bituminous pieces, black, moist.
8	
4	FILL: Clayey Sand, fine- to medium-grained, with Gravel, brown, moist.
9	FILL: Silty Sand, fine- to medium-grained, with Gravel, with bricks and bituminous, brown, moist.
9	
15	FILL: Sandy Lean Clay, trace Gravel, brown, wet.
6	FILL: Sandy Lean Clay, trace roots, black, wet.
7	ORGANIC CLAY, with roots and fibers, black, wet.
23	LEAN CLAY with SAND, slightly organic, with roots and fibers, gray, wet.
25	WELL-GRADED GRAVEL with SILT, fine- to coarse-grained, gray, waterbearing, medium dense to dense.
35	
30	POORLY GRADED SAND with SILT, fine- to medium-grained, with Gravel, brown, waterbearing, medium dense to dense.
24	
34	
53	SANDY LEAN CLAY, trace Gravel, brown, wet, hard.
22	POORLY GRADED SAND, fine- to coarse-grained, with Gravel, brown, waterbearing, medium dense to very dense. -With Silty Sand layer at 65 feet. -Coarse Sand at 85 feet.
28	
51	
20	
25	
33	
22	
25	SANDY LEAN CLAY, trace Gravel, gray, wet, very stiff to hard.
37	
41	

END OF BORING.

Water observed at 15 feet with 15 feet of hollow-stem auger in the ground.

Boring immediately backfilled with bentonite grout.
Bottom of Borehole at 101 ft

2013SB
Elevation 891.4

Coh N60	
15	FILL: Silty Sand, fine- to medium-grained, trace Gravel, dark brown, moist.
10	FILL: Silty Sand, fine- to medium-grained, trace Gravel, brown, moist.
29	FILL: Clayey Sand, trace Gravel, dark brown and black, moist.
*	POORLY GRADED SAND with SILT, fine- to medium-grained, trace Gravel, brown, moist, medium dense.
28	SILTY SAND, fine- to medium-grained, with Gravel, brown, moist, medium dense to very dense.
37	SILTY SAND, fine- to medium-grained, with Clayey Sand layers and seams at 18 feet, trace Gravel, brown, moist, dense.
42	
*	SILTY SAND, fine- to medium-grained, with Gravel and Cobbles, brown, moist, very dense.
*	SILTY SAND, fine- to medium-grained, with occasional Clay lenses and seams, trace Gravel, brown, moist, loose to very dense.
52	
10	POORLY GRADED SAND with SILT, fine- to medium-grained, trace Gravel, brown, moist, medium dense.
20	POORLY GRADED SAND with SILT, fine- to coarse-grained, trace Gravel, brown, moist to 40 feet then waterbearing, medium dense to dense.
18	
23	SANDY LEAN CLAY, trace Gravel, gray, wet, very stiff to hard. Gravel layer encountered at 46 feet.
18	
32	SILTY SAND, fine- to medium-grained, trace Gravel, brown, waterbearing, dense to very dense.
17	
*	POORLY GRADED SAND with SILT, fine- to medium-grained, trace Gravel, gray, waterbearing, medium dense.
94	
49	CLAYEY SAND, trace Gravel, brown, wet, medium dense to dense.
28	
21	POORLY GRADED SAND with SILT, fine- to coarse-grained, trace Gravel, brown, waterbearing, dense.
15	
16	SILTY SAND, fine- to medium-grained, trace Gravel, brown, waterbearing, very dense.
32	
46	END OF BORING. Water observed at 40 feet with 39 1/2 feet of hollow-stem auger in the ground. Boring immediately backfilled with
32	
*	

2014SB
Elevation 877.5

Coh N60	
17	FILL: Clayey Sand, trace Gravel, dark brown, wet.
18	FILL: Silty Sand, fine- to medium-grained, trace Gravel, brown, moist. With Gravel and Cobbles at 7 1/2 feet.
79	
58	POORLY GRADED SAND with SILT, fine- to medium-grained, with some Gravel, brown, moist, medium dense to very dense.
57	
12	
9	POORLY GRADED SAND with SILT, fine- to medium-grained, trace Gravel, gray, waterbearing, loose.
5	
22	POORLY GRADED SAND with SILT, fine- to coarse-grained, with Gravel and Cobbles, gray, waterbearing, medium dense.
12	
22	SANDY LEAN CLAY, trace Gravel, gray, wet, very stiff.
15	POORLY GRADED SAND, fine- to coarse-grained, trace Gravel, gray, waterbearing, medium dense.
23	
21	SANDY LEAN CLAY, trace Gravel, gray, wet, medium to very stiff.
17	
17	
12	
6	
5	CLAYEY SAND, trace Gravel, gray, wet, very loose to medium dense.
4	
6	
18	
26	POORLY GRADED SAND, fine- to medium-grained, trace Gravel, gray, waterbearing, medium dense.
28	CLAYEY SAND, trace Gravel, gray, wet, medium dense.
31	POORLY GRADED SAND, fine- to medium-grained, trace Gravel, gray, waterbearing, dense to very dense.
41	
43	
58	
50/6"	

END OF BORING.

Water observed at 17 1/2 feet with 17 1/2 feet of hollow-stem auger in the ground.

Boring immediately backfilled with bentonite grout.
Bottom of Borehole at 99.8 ft

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
SHADY OAK ROAD
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-T212-SUR7-BOR1

SHEET 79 OF 204

Aug, 05 2014 09:33 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-T212-SUR7-BOR1.dwg By, hills

2015SB
Elevation 879.6

Coh N60	
13	FILL: Silty Sand, fine–grained, trace Gravel, black, wet.
15	FILL: Clayey Sand, trace Gravel, brown and gray, wet.
18	
14	SILTY SAND, fine– to medium–grained, trace Gravel, brown, moist to 12 1/2 feet then waterbearing, loose to medium dense.
7	
6	
10	
11	POORLY GRADED SAND with SILT, fine– to coarse–grained, trace Gravel, brown, waterbearing, medium dense.
17	SILTY SAND, fine– to medium–grained, with some Gravel, brown, waterbearing, medium dense.
18	
14	
16	
10	
11*	
10*	
8	CLAYEY SAND, trace Gravel, gray, wet, loose.
11	LEAN CLAY, gray, wet, rather stiff.
18	POORLY GRADED SAND with SILT, fine– to coarse–grained, trace Gravel, gray, waterbearing, medium dense.
22	
24	
31	SILTY SAND, fine– to medium–grained, trace Gravel, brown, waterbearing, dense.
38	
48*	
35	POORLY GRADED SAND with SILT, fine– to medium–grained, trace Gravel, brown, waterbearing, medium dense to very dense.
30	
35	
27	
20	
40	
54	With occasional Clayey Sand inclusions beginning at 100 feet.
50/5"	With Gravel and Cobbles at 110 feet.

END OF BORING.

Water observed at 12 1/2 feet with 12 feet of hollow–stem auger in the ground.

Boring immediately backfilled with bentonite grout.

Bottom of Borehole at 110.5 ft

2016SB
Elevation 893.9

Coh N60	
25	FILL: Silty Sand, fine– to medium–grained, trace Gravel, brown, moist.
22	FILL: Silty Sand, fine– to coarse–grained, trace Gravel, brown, moist.
15	CLAYEY SAND, trace Gravel, brown, wet, medium dense.
13*	
19	
32	POORLY GRADED SAND with SILT, fine– to coarse–grained, trace Gravel, brown, moist to 17 1/2 feet then waterbearing, loose to dense.
10	
8	SILTY SAND, fine– to medium–grained, trace Gravel, with occasional Clay lenses and seams, brown, waterbearing, loose.
6	
9	
5	SANDY LEAN CLAY, trace Gravel, gray, wet, rather soft to hard. With occasional Sand layers and seams beginning at 45 feet.
TW	
10	
12	
16	
13	
20	
24	
31	
35	
43	CLAYEY SAND, with Gravel, brown, wet, dense to very dense.
51	
39	
26	CLAYEY SAND, trace Gravel, gray, wet, medium dense.
24	
30	SILTY SAND, fine– to coarse–grained, trace Gravel, gray, waterbearing, medium dense.
38	CLAYEY SAND, trace Gravel, gray, wet, medium dense to dense.
23	
21	SILTY SAND, fine– to medium–grained, trace Gravel, gray, waterbearing, medium dense to dense.
44	
50/6"	SANDSTONE, light yellow and white, wet.
*	

END OF BORING.

Water observed at 17 1/2 feet with 17 feet of hollow–stem auger in the ground.

Boring immediately backfilled with bentonite grout.

Bottom of Borehole at 119.3 ft

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

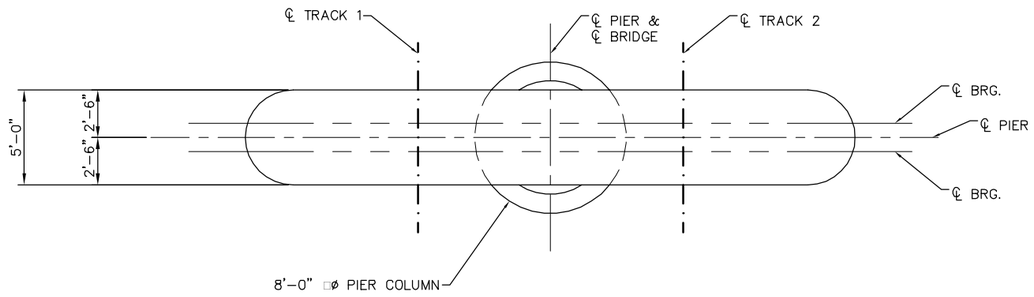
WEST - VOLUME 2 (STRUCTURES)
SHADY OAK ROAD
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

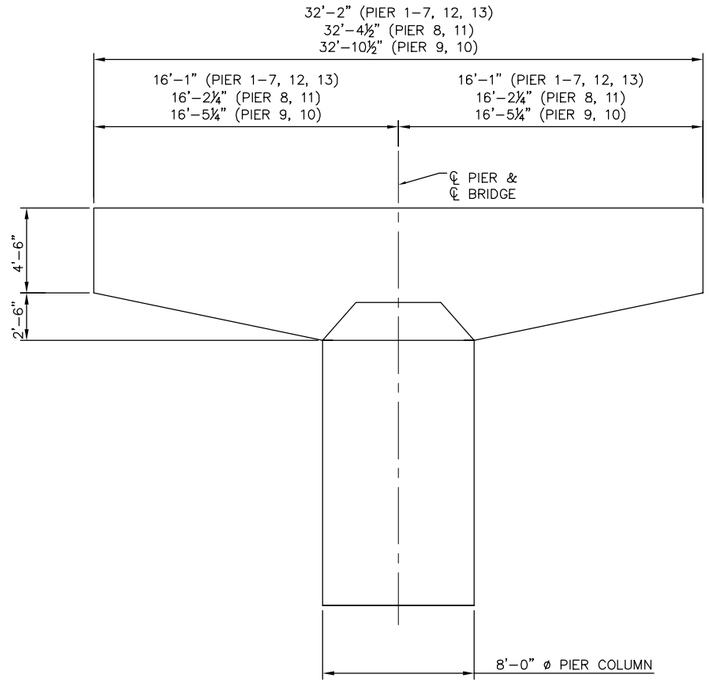
SHEET NAME: W2-STU-BRG-T212-SUR7-BOR2

SHEET 80 OF 204

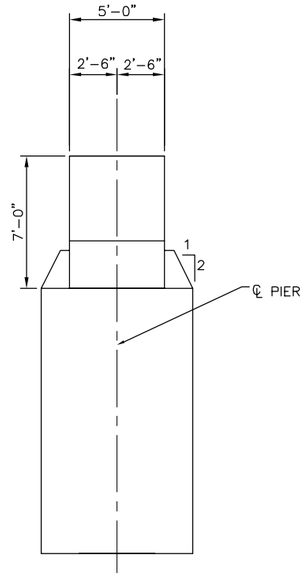
Aug. 05 2014 09:34 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-T212-SUR7-BOR2.dwg By: hills



PIER PLAN



PIER ELEVATION



PIER SECTION

AESTHETIC DETAILS TO BE DETERMINED DURING ADVANCED DESIGN:

1. ABUTMENT SURFACE
2. ABUTMENT/WAL CORNER DETAIL
3. EXPOSED EDGE OF DECK
4. EXPOSED BARRIER
5. EXPOSED FASCIA BEAM
6. BOTTOM OF BEAMS
7. PIER COLUMN SURFACE
8. RAILING AND SCREENING SHALL BE IN ACCORDANCE WITH THE MNDOT "AESTHETIC DESIGN GUIDE" FOR THE TH 212 CORRIDOR

DES: DDL	DRA: SWH
CHK: EEM	CHK: JFE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST

WEST - VOLUME 2 (STRUCTURES)
SHADY OAK ROAD
BRIDGE XXXXX (LRT)
AESTHETIC DETAILS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-BRG-T212-AES1

SHEET 81 OF 204

Aug. 05 2014 09:36 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-BRG-T212-AES1.dwg By: hills

CONTROL POINT:

(A) ℄ FELTL ROAD (FELTLROAD) P.O.T. STA. 25+03.742 =
℄ TRACK 2 (EB–TRK–W3) P.O.T. STA. 2382+09.131
X = 490291.040
Y = 141913.434
ANGLE = 60°40'50"

HORIZONTAL ALIGNMENT DATA:

℄ FELTL ROAD (FELTLROAD):
P.T. STA. 22+40.802
X = 490294.075
Y = 141650.511

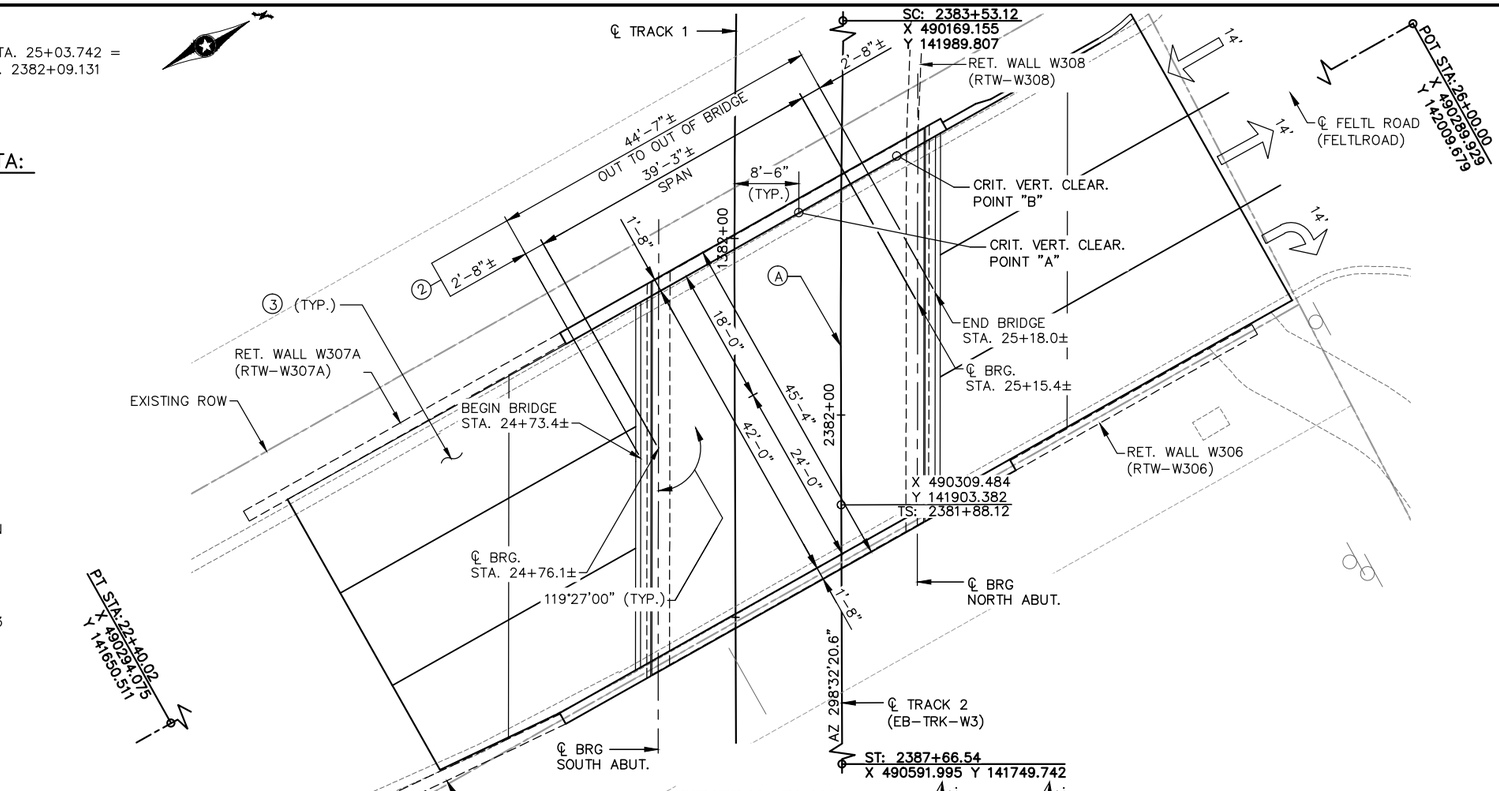
P.O.T. STA. 26+00.000
X = 490289.929
Y = 142009.685

℄ TRACK 2 (EB–TRK–W3):
P.C. STA. 2381+88.125
X = 490309.484
Y = 141903.382

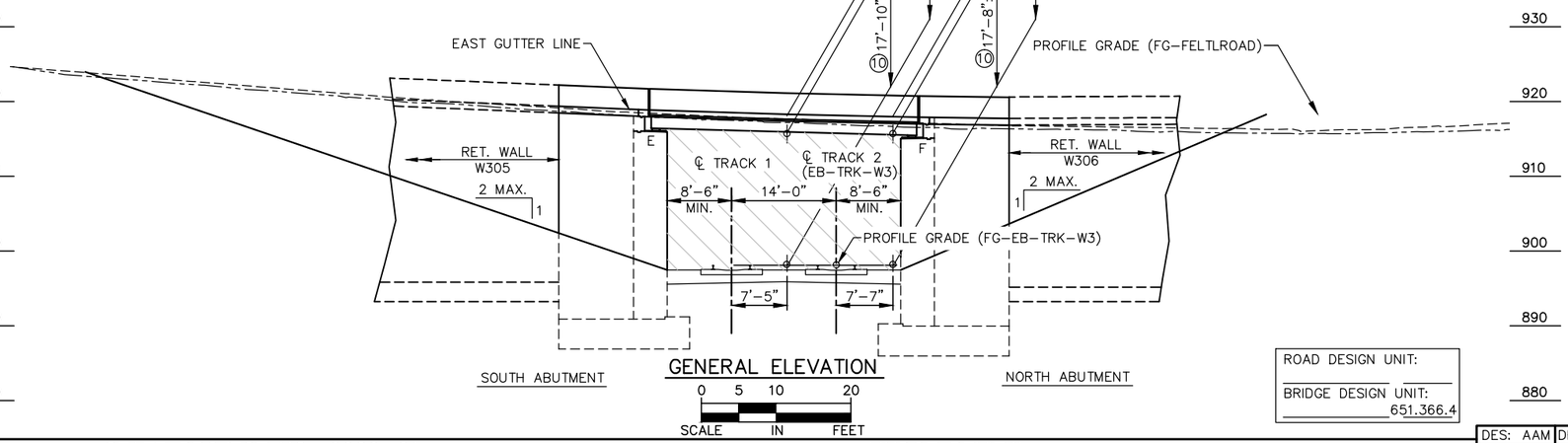
P.O.C. STA. 2383+53.125
X = 490169.155
Y = 141989.807

GENERAL NOTES:

1. SEE BORING SHEETS FOR ADDITIONAL IN PLACE UTILITIES.
2. MEASURED ALONG ℄ FELTL ROAD.
3. BRIDGE APPROACH PANEL LAYOUT STANDARDS 5–297.222 AND 5–297.223 APPLY.
4. HATCHED AREA TO BE REMOVED UNDER GRADING PORTION OF CONTRACT.
5. TRAFFIC TO BE DETOURED DURING CONSTRUCTION.
6. BRIDGE APPROACH TREATMENT STANDARDS 5–297.233 APPLIES.
7. STATION AND COORDINATES TO BE GIVEN IN ADVANCED DESIGN. RETAINING WALL WILL BEGIN AT THE EDGE OF ABUTMENT FOOTING AS SHOWN.
8. VERTICAL CLEARANCE IS BASED ON TRACK 2 PROFILE (FG–EB–TRK–W3).
9. ALLOW FOR 2" FORM LINER IN THE ABUTMENT FACE AND WINGWALLS.
10. MINIMUM VERTICAL CLEARANCE REQUIRED IS 17'–6"



GENERAL PLAN
0 5 10 20
SCALE IN FEET



EXISTING GROUND PROFILE
–20' LT.– – – – – – – – – – – –
℄ FELTL ROAD —·—·—·—·—·—·—
20' RT. — — — — — — — — — —

GENERAL ELEVATION
0 5 10 20
SCALE IN FEET

SOUTH ABUTMENT NORTH ABUTMENT

ROAD DESIGN UNIT:
BRIDGE DESIGN UNIT: 651.366.4

DESIGN DATA

2012 AND CURRENT INTERIUM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

LOAD AND RESISTANCE FACTOR DESIGN METHOD
HL93 LIVE LOAD

DEAD LOAD INCLUDES 20 PSF ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4 k.s.i., n = 8
fy = 60 k.s.i.
PRESTRESSED CONCRETE:
f'c = 9 k.s.i, n = 1
fpu = 270 k.s.i.
0.6" DIA. LOW RELAXATION STRAND
0.75 fpu FOR INITIAL PRESTRESS

DESIGN SPEED:
OVER = 30 MPH
UNDER(LRT) = N.A. MPH

APPROXIMATE DECK AREA = 2,020 SQ. FT.

LIST OF SHEETS

2030 PROJECTED TRAFFIC VOLUMES

ROADWAY OVER		ROADWAY UNDER
3500	AADT	N/A
140	ADTT	N/A

PROPOSED TYPE OF STRUCTURE

DECK:
18" RECTANGULAR PRESTRESSED CONCRETE BEAMS
SIMPLE SPAN
SEPARATE CONCRETE WEARING COURSE
ALL BARS EPOXY COATED

SUBSTRUCTURE:
PARAPET ABUTMENTS SUPPORTED ON SPREAD FOOTING.

DEPTH OF STRUCTURE:
2'–6"± GUTTER TO LOW BRIDGE
18" RECTANGULAR P.C.B. ±5 LINES

AESTHETICS:
TO BE DETERMINED IN ADVANCED DESIGN

PRELIMINARY PLAN
BRIDGE NO. XXXXX

FELTL ROAD OVER SOUTHWEST LIGHT RAIL
0.35 MI. EAST OF THE JUNCTION OF C.S.A.H. 61 AND SMETANA ROAD IN MINNETONKA
39'–3" RECTANGULAR PRESTRESSED CONCRETE BEAM SPAN
45'–4" OUT TO OUT BRIDGE
29°27'00" SKEW

IDENTIFICATION NO. 501

GENERAL PLAN AND ELEVATION

SEC 25 AND 36 T 117 N R 22 W
CITY OF MINNETONKA HENNEPIN COUNTY

APPROVED: _____
STATE BRIDGE ENGINEER

DES: AAM DRA: TAW
CHK: ATN CHK: AAM

JOB NO: T9N635 STATE PROJECT NO: 9909–01 MNDOT REVIEW:

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM
PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
FELTL ROAD OVER SOUTHWEST LIGHT RAIL
BRIDGE XXXXX
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES
SHEET NAME: W3-STU-BRG-FELT-VEH-GPE

SHEET 82 OF 204

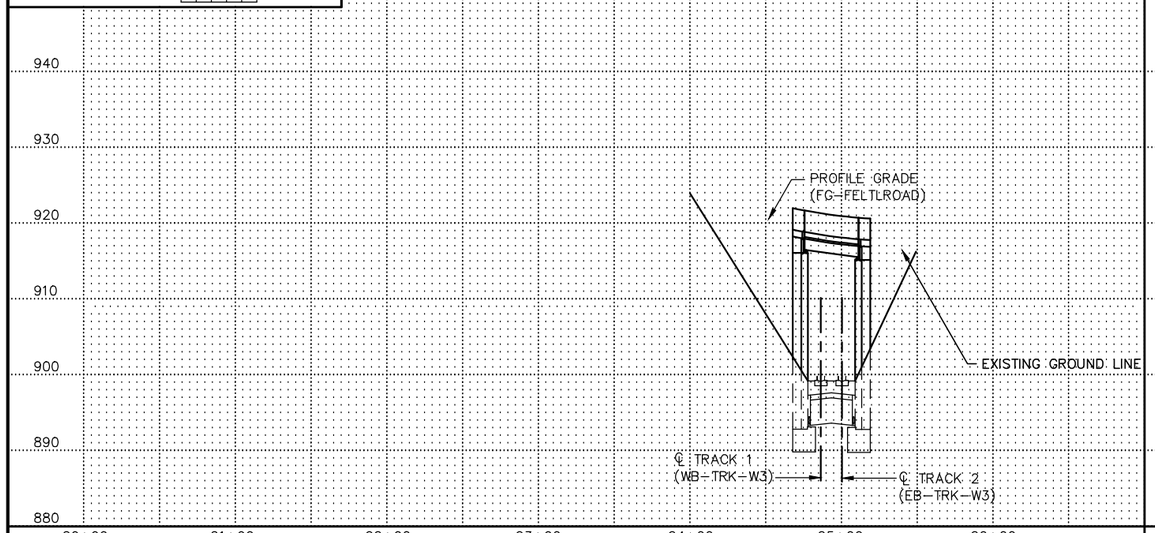
Aug. 27 2014 08:36 pm V:\3200_PEC–W\CAD\SEGMENT–W3\SHEET\STRUCTURES\W3–STU–BRG–FELT–VEH–GPE.dwg By: rieckmanb

CONTRACTED PROFILE

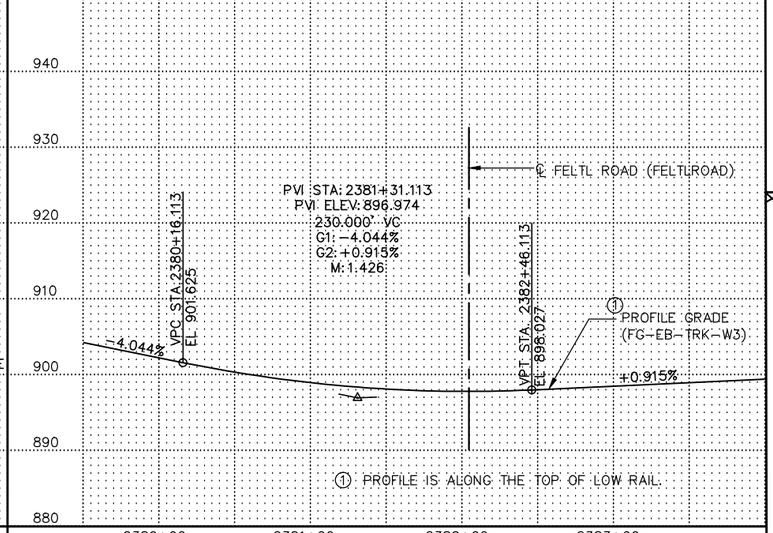
SCALE HOR: 0 50'

SCALE VER: 0 10'

PROFILE GRADE FELTL ROAD (FG–FELTLROAD)

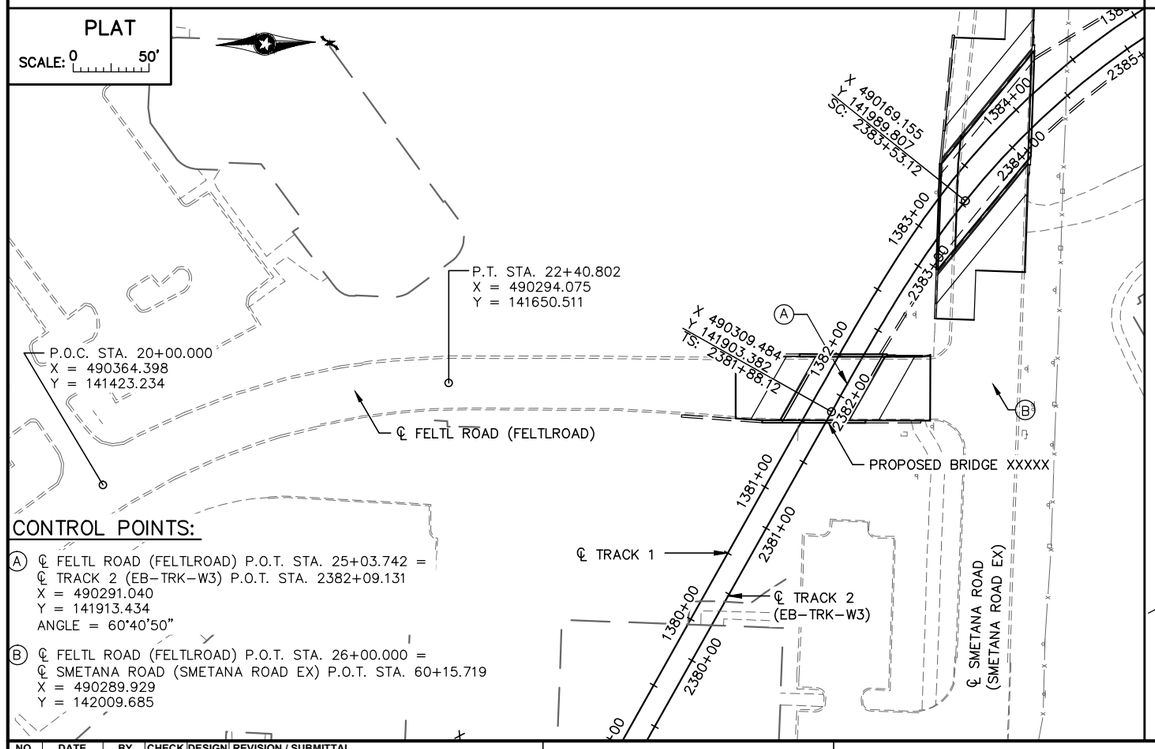


PROFILE GRADE TRACK 2 (FG–EB–TRK–W3)



PLAT

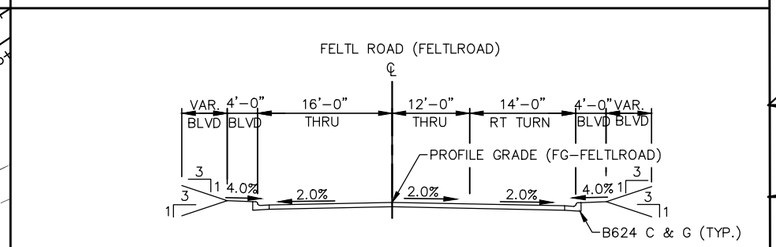
SCALE: 0 50'



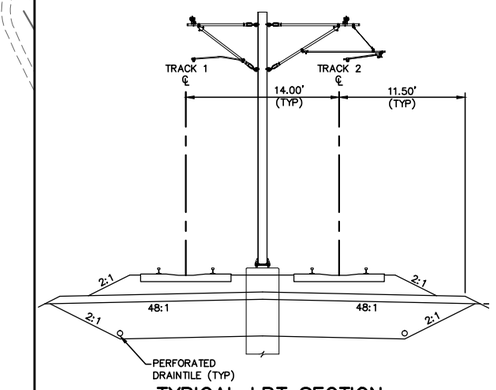
CONTROL POINTS:

Ⓐ ℄ FELTL ROAD (FELTLROAD) P.O.T. STA. 25+03.742 =
℄ TRACK 2 (EB–TRK–W3) P.O.T. STA. 2382+09.131
X = 490291.040
Y = 141913.434
ANGLE = 60°40'50"

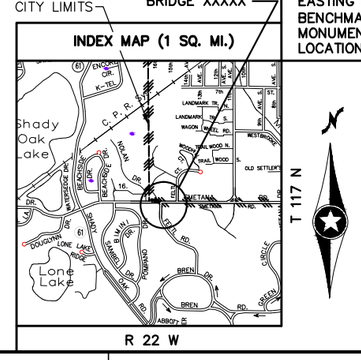
Ⓑ ℄ FELTL ROAD (FELTLROAD) P.O.T. STA. 26+00.000 =
℄ SMETANA ROAD (SMETANA ROAD EX) P.O.T. STA. 60+15.719
X = 490289.929
Y = 142009.685



TYPICAL ROADWAY SECTION – FELTL ROAD



TYPICAL LRT SECTION



LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
2. OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION,TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS–SECTIONAL AREA ETC.
3. APPARENT HIGHWATER ELEVATION _____ OBTAINED FROM:
4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE: XX–XX–XXXX

STREAM OR DITCH DESIGNATION: XXX

DRAINAGE AREA: XXX SQ. MI.

MAX FLOOD ON RECORD: XXX C.F.S. (XX–XX–XX)

MAXIMUM OBSERVED HIGHWATER ELEVATION: XXX.X FT.

DESIGN FLOOD (XX TR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
DESIGN MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.
TOTAL STAGE INCREASE: XX FT.
LOW MEMBER AT OR ABOVE ELEVATION: XXX.X FT

WATERWAY AREA REQUIRED BELOW ELEV. XXX.X = XXX SQ. FT. AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
TOTAL STAGE INCREASE: X.X FT.
MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.

FLOWLINE ELEVATION: XXX FT. SKEW ANGLE: XX

ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. XXX.X (500 OR OT YR.FREQ.)

SCOUR CONFIRMATION RECOMMENDATION

DATE: XX–XX–XXXX

TOTAL SCOUR AT PIER EL. XXX.XX (500 OR OT YR. FREQ.)
SCOUR CODE: OBTAIN FROM HYDRAULIC ENGINEER

BRIDGE SURVEY SHEETS MADE FROM SURVEY AND PHOTOGRAMMETRIC MAPPING.
MONUMENT NAME: CONTROL POINT 6
NORTHING (HEN. COUNTY COORDINATES NAD83(2007)): 142016.680
EASTING (HEN. COUNTY COORDINATES NAD83(2007)): 489989.960
BENCHMARK ELEVATION (NAVD88): 932.956
MONUMENT DESCRIPTION: CAST IRON MONUMENT
LOCATION: SMETANA ROAD NEAR NOLAN DRIVE.

MONUMENT NAME: CONTROL POINT 5
NORTHING (HEN. COUNTY COORDINATES NAD83(2007)): 139399.455
EASTING (HEN. COUNTY COORDINATES NAD83(2007)): 489967.280
BENCHMARK ELEVATION (NAVD88): 950.466
MONUMENT DESCRIPTION: BRASS MONUMENT
LOCATION: PARKING LOT

BRIDGE SURVEY

0.35 MI EAST OF THE JUNCTION OF C.S.A.H. 61 AND SMETANA ROAD IN MINNETONKA

FELTL ROAD OVER SOUTHWEST LIGHT RAIL

SEC 25 AND 36 T 117 N R 22 W

CITY OF MINNETONKA HENNEPIN COUNTY

BRIDGE XXXXX

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

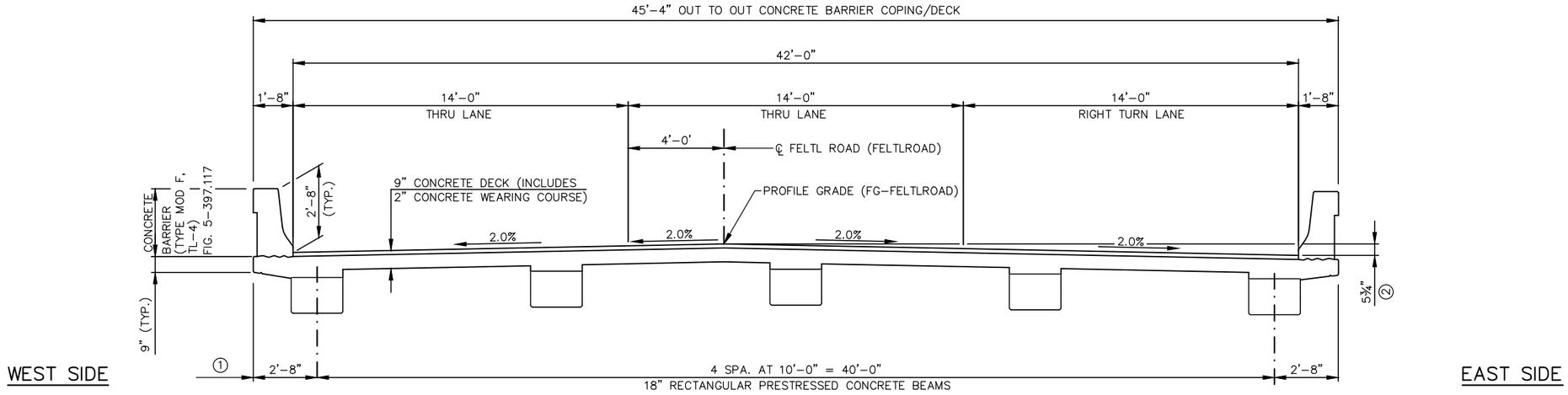
WEST - VOLUME 2 (STRUCTURES)
FELTL ROAD OVER SOUTHWEST LIGHT RAIL
BRIDGE XXXXX
BRIDGE SURVEY

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-FELT-VEH-SUR

SHEET 83 OF 204

Aug, 27 2014 08:43 pm V:\3200_PEC–WCAD\SEGMENT–W3\SHEET\STRUCTURES\W3–STU–BRG–FELT–VEH–SUR.dwg By: rieckmanb



TRANSVERSE SECTION

SCALE 0 1.3 2.7 5.3 IN FEET

NOTES:

① NUMBER AND SPACING OF BEAMS IS APPROXIMATE AND WILL BE SET DURING FINAL DESIGN.

② PROFILE GRADE LINE TO LOW GUTTER LINE.

DES: AAM | DRA: TAW
CHK: ATN | CHK: AAM

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
FELTL ROAD OVER SOUTHWEST LIGHT RAIL
BRIDGE XXXXX
TRANSVERSE SECTION

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-FELT-VEH-DTL

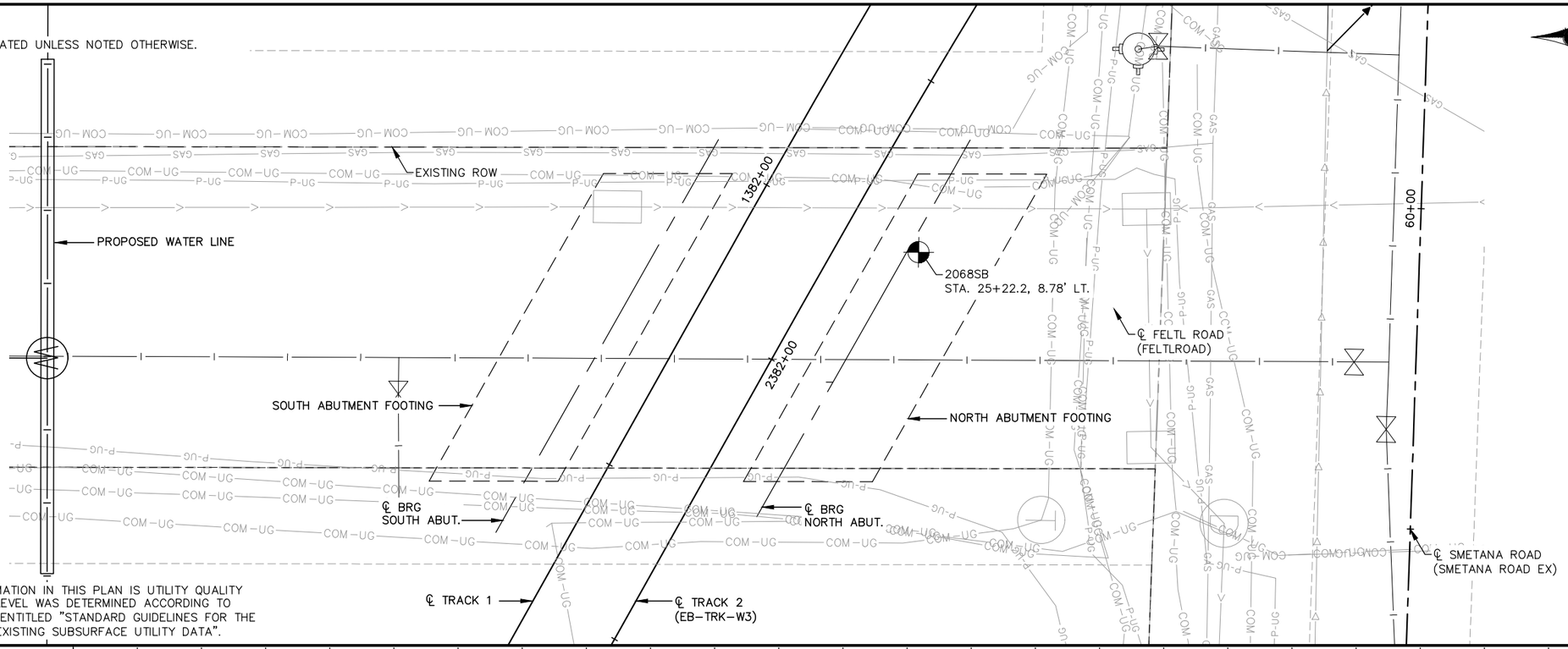
SHEET 84 OF 204

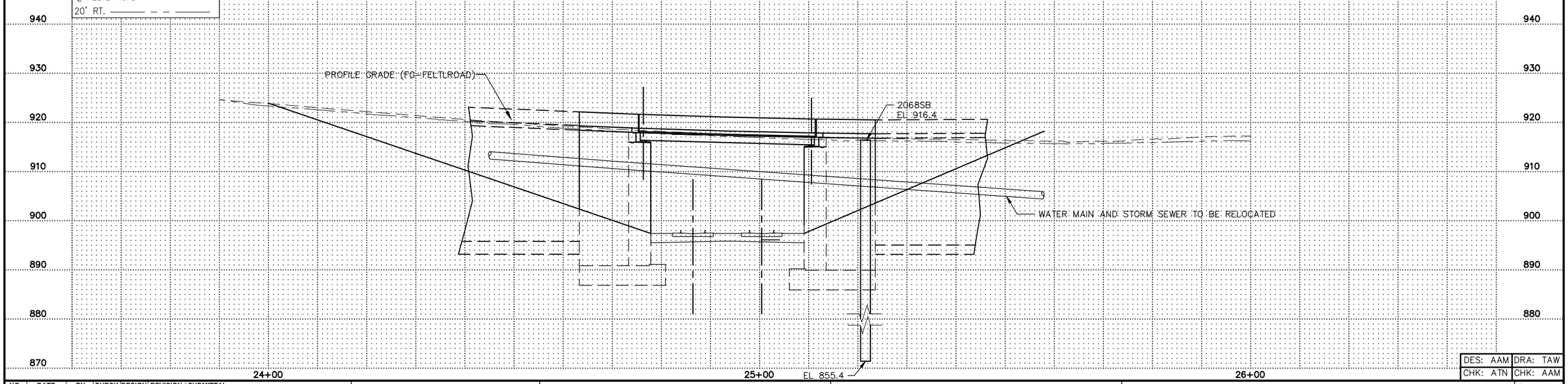
GENERAL NOTES:

1. ALL UTILITIES TO BE RELOCATED UNLESS NOTED OTHERWISE.

NOTES:

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".





NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DES: AAM | DRA: TAW
CHK: ATN | CHK: AAM

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

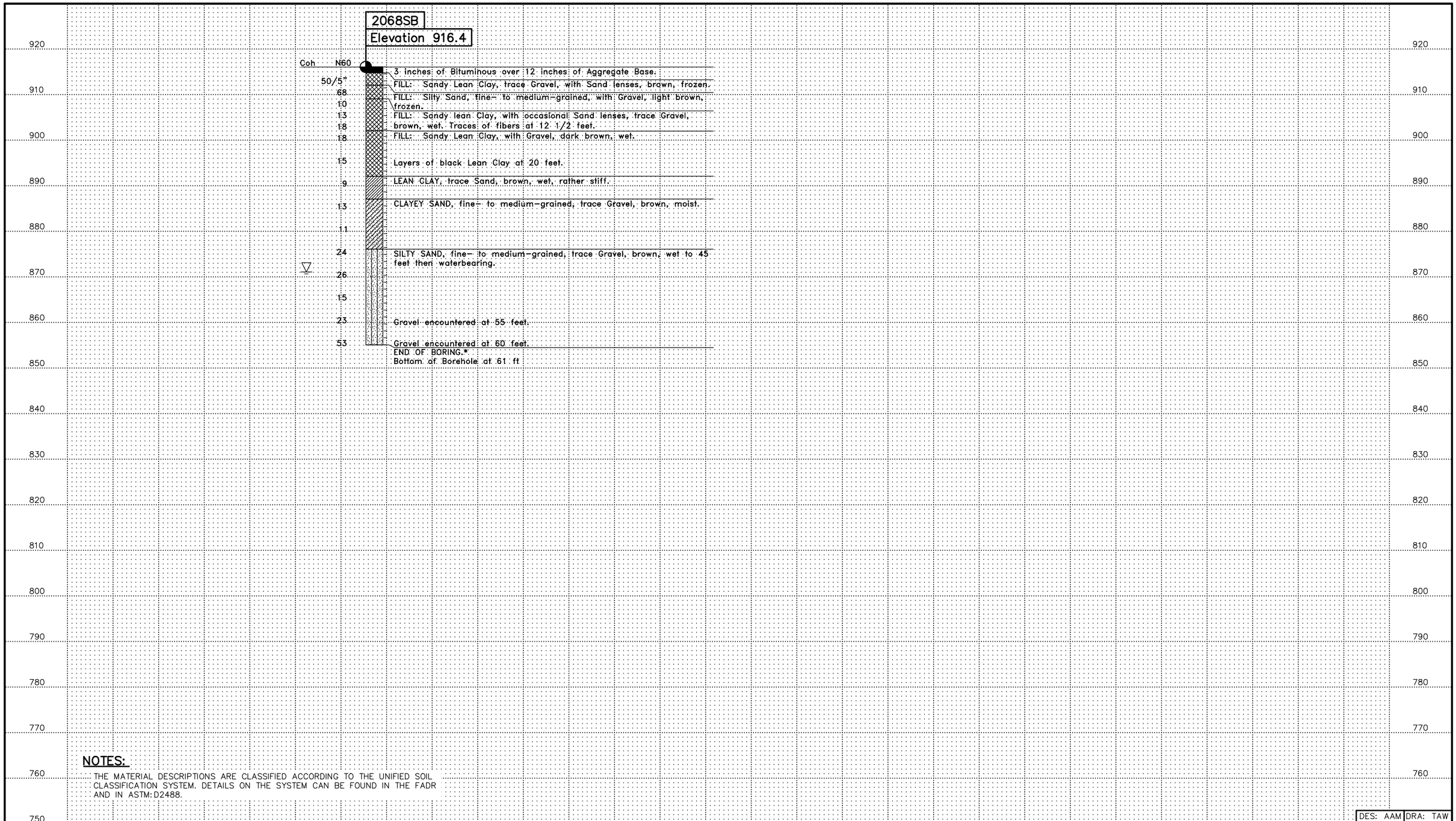
WEST - VOLUME 2 (STRUCTURES)
FELTL ROAD OVER SOUTHWEST LIGHT RAIL
BRIDGE XXXXX
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-FELT-VEH-SUR-BOR-001

SHEET 85 OF 204

Aug, 27 2014 08:50 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-FELT-VEH-SUR-BOR.dwg By: rieckmanb



NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

DES: AAM | DRA: TAW
CHK: ATN | CHK: AAM

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
FELTL ROAD OVER SOUTHWEST LIGHT RAIL
BRIDGE XXXXX
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-FELT-VEH-SUR-BOR-002

SHEET 86 OF 204

Aug. 27 2014 08:50 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-FELT-VEH-SUR-BOR.dwg By: rieckmanb

AESTHETIC DETAILS TO BE DETERMINED DURING ADVANCED DESIGN

1. ABUTMENT SURFACE TREATMENT
2. ABUTMENT/WALL CORNER DETAIL
3. EXPOSED EDGE OF DECK
4. EXPOSED BARRIER
5. EXPOSED FASCIA BEAM
6. BOTTOM OF BEAMS
7. PIER COLUMN SURFACE TREATMENT
8. RAILING AND SCREENING

DES: AAM	DRA: TAW
CHK: ATN	CHK: AAM

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

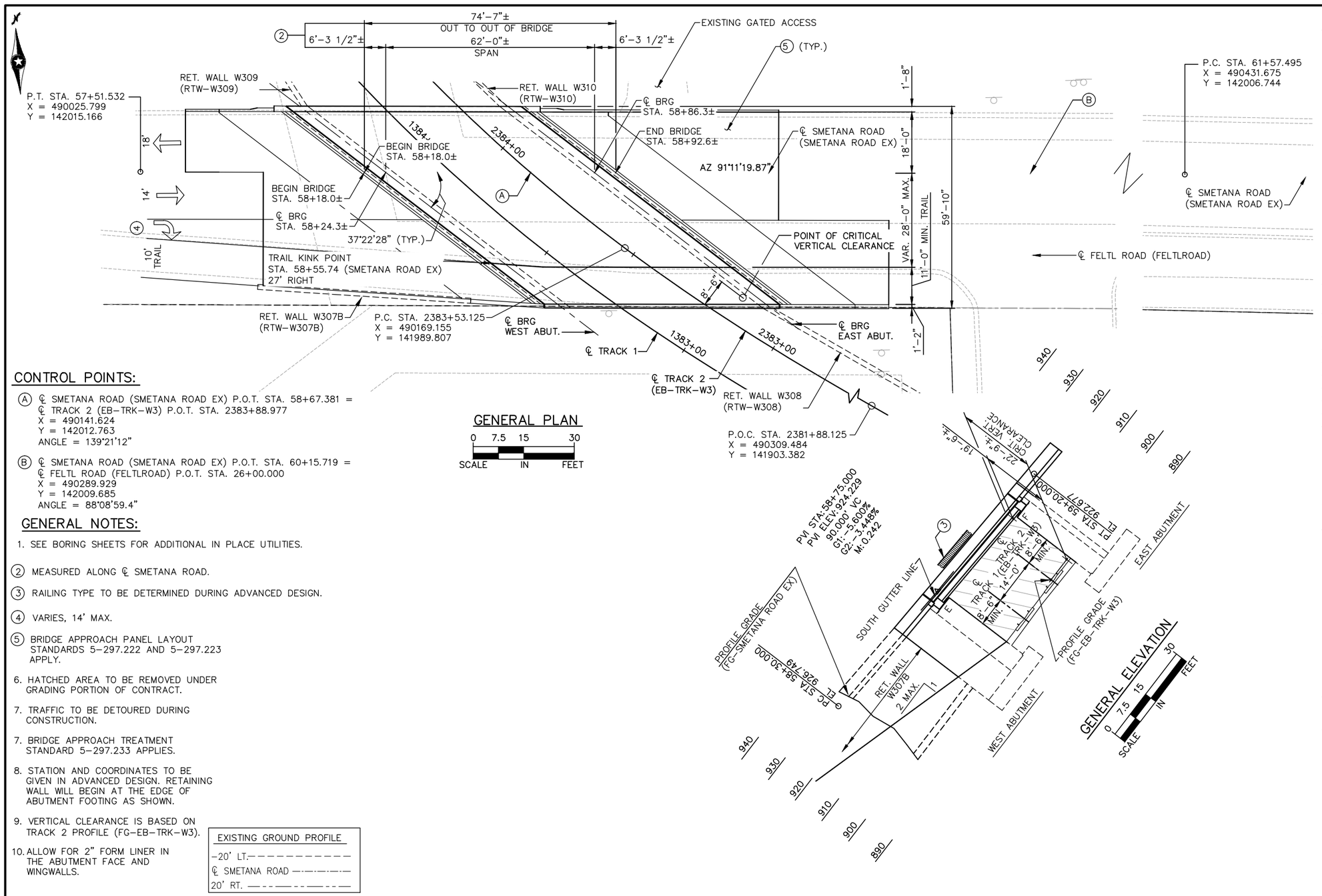
SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
FELTL ROAD OVER SOUTHWEST LIGHT RAIL
BRIDGE XXXXX
AESTHETICS

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-FELT-VEH-AES

SHEET 87 OF 204



CONTROL POINTS:

(A) ℄ SMETANA ROAD (SMETANA ROAD EX) P.O.T. STA. 58+67.381 =
℄ TRACK 2 (EB-TRK-W3) P.O.T. STA. 2383+88.977
X = 490141.624
Y = 142012.763
ANGLE = 139°21'12"

(B) ℄ SMETANA ROAD (SMETANA ROAD EX) P.O.T. STA. 60+15.719 =
℄ FELTL ROAD (FELTLROAD) P.O.T. STA. 26+00.000
X = 490289.929
Y = 142009.685
ANGLE = 88°08'59.4"

GENERAL NOTES:

1. SEE BORING SHEETS FOR ADDITIONAL IN PLACE UTILITIES.
2. MEASURED ALONG ℄ SMETANA ROAD.
3. RAILING TYPE TO BE DETERMINED DURING ADVANCED DESIGN.
4. VARIES, 14' MAX.
5. BRIDGE APPROACH PANEL LAYOUT STANDARDS 5-297.222 AND 5-297.223 APPLY.
6. HATCHED AREA TO BE REMOVED UNDER GRADING PORTION OF CONTRACT.
7. TRAFFIC TO BE DETOURED DURING CONSTRUCTION.
7. BRIDGE APPROACH TREATMENT STANDARD 5-297.233 APPLIES.
8. STATION AND COORDINATES TO BE GIVEN IN ADVANCED DESIGN. RETAINING WALL WILL BEGIN AT THE EDGE OF ABUTMENT FOOTING AS SHOWN.
9. VERTICAL CLEARANCE IS BASED ON TRACK 2 PROFILE (FG-EB-TRK-W3).
10. ALLOW FOR 2" FORM LINER IN THE ABUTMENT FACE AND WINGWALLS.

EXISTING GROUND PROFILE
-20' LT.- - - - - - - - - - - - -
℄ SMETANA ROAD -·-·-·-·-·-
20' RT. — - - — - - — - - —

DESIGN DATA

2012 AND CURRENT INTERIUM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

LOAD AND RESISTANCE FACTOR DESIGN METHOD
HL93 LIVE LOAD

DEAD LOAD INCLUDES 20 PSF ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4 k.s.i., n = 8
fy = 60 k.s.i.
PRESTRESSED CONCRETE:
f'c = 9 k.s.i, n = 1
fpu = 270 k.s.i.
0.6" DIA. LOW RELAXATION STRAND
0.75 fpu FOR INITIAL PRESTRESS

DESIGN SPEED:
OVER = 30 MPH
UNDER(LRT) = N.A. MPH

APPROXIMATE DECK AREA = 4,465 SQ. FT.

LIST OF SHEETS

2030 PROJECTED TRAFFIC VOLUMES

ROADWAY OVER		ROADWAY UNDER
9500	AADT	N/A
380	ADTT	N/A

PROPOSED TYPE OF STRUCTURE

DECK:
27M PRESTRESSED CONCRETE BEAMS
SIMPLE SPAN
SEPARATE CONCRETE WEARING COURSE
ALL BARS EPOXY COATED

SUBSTRUCTURE:
PARAPET ABUTMENTS SUPPORTED ON SPREAD FOOTING.

DEPTH OF STRUCTURE:
3'-3"± GUTTER TO LOW BRIDGE
27M PRESTRESSED CONC. BEAMS ±6 LINES

AESTHETICS:
TO BE DETERMINED IN ADVANCED DESIGN

PRELIMINARY PLAN
BRIDGE NO. XXXXX

SMETANA ROAD OVER SOUTHWEST LIGHT RAIL
0.33 MI. EAST OF THE JUNCTION OF C.S.A.H. 61 AND SMETANA ROAD IN MINNETONKA

62'-0" PRESTRESSED CONCRETE BEAM SPAN
59'-10" OUT TO OUT DECK
52°37'32" SKEW

IDENTIFICATION NO. 501

GENERAL PLAN AND ELEVATION

SEC 25 T 117 N R 22 W
CITY OF MINNETONKA HENNEPIN COUNTY

APPROVED: _____
STATE BRIDGE ENGINEER

JOB NO: T9N635 STATE PROJECT NO: 9909-01 MNDOT REVIEW:

DES: AAM	DRA: TAW
CHK: ATN	CHK: AAM

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM
PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL
BRIDGE XXXXX
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES
SHEET NAME: W3-STU-BRG-SMET-VEH-GPE

SHEET 88 OF 204

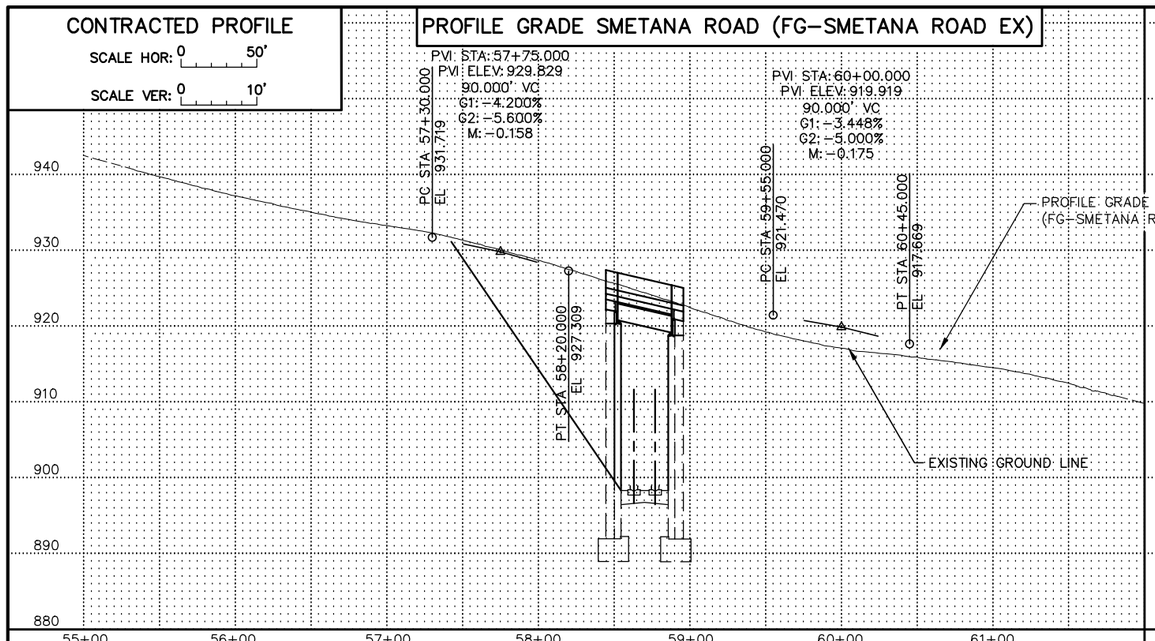
Aug. 27 2014 09:11 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-SMET-VEH-GPE.dwg By: rieckmanb

CONTRACTED PROFILE

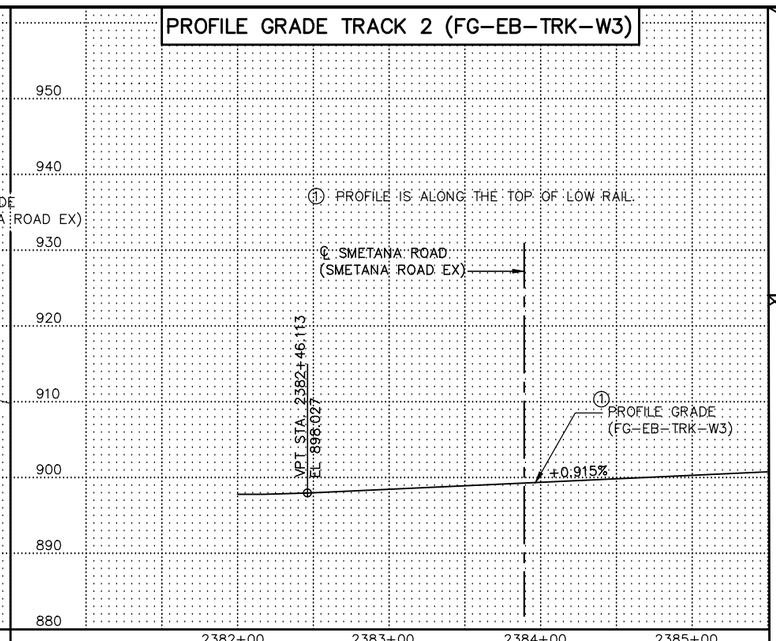
SCALE HOR: 0 50'

SCALE VER: 0 10'

PROFILE GRADE SMETANA ROAD (FG–SMETANA ROAD EX)

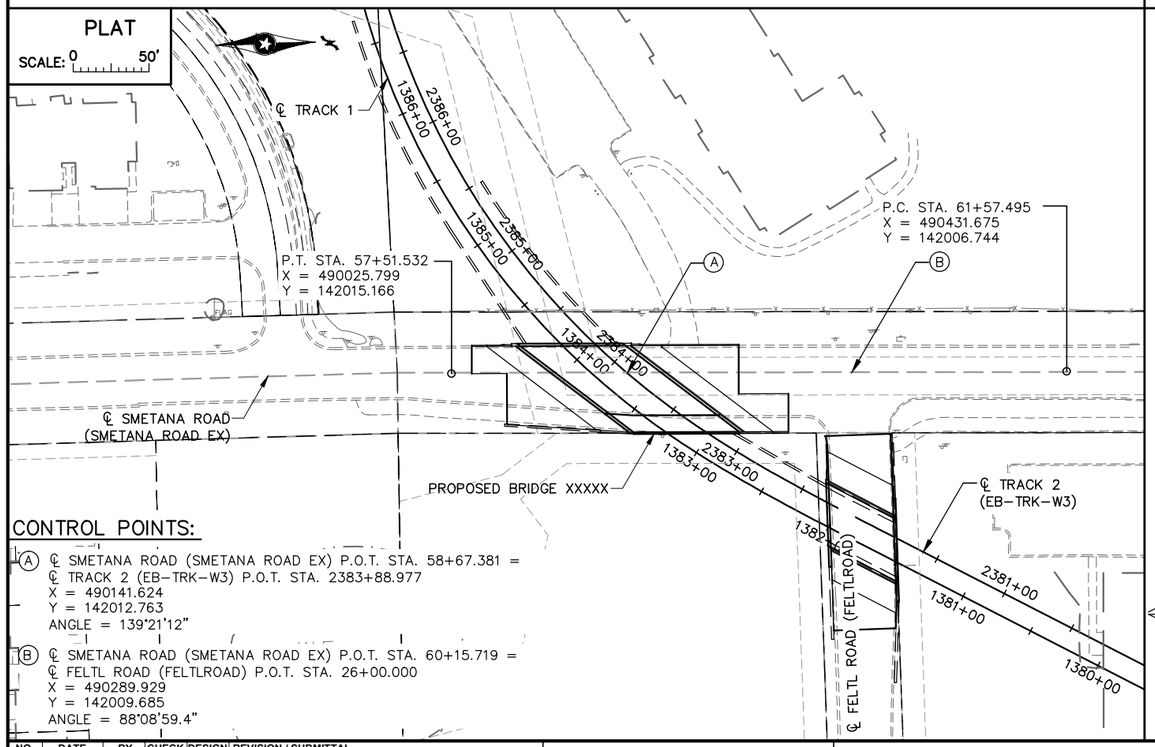


PROFILE GRADE TRACK 2 (FG–EB–TRK–W3)



PLAT

SCALE: 0 50'

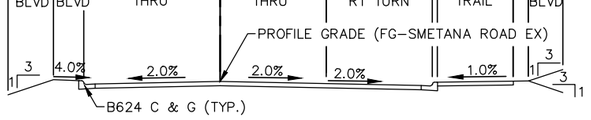


CONTROL POINTS:

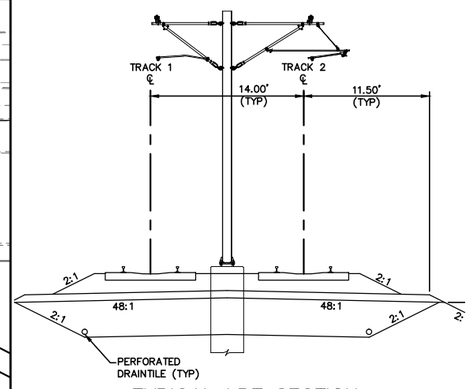
Ⓐ ℄ SMETANA ROAD (SMETANA ROAD EX) P.O.T. STA. 58+67.381 =
℄ TRACK 2 (EB–TRK–W3) P.O.T. STA. 2383+88.977
X = 490141.624
Y = 142012.763
ANGLE = 139°21'12"

Ⓑ ℄ SMETANA ROAD (SMETANA ROAD EX) P.O.T. STA. 60+15.719 =
℄ FELTL ROAD (FELTLROAD) P.O.T. STA. 26+00.000
X = 490289.929
Y = 142009.685
ANGLE = 88°08'59.4"

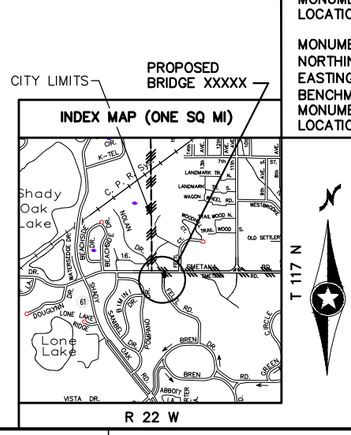
SMETANA ROAD (SMETAN ROAD EX)



TYPICAL ROADWAY SECTION – SMETANA ROAD



TYPICAL LRT SECTION



LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
2. OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION,TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS–SECTIONAL AREA ETC.
3. APPARENT HIGHWATER ELEVATION _____ OBTAINED FROM:
4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE: XX–XX–XXXX

STREAM OR DITCH DESIGNATION: XXX

DRAINAGE AREA: XXX SQ. MI.

MAX FLOOD ON RECORD: XXX C.F.S. (XX–XX–XX)

MAXIMUM OBSERVED HIGHWATER ELEVATION: XXX.X FT.

DESIGN FLOOD (XX TR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
DESIGN MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.
TOTAL STAGE INCREASE: XX FT.
LOW MEMBER AT OR ABOVE ELEVATION: XXX.X FT

WATERWAY AREA REQUIRED BELOW ELEV. XXX.X = XXX SQ. FT. AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
TOTAL STAGE INCREASE: X.X FT.
MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.

FLOWLINE ELEVATION: XXX FT. SKEW ANGLE: XX

ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. XXX.X (500 OR OT YR.FREQ.)

SCOUR CONFIRMATION RECOMMENDATION

DATE: XX–XX–XXXX

TOTAL SCOUR AT PIER EL. XXX.XX (500 OR OT YR. FREQ.)
SCOUR CODE: OBTAIN FROM HYDRAULIC ENGINEER

BRIDGE SURVEY SHEETS MADE FROM SURVEY AND PHOTOGRAMMETRIC MAPPING.
MONUMENT NAME: CONTROL POINT 6
NORTHING (HEN. COUNTY COORDINATES NAD83(2007)): 142016.680
EASTING (HEN. COUNTY COORDINATES NAD83(2007)): 489989.960
BENCHMARK ELEVATION (NAVD88): 932.956
MONUMENT DESCRIPTION: CAST IRON MONUMENT
LOCATION: SMETANA ROAD NEAR NOLAN DRIVE.

MONUMENT NAME: CONTROL POINT 5
NORTHING (HEN. COUNTY COORDINATES NAD83(2007)): 139399.455
EASTING (HEN. COUNTY COORDINATES NAD83(2007)): 489967.280
BENCHMARK ELEVATION (NAVD88): 950.466
MONUMENT DESCRIPTION: BRASS MONUMENT
LOCATION: PARKING LOT

BRIDGE SURVEY

0.33 MI EAST OF THE JUNCTION OF C.S.A.H. 61 AND SMETANA ROAD IN MINNETONKA

SMETANA ROAD OVER SOUTHWEST LIGHT RAIL

SEC 25 T 117 N R 22 W

CITY OF MINNETONKA HENNEPIN COUNTY

BRIDGE XXXXX

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

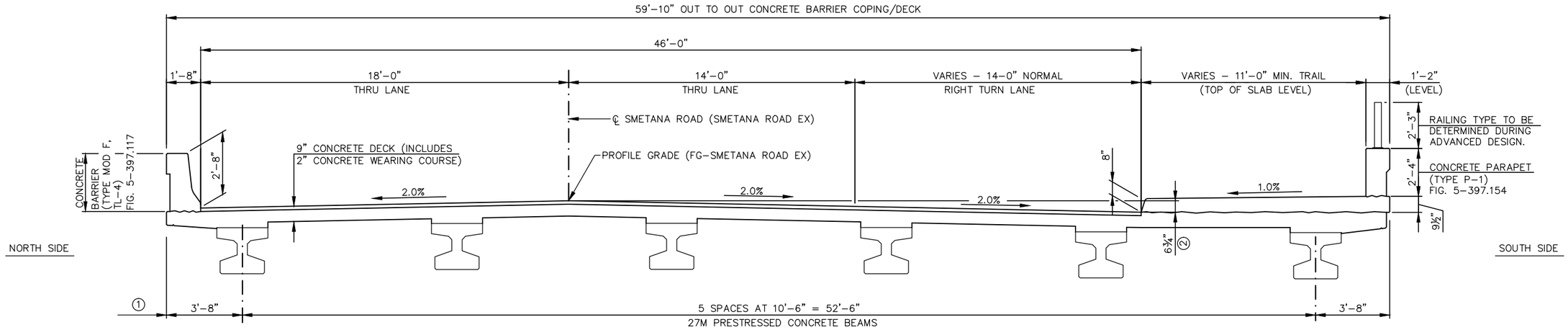
SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL
BRIDGE XXXXX
BRIDGE SURVEY

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-SMET-VEH-SUR

SHEET 89 OF 204



TRANSVERSE SECTION

0 1.3 2.7 5.3

SCALE IN FEET

NOTES:

① NUMBER AND SPACING OF BEAMS IS APPROXIMATE AND WILL BE SET DURING FINAL DESIGN.

② PROFILE GRADE LINE TO LOW GUTTER LINE.

DES: AAM	DRA: TAW
CHK: ATN	CHK: AAM

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL
BRIDGE XXXXX
TRANSVERSE SECTION

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-SMET-VEH-DTL

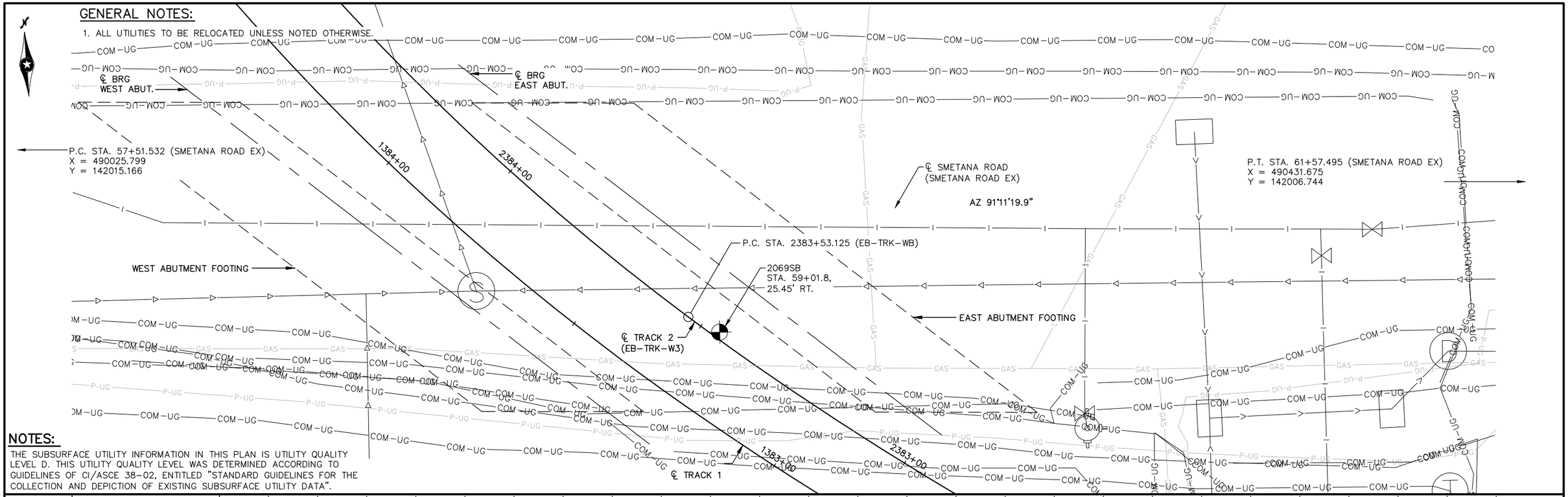
SHEET 90 OF 204

GENERAL NOTES:

1. ALL UTILITIES TO BE RELOCATED UNLESS NOTED OTHERWISE.

NOTES:

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DES: AAM | DRA: TAW
CHK: ATN | CHK: AAM

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL
BRIDGE XXXXX
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-SMET-VEH-SUR-BOR-001

SHEET 91 OF 204

Aug, 27 2014 09:28 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-SMET-VEH-SUR-BOR.dwg By: rleckmanb

950
940
930
920
910
900
890
880
870
860
850
840
830
820
810
800
790
780

2069SB

Elevation 922.0

Coh	N60	
		3 inches of Bituminous over 12 inches of Aggregate Base.
	50/5"	FILL: Lean Clay with Sand, brown, wet.
	50/6"	
	12	FILL: Lean Clay, with Sand, brown, wet.
	14	
	18	Sand layer at 12 feet.
	18	FILL: Lean Clay, with Sand, trace fibers, dark brown, wet.
		FILL: Lean Clay, with layers of black, lean Clay, trace fibers, brown and black and gray, wet.
	14	LEAN CLAY, brown and gray, wet, rather stiff.
	9	SANDY LEAN CLAY, trace Gravel, gray, wet, rather stiff to very stiff.
	9	
	13	
	15	
	18	
	22	
	35	
▽	27	Sand lenses at 60 feet.
		END OF BORING.*
		Bottom of Borehole at 61 ft

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM: D2488.

DES: AAM	DRA: TAW
CHK: ATN	CHK: AAM

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL
BRIDGE XXXXX
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-SMET-VEH-SUR-BOR-002

SHEET 92 OF 204

Aug. 27 2014 09:28 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-SMET-VEH-SUR-BOR.dwg By: rleckmanb

AESTHETIC DETAILS TO BE DETERMINED DURING ADVANCED DESIGN

1. ABUTMENT SURFACE TREATMENT
2. ABUTMENT/WALL CORNER DETAIL
3. EXPOSED EDGE OF DECK
4. EXPOSED BARRIER
5. EXPOSED FASCIA BEAM
6. BOTTOM OF BEAMS
7. PIER COLUMN SURFACE TREATMENT
8. RAILING AND SCREENING

DES: AAM	DRA: TAW
CHK: ATN	CHK: AAM

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

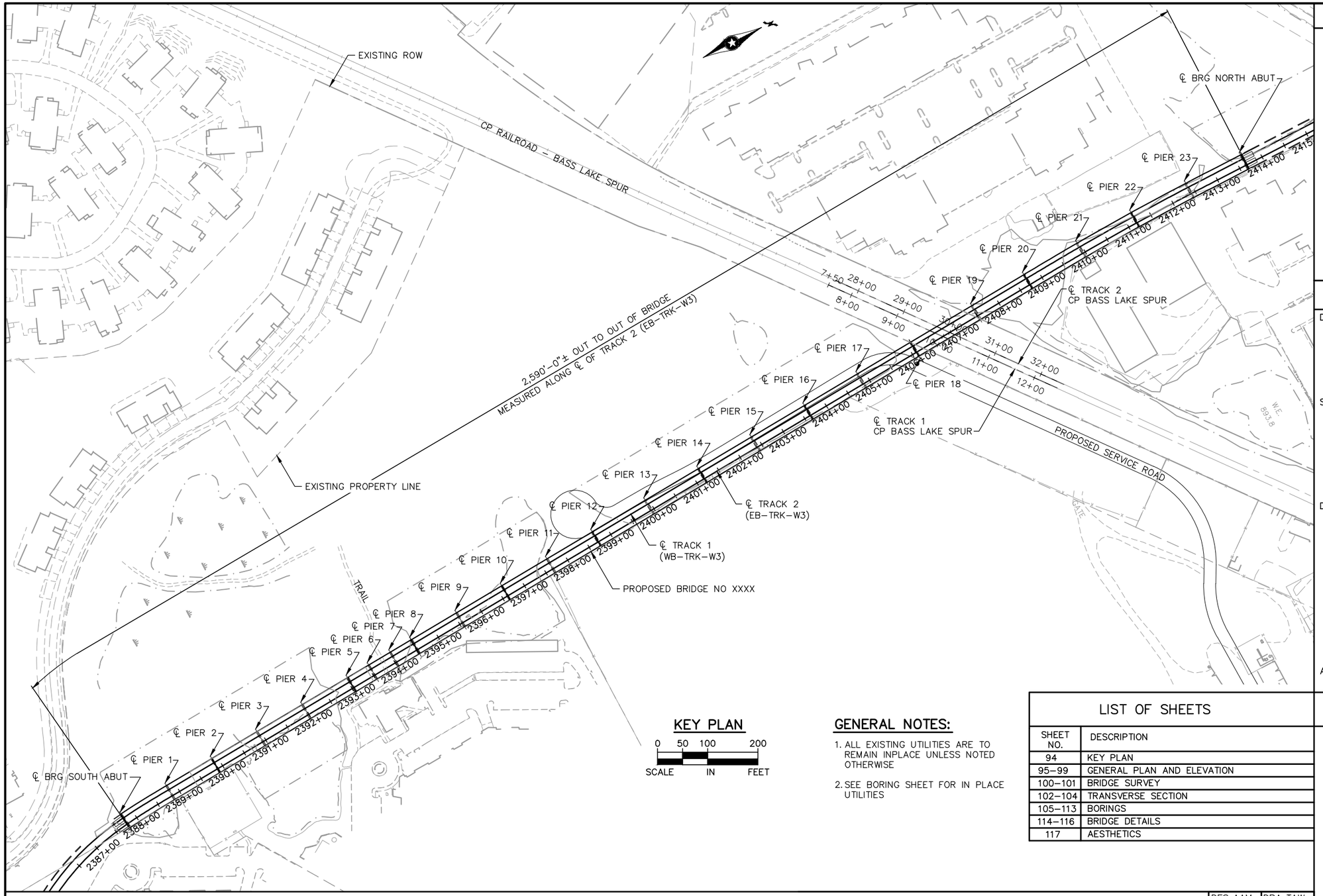
SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL
BRIDGE XXXXX
AESTHETICS

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-SMET-VEH-AES

SHEET 93 OF 204



KEY PLAN

0 50 100 200
SCALE IN FEET

GENERAL NOTES:

1. ALL EXISTING UTILITIES ARE TO REMAIN INPLACE UNLESS NOTED OTHERWISE
2. SEE BORING SHEET FOR IN PLACE UTILITIES

DESIGN DATA

2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
6TH EDITION AND CURRENT INTERIMS

SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA
(REVISION 2.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD

LRV & MV LOAD DIAGRAM SHOWN ON SHEET 102
MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4000 PSI, n = 8
fy = 60000 PSI

PRESTRESSED CONCRETE:
f'c = 9000 PSI, n = 1
fpu = 270 KSI LOW RELAXATION STRANDS
0.75 fpu FOR INITIAL PRESTRESS

DESIGN SPEED: OVER = 30/55 MPH (LRT)
UNDER = 25 MPH

APPROXIMATE DECK AREA: 83,700 SQ FT

PROPOSED TYPE OF STRUCTURE

DECK:
2'-1" REINFORCED CONCRETE SLAB SPAN (CONTINUOUS) AND MN45, MN63 AND 82MW PRESTRESSED CONCRETE BEAMS (SIMPLE SPANS) WITH 9" CAST-IN-PLACE CONCRETE DECK
ALL BARS EPOXY COATED
DIRECT FIXATION TRACK

SUBSTRUCTURE:
PARAPET ABUTMENTS SUPPORTED ON 12" CIP CONCRETE PILES

HAMMERHEAD PIERS SUPPORTED ON 16" CIP CONCRETE PILES

TRESTLE BENT PIERS SUPPORTED ON 16" CIP CONCRETE PILES

DEPTH OF STRUCTURE:
SPANS 1-5, 9-12
±6'-2" TOP OF LOW RAIL TO LOW BRIDGE
4± BEAM LINES

SPANS 20-24
±7'-8" TOP OF LOW RAIL TO LOW BRIDGE
4± BEAM LINES

SPANS 6-8
±3'-6" TOP OF LOW RAIL TO LOW BRIDGE

SPAN 19
±9'-3" TOP OF LOW RAIL TO LOW BRIDGE
4± BEAM LINES

AESTHETICS:
TO BE DETERMINED

LIST OF SHEETS

SHEET NO.	DESCRIPTION
94	KEY PLAN
95-99	GENERAL PLAN AND ELEVATION
100-101	BRIDGE SURVEY
102-104	TRANSVERSE SECTION
105-113	BORINGS
114-116	BRIDGE DETAILS
117	AESTHETICS

PRELIMINARY PLAN
BRIDGE NO. XXXXX

SOUTHWEST LIGHT RAIL OVER CP RAIL AND WETLANDS
1 MI. NORTH OF JCT. TH 61 & TH 62 IN MINNETONKA

REINFORCED CONCRETE SLAB SPANS AND VARIABLE LENGTH PRESTRESSED CONCRETE BEAM SPANS
32'-6" OUT TO OUT DECK
0°-0'-0" SKEW

IDENTIFICATION NO. 501 MAIN & 209 APPRAOCH

KEY PLAN

SEC 26 T 117 N R 22 W
CITY OF MINNETONKA HENNEPIN COUNTY

APPROVED: _____
STATE BRIDGE ENGINEER

JOB NO: T9N635 STATE PROJECT NO: 9909-01 MNDOT REVIEW:

DES: AAM	DRA: TAW
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

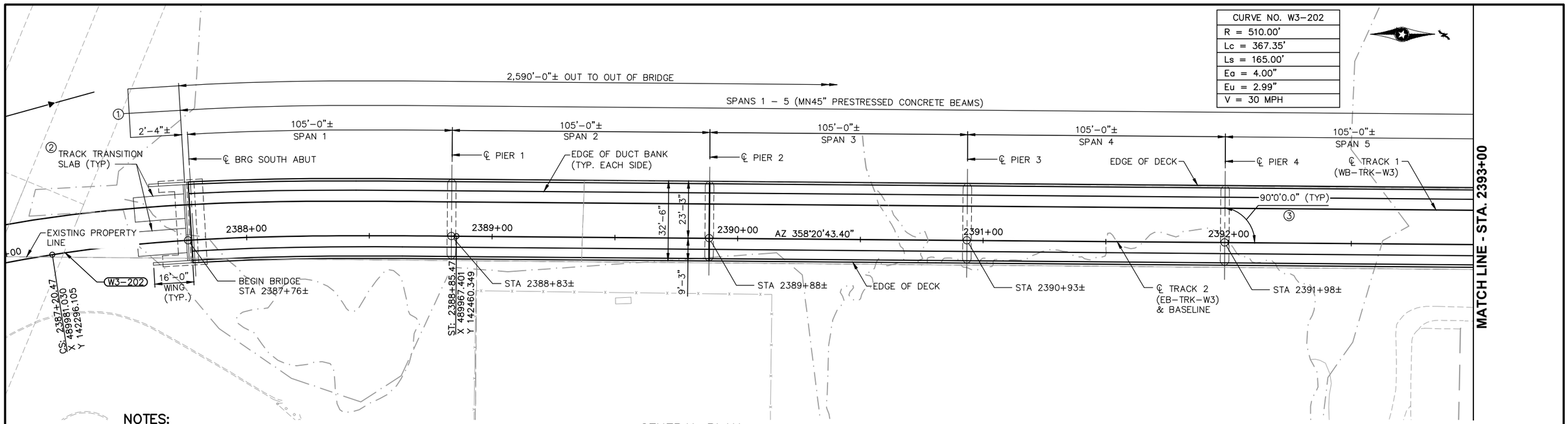
SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
KEY PLAN

DISCIPLINE: STRUCTURES
SHEET NAME: W3-STU-BRG-MKHP-LRT-GEN

SHEET 94 OF 204

Aug. 27 2014 09:34 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-MKHP-LRT-GPE.dwg By: rieckmanb

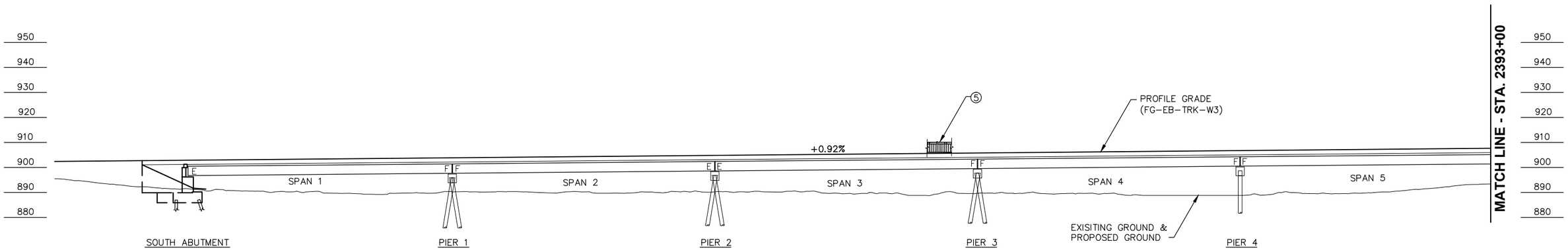


NOTES:

1. MEASURED ALONG ℄ TRACK 2 (EB–TRK–W3)
2. SEE TRACK PLANS FOR TRANSITION SLAB DETAILS
3. TTC TYP UNLESS SHOWN OTHERWISE
4. SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES.
5. RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN.

GENERAL PLAN

0 10 20 40
SCALE IN FEET



GENERAL ELEVATION

0 10 20 40
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DES: AAM | DRA: TAW
CHK: PLR | CHK: PLR

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

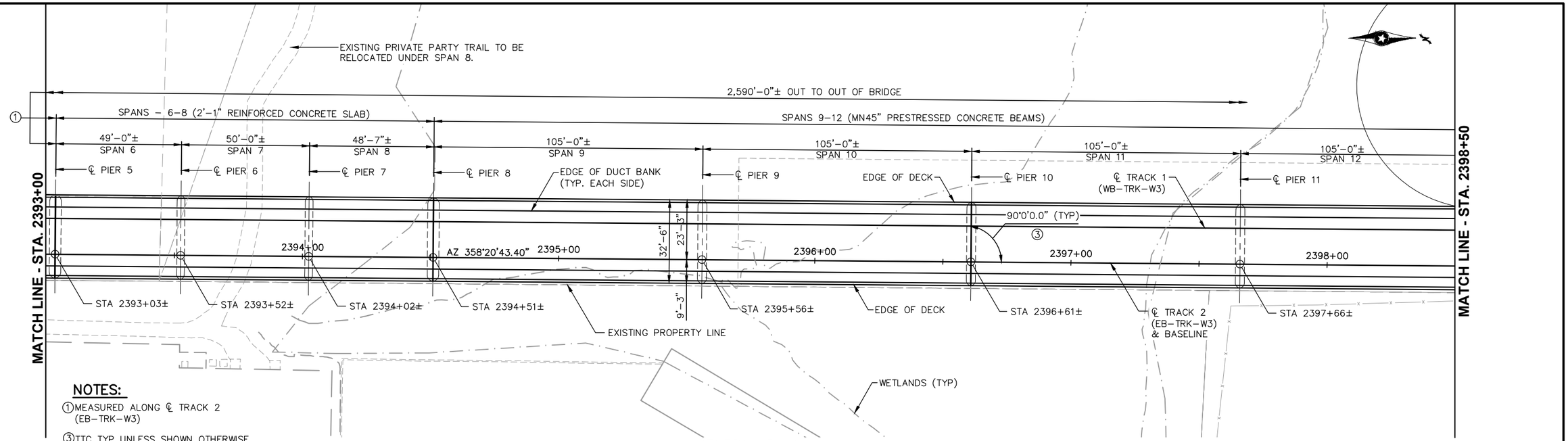
SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-MKHP-LRT-GPE-001

SHEET 95 OF 204

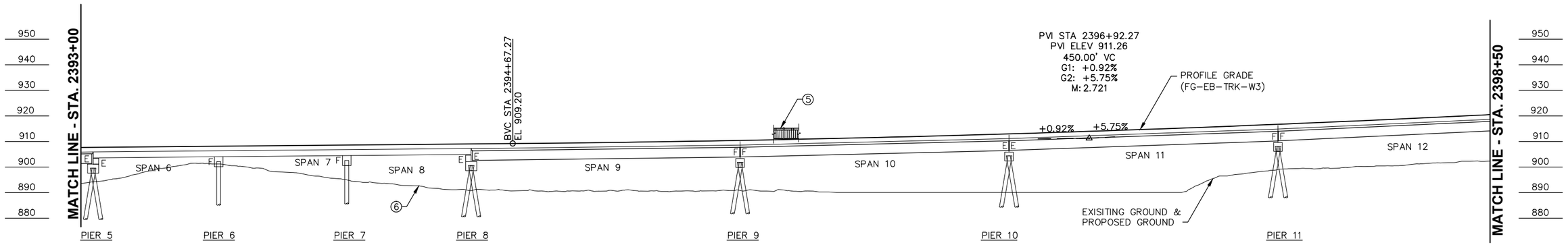


NOTES:

1. MEASURED ALONG ℄ TRACK 2 (EB-TRK-W3)
3. TTC TYP UNLESS SHOWN OTHERWISE
4. SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES
5. RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN.
6. EXISITNG PRIVATE PARTY TRAIL TO BE RELOCATED. FOR 10' VERTICAL CLEARANCE FROM PATH TO BOTTOM OF STRUCTURE THE ELEVATION OF PATH NEEDS TO BE AT 894.85 FT

GENERAL PLAN

SCALE 0 10 20 40 IN FEET



GENERAL ELEVATION

SCALE 0 10 20 40 IN FEET

DES: AAM	DRA: TAW
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

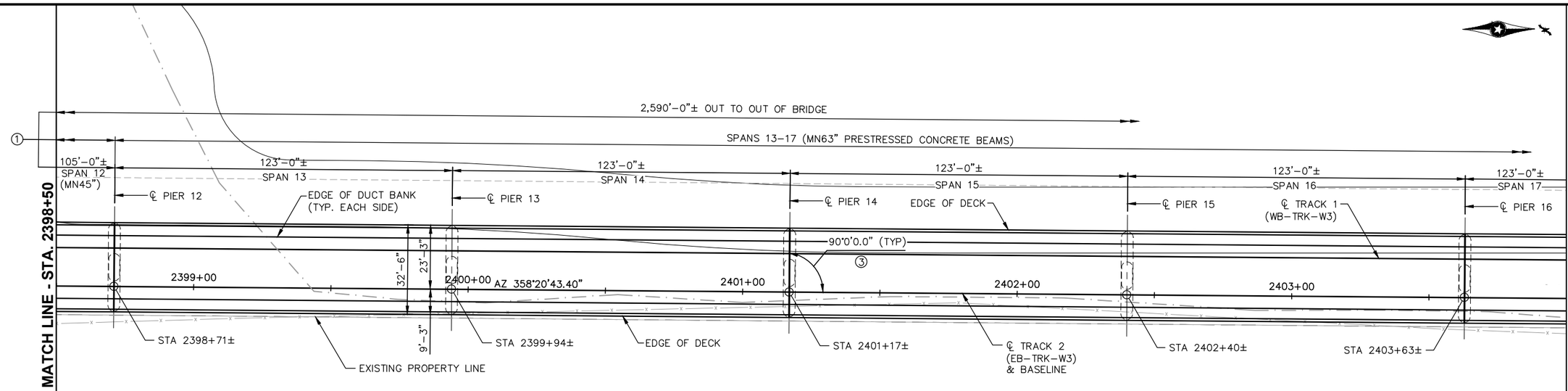
WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-MKHP-LRT-GPE-002

SHEET 96 OF 204

Aug, 27 2014 09:34 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-MKHP-LRT-GPE.dwg By: rieckmanb



NOTES:

① MEASURED ALONG ℄ TRACK 2 (EB-TRK-W3)

③ TTC TYP UNLESS SHOWN OTHERWISE

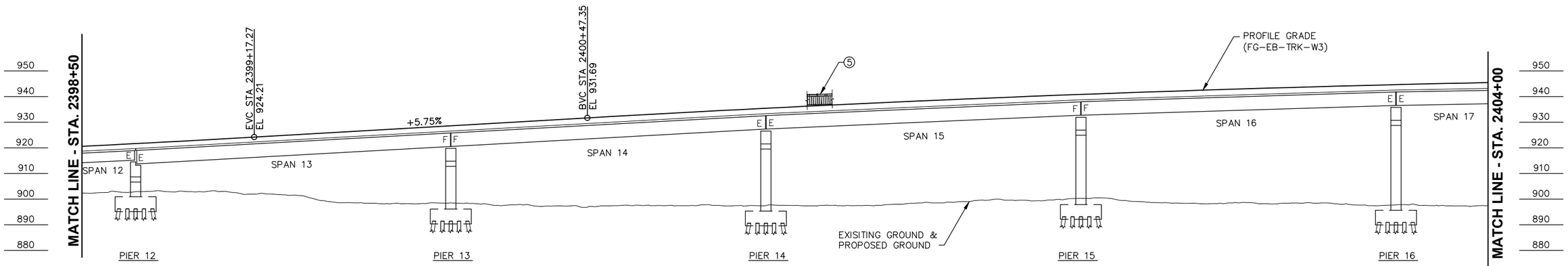
4. SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES

⑤ RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN.

GENERAL PLAN

0 10 20 40

SCALE IN FEET



GENERAL ELEVATION

0 10 20 40

SCALE IN FEET

DES: AAM	DRA: TAW
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

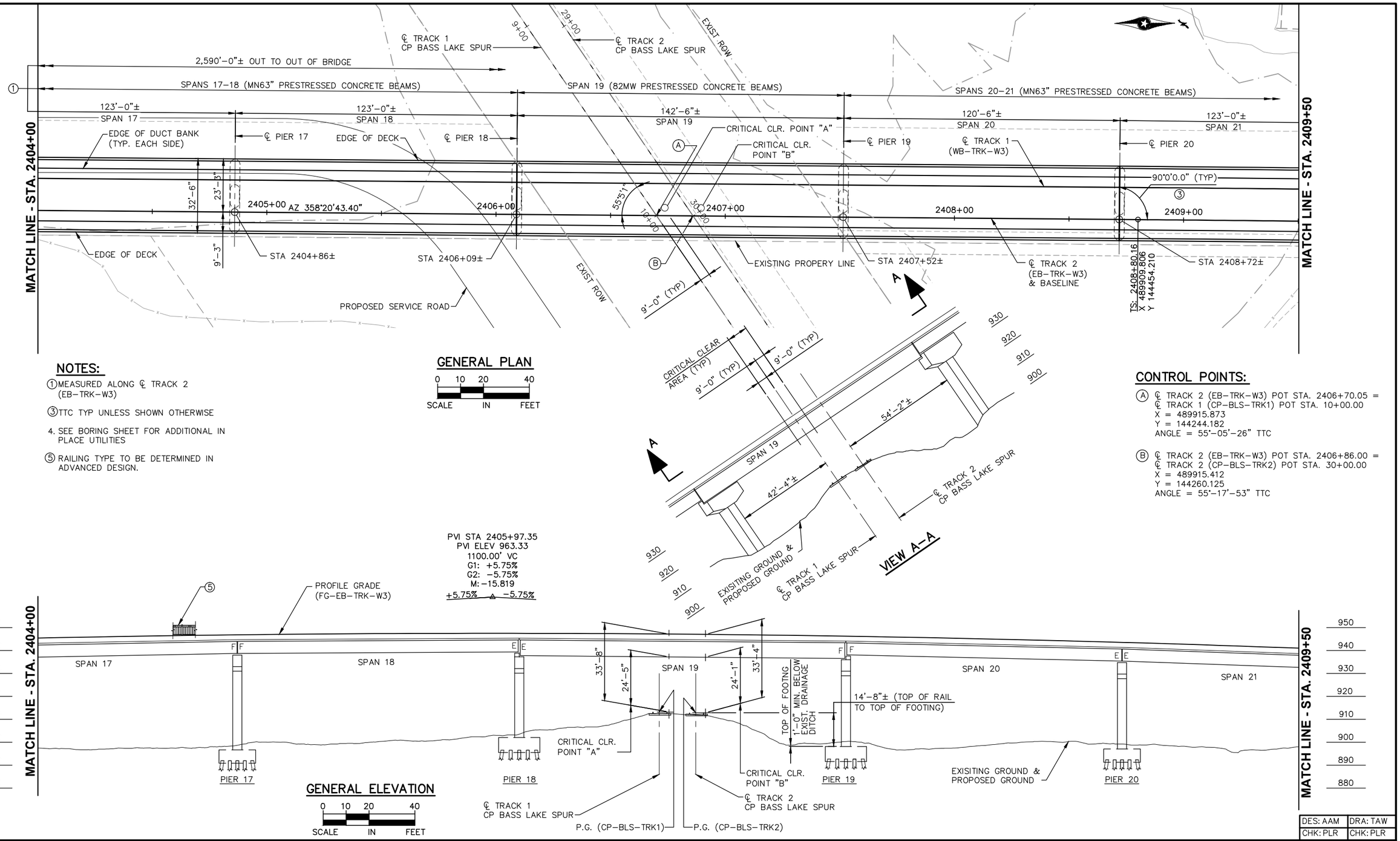
WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-MKHP-LRT-GPE-003

SHEET 97 OF 204

Aug, 27 2014 09:34 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-MKHP-LRT-GPE.dwg By: rieckmanb



GENERAL PLAN

SCALE 0 10 20 40 IN FEET

NOTES:

1. MEASURED ALONG ℄ TRACK 2 (EB-TRK-W3)
3. TTC TYP UNLESS SHOWN OTHERWISE
4. SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES
5. RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN.

VIEW A-A

CONTROL POINTS:

(A) ℄ TRACK 2 (EB-TRK-W3) POT STA. 2406+70.05 = ℄ TRACK 1 (CP-BLS-TRK1) POT STA. 10+00.00
X = 489915.873
Y = 144244.182
ANGLE = 55°-05'-26" TTC

(B) ℄ TRACK 2 (EB-TRK-W3) POT STA. 2406+86.00 = ℄ TRACK 2 (CP-BLS-TRK2) POT STA. 30+00.00
X = 489915.412
Y = 144260.125
ANGLE = 55°-17'-53" TTC

PVI STA 2405+97.35
PVI ELEV 963.33
1100.00' VC
G1: +5.75%
G2: -5.75%
M: -15.819
+5.75% △ -5.75%

GENERAL ELEVATION

SCALE 0 10 20 40 IN FEET

DES: AAM	DRA: TAW
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

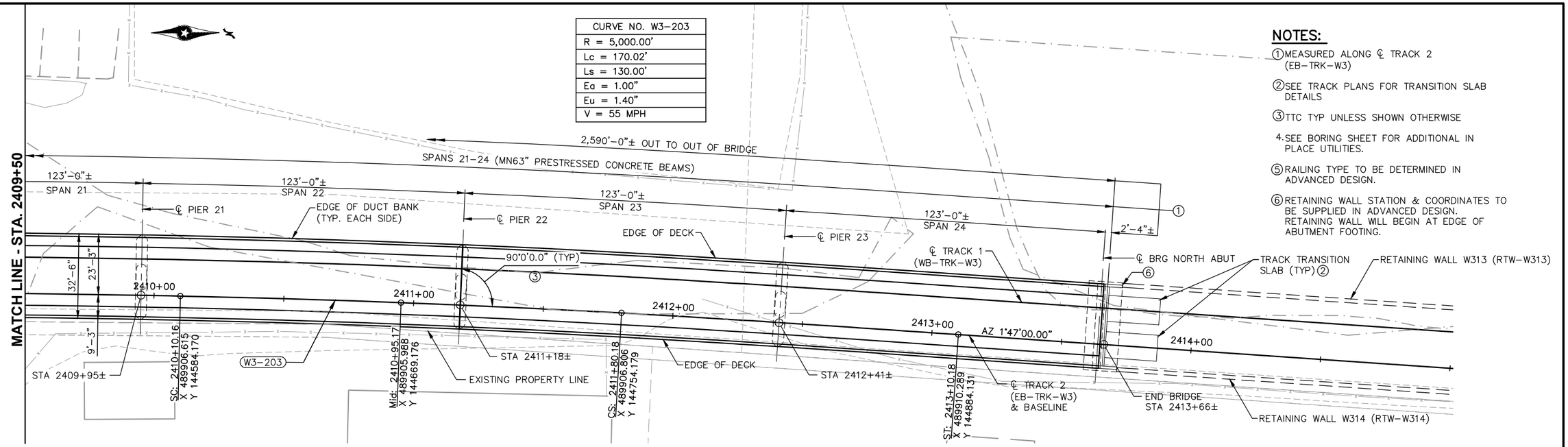
DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-MKHP-LRT-GPE-004

SHEET 98 OF 204

Aug. 27 2014 09:34 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-MKHP-LRT-GPE.dwg By: rieckmanb

CURVE NO. W3-203
R = 5,000.00'
Lc = 170.02'
Ls = 130.00'
Ea = 1.00"
Eu = 1.40"
V = 55 MPH

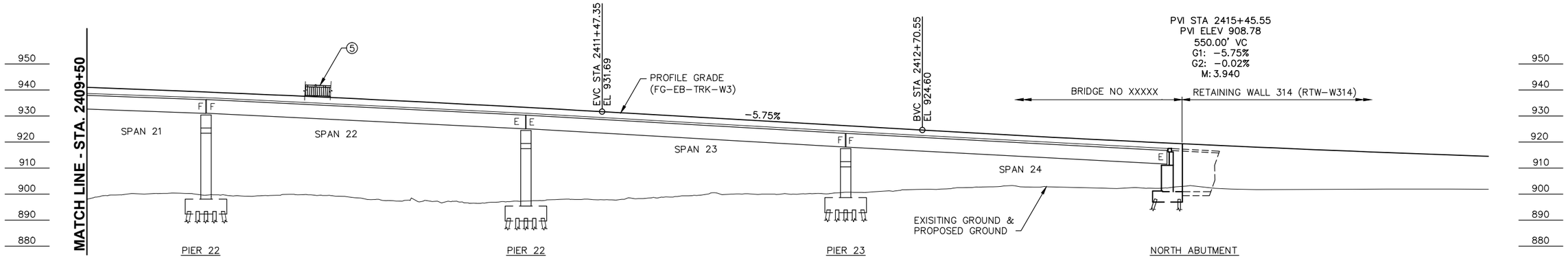


GENERAL PLAN

SCALE 0 10 20 40 IN FEET

NOTES:

1. ① MEASURED ALONG ℄ TRACK 2 (EB-TRK-W3)
2. ② SEE TRACK PLANS FOR TRANSITION SLAB DETAILS
3. ③ TTC TYP UNLESS SHOWN OTHERWISE
4. SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES.
5. ⑤ RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN.
6. ⑥ RETAINING WALL STATION & COORDINATES TO BE SUPPLIED IN ADVANCED DESIGN. RETAINING WALL WILL BEGIN AT EDGE OF ABUTMENT FOOTING.



GENERAL ELEVATION

SCALE 0 10 20 40 IN FEET

DES: AAM	DRA: TAW
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

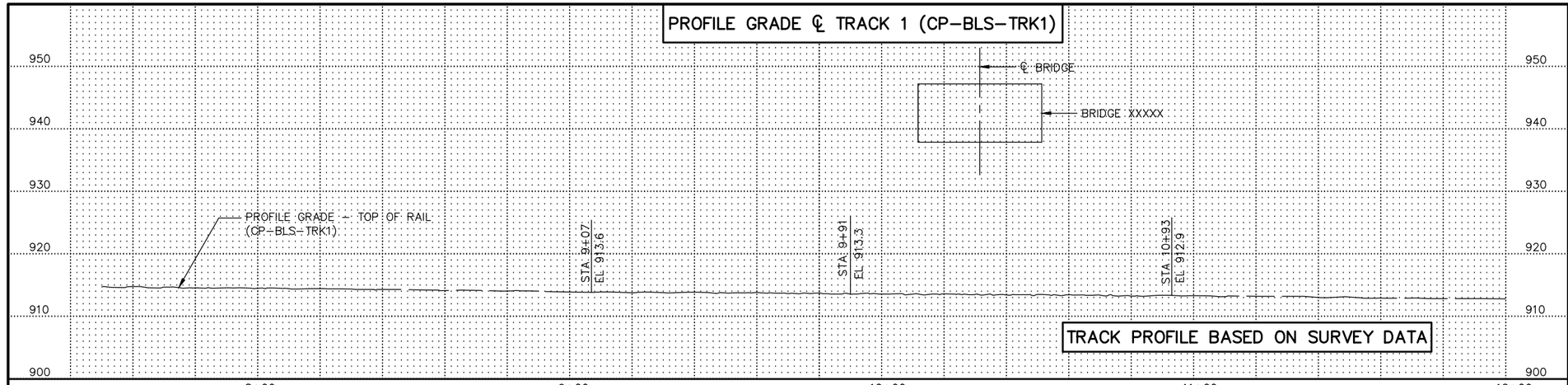
WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

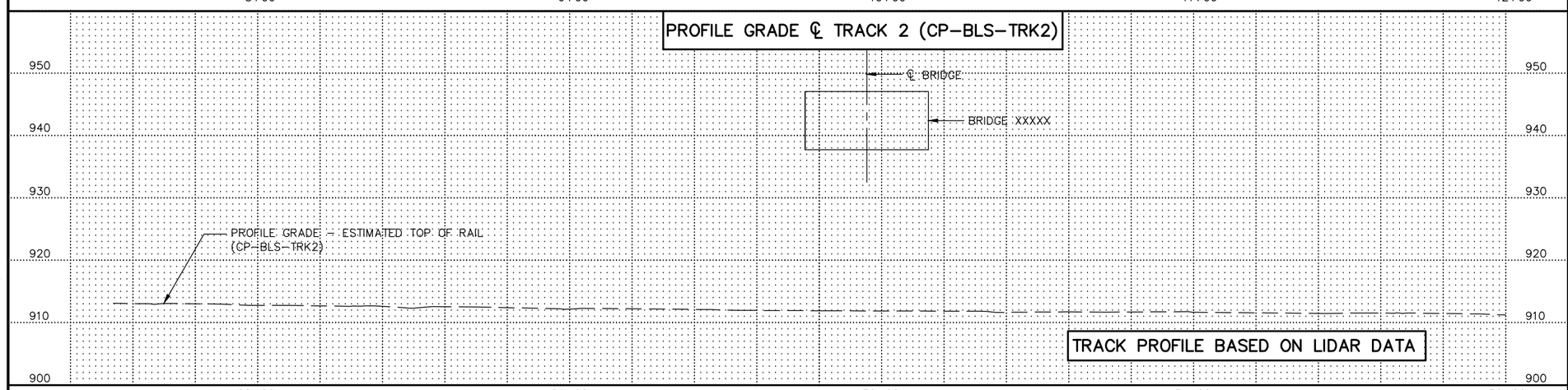
SHEET NAME: W3-STU-BRG-MKHP-LRT-GPE-005

SHEET 99 OF 204

PROFILE GRADE ℄ TRACK 1 (CP–BLS–TRK1)



PROFILE GRADE ℄ TRACK 2 (CP–BLS–TRK2)



LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.

OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION,TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS–SECTIONAL AREA ETC.

3. APPARENT HIGHWATER ELEVATION _____
OBTAINED FROM:

4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE: XX–XX–XXXX

STREAM OR DITCH DESIGNATION: XXX

DRAINAGE AREA: XXX SQ. MI.

MAX FLOOD ON RECORD: XXX C.F.S. (XX–XX–XX)

MAXIMUM OBSERVED HIGHWATER ELEVATION: XXX.X FT.

DESIGN FLOOD (XX TR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
DESIGN MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.
TOTAL STAGE INCREASE: XX FT.
LOW MEMBER AT OR ABOVE ELEVATION: XXX.X FT

WATERWAY AREA REQUIRED BELOW ELEV. XXX.X = XXX SQ. FT. AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
TOTAL STAGE INCREASE: X.X FT.
MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.

FLOWLINE ELEVATION: XXX FT. SKEW ANGLE: XX

ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. XXX.X (500 OR OT YR.FREQ.)

SCOUR CONFIRMATION RECOMMENDATION

DATE: XX–XX–XXXX

TOTAL SCOUR AT PIER EL. XXX.XX (500 OR OT YR. FREQ.)
SCOUR CODE: OBTAIN FROM HYDRAULIC ENGINEER

BRIDGE SURVEY SHEETS MADE FROM SURVEY AND PHOTOGRAMMETRIC MAPPING.

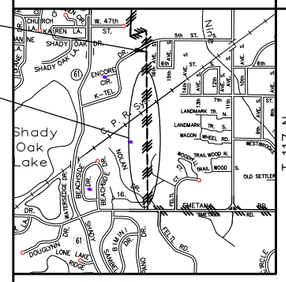
MONUMENT NAME: CONTROL POINT 6
BENCHMARK ELEVATION (NAVD88): 932.956
NORTHING (HEN. COUNTY COORDINATES NAD83(2007)): 142016.680
EASTING (HEN. COUNTY COORDINATES NAD83(2007)): 489989.960
MONUMENT DESCRIPTION: CAST IRON MONUMENT

MONUMENT NAME: CONTROL POINT 8
BENCHMARK ELEVATION (NAVD88): 919.385
NORTHING (HEN. COUNTY COORDINATES NAD83(2007)): 147263.069
EASTING (HEN. COUNTY COORDINATES NAD83(2007)): 489996.864
MONUMENT DESCRIPTION: CAST IRON MONUMENT

INDEX MAP (ONE SQ MI)

CITY LIMITS

PROPOSED BRIDGE XXXXX



BRIDGE SURVEY

1 MI NORTH OF JCT. TH 61 & TH 62 IN MINNETONKA

SOUTHWEST LIGHT RAIL OVER CP RAIL AND WETLANDS

SEC 26 T 117 R 22

CITY OF MINNETONKA HENNEPIN COUNTY

BRIDGE XXXXX

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
BRIDGE SURVEY

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-MKHP-LRT-SUR-001

SHEET 100 OF 204

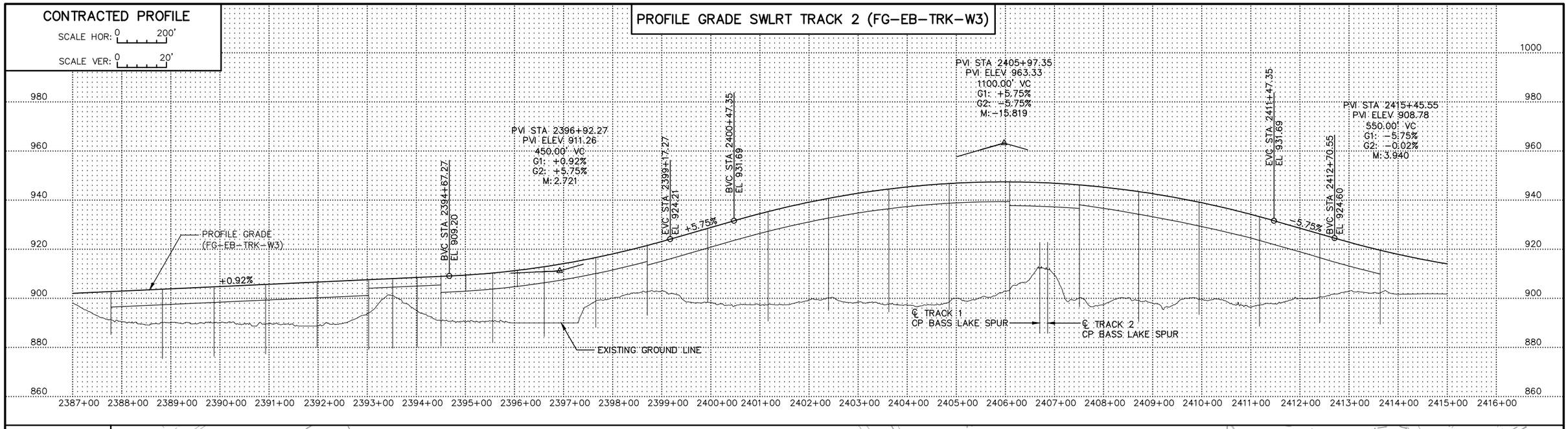
Aug, 27 2014 09:37 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-MKHP-LRT-SUR.dwg By: rieckmanb

CONTRACTED PROFILE

SCALE HOR: 0 200'

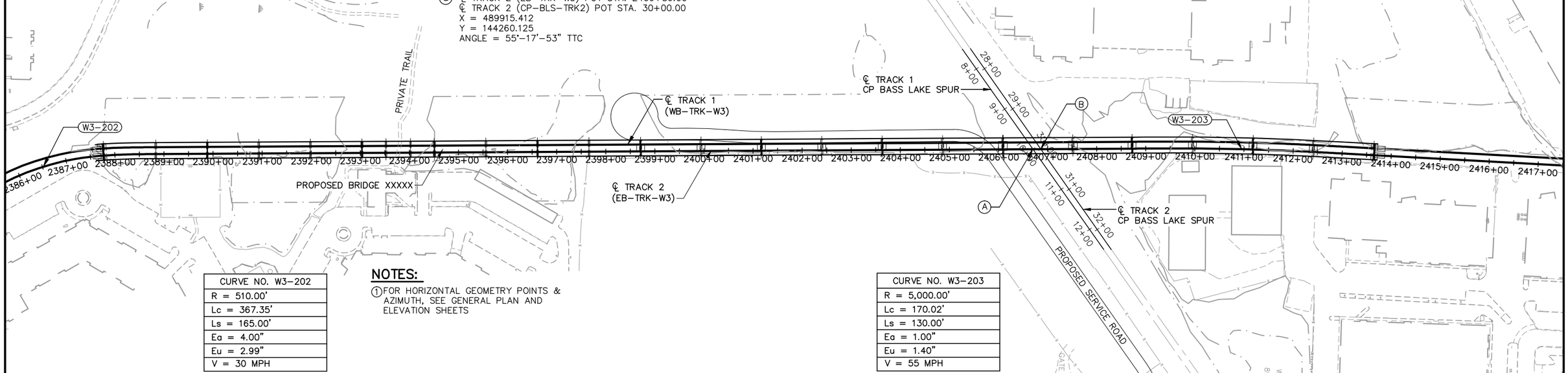
SCALE VER: 0 20'

PROFILE GRADE SWLRT TRACK 2 (FG-EB-TRK-W3)



PLAT

SCALE: 0 200'



CONTROL POINTS:

(A) ℄ TRACK 2 (EB-TRK-W3) POT STA. 2406+70.05 =
℄ TRACK 1 (CP-BLS-TRK1) POT STA. 10+00.00
X = 489915.873
Y = 144244.182
ANGLE = 55°-05'-26" TTC

(B) ℄ TRACK 2 (EB-TRK-W3) POT STA. 2406+86.00 =
℄ TRACK 2 (CP-BLS-TRK2) POT STA. 30+00.00
X = 489915.412
Y = 144260.125
ANGLE = 55°-17'-53" TTC

CURVE NO. W3-202
R = 510.00'
Lc = 367.35'
Ls = 165.00'
Ea = 4.00"
Eu = 2.99"
V = 30 MPH

NOTES:

(1) FOR HORIZONTAL GEOMETRY POINTS & AZIMUTH, SEE GENERAL PLAN AND ELEVATION SHEETS

CURVE NO. W3-203
R = 5,000.00'
Lc = 170.02'
Ls = 130.00'
Ea = 1.00"
Eu = 1.40"
V = 55 MPH

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

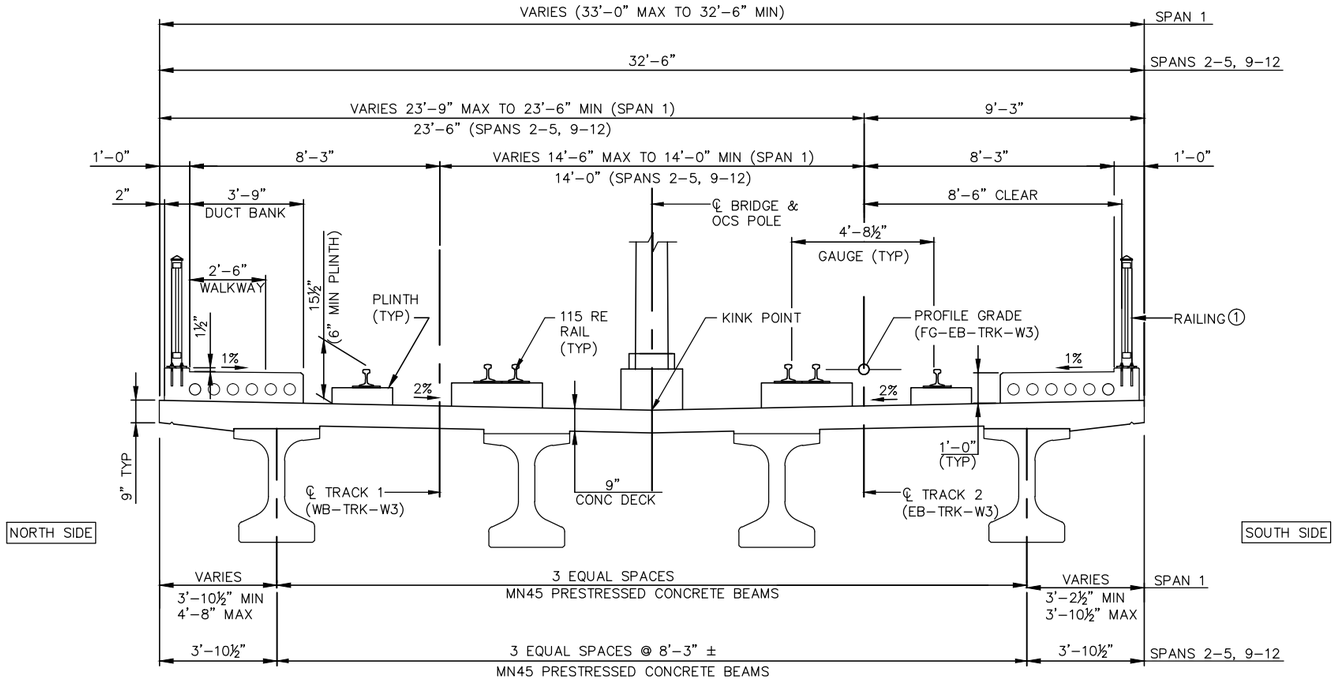
WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
BRIDGE SURVEY

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-MKHP-LRT-SUR-002

SHEET 101 OF 204

Aug. 27 2014 09:37 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-MKHP-LRT-SUR.dwg By: rieckmanb



TRANSVERSE SECTION – SPANS 1-5 & 9-12

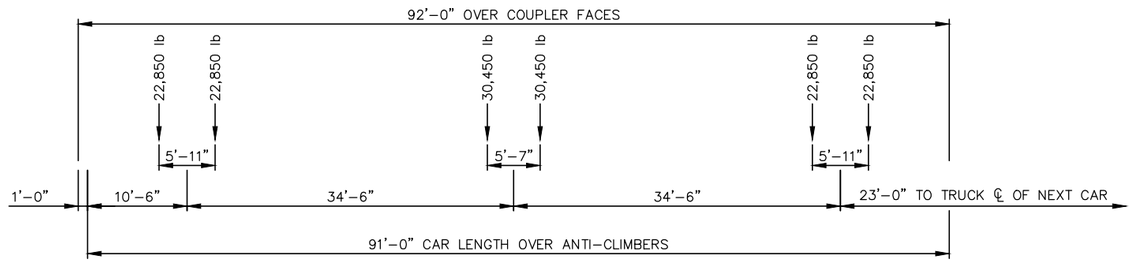
0 1 2.5 5

SCALE IN FEET

NOTES:

① RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN

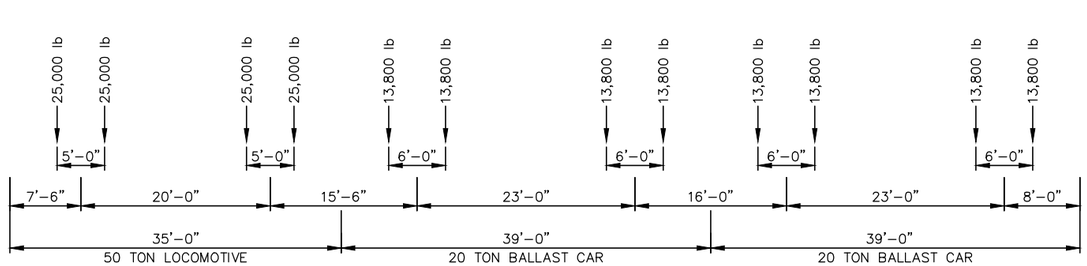
2. NUMBER AND SPACING OF BEAMS IS APPROXIMATE AND WILL BE SET DURING ADVANCED DESIGN



LIGHT RAIL VEHICLE LOADING DIAGRAM

NOTES:

1. THE LRT TRAIN SHALL CONSIST OF EITHER ONE, TWO OR THREE CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.



MAINTENANCE TRAIN LOADING DIAGRAM

NOTES:

1. THE MAINTENANCE TRAIN SHALL CONSIST OF ONE LOCOMOTIVE AND ONE, TWO, THREE OR FOUR BALLAST CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.

2. WEIGHT OF EMPTY BALLAST CAR IS 15,000 POUNDS.

DES: AAM	DRA: TAW
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

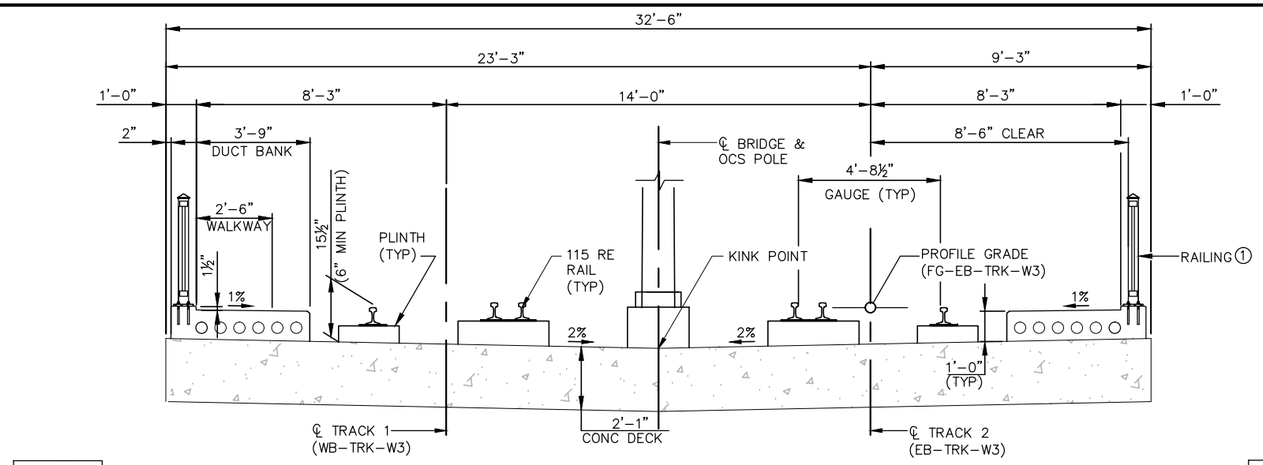
SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
TRANSVERSE SECTION

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-MKHP-LRT-SUP-001

SHEET 102 OF 204



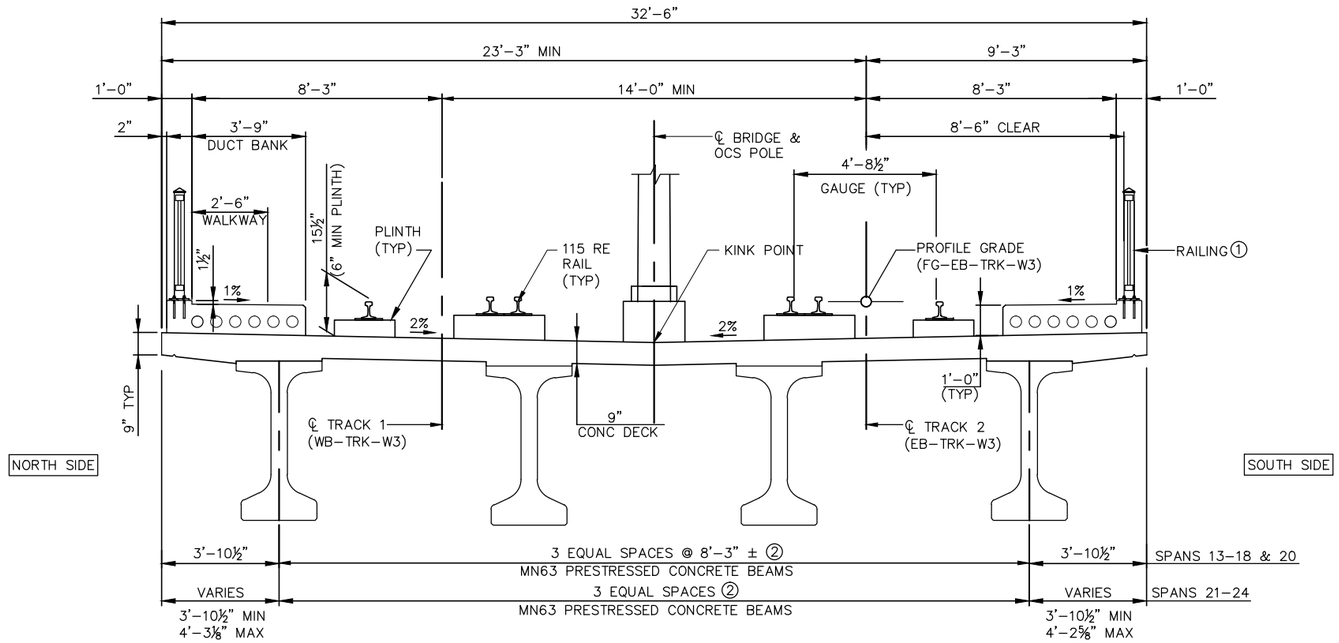
TRANSVERSE SECTION – SPANS 6-8

0 1 2.5 5
SCALE IN FEET

NOTES:

① RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN

② NUMBER AND SPACING OF BEAMS IS APPROXIMATE AND WILL BE SET DURING ADVANCED DESIGN



TRANSVERSE SECTION – SPANS 13-18 & 20-24

0 1 2.5 5
SCALE IN FEET

DES: AAM	DRA: TAW
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

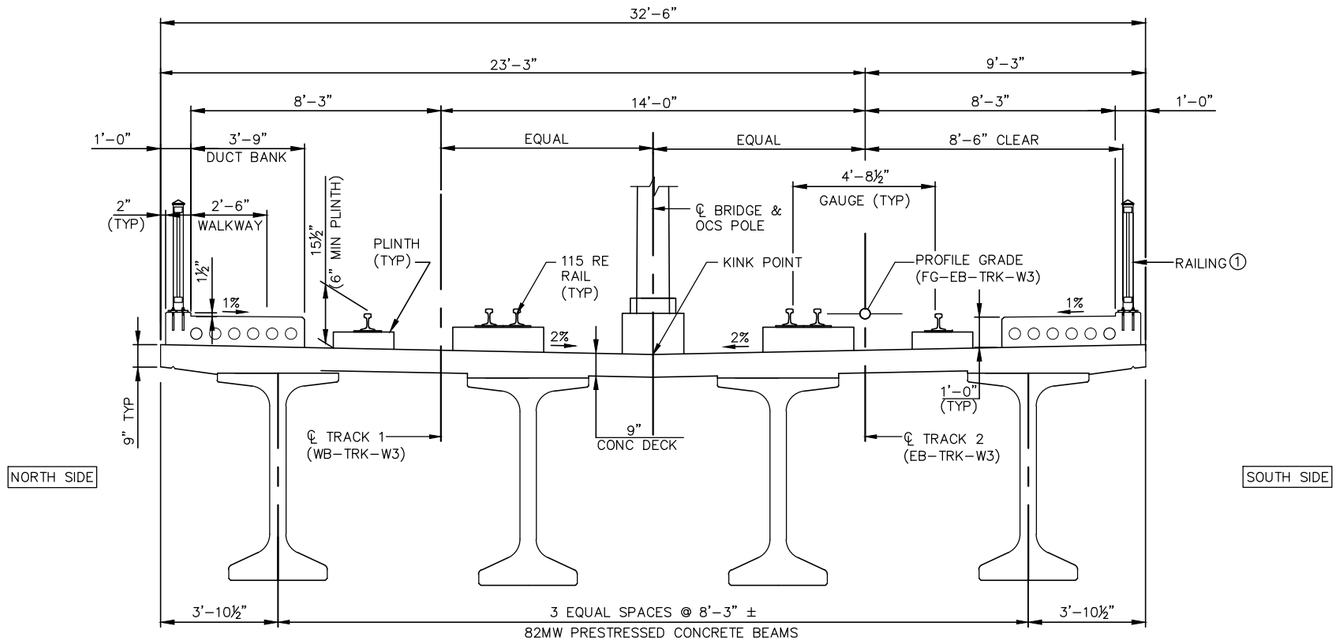
WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
TRANSVERSE SECTION

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-MKHP-LRT-SUP-002

SHEET 103 OF 204

Aug, 27 2014 09:37 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-MKHP-LRT-SUP.dwg By: rieckmanb



NOTES:

① RAILING TYPE TO BE DETERMINED IN ADVANCED DESIGN

2. NUMBER AND SPACING OF BEAMS IS APPROXIMATE AND WILL BE SET DURING ADVANCED DESIGN

TRANSVERSE SECTION – SPAN 19

SCALE 0 1 2.5 5 IN FEET

DES: AAM	DRA: TAW
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

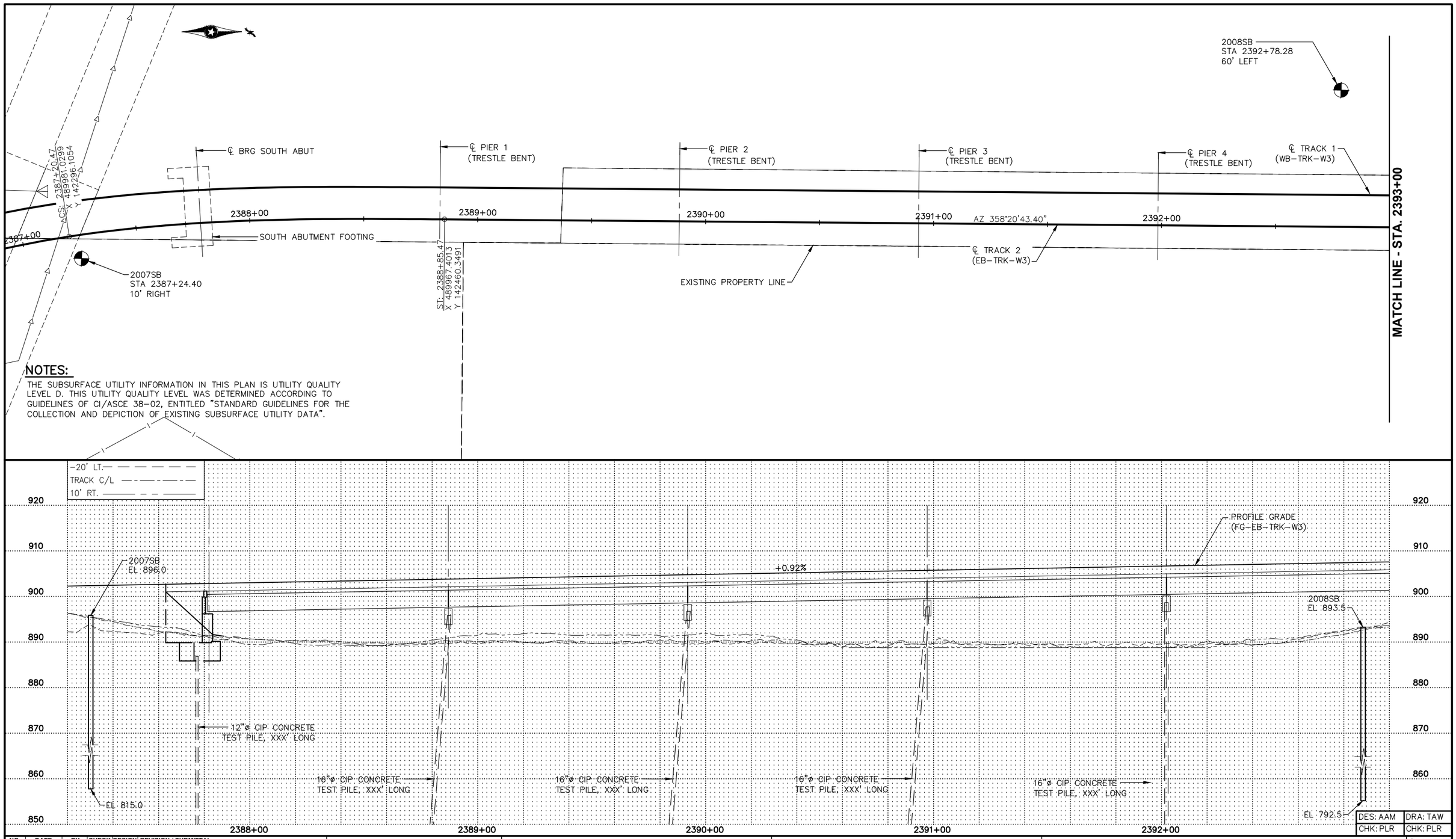
SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
TRANSVERSE SECTION

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-MKHP-LRT-SUP-003

SHEET 104 OF 204



DES: AAM	DRA: TAW
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

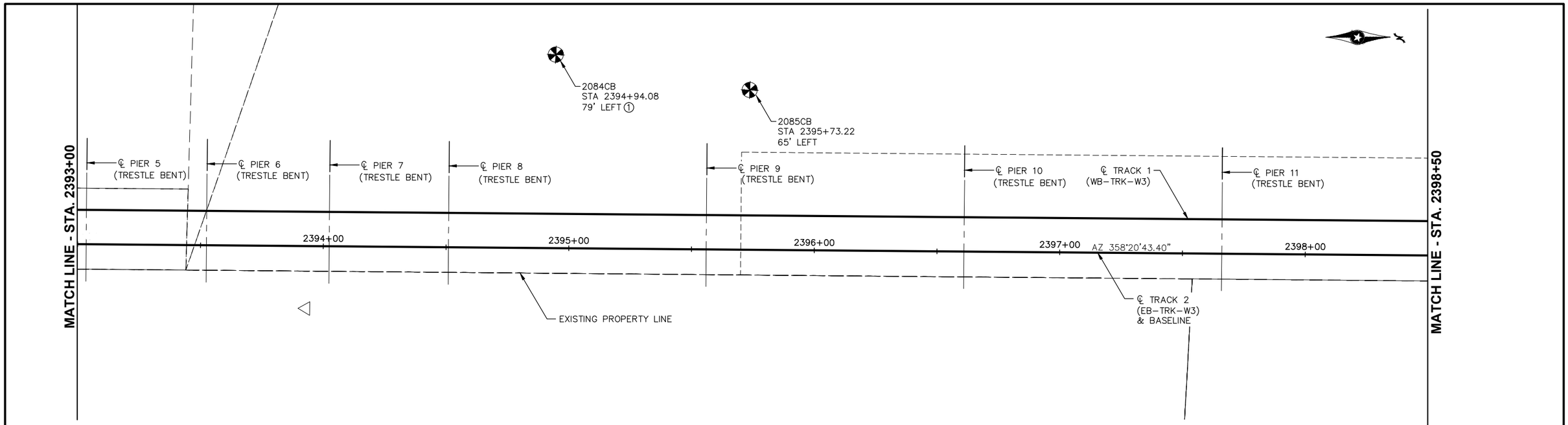
WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-MKHP-LRT-SUR-BOR-001

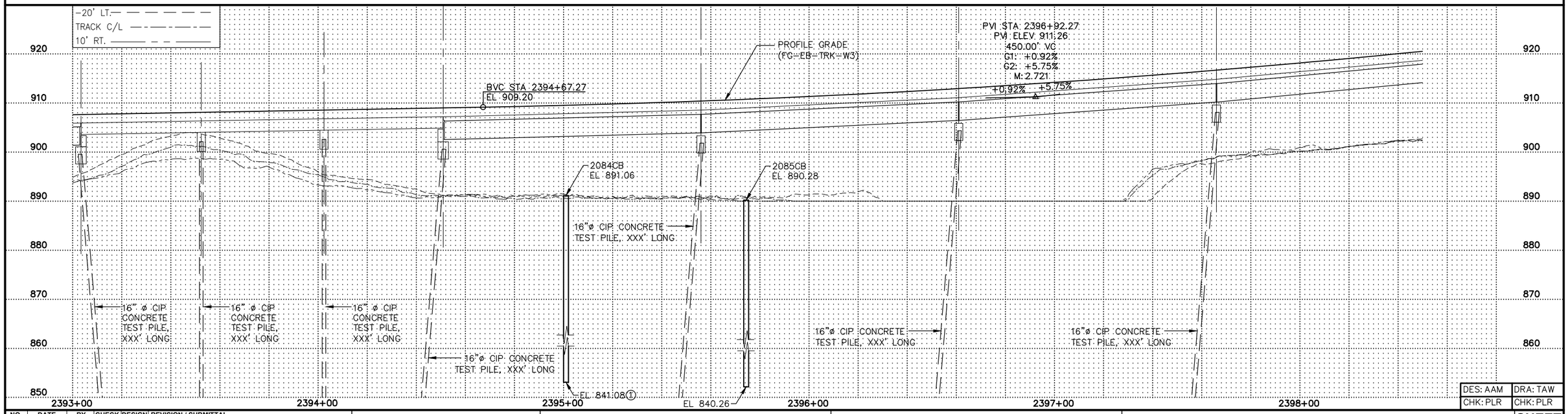
SHEET 105 OF 204

Aug, 27 2014 09:39 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-MKHP-LRT-SUR-BOR.dwg By: rleckmanb



NOTES:

① THE INFORMATION SHOWN ON 2084CB IS ALL THAT HAS BEEN RECEIVED TO–DATE.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

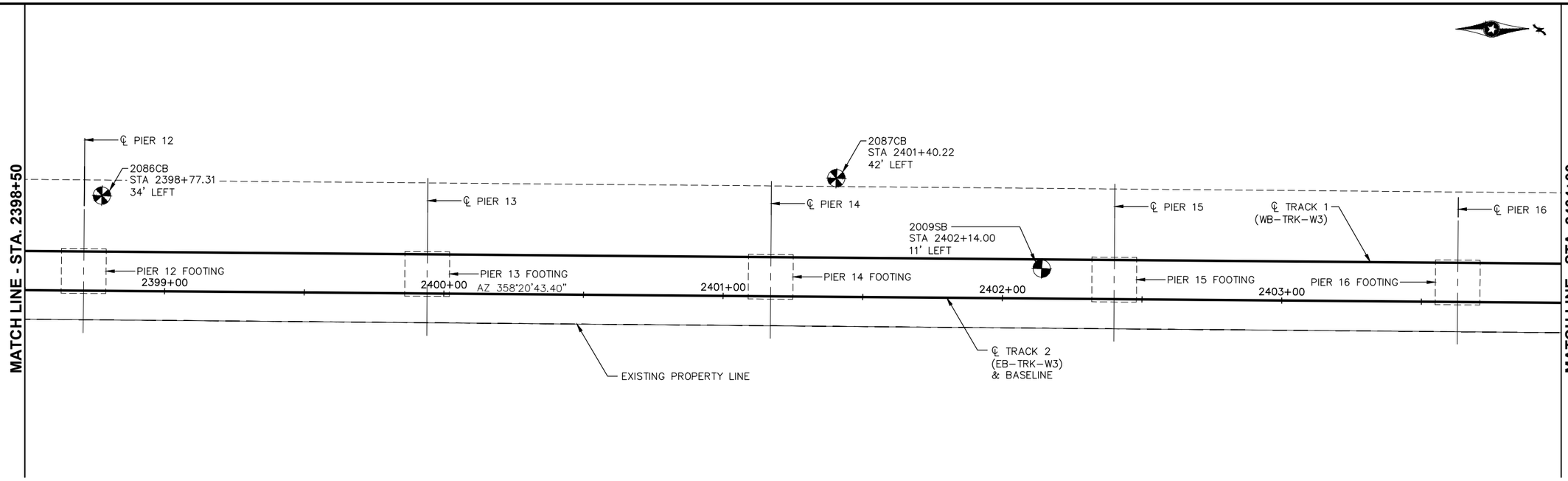
SHEET NAME: W3-STU-BRG-MKHP-LRT-SUR-BOR-002

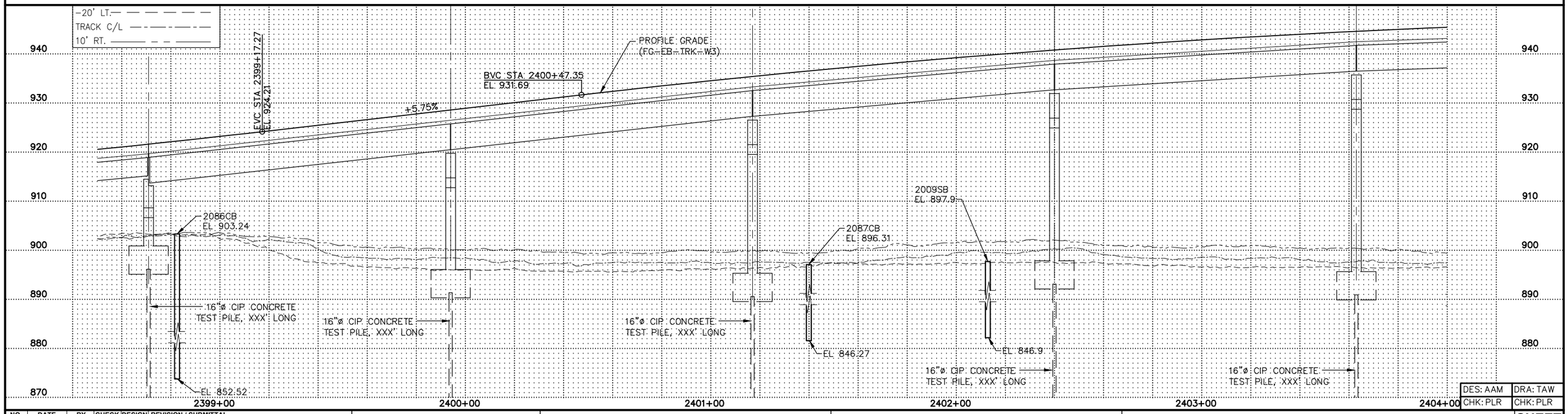
DES: AAM | DRA: TAW

CHK: PLR | CHK: PLR

SHEET 106 OF 204

Aug. 27 2014 09:39 pm V:\3200_PEC–W\CAD\SEGMENT–W3\SHEET\STRUCTURES\W3–STU–BRG–MKHP–LRT–SUR–BOR.dwg By: rieckmanb





NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
BORINGS

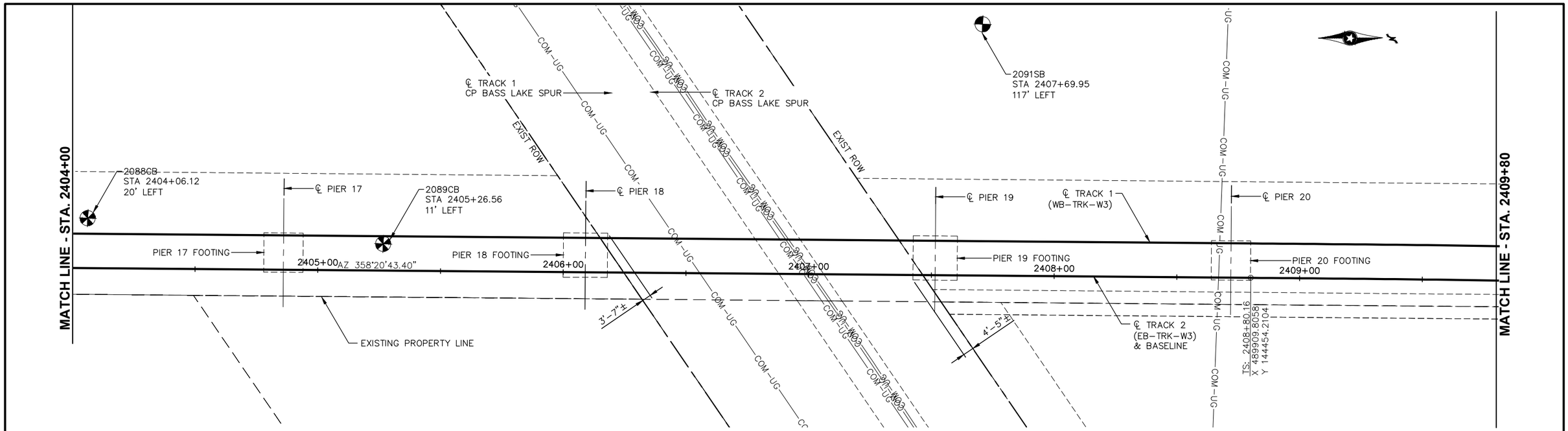
DISCIPLINE: STRUCTURES

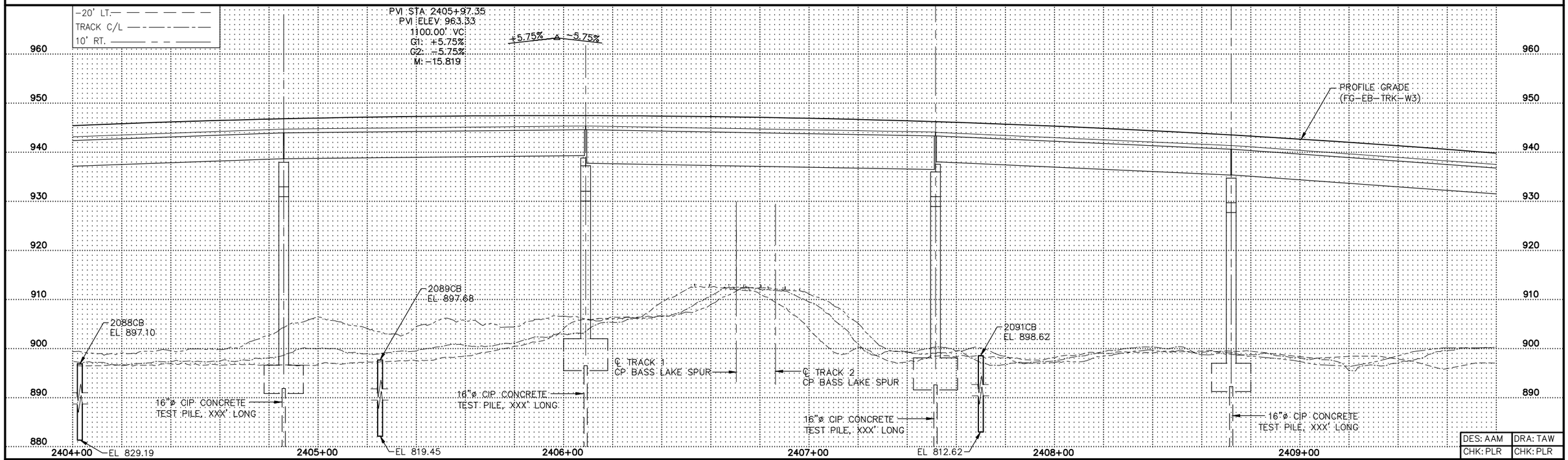
SHEET NAME: W3-STU-BRG-MKHP-LRT-SUR-BOR-003

DES: AAM	DRA: TAW
CHK: PLR	CHK: PLR

SHEET 107 OF 204

Aug. 27 2014 09:39 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-MKHP-LRT-SUR-BOR.dwg By: rieckmanb





NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DES: AAM | DRA: TAW
CHK: PLR | CHK: PLR

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

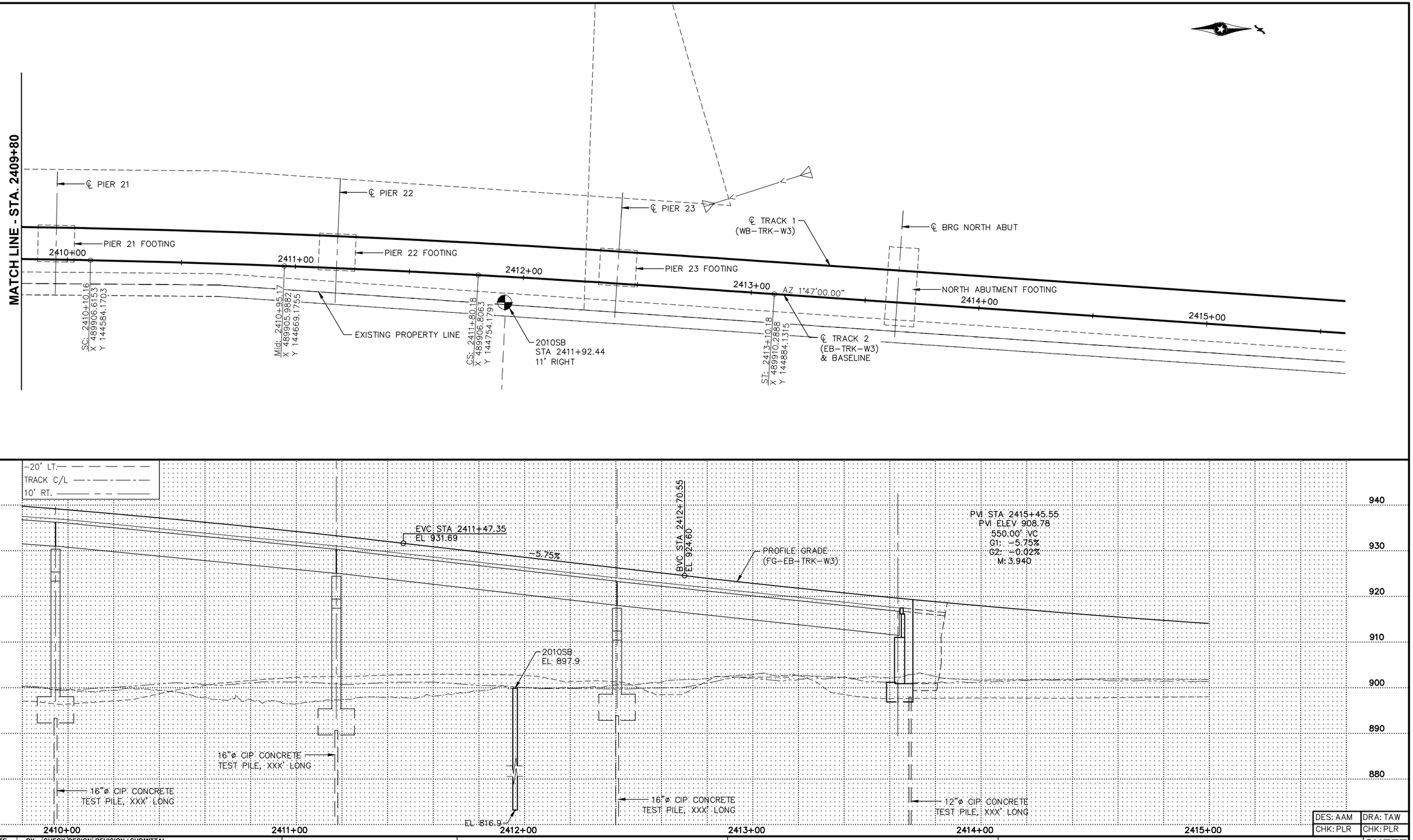
WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-MKHP-LRT-SUR-BOR-004

SHEET 108 OF 204

Aug. 27 2014 09:39 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-MKHP-LRT-SUR-BOR.dwg By: rleckmanb



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-MKHP-LRT-SUR-BOR-005

DES: AAM	DRA: TAW
CHK: PLR	CHK: PLR

SHEET 109 OF 204

Aug. 27 2014 09:39 pm V:\3200_PEC–W\CAD\SEGMENT–W3\SHEET\STRUCTURES\W3–STU–BRG–MKHP–LRT–SUR–BOR.dwg By: rieckmanb

2007SB
Elevation 896.0

Coh	N60	
	7	FILL: Sandy Lean Clay, dark brown, wet.
	13	FILL: Sandy Lean Clay, trace Gravel, brown, wet.
	TW	FILL: Clayey Sand, slightly organic, trace Gravel, brown and black, wet.
	12	SILTY SAND, fine- to medium-grained, with some Gravel, with occasional Lean Clay lenses, gray, moist to 15 feet then waterbearing, loose to medium dense.
▽	7	
	6	
	8	
	5	SANDY LEAN CLAY, trace Gravel, gray, wet, rather soft to very stiff.
	8	
	9	With slightly organic layer at 25 feet.
	14	
	15	
	22	
	29*	CLAYEY SAND, trace Gravel, with occasional Sand layers and seams, gray, wet, stiff to hard.
	15	
	23	
	44	
	41	
	50	
	61	
	61	
	57	
	28	With Gravel at 65 feet.
	35	Trace Gravel at 70 feet.
	34	
	44	END OF BORING.

Water observed at 15 feet while drilling.
Boring immediately backfilled with bentonite grout.
Bottom of Borehole at 81 ft

2008SB
Elevation 893.5

Coh	SPT-N	
		LEAN CLAY, dark brown, frozen.
	6	SANDY LEAN CLAY, trace Gravel, brown, wet, medium.
▽	4	SILTY SAND, fine- to medium-grained, trace Gravel, with Silt lenses, brown, moist, very loose.
	9	
	11	SANDY SILT, with Silt lenses, gray, wet, loose.
	TW	SANDY LEAN CLAY, trace Gravel, with occasional Sandy Silt layers and seams, gray, wet, rather stiff to very stiff.
	11	
	13	
	TW	
	14	
	12	
	12	
	TW	
	22	
	21	CLAYEY SAND, trace Gravel and trace organics, gray, wet, very stiff.
	65	POORLY GRADED SAND with SILT, fine- to coarse-grained, trace Gravel, gray, waterbearing, very dense.
	23	
	26	SANDY LEAN CLAY, with some Gravel, gray, wet, very stiff.
	42	POORLY GRADED SAND with SILT, fine- to coarse-grained, with Gravel, gray, waterbearing, dense.
	59	CLAYEY SAND, trace Gravel, brown, wet, hard.
	31	
	45	
	42	SILTY SAND, fine- to medium-grained, trace Gravel, brown, waterbearing, dense to medium dense.
	29	
	30	CLAYEY SAND, trace Gravel, brown, wet, very stiff to hard.
	46	
	40	
	45	
	52	POORLY GRADED SAND with SILT, fine- to coarse-grained, trace Gravel, brown, waterbearing, dense to very dense.
	38	

END OF BORING.
Water observed at 5 feet while drilling.
Boring immediately backfilled with bentonite grout.
Bottom of Borehole at 101 ft

2091SB
Elevation 898.6

Coh	SPT-N	
	1	ORGANIC CLAY, with Sand, trace roots, black, moist.
	4	PEAT, well decomposed, trace roots, black, moist.
	2	
	2	
▽	WH	SILT, trace fibers, gray, moist, very soft.
	5*	LEAN CLAY, with SAND, with layers of Sand and Silt, trace Gravel, gray, wet, rather soft to stiff.
	15	
	9	
	9	
	10	WELL-GRADED GRAVEL, with fine-grained Sand, gray, waterbearing,
	9*	loose.
	26	CLAYEY SAND, with Gravel, brownish gray, wet, very stiff to hard.
	42	
	26	SANDY LEAN CLAY, trace Gravel, gray, wet, very stiff.
	26	POORLY GRADED SAND with SILT, fine- to medium-grained, trace
	16	Gravel, brown, waterbearing, medium dense.
	36	SANDY LEAN CLAY, trace Gravel, gray, wet, stiff.
	35	CLAYEY SAND, trace Gravel, brown, wet, hard.
	36	POORLY GRADED SAND with SILT, fine- to medium-grained, trace
	37	Gravel, brown, waterbearing, dense.
		CLAYEY SAND, trace Gravel, brownish gray, wet, hard.
	48	SILTY SAND, fine- to medium-grained, with Gravel, brown, waterbearing, dense.
	38	
	32	CLAYEY SAND, with Gravel, brownish gray, wet, hard.
	42	SILTY SAND, fine- to medium-grained, with Gravel, brown, wet, dense to very dense.
	47*	
	32	
	150	

END OF BORING.
Water observed at 15 feet while drilling.
Boring immediately backfilled with bentonite grout.
Bottom of Borehole at 85 ft

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

DES: N/A | DRA: TAW
CHK: N/A | CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-MKHP-LRT-SUR-BOR-006

SHEET 110 OF 204

2009SB
Elevation 897.9

Coh	N60	
		LEAN CLAY, dark brown, frozen.
	3	SANDY LEAN CLAY, trace Gravel, gray, wet, soft.
▽	7	SILTY SAND, fine– to medium–grained, with Gravel, gray, wet, loose.
	10	POORLY GRADED SAND, fine– to coarse–grained, with Gravel, brown,
	9	waterbearing, loose.
	9	
	10	
	34	SILTY SAND, fine– to medium–grained, trace Gravel, with occasional
	19	Lean Clay lenses, brown, waterbearing, medium dense to dense. With
	26	Poorly Graded Sand layer at 21 feet.
	24	CLAYEY SAND, trace Gravel, gray, wet, very stiff.
	29	SILTY SAND, fine– to medium–grained, trace Gravel, brown, waterbearing,
	34	medium dense.
	30	CLAYEY SAND, trace Gravel, brown,
	12	wet, hard. SILTY SAND, fine– to medium–grained, with Gravel, brown, waterbearing,
	16	medium dense.
	17	POORLY GRADED SAND with SILT, fine– to medium–grained, with Gravel,
	20	brown, waterbearing, medium dense.
	19	
	21	
	22	

END OF BORING.
Water observed at 7 1/2 feet with 7 1/2 feet of hollow–stem auger in the ground.
Switched to mud rotary drilling at 15 feet.
Boring immediately backfilled with bentonite grout.
Bottom of Borehole at 51 ft

2010SB
Elevation 897.9

Coh	N60	
	7	FILL: Sandy Lean Clay, trace Gravel, dark brown, moist.
▽	12	FILL: Silty Sand, fine– to medium–grained, trace Gravel, brown, moist.
	14	POORLY GRADED SAND with SILT, fine– to coarse–grained, with Gravel,
	10	brown, waterbearing, medium dense.
	14	POORLY GRADED SAND with SILT, fine– to coarse–grained, with Gravel,
	15	brown, waterbearing, loose to medium dense.
	6	
	15	SANDY LEAN CLAY, trace Gravel, gray, wet, stiff.
	6	POORLY GRADED SAND, fine– to medium–grained, trace Gravel, brown,
	16	waterbearing, loose to dense. With Sandy Lean Clay lenses at 25 feet.
	12	
	15	
	32	
	28	
	32	
	21	
	26	Fine– to coarse–grained at 42 feet.
	34*	
	42	CLAYEY SAND, trace Gravel, brown, wet, hard.
	36	SANDY LEAN CLAY, trace Gravel, brown, wet, hard.
	54	With Sand lenses at 55 feet.
	48	CLAYEY SAND, trace Gravel, brown, wet, hard.
	43	Clay layer encountered at 65 feet.
	40	
	38	
	75	SILT, brown, waterbearing, very dense.

END OF BORING.
Water observed at 5 feet with 5 feet of hollow–stem auger in the ground.
Switched to mud rotary drilling at 15 feet.
Boring immediately backfilled with bentonite grout.
Bottom of Borehole at 81 ft

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM: D2488.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

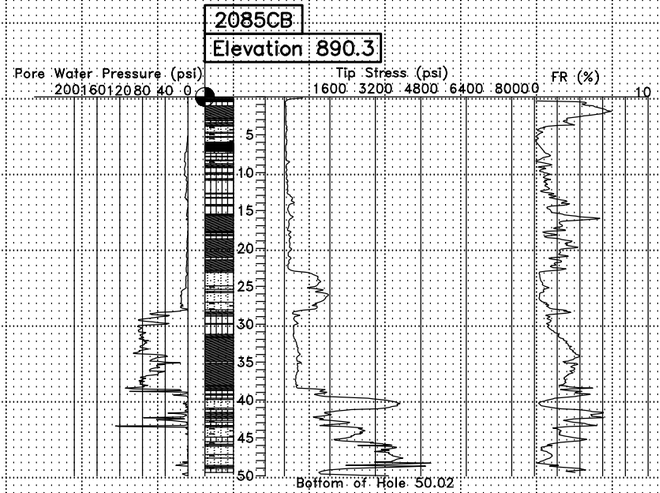
DES: N/A | DRA: TAW
CHK: N/A | CHK: PLR

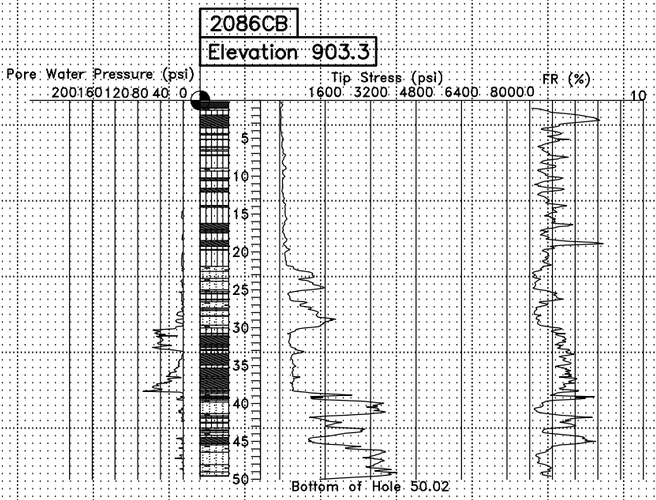
WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
BORINGS

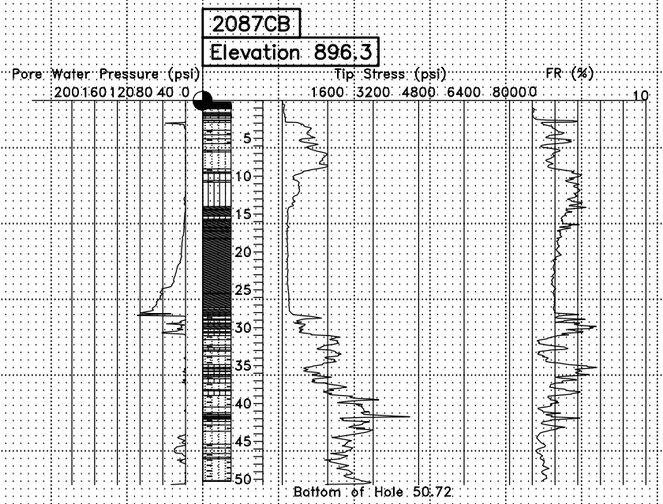
DISCIPLINE: STRUCTURES
SHEET NAME: W3-STU-BRG-MKHP-LRT-SUR-BOR-007

SHEET 111 OF 204

Aug. 27 2014 09:39 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-MKHP-LRT-SUR-BOR.dwg By: rieckmanb







920 910 900 890 880 870 860 850 840 830 820 810 800 790 780 770 760 750

DES: N/A	DRA: TAW
CHK: N/A	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

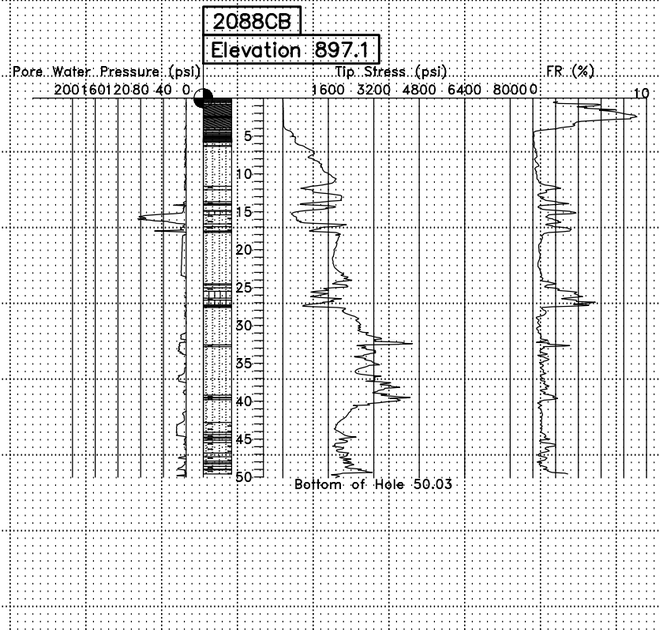
WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
BORINGS

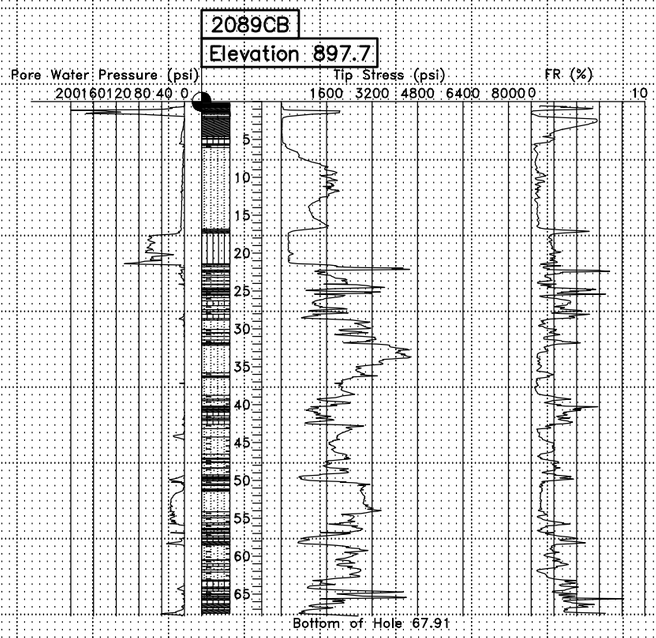
DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-MKHP-LRT-SUR-BOR-008

SHEET 112 OF 204

Aug. 27 2014 09:39 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-MKHP-LRT-SUR-BOR.dwg By: rieckmanb





920 910 900 890 880 870 860 850 840 830 820 810 800 790 780 770 760 750

NOTES:

MISSING BORINGS TO BE ADDED IN ADVANCED DESOGN

DES: N/A	DRA: TAW
CHK: N/A	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

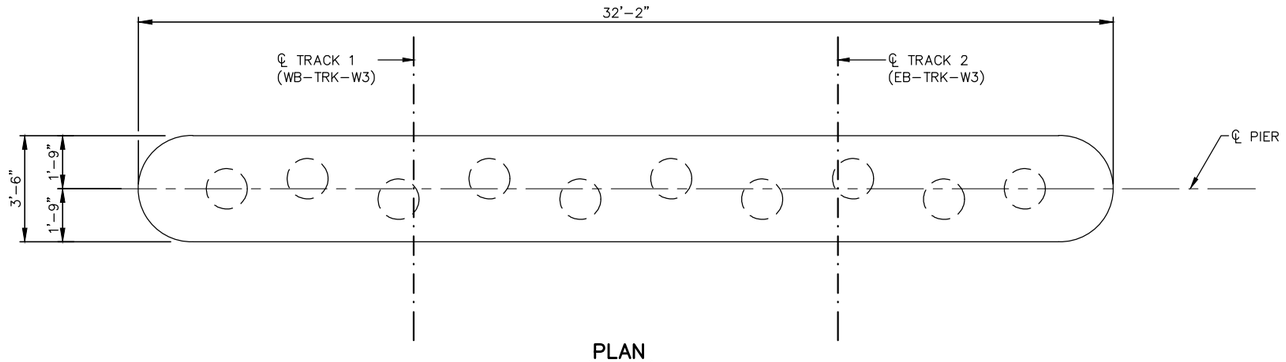
WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

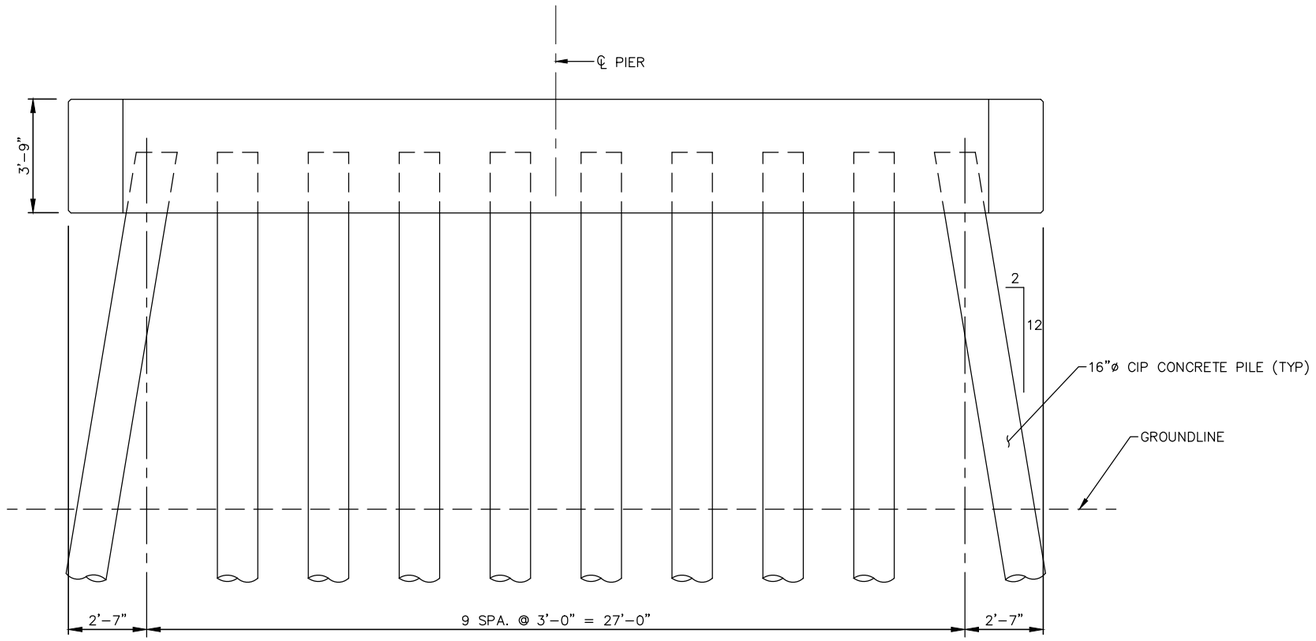
SHEET NAME: W3-STU-BRG-MKHP-LRT-SUR-BOR-009

SHEET 113 OF 204

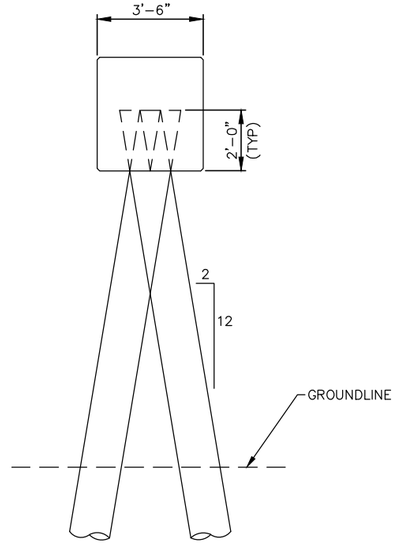
Aug. 27 2014 09:39 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-MKHP-LRT-SUR-BOR.dwg By: rieckmanb



PLAN



ELEVATION



SECTION THRU INTERIOR PILES

PIERS 1–5 & 8–11

NOTES:

1. INTERIOR PILES ARE NOT LONGITUDINALLY BATTERED AT PIER 4.
2. PIER CAP CONFIGURATION WILL BE MODIFIED AT PIERS 5 & 8 TO ACCOMMODATE 45"MN BEAMS AND SLAB SUPERSTRUCTURE.

DES: AAM	DRA: TAW
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

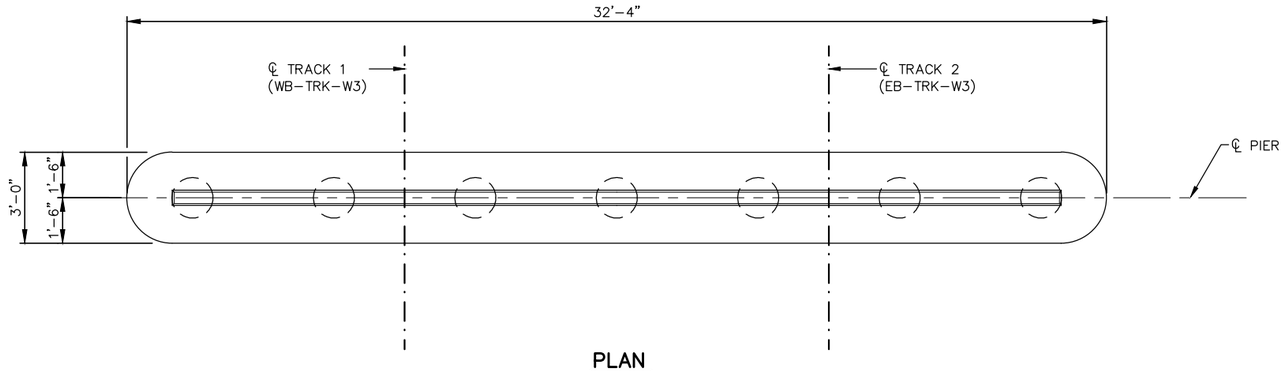
SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
BRIDGE DETAILS

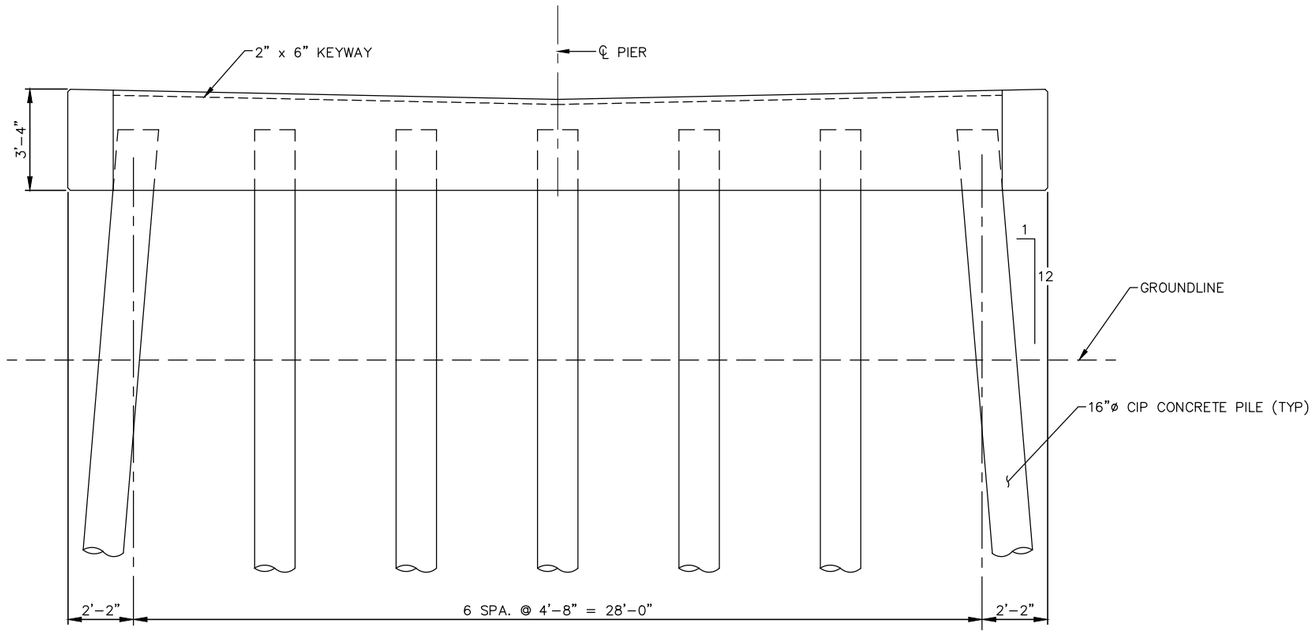
DISCIPLINE: **STRUCTURES**

SHEET NAME: **W3-STU-BRG-MKHP-LRT-DTL-001**

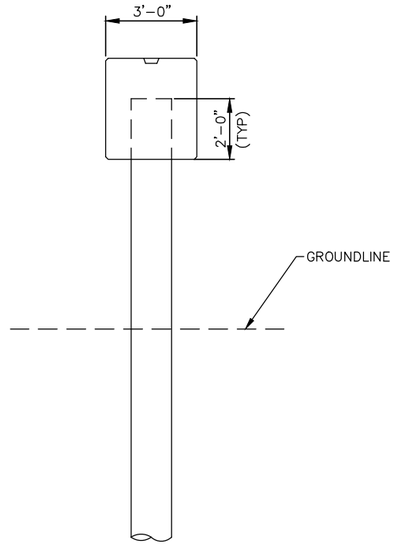
SHEET 114 OF 204



PLAN



ELEVATION



END VIEW

PIERS 6 & 7

DES: AAM	DRA: TAW
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

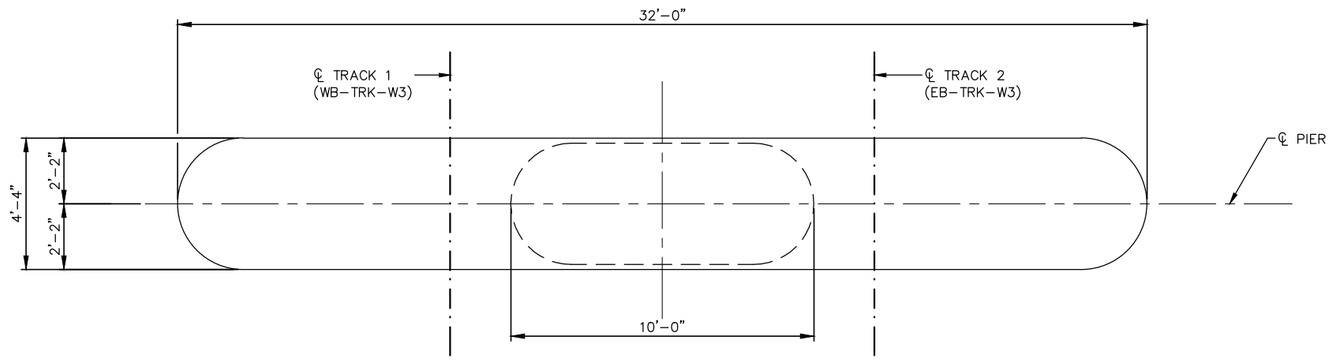
WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
BRIDGE DETAILS

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-MKHP-LRT-DTL-002

SHEET 115 OF 204

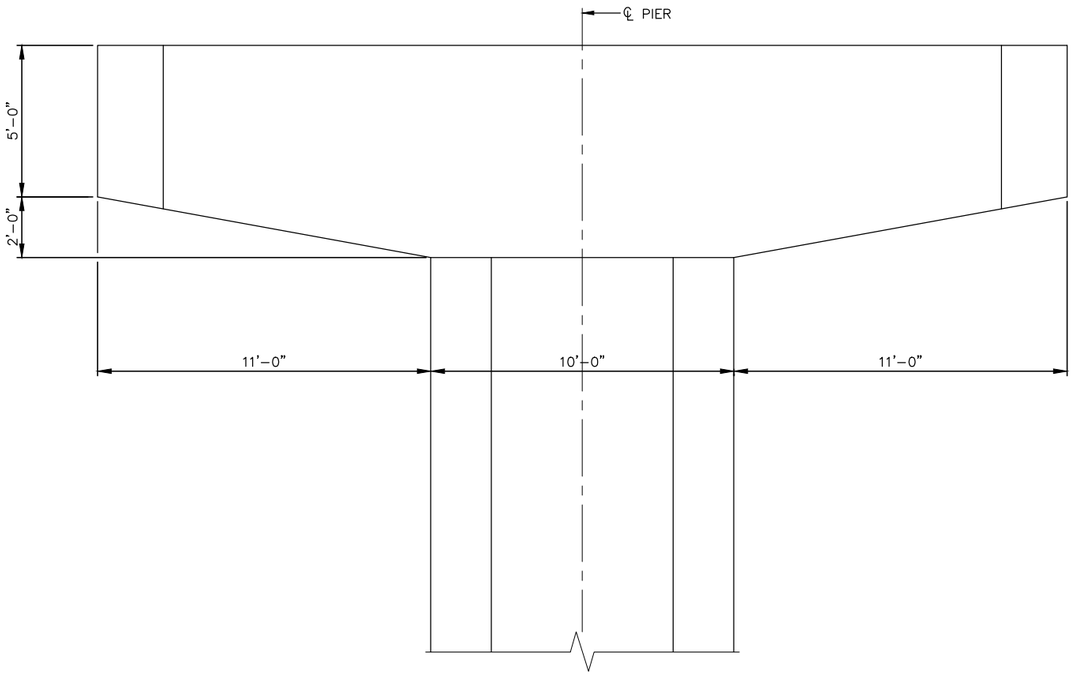
Aug, 27 2014 09:40 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-MKHP-LRT-DTL.dwg By: rieckmanb



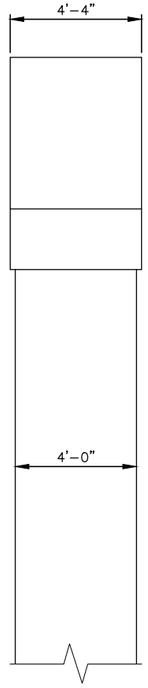
PLAN

NOTES:

1. CAP AND COLUMN TO BE REINFORCED WITH GRADE 60 REINFORCEMENT BARS.



ELEVATION



END VIEW

PIERS 12-23

DES: AAM	DRA: TAW
CHK: PLR	CHK: PLR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
BRIDGE DETAILS

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-BRG-MKHP-LRT-DTL-003

SHEET 116 OF 204

Aug, 27 2014 09:40 pm V:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-MKHP-LRT-DTL.dwg By: rieckmanb

AESTHETIC DETAILS TO BE DETERMINED DURING ADVANCED DESIGN

1. ABUTMENT SURFACE TREATMENT
2. ABUTMENT/WALL CORNER DETAIL
3. EXPOSED EDGE OF DECK
4. EXPOSED BARRIER
5. EXPOSED FASCIA BEAM
6. BOTTOM OF BEAMS
7. PIER COLUMN SURFACE TREATMENT
8. RAILING AND SCREENING

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

DES: N/A | DRA: TAW
CHK: N/A | CHK: PLR

WEST - VOLUME 2 (STRUCTURES)
MINNETONKA/HOPKINS
BRIDGE XXXXX (LRT)
AESTHETICS

DISCIPLINE: **STRUCTURES**

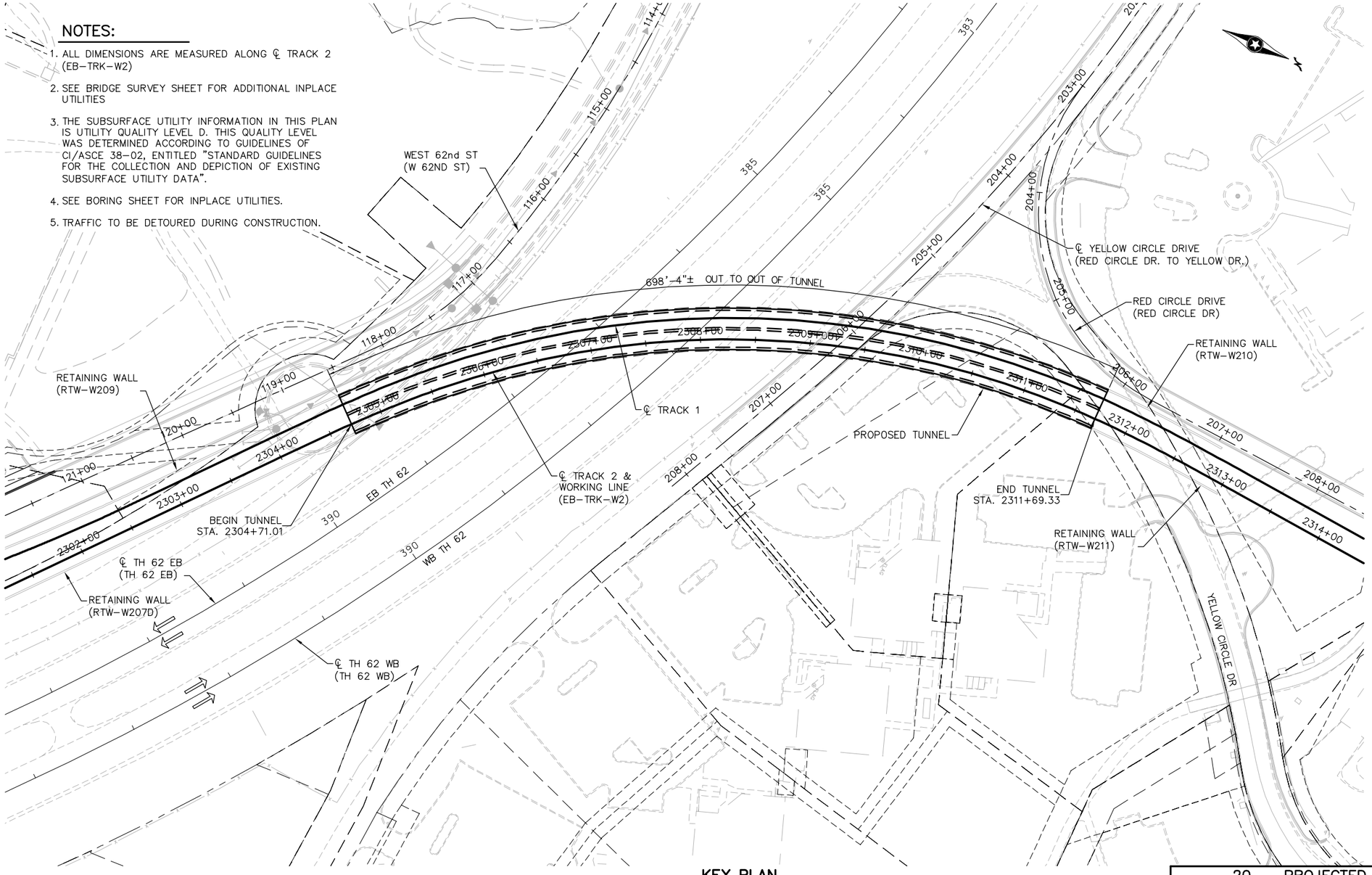
SHEET NAME: **W3-STU-BRG-MKHP-LRT-AES**

SHEET 117 OF 204

Aug. 27 2014 09:40 pm v:\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-BRG-MKHP-AES.dwg By: rieckmanb

NOTES:

1. ALL DIMENSIONS ARE MEASURED ALONG ℄ TRACK 2 (EB–TRK–W2)
2. SEE BRIDGE SURVEY SHEET FOR ADDITIONAL INPLACE UTILITIES
3. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38–02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
4. SEE BORING SHEET FOR INPLACE UTILITIES.
5. TRAFFIC TO BE DETOURED DURING CONSTRUCTION.



KEY PLAN

0 25 50 100

SCALE IN FEET

DESIGN DATA

2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 6TH EDITION AND CURRENT INTERIMS

SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 2.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD

LRV & MV LOAD DIAGRAM SHOWN ON SHEET 122

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4000 PSI n = 8
fy = 60000 PSI

DESIGN SPEED: OVER = XX MPH (TH 62)
UNDER = N/A MPH (LRT)

LIST OF SHEETS

PROPOSED TYPE OF STRUCTURE

STRUCTURE:
TWO CELL CIP CONCRETE TUNNEL
ALL BARS EPOXY COATED
DIRECT FIXATION TRACK

SUBSTRUCTURE:
CIP CONCRETE BASE SLAB SUPPORTED ON PREPARED SUBGRADE

DEPTH OF STRUCTURE:
16'–6" TOP OF HIGH RAIL TO BOTTOM OF TOP SLAB

AESTHETICS:
SEE STANDARD AESTHETIC DETAILS SHEET

BRIDGE NO. XXXXX

TUNNEL STRUCTURE UNDER TH 62
0.3 MI. EAST OF JCT. T.H. 62 AND SHADY OAK ROAD IN EDEN PRAIRIE

2 CELL CIP CONCRETE TUNNEL
(2) 15'–9" ROADWAYS
0°–0'–0" SKEW

BRIDGE I.D. NO. 117

KEY PLAN

SEC 36 T 117 N R 22 W
CITY OF EDEN PRAIRIE HENNEPIN COUNTY

APPROVED: _____
STATE BRIDGE ENGINEER DATE

20__ PROJECTED TRAFFIC VOLUMES

ROADWAY UNDER	ROADWAY OVER
N.A.	A.D.T. _____
N.A.	D.H.V. _____
N.A.	A.D.T.T. _____

DES: DDL	DRA: SWH
CHK: JFE	CHK: JFE

JOB NO. T9N635 STATE PROJECT NO. 9909–01 MNDOT REVIEW:

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

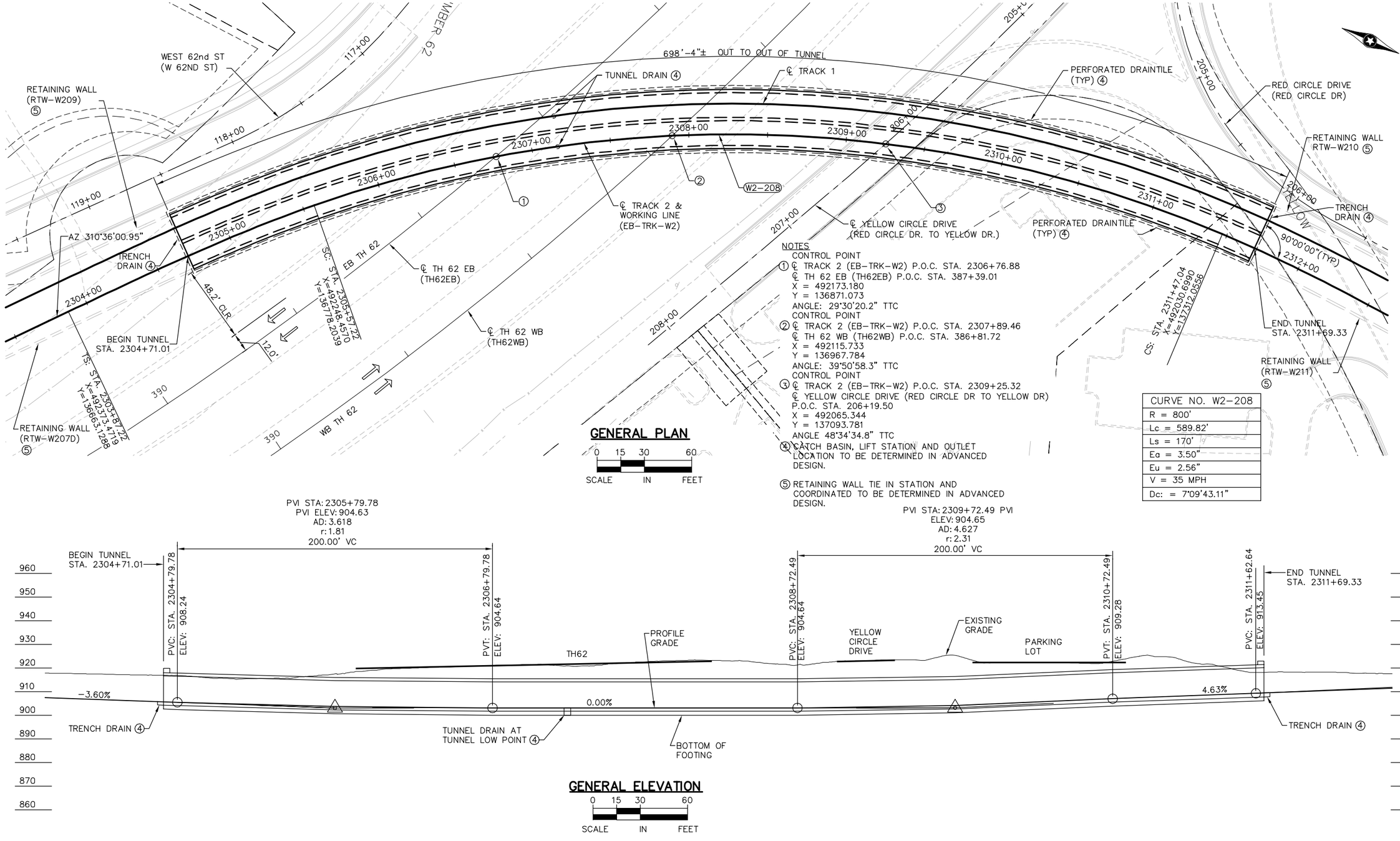
METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
TUNNEL UNDER HWY 62
BRIDGE XXXXX (LRT)
KEY PLAN

DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-TUNL-TH62-BL01

SHEET 118 OF 204

Aug. 27 2014 08:42 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUNL-TH62-BL01.dwg By: hills



GENERAL PLAN

SCALE 0 15 30 60 IN FEET

NOTES

CONTROL POINT
① ℄ TRACK 2 (EB-TRK-W2) P.O.C. STA. 2306+76.88
℄ TH 62 EB (TH62EB) P.O.C. STA. 387+39.01
X = 492173.180
Y = 136871.073
ANGLE: 29°30'20.2" TTC
CONTROL POINT
② ℄ TRACK 2 (EB-TRK-W2) P.O.C. STA. 2307+89.46
℄ TH 62 WB (TH62WB) P.O.C. STA. 386+81.72
X = 492115.733
Y = 136967.784
ANGLE: 39°50'58.3" TTC
CONTROL POINT
③ ℄ TRACK 2 (EB-TRK-W2) P.O.C. STA. 2309+25.32
℄ YELLOW CIRCLE DRIVE (RED CIRCLE DR TO YELLOW DR)
P.O.C. STA. 206+19.50
X = 492065.344
Y = 137093.781
ANGLE 48°34'34.8" TTC
④ CATCH BASIN, LIFT STATION AND OUTLET LOCATION TO BE DETERMINED IN ADVANCED DESIGN.

⑤ RETAINING WALL TIE IN STATION AND COORDINATED TO BE DETERMINED IN ADVANCED DESIGN.

CURVE NO. W2-208
R = 800'
Lc = 589.82'
Ls = 170'
Ea = 3.50"
Eu = 2.56"
V = 35 MPH
Dc: = 7°09'43.11"

GENERAL ELEVATION

SCALE 0 15 30 60 IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
TUNNEL UNDER HWY 62
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUNL-TH62-GE01

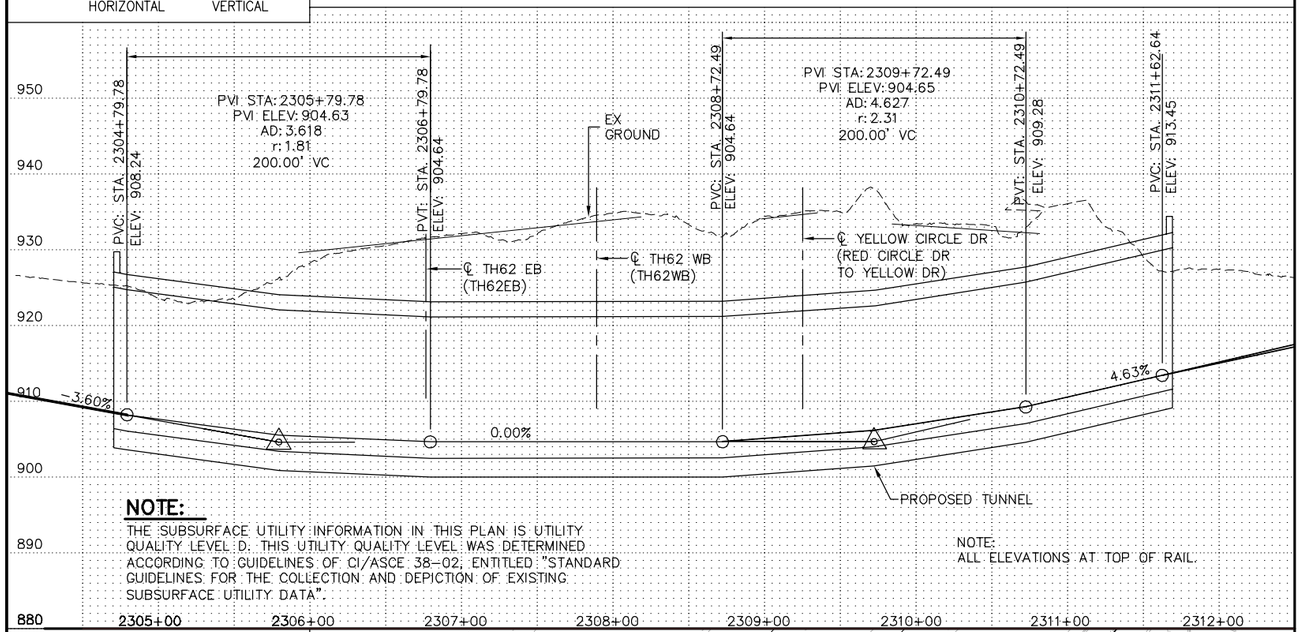
SHEET 119 OF 204

Aug. 27 2014 08:44 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUNL-TH62-GE01.dwg By: hills

CONTRACTED PROFILE

SCALE : 0 25' 50' HORIZONTAL; 0 5' 10' VERTICAL

SWLRT TRACK 2 (FG-EB-TRK-W2)

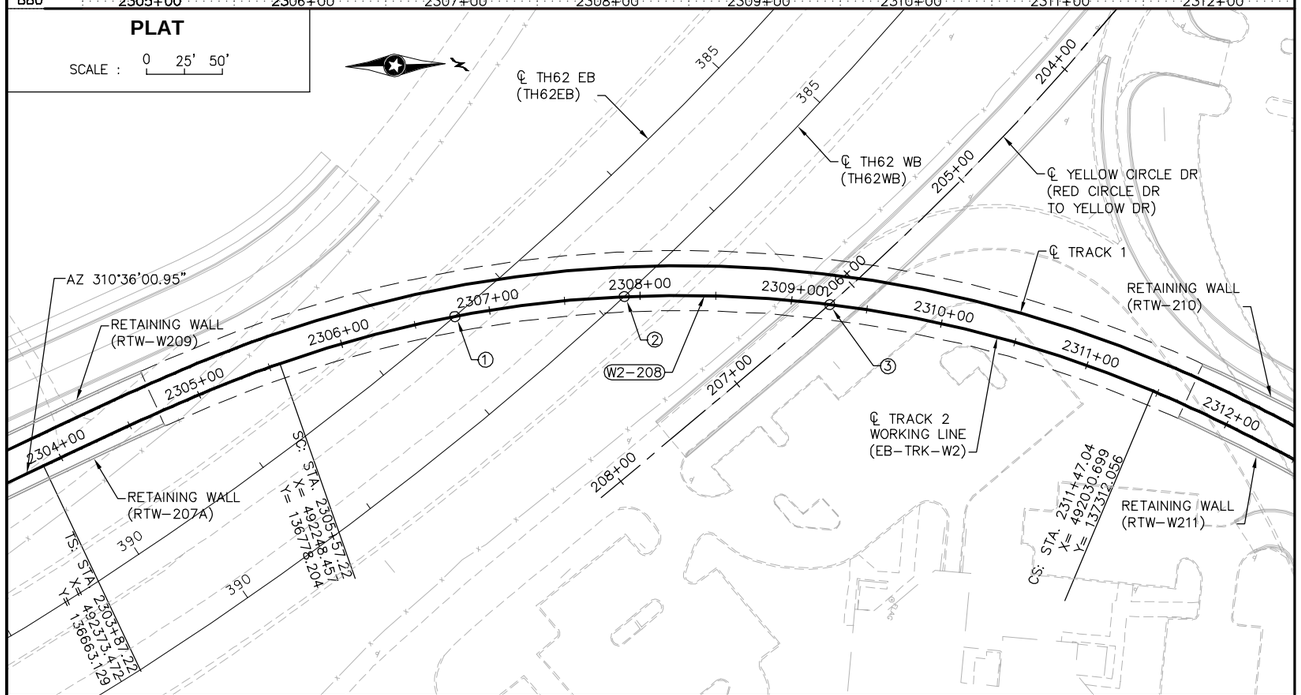


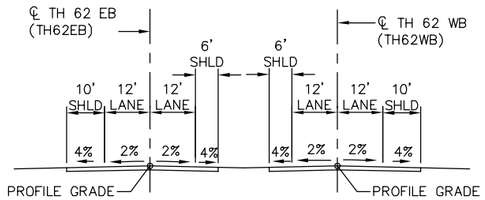
NOTE:
THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

NOTE:
ALL ELEVATIONS AT TOP OF RAIL.

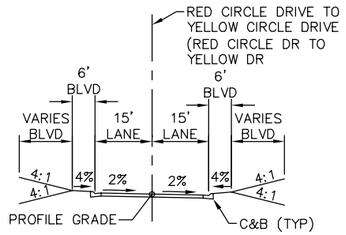
PLAT

SCALE : 0 25' 50'





EXISTING TYPICAL ROADWAY SECTION TH62



EXISTING TYPICAL ROADWAY SECTION YELLOW CIRCLE DRIVE

NOTES

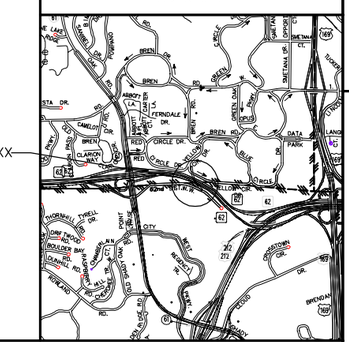
① CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.C. STA. 2306+76.88
℄ TH 62 EB (TH62EB) P.O.C. STA. 387+39.01
X = 492173.180
Y = 136871.073
ANGLE: 29°30'20.2" TTC

② CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.C. STA. 2307+89.46
℄ TH 62 WB (TH62WB) P.O.C. STA. 386+81.72
X = 492115.733
Y = 136967.784
ANGLE: 39°50'58.3"

③ CONTROL POINT
℄ TRACK 2 (EB-TRK-W2) P.O.C. STA. 2309+25.32
℄ YELLOW CIRCLE DRIVE (RED CIRCLE DR TO YELLOW DR) P.O.C. STA. 206+19.50
X = 492065.344
Y = 137093.781
ANGLE: 48°34'34.8"

CURVE NO. W2-208
R = 800'
Lc = 589.82'
Ls = 170'
Eq = 3.50"
Eu = 2.56"
V = 35 MPH
Dc: = 7°09'43.11"

INDEX MAP



STATE PROJECT NO. 9909-01

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
2. OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION,TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS-SECTIONAL AREA ETC.
3. APPARENT HIGHWATER ELEVATION _____ OBTAINED FROM:
4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE: XX-XX-XXXX

STREAM OR DITCH DESIGNATION: XXX

DRAINAGE AREA: XXX SQ. MI.

MAX FLOOD ON RECORD: XXX C.F.S. (XX-XX-XX)

MAXIMUM OBSERVED HIGHWATER ELEVATION: XXX.X FT.

DESIGN FLOOD (XX TR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
DESIGN MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.
TOTAL STAGE INCREASE: XX.X FT.
LOW MEMBER AT OR ABOVE ELEVATION: XXX.X FT

WATERWAY AREA REQUIRED BELOW ELEV. XXX.X = XXX SQ. FT. AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
TOTAL STAGE INCREASE: X.X FT.
MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.

FLOWLINE ELEVATION: XXX FT. SKEW ANGLE: XX

ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. XXX.X (500 OR OT YR.FREQ.)

SCOUR CONFIRMATION RECOMMENDATION

DATE: XX-XX-XXXX

TOTAL SCOUR AT PIER EL. XXX.XX (500 OR OT YR. FREQ.)
SCOUR CODE: OBTAIN FROM HYDRAULIC ENGINEER

BRIDGE SURVEY = SHEETS MADE FROM 20XX XXXXXI SURVEYS

1ST BENCH MARK
MNDOT NAME: 2773 A
APPROX. NORTHING (HEN. COUNTY COORDINATES): 137082.117
APPROX. EASTING (HEN. COUNTY COORDINATES): 490527.817
BENCHMARK ELEVATION (NAVD88): 963.180

2ND BENCH MARK
MNDOT NAME: 2773 F
APPROX. NORTHING (HEN. COUNTY COORDINATES): 135659.858
APPROX. EASTING (HEN. COUNTY COORDINATES): 493993.897
BENCHMARK ELEVATION (NAVD88): 954.066

TUNNEL SURVEY

0.3 MI EAST OF THE INTERSECTION TH62 AND SHADY OAK ROAD IN EDEN PRAIRIE

SOUTHWEST LRT UNDER TH62

SEC 36 T 117 N R 22 W

CITY OF EDEN PRAIRIE HENNEPIN COUNTY

BRIDGE XXXXX

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
TUNNEL UNDER HWY 62
BRIDGE XXXXX (LRT)
TUNNEL SURVEY

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUNL-TH62-SUR1

SHEET 120 OF 204

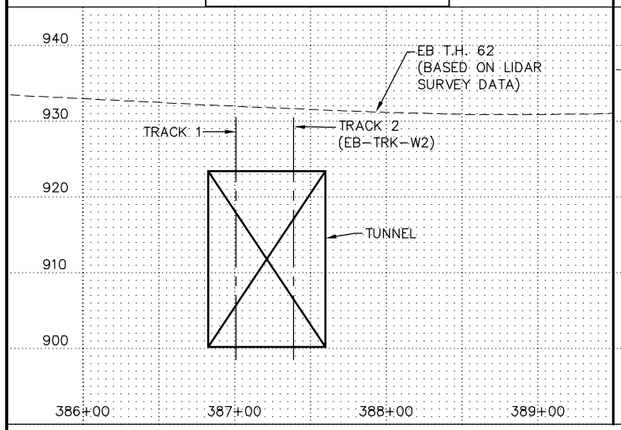
Aug, 27 2014 08:46 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUNL-TH62-SUR1.dwg By: hills

CONTRACTED PROFILE

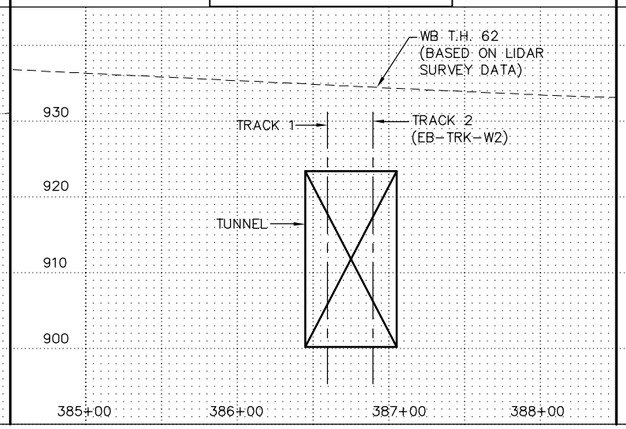
SCALE HOR: 0 50'

SCALE VER: 0 10'

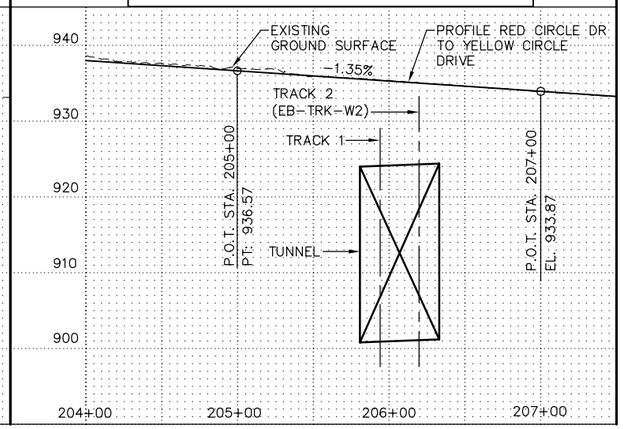
PROFILE GRADE EB T.H. 62



PROFILE GRADE WB T.H. 62



PROFILE GRADE RED CIRCLE DR TO YELLOW DR



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

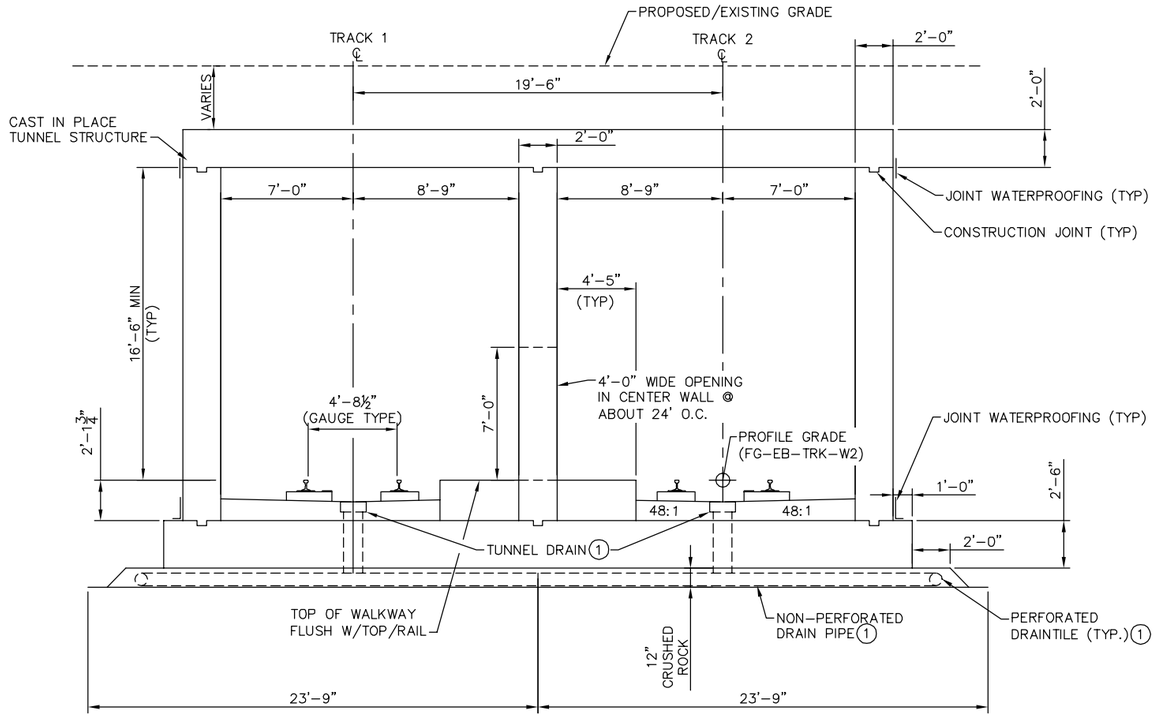
WEST - VOLUME 2 (STRUCTURES)
TUNNEL UNDER HWY 62
BRIDGE XXXXX (LRT)
TUNNEL SURVEY

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUNL-TH62-SUR2

SHEET 121 OF 204

Aug. 27 2014 08:48 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUNL-TH62-SUR2.dwg By: hills



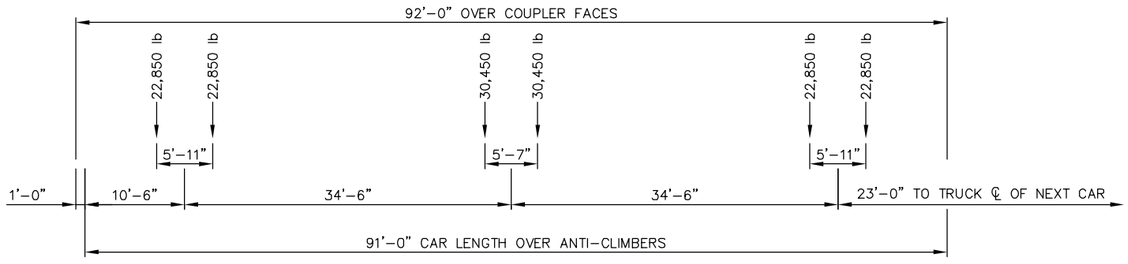
TRANSVERSE SECTION THROUGH TUNNEL

0 2 4 8

SCALE IN FEET

NOTES:

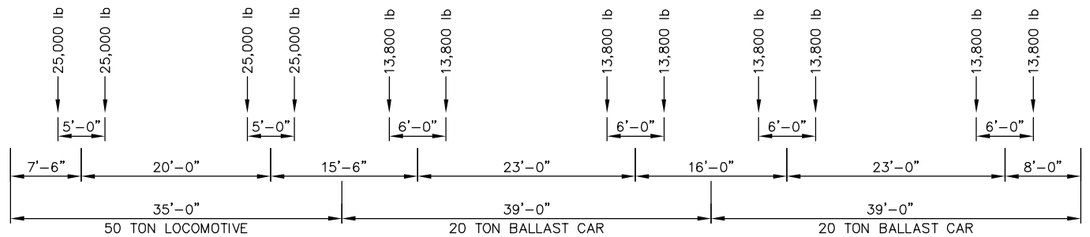
(1) CATCH BASIN, LIFT STATION AND OUTLET LOCATION TO BE DETERMINED IN ADVANCED DESIGN.



LIGHT RAIL VEHICLE LOADING DIAGRAM

NOTES:

1. THE LRT TRAIN SHALL CONSIST OF EITHER ONE, TWO OR THREE CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.



MAINTENANCE TRAIN LOADING DIAGRAM

NOTES:

1. THE MAINTENANCE TRAIN SHALL CONSIST OF ONE LOCOMOTIVE AND ONE, TWO, THREE OR FOUR BALLAST CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.
2. WEIGHT OF EMPTY BALLAST CAR IS 15,000 POUNDS.

DES: DDL	DRA: SWH
CHK: EEM	CHK: JFE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

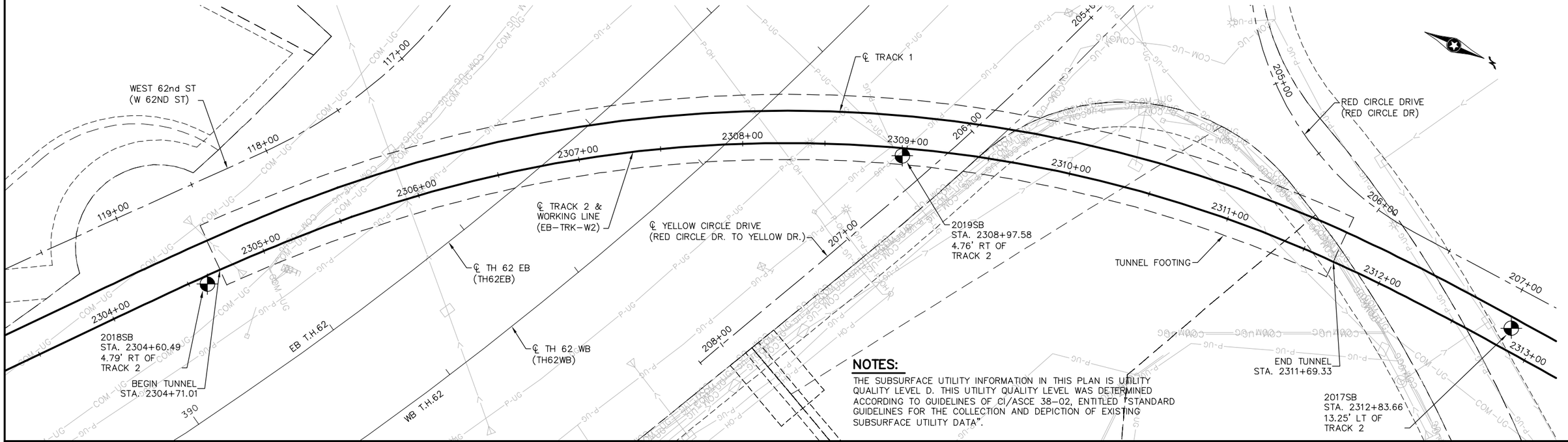
WEST - VOLUME 2 (STRUCTURES)
TUNNEL UNDER HWY 62
BRIDGE XXXXX (LRT)
TRANSVERSE SECTION & LOADING DIAGRAMS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUNL-TH62-TYP1

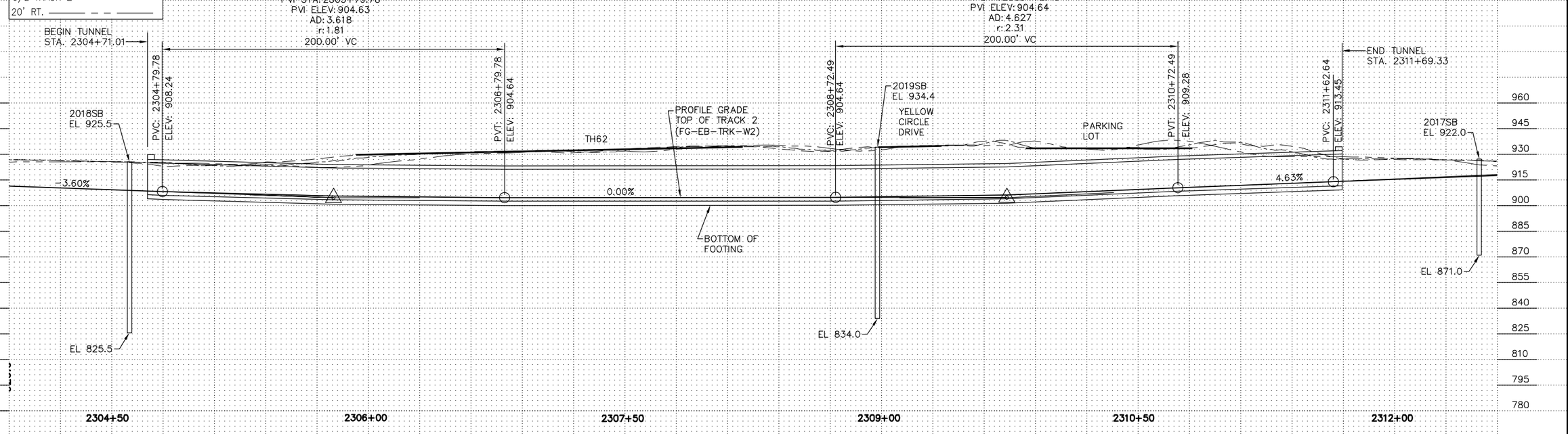
SHEET 122 OF 204

Aug. 27 2014 08:49 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUNL-TH62-TYP1.dwg By: hills



NOTES:

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38–02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
TUNNEL UNDER HWY 62
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUNL-TH62-SUR3

SHEET 123 OF 204

Aug, 27 2014 08:50 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUNL-TH62-SUR3.dwg By: hills

2018SB
Elevation 925.5

Coh N60

Coh N60	
8	FILL: Silty Sand, coarse-grained, trace Gravel, brown, moist.
14	FILL: Clayey Sand, fine- to medium-grained, trace Gravel, brown and gray, wet.
TW	CLAYEY SAND, fine- to medium-grained, trace Gravel, brown, wet, medium dense.
14	SANDY LEAN CLAY, trace Gravel, brown, wet, stiff.
TW	CLAYEY SAND, fine- to medium-grained, trace Gravel, brown,
26	moist, medium dense.
30	
34	SILTY SAND, fine- to medium-grained, with some Gravel, brown,
40	moist, dense.
22	CLAYEY SAND, fine- to medium-grained, trace Gravel, brown,
30	moist, medium dense.
27	SILTY SAND, fine- to medium-grained, trace Gravel, moist to 50
28	feet then wet, dense to very dense. With Gravel at 47 feet.
49	
42	
48	
100	
55	
49	
44	
*	
28	SILTY SAND, fine- to medium-grained, trace Gravel, gray, wet,
19	medium dense.
33	CLAYEY SAND, fine- to medium-grained, trace Gravel, gray, wet,
100	dense.
	SILT, fine-grained, brown, wet, very dense.
100	
102	SANDY SILT, trace Gravel, brown, wet, very dense.
90	
100*	CLAYEY SAND, fine- to medium-grained, trace Gravel, brown, wet,
100	very dense.
87	

END OF BORING.

Water level obscured due to drilling fluids used during mud rotary drilling operation.

Boring then sealed with bentonite grout.

NOTE: Piezometer placed to a depth of about 50 feet in adjacent borehole. Bottom of Borehole at 101 ft

2019SB
Elevation 934.4

Coh N60

Coh N60	
8	FILL: Clayey Sand, fine- to medium-grained, with Gravel, dark brown, moist.
12	FILL: Clayey Sand, fine- to medium-grained, with Sand inclusions, brown, moist.
56	SANDY LEAN CLAY, trace Gravel, with Silt lenses and seams, brown, moist, rather stiff.
	SILTY SAND, fine- to medium-grained, trace Gravel, Cobbles at 10
38	feet, brown, moist, very dense.
	SILTY SAND, fine-grained, with some Gravel, with occasional Clay
47	lenses and seams, brown, moist, dense.
24	SILTY SAND, fine- to medium-grained, trace Gravel, with Sand
32	lenses, brown, wet, medium dense to dense.
31	SILTY SAND, fine- to coarse-grained, with Gravel, brown, moist,
30	dense to very dense.
77	
45	SILTY SAND, trace Gravel, with occasional Clay lenses and seams,
34	brown, moist, medium dense to dense.
61	
25	
27	
23	CLAYEY SAND, fine- to medium-grained, trace Gravel, brown,
23	moist, medium dense. With Gravel at 52 feet.
17	
30	SILTY SAND, fine-grained, brown, wet, medium dense.
40	SANDY SILT, fine-grained, brown, wet, dense.
15	CLAYEY SAND, fine- to medium-grained, trace Gravel, gray, wet,
TW	medium dense.
61	SANDY SILT, fine-grained, with Sand lenses and seams, brown,
13	wet, very dense.
	SILTY SAND, fine-grained, brown, waterbearing, medium dense.
60	SANDY SILT, with occasional Sand lenses and seams, brown, wet,
	very dense.
48	SILTY SAND, fine-grained, brown, waterbearing, dense to very
96	dense.
82	
87	
100	
80	

END OF BORING.

Water observed at 61 feet with 64 1/2 feet of hollow-stem auger in the ground.

Water observed at 55 1/2 feet when rechecked 30 minutes after withdrawal of the auger.

Boring then sealed with bentonite grout.

NOTE: Piezometer placed to a depth of about 50 feet in adjacent borehole. Bottom of Borehole at 101 ft

2017SW
Elevation 922.0

Coh N60

Coh N60	
	3 inches of bituminous over 3 1/2 inches of aggregate base.
5	FILL: Lean Clay, slightly organic, trace roots, dark gray, wet.
12	FILL: Clayey Sand, with Gravel, brown and gray, wet.
11	CLAYEY SAND, trace Gravel, with occasional Sand lenses and
8	seams, brown with rust stains, wet, loose to medium dense.
11	
12	
19	
20	SANDY LEAN CLAY, trace Gravel, gray, wet, very stiff.
17	
26	
28	
58	SILTY SAND, fine- to medium-grained, with Gravel, reddish brown,
50/6"	moist to 43 feet then waterbearing, very dense.
15	POORLY GRADED SAND with SILT, fine- to coarse-grained, with
	Gravel, reddish brown, waterbearing, medium dense to very dense.

END OF BORING. Water observed at 43 feet with 49 1/2 feet of hollow-stem auger in the ground. Water not observed to cave-in depth of 37 feet immediately after withdrawal of Boring immediately backfilled with bentonite grout. Bottom of Borehole at 51 ft by auger.

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

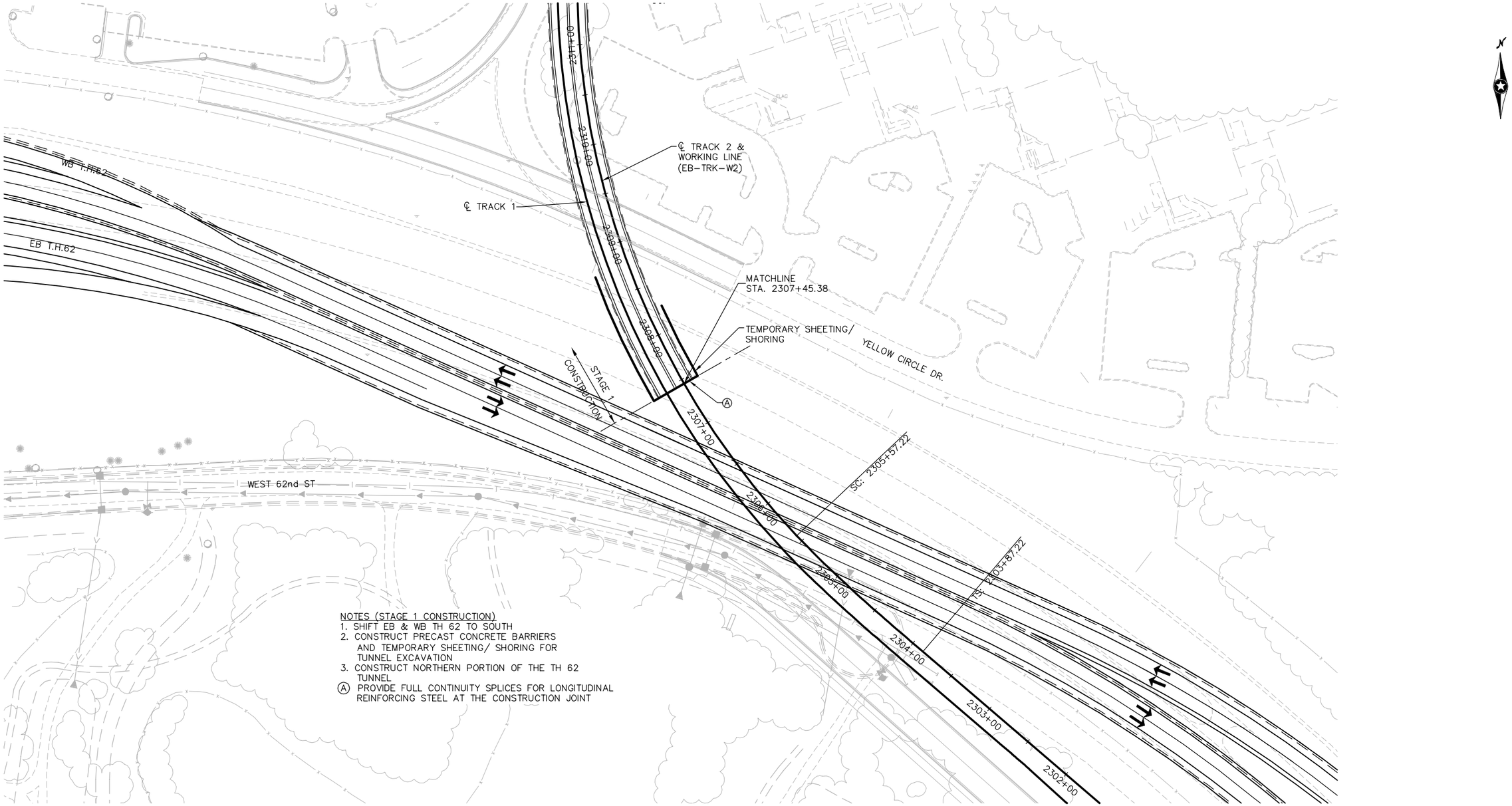
WEST - VOLUME 2 (STRUCTURES)
TUNNEL UNDER HWY 62
BRIDGE XXXXX (LRT)
BORINGS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUNL-TH62-SUR4-BOR1

SHEET 124 OF 204

Aug. 27 2014 08:51 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUNL-TH62-SUR4-BOR1.dwg By: hills



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

DES: DDL	DRA: SWH
CHK: JFE	CHK: JFE

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

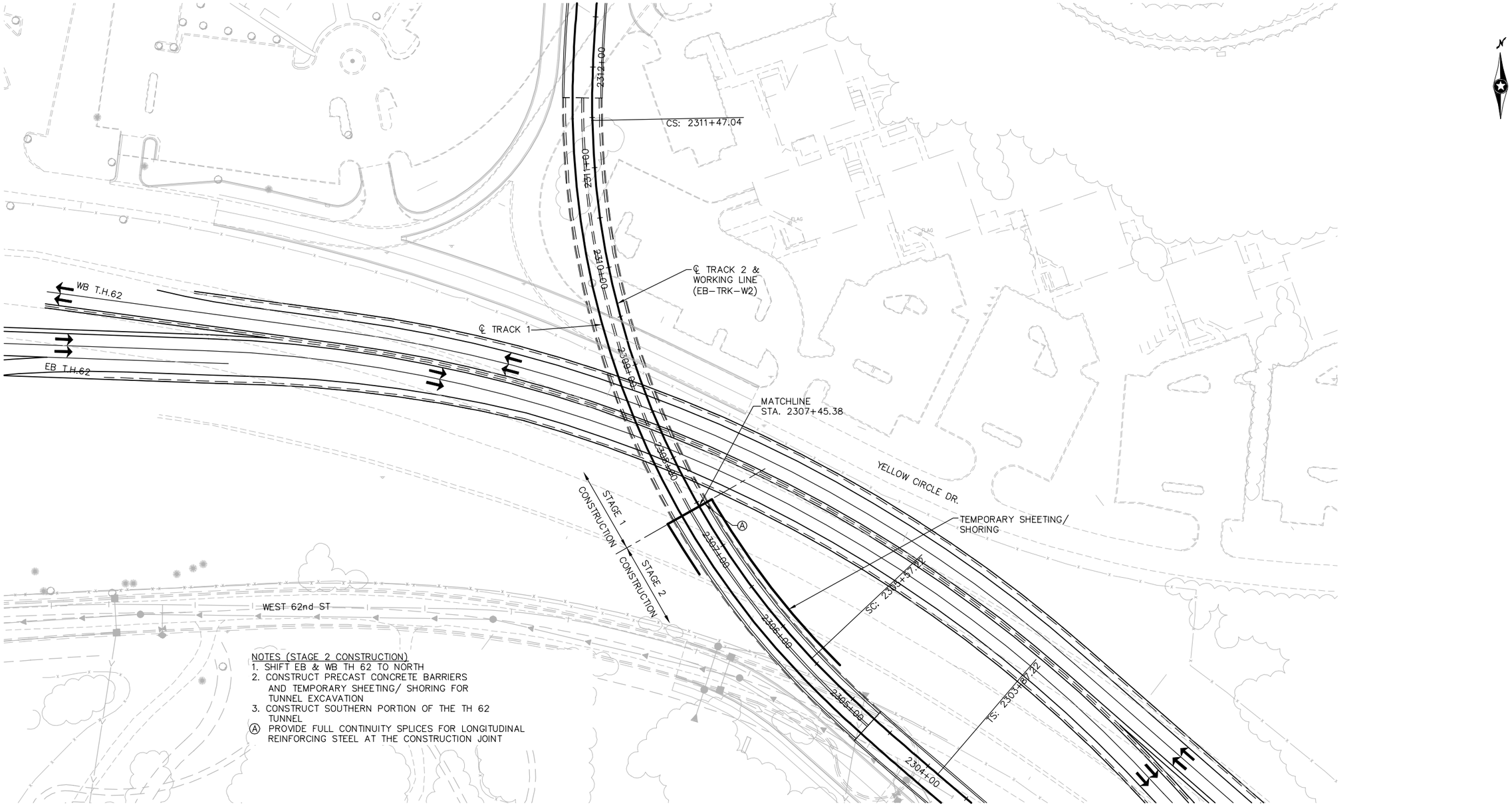
WEST - VOLUME 2 (STRUCTURES)
TUNNEL UNDER HWY 62
BRIDGE XXXXX (LRT)
STAGING PLANS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUNL-DET1

SHEET 125 OF 204

Aug, 27 2014 08:53 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUNL-TH62-DET1.dwg By: hills



NOTES (STAGE 2 CONSTRUCTION)
1. SHIFT EB & WB TH 62 TO NORTH
2. CONSTRUCT PRECAST CONCRETE BARRIERS AND TEMPORARY SHEETING/ SHORING FOR TUNNEL EXCAVATION
3. CONSTRUCT SOUTHERN PORTION OF THE TH 62 TUNNEL

Ⓐ PROVIDE FULL CONTINUITY SPLICES FOR LONGITUDINAL REINFORCING STEEL AT THE CONSTRUCTION JOINT

LEGEND:

- TEMP. SHORING
- STRUCTURE
- TRAFFIC DIRECTION
- MATCHLINE
- EXCAVATION LINE
- TEMP PORTABLE PRECAST CONCRETE MEDIAN BARRIER

STAGE 2 CONSTRUCTION

0 25 50 100
SCALE IN FEET

DES: DDL	DRA: SWH
CHK: JFE	CHK: JFE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.		.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM PARSONS BRINCKERHOFF

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

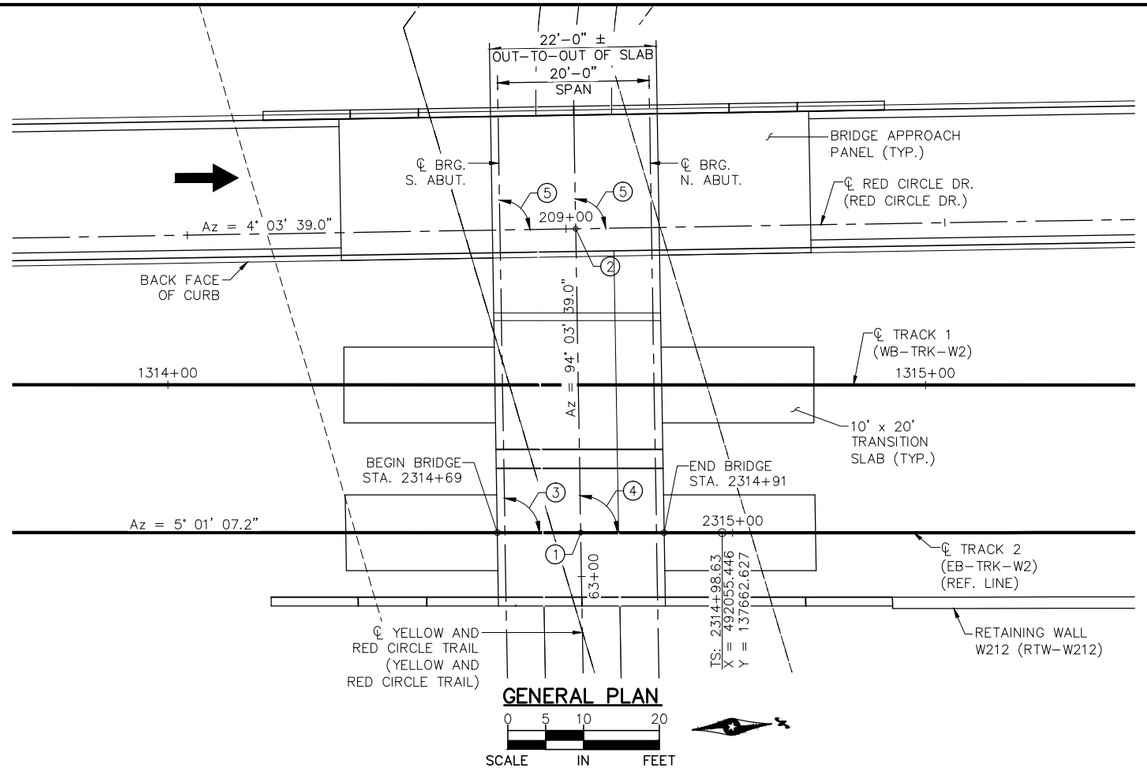
WEST - VOLUME 2 (STRUCTURES)
TUNNEL UNDER HWY 62
BRIDGE XXXXX (LRT)
STAGING PLANS

DISCIPLINE: STRUCTURES

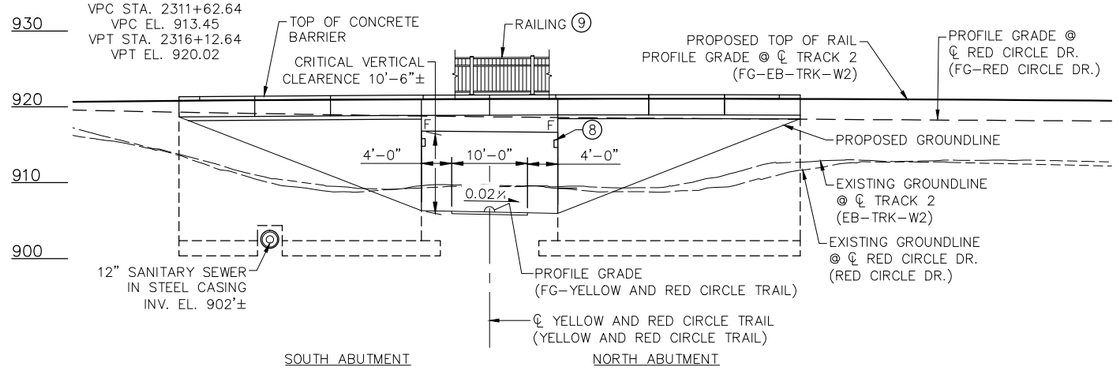
SHEET NAME: W2-STU-TUNL-DET2

SHEET 126 OF 204

Aug, 27 2014 08:53 am V:\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUNL-TH62-DET1.dwg By: hills

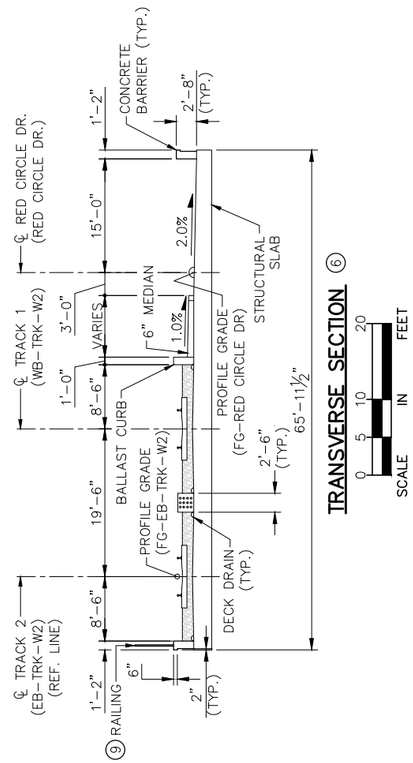


VPI STA. 2313+87.64
PVI EL. 923.87
450.00 V.C.
M = −3.57
G1 = 4.63%
G2 = −1.71%
VPC STA. 2311+62.64
VPC EL. 913.45
VPT STA. 2316+12.64
VPT EL. 920.02



GENERAL ELEVATION (7)

0 5 10 20
SCALE IN FEET



TRANSVERSE SECTION (6)

0 5 10 20
SCALE IN FEET

NOTES:

(1) CONTROL POINT:
℄ TRACK 2 (EB-TRK-W2)
STA. 2314+79.95
℄ YELLOW AND RED CIRCLE TRAIL
(YELLOW AND RED CIRCLE TRAIL)
STA. 62+94.22
X = 492053.812
Y = 137644.023

(2) ℄ RED CIRCLE DR.
(RED CIRCLE DR.)
STA. 209+01.27
℄ YELLOW AND RED CIRCLE TRAIL
(YELLOW AND RED CIRCLE TRAIL)
STA. 62+54.10

(3) 90°-57'-28.2" (TYP. AT ABUTMENTS)

(4) 90°-57'-28.2"

(5) 90°-00'-00"

(6) DIMENSIONS GIVEN PARALLEL TO ABUTMENTS.

(7) SEE BORINGS – PLAN & PROFILE SHEET FOR IN-PLACE UTILITIES.

(8) UNDER BRIDGE LIGHTING.

(9) RAILING TYPE TO BE DETERMINED DURING ADVANCED DESIGN.

DESIGN DATA

2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
6TH EDITION AND CURRENT INTERIMS

SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA
(REVISION 2.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD

HL-93 LIVE LOAD

LRV & MV LOAD DIAGRAM SHOWN ON SHEET 130

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4 ksi n = 8
fy = 60 ksi REINFORCEMENT

DESIGN SPEED: OVER = XX MPH (ROADWAY)
OVER = XX MPH (LRT)
UNDER = XX MPH (TRAIL)

APPROXIMATE DECK AREA: 1450 SQ. FT.

LIST OF SHEETS

20XX PROJECTED TRAFFIC VOLUMES

ROADWAY OVER		ROADWAY UNDER
XXXX	AADT	N/A
XXXX	DHV	N/A
XXXXX	ADTT	N/A

PROPOSED TYPE OF STRUCTURE

SUPERSTRUCTURE:
1 SPAN – CAST-IN-PLACE CONCRETE
SLAB – CONTINUOUS WITH ABUTMENTS
SUBSTRUCTURE:
INTEGRAL ABUTMENTS SUPPORTED ON
SPREAD FOOTINGS
DEPTH OF STRUCTURE:
2'-0" GUTTER TO LOW BRIDGE

BRIDGE NO. XXXXX

SOUTHWEST LRT OVER YELLOW & RED CIRCLE TRAIL
0.6 MI. W OF JCT. T.H. 62/T.H. 169 IN MINNETONKA

20'-0" CAST-IN-PLACE CONCRETE SLAB SPAN
63'-7½" ROADWAY AND RAILWAY WIDTH
0°-57'-28.2" SKEW

BRIDGE I.D. NO. 108

GENERAL PLAN AND ELEVATION

SEC 36 T117N R22W
CITY OF MINNETONKA HENNEPIN COUNTY

APPROVED: _____
STATE BRIDGE ENGINEER DATE

JOB NO. T9N635 | STATE PROJECT NO. 9909-01 | MNDOT REVIEW:

DES: RMS | DR: ARH
CHK: DRF | CHK: MJC

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM | SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL | SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 1
BRIDGE XXXXX (LRT/VEH)
GENERAL PLAN AND ELEVATION

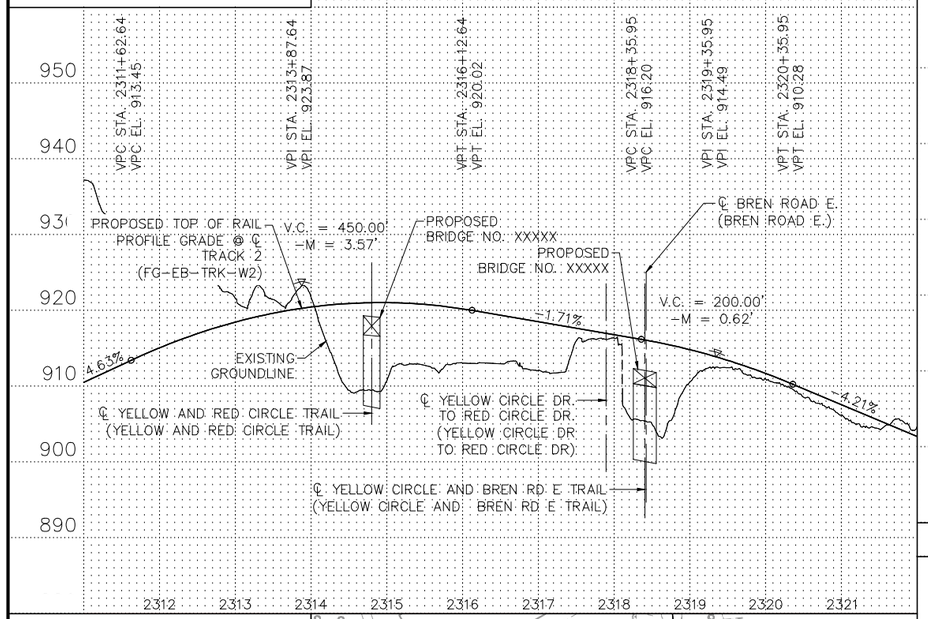
DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-TUDP01-GPE

SHEET 127 OF 204

Aug. 27 2014 04:33 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUDP01-GPE.dwg By: ahauser

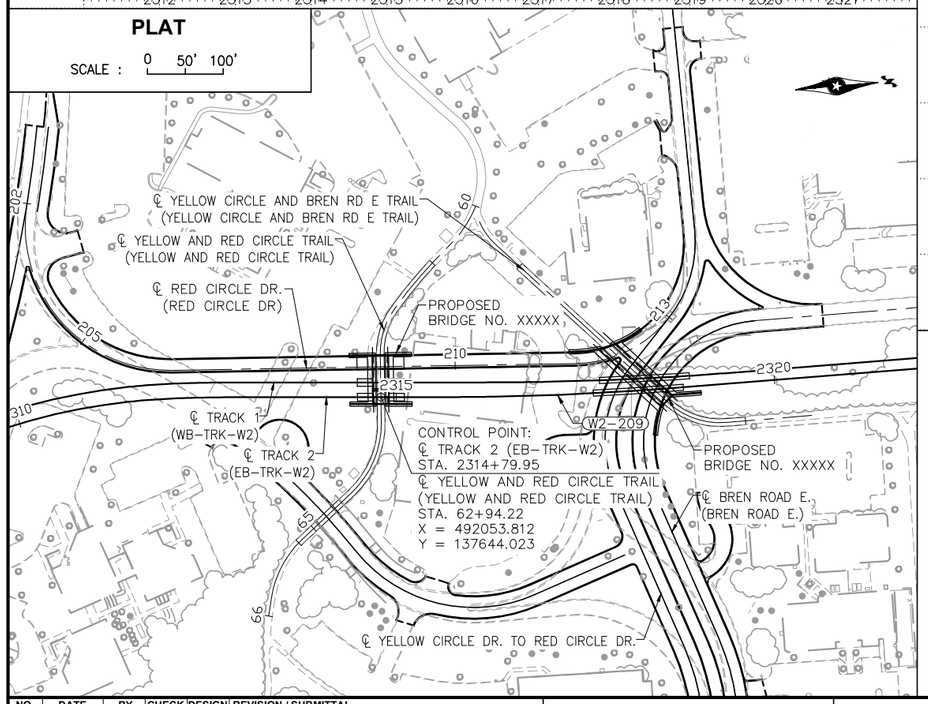
CONTRACTED PROFILE

SCALE : 0 50' 100' HORIZONTAL; 0 5' 10' VERTICAL

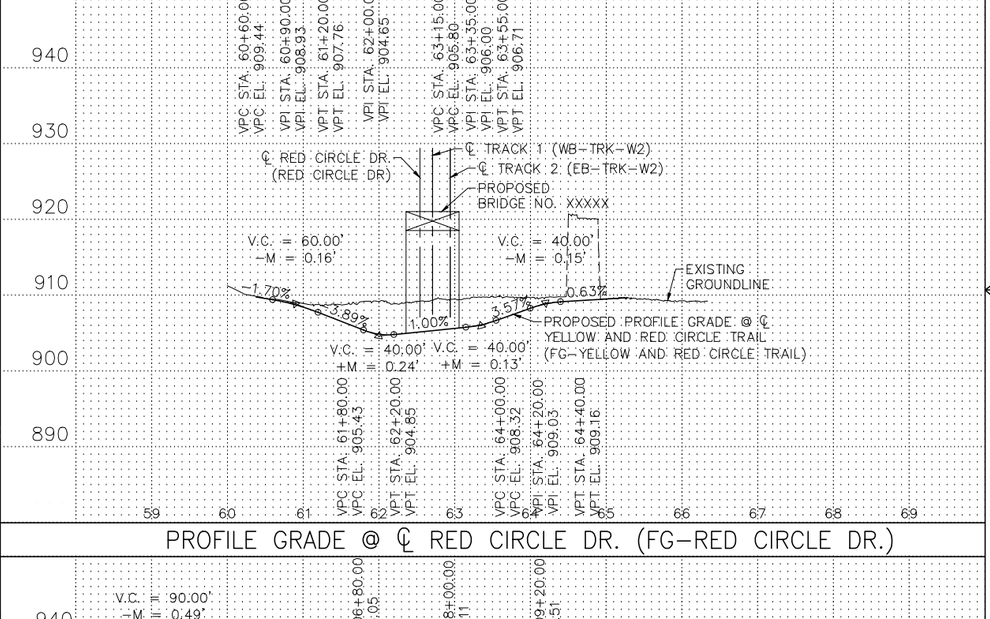


PLAT

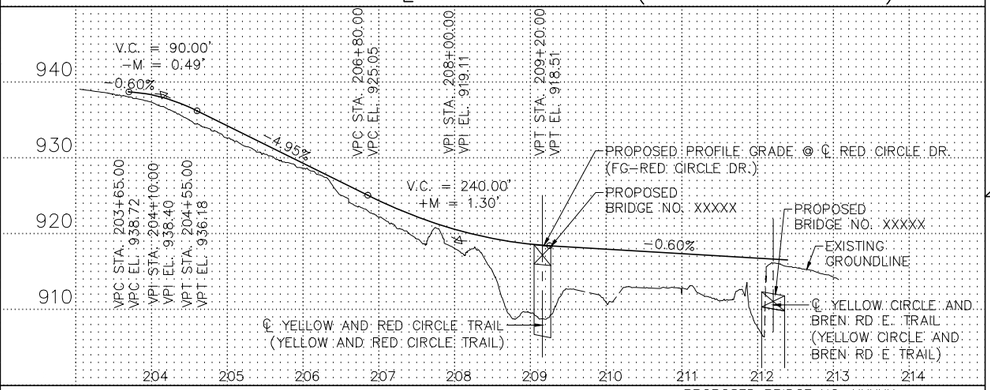
SCALE : 0 50' 100'



PROFILE GRADE @ ℄ TRACK 2 (FG-EB-TRK-W2)

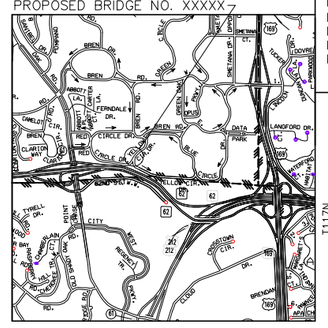


PROFILE GRADE @ ℄ RED CIRCLE DR. (FG-RED CIRCLE DR.)



CURVE NO. W2-209
R = 3800'
Lc = 173.37'
Ls = 130'
Ea = 1.75"
Eu = 1.40"
V = 55 MPH

PROPOSED BRIDGE NO. XXXXX



R22W
INDEX-MAP

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
2. OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION,TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS-SECTIONAL AREA ETC.
3. APPARENT HIGHWATER ELEVATION OBTAINED FROM:
4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE –

STREAM OR DITCH DESIGNATION –

DRAINAGE AREA –

MAX. FLOOD ON RECORD –

MAXIMUM OBSERVED HIGHWATER ELEVATION –

DESIGN FLOOD (-YR. FREQ.) – C.F.S.

DESIGN STAGE ELEVATION –

DESIGN MEAN VELOCITY THROUGH STRUCTURE – F.P.S.

TOTAL STAGE INCREASE – F.P.S.

LOW MEMBER AT OR ABOVE ELEVATION –

FLOWLINE ELEVATION – SKEW ANGLE –

WATERWAY AREA REQUIRED BELOW ELEVATION – = – SQ.FT. AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ.) – C.F.S.

STAGE ELEVATION – FT.

TOTAL STAGE INCREASE – FT.

MEAN VELOCITY THROUGH STRUCTURE – F.P.S.

ESTIMATED DEPTH OF PIER SCOUR = – FT.

SCOUR CODE =-

BRIDGE SURVEY SHEETS MADE FROM SURVEY PERFORMED BY RANI ENGINEERING

MNDOT NAME: 2773A
NORTHING (HEN. COUNTY COORDINATES): 137082.117
EASTING (HEN. COUNTY COORDINATES): 490527.817
BENCHMARK ELEVATION (NAVD88): 963.180
MONUMENT DESCRIPTION: B.M. DISK IN BRIDGE ABUTMENT
LOCATION: IN EDEN PRAIRIE, 1.1 MILES EAST ALONG T.H. HWY 62 FROM JCT. OF T.H. 62 & I-494

MONUMENT NAME: CONTROL POINT 6
NORTHING (HEN. COUNTY COORDINATES): 142016.680
EASTING (HEN. COUNTY COORDINATES): 489989.960
BENCHMARK ELEVATION (NAVD88): 932.956
MONUMENT DESCRIPTION: CAST IRON MONUMENT
LOCATION: 0.2 MILES EAST ALONG SMETANA ROAD FROM JCT. OF SMETANA ROAD & NOLAN DR

CITY OF MINNETONKA

BRIDGE SURVEY

AT MILE POINT – ON – (T.H., C.S.A.H.,C.R. etc.)

PROPOSED BRIDGE LOCATED 0.6 MILES WEST OF JCT. T.H. 62 & T.H. 169

SEC 36 TWP T117N R R22W

CITY OF MINNETONKA COUNTY HENNEPIN

DES: RMS DR: ARH
CHK: DRF CHK: MJC

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

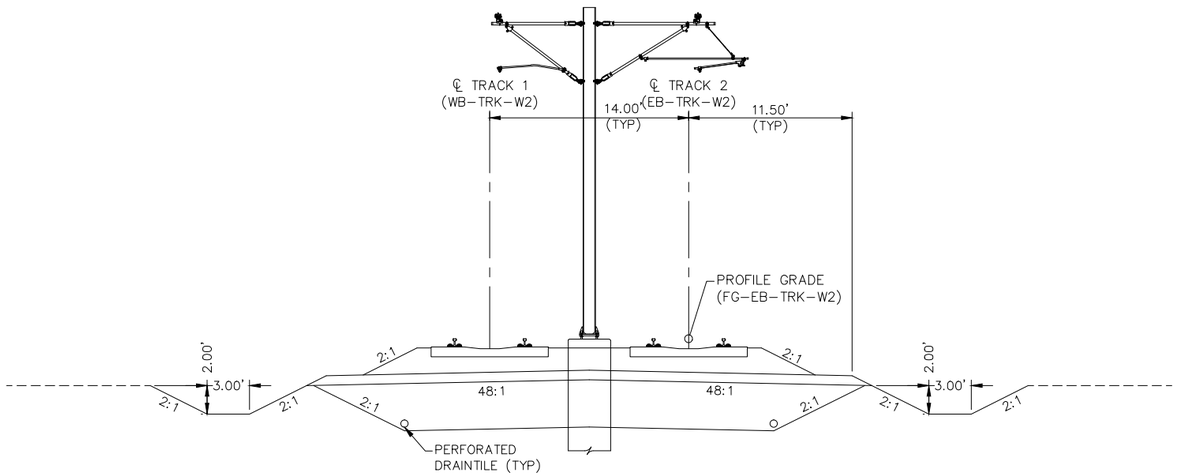
WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 1
BRIDGE XXXXX (LRT/VEH)
BRIDGE SURVEY (1 OF 2)

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUDP01-SUR

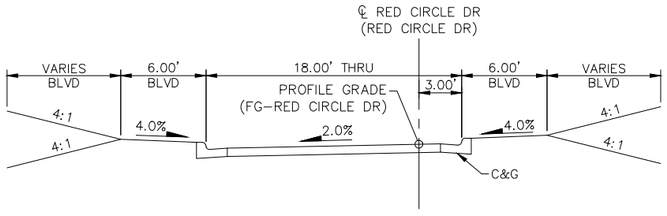
SHEET 128 OF 204

Aug, 27 2014 04:33 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUDP01-SUR.dwg By: ahauser



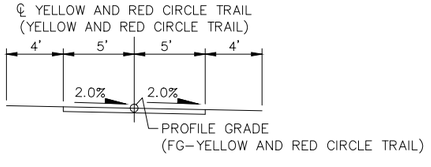
TYPICAL TRACK APPROACH SECTION

STA. 2313+00 TO STA. 2315+21



RED CIRCLE DRIVE

STA. 203+63.80 TO STA. 212+33.92



TYPICAL TRAIL SECTION

DES: RMS	DR: ARH
CHK: DRF	CHK: MJC

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

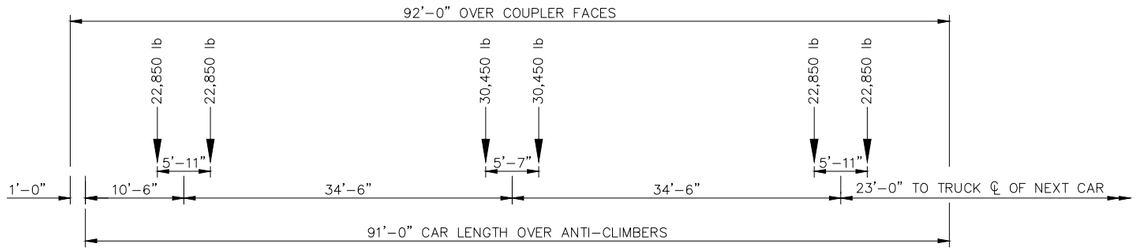
WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 1
BRIDGE XXXXX (LRT/VEH)
BRIDGE SURVEY (2 OF 2)

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUDP01-SUR

SHEET 129 OF 204

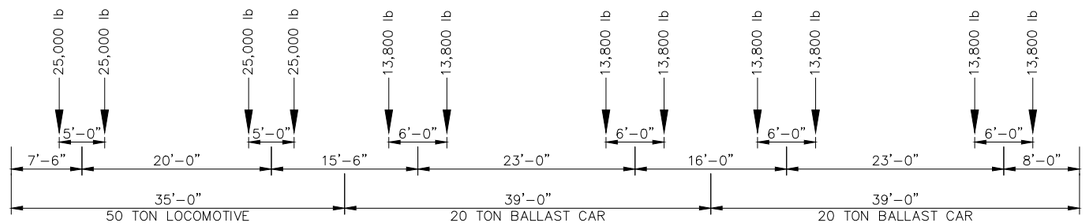
Aug, 27 2014 04:33 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUDP01-SUR.dwg By: ahauser



LIGHT RAIL VEHICLE LOADING DIAGRAM

NOTES:

1. THE LRT TRAIN SHALL CONSIST OF EITHER ONE, TWO OR THREE CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.
2. AXLE LOAD IN POUNDS.
3. LOADING DIAGRAM REPRESENTS MAXIMUM LOAD AT EACH TRUCK IN ACCORDANCE WITH SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 3.0) FIGURE 18-1.



MAINTENANCE TRAIN LOADING DIAGRAM

NOTES:

1. THE MAINTENANCE TRAIN SHALL CONSIST OF ONE LOCOMOTIVE AND ONE, TWO, THREE, OR FOUR BALLAST CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.
2. AXLE LOAD IN POUNDS.
3. WEIGHT OF EMPTY BALLAST CAR IS 15,000 POUNDS.

DES: RMS	DR: ARH
CHK: DRF	CHK: MJC

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

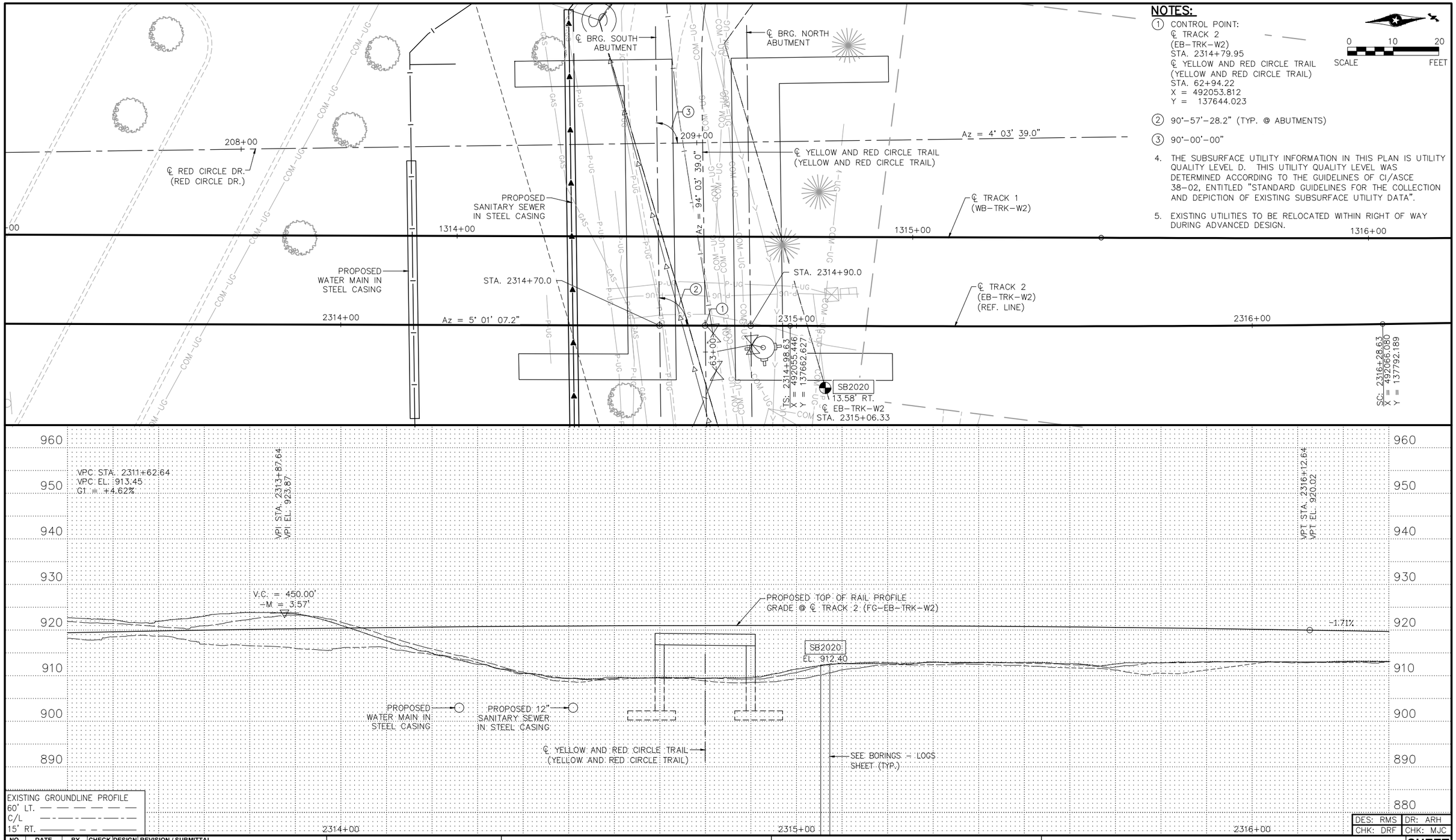
METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 1
BRIDGE XXXXX (LRT/VEH)
LOADING DIAGRAM

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUDP01-LOAD

SHEET 130 OF 204



NOTES:

1. CONTROL POINT:
   ℄ TRACK 2
   (EB-TRK-W2)
   STA. 2314+79.95
   ℄ YELLOW AND RED CIRCLE TRAIL
   (YELLOW AND RED CIRCLE TRAIL)
   STA. 62+94.22
   X = 492053.812
   Y = 137644.023
2. 90°-57'-28.2" (TYP. @ ABUTMENTS)
3. 90°-00'-00"
4. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
5. EXISTING UTILITIES TO BE RELOCATED WITHIN RIGHT OF WAY DURING ADVANCED DESIGN.

0 10 20
SCALE FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DES: RMS | DR: ARH
CHK: DRF | CHK: MJC

PRELIMINARY ENGINEERING

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 1
BRIDGE XXXXX (LRT/VEH)
BORINGS - PLAN AND PROFILE

DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-TUDP01-BOR

SHEET 131 OF 204

Aug. 27 2014 04:34 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUDP01-BOR.dwg By: ahauser

2020ST

Elevation 912.4

Coh (psf)	SPT-N (BPF)	
		FILL: Clayey Sand, with Gravel, dark brown, moist.
	7	FILL: Silty Sand, fine- to medium-grained, trace Gravel, brown, moist.
	11	FILL: Sandy Lean Clay, trace Gravel, brown and gray, wet.
	8	FILL: Clayey Sand, trace Gravel, gray, wet.
	35	FILL: Silty Sand, fine- to medium-grained, trace Gravel, brown, moist.
	18	
	7	FILL: Poorly Graded Sand with Silt, fine- to coarse-grained, with Gravel, brown, moist.
	12	FILL: Clayey Sand, trace Gravel, brown, wet.
	25	FILL: Clayey Sand, fine- to medium-grained, trace Gravel, brown, moist.
		FILL: Sandy Lean Clay, trace Gravel, brown and gray, wet.
	29	SILTY SAND, fine- to medium-grained, trace Gravel, with Clay inclusions, brown, moist, medium dense to dense.
	34	
▽	27	POORLY GRADED SAND with SILT, fine- to medium-grained, with some Gravel, brown, moist to 41 feet then waterbearing, medium dense to dense.
	24	
	44	END OF BORING.

Water observed at 41 feet with 49 1/2 feet of hollow-stem auger in the ground.

Water not observed to cave-in depth of 31 feet immediately after withdrawal of auger.

Boring immediately backfilled with bentonite grout.
Bottom of Borehole at 51 ft

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

DES: RMS | DR: ARH
CHK: DRF | CHK: MJC

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 1
BRIDGE XXXXX (LRT/VEH)
BORINGS - LOGS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUDP01-BOR

SHEET 132 OF 203

Aug. 27 2014 04:34 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUDP01-BOR.dwg By: ahauser

AESTHETIC DETAILS TO BE DETERMINED DURING ADVANCED DESIGN

1. ABUTMENT SURFACE TREATMENT
2. ABUTMENT/WALL CORNER DETAIL
3. EXPOSED EDGE OF DECK
4. EXPOSED BARRIER
5. EXPOSED FASCIA BEAM
6. BOTTOM OF BEAMS
7. PIER COLUMN SURFACE TREATMENT
8. RAILING AND SCREENING

DES: RMS	DR: ARH
CHK: DRF	CHK: MJC

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

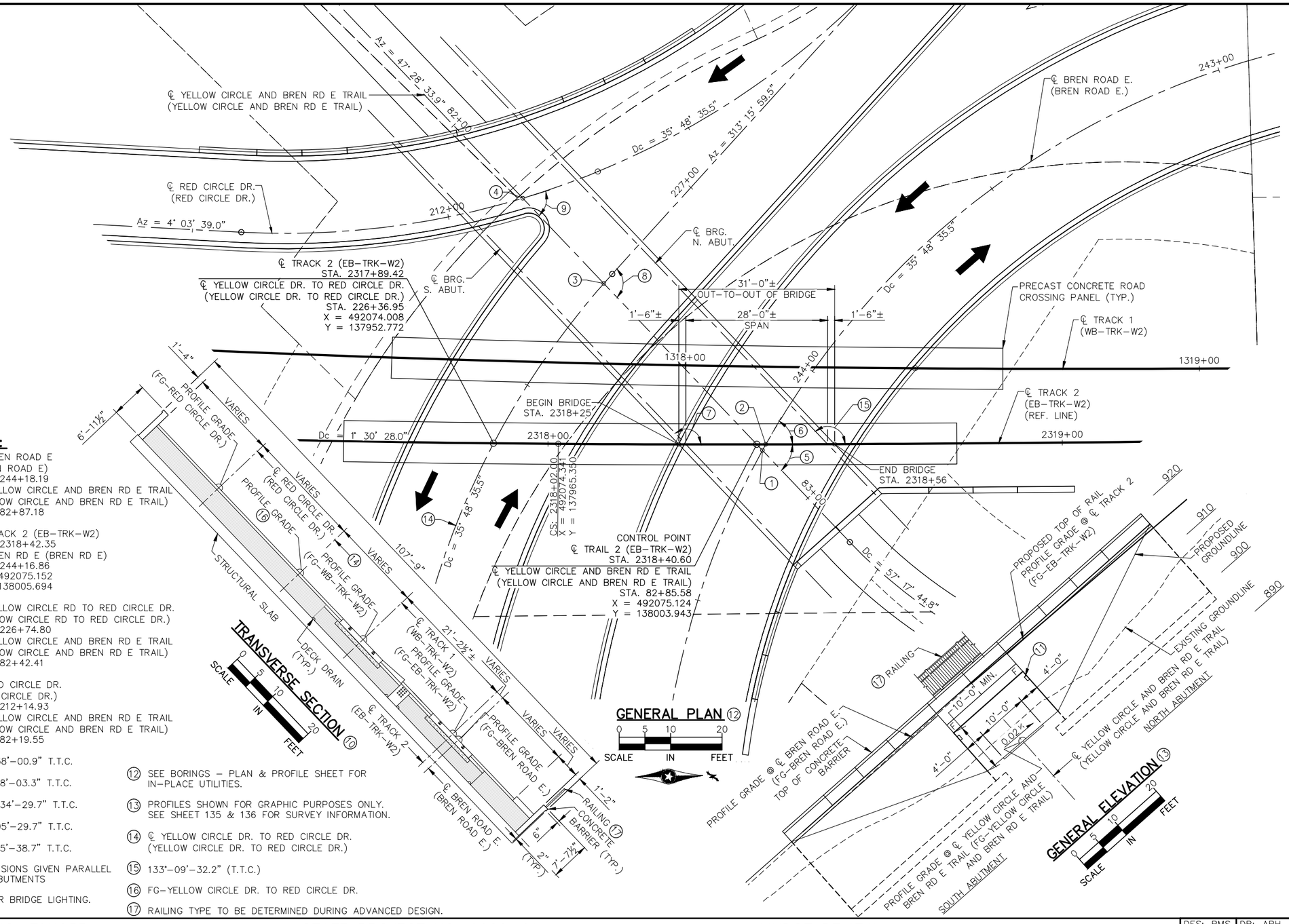
PRELIMINARY ENGINEERING

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 1
BRIDGE XXXXX (LRT/VEH)
BRIDGE AESTHETICS

DISCIPLINE: **STRUCTURES**

SHEET NAME: **W2-STU-TUDP01-ARCH**

SHEET **133** OF **204**



NOTES:

1. ℄ BREN ROAD E (BREN ROAD E) STA. 244+18.19 ℄ YELLOW CIRCLE AND BREN RD E TRAIL (YELLOW CIRCLE AND BREN RD E TRAIL) STA. 82+87.18
2. ℄ TRACK 2 (EB–TRK–W2) STA. 2318+42.35 ℄ BREN RD E (BREN RD E) STA. 244+16.86 X = 492075.152 Y = 138005.694
3. ℄ YELLOW CIRCLE RD TO RED CIRCLE DR. (YELLOW CIRCLE RD TO RED CIRCLE DR.) STA. 226+74.80 ℄ YELLOW CIRCLE AND BREN RD E TRAIL (YELLOW CIRCLE AND BREN RD E TRAIL) STA. 82+42.41
4. ℄ RED CIRCLE DR. (RED CIRCLE DR.) STA. 212+14.93 ℄ YELLOW CIRCLE AND BREN RD E TRAIL (YELLOW CIRCLE AND BREN RD E TRAIL) STA. 82+19.55
5. 46°–38'–00.9" T.T.C.
6. 60°–18'–03.3" T.T.C.
7. 133°–34'–29.7" T.T.C.
8. 95°–05'–29.7" T.T.C.
9. 63°–15'–38.7" T.T.C.
10. DIMENSIONS GIVEN PARALLEL TO ABUTMENTS
11. UNDER BRIDGE LIGHTING.
12. SEE BORINGS – PLAN & PROFILE SHEET FOR IN–PLACE UTILITIES.
13. PROFILES SHOWN FOR GRAPHIC PURPOSES ONLY. SEE SHEET 135 & 136 FOR SURVEY INFORMATION.
14. ℄ YELLOW CIRCLE DR. TO RED CIRCLE DR. (YELLOW CIRCLE DR. TO RED CIRCLE DR.)
15. 133°–09'–32.2" (T.T.C.)
16. FG–YELLOW CIRCLE DR. TO RED CIRCLE DR.
17. RAILING TYPE TO BE DETERMINED DURING ADVANCED DESIGN.

DESIGN DATA

2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 6TH EDITION AND CURRENT INTERIMS

SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 2.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD

HL–93 LIVE LOAD

LRV & MV LOAD DIAGRAM SHOWN ON SHEET 137

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4 ksi n = 8
fy = 60 ksi REINFORCEMENT

DESIGN SPEED: OVER = XX MPH (ROADWAY)
OVER = XX MPH (LRT)
UNDER = XX MPH

APPROXIMATE DECK AREA: 2380 SQ. FT.

LIST OF SHEETS

20XX PROJECTED TRAFFIC VOLUMES

ROADWAY OVER		ROADWAY UNDER
XXXX	AADT	N/A
XXXX	DHV	N/A
XXXXX	ADTT	N/A

PROPOSED TYPE OF STRUCTURE

SUPERSTRUCTURE:
1 SPAN – CAST–IN–PLACE CONCRETE
SLAB – CONTINUOUS WITH ABUTMENTS
SUBSTRUCTURE:
INTEGRAL ABUTMENTS SUPPORTED ON SPREAD FOOTINGS
DEPTH OF STRUCTURE:
2'–0" MINIMUM SLAB
4'–0"± OVERBURDEN

BRIDGE NO. XXXXX

SOUTHWEST LRT OVER YELLOW CIRCLE & BREN RD E TRAIL
0.6 MI. W OF JCT. T.H. 62/T.H. 169 IN MINNETONKA

28'–0"± CAST–IN–PLACE CONCRETE SLAB SPAN
105'–3" ROADWAY AND RAILWAY WIDTH (VARIES)
SKEW VARIES

BRIDGE I.D. NO. 108

GENERAL PLAN AND ELEVATION

SEC 36 T117N R22W
CITY OF MINNETONKA HENNEPIN COUNTY

APPROVED: _____ STATE BRIDGE ENGINEER DATE

JOB NO. T9N635 STATE PROJECT NO. 9909–01 MNDOT REVIEW:

DES: RMS DR: ARH
CHK: DRF CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 2
BRIDGE XXXXX (LRT\VEH)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUDP02-GPE

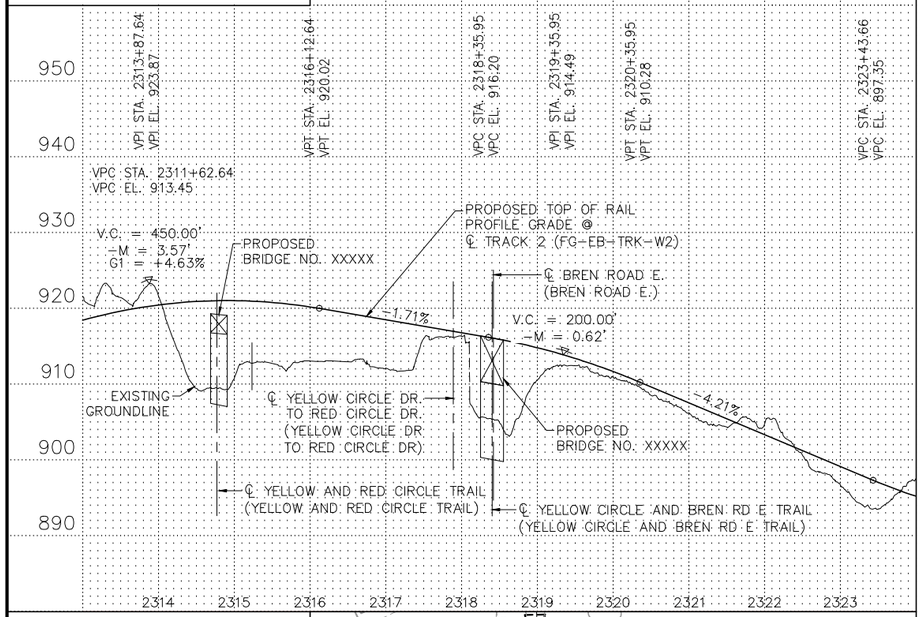
SHEET 134 OF 204

Aug. 27 2014 04:35 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUDP02-GPE.dwg By: dhauser

CONTRACTED PROFILE

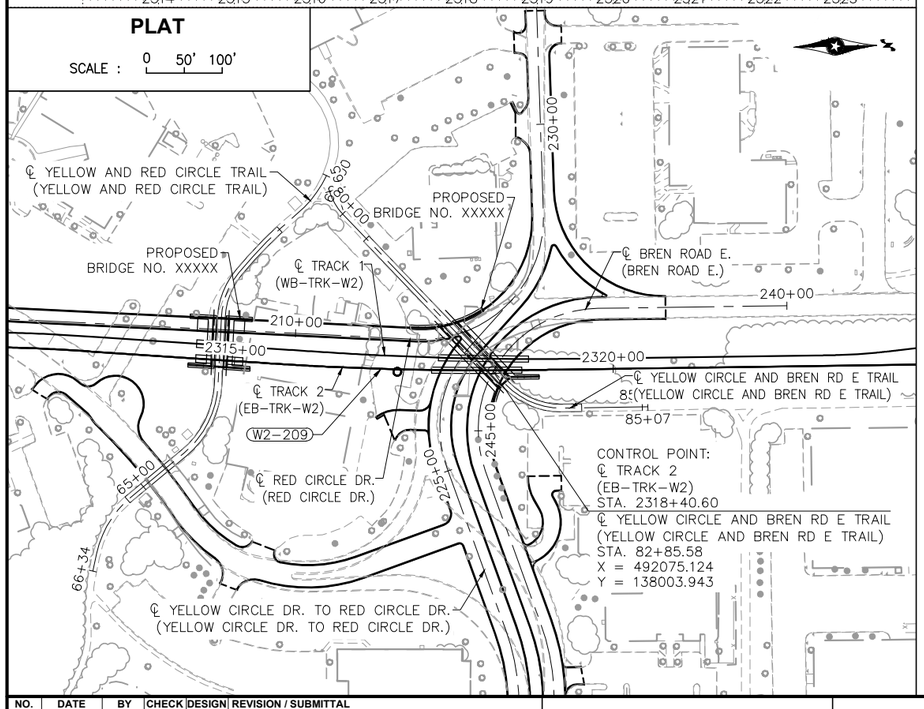
SCALE : 0 50' 100' HORIZONTAL; 0 5' 10' VERTICAL

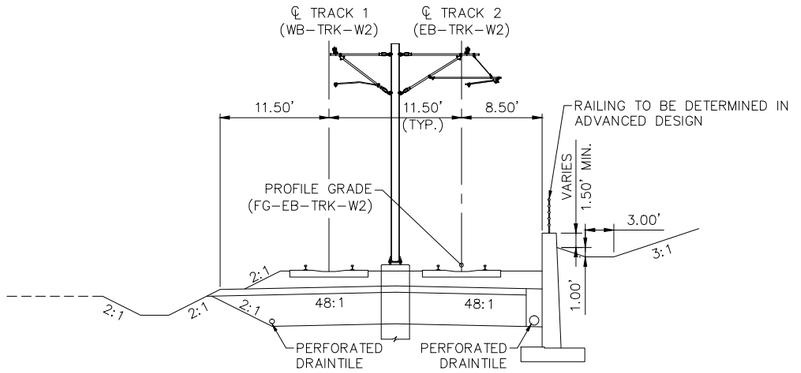
PROFILE GRADE @ ℄ TRACK 2 (FG–EB–TRK–W2)



PLAT

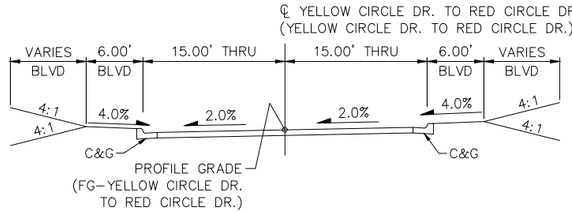
SCALE : 0 50' 100'





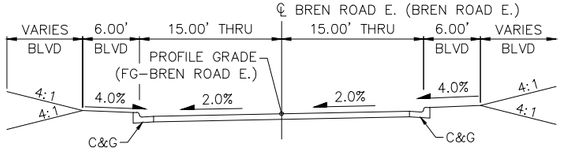
TYPICAL TRACK APPROACH SECTION

STA. 2314+50 TO STA. 2318+00



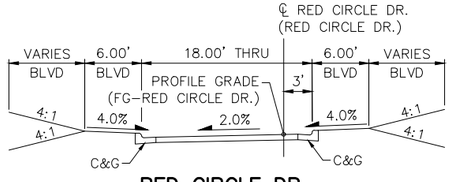
YELLOW CIRCLE DR. TO RED CIRCLE DR.

STA. 221+70.56 TO STA. 232+65.29



BREN ROAD E.

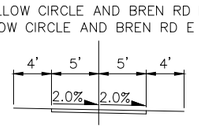
STA. 241+60.36 TO STA. 248+92.94



RED CIRCLE DR.

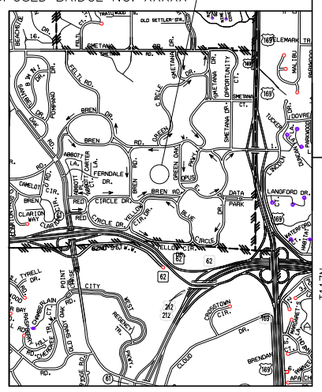
STA. 203+63.80 TO STA. 212+33.92

CURVE NO. W2–209
R = 3800'
Lc = 173.37'
Ls = 130'
Ea = 1.75"
Eu = 1.40"
V = 55 MPH



TYPICAL TRAIL SECTION

PROPOSED BRIDGE NO. XXXXX



INDEX–MAP

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
2. OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION,TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS–SECTIONAL AREA ETC.
3. APPARENT HIGHWATER ELEVATION OBTAINED FROM:
4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE –

STREAM OR DITCH DESIGNATION –

DRAINAGE AREA –

MAX. FLOOD ON RECORD –

MAXIMUM OBSERVED HIGHWATER ELEVATION –

DESIGN FLOOD (–YR. FREQ.) – C.F.S.

DESIGN STAGE ELEVATION –

DESIGN MEAN VELOCITY THROUGH STRUCTURE – F.P.S.

TOTAL STAGE INCREASE – F.P.S.

LOW MEMBER AT OR ABOVE ELEVATION –

FLOWLINE ELEVATION – SKEW ANGLE –

WATERWAY AREA REQUIRED BELOW ELEVATION – = – SQ.FT. AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ.) – C.F.S.

STAGE ELEVATION – FT.

TOTAL STAGE INCREASE – FT.

MEAN VELOCITY THROUGH STRUCTURE – F.P.S.

ESTIMATED DEPTH OF PIER SCOUR = – FT.

SCOUR CODE =–

BRIDGE SURVEY SHEETS MADE FROM SURVEY PERFORMED BY RANI ENGINEERING

MNDOT NAME: 2773A
NORTHING (HEN. COUNTY COORDINATES): 137082.117
EASTING (HEN. COUNTY COORDINATES): 490527.817
BENCHMARK ELEVATION (NAVD88): 963.180
MONUMENT DESCRIPTION: B.M. DISK IN BRIDGE ABUTMENT
LOCATION: IN EDEN PRAIRIE, 1.1 MILES EAST ALONG T.H. HWY 62 FROM JCT. OF T.H. 62 & I–494

MONUMENT NAME: CONTROL POINT 6
NORTHING (HEN. COUNTY COORDINATES): 142016.680
EASTING (HEN. COUNTY COORDINATES): 489989.960
BENCHMARK ELEVATION (NAVD88): 932.956
MONUMENT DESCRIPTION: CAST IRON MONUMENT
LOCATION: 0.2 MILES EAST ALONG SMETANA ROAD FROM JCT. OF SMETANA ROAD & NOLAN DR

CITY OF MINNETONKA

BRIDGE SURVEY

AT MILE POINT – ON – (T.H., C.S.A.H.,C.R. etc.)

PROPOSED BRIDGE LOCATED 0.6 MILES WEST OF JCT. T.H. 62 & T.H. 169

SEC 36 TWP T117N R R22W

CITY OF MINNETONKA COUNTY HENNEPIN

DES: RMS	DR: ARH
CHK: DRF	CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 2
BRIDGE XXXXX (LRT/VEH)
BRIDGE SURVEY (1 OF 2)

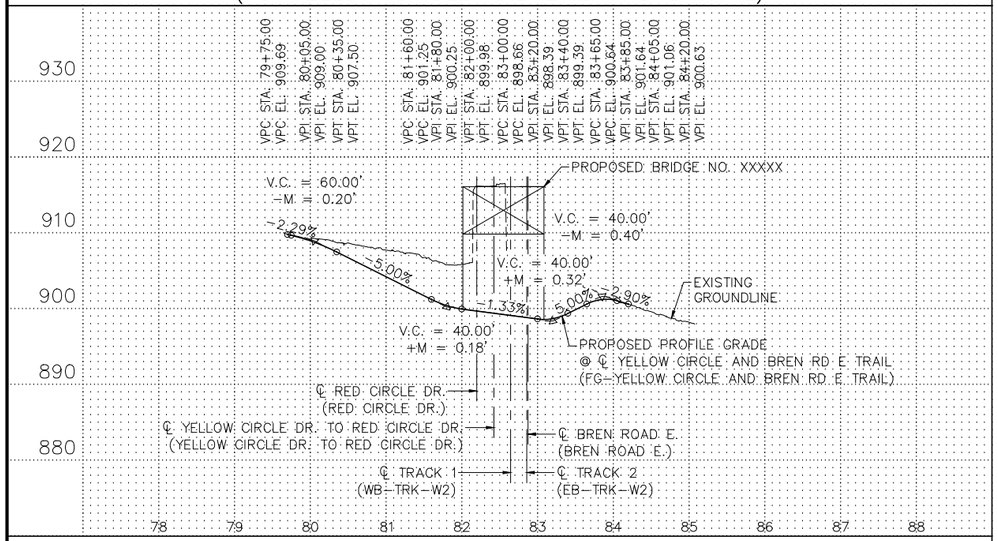
DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUDP02-SUR

SHEET 135 OF 204

Aug. 27 2014 04:35 pm H: \Projects\7984\3200_PEC–W\CAD\SEGMENT–W2\SHEET\STRUCTURES\W2–STU–TUDP02–SUR.dwg By: ahauser

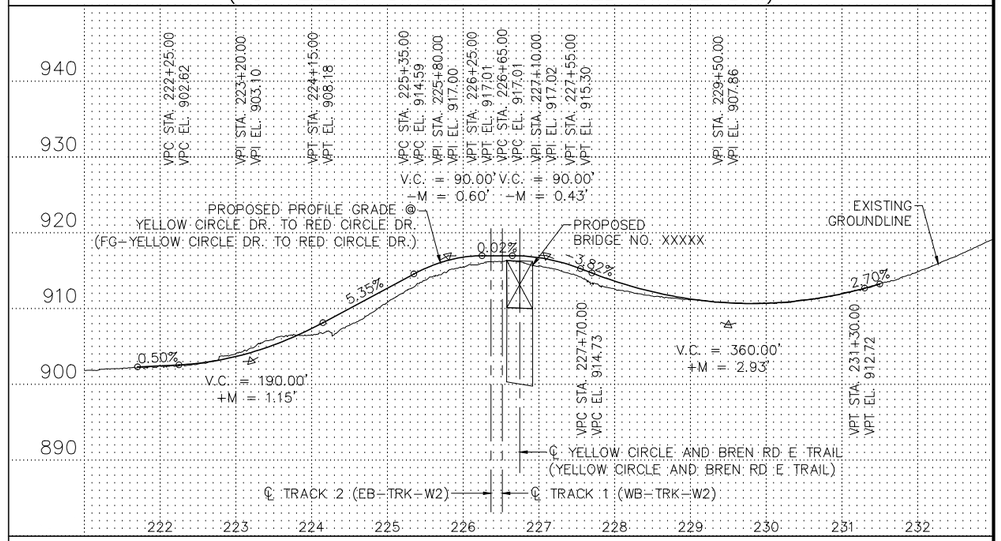
PROFILE GRADE @ ℄ YELLOW CIRCLE AND BREN RD E TRAIL (FG–YELLOW CIRCLE AND BREN RD E TRAIL)



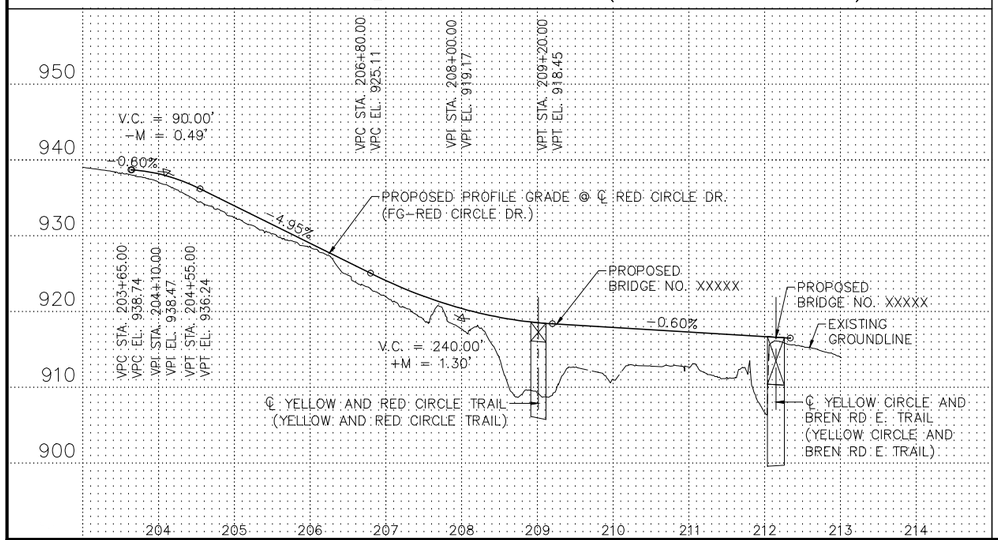
PROFILE SCALES

SCALE : 0 50' 100' HORIZONTAL; 0 5' 10' VERTICAL

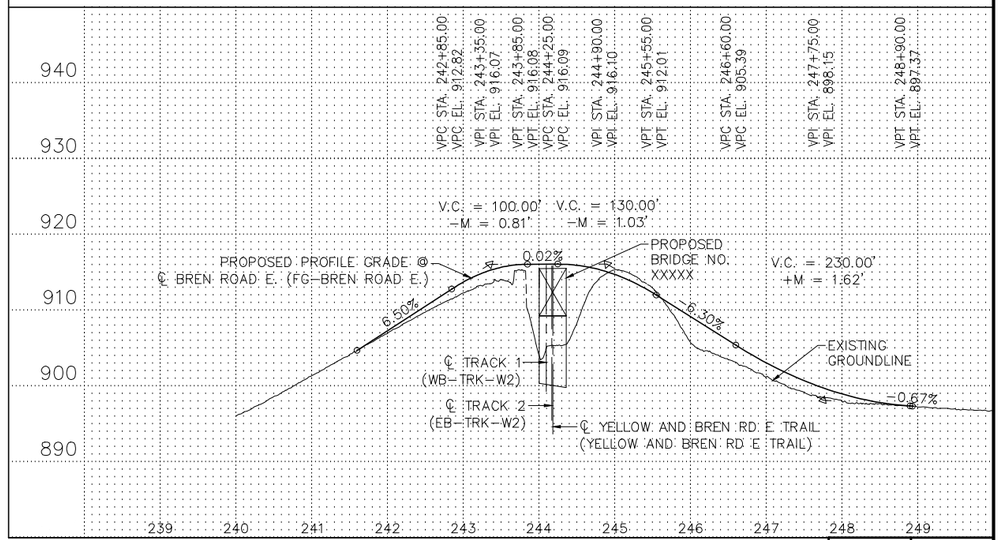
PROFILE GRADE @ ℄ YELLOW CIRCLE DR. TO RED CIRCLE DR. (FG–YELLOW CIRCLE DR. TO RED CIRCLE DR.)



PROFILE GRADE @ ℄ RED CIRCLE DR. (FG–RED CIRCLE DR.)



PROFILE GRADE @ ℄ BREN ROAD E. (FG–BREN ROAD E.)



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

DES: RMS | DR: ARH
CHK: DRF | CHK: LBR

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

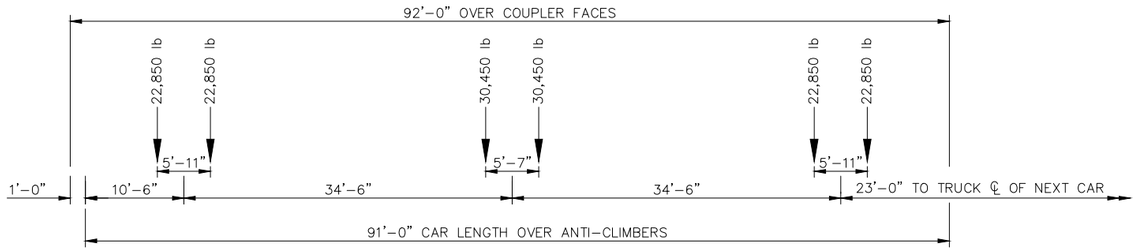
METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 2
BRIDGE XXXXX (LRT/VEH)
BRIDGE SURVEY (2 OF 2)

DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-TUDP02-SUR

SHEET 136 OF 204

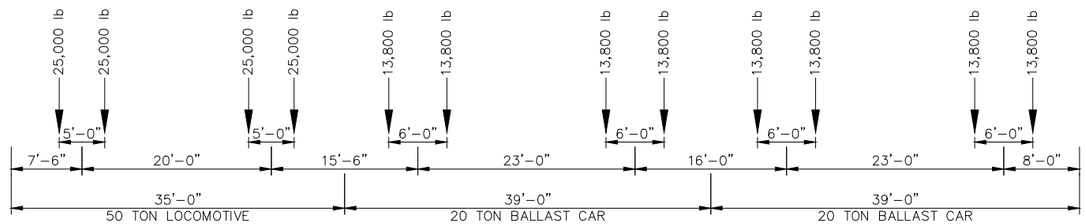
Aug, 27 2014 04:35 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUDP02-SUR.dwg By: ahauser



LIGHT RAIL VEHICLE LOADING DIAGRAM

NOTES:

1. THE LRT TRAIN SHALL CONSIST OF EITHER ONE, TWO OR THREE CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.
2. AXLE LOAD IN POUNDS.
3. LOADING DIAGRAM REPRESENTS MAXIMUM LOAD AT EACH TRUCK IN ACCORDANCE WITH SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 3.0) FIGURE 18-1.



MAINTENANCE TRAIN LOADING DIAGRAM

NOTES:

1. THE MAINTENANCE TRAIN SHALL CONSIST OF ONE LOCOMOTIVE AND ONE, TWO, THREE, OR FOUR BALLAST CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.
2. AXLE LOAD IN POUNDS.
3. WEIGHT OF EMPTY BALLAST CAR IS 15,000 POUNDS.

DES: RMS	DR: ARH
CHK: DRF	CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 2
BRIDGE XXXXX (LRT/VEH)
LOADING DIAGRAM

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUDP02-LOAD

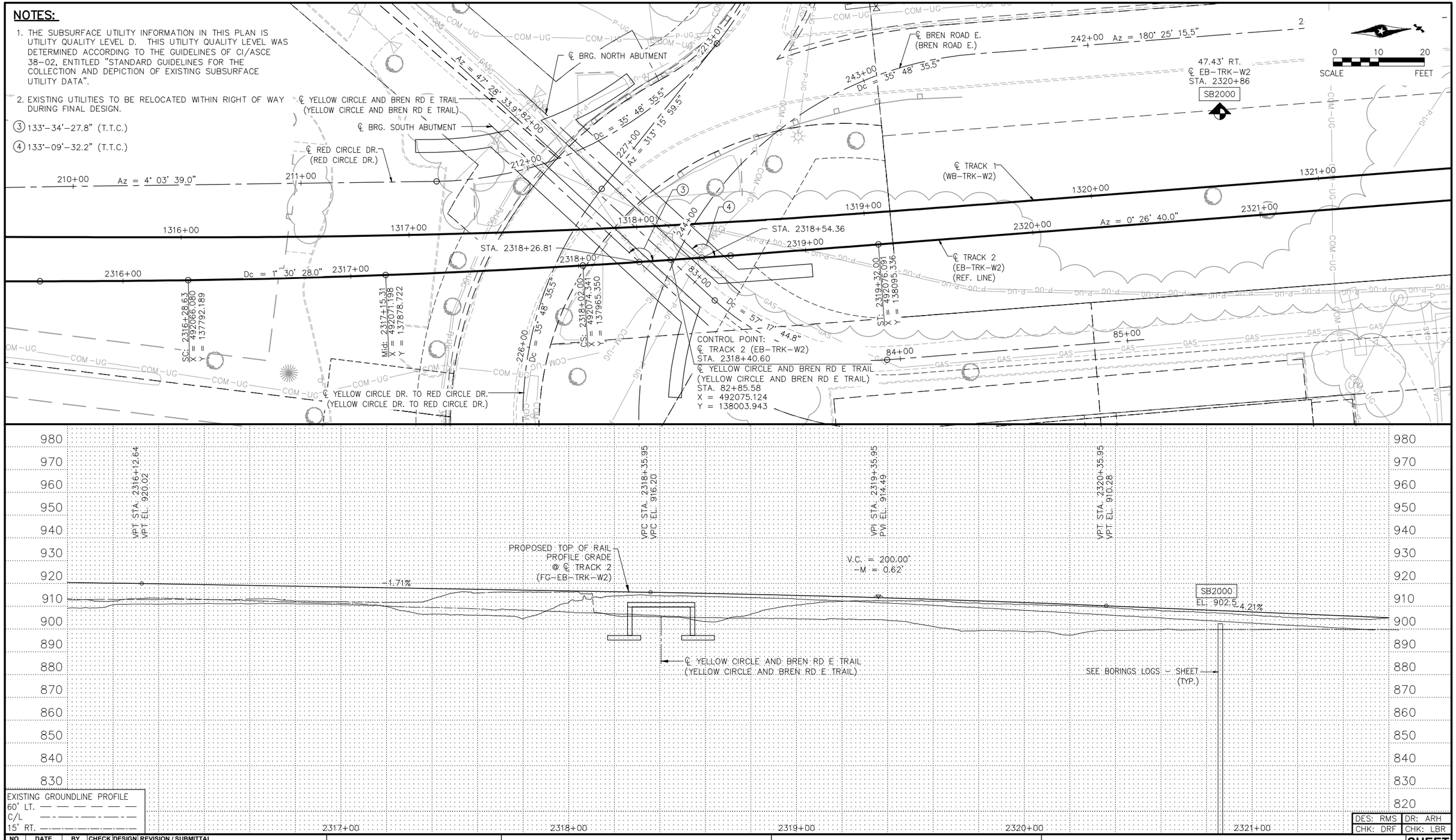
SHEET 137 OF 204

NOTES:

1. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
2. EXISTING UTILITIES TO BE RELOCATED WITHIN RIGHT OF WAY DURING FINAL DESIGN.

③ 133°-34'-27.8" (T.T.C.)

④ 133°-09'-32.2" (T.T.C.)



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DES: RMS DR: ARH
CHK: DRF CHK: LBR

PRELIMINARY ENGINEERING

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 2
BRIDGE XXXXX (LRT/VEH)
BORINGS - PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUDP02-BOR

SHEET 138 OF 204

2000SW

Elevation 902.5

Coh (psf)	SPT-N (BPF)		
		905	FILL: Lean Clay, dark brown, frozen.
	10	900	FILL: Silty Sand, fine- to medium-grained, with Lean Clay lenses, brown, moist.
	11		
	7	895	FILL: Sandy Lean Clay, brown, wet.
	9		FILL: Sandy Lean Clay, trace Gravel, brown, wet.
	27	890	POORLY GRADED SAND with SILT, fine- to medium-grained, with Gravel and Cobbles, brown, moist to wet, medium dense.
	26		
	22	885	SILTY SAND, fine- to medium-grained, with occasional Lean Clay lenses, trace Gravel, brown to 22 feet then gray, wet, medium dense.
	22		
	20	880	
	22		CLAYEY SAND, trace Gravel, gray, wet, very stiff.
	32	875	SILTY SAND, fine- to medium-grained, trace Gravel, gray, moist, medium dense to dense. With Lean Clay layers at 30 feet.
	28		
	34	870	CLAYEY SAND, trace Gravel, with frequent Sand lenses, gray to 37 feet then brown, wet, very stiff to hard.
	27		
	25	865	
	27		
	30	860	
	31		
	15	855	POORLY GRADED SAND, fine- to coarse-grained, trace Gravel, brown, waterbearing, medium dense.
	24		
		850	SILTY SAND, fine- to medium-grained, trace Gravel, brown, wet, medium dense.
	15		
		845	
	18		
		840	END OF BORING.* Bottom of Borehole at 61 ft
		835	

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

DES: RMS | DR: ARH

CHK: DRF | CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 2
BRIDGE XXXXX (LRT\VEH)
BORINGS - LOGS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUDP02-BOR

SHEET 139 OF 204

AESTHETIC DETAILS TO BE DETERMINED DURING ADVANCED DESIGN

1. ABUTMENT SURFACE TREATMENT
2. ABUTMENT/WALL CORNER DETAIL
3. EXPOSED EDGE OF DECK
4. EXPOSED BARRIER
5. EXPOSED FASCIA BEAM
6. BOTTOM OF BEAMS
7. PIER COLUMN SURFACE TREATMENT
8. RAILING AND SCREENING

DES: RMS	DR: ARH
CHK: DRF	CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

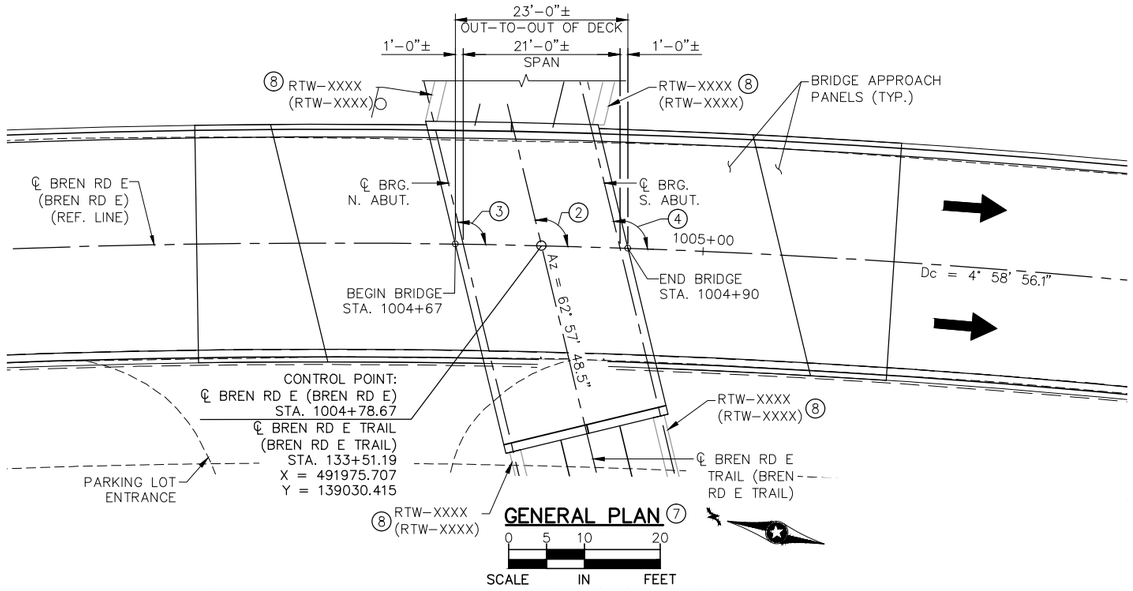
WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 2
BRIDGE XXXXX (LRT/VEH)
BRIDGE AESTHETICS

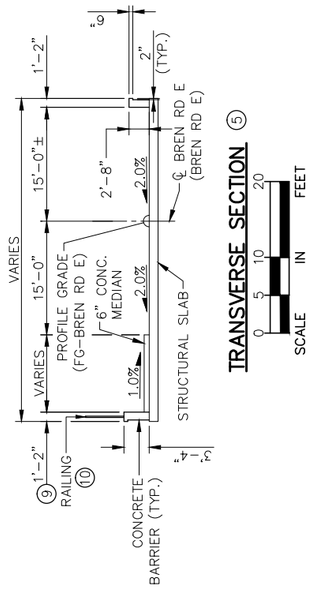
DISCIPLINE: **STRUCTURES**

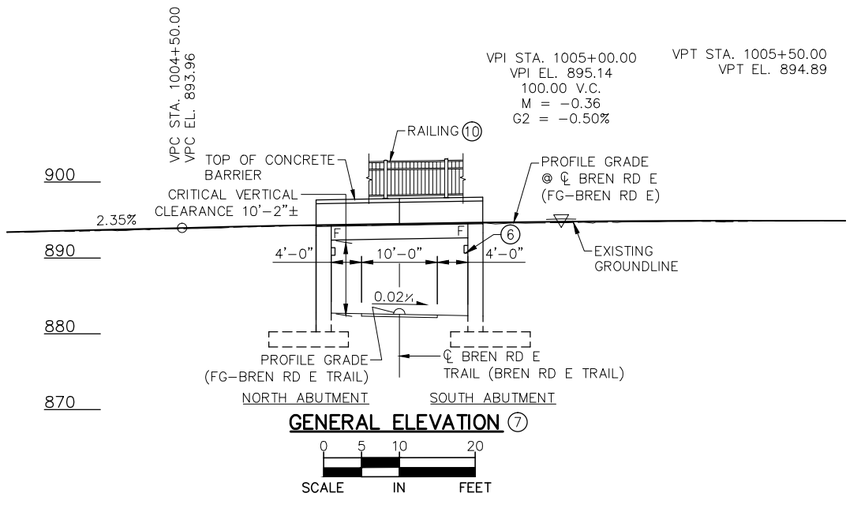
SHEET NAME: **W2-STU-TUDP02-ARCH**

SHEET **140** OF **204**

Aug. 27 2014 04:36 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUDP02-ARCH.dwg By: ahauser







NOTES:

1. SEE BORINGS – PLAN & PROFILE SHEET FOR IN PLACE UTILITIES.
2. (2) 105'-00'-02.5" (T.T.C.)
3. (3) 104'-29'-07.8" (T.T.C.)
4. (4) 105'-31'-01.6" (T.T.C.)
5. (5) MEASURED PERPENDICULAR ACROSS BRIDGE WIDTH
6. (6) UNDER BRIDGE LIGHTING.
7. (7) SEE BORINGS – PLAN & PROFILE FOR IN-PLACE UTILITIES.
8. (8) RETAINING WALL GEOMETRY TO BE DETERMINED DURING ADVANCED DESIGN.
9. (9) MEASURED PERPENDICULAR TO FACE OF BARRIER.
10. (10) RAILING TYPE TO BE DETERMINED DURING ADVANCED DESIGN.

DESIGN DATA

2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
6TH EDITION AND CURRENT INTERIMS

SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA
(REVISION 2.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD

HL-93 LIVE LOAD

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4 ksi n = 8
fy = 60 ksi REINFORCEMENT

DESIGN SPEED: OVER = XX MPH
UNDER = XX MPH

APPROXIMATE DECK AREA: 930 SQ. FT.

LIST OF SHEETS

20XX PROJECTED TRAFFIC VOLUMES

ROADWAY OVER		ROADWAY UNDER
XXXX	AADT	N/A
XXXX	DHV	N/A
XXXXX	ADTT	N/A

PROPOSED TYPE OF STRUCTURE

SUPERSTRUCTURE:
1 SPAN – CAST-IN-PLACE CONCRETE
SLAB – CONTINUOUS WITH ABUTMENTS
SUBSTRUCTURE:
INTEGRAL ABUTMENTS SUPPORTED ON
SPREAD FOOTINGS
DEPTH OF STRUCTURE:
2'-0" GUTTER TO LOW BRIDGE

BRIDGE NO. XXXXX

SOUTHWEST LRT OVER BREN RD. E TRAIL
0.6 MI. W OF JCT. T.H. 62/T.H. 169 IN MINNETONKA

21'-0"± CAST-IN-PLACE CONCRETE SLAB SPAN
30'-0" ROADWAY WIDTH
SKEW VARIES

BRIDGE I.D. NO. 108

GENERAL PLAN AND ELEVATION

SEC 36 T117N R22W
CITY OF MINNETONKA HENNEPIN COUNTY

APPROVED: _____
STATE BRIDGE ENGINEER DATE

JOB NO. T9N635 STATE PROJECT NO. 9909-01 MNDOT REVIEW:

DES: RMS | DR: ARH
CHK: DRF | CHK: MJC

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 3
BRIDGE XXXXX (VEH)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-TUDP03-GPE

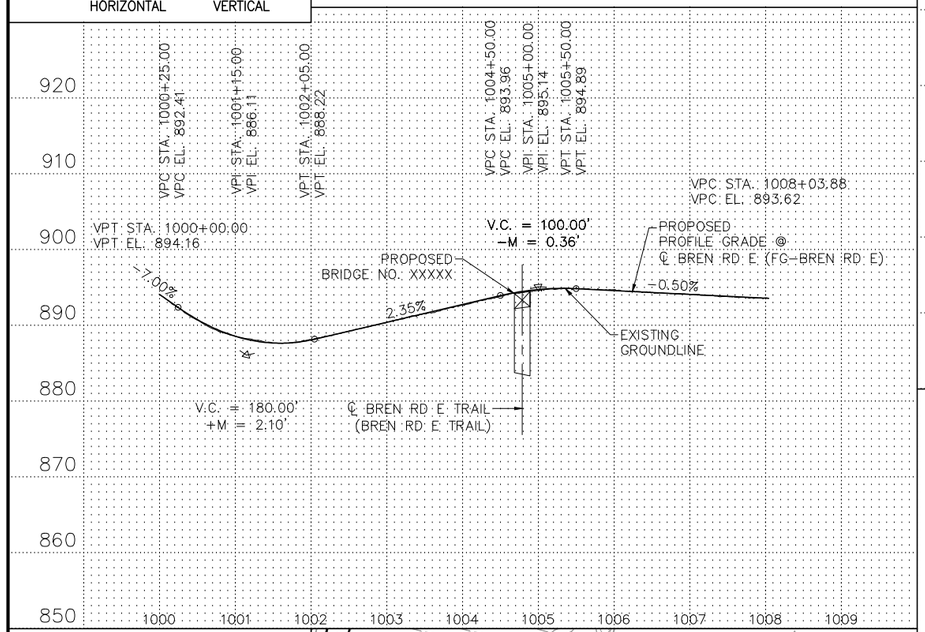
SHEET 141 OF 204

Aug. 27 2014 04:37 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUDP03-GPE.dwg By: ahauser

CONTRACTED PROFILE

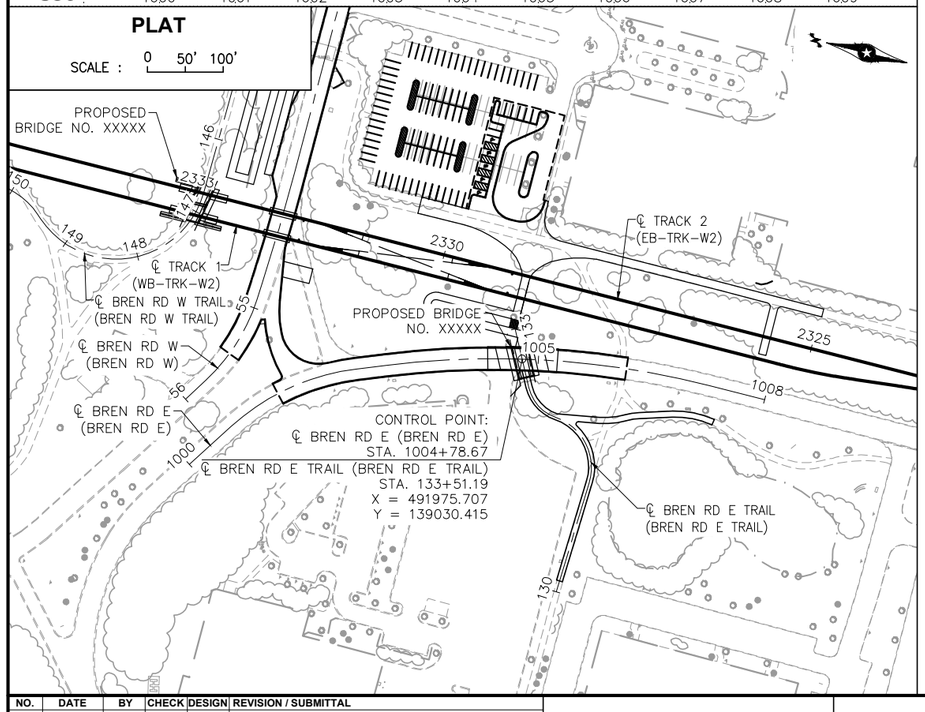
SCALE : 0 50' 100' HORIZONTAL; 0 5' 10' VERTICAL

PROFILE GRD. @ ℄ BREN RD E (FG–BREN RD E)

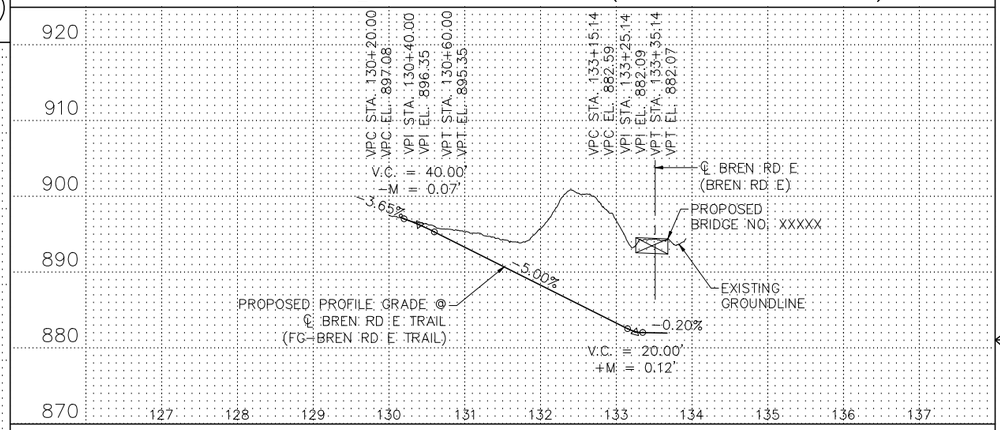


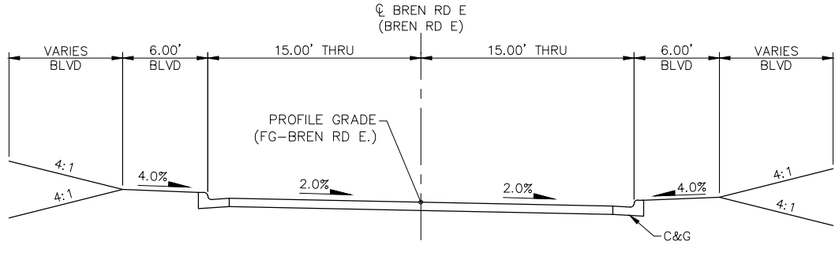
PLAT

SCALE : 0 50' 100'

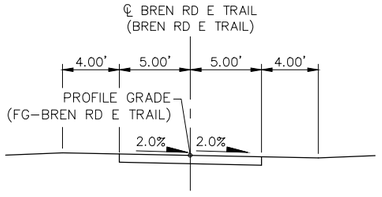


PROFILE GRADE @ ℄ BREN RD E TRAIL (FG–BREN RD E TRAIL)



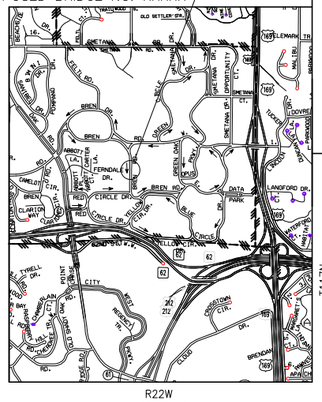


NORTH APPROACH SECTION



TYPICAL TRAIL SECTION

PROPOSED BRIDGE NO. XXXXX



INDEX–MAP

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
2. OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION,TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS–SECTIONAL AREA ETC.
3. APPARENT HIGHWATER ELEVATION OBTAINED FROM:
4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE –

STREAM OR DITCH DESIGNATION –

DRAINAGE AREA –

MAX. FLOOD ON RECORD –

MAXIMUM OBSERVED HIGHWATER ELEVATION –

DESIGN FLOOD (– YR. FREQ.) – C.F.S.

DESIGN STAGE ELEVATION –

DESIGN MEAN VELOCITY THROUGH STRUCTURE – F.P.S.

TOTAL STAGE INCREASE – F.P.S.

LOW MEMBER AT OR ABOVE ELEVATION –

FLOWLINE ELEVATION – SKEW ANGLE –

WATERWAY AREA REQUIRED BELOW ELEVATION – = – SQ.FT. AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ.) – C.F.S.

STAGE ELEVATION – FT.

TOTAL STAGE INCREASE – FT.

MEAN VELOCITY THROUGH STRUCTURE – F.P.S.

ESTIMATED DEPTH OF PIER SCOUR = – FT.

SCOUR CODE =–

BRIDGE SURVEY SHEETS MADE FROM SURVEY PERFORMED BY RANI ENGINEERING

MNDOT NAME: 2773A
NORTHING (HEN. COUNTY COORDINATES): 137082.117
EASTING (HEN. COUNTY COORDINATES): 490527.817
BENCHMARK ELEVATION (NAVD88): 963.180
MONUMENT DESCRIPTION: B.M. DISK IN BRIDGE ABUTMENT
LOCATION: IN EDEN PRAIRIE, 1.1 MILES EAST ALONG T.H. HWY 62 FROM JCT. OF T.H. 62 & I–494

MONUMENT NAME: CONTROL POINT 6
NORTHING (HEN. COUNTY COORDINATES): 142016.680
EASTING (HEN. COUNTY COORDINATES): 489989.960
BENCHMARK ELEVATION (NAVD88): 932.956
MONUMENT DESCRIPTION: CAST IRON MONUMENT
LOCATION: 0.2 MILES EAST ALONG SMETANA ROAD FROM JCT. OF SMETANA ROAD & NOLAN DR

CITY OF MINNETONKA

BRIDGE SURVEY

AT MILE POINT – ON – (T.H., C.S.A.H.,C.R. etc.)

PROPOSED BRIDGE LOCATED 0.6 MILES WEST OF JCT. T.H. 62 & T.H. 169

SEC 36 TWP T117N R R22W

CITY OF MINNETONKA COUNTY HENNEPIN

DES: RMS	DR: ARH
CHK: DRF	CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM · SRF Consulting Group, Inc. · METROPOLITAN COUNCIL · SOUTHWEST Green Line LRT Extension

PRELIMINARY ENGINEERING

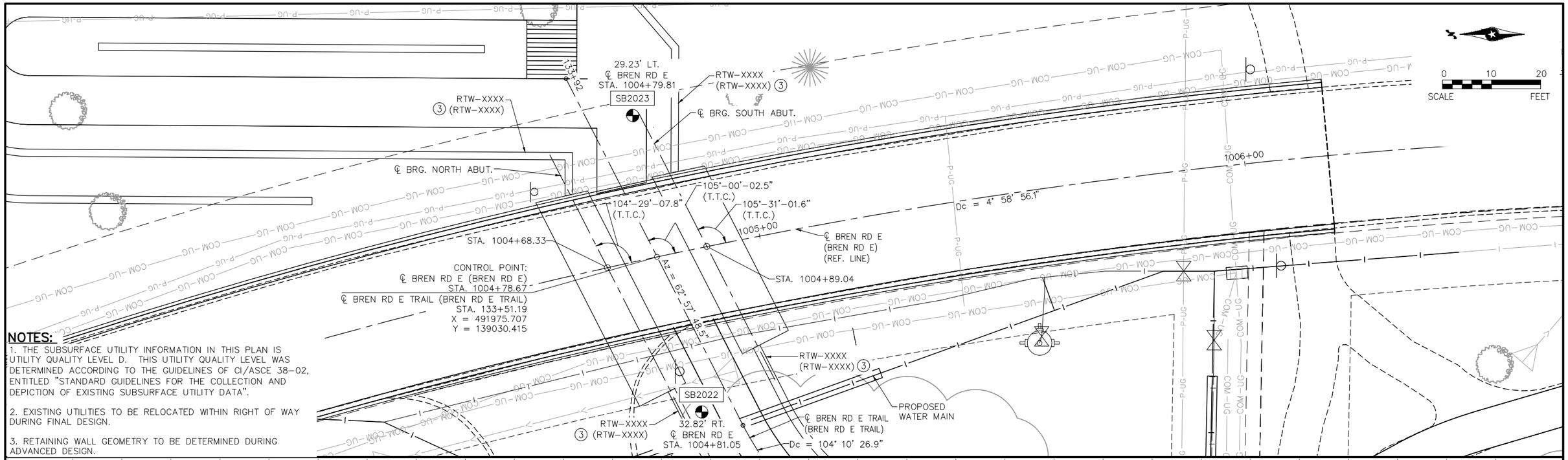
WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 3
BRIDGE XXXXX (VEH)
BRIDGE SURVEY

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUDP03-SUR

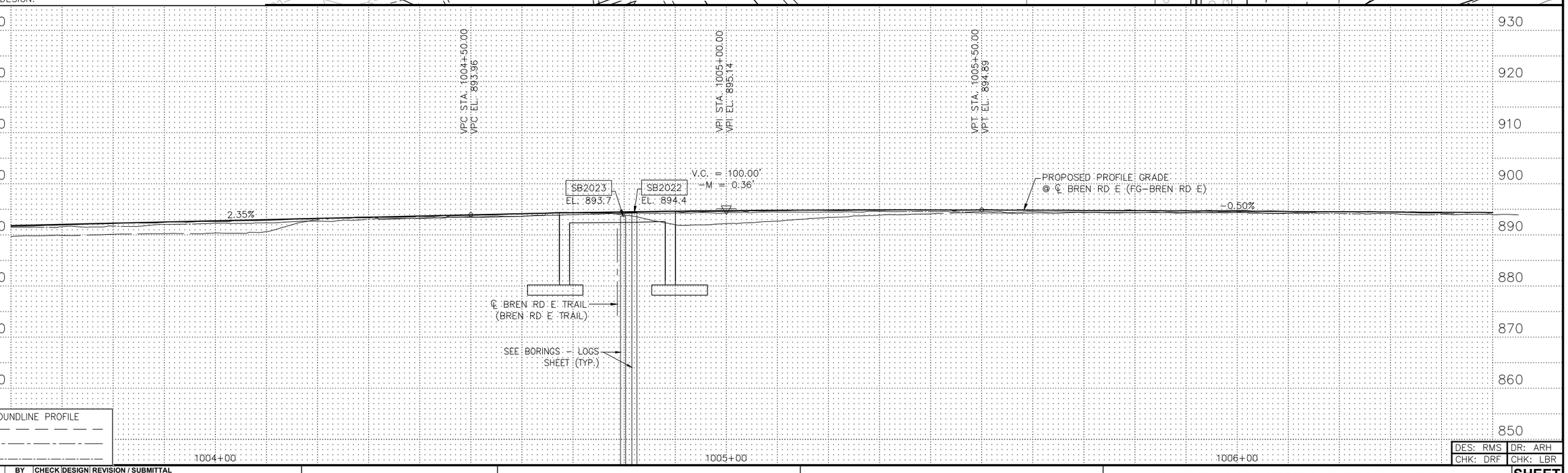
SHEET 142 OF 204

Aug. 27 2014 04:38 pm H:\Projects\7984\3200_PEC–W\CAD SEGMENT–W2\SHEET\STRUCTURES\W2–STU–TUDP03–SUR.dwg By: ahauser



NOTES:

1. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38–02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
2. EXISTING UTILITIES TO BE RELOCATED WITHIN RIGHT OF WAY DURING FINAL DESIGN.
3. RETAINING WALL GEOMETRY TO BE DETERMINED DURING ADVANCED DESIGN.



EXISTING GROUNDLINE PROFILE
30' LT. — — — — — — —
C/L —·—·—·—·—·—·—
20' RT. —·—·—·—·—·—·—

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DES: RMS | DR: ARH
CHK: DRF | CHK: LBR

AECOM | SRF Consulting Group, Inc.

METROPOLITAN COUNCIL | SOUTHWEST Green Line LRT Extension

PRELIMINARY ENGINEERING

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 3
BRIDGE XXXXX (VEH)
BORINGS - PLAN AND PROFILE

DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-TUDP03-BOR

SHEET 143 OF 204

Aug. 27 2014 04:39 pm H:\Projects\7984\3200_PEC–W\CAD\SEGMENT–W2\SHEET\STRUCTURES\W2–STU–TUDP03–BOR.dwg By: ahauser

905
900
895
890
885
880
875
870
865
860
855
850
845
840
835

2022SB

Elevation 894.4

Coh (psf)	SPT-N (BPF)	
		FILL: Clayey Sand, trace Gravel and roots, dark brown, moist.
	12	POORLY GRADED SAND with SILT, fine- to medium-grained, trace Gravel,
	12	brown, moist, medium dense.
	11	SILT, with Poorly Graded Sand layers and seams, brown, moist, medium
	14	dense.
	7	SANDY LEAN CLAY, trace Gravel,
	7	gray, wet, medium to very stiff.
	7	
	8	
	15	
	25	

END OF BORING.*
Bottom of Borehole at 31 ft

2023SB

Elevation 893.7

Coh (psf)	SPT-N (BPF)	
		FILL: Sandy Lean Clay, trace Gravel and roots, dark brown, wet.
	20	FILL: Clayey Sand, trace Gravel, dark
	8	brown and brown, wet.
	19	SILTY SAND, fine- to medium-grained, trace Gravel, brown, moist, loose.
	14	SILTY SAND, fine- to medium-grained, with Gravel, brown, moist, medium
	12	dense.
	17	POORLY GRADED SAND with SILT, fine- to medium-grained, trace Gravel, light brown, moist to 11 feet then waterbearing, medium dense.
	14	SANDY LEAN CLAY, trace Gravel, with
	27	Sand inclusions, brown, wet, stiff.
		POORLY GRADED SAND with SILT, fine- to medium-grained, trace Gravel, brown, waterbearing, medium dense.
	11	SANDY LEAN CLAY, trace Gravel, gray, wet, rather stiff to stiff.
	16	

END OF BORING.*
Bottom of Borehole at 31 ft

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

DES: RMS | DR: ARH
CHK: DRF | CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 3
BRIDGE XXXXX (VEH)
BORINGS - LOGS

DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-TUDP03-BOR

SHEET 144 OF 204

Aug, 27 2014 04:39 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUDP03-BOR.dwg By: ahauser

AESTHETIC DETAILS TO BE DETERMINED DURING ADVANCED DESIGN

1. ABUTMENT SURFACE TREATMENT
2. ABUTMENT/WALL CORNER DETAIL
3. EXPOSED EDGE OF DECK
4. EXPOSED BARRIER
5. EXPOSED FASCIA BEAM
6. BOTTOM OF BEAMS
7. PIER COLUMN SURFACE TREATMENT
8. RAILING AND SCREENING

DES: RMS	DR: ARH
CHK: DRF	CHK: LBR

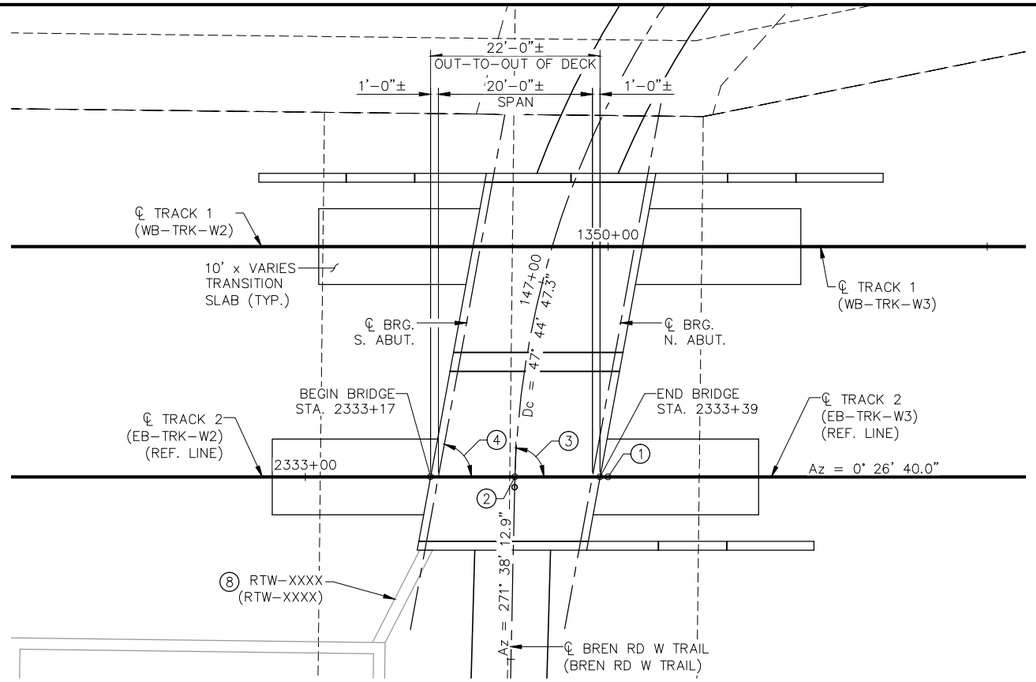
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

PRELIMINARY ENGINEERING

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 3
BRIDGE XXXXX (VEH)
BRIDGE AESTHETICS

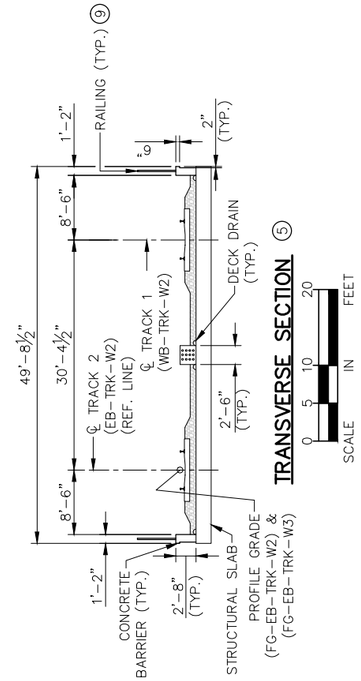
DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUDP03-ARCH



GENERAL PLAN ⑦

SCALE 0 5 10 20 IN FEET

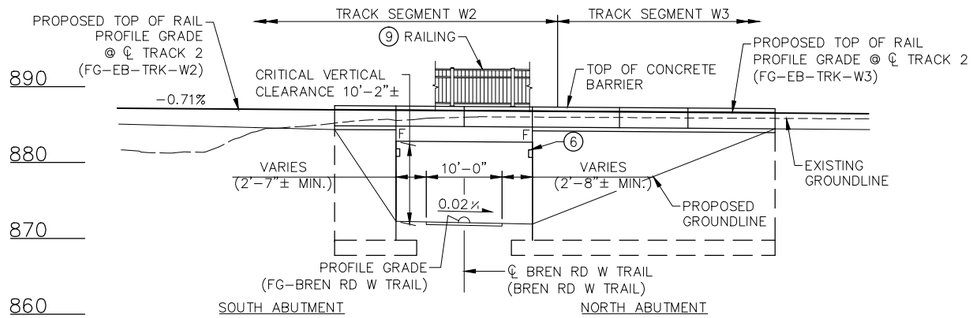


TRANSVERSE SECTION ⑤

SCALE 0 5 10 20 IN FEET

VPT STA. 2323+43.66
EL. 892.42

VPC STA. 2352+22.72
EL. 885.14



GENERAL ELEVATION ⑦

SCALE 0 5 10 20 IN FEET

NOTES:

1. END TRACK 2 (EB-TRK-W2)
   STA. 2333+39.97
   BEGIN TRACK 2 (EB-TRK-W3)
   STA. 2350+00.00
2. CONTROL POINT:
   ℄ TRACK 2 (EB-TRK-W2)
   STA. 2333+27.65
   ℄ BREN RD W TRAIL (BREN RD W TRAIL)
   STA. 146+74.07
   X = 492086.917
   Y = 139490.939
3. 88°-09'-26.1" (T.T.C.)
4. 79°-36'-28.4" (TYP. @ ABUT.)
5. MEASURED PERPENDICULAR ACROSS BRIDGE WIDTH.
6. UNDER BRIDGE LIGHTING.
7. SEE BORINGS - PLAN & PROFILE SHEET FOR IN-PLACE UTILITIES.
8. RETAINING WALL GEOMETRY TO BE DETERMINED DURING ADVANCED DESIGN.
9. RAILING TYPE TO BE DETERMINED DURING ADVANCED DESIGN.

DESIGN DATA

2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
6TH EDITION AND CURRENT INTERIMS

SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA
(REVISION 2.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD

LRV & MV LOAD DIAGRAM SHOWN ON SHEET 148

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4 ksi n = 8
fy = 60 ksi REINFORCEMENT

DESIGN SPEED: OVER = XX MPH (LRT)
UNDER = XX MPH

APPROXIMATE DECK AREA: 1110 SQ. FT.

LIST OF SHEETS

PROPOSED TYPE OF STRUCTURE

SUPERSTRUCTURE:
1 SPAN - CAST-IN-PLACE CONCRETE
SLAB - CONTINUOUS WITH ABUTMENTS
SUBSTRUCTURE:
INTEGRAL ABUTMENTS SUPPORTED ON
SPREAD FOOTINGS
DEPTH OF STRUCTURE:
2'-0" MINIMUM SLAB
1'-4"± OVERBURDEN

BRIDGE NO. XXXXX

SOUTHWEST LRT OVER BREN RD W TRAIL
0.6 MI. W OF JCT. T.H. 62/T.H. 169 IN MINNETONKA

20'-0" CAST-IN-PLACE CONCRETE SLAB SPAN
47'-4½" RAILWAY WIDTH
10°-23'-31.6" SKEW

BRIDGE I.D. NO. 108

GENERAL PLAN AND ELEVATION

SEC 36 T117N R22W
CITY OF MINNETONKA HENNEPIN COUNTY

APPROVED: _____
STATE BRIDGE ENGINEER DATE

JOB NO. T9N635 | STATE PROJECT NO. 9909-01 | MNDOT REVIEW:

DES: RMS | DR: ARH
CHK: DRF | CHK: MJC

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM | SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL | SOUTHWEST Green Line LRT Extension

WEST - VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 4
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-TUDP04-GPE

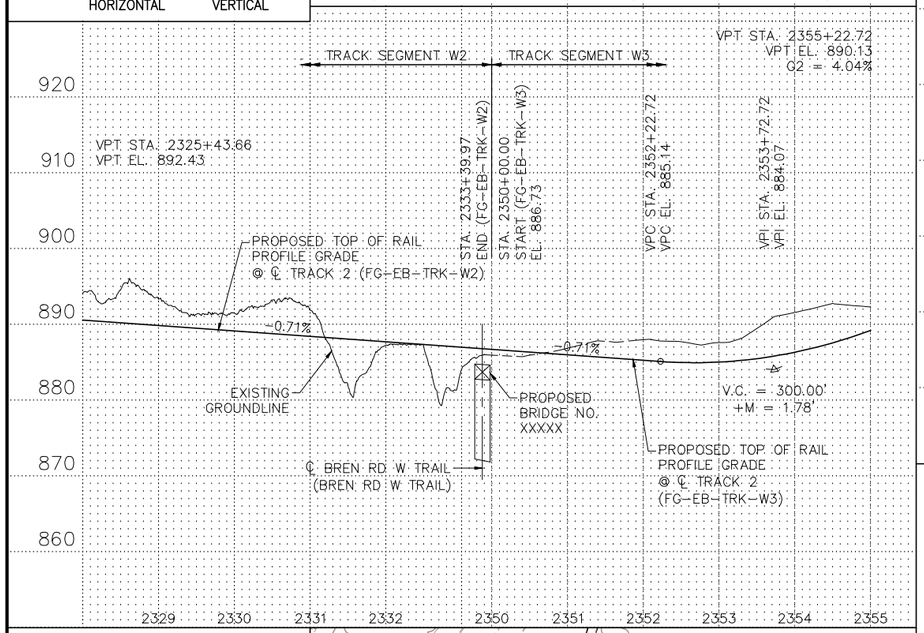
SHEET 146 OF 204

Aug. 27 2014 04:39 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUDP04-GPE.dwg By: ahauser

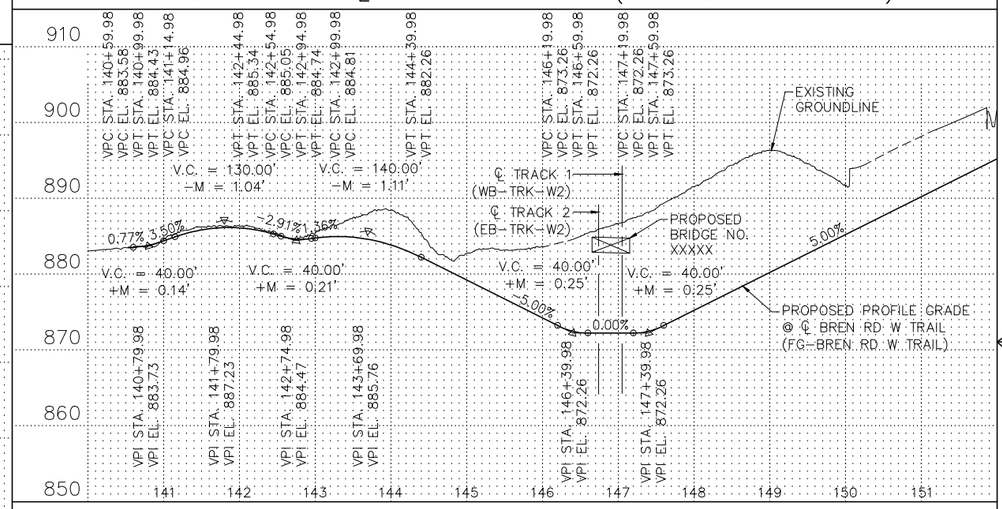
CONTRACTED PROFILE

SCALE : 0 50' 100' HORIZONTAL; 0 5' 10' VERTICAL

PROFILE GRADE @ ℄ TRACK 2 (FG–EB–TRK–W2) & (FG–EB–TRK–W3)



PROFILE GRADE @ ℄ BREN RD W TRAIL (FG–BREN RD W TRAIL)



LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
2. OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION,TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS–SECTIONAL AREA ETC.
3. APPARENT HIGHWATER ELEVATION OBTAINED FROM:
4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE –

STREAM OR DITCH DESIGNATION –

DRAINAGE AREA –

MAX. FLOOD ON RECORD –

MAXIMUM OBSERVED HIGHWATER ELEVATION –

DESIGN FLOOD (– YR. FREQ.) – C.F.S.

DESIGN STAGE ELEVATION –

DESIGN MEAN VELOCITY THROUGH STRUCTURE – F.P.S.

TOTAL STAGE INCREASE – F.P.S.

LOW MEMBER AT OR ABOVE ELEVATION –

FLOWLINE ELEVATION – SKEW ANGLE –

WATERWAY AREA REQUIRED BELOW ELEVATION – = – SQ.FT. AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ.) – C.F.S.

STAGE ELEVATION – FT.

TOTAL STAGE INCREASE – FT.

MEAN VELOCITY THROUGH STRUCTURE – F.P.S.

ESTIMATED DEPTH OF PIER SCOUR = – FT.

SCOUR CODE =–

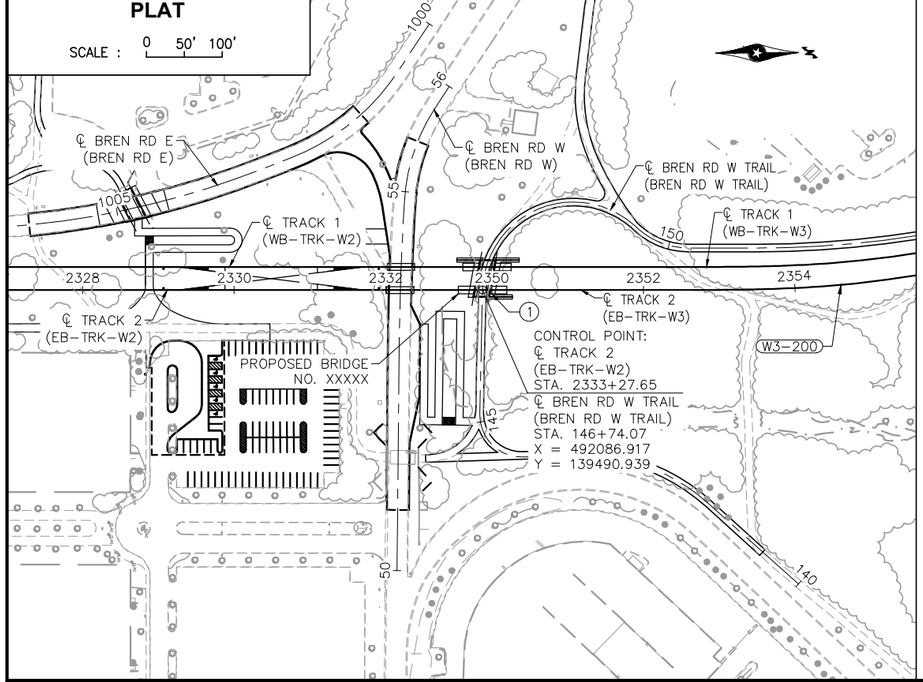
BRIDGE SURVEY SHEETS MADE FROM SURVEY PERFORMED BY RANI ENGINEERING

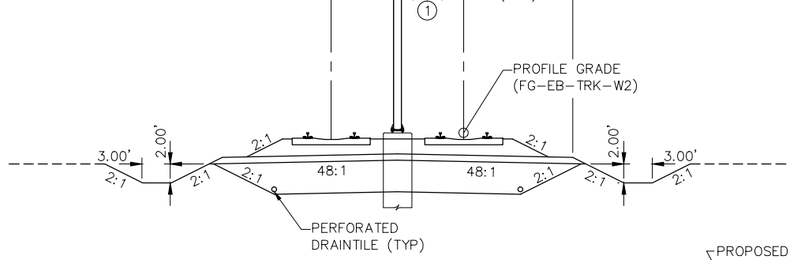
MNDOT NAME: 2773A
NORTHING (HEN. COUNTY COORDINATES): 137082.117
EASTING (HEN. COUNTY COORDINATES): 490527.817
BENCHMARK ELEVATION (NAVD88): 963.180
MONUMENT DESCRIPTION: B.M. DISK IN BRIDGE ABUTMENT
LOCATION: IN EDEN PRAIRIE, 1.1 MILES EAST ALONG T.H. HWY 62 FROM JCT. OF T.H. 62 & I–494

MONUMENT NAME: CONTROL POINT 6
NORTHING (HEN. COUNTY COORDINATES): 142016.680
EASTING (HEN. COUNTY COORDINATES): 489989.960
BENCHMARK ELEVATION (NAVD88): 932.956
MONUMENT DESCRIPTION: CAST IRON MONUMENT
LOCATION: 0.2 MILES EAST ALONG SMETANA ROAD FROM JCT. OF SMETANA ROAD & NOLAN DR

PLAT

SCALE : 0 50' 100'



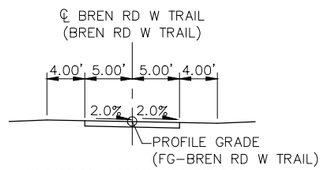


TYPICAL TRACK APPROACH SECTION

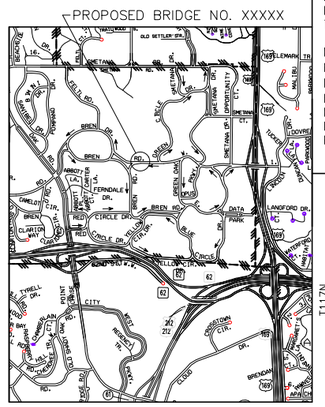
(SOUTH TRACK SEGMENT W2 SHOWN, NORTH APPROACH TRACK SEGMENT W3 SIMILAR)

(1) END TRACK 2 (EB–TRK–W2) STA. 2333+39.97
BEGIN TRACK 2 (EB–TRK–W3) STA. 2350+00

CURVE NO. W3–200
R = 1,400.00'
Lc = 992.18'
Ls = 200.00'
Ea = 2.75"
Eu = 2.98"
V = 45 MPH



TYPICAL TRAIL SECTION



CITY OF MINNETONKA

BRIDGE SURVEY

AT MILE POINT – ON – (T.H., C.S.A.H.,C.R. etc.)

PROPOSED BRIDGE LOCATED 0.6 MILES WEST OF JCT. T.H. 62 & T.H. 169

SEC 36 TWP T117N R R22W

CITY OF MINNETONKA COUNTY HENNEPIN

DES: RMS	DR: ARH
CHK: DRF	CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

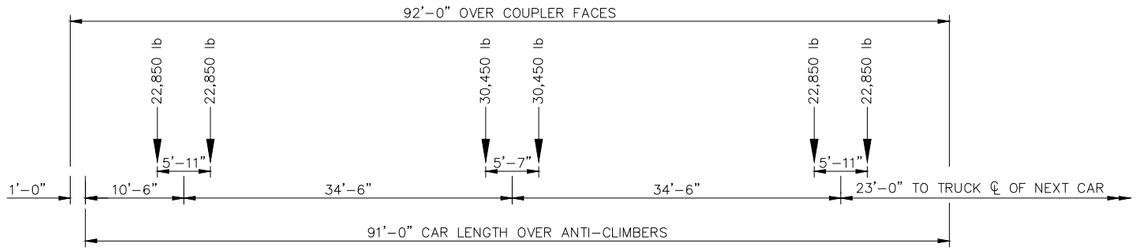
WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 4
BRIDGE XXXXX (LRT)
BRIDGE SURVEY

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUDP04-SUR

SHEET 147 OF 204

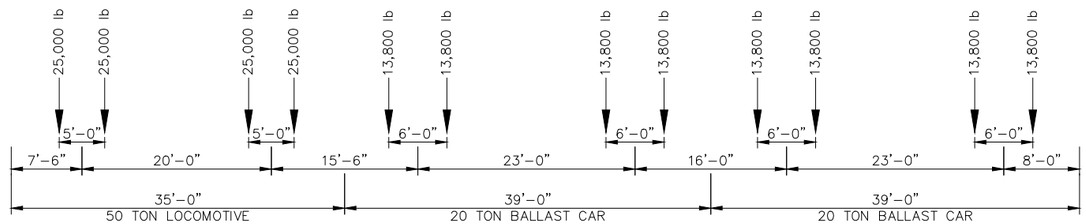
Aug, 27 2014 04:40 pm H:\Projects\7984\3200_PEC–W\CAD\SEGMENT–W2\SHEET\STRUCTURES\W2–STU–TUDP04–SUR.dwg By: ahauser



LIGHT RAIL VEHICLE LOADING DIAGRAM

NOTES:

1. THE LRT TRAIN SHALL CONSIST OF EITHER ONE, TWO OR THREE CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.
2. AXLE LOAD IN POUNDS.
3. LOADING DIAGRAM REPRESENTS MAXIMUM LOAD AT EACH TRUCK IN ACCORDANCE WITH SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 3.0) FIGURE 18-1.



MAINTENANCE TRAIN LOADING DIAGRAM

NOTES:

1. THE MAINTENANCE TRAIN SHALL CONSIST OF ONE LOCOMOTIVE AND ONE, TWO, THREE, OR FOUR BALLAST CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.
2. AXLE LOAD IN POUNDS.
3. WEIGHT OF EMPTY BALLAST CAR IS 15,000 POUNDS.

DES: RMS	DR: ARH
CHK: DRF	CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

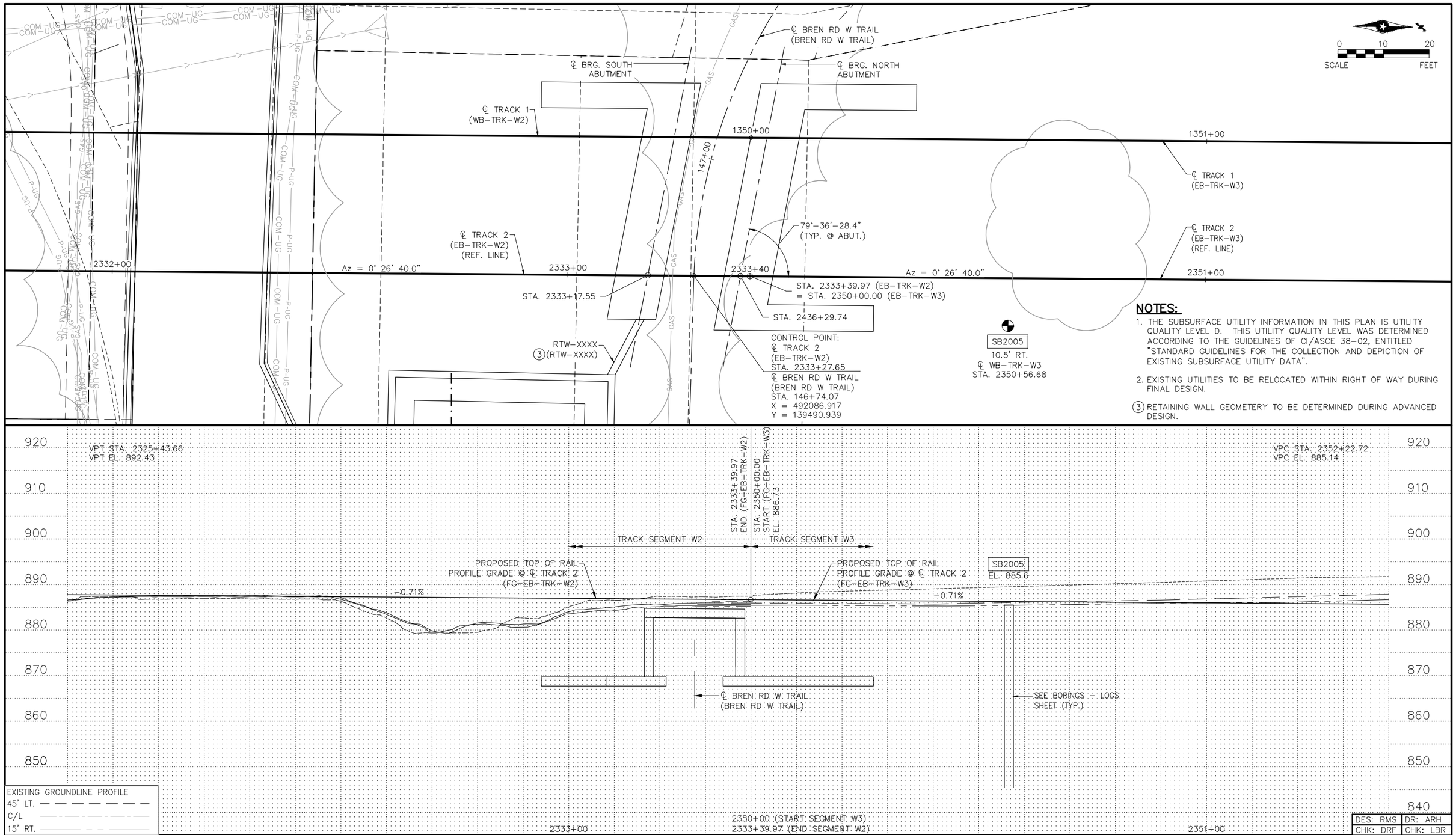
METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 4
BRIDGE XXXXX (LRT)
LOADING DIAGRAM

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUDP04-LOAD

SHEET 148 OF 204



NOTES:

1. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38–02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
2. EXISTING UTILITIES TO BE RELOCATED WITHIN RIGHT OF WAY DURING FINAL DESIGN.

③ RETAINING WALL GEOMETERY TO BE DETERMINED DURING ADVANCED DESIGN.

DES: RMS	DR: ARH
CHK: DRF	CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

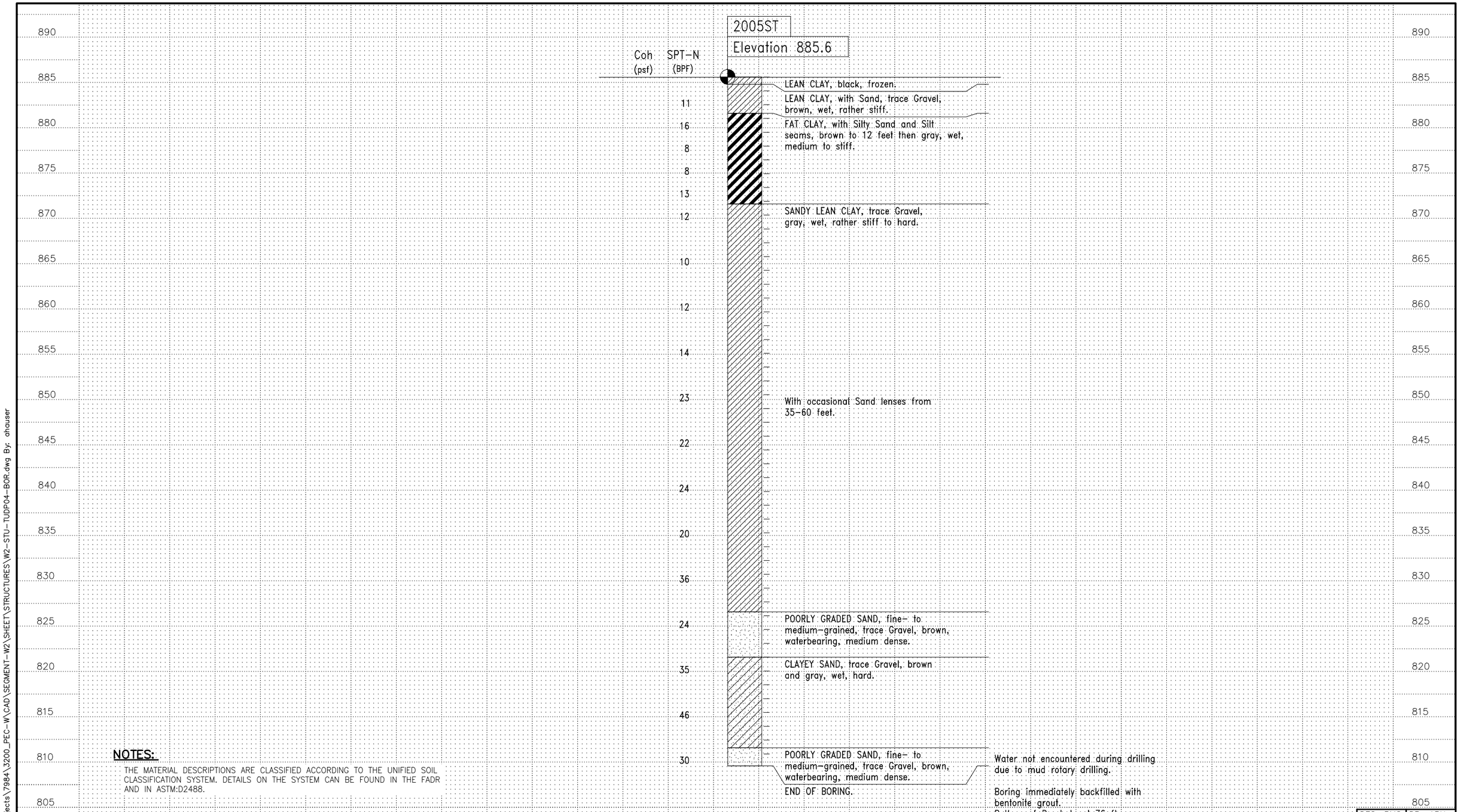
METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 4
BRIDGE XXXXX (LRT)
BORINGS - PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUDP04-BOR

SHEET 149 OF 204



NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

DES: RMS | DR: ARH
CHK: DRF | CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 4
BRIDGE XXXXX (LRT)
BORINGS - LOGS

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-TUDP04-BOR

SHEET 150 OF 204

AESTHETIC DETAILS TO BE DETERMINED DURING ADVANCED DESIGN

1. ABUTMENT SURFACE TREATMENT
2. ABUTMENT/WALL CORNER DETAIL
3. EXPOSED EDGE OF DECK
4. EXPOSED BARRIER
5. EXPOSED FASCIA BEAM
6. BOTTOM OF BEAMS
7. PIER COLUMN SURFACE TREATMENT
8. RAILING AND SCREENING

DES: RMS	DR: ARH
CHK: DRF	CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

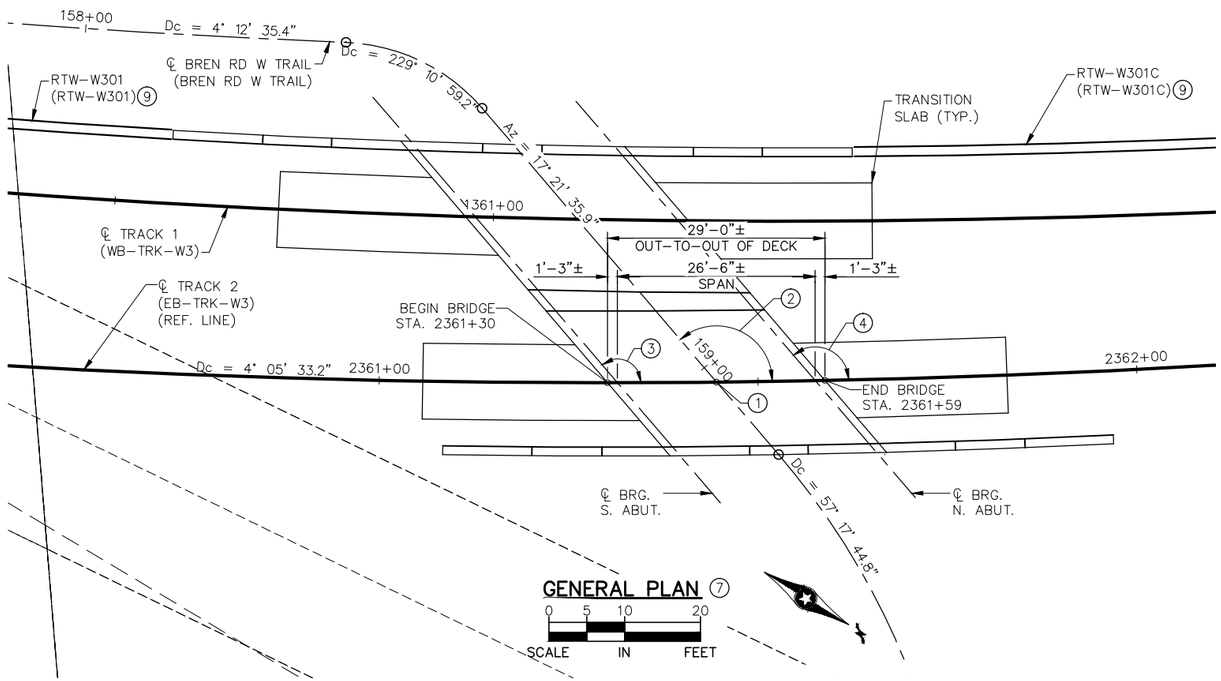
WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 4
BRIDGE XXXXX (LRT)
BRIDGE AESTHETICS

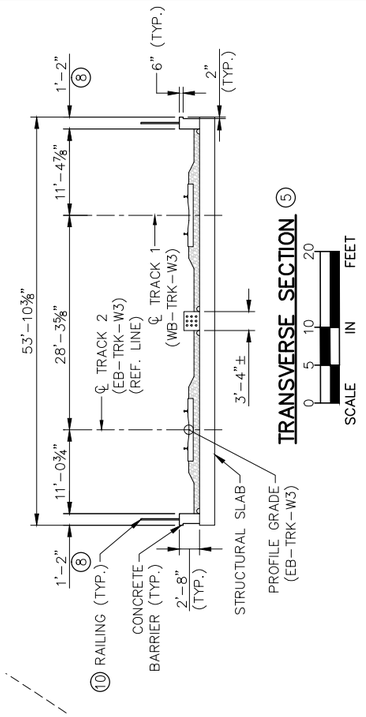
DISCIPLINE: **STRUCTURES**

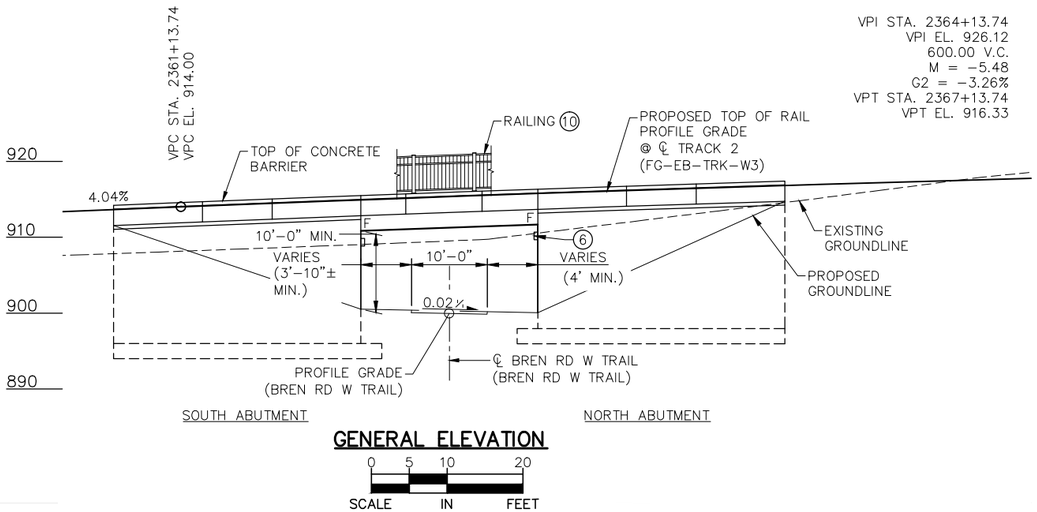
SHEET NAME: **W2-STU-TUDP04-ARCH**

SHEET **151** OF **204**

Aug. 27 2014 04:41 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-TUDP04-ARCH.dwg By: ahauser







NOTES:

1. CONTROL POINT:
   ℄ TRACK 2 (EB-TRK-W3)
   STA. 2361+44.54
   ℄ BREN RD W TRAIL (BREN RD W TRAIL)
   STA. 159+02.53
   X = 491866.970
   Y = 140605.222
2. 129°-58'-10.3" (T.T.C.)
3. 130°-30'-20.3" (T.T.C.)
4. 129°-26'-15.3" (T.T.C.)
5. MEASURED ALONG ℄ BREN RD W TRAIL UNLESS NOTED OTHERWISE.
6. UNDER BRIDGE LIGHTING.
7. SEE BORINGS - PLAN & PROFILE SHEET FOR IN-PLACE UTILITIES.
8. MEASURED PERPENDICULAR TO FACE OF BARRIER.
9. RETAINING WALL GEOMETRY TO BE DETERMINED DURING ADVANCED DESIGN.
10. RAILING TYPE TO BE DETERMINED DURING ADVANCED DESIGN.

DESIGN DATA

2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
6TH EDITION AND CURRENT INTERIMS

SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA
(REVISION 2.0)

LOAD & RESISTANCE FACTOR DESIGN METHOD

LRV & MV LOAD DIAGRAM SHOWN ON SHEET 3

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4 ksi n = 8
fy = 60 ksi REINFORCEMENT

DESIGN SPEED: OVER = XX (LRT)
UNDER = XX MPH

APPROXIMATE DECK AREA: 1190 SQ. FT.

LIST OF SHEETS

PROPOSED TYPE OF STRUCTURE

SUPERSTRUCTURE:
1 SPAN - CAST-IN-PLACE CONCRETE
SLAB - CONTINUOUS WITH ABUTMENTS
SUBSTRUCTURE:
INTEGRAL ABUTMENTS SUPPORTED ON
SPREAD FOOTINGS
DEPTH OF STRUCTURE:
2'-0" MINIMUM SLAB
1'-4"± OVERBURDEN

BRIDGE NO. XXXXX

SOUTHWEST LRT OVER BREN RD W TRAIL
0.6 MI. W OF JCT. T.H. 62/T.H. 169 IN MINNETONKA

26'-6" CAST-IN-PLACE CONCRETE SLAB SPAN
±38'-6" RAILWAY WIDTH
SKEW VARIES

BRIDGE I.D. NO. 108

GENERAL PLAN AND ELEVATION

SEC 36 T117N R22W
CITY OF MINNETONKA HENNEPIN COUNTY

APPROVED: _____
STATE BRIDGE ENGINEER DATE

JOB NO. T9N635 | STATE PROJECT NO. 9909-01 | MNDOT REVIEW:

DES: RMS	DR: ARH
CHK: DRF	CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

PRELIMINARY ENGINEERING

WEST - VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 5
BRIDGE XXXXX (LRT)
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES
SHEET NAME: W3-STU-TUDP05-GPE

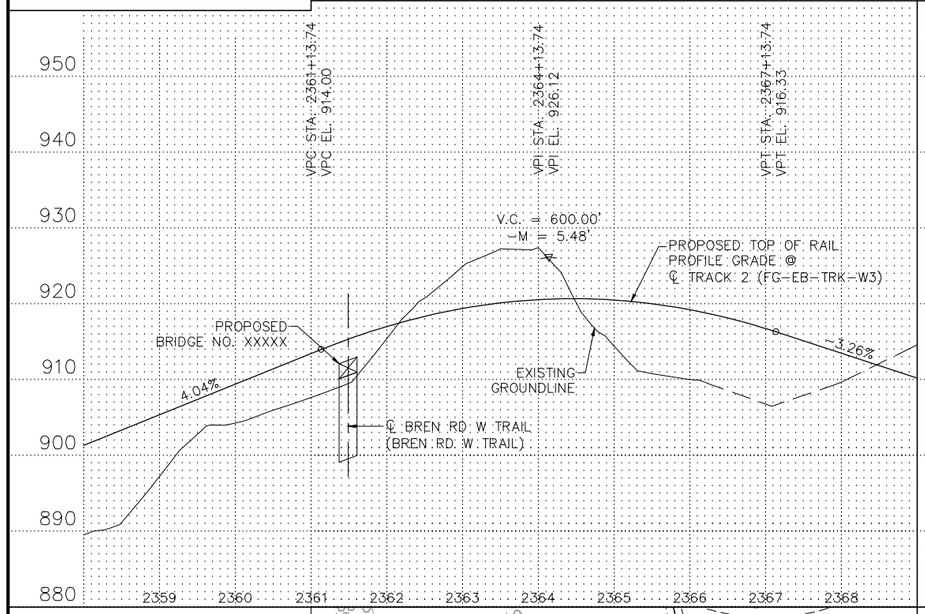
SHEET 152 OF 204

Aug. 27 2014 04:42 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-TUDP05-GPE.dwg By: ahauser

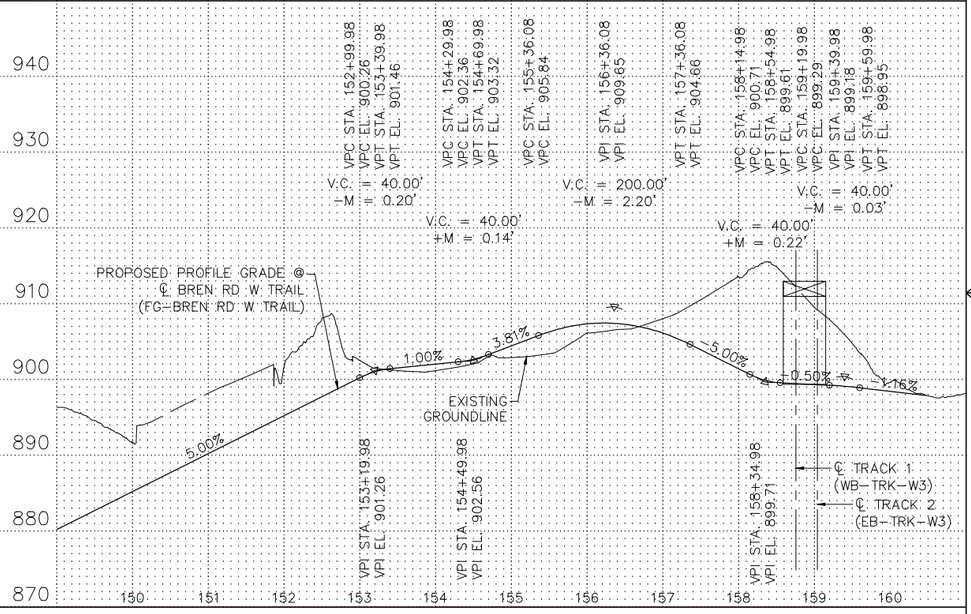
CONTRACTED PROFILE

SCALE : 0 50' 100' HORIZONTAL — 0 5' 10' VERTICAL

PROFILE GRADE @ ℄ TRACK 2 (FG–EB–TRK–W3)



PROFILE GRADE @ ℄ BREN RD W TRAIL (FG–BREN RD W TRAIL)



LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
2. OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION,TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS–SECTIONAL AREA ETC.
3. APPARENT HIGHWATER ELEVATION OBTAINED FROM:
4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE –

STREAM OR DITCH DESIGNATION –

DRAINAGE AREA –

MAX. FLOOD ON RECORD –

MAXIMUM OBSERVED HIGHWATER ELEVATION –

DESIGN FLOOD (–YR. FREQ.) – C.F.S.

DESIGN STAGE ELEVATION –

DESIGN MEAN VELOCITY THROUGH STRUCTURE – F.P.S.

TOTAL STAGE INCREASE – F.P.S.

LOW MEMBER AT OR ABOVE ELEVATION –

FLOWLINE ELEVATION – SKEW ANGLE –

WATERWAY AREA REQUIRED BELOW ELEVATION – = – SQ.FT. AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ.) – C.F.S.

STAGE ELEVATION – FT.

TOTAL STAGE INCREASE – FT.

MEAN VELOCITY THROUGH STRUCTURE – F.P.S.

ESTIMATED DEPTH OF PIER SCOUR = – FT.

SCOUR CODE =–

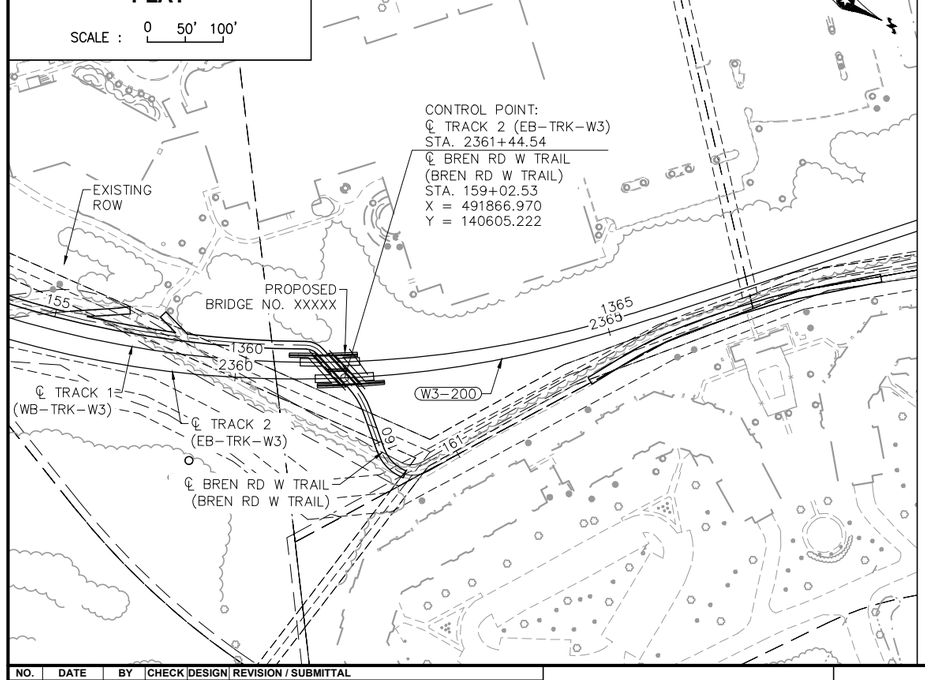
BRIDGE SURVEY SHEETS MADE FROM SURVEY PERFORMED BY RANI ENGINEERING

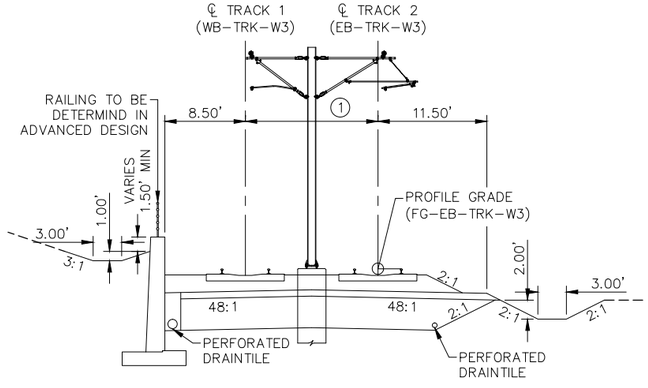
MNDOT NAME: 2773A
NORTHING (HEN. COUNTY COORDINATES): 137082.117
EASTING (HEN. COUNTY COORDINATES): 490527.817
BENCHMARK ELEVATION (NAVD88): 963.180
MONUMENT DESCRIPTION: B.M. DISK IN BRIDGE ABUTMENT
LOCATION: IN EDEN PRAIRIE, 1.1 MILES EAST ALONG T.H. HWY 62 FROM JCT. OF T.H. 62 & I–494

MONUMENT NAME: CONTROL POINT 6
NORTHING (HEN. COUNTY COORDINATES): 142016.680
EASTING (HEN. COUNTY COORDINATES): 489989.960
BENCHMARK ELEVATION (NAVD88): 932.956
MONUMENT DESCRIPTION: CAST IRON MONUMENT
LOCATION: 0.2 MILES EAST ALONG SMETANA ROAD FROM JCT. OF SMETANA ROAD & NOLAN DR

PLAT

SCALE : 0 50' 100'

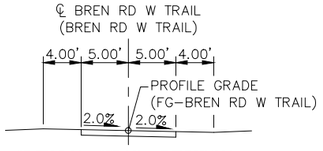




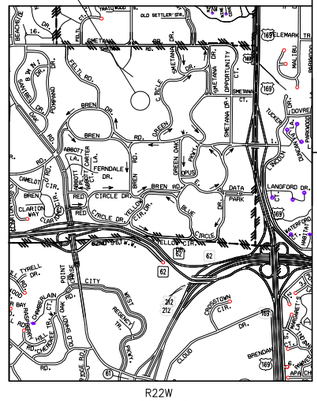
TYPICAL TRACK APPROACH SECTION

(1) TRACK CENTERS NARROW FROM 30.38' TO 16.38' BETWEEN STA. 2553+00 AND STA. 2364+20.

CURVE NO. W3–200
R = 1,400.00'
Lc = 992.18'
Ls = 200.00'
Eq = 2.75"
Eu = 2.98"
V = 45 MPH



TYPICAL TRAIL SECTION



INDEX–MAP

CITY OF MINNETONKA

BRIDGE SURVEY

AT MILE POINT – ON – (T.H., C.S.A.H.,C.R. etc.)

PROPOSED BRIDGE LOCATED 0.6 MILES WEST OF JCT. T.H. 62 & T.H. 169

SEC 36 TWP T117N R R22W

CITY OF MINNETONKA COUNTY HENNEPIN

DES: RMS | DR: ARH
CHK: DRF | CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM — SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL — SOUTHWEST Green Line LRT Extension

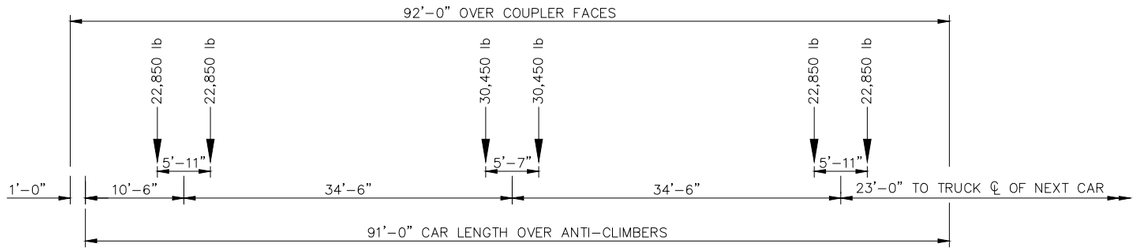
WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 5
BRIDGE XXXXX (LRT)
BRIDGE SURVEY

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-TUDP05-SUR

SHEET 153 OF 204

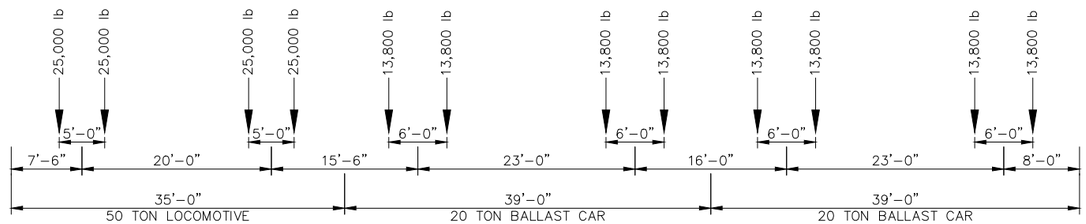
Aug. 27 2014 04:42 pm H: \Projects\7984\3200_PEC–W\CAD\SEGMENT–W3\SHEET\STRUCTURES\W3–STU–TUDP05–SUR.dwg By: ahauser



LIGHT RAIL VEHICLE LOADING DIAGRAM

NOTES:

1. THE LRT TRAIN SHALL CONSIST OF EITHER ONE, TWO OR THREE CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.
2. AXLE LOAD IN POUNDS.
3. LOADING DIAGRAM REPRESENTS MAXIMUM LOAD AT EACH TRUCK IN ACCORDANCE WITH SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 3.0) FIGURE 18–1.



MAINTENANCE TRAIN LOADING DIAGRAM

NOTES:

1. THE MAINTENANCE TRAIN SHALL CONSIST OF ONE LOCOMOTIVE AND ONE, TWO, THREE, OR FOUR BALLAST CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.
2. AXLE LOAD IN POUNDS.
3. WEIGHT OF EMPTY BALLAST CAR IS 15,000 POUNDS.

DES: RMS	DR: ARH
CHK: DRF	CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

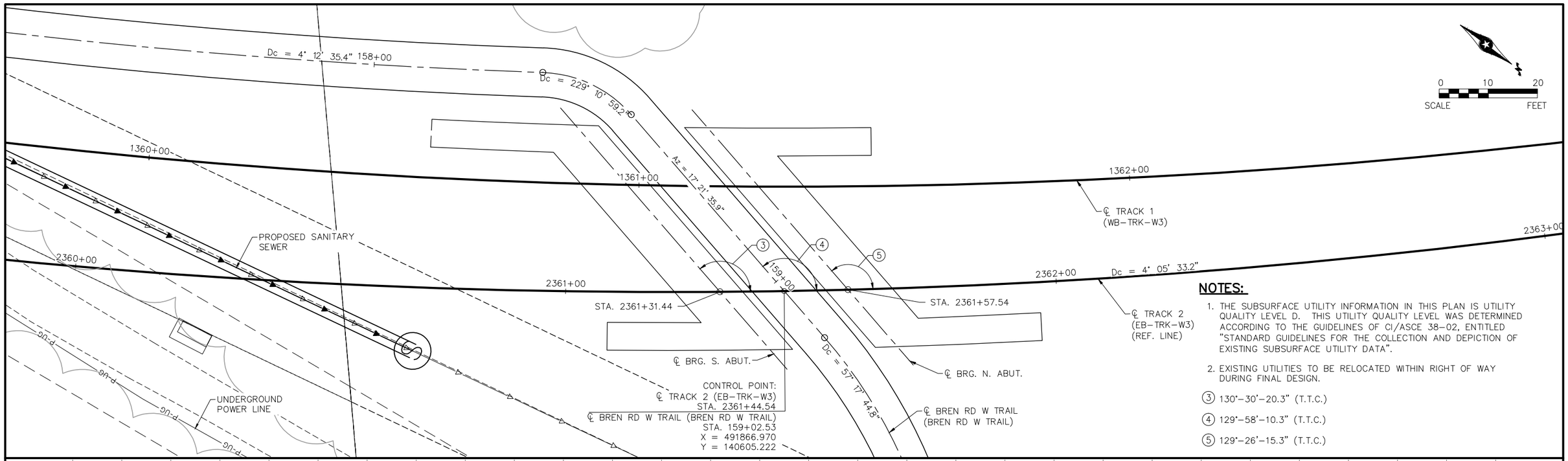
WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 5
BRIDGE XXXXX (LRT)
LOADING DIAGRAM

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-TUDP05-LOAD

SHEET 154 OF 204

Aug. 27 2014 04:42 pm H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-TUDP05-LOAD.dwg By: ahauser



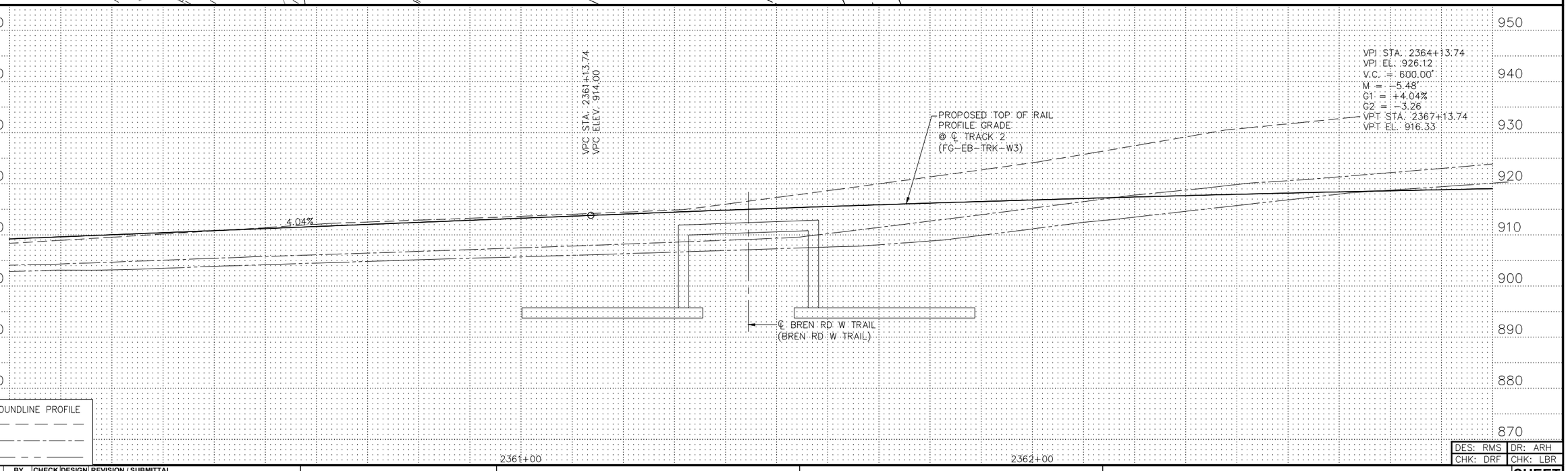
NOTES:

1. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38–02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
2. EXISTING UTILITIES TO BE RELOCATED WITHIN RIGHT OF WAY DURING FINAL DESIGN.

(3) 130°–30'–20.3" (T.T.C.)

(4) 129°–58'–10.3" (T.T.C.)

(5) 129°–26'–15.3" (T.T.C.)



EXISTING GROUNDLINE PROFILE
35' LT. — — — — — —
C/L —·—·—·—·—·—
15' RT. ——— – – ———

DES: RMS	DR: ARH
CHK: DRF	CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 5
BRIDGE XXXXX (LRT)
BORINGS - PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-TUDP05-BOR

SHEET 155 OF 204

Aug. 27 2014 04:43 pm H:\Projects\7984\3200_PEC–W\CAD\SEGMENT–W3\SHEET\STRUCTURES\W3–STU–TUDP05–BOR.dwg By: ahauser

915
910
905
900
895
890
885
880
875
870
865
860
855
850
845
840
835

BORING LOGS TO BE COMPLETED DURING ADVANCED DESIGN

NOTES:

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

DES: RMS	DR: ARH
CHK: DRF	CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 5
BRIDGE XXXXX (LRT)
BORINGS - LOGS

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-TUDP05-BOR

SHEET 156 OF 204

AESTHETIC DETAILS TO BE DETERMINED DURING ADVANCED DESIGN

1. ABUTMENT SURFACE TREATMENT
2. ABUTMENT/WALL CORNER DETAIL
3. EXPOSED EDGE OF DECK
4. EXPOSED BARRIER
5. EXPOSED FASCIA BEAM
6. BOTTOM OF BEAMS
7. PIER COLUMN SURFACE TREATMENT
8. RAILING AND SCREENING

DES: RMS	DR: ARH
CHK: DRF	CHK: LBR

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL — SOUTHWEST Green Line LRT Extension

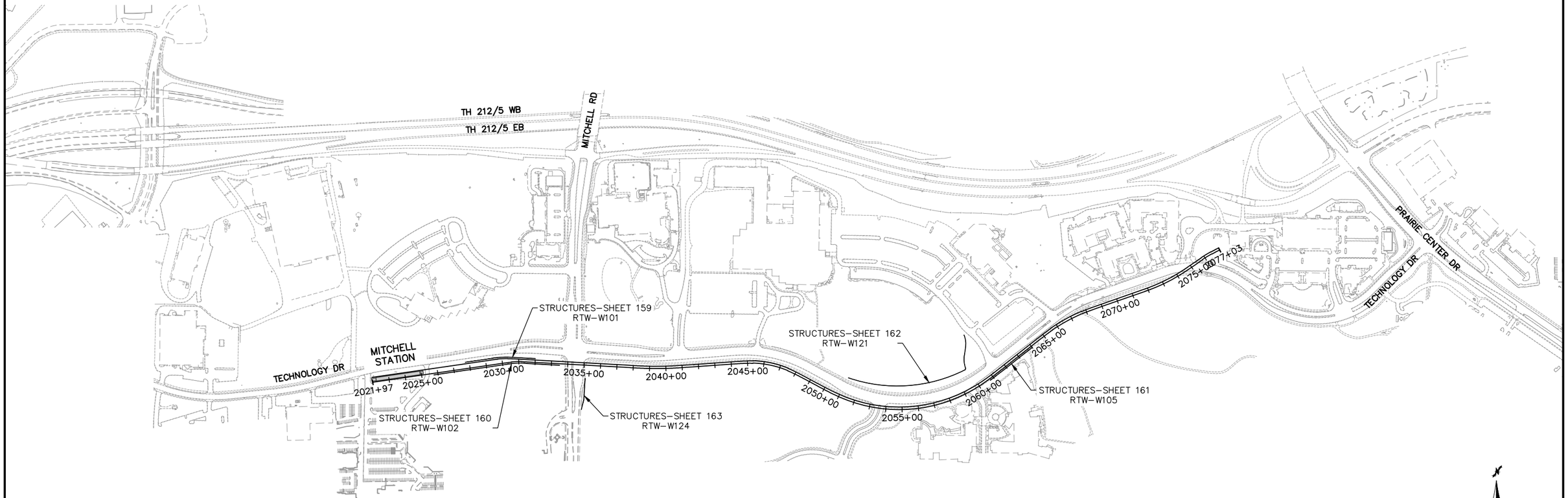
WEST – VOLUME 2 (STRUCTURES)
PEDESTRIAN UNDERPASS 5
BRIDGE XXXXX (LRT)
BRIDGE AESTHETICS

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-TUDP05-ARCH

SHEET 157 OF 204

Aug. 27 2014 04:43 pm H:\Projects\7984\3200_PEC-WV\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-TUDP05-ARCH.dwg By: ahauser



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

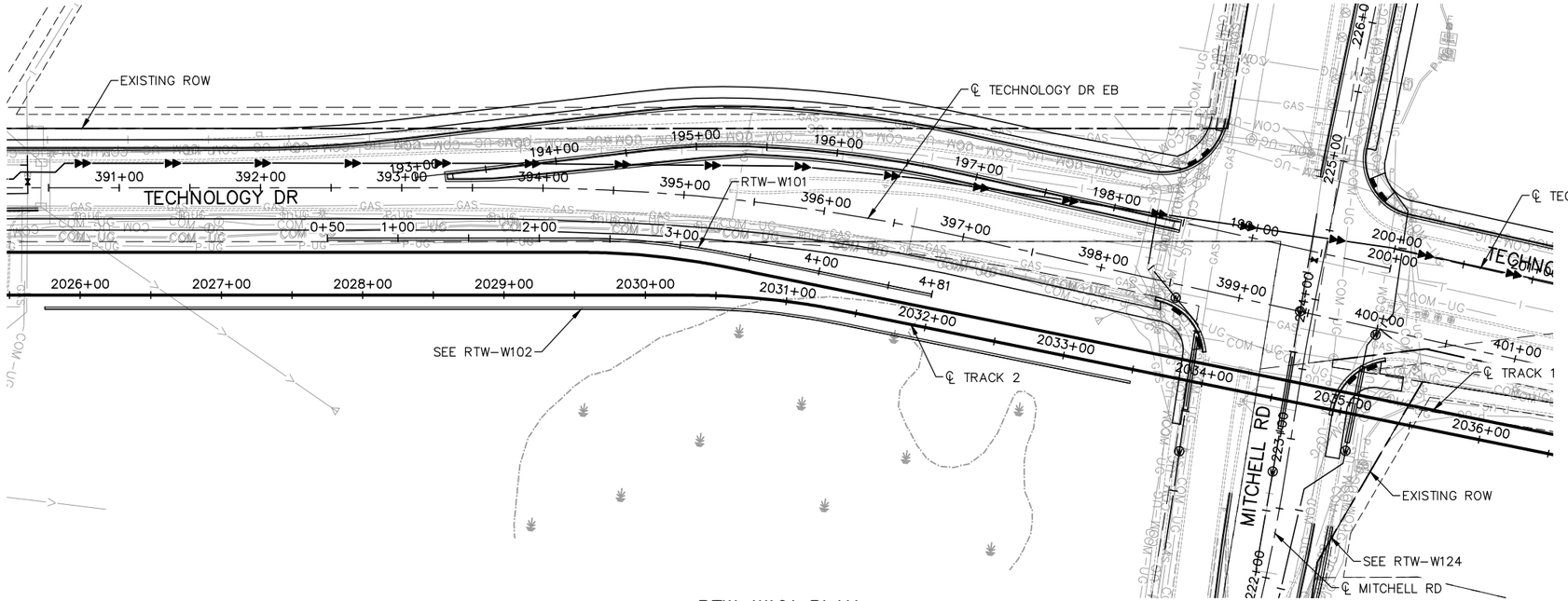
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1A
RETAINING WALLS
SHEET INDEX

DISCIPLINE: STRUCTURES

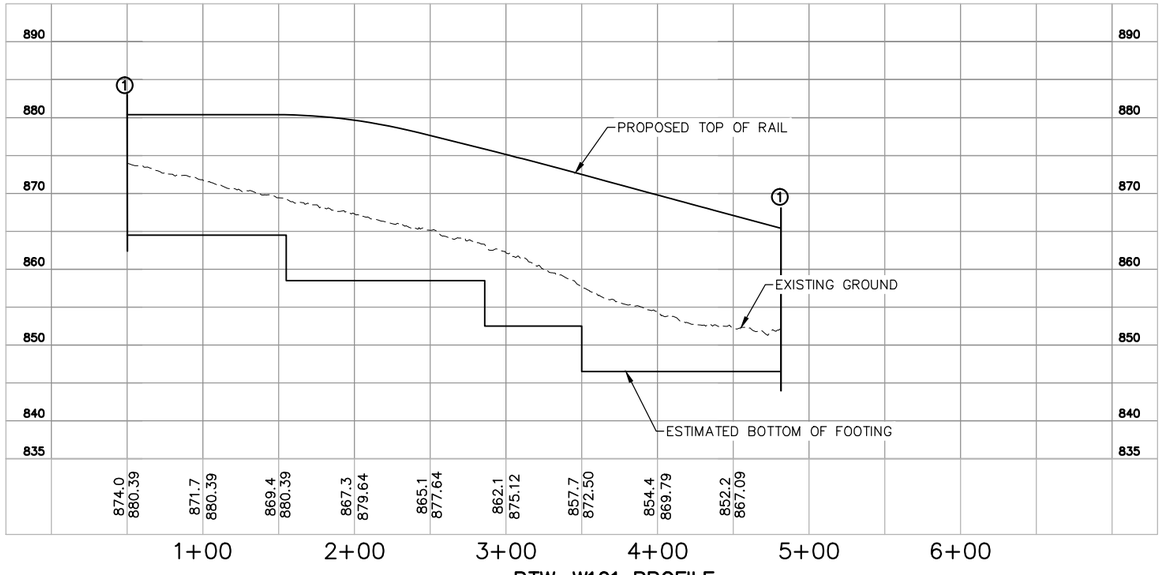
SHEET NAME: W1A-STU-RTW-IDX-001

SHEET 158 OF 204

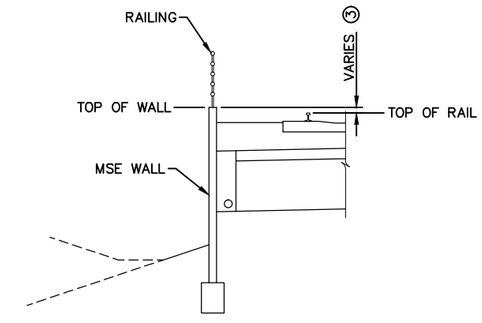
Aug. 28 2014 08:37 am v:\3200_pec-w\CAD\segment-w1a\SHEET\structures\W1A-STU-RTW-IDX.dwg By: mnutzmann



RTW–W101 PLAN



RTW–W101 PROFILE



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW–W101 TYPICAL SECTION

NOTE:
RTW–W101 IS ANTICIPATED TO BE A MSE RETAINING WALL.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

N

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

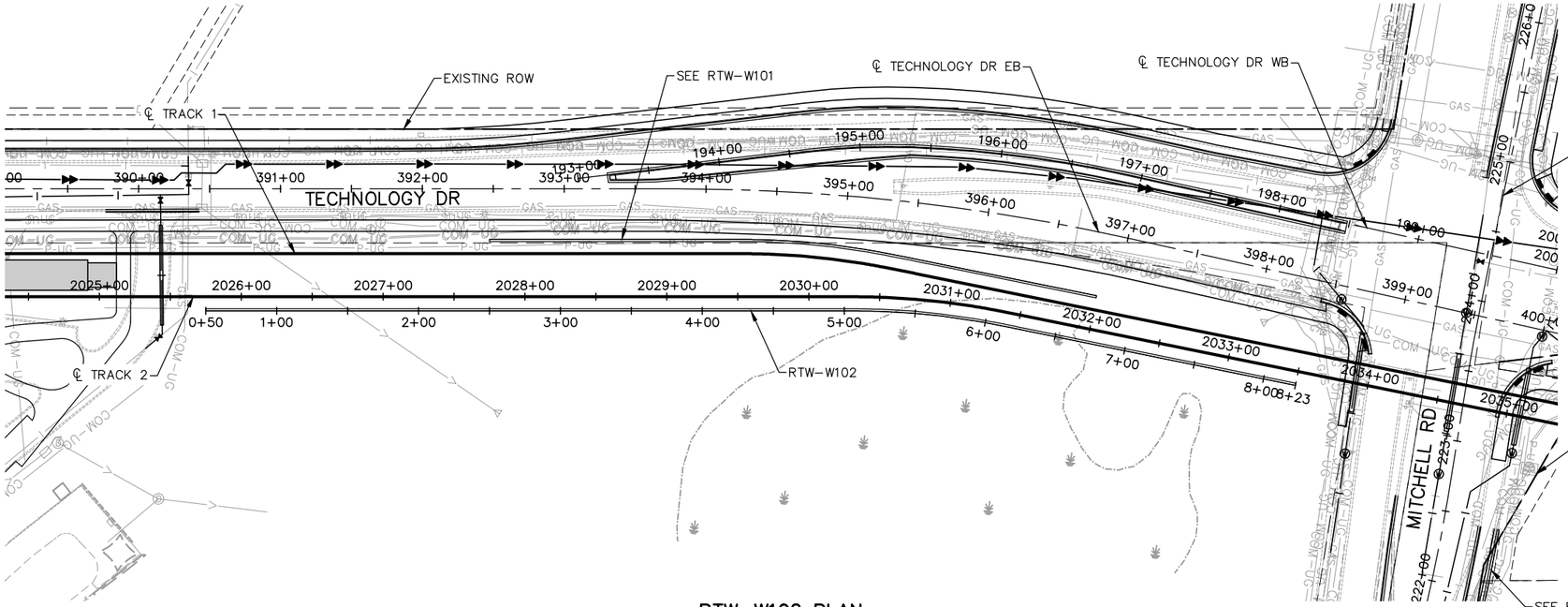
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1A
RTW-W101
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

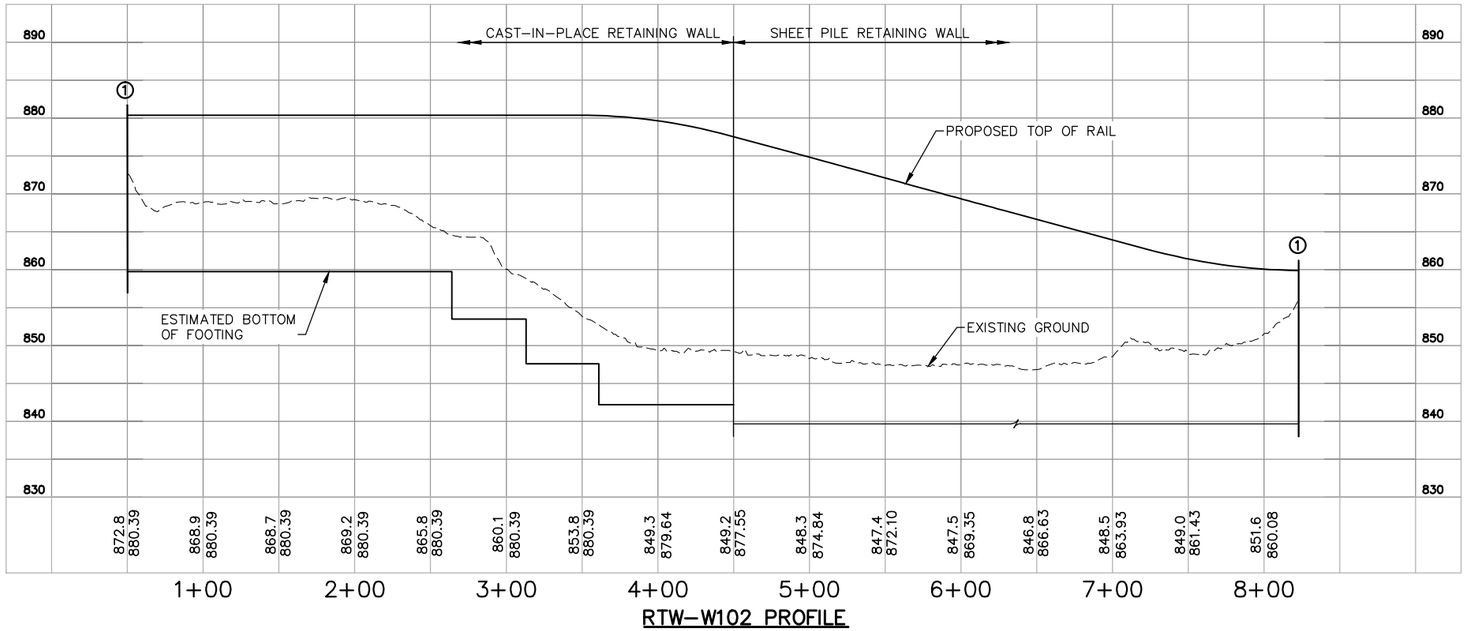
SHEET NAME: W1A-STU-RTW-PPFL-001

SHEET 159 OF 204

Aug. 28 2014 08:37 am V:\3200_pec-w\CAD\SEGMENT-W1A\SHEET\STRUCTURES\W1A-STU-RETW.dwg By: mnutzmann



RTW–W102 PLAN

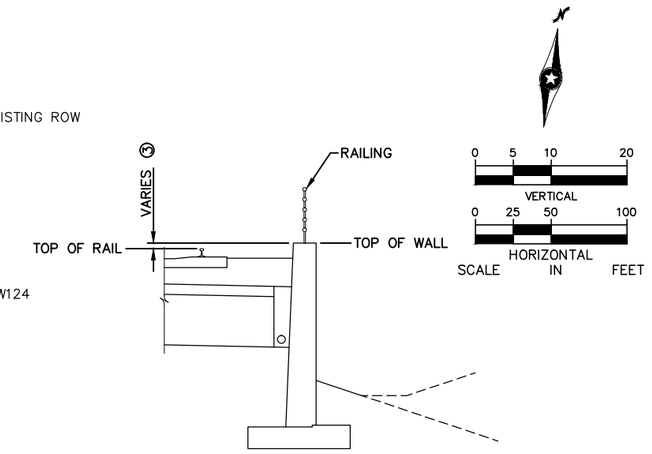


RTW–W102 PROFILE

NOTE:
RTW–W102 IS ANTICIPATED TO BE A CAST–IN–PLACE RETAINING WALL ON SPREAD FOOTINGS FROM STA. 0+50 TO STA. 4+50.

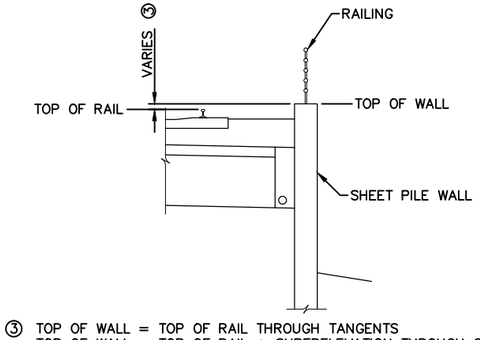
THE REMAINDER OF RTW–W102 IS ANTICIPATED TO BE A SHEET PILE RETAINING WALL.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW–W102 TYPICAL SECTION
STA. 0+50 TO STA. 4+50



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW–W102 TYPICAL SECTION
STA. 4+50 TO STA. 8+23

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

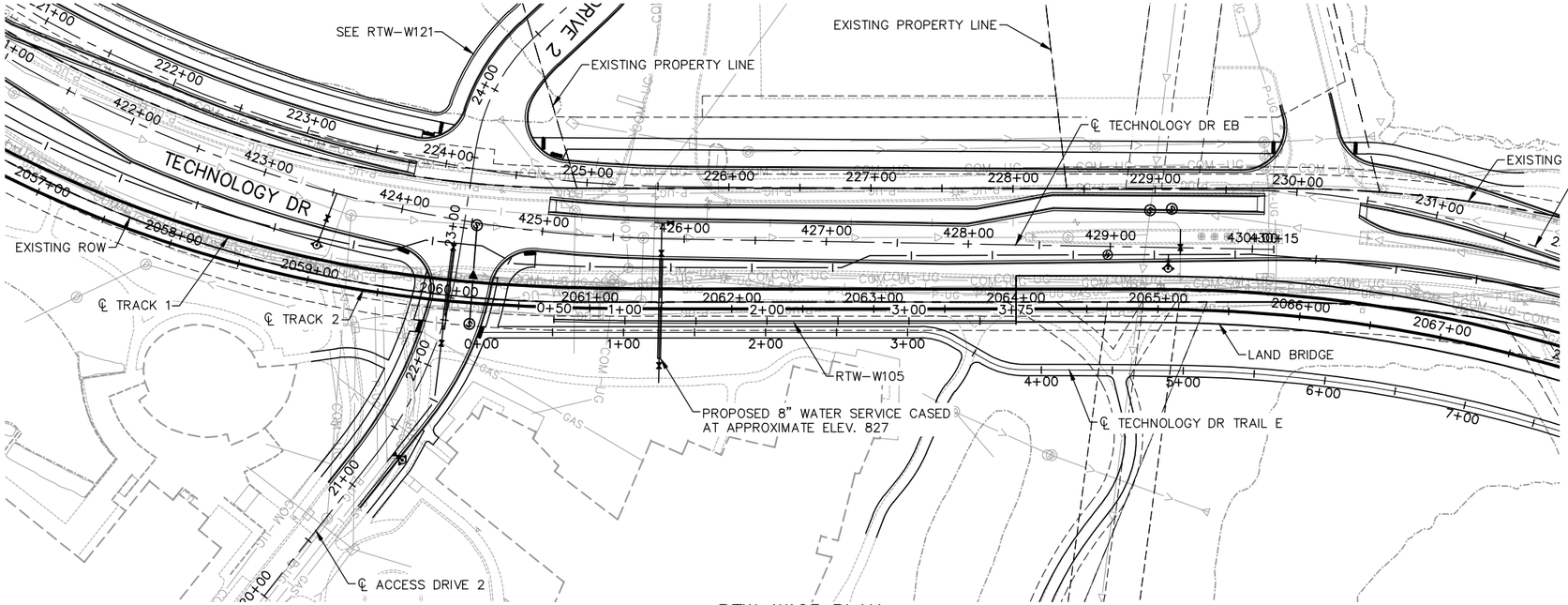
SOUTHWEST Green Line LRT Extension

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1A
RTW-W102
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W1A-STU-RTW-PPFL-002

SHEET 160 OF 204

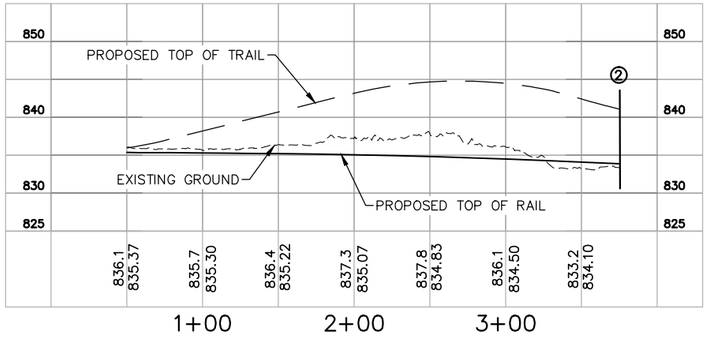


RTW-W105 PLAN

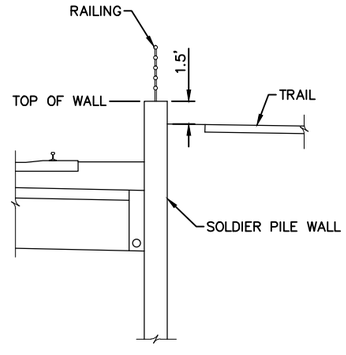
NOTE:
RTW-W105 IS ANTICIPATED TO BE A SOLDIER PILE WALL TO PRESERVE THE ADJACENT PROPERTY.

② JOINT LOCATION BETWEEN RETAINING WALL AND LAND BRIDGE.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW-W105 PROFILE



RTW-W105 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

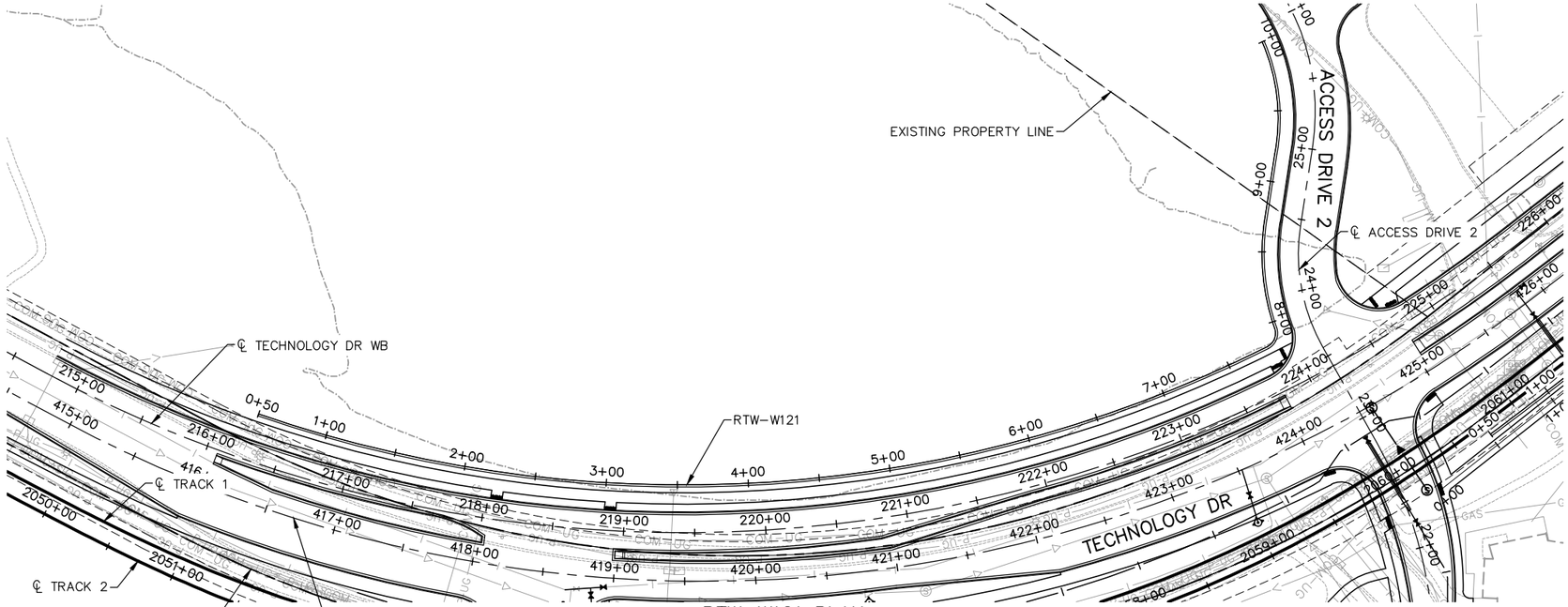
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1A
RTW-W105
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W1A-STU-RTW-PPFL-003

SHEET 161 OF 204

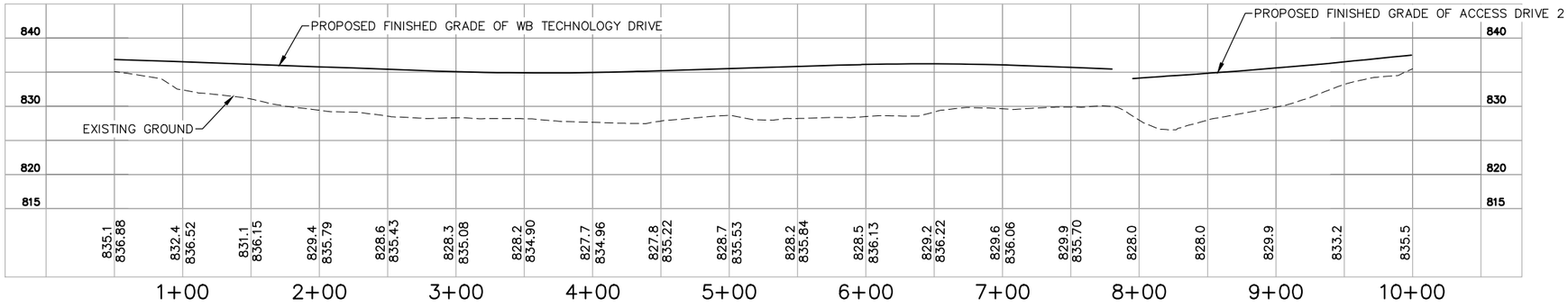
Aug. 28 2014 08:37 am V:\3200_pec-w\CAD\SEGMENT-W1A\SHEET\STRUCTURES\W1A-STU-RETW.dwg By: mnutzmann



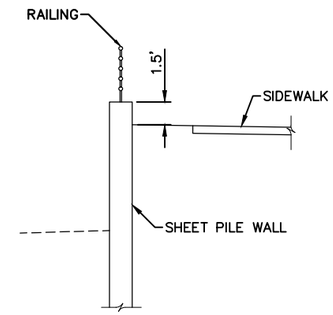
RTW–W121 PLAN

NOTE:
RTW–W121 IS ANTICIPATED TO BE A SHEET PILE RETAINING WALL.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW–W121 PROFILE



RTW–W121 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

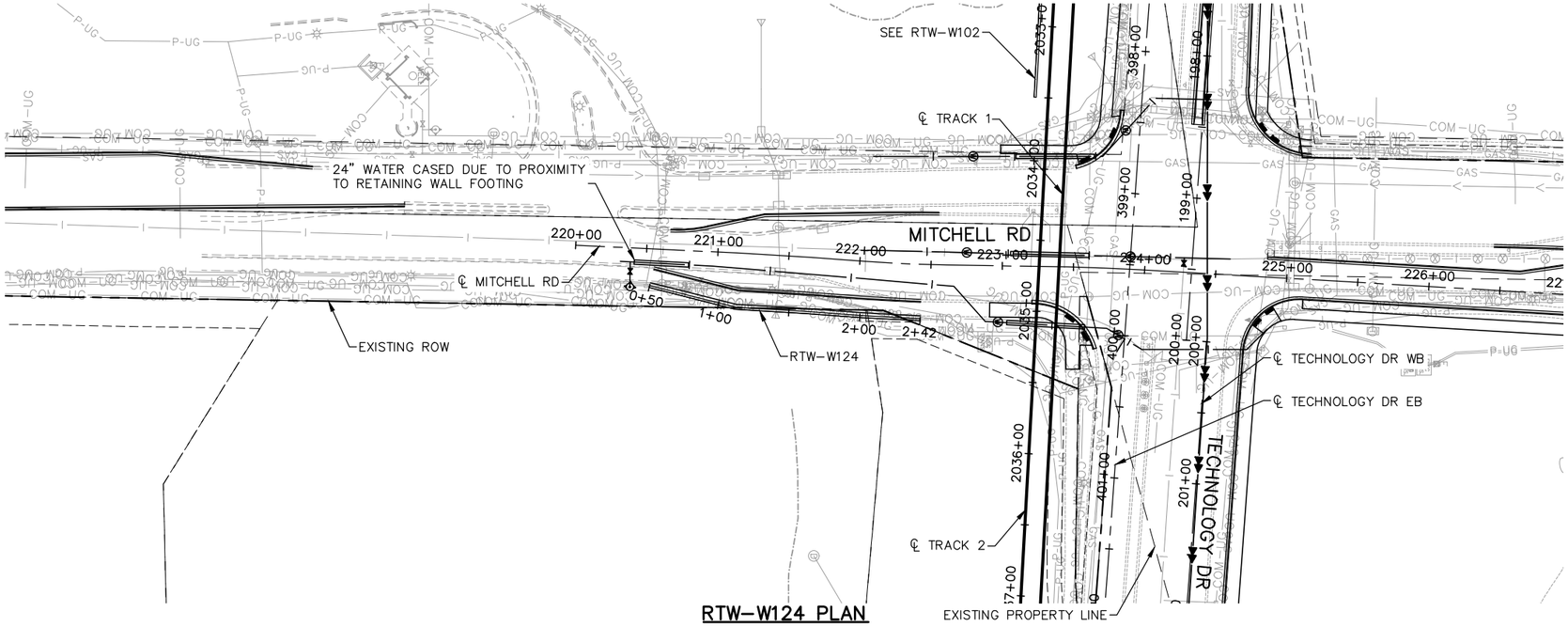
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1A
RTW-W121
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W1A-STU-RTW-PPFL-004

SHEET 162 OF 204

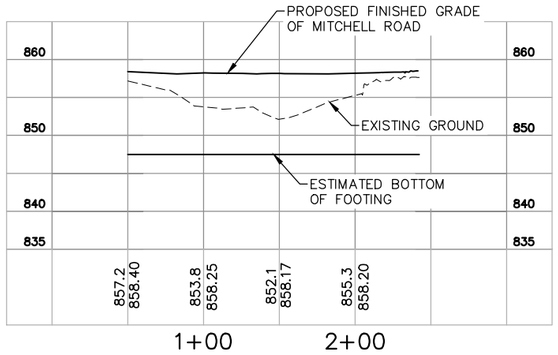
Aug, 28 2014 08:38 am V:\3200_pec-w\CAD\SEGMENT-W1A\SHEET\STRUCTURES\W1A-STU-RETW.dwg By: mnutzmann



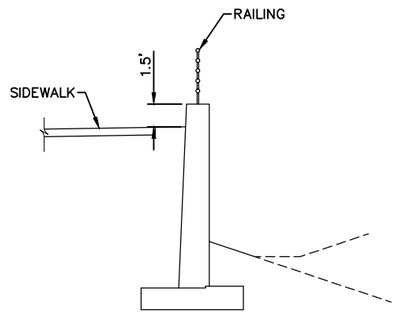
RTW-W124 PLAN

NOTE:
RTW-W124 IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON SPREAD FOOTINGS.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW-W124 PROFILE



RTW-W124 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

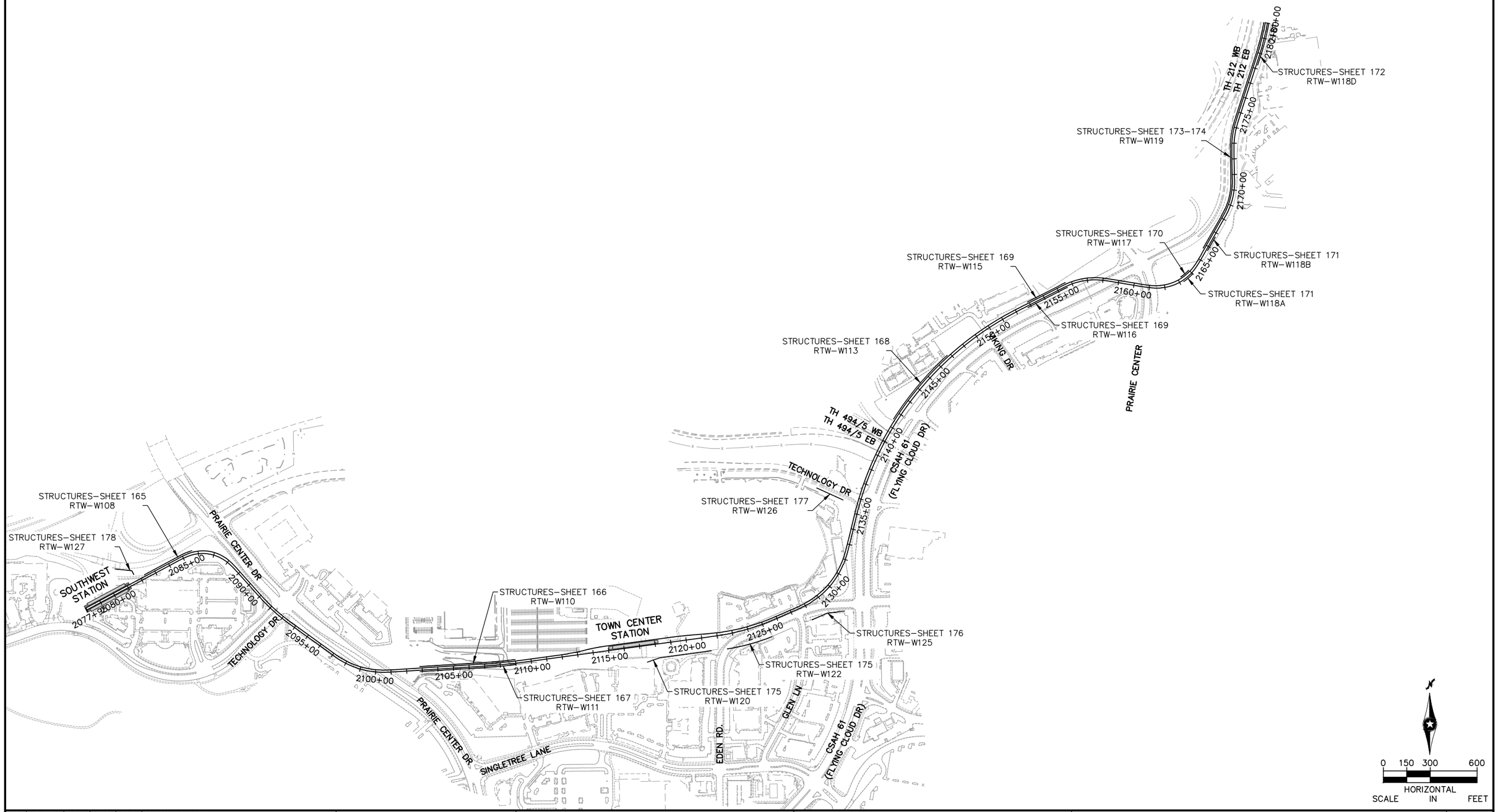
SOUTHWEST Green Line LRT Extension

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1A
RTW-W124
PLAN AND PROFILE

DISCIPLINE: STRUCTURES
SHEET NAME: W1A-STU-RTW-PPFL-005

SHEET 163 OF 204

Aug. 28 2014 08:38 am V:\3200_pec-w\CAD\SEGMENT-W1A\SHEET\STRUCTURES\W1A-STU-RETW.dwg By: mnutzmann



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

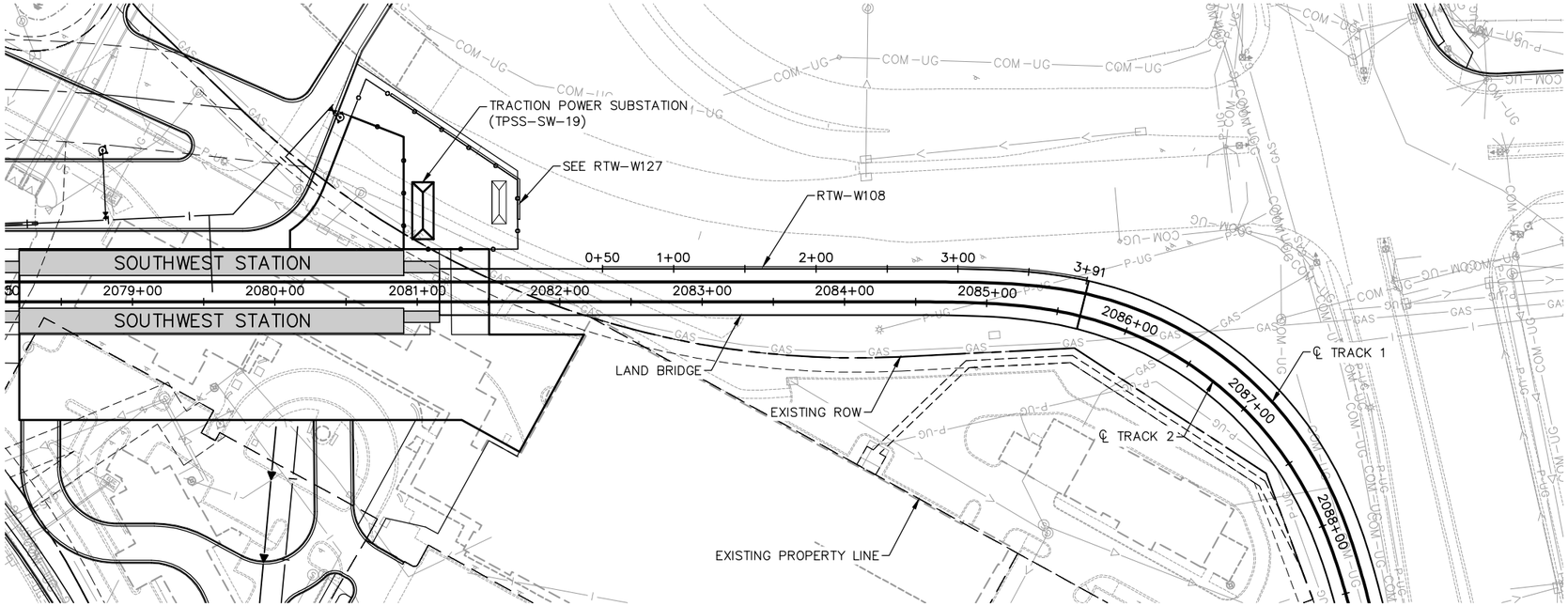
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1
RETAINING WALLS
SHEET INDEX

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-RTW-IDX-001

SHEET 164 OF 204

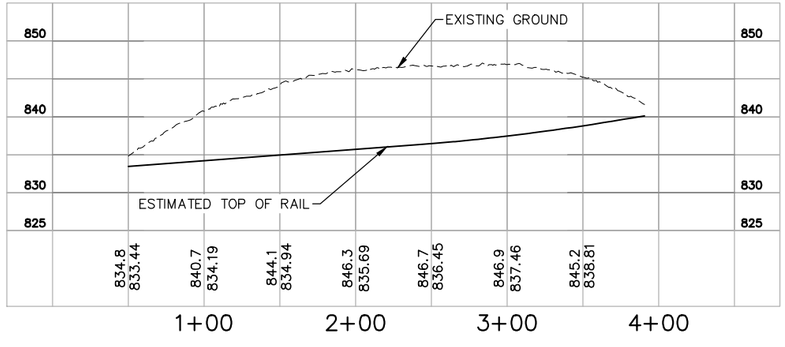
Aug. 28 2014 08:20 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-RTW-IDX.dwg By: mnutzmann



RTW-W108 PLAN

NOTE:
RTW-W108 IS ANTICIPATED TO BE A SOLDIER PILE RETAINING WALL DUE TO CLOSE PROXIMITY TO TH 212 OFF RAMP.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW-W108 PROFILE

RTW-W108 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

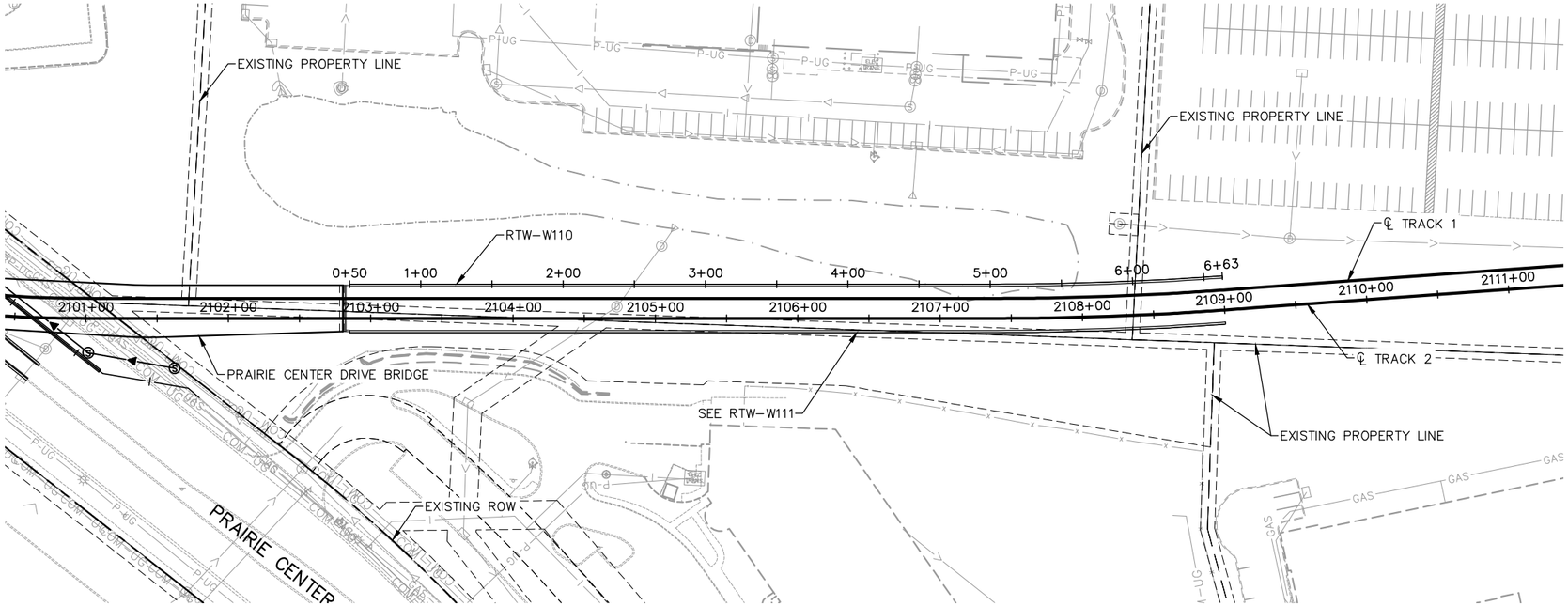
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1
RTW-W108
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

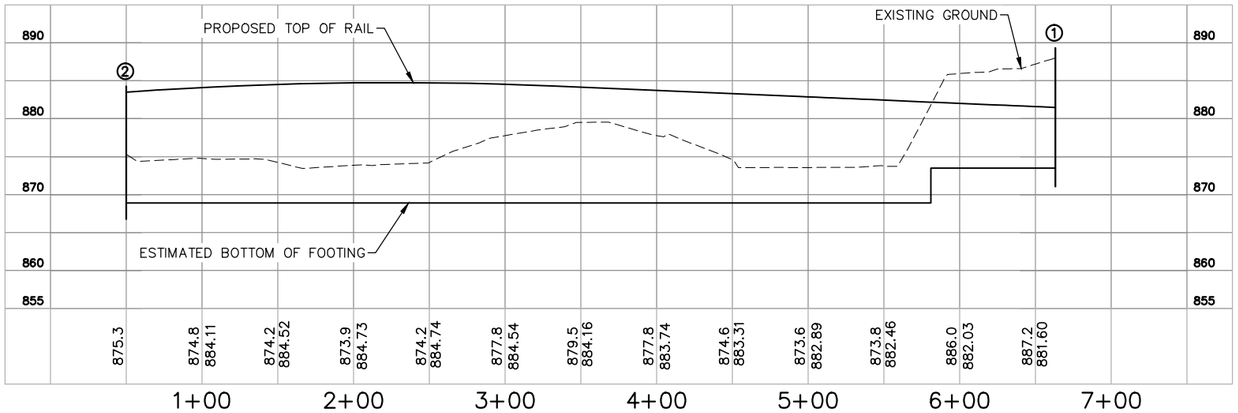
SHEET NAME: W1-STU-RTW-PPFL-001

SHEET 165 OF 204

Aug. 28 2014 08:20 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-RETW.dwg By: mnutzmann



RTW–W110 PLAN

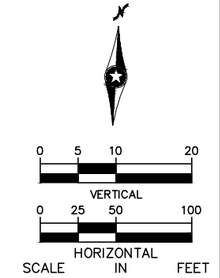


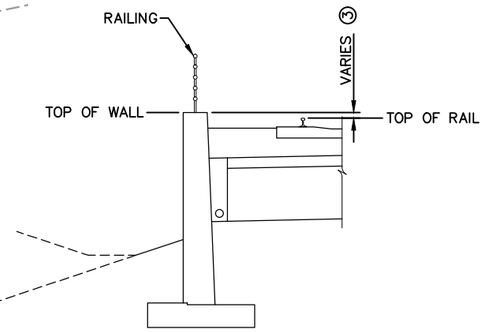
RTW–W110 PROFILE

NOTE:
RTW–W110 IS ANTICIPATED TO BE A CAST–IN–PLACE RETAINING WALL ON SPREAD FOOTINGS.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

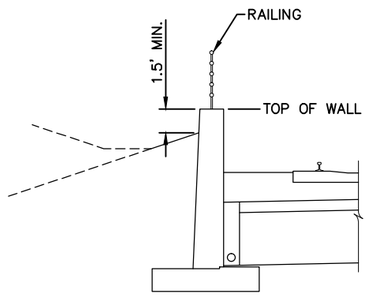
② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL.





③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW–W110 TYPICAL SECTION
STA. 0+50 TO STA. 5+82



RTW–W110 TYPICAL SECTION
STA. 5+82 TO STA. 6+63

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

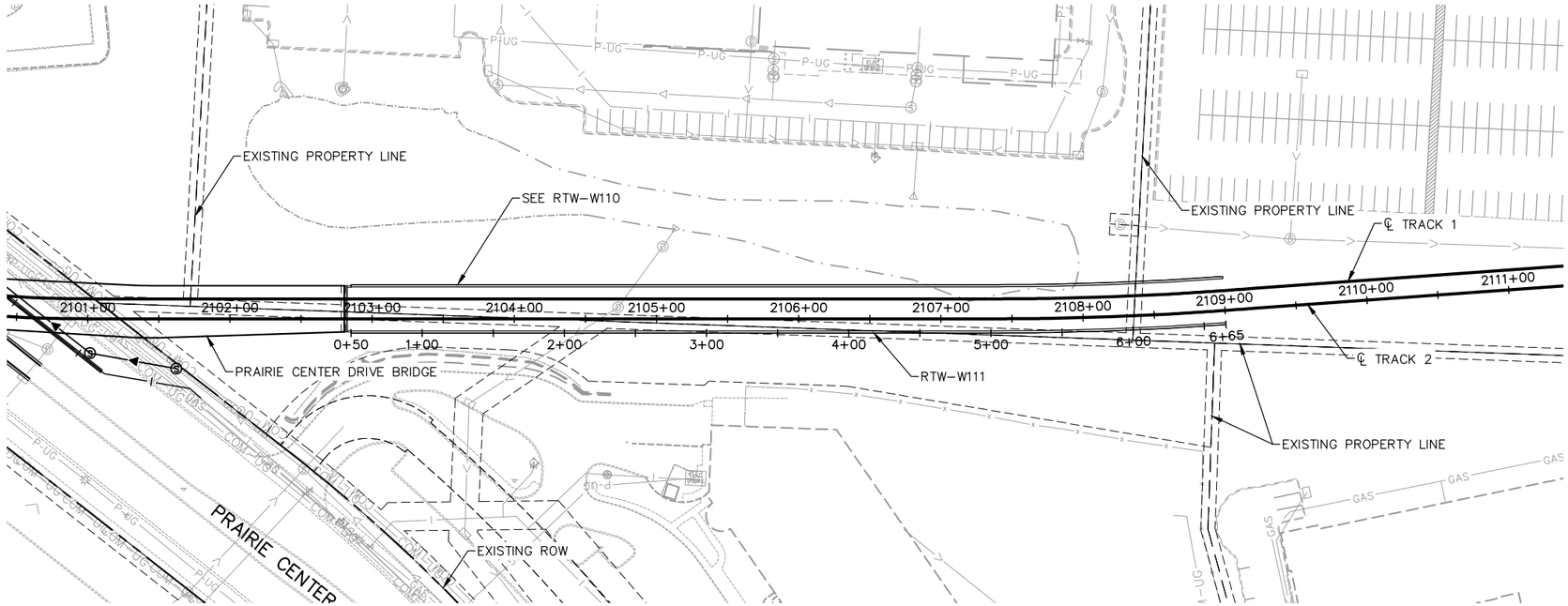
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1
RTW-W110
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

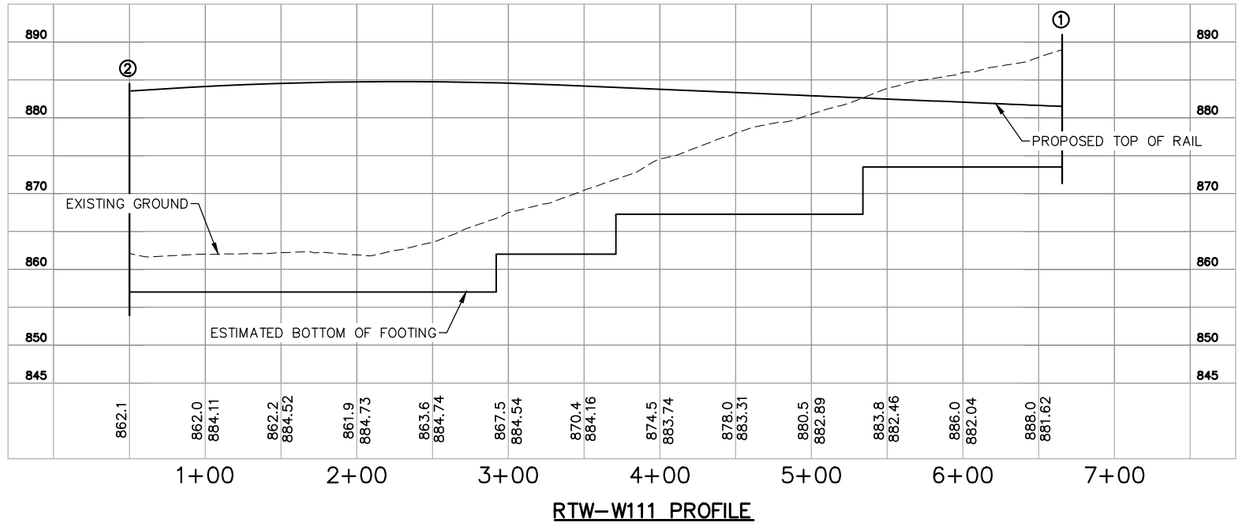
SHEET NAME: W1-STU-RTW-PPFL-002

SHEET 166 OF 204

Aug. 28 2014 08:20 am V:\3200_PEC–W\CAD\SEGMENT–W1\SHEET\STRUCTURES\W1–STU–RETW.dwg By: mnutzmann



RTW-W111 PLAN

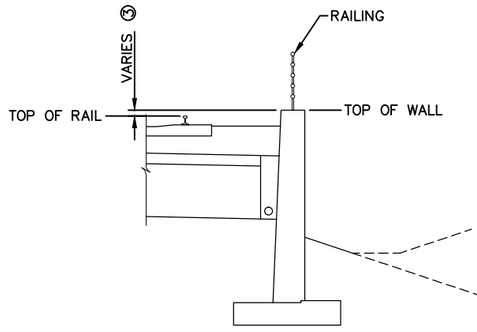


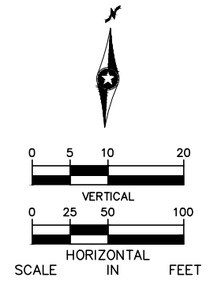
RTW-W111 PROFILE

NOTE:
RTW-W111 IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON SPREAD FOOTINGS.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

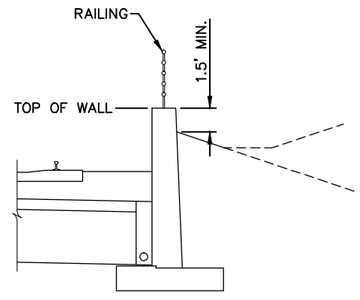
② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL.





③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW-W110 TYPICAL SECTION
STA. 0+50 TO STA. 5+34



RTW-W110 TYPICAL SECTION
STA. 5+34 TO STA. 6+65

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

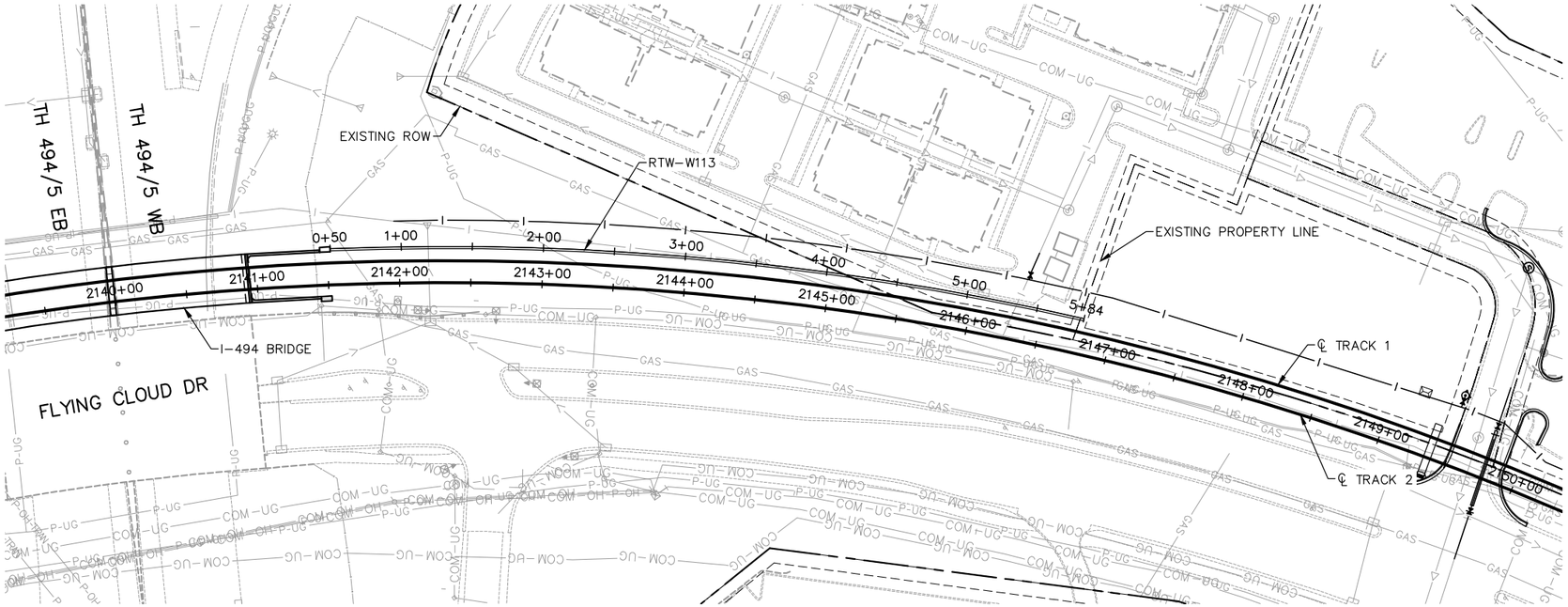
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1
RTW-W111
PLAN AND PROFILE

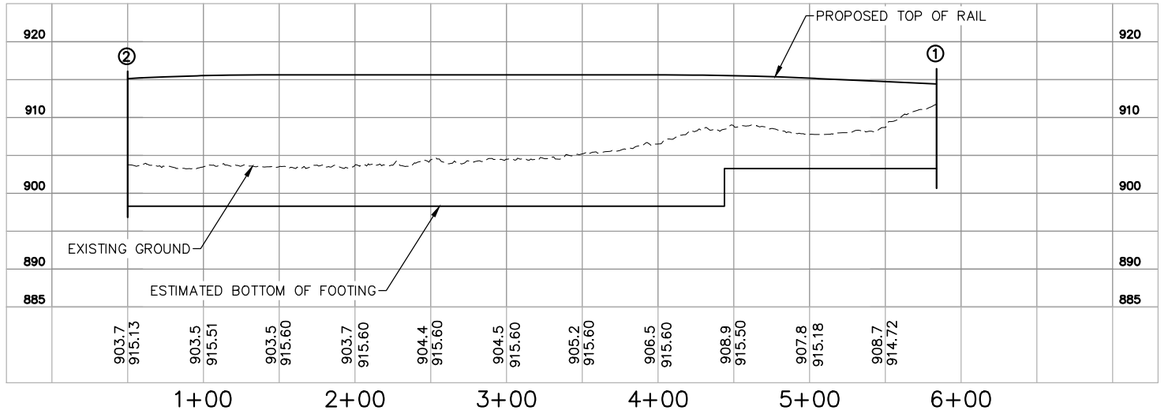
DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-RTW-PPFL-003

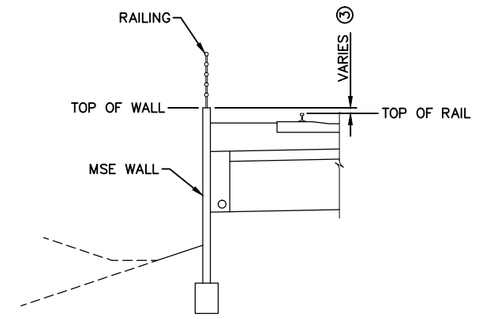
SHEET 167 OF 204



RTW-W113 PLAN



RTW-W113 PROFILE



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW-W113 TYPICAL SECTION

NOTE:
RTW-W113 IS ANTICIPATED TO BE A MSE RETAINING WALL.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

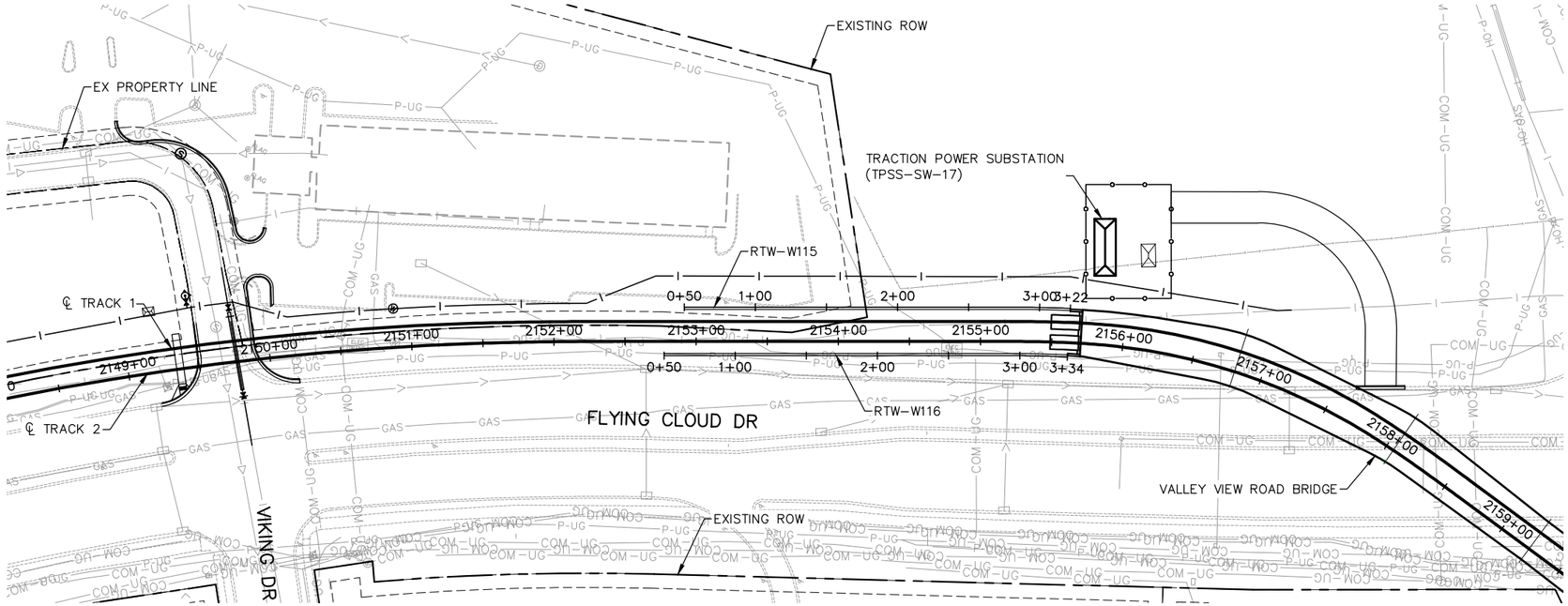
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1
RTW-W113
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

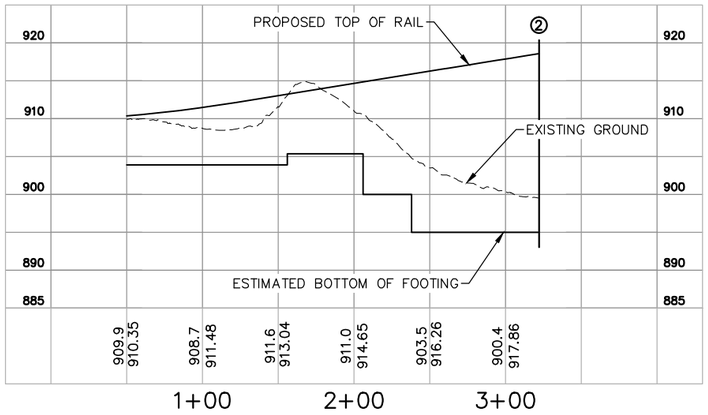
SHEET NAME: W1-STU-RTW-PPFL-004

SHEET 168 OF 204

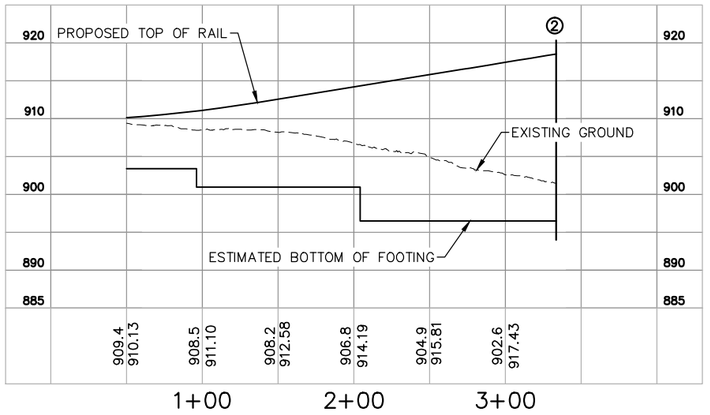
Aug, 28 2014 08:21 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-RETW.dwg By: mnutzmann



RTW-W115 & RTW-W116 PLAN



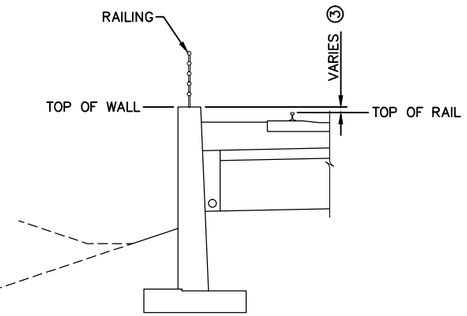
RTW-W115 PROFILE



RTW-W116 PROFILE

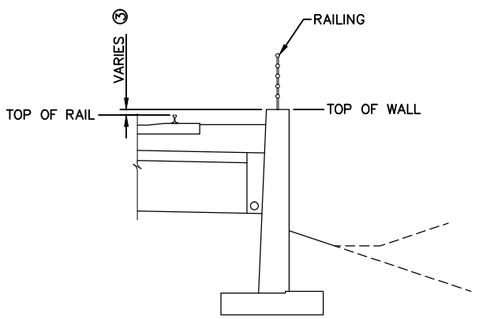
NOTE:
RTW-W115 AND RTW-W116 ARE ANTICIPATED TO BE CAST-IN-PLACE RETAINING WALLS ON SPREAD FOOTINGS.

② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL.



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW-W115 TYPICAL SECTION



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW-W116 TYPICAL SECTION

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

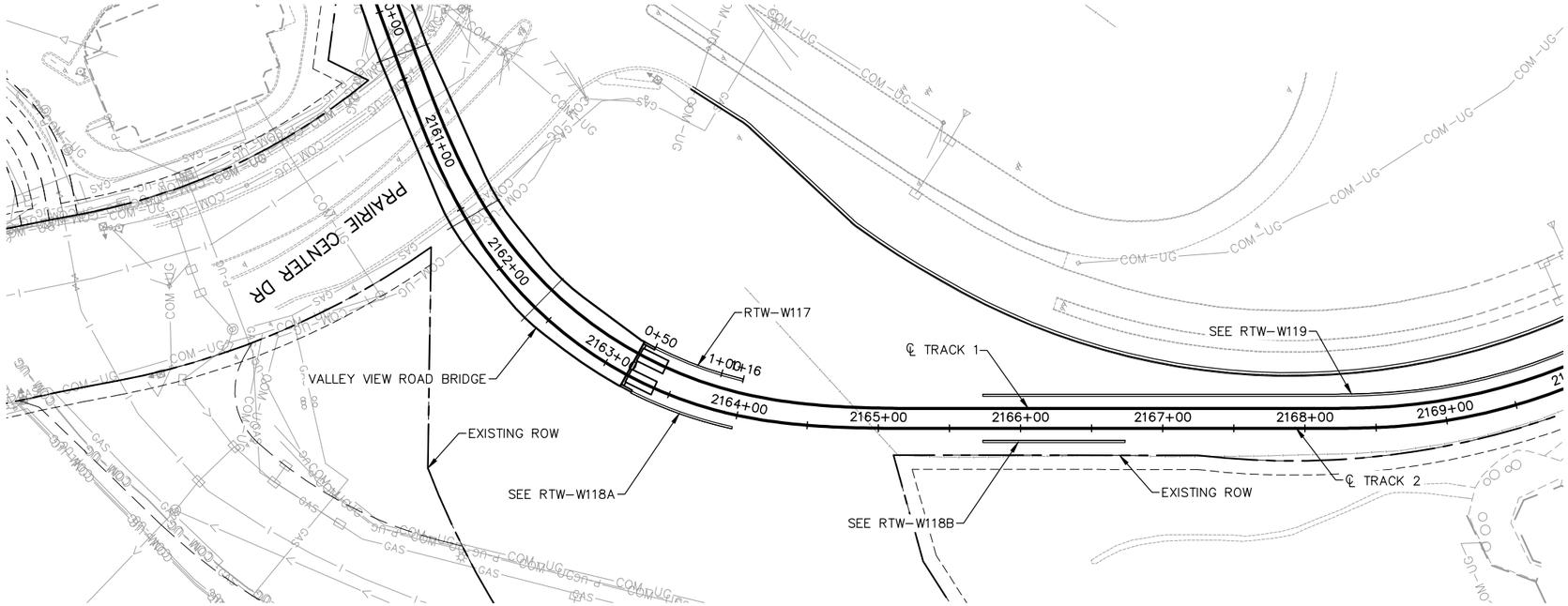
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1
RTW-W115 & RTW-W116
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-RTW-PPFL-005

SHEET 169 OF 204

Aug. 28 2014 08:21 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-RETW.dwg By: mnutzmann



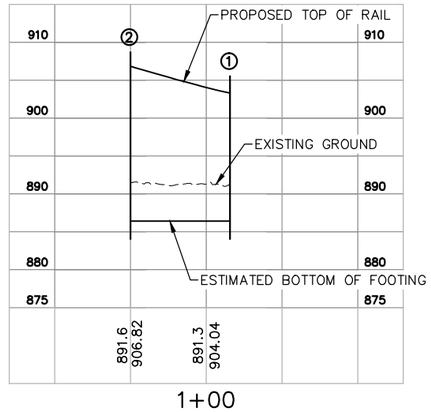
RTW-W117 PLAN

NOTE:
RTW-W117 IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON SPREAD FOOTINGS.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

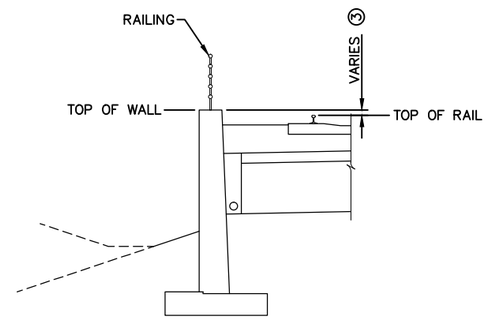
② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



1+00

RTW-W117 PROFILE



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW-W117 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

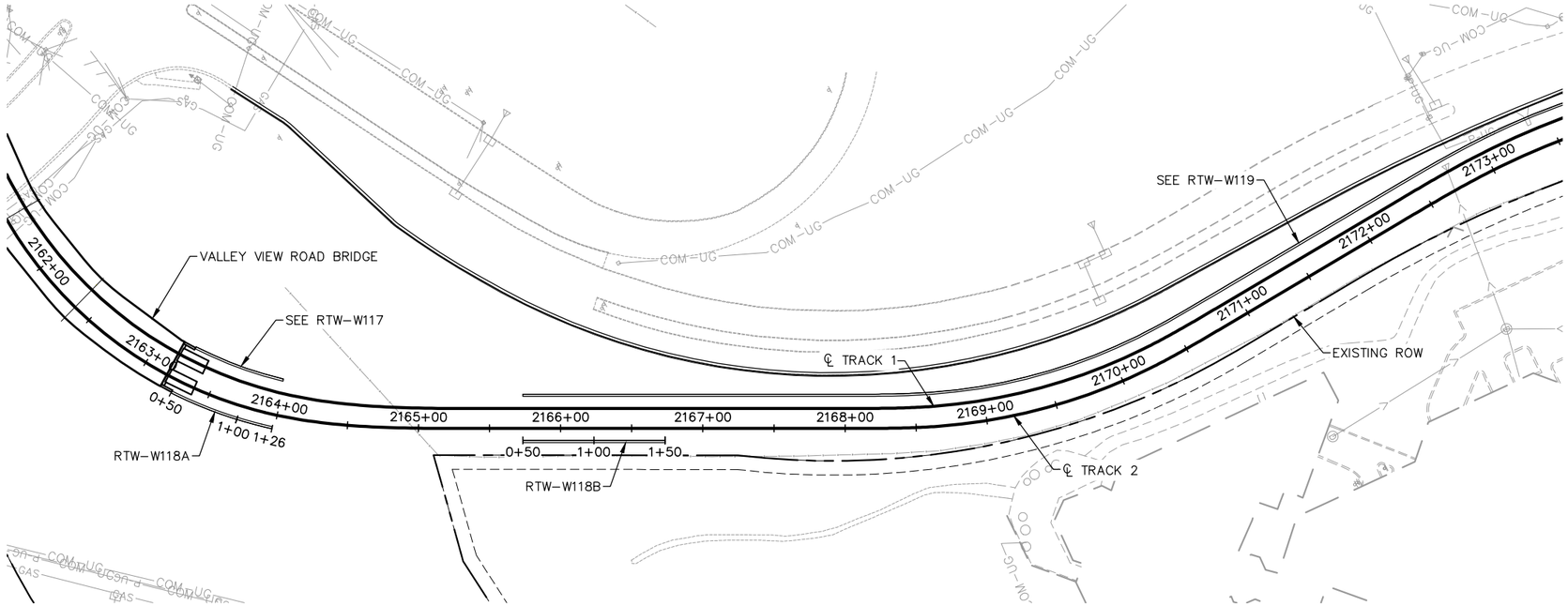
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1
RTW-W117
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-RTW-PPFL-006

SHEET 170 OF 204

Aug. 28 2014 08:21 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-RETW.dwg By: mnutzmann



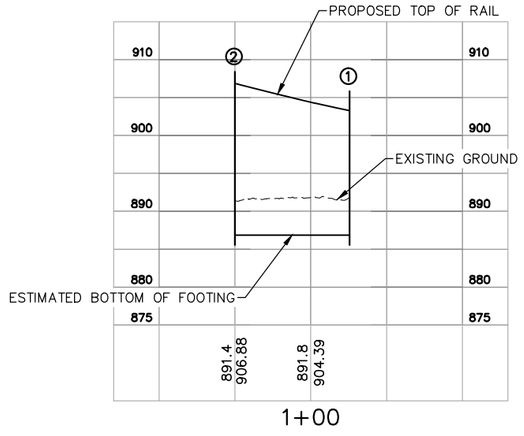
RTW-W118A & RTW-W118B PLAN

NOTE:
RTW-W118A AND RTW-W118B ARE ANTICIPATED TO BE CAST-IN-PLACE RETAINING WALLS ON SPREAD FOOTINGS.

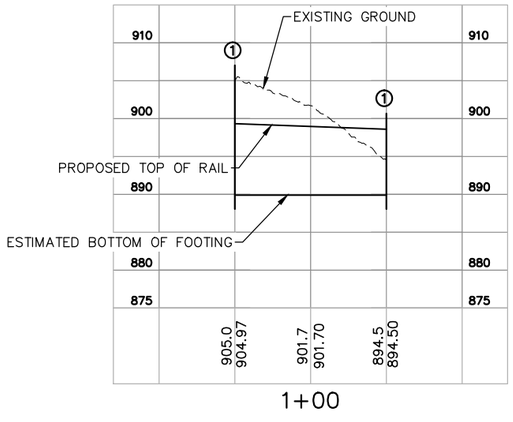
① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL.

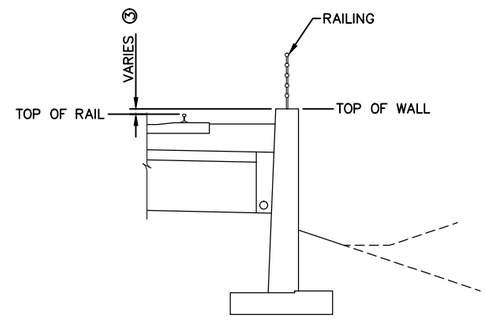
0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW-W118A PROFILE



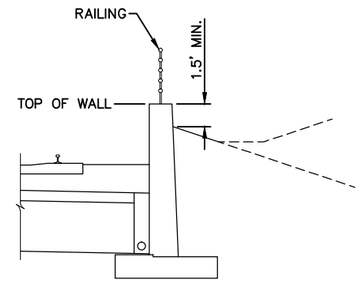
RTW-W118B PROFILE



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW-W118A TYPICAL SECTION

RTW-W118B TYPICAL SECTION
STA. 0+50 TO STA. 1+20



RTW-W118B TYPICAL SECTION
STA. 0+50 TO STA. 1+20

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

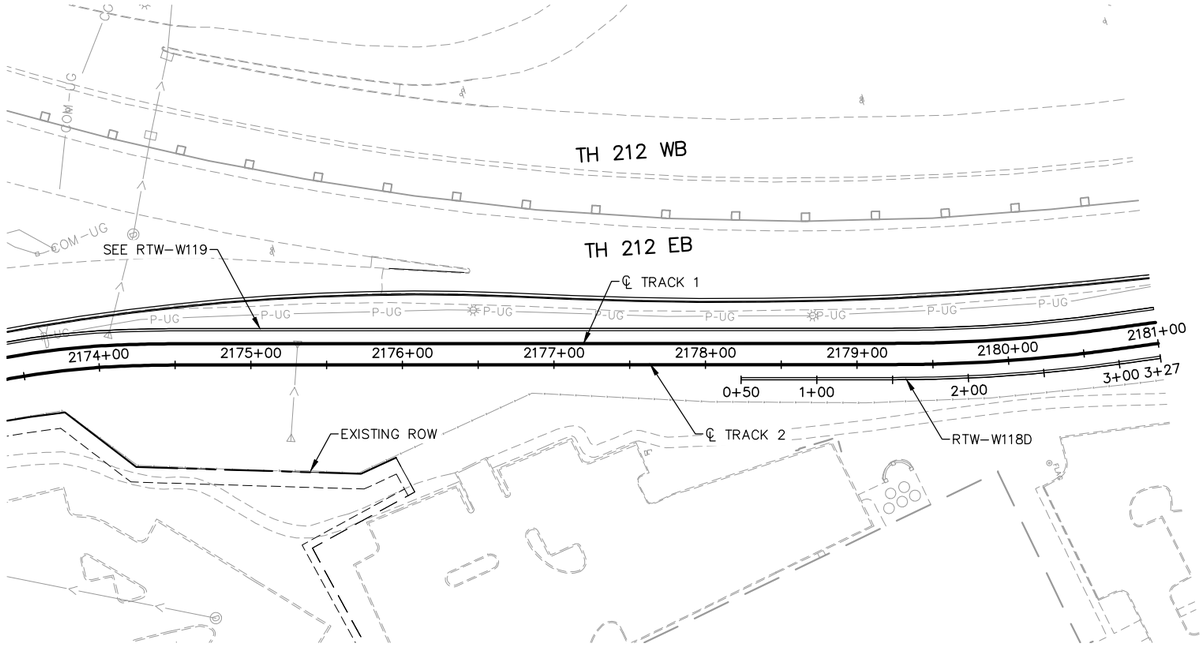
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1
RTW-W118A & RTW-W118B
PLAN AND PROFILE

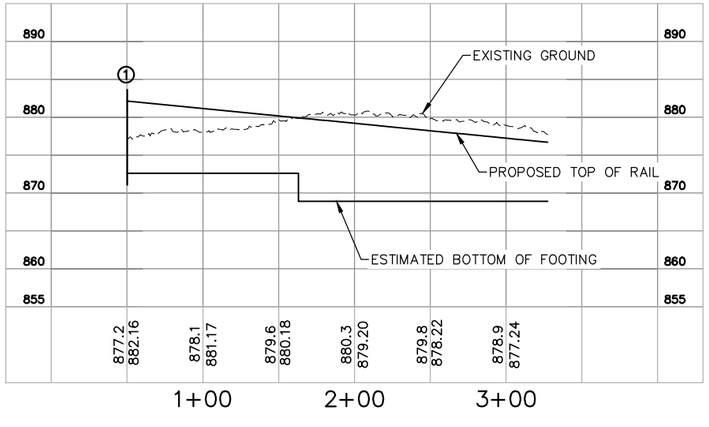
DISCIPLINE: STRUCTURES
SHEET NAME: W1-STU-RTW-PPFL-007

SHEET 171 OF 204

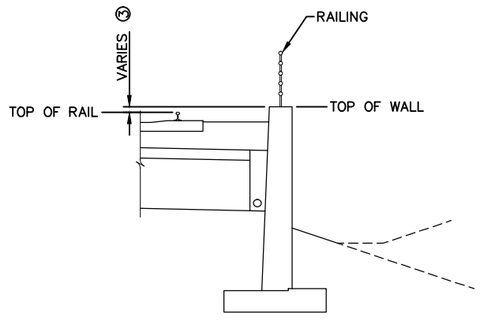
Aug. 28 2014 08:21 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-RETW.dwg By: mnutzmann



RTW-W118D PLAN

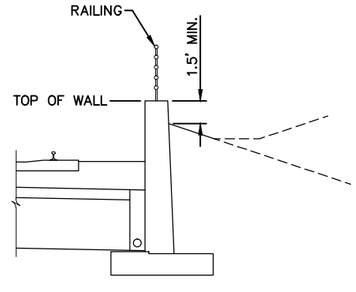


RTW-W118D PROFILE



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW-W118D TYPICAL SECTION
STA. 0+50 TO STA. 1+63



RTW-W118D TYPICAL SECTION
STA. 1+63 TO STA. 3+27

NOTE:
RTW-W118D IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON SPREAD FOOTINGS.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

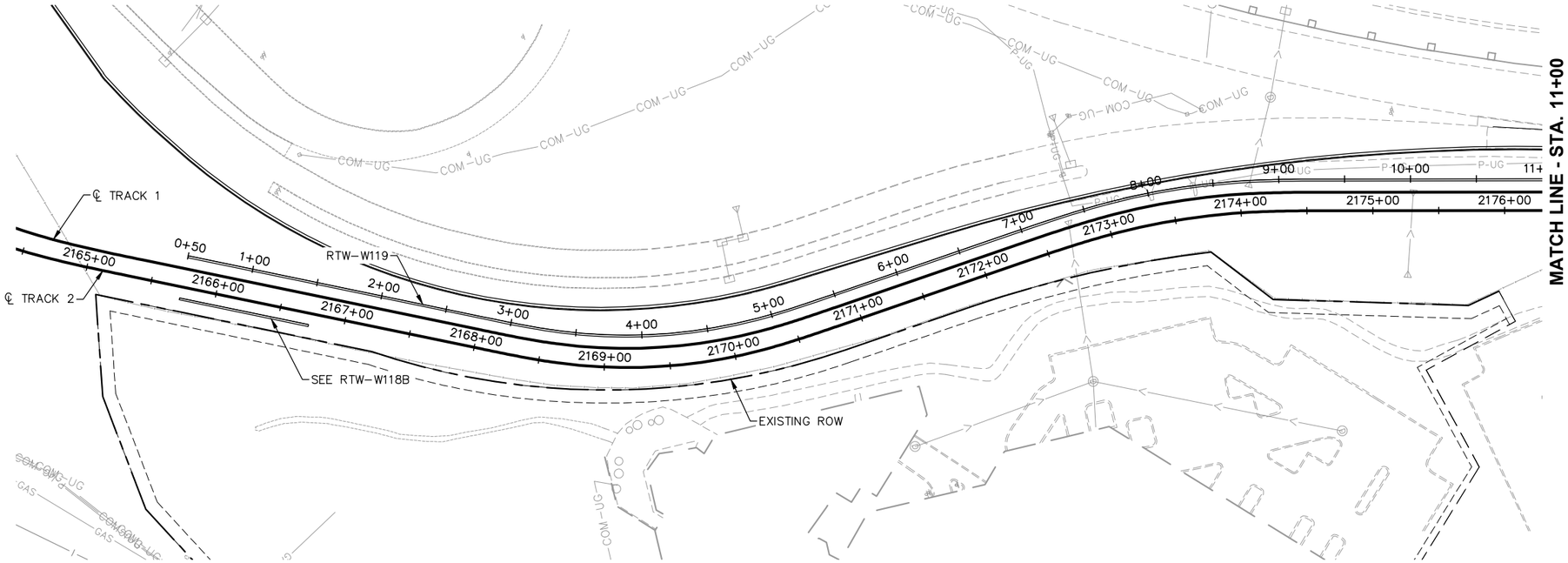
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1
RTW-W118D
PLAN AND PROFILE

DISCIPLINE: STRUCTURES
SHEET NAME: W1-STU-RTW-PPFL-008

SHEET 172 OF 204

Aug, 28 2014 08:21 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-RETW.dwg By: mnutzmann

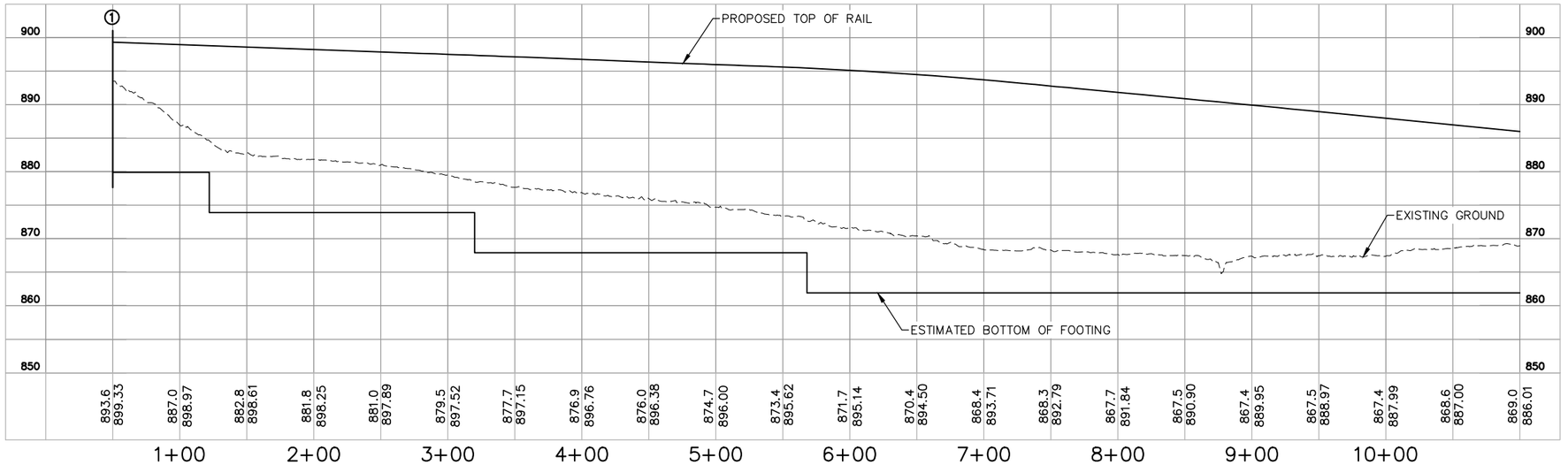


RTW–W119 PLAN

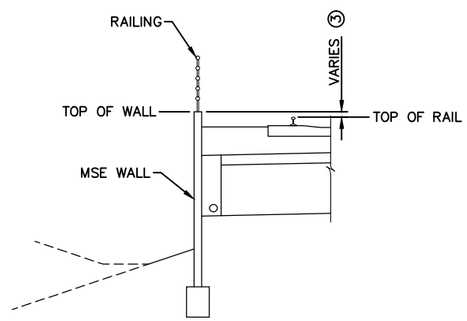
NOTE:
RTW–W119 IS ANTICIPATED TO BE A MSE RETAINING WALL.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW–W119 PROFILE



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW–W119 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

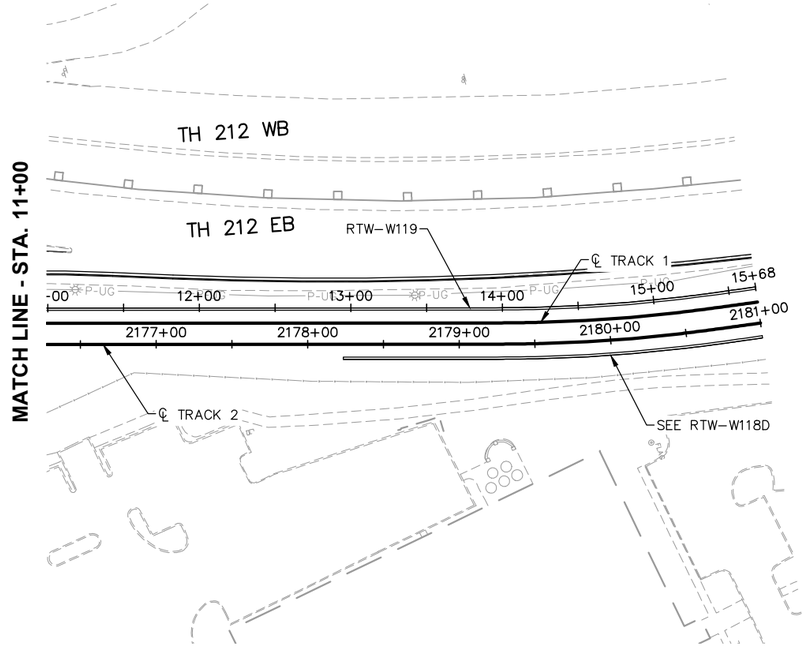
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1 - RTW-W119
PLAN AND PROFILE
STA. 0+50 TO STA. 11+00

DISCIPLINE: STRUCTURES

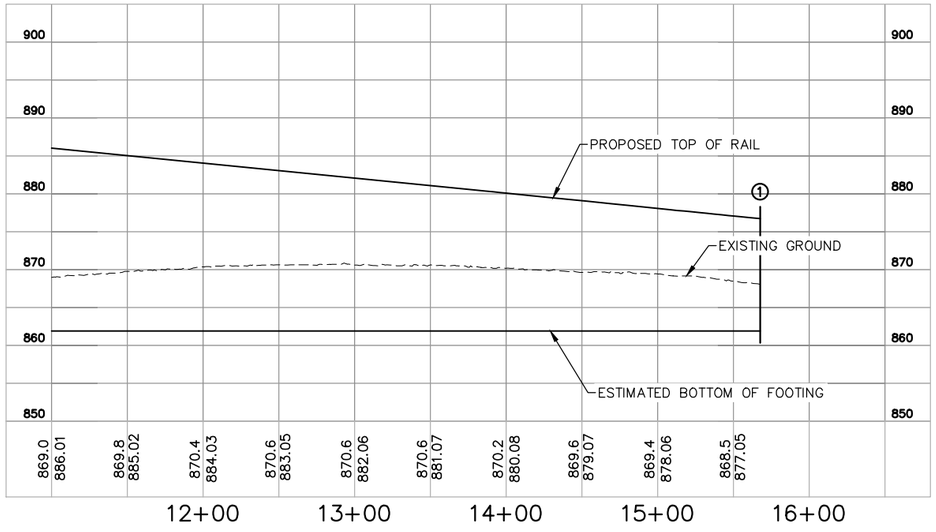
SHEET NAME: W1-STU-RTW-PPFL-009

SHEET 173 OF 204

Aug. 28 2014 08:22 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-RETW.dwg By: mnutzmann



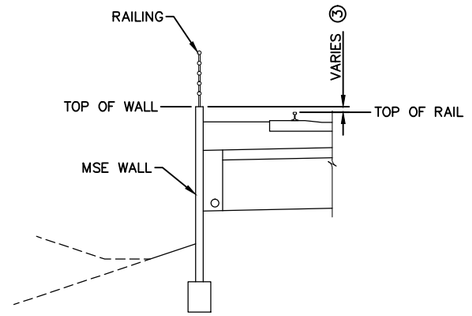
RTW-W119 PLAN



RTW-W119 PROFILE

NOTE:
RTW-W119 IS ANTICIPATED TO BE A MSE RETAINING WALL.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW-W119 TYPICAL SECTION

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

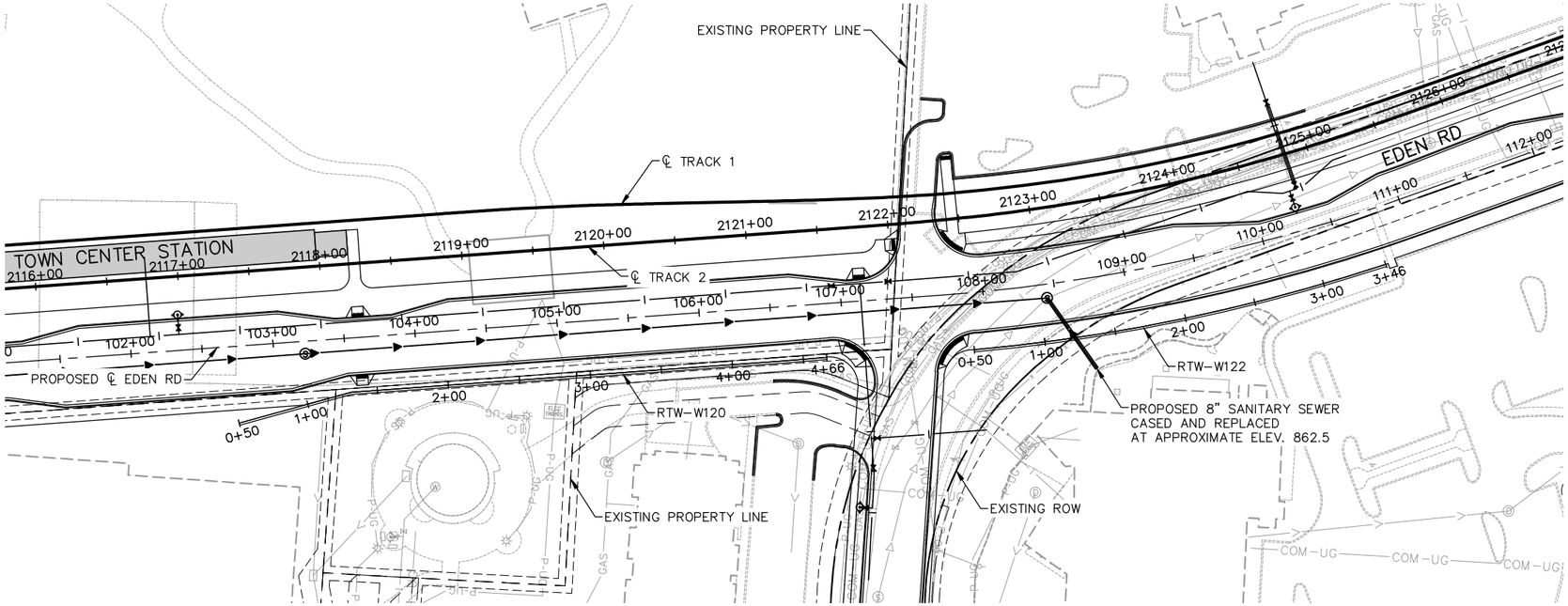
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1 - RTW-W119
PLAN AND PROFILE
STA. 11+00 TO STA. 15+68

DISCIPLINE: STRUCTURES
SHEET NAME: W1-STU-RTW-PPFL-010

SHEET 174 OF 204

Aug. 28 2014 08:22 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-RETW.dwg By: mnutzmann

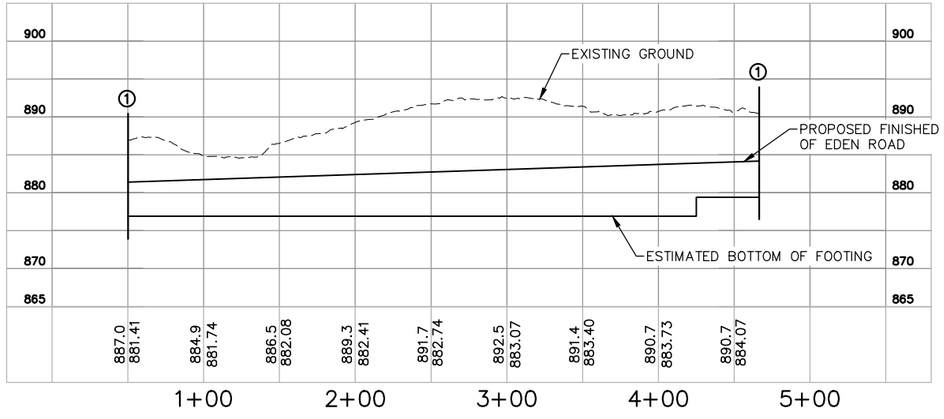


RTW–W120 & RTW–W122 PLAN

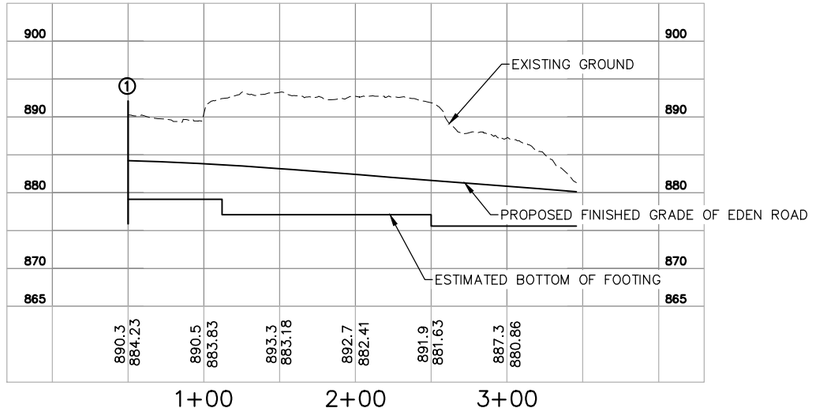
NOTE:
RTW–W120 AND RTW–W122 ARE ANTICIPATED TO BE CAST–IN–PLACE RETAINING WALLS ON SPREAD FOOTINGS.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

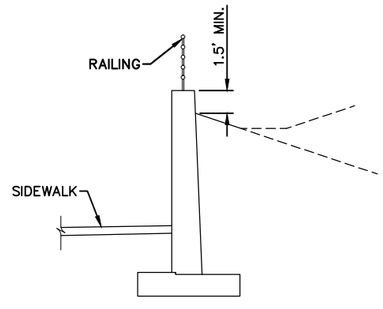
0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW–W120 PROFILE



RTW–W122 PROFILE



RTW–W120 & RTW–W122 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

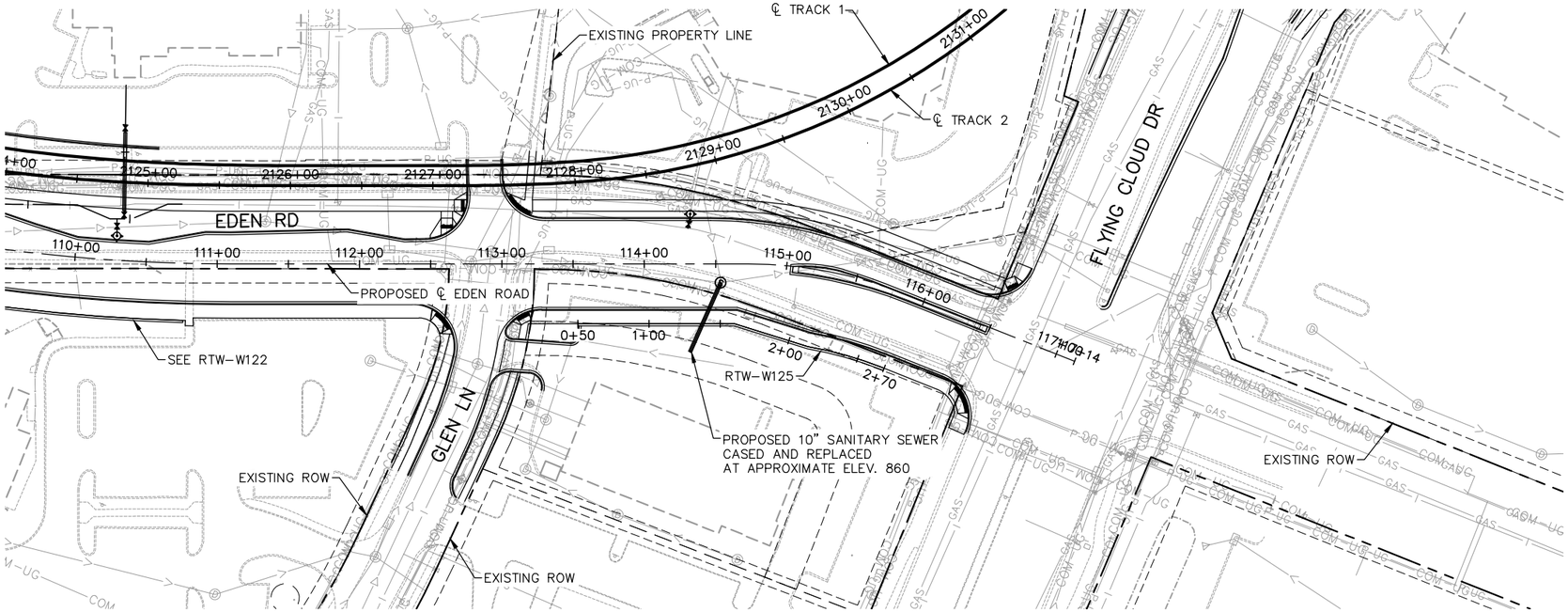
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1
RTW-W120 & RTW-W122
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

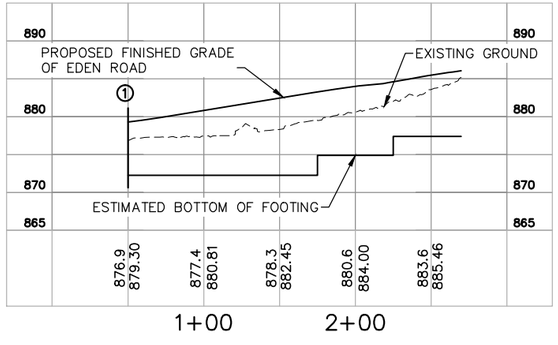
SHEET NAME: W1-STU-RTW-PPFL-011

SHEET 175 OF 204

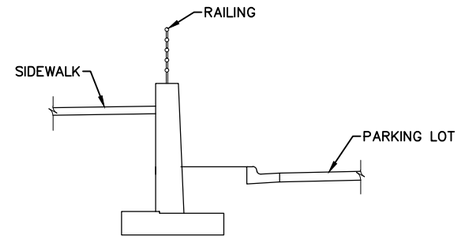
Aug. 28 2014 08:22 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-RETW.dwg By: mnutzmann



RTW-W125 PLAN



RTW-W125 PROFILE



RTW-W125 TYPICAL SECTION

NOTE:
RTW-W125 IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON SPREAD FOOTINGS.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

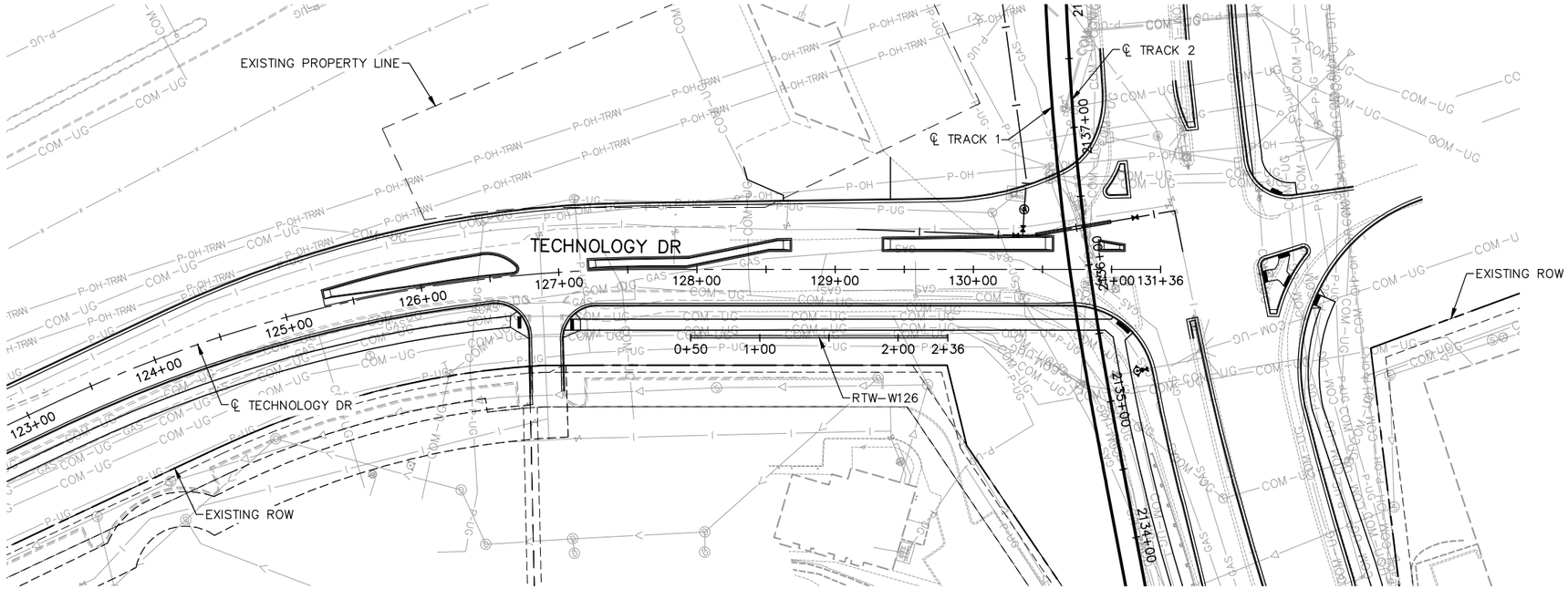
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1
RTW-W125
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

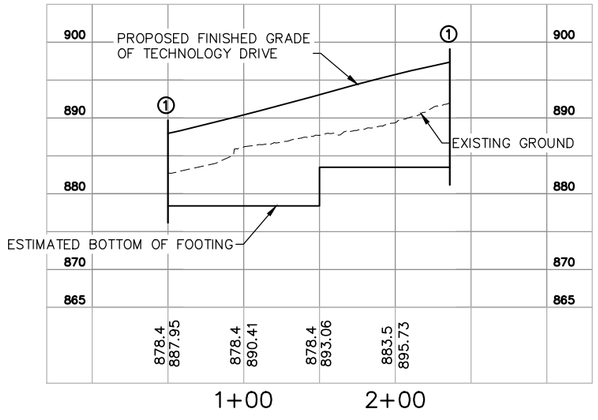
SHEET NAME: W1-STU-RTW-PPFL-012

SHEET 176 OF 204

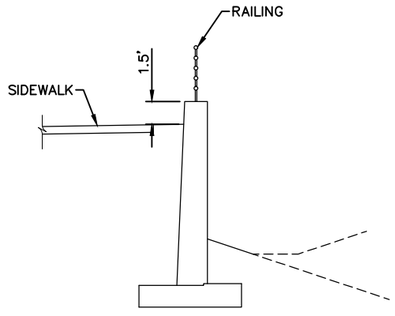
Aug. 28 2014 08:22 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-RETW.dwg By: mnutzmann



RTW–W126 PLAN



RTW–W126 PROFILE



RTW–W126 TYPICAL SECTION

NOTE:
RTW–W126 IS ANTICIPATED TO BE A CAST–IN–PLACE RETAINING WALL ON SPREAD FOOTINGS.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

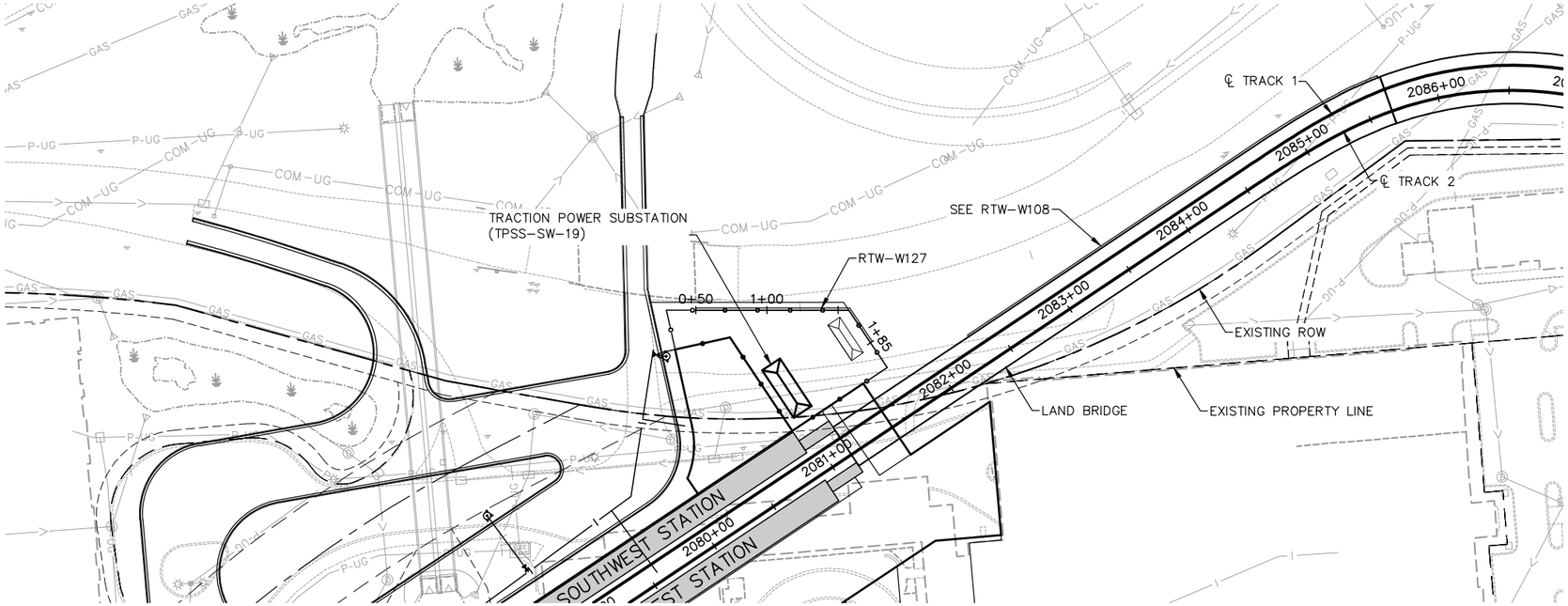
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1
RTW-W126
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-RTW-PPFL-013

SHEET 177 OF 204

Aug. 28 2014 08:22 am V:\3200_PEC–W\CAD\SEGMENT–W1\SHEET\STRUCTURES\W1–STU–RETW.dwg By: mnutzmann



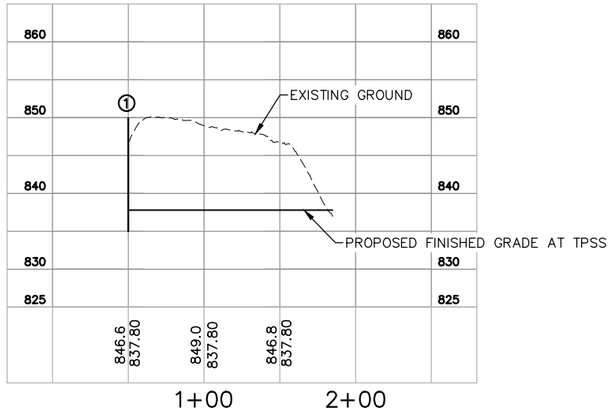
RTW–W127 PLAN

NOTE:
RTW–W127 IS ANTICIPATED TO BE A SOLDIER PILE RETAINING WALL DUE TO CLOSE PROXIMITY TO TH 212 OFF RAMP.

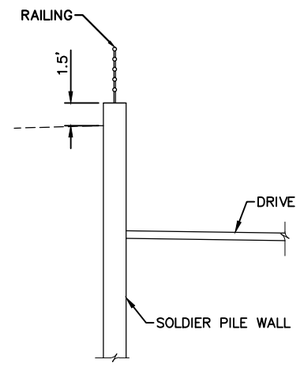
① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

N

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW–W127 PROFILE



RTW–W127 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

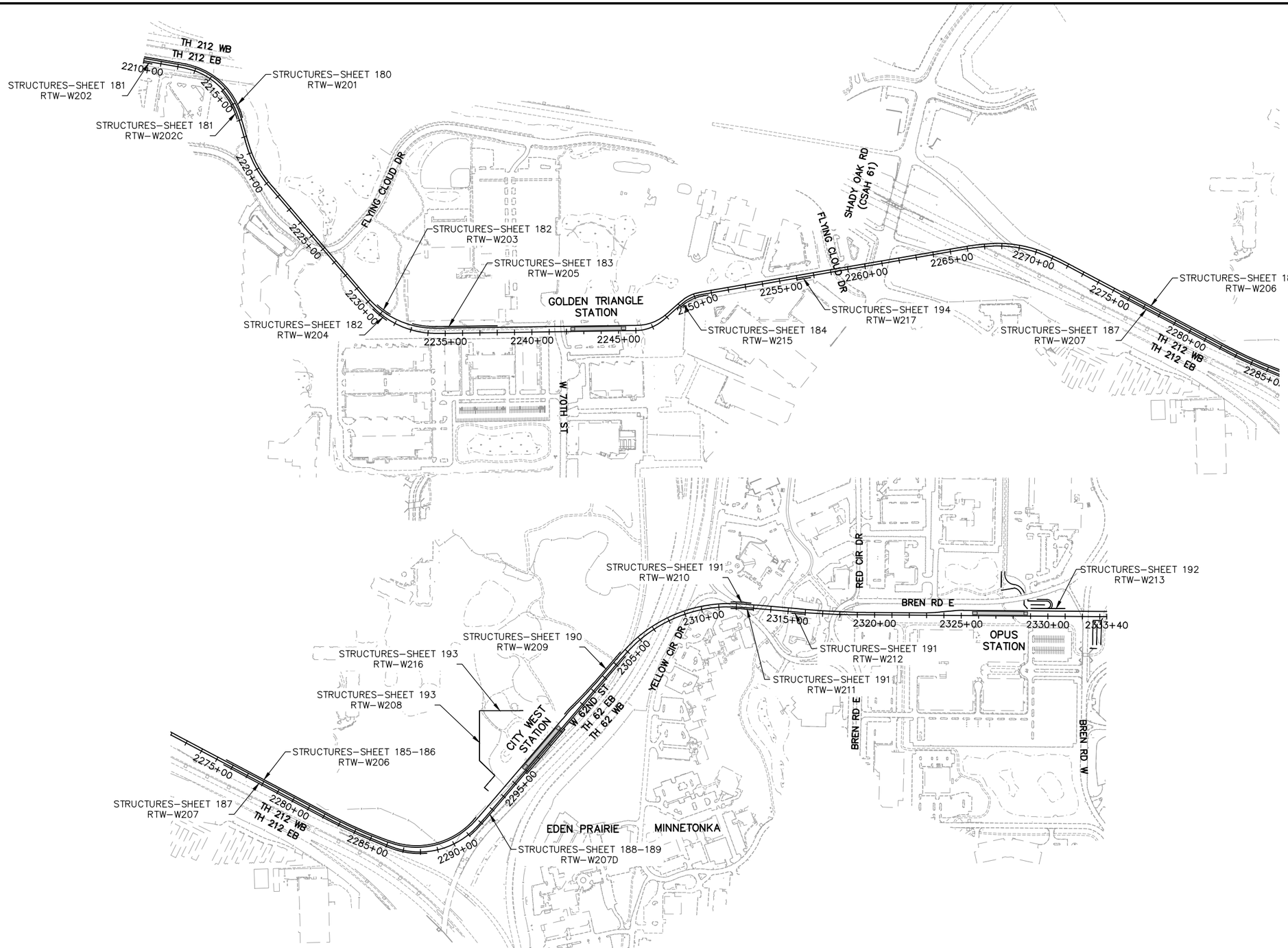
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 1
RTW-W127
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-RTW-PPFL-014

SHEET 178 OF 204

Aug, 28 2014 08:22 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\STRUCTURES\W1-STU-RETW.dwg By: mnutzmann



Aug. 28 2014 08:26 am v:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-RTW-IDX.dwg By: mnultzmann

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

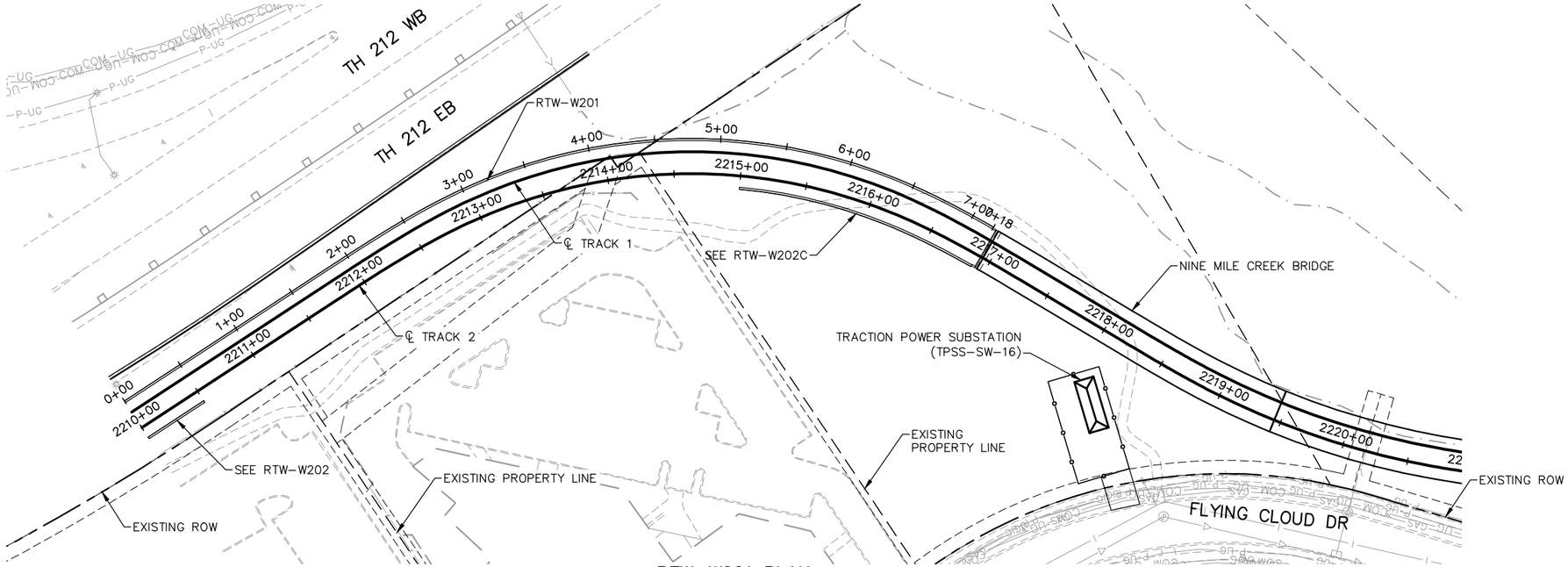
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2
RETAINING WALLS
SHEET INDEX

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-IDX-RTW-001

SHEET 179 OF 204



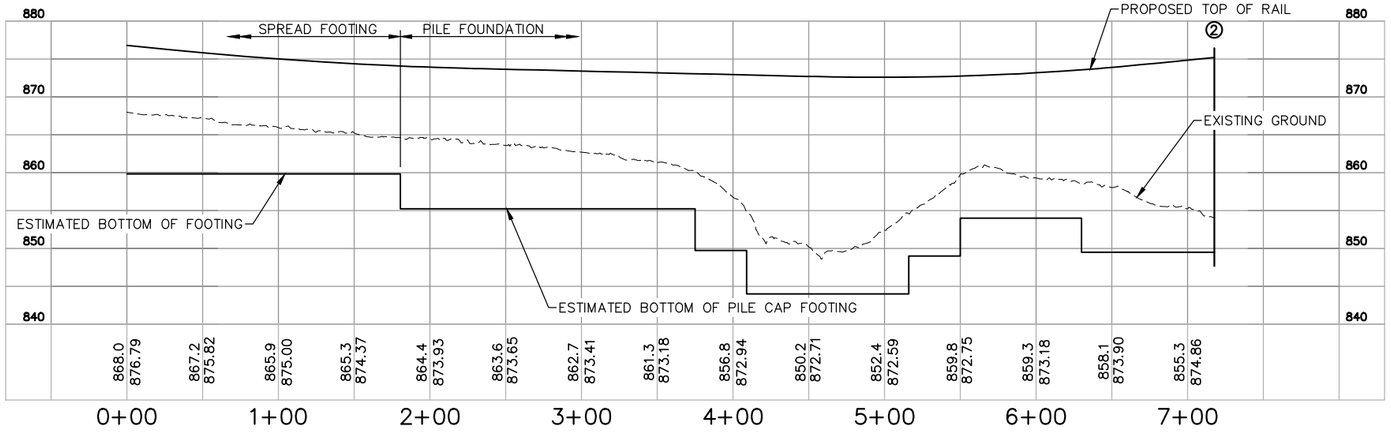
RTW–W201 PLAN

NOTE:
RTW–W201 IS ANTICIPATED TO BE A CAST–IN–PLACE RETAINING WALL ON SPREAD FOOTINGS FROM STA. 0+00 TO STA. 1+80.

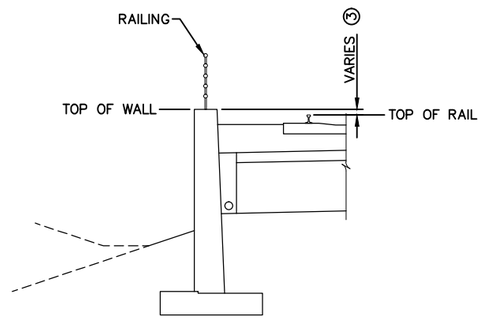
THE REMAINDER OF RTW–W201 IS ANTICIPATED TO BE A CAST–IN–PLACE RETAINING WALL ON A PILE SUPPORTED FOUNDATION.

② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW–W201 PROFILE



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW–W201 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

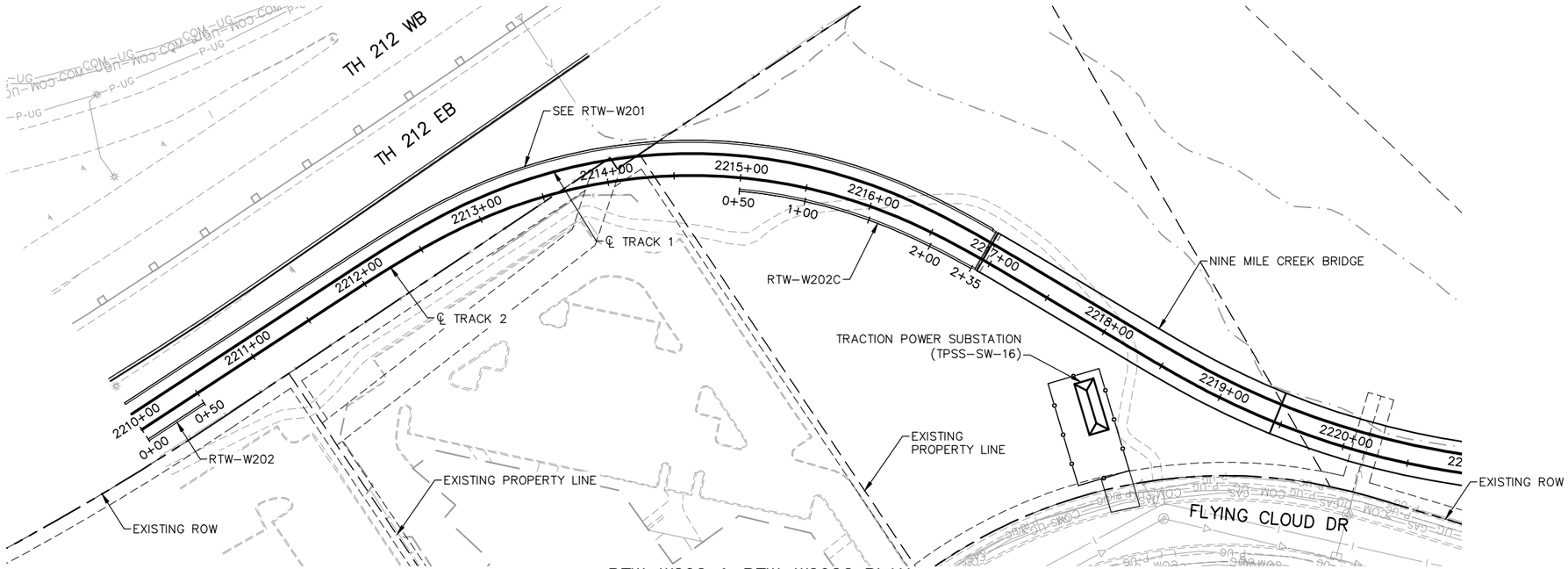
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2
RTW-W201
PLAN AND PROFILE

DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-RTW-PPFL-001

SHEET 180 OF 204



RTW-W202 & RTW-W202C PLAN

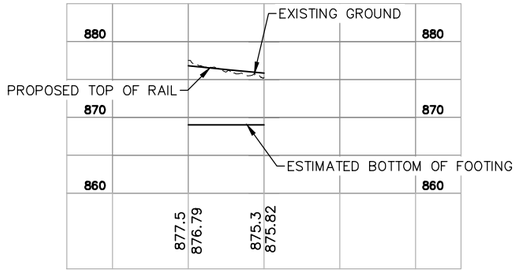
NOTE:
RTW-W202 IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON SPREAD FOOTINGS.

RTW-W202C IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL WITH A PILE SUPPORTED FOUNDATION.

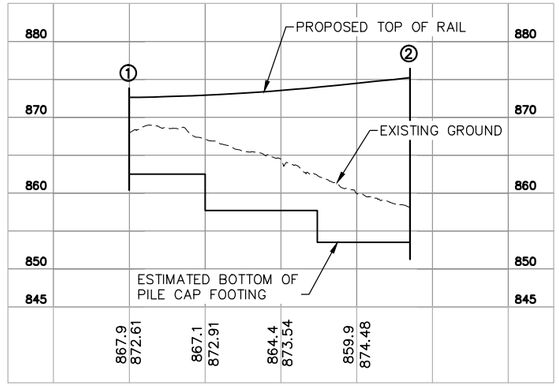
① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL.

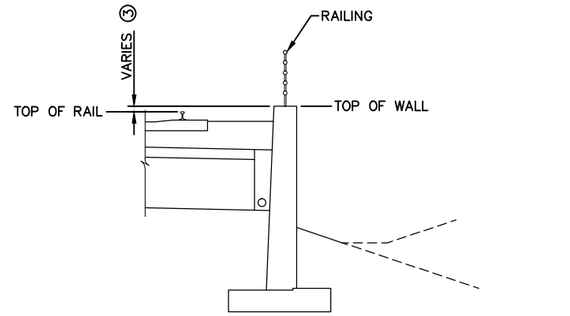
0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW-W202 PROFILE



RTW-W202C PROFILE



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW-W202 & RTW-W202C TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

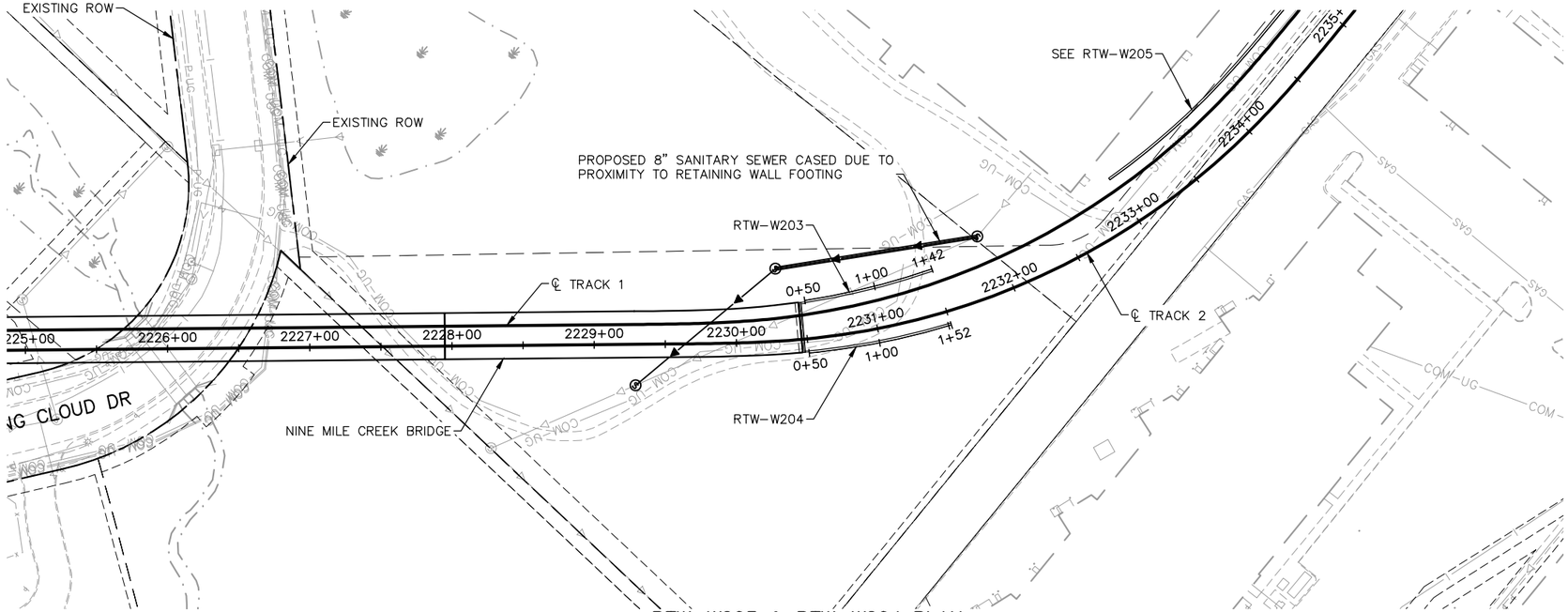
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2
RTW-W202 & RTW-W202C
PLAN AND PROFILE

DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-RTW-PPFL-002

SHEET 181 OF 204

Aug, 28 2014 08:27 am V:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-RETW.dwg By: mnutzmann



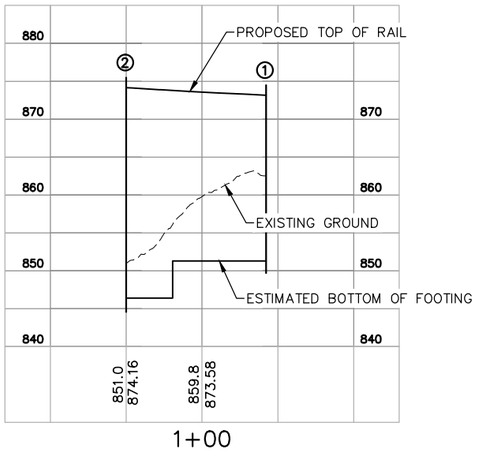
RTW–W203 & RTW–W204 PLAN

NOTE:
RTW–W203 AND RTW–W204 ARE ANTICIPATED TO BE CAST–IN–PLACE RETAINING WALLS ON SPREAD FOOTINGS.

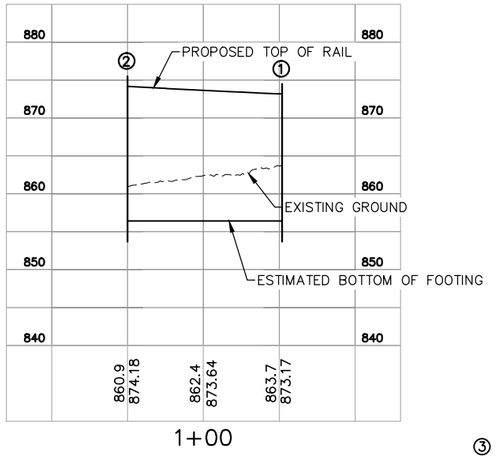
① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL.

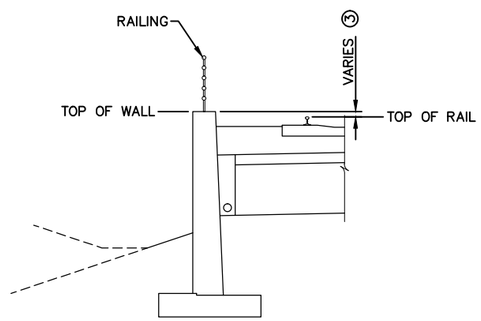
0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW–W203 PROFILE

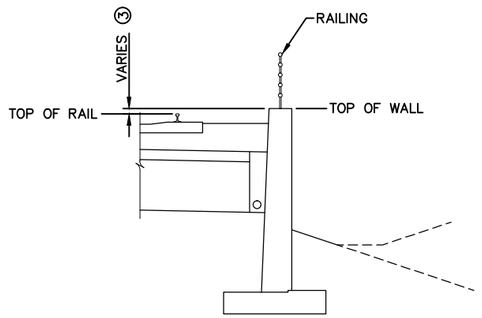


RTW–W204 PROFILE



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW–W203 TYPICAL SECTION



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW–W204 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

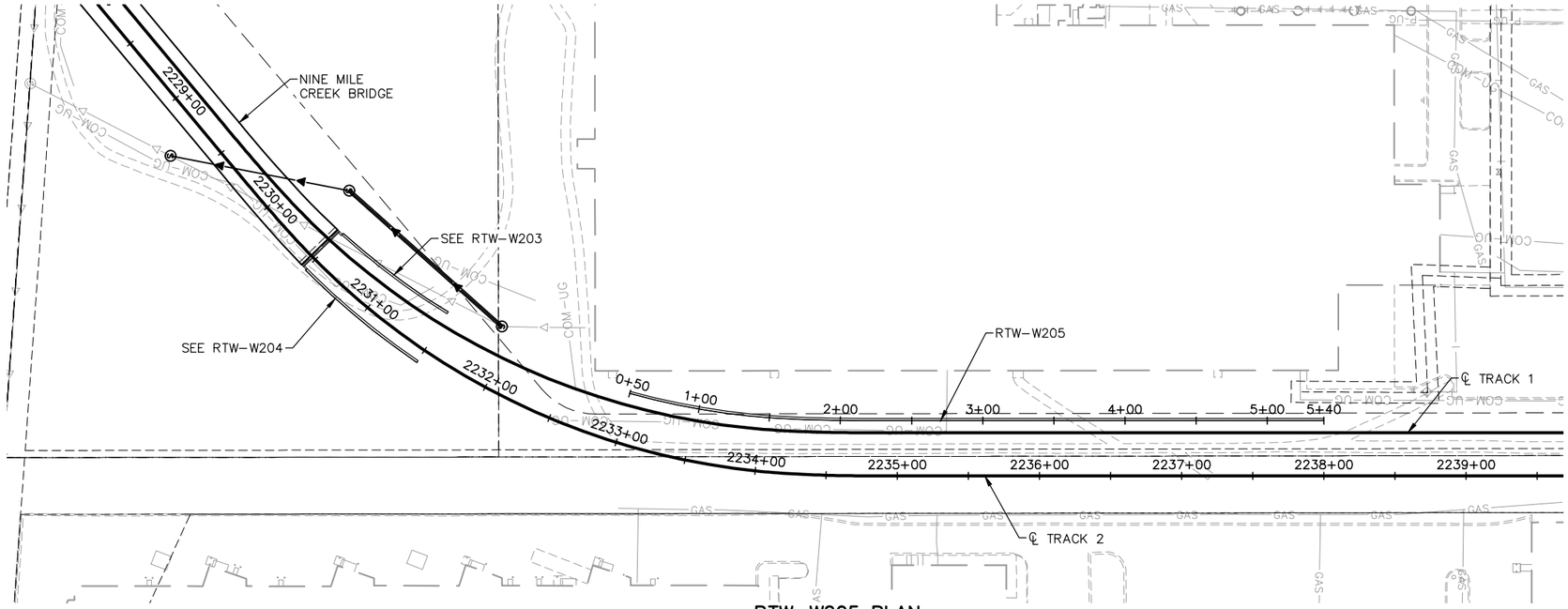
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2
RTW-W203 & RTW-W204
PLAN AND PROFILE

DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-RTW-PPFL-003

SHEET 182 OF 204

Aug, 28 2014 08:27 am V:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-RETW.dwg By: mnutzmann

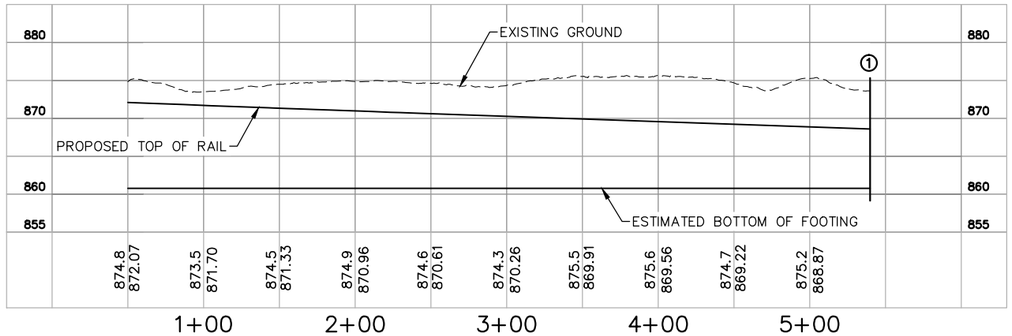


RTW-W205 PLAN

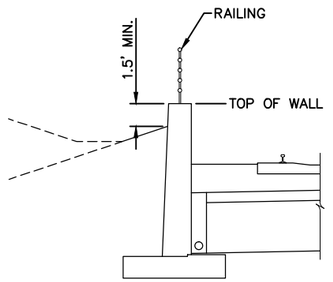
NOTE:
RTW-W205 IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON SPREAD FOOTINGS.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW-W205 PROFILE



RTW-W205 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

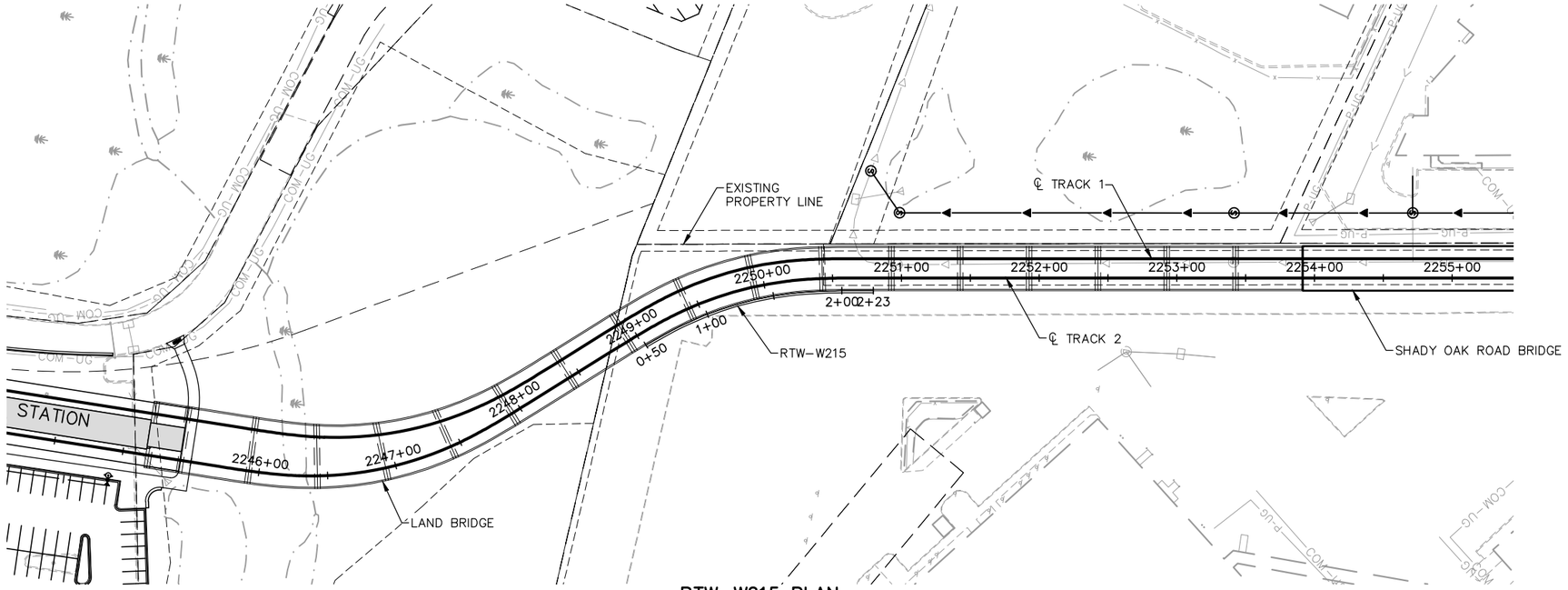
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2
RTW-W205
PLAN AND PROFILE

DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-RTW-PPFL-004

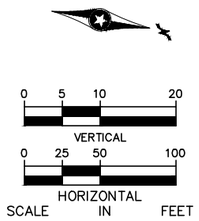
SHEET 183 OF 204

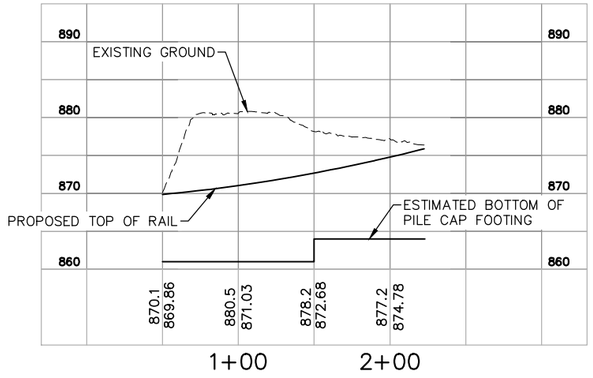
Aug. 28 2014 08:27 am v:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-RETW.dwg By: mnutzmann

NOTE:
RTW-W215 IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON A PILE SUPPORTED FOUNDATION.

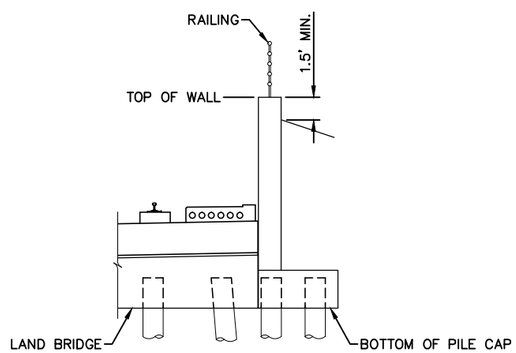


RTW-W215 PLAN





RTW-W215 PROFILE



RTW-W215 PROFILE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

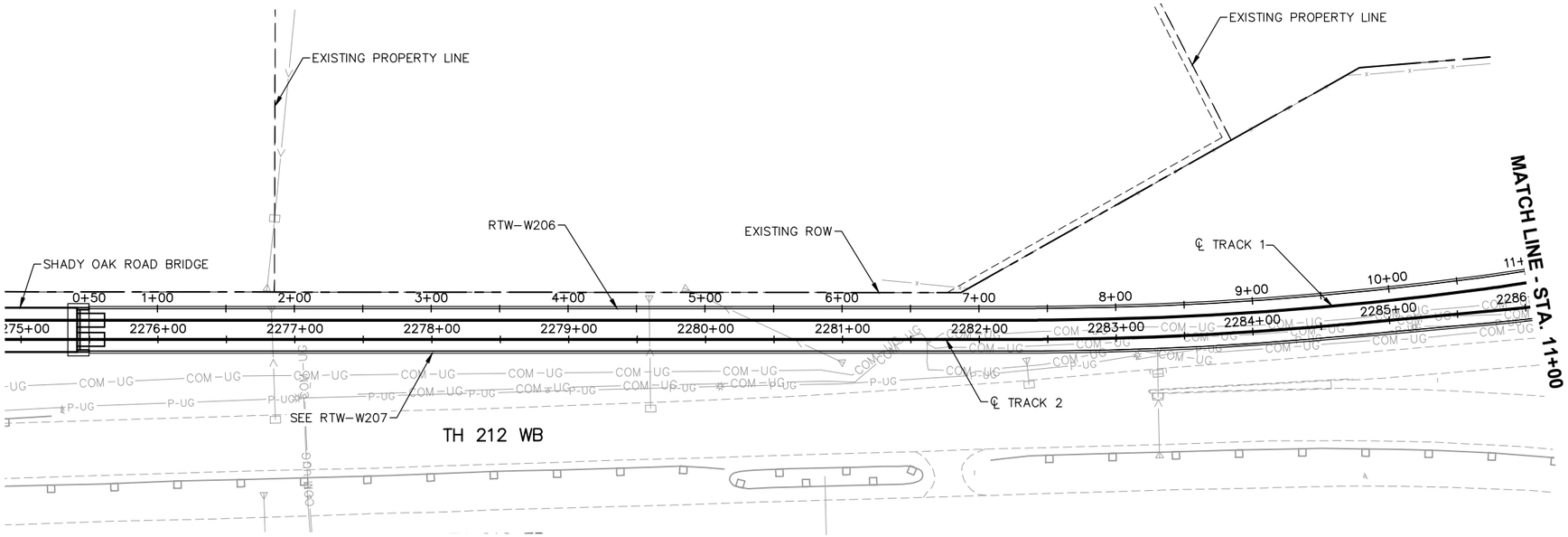
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2
RTW-W215
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

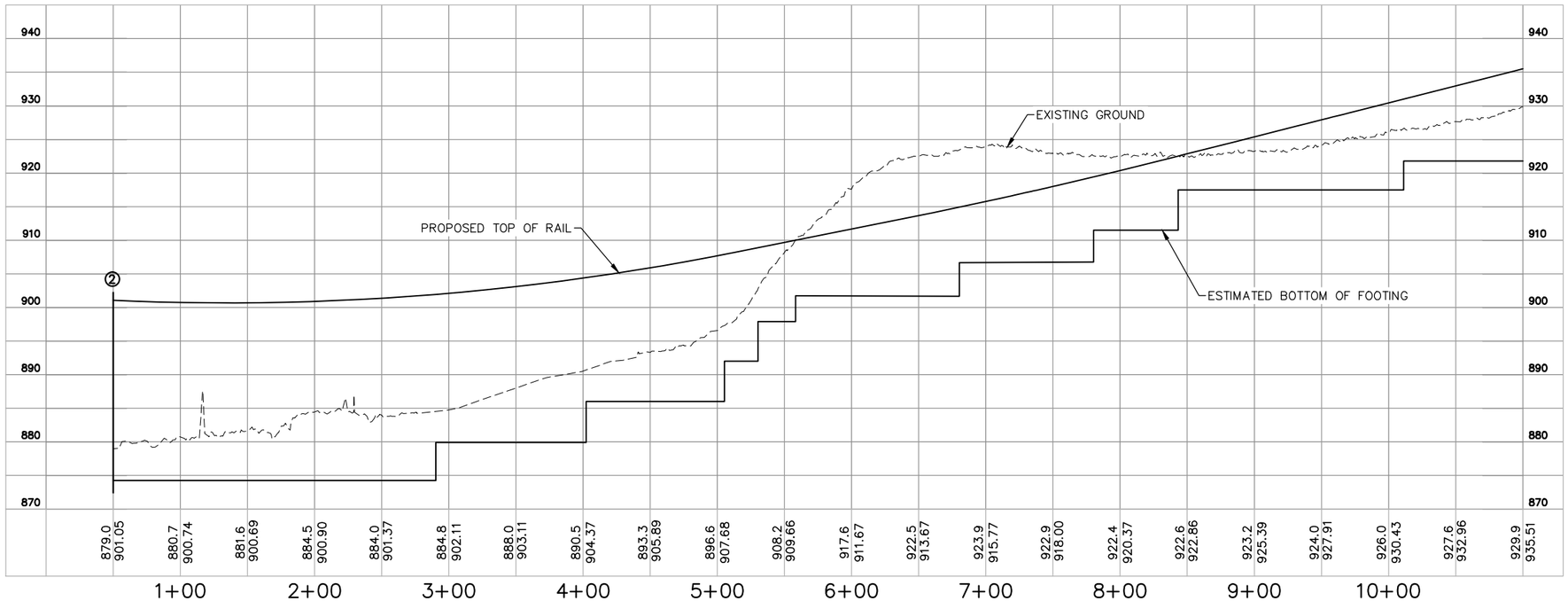
SHEET NAME: W2-STU-RTW-PPFL-005

SHEET 184 OF 204

Aug, 28 2014 08:27 am V:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-RETW.dwg By: mnutzmann



RTW–W206 PLAN

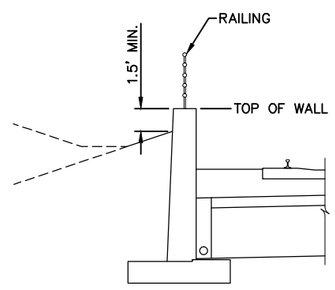


RTW–W206 PROFILE

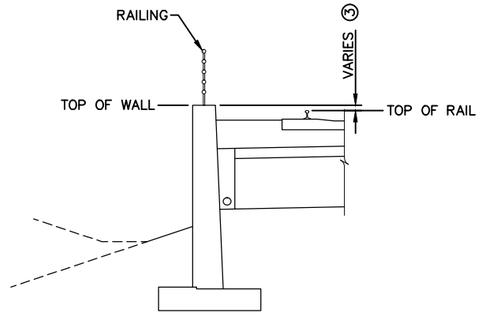
NOTE:
RTW–W206 IS ANTICIPATED TO BE A SOLDIER PILE AND LAGGING RETAINING WALL FROM STA. 11+87 TO STA. 14+96 TO PRESERVE THE ADJACENT FOREST ON THE HILL.

THE REMAINDER OF RTW–W206 IS ANTICIPATED TO BE A CAST–IN–PLACE RETAINING WALL ON SPREAD FOOTINGS.

② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL.



RTW–W206 TYPICAL SECTION
STA. 5+58 TO STA. 8+43



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW–W206 TYPICAL SECTION
STA. 0+50 TO STA. 5+58
STA. 8+43 TO STA. 11+00

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

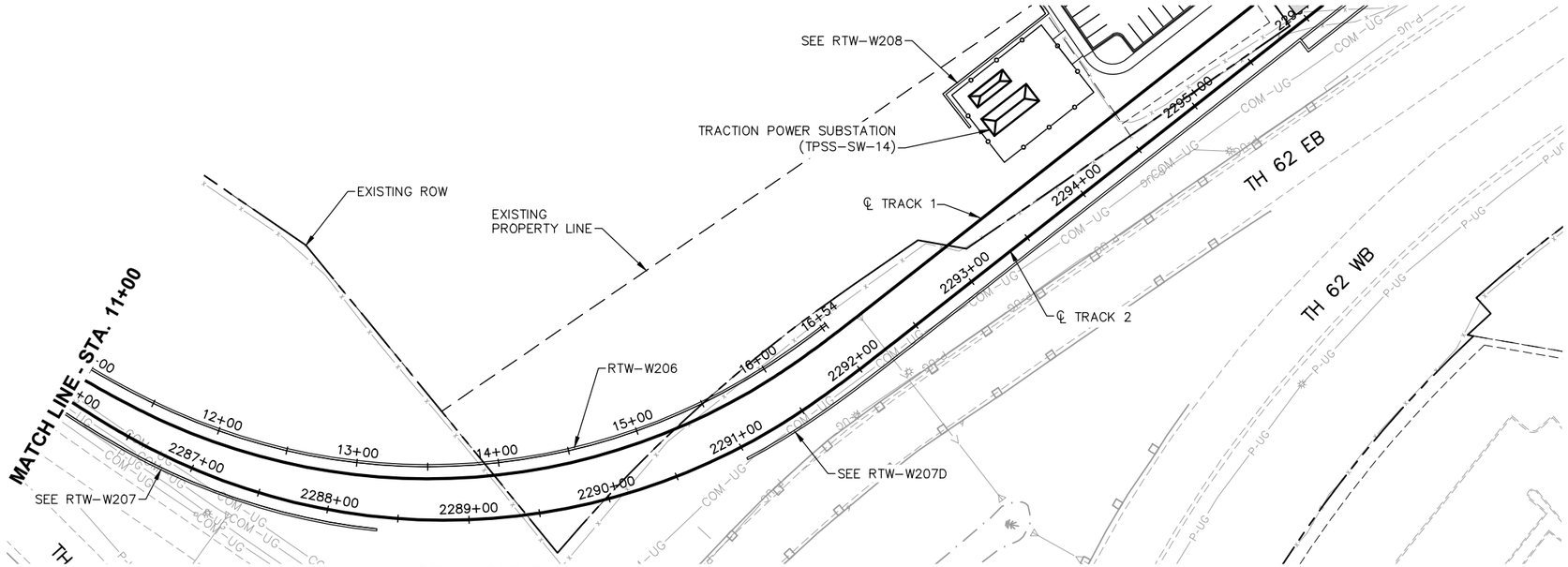
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2 - RTW-W206
PLAN AND PROFILE
STA. 00+50 TO STA. 11+00

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-RTW-PPFL-006

SHEET 185 OF 204

Aug. 28 2014 08:28 am V:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-RETW.dwg By: mnutzmann

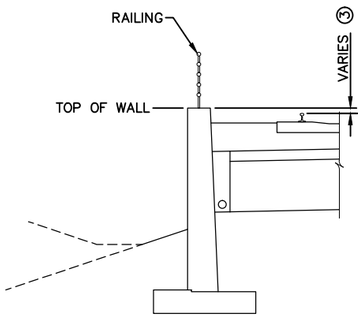


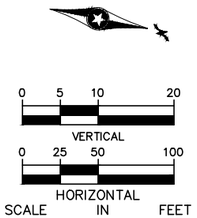
RTW–W206 PLAN

NOTE:
RTW–W206 IS ANTICIPATED TO BE A SOLDIER PILE AND LAGGING RETAINING WALL FROM STA. 11+87 TO STA. 14+96 TO PRESERVE THE ADJACENT FOREST ON THE HILL.

THE REMAINDER OF RTW–W206 IS ANTICIPATED TO BE A CAST–IN–PLACE RETAINING WALL ON SPREAD FOOTINGS.

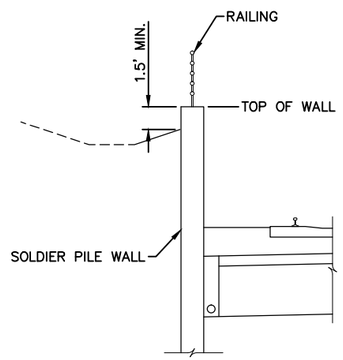
① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.



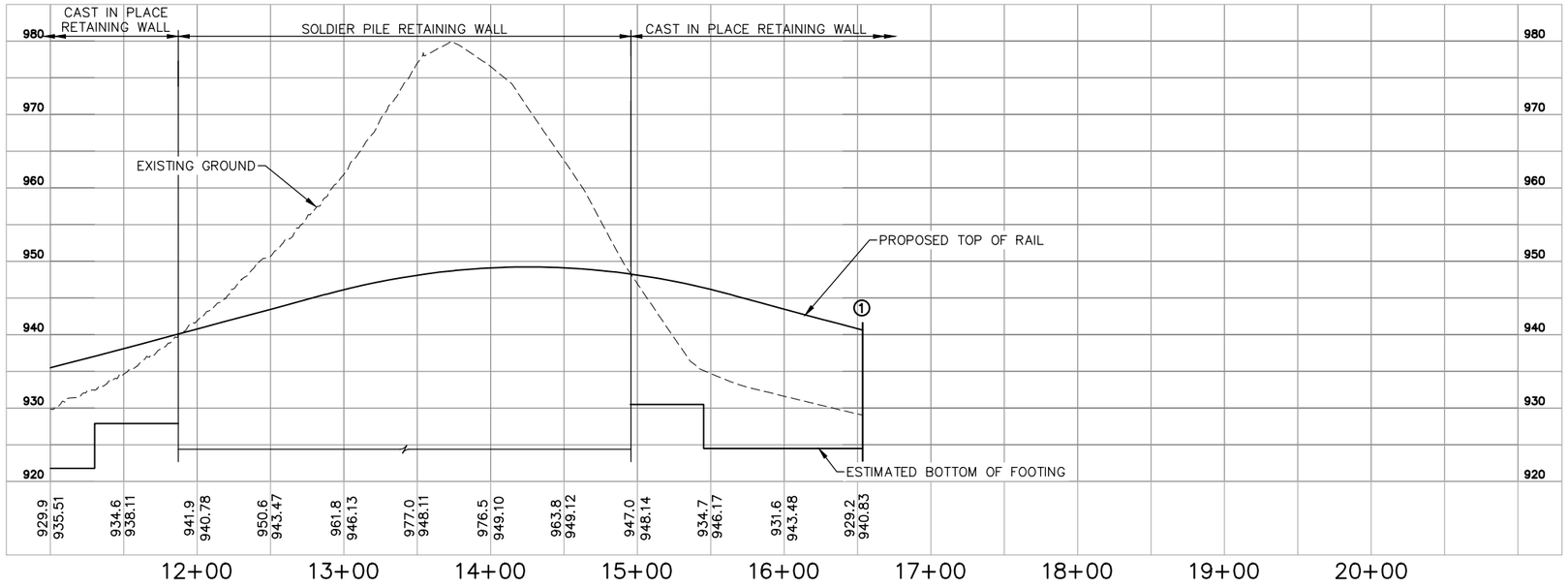


③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW–W206 TYPICAL SECTION
STA. 11+00 TO STA. 11+87
STA. 14+96 TO STA. 16+54



RTW–W206 TYPICAL SECTION
STA. 11+87 TO STA. 14+96



RTW–W206 PROFILE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

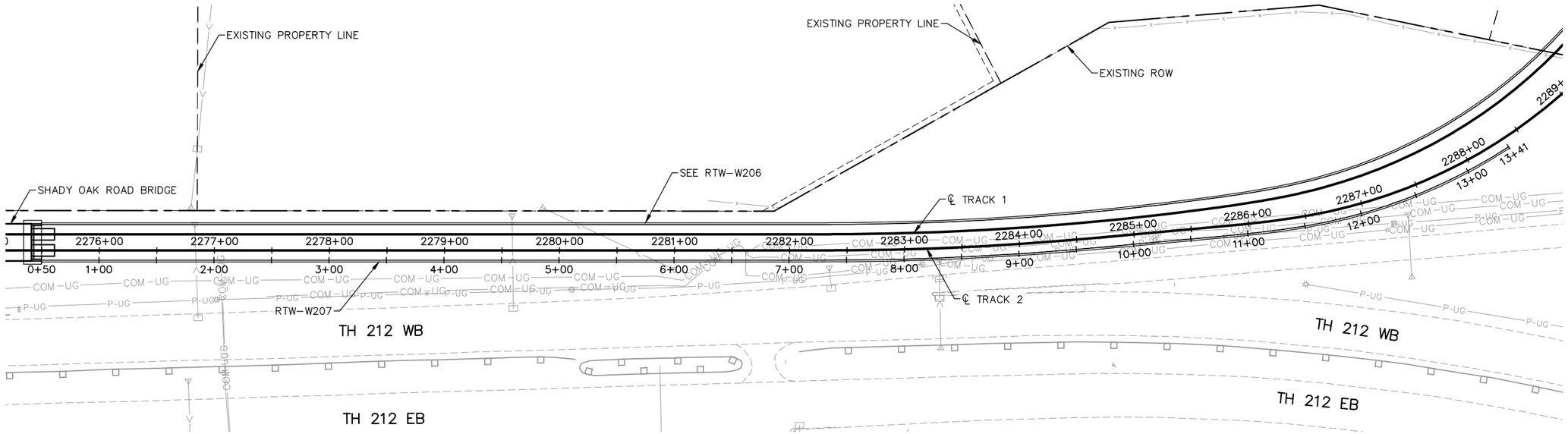
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2 - RTW-W206
PLAN AND PROFILE
STA. 11+00 TO STA. 16+54

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-RTW-PPFL-007

SHEET 186 OF 204

Aug. 28 2014 08:28 am V:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-RETW.dwg By: mnutzmann

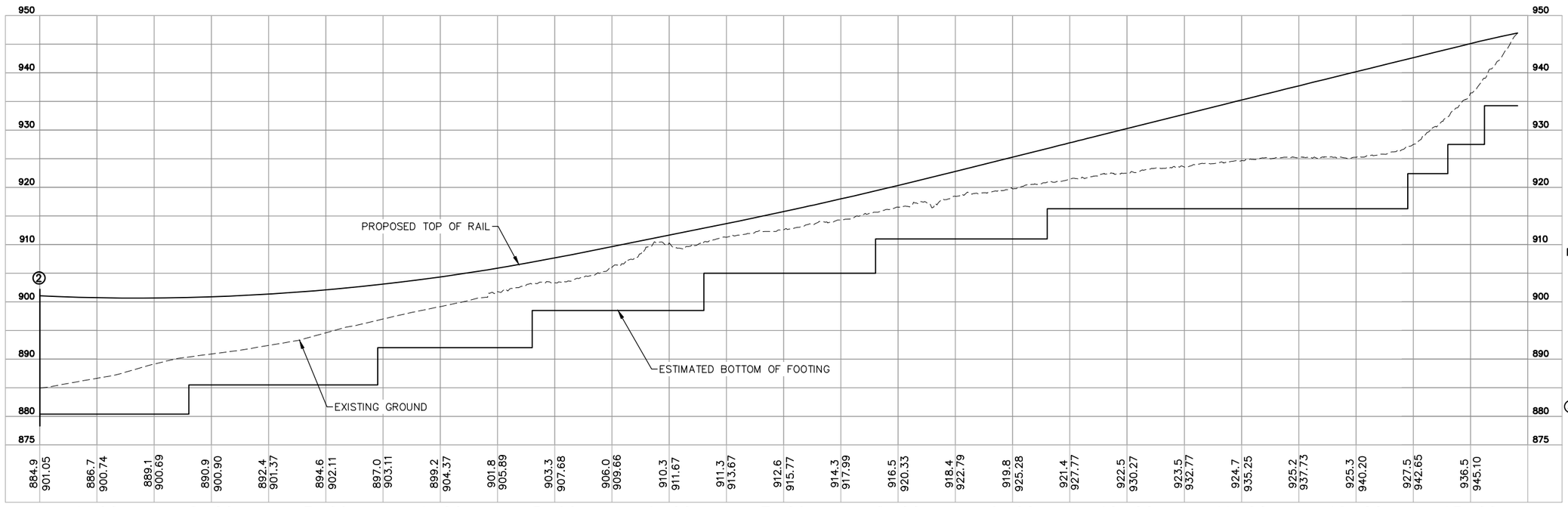


RTW-W207 PLAN

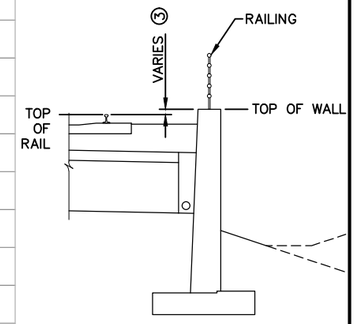
NOTE:
RTW-W207 IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON SPREAD FOOTINGS.

② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW-W207 PROFILE



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW-W207 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

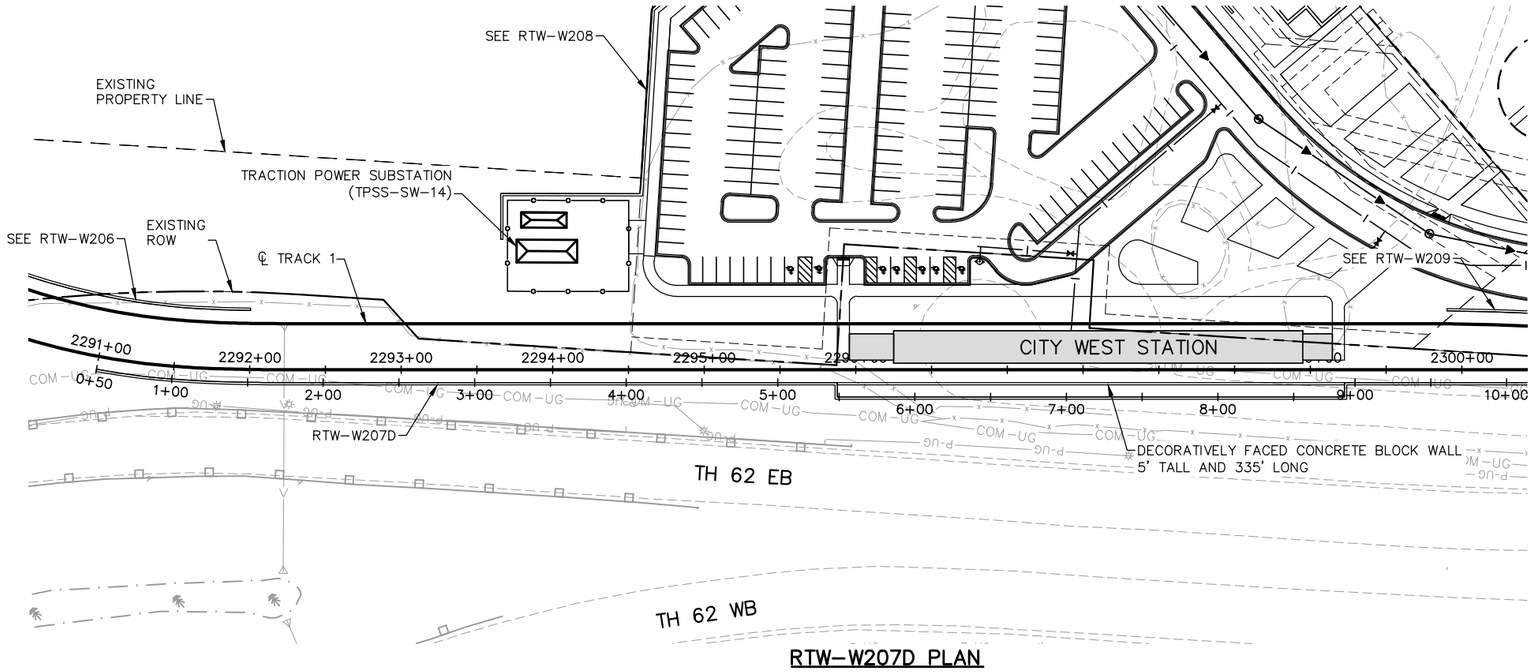
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2
RTW-W207
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

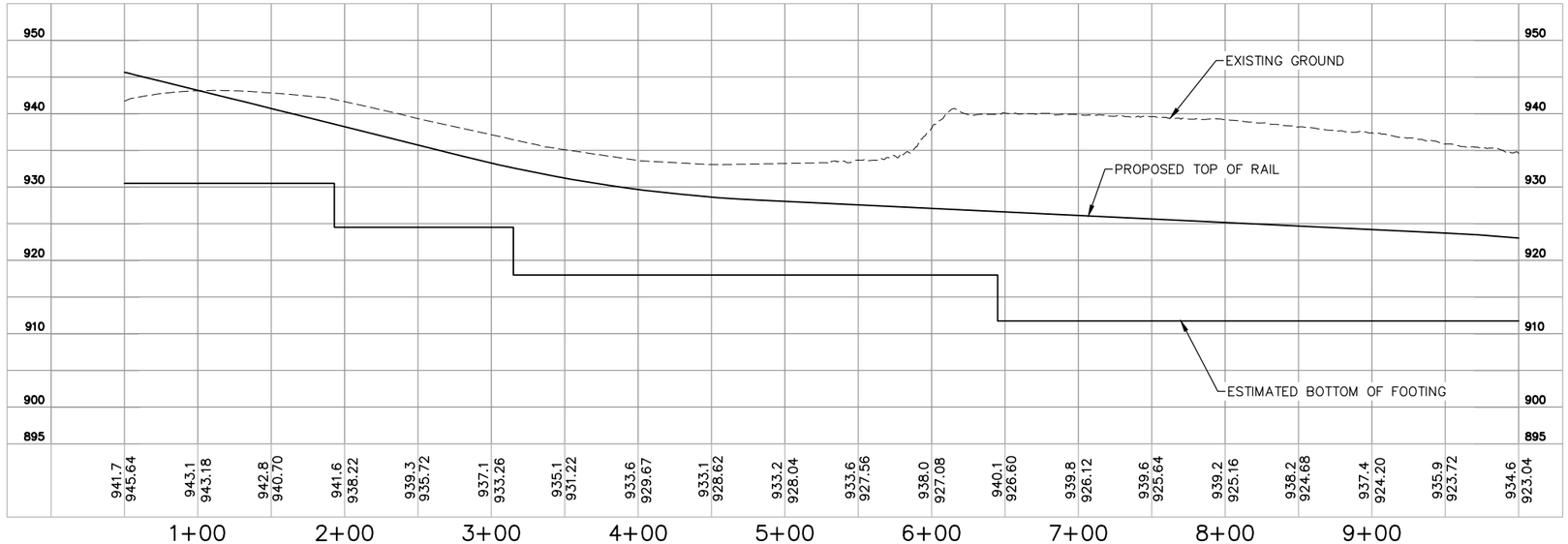
SHEET NAME: W2-STU-RTW-PPFL-008

SHEET 187 OF 204

Aug, 28 2014 08:28 am V:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-RETW.dwg By: mnutzmann

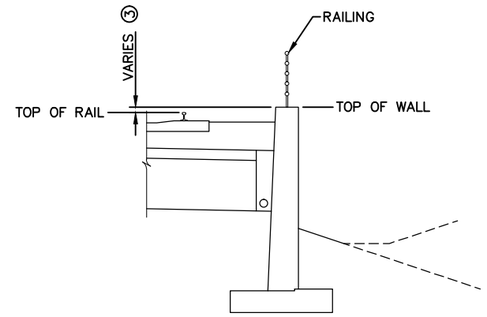


RTW-W207D PLAN



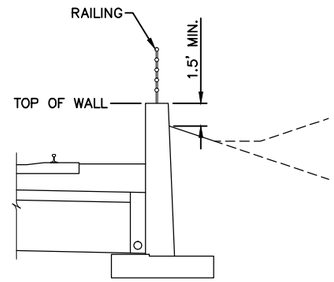
RTW-W207D PROFILE

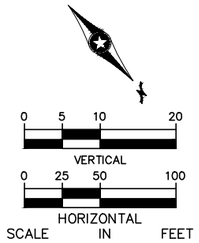
NOTE:
RTW-W207D IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON SPREAD FOOTINGS.



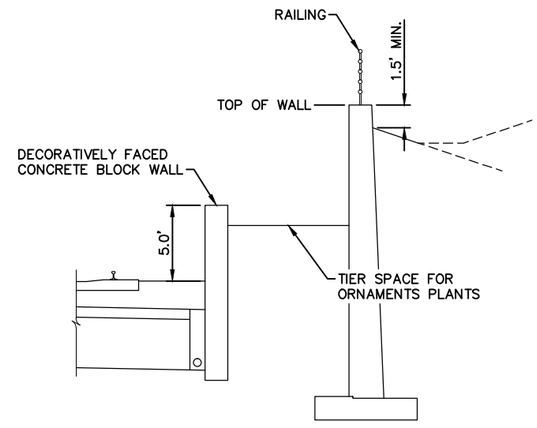
③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW-W207D TYPICAL SECTION
STA. 0+50 TO STA. 1+01





RTW-W207D TYPICAL SECTION
STA. 1+01 TO STA. 5+23
STA. 8+95 TO STA. 10+00



RTW-W207D TYPICAL SECTION
STA. 5+23 TO STA. 8+95

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

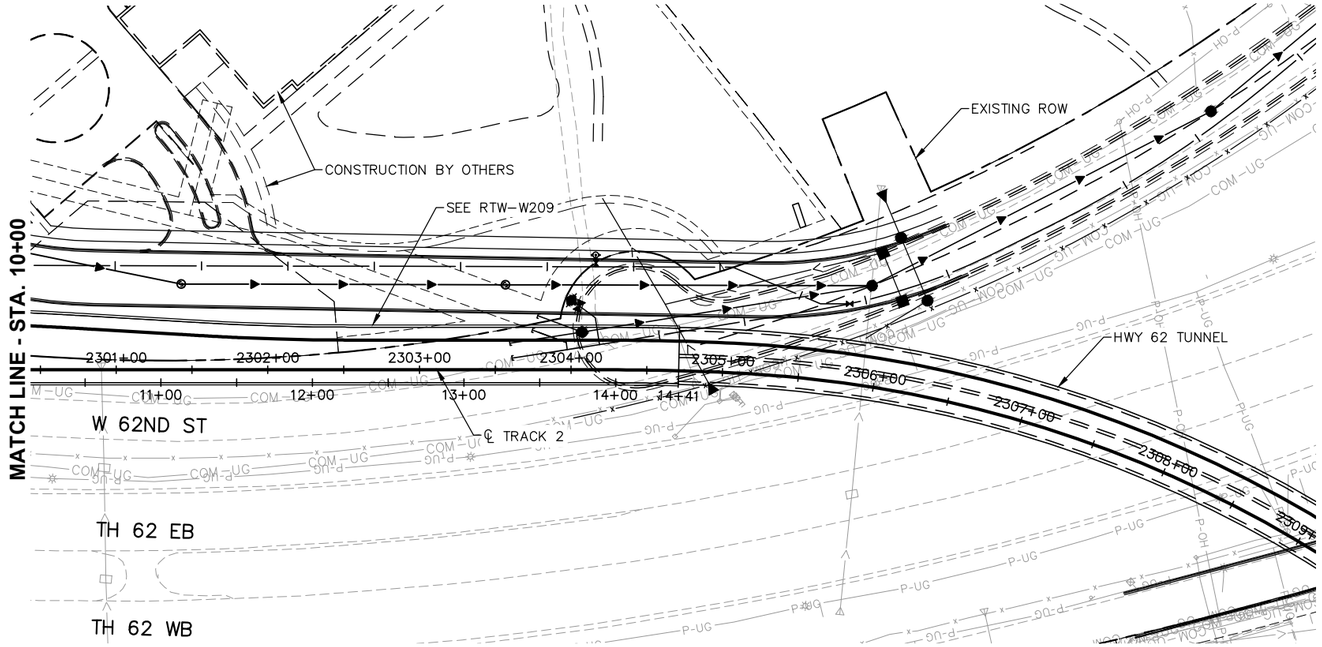
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2 - RTW-W207D
PLAN AND PROFILE
STA. 0+50 TO STA. 10+00

DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-RTW-PPFL-009

SHEET 188 OF 204

Aug. 28 2014 08:28 am V:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-RETW.dwg By: mnutzmann

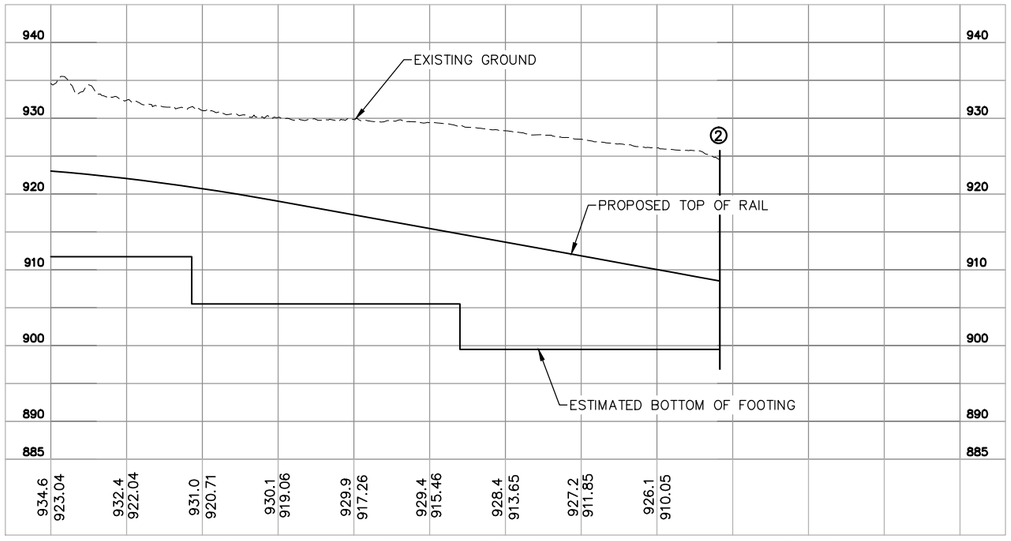


RTW-W207D PLAN

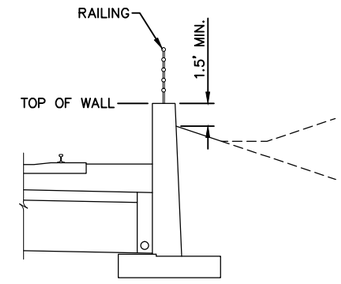
NOTE:
RTW-W207D IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON SPREAD FOOTINGS.

② JOINT LOCATION BETWEEN RETAINING WALL AND TUNNEL.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW-W207D PROFILE



RTW-W207D TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

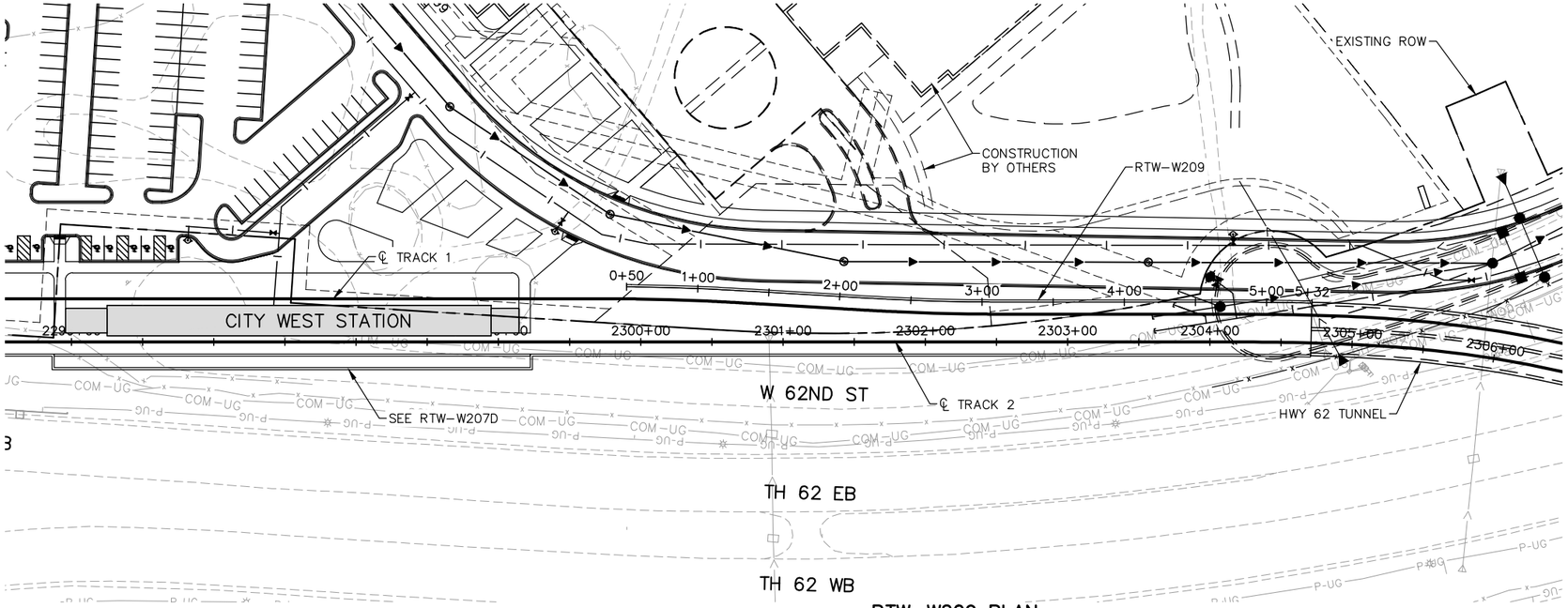
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2 - RTW-W207D
PLAN AND PROFILE
STA. 10+00 TO STA. 14+28

DISCIPLINE: STRUCTURES

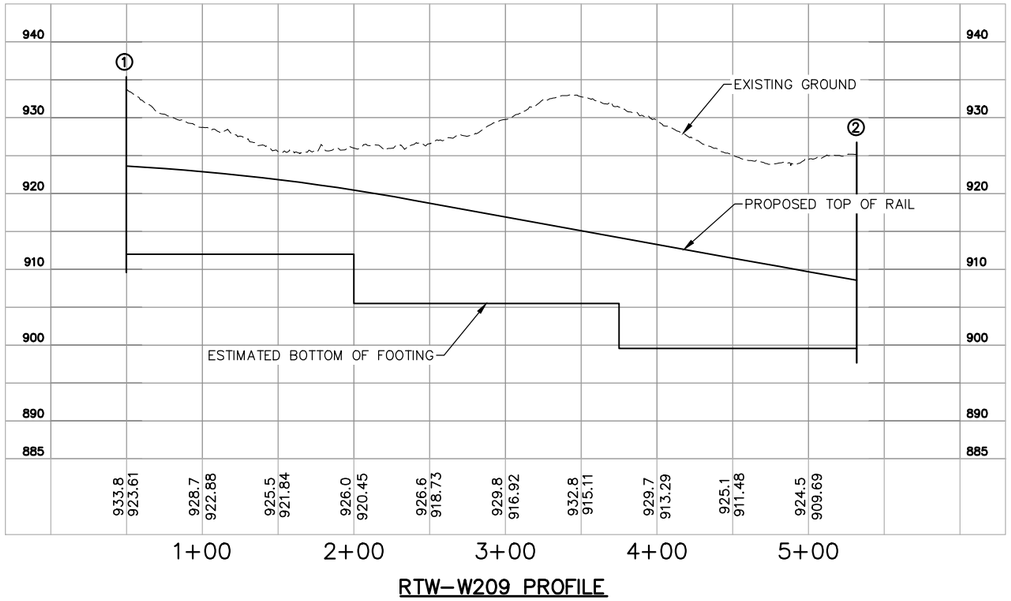
SHEET NAME: W2-STU-RTW-PPFL-010

SHEET 189 OF 204

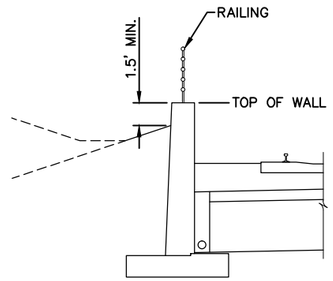
Aug, 28 2014 08:29 am v:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-RETW.dwg By: mnutzmann



RTW-W209 PLAN



RTW-W209 PROFILE



RTW-W209 TYPICAL SECTION

NOTE:
RTW-W209 IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON SPREAD FOOTINGS.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

② JOINT LOCATION BETWEEN RETAINING WALL AND TUNNEL.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

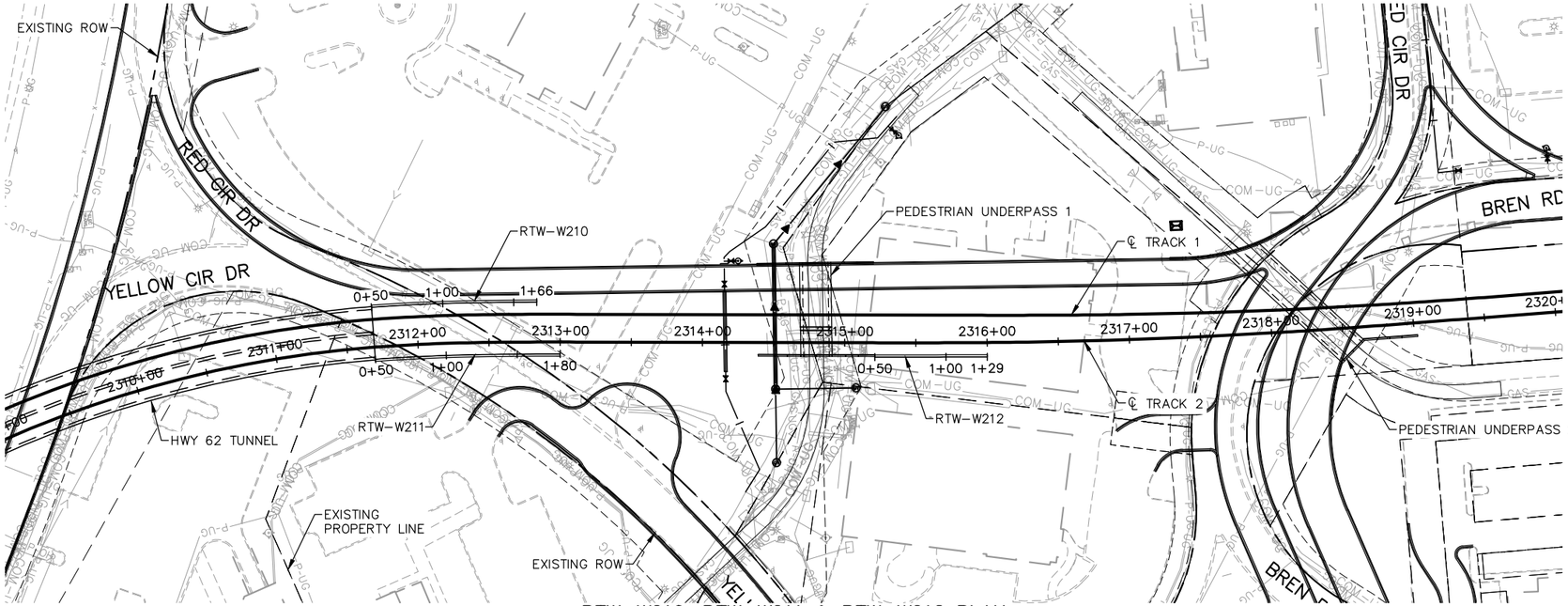
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2
RTW-W209
PLAN AND PROFILE

DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-RTW-PPFL-011

SHEET 190 OF 204

Aug. 28 2014 08:29 am V:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-RETW.dwg By: mnutzmann



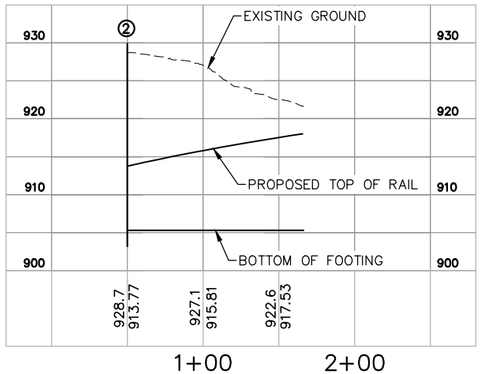
RTW–W210, RTW–W211 & RTW–W212 PLAN

NOTE:
RTW–W210, RTW–W211 AND RTW–W212 ARE ANTICIPATED TO BE CAST–IN–PLACE RETAINING WALLS ON SPREAD FOOTINGS.

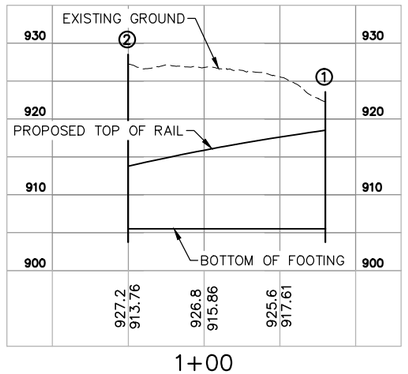
① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL OR TUNNEL.

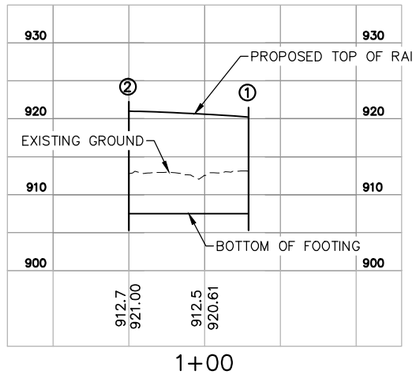
0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



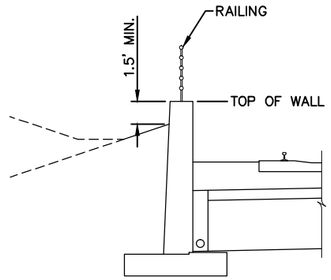
RTW–W210 PROFILE



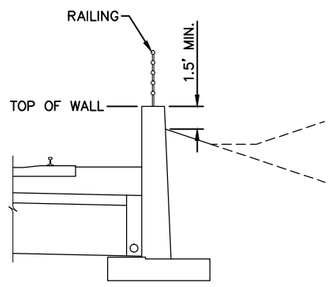
RTW–W211 PROFILE



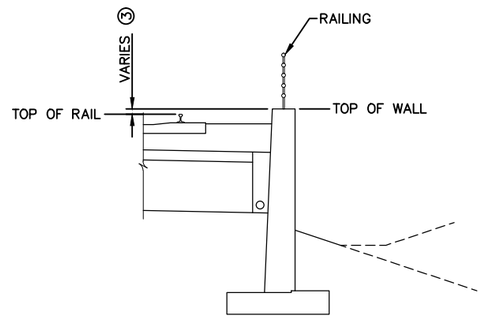
RTW–W212 PROFILE



RTW–W210 TYPICAL SECTION



RTW–W211 TYPICAL SECTION



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW–W212 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

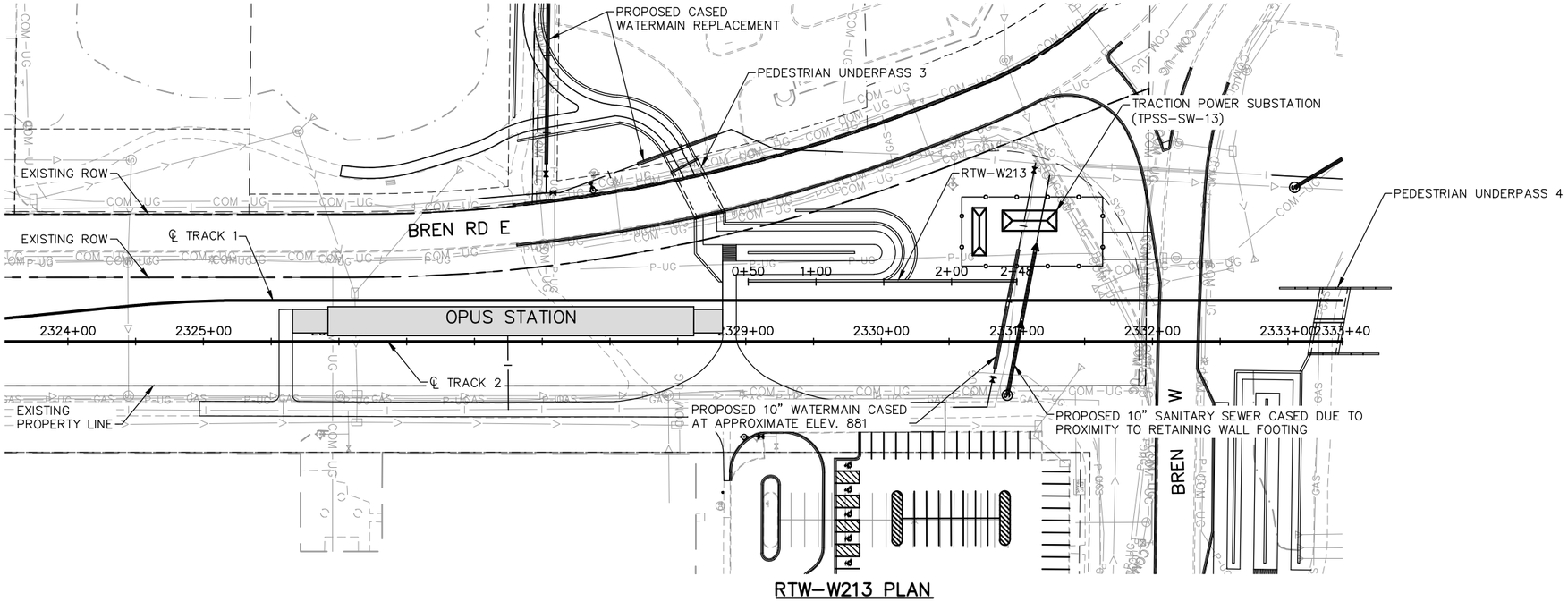
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2
RTW-W210, RTW-W211 & RTW-W212
PLAN AND PROFILE

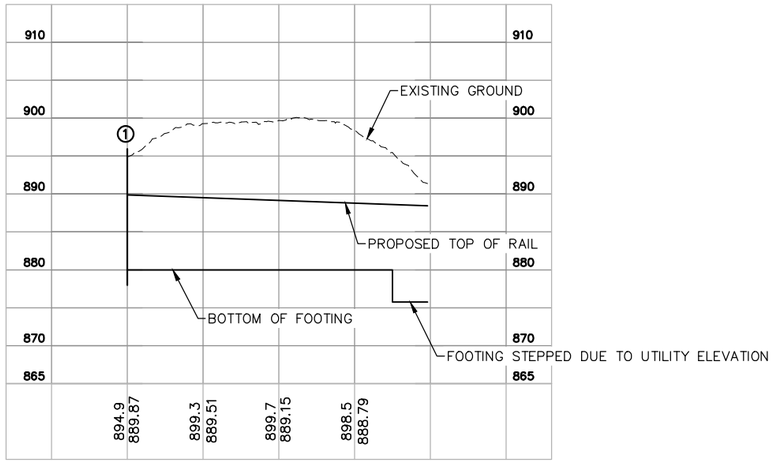
DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-RTW-PPFL-012

SHEET 191 OF 204

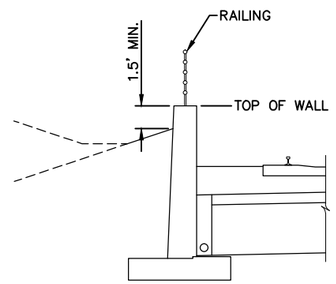
Aug. 28 2014 08:29 am v:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-RETW.dwg By: mnutzmann



RTW-W213 PLAN



RTW-W213 PROFILE



RTW-W213 TYPICAL SECTION

NOTE:
RTW-W213 IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON SPREAD FOOTINGS.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

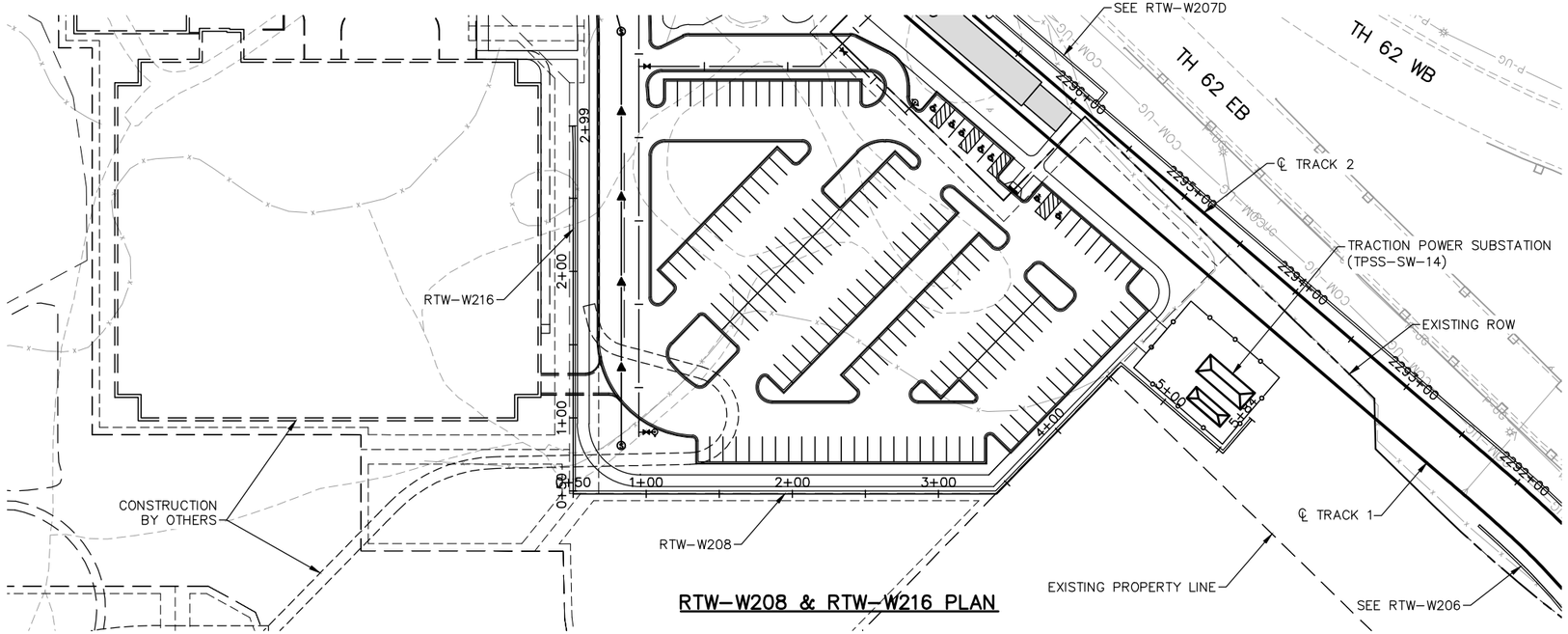
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2
RTW-W213
PLAN AND PROFILE

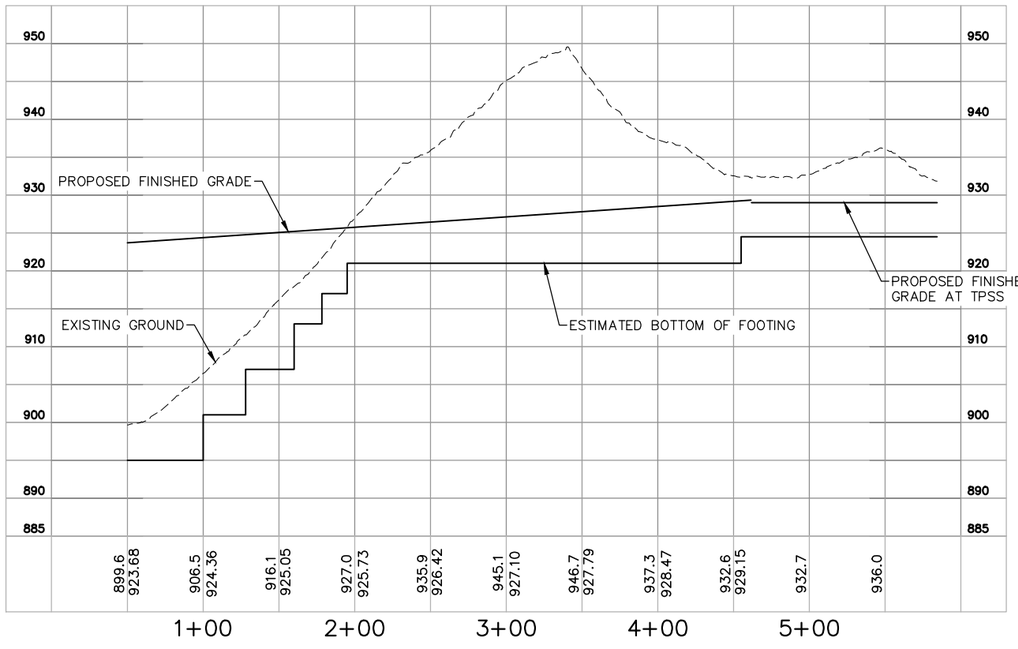
DISCIPLINE: STRUCTURES
SHEET NAME: W2-STU-RTW-PPFL-013

SHEET 192 OF 204

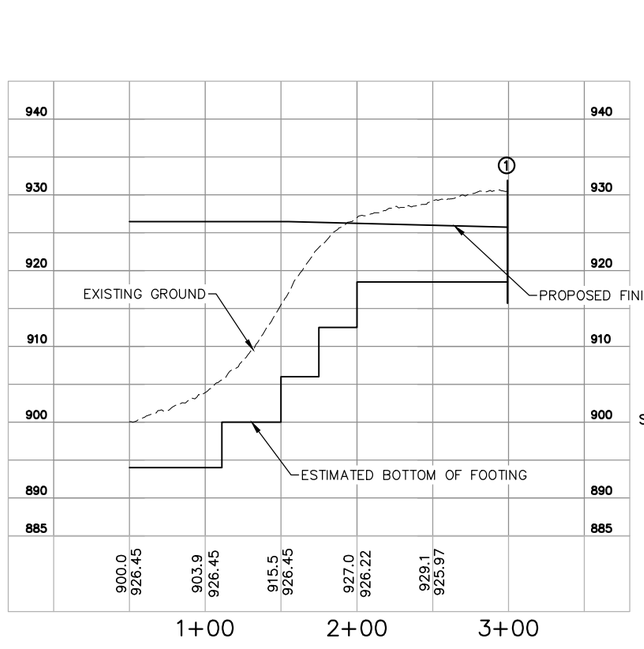
Aug, 28 2014 08:29 am v:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-RETW.dwg By: mnutzmann



RTW-W208 & RTW-W216 PLAN



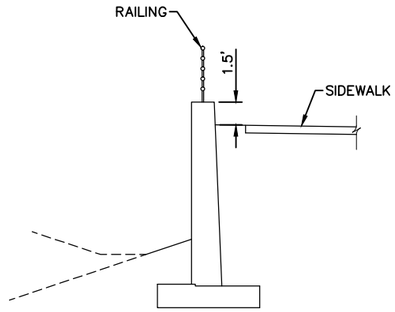
RTW-W208 PROFILE



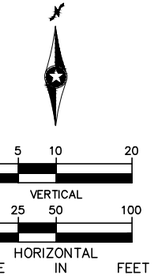
RTW-W216 PROFILE

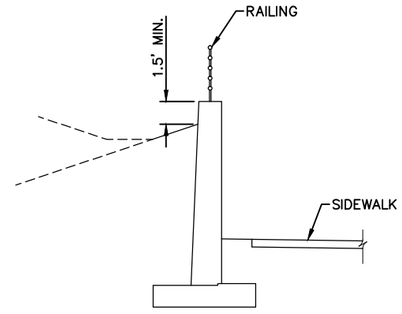
NOTE:
RTW-W208 AND RTW-W216 ARE ANTICIPATED TO BE CAST-IN-PLACE RETAINING WALLS ON SPREAD FOOTINGS.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

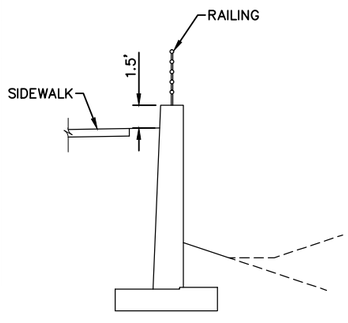


RTW-W208 TYPICAL SECTION
STA. 0+50 TO STA. 1+95

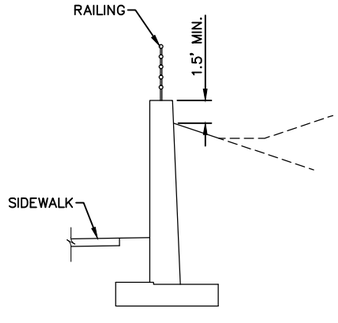




RTW-W208 TYPICAL SECTION
STA. 1+95 TO STA. 5+84



RTW-W216 TYPICAL SECTION
STA. 0+50 TO STA. 1+93



RTW-W216 TYPICAL SECTION
STA. 1+93 TO STA. 2+99

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

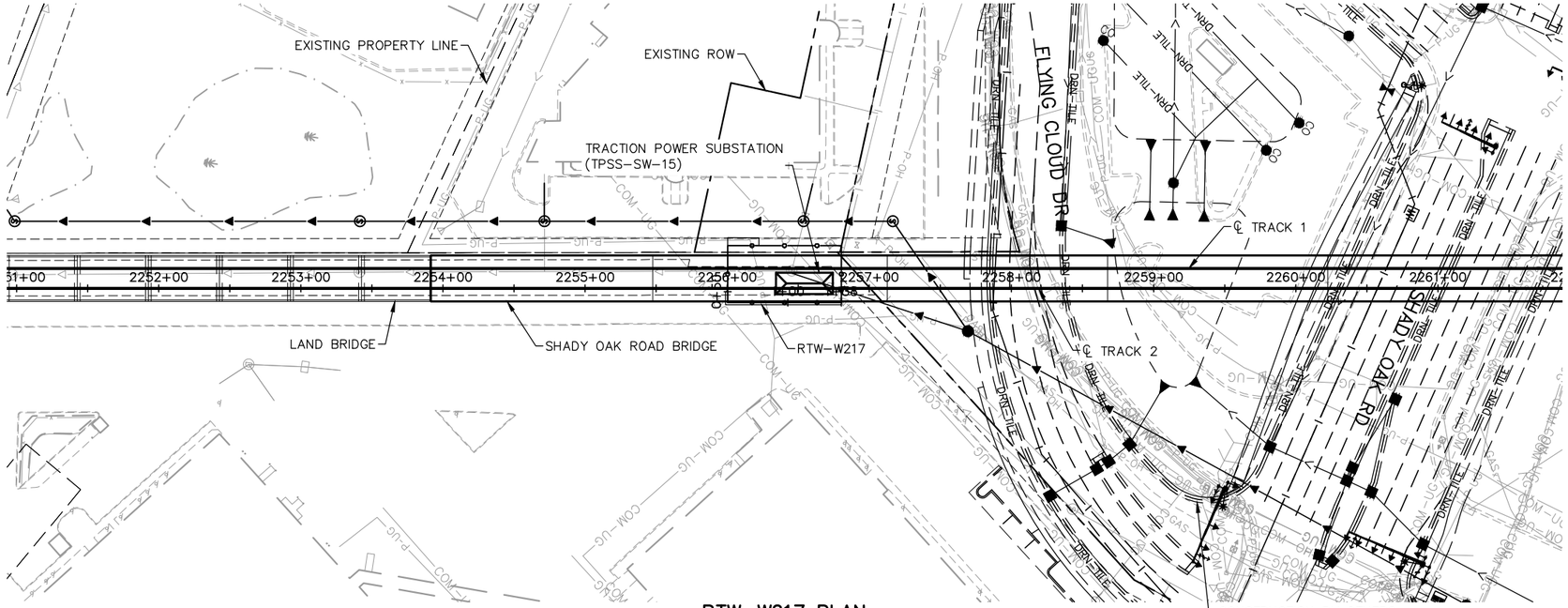
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2
RTW-W208 & RTW-W216
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-RTW-PPFL-014

SHEET 193 OF 204

Aug, 28 2014 08:30 am V: \3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-RETW.dwg By: mnutzmann

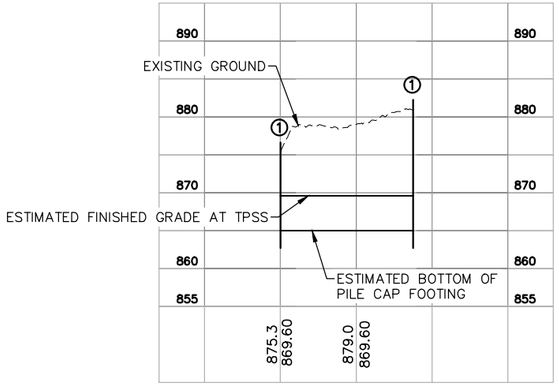


RTW-W217 PLAN

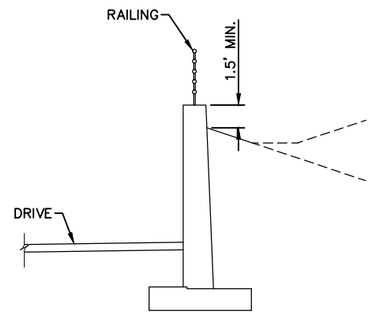
NOTE:
RTW-W217 IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON A PILE SUPPORTED FOUNDATION.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW-W217 PROFILE



RTW-W217 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

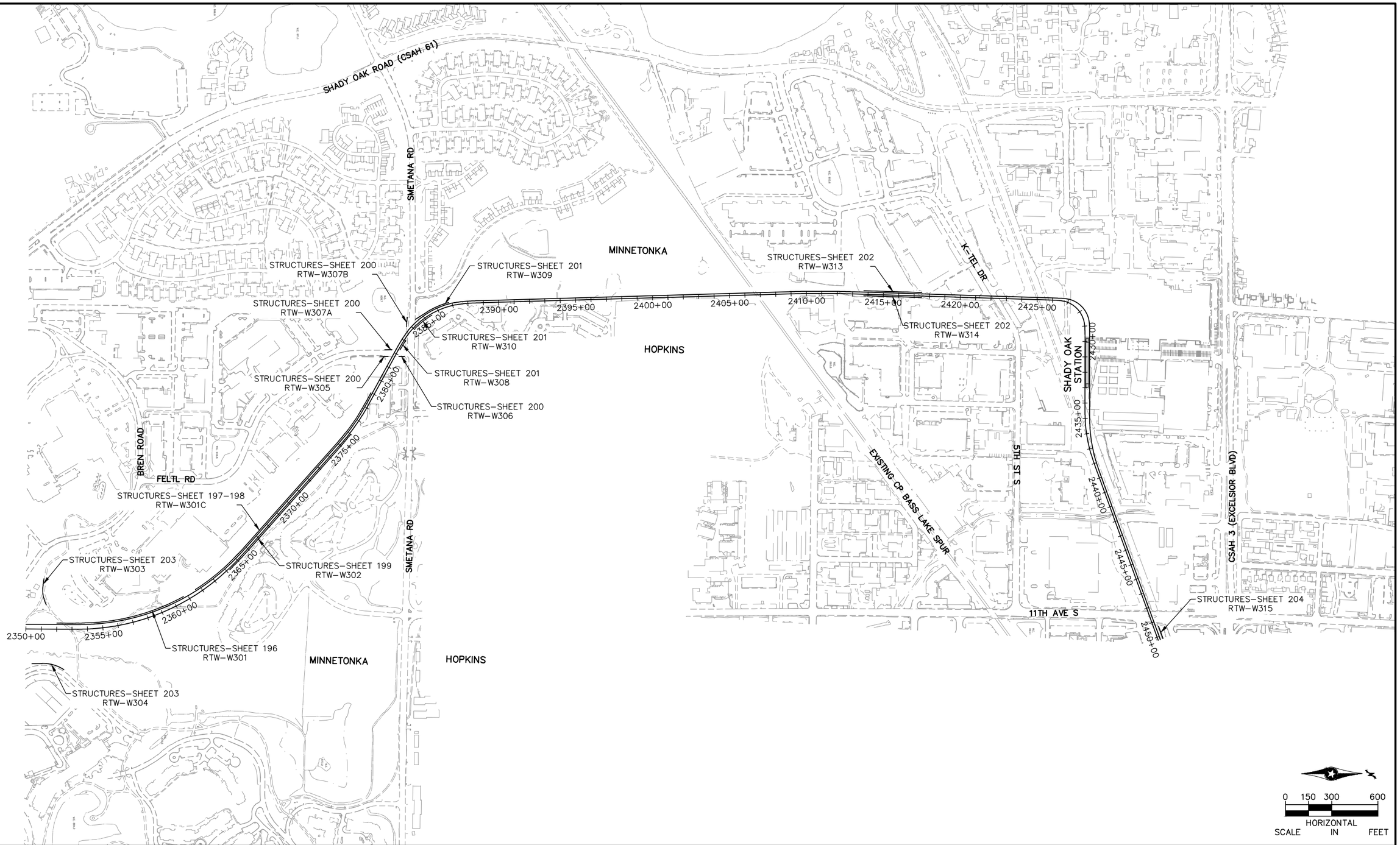
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 2
RTW-W217
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W2-STU-RTW-PPFL-015

SHEET 194 OF 204

Aug, 28 2014 08:30 am V:\3200_PEC-W\CAD\SEGMENT-W2\SHEET\STRUCTURES\W2-STU-RETW.dwg By: mnutzmann



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

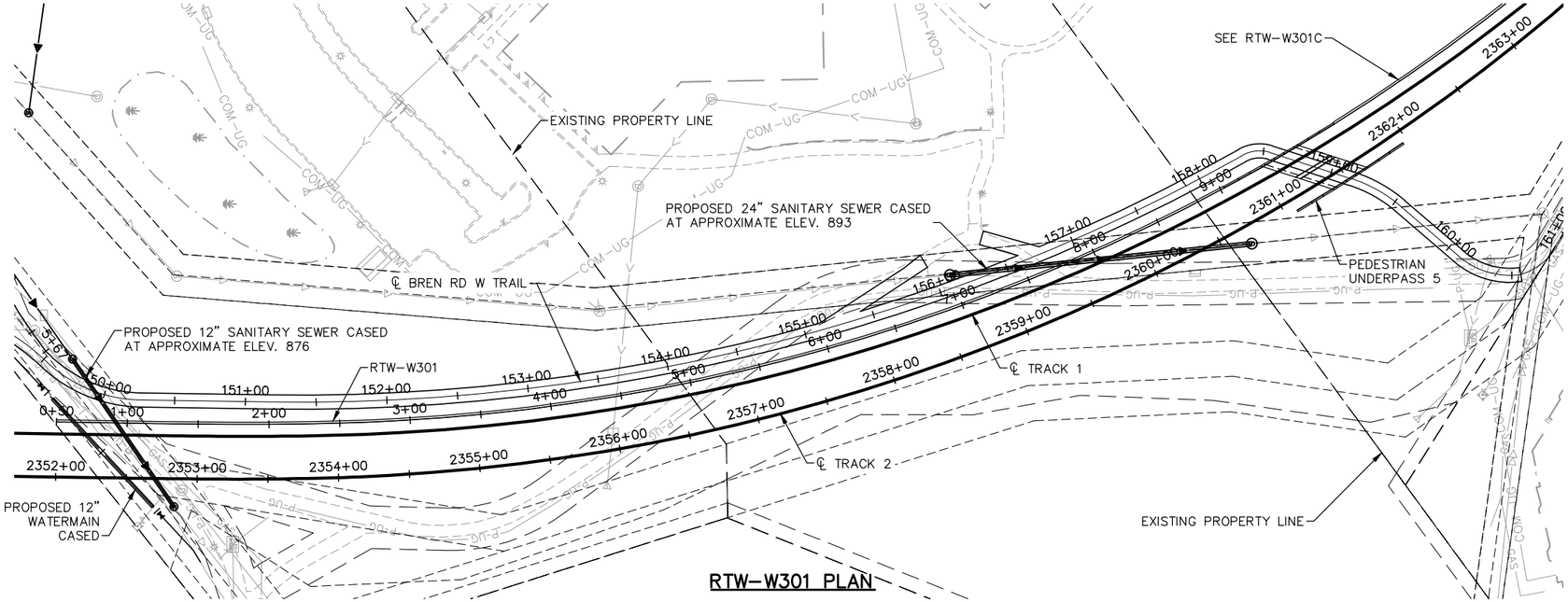
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 3
RETAINING WALLS
SHEET INDEX

DISCIPLINE: STRUCTURES

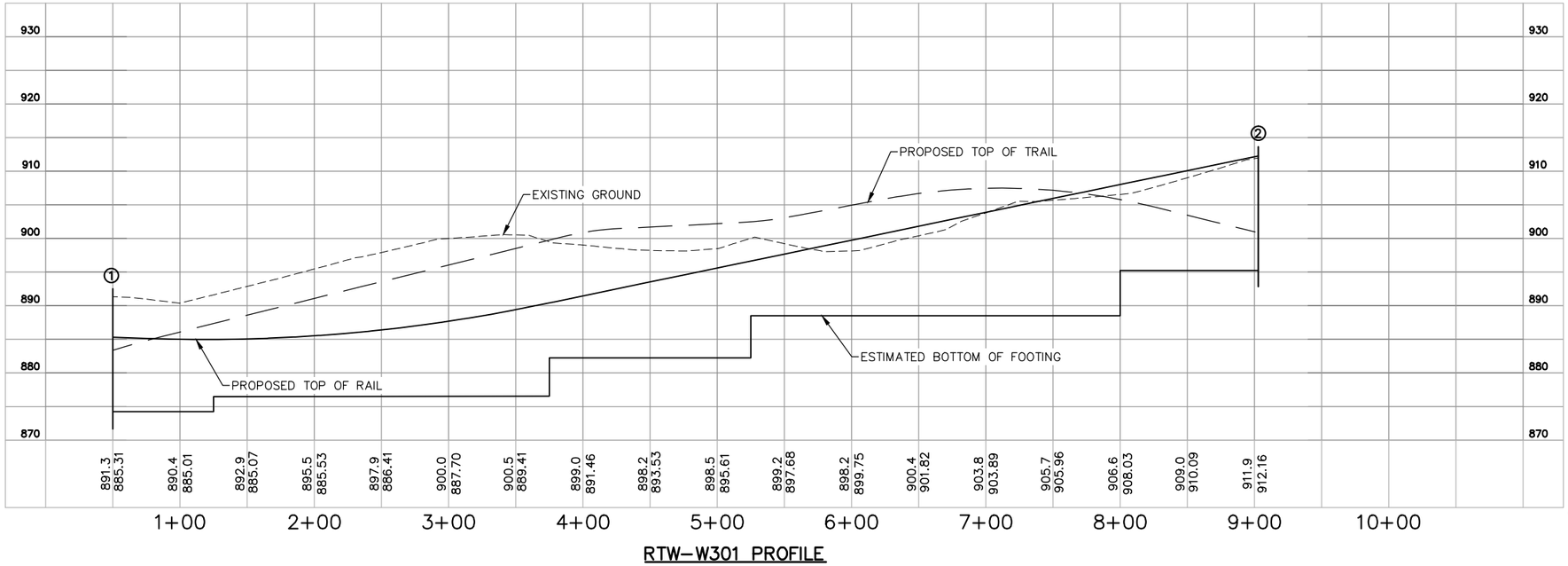
SHEET NAME: W3-STU-RTW-IDX-001

SHEET 195 OF 204

Aug, 28 2014 08:40 am V:\3200_pec-w\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-RTW-IDX.dwg By: mnutzmann



RTW-W301 PLAN

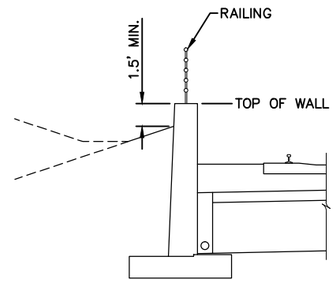


RTW-W301 PROFILE

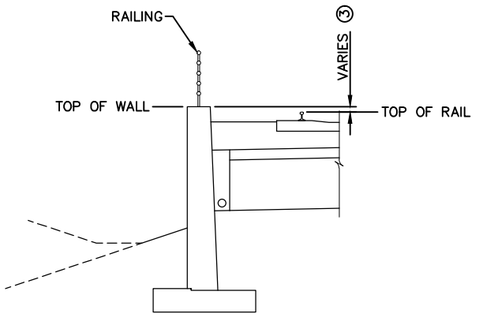
NOTE:
RTW-W301 IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON SPREAD FOOTINGS.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL.



RTW-W301 TYPICAL SECTION
STA. 0+50 TO STA. 7+69



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW-W301 TYPICAL SECTION
STA. 7+69 TO STA. 9+03

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

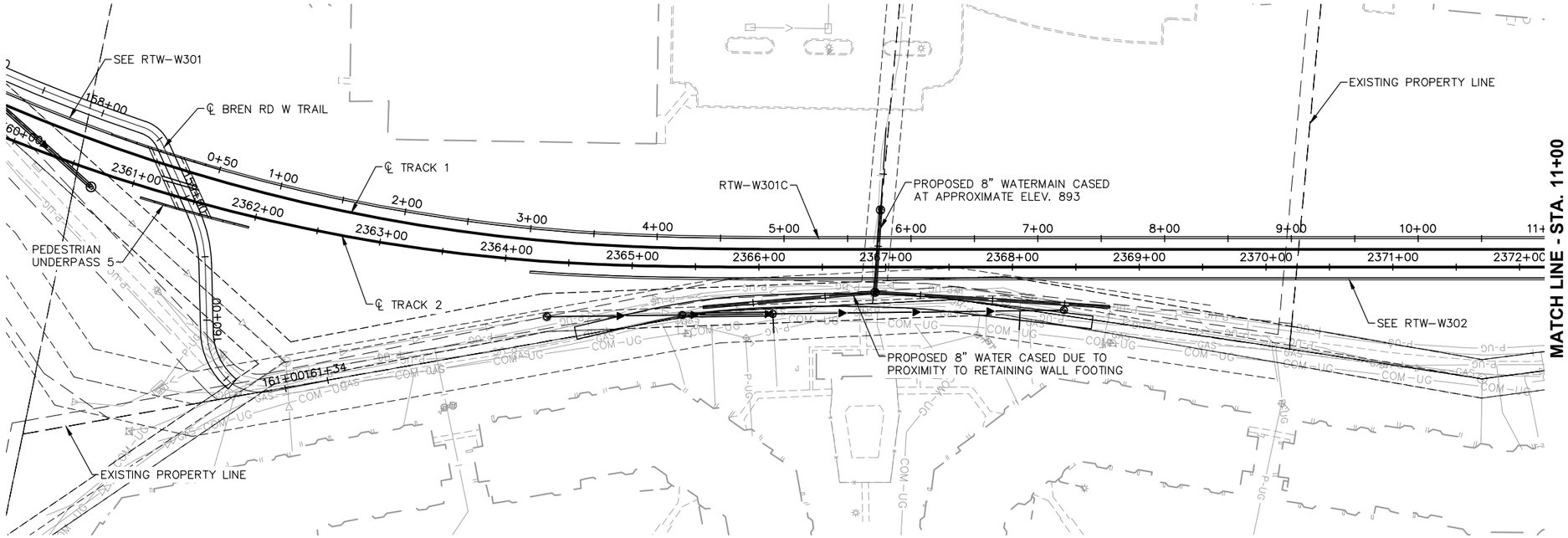
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 3
RTW-W301
PLAN AND PROFILE

DISCIPLINE: STRUCTURES
SHEET NAME: W3-STU-RTW-PPFL001

SHEET 196 OF 204

Aug, 28 2014 08:41 am v:\3200_pec-w\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-RETW.dwg By: mnutzmann

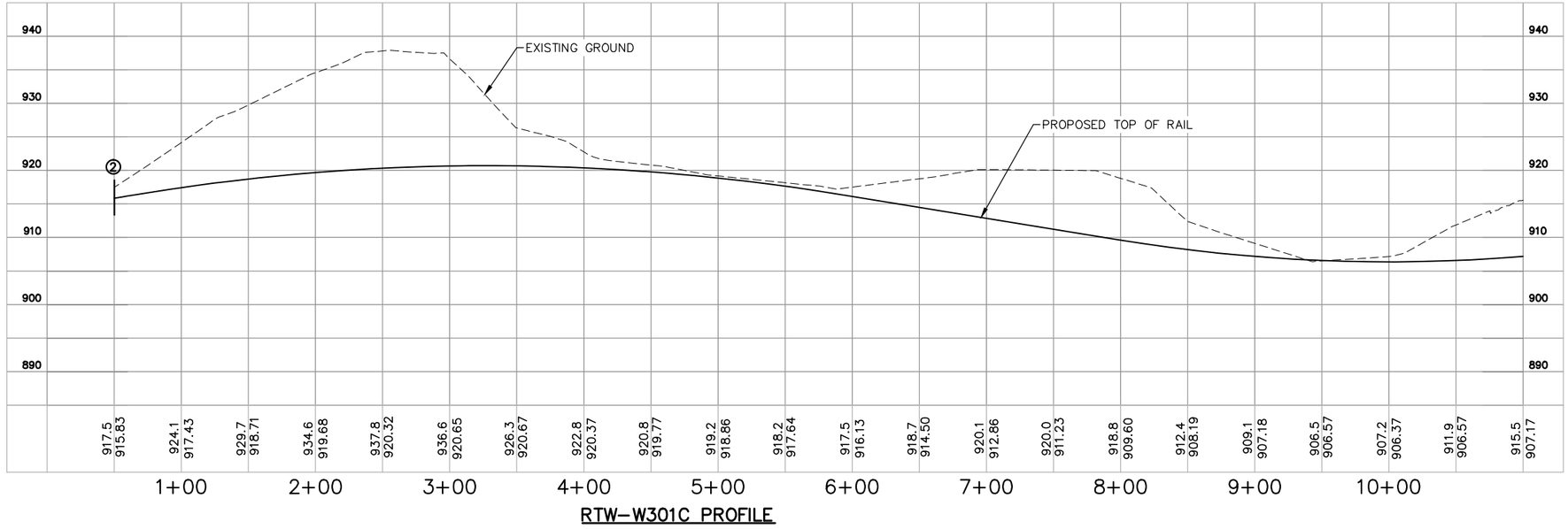


RTW-W301C PLAN

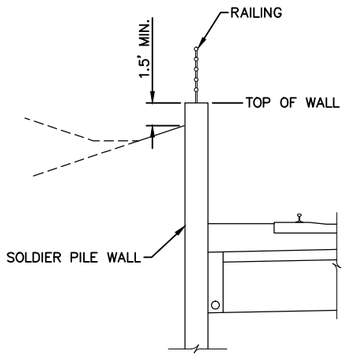
NOTE:
RTW-W301C IS ANTICIPATED TO BE A SOLDIER PILE OR SHEET PILE RETAINING WALL TO MINIMIZE IMPACT ON ADJACENT PROPERTIES.

② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW-W301C PROFILE



RTW-W301C TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

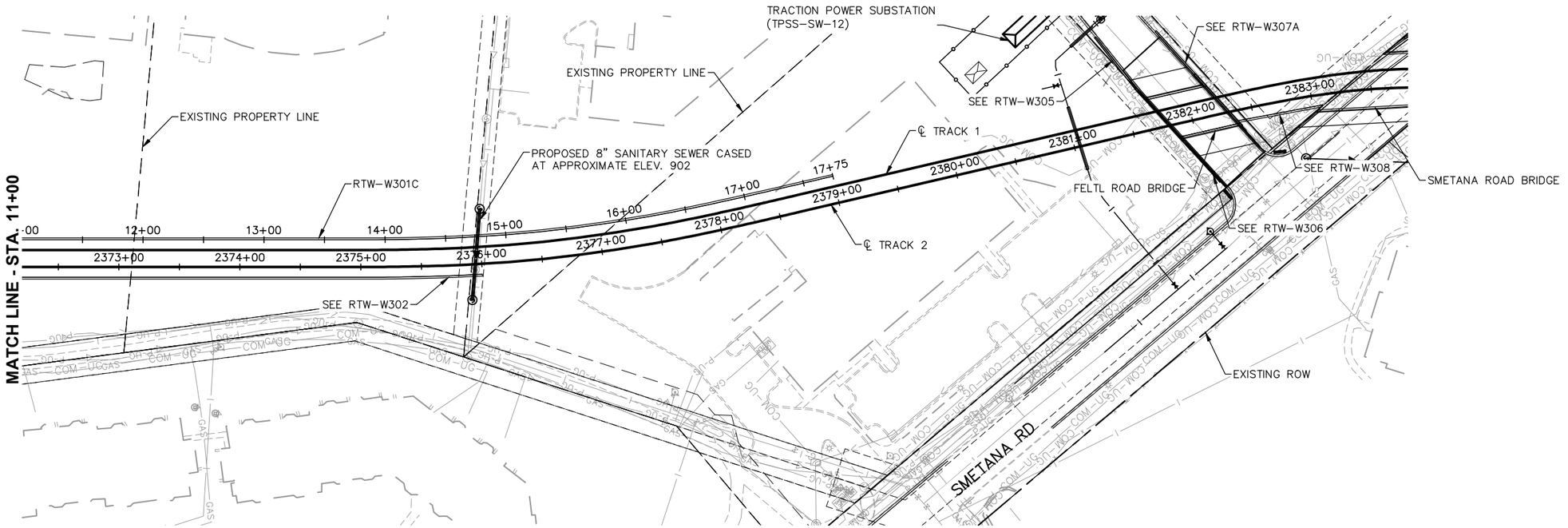
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 3 - RTW-W301C
PLAN AND PROFILE
STA. 0+50 TO STA. 11+00

DISCIPLINE: STRUCTURES
SHEET NAME: W3-STU-RTW-PPFL-002

SHEET 197 OF 204

Aug, 28 2014 08:41 am v:\3200_pec-w\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-RETW.dwg By: mnutzmann

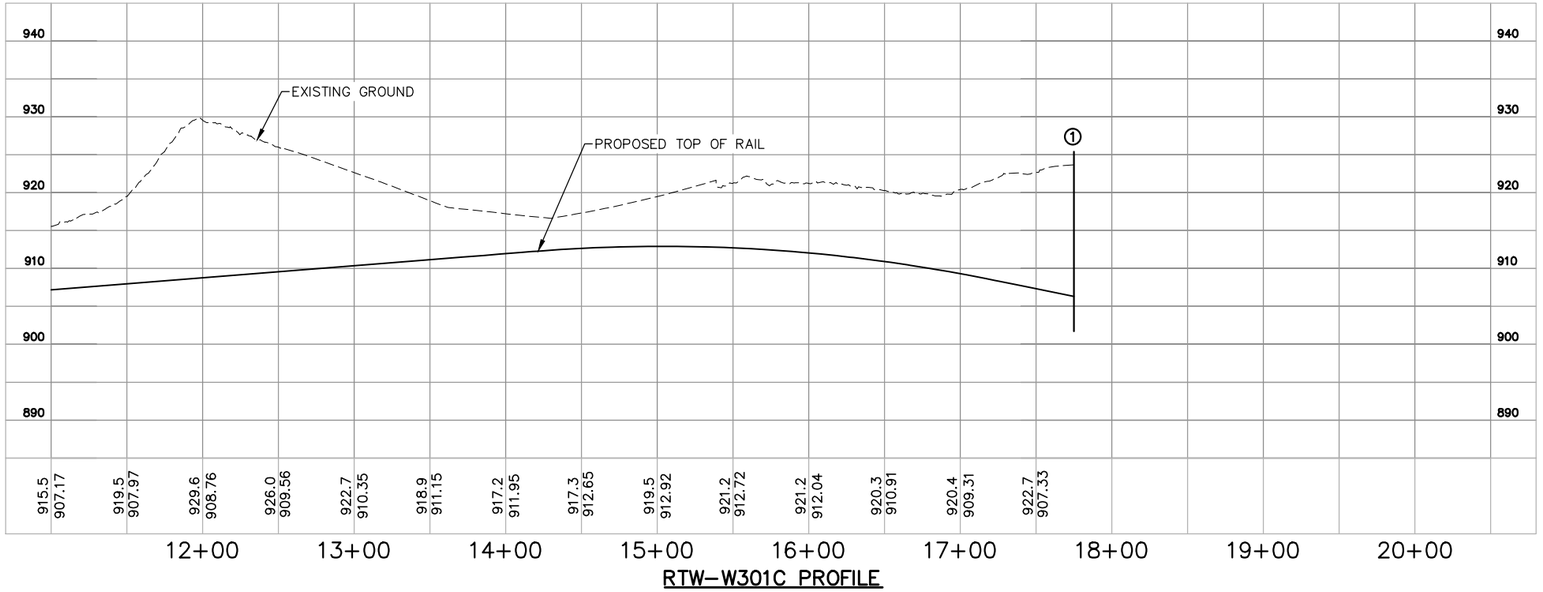


RTW-W301C PLAN

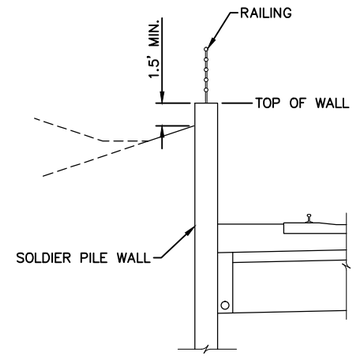
NOTE:
RTW-W301C IS ANTICIPATED TO BE A SOLDIER PILE OR SHEET PILE RETAINING WALL TO MINIMIZE IMPACT ON ADJACENT PROPERTIES.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW-W301C PROFILE



RTW-W301C TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

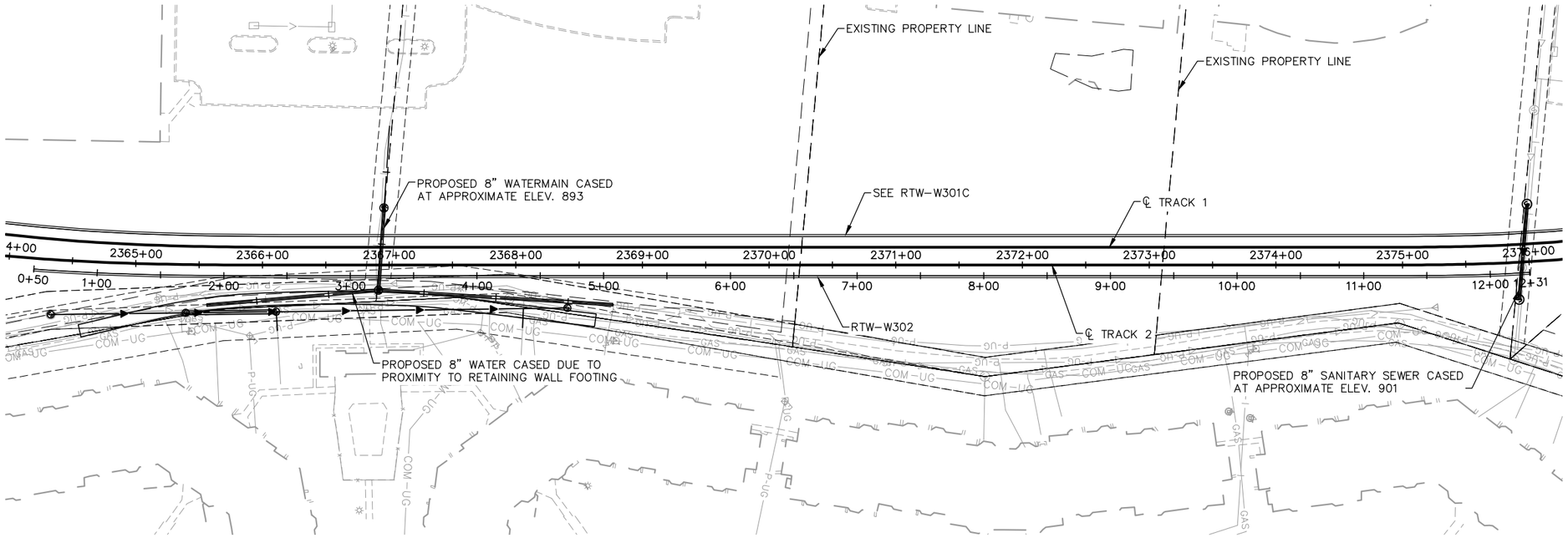
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 3 - RTW-W301C
PLAN AND PROFILE
STA. 11+00 TO STA. 17+75

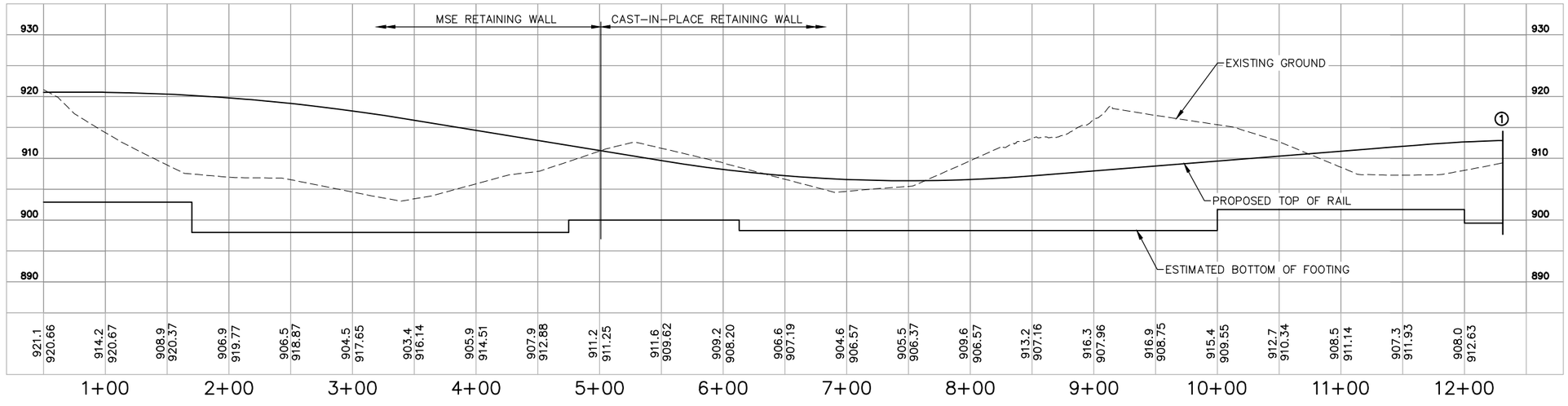
DISCIPLINE: STRUCTURES
SHEET NAME: W3-STU-RTW-PPFL-003

SHEET 198 OF 204

Aug. 28 2014 08:41 am V:\3200_pec-w\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-RETW.dwg By: mnutzmann



RTW-W302 PLAN

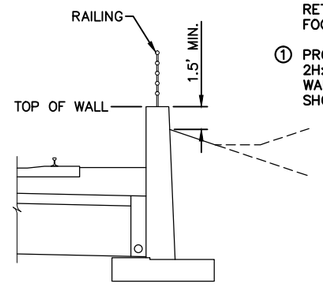


RTW-W302 PROFILE

NOTE:
RTW-W302 IS ANTICIPATED TO BE A MSE RETAINING WALL FROM STA. 0+50 TO STA. 5+01.

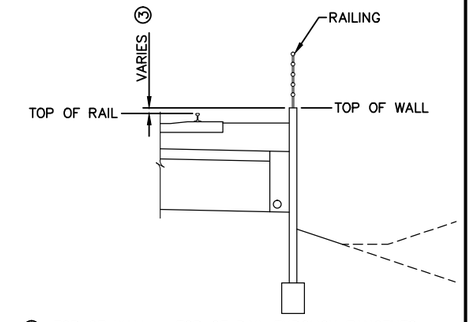
THE REMAINDER OF RTW-W302 IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON SPREAD FOOTINGS.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.



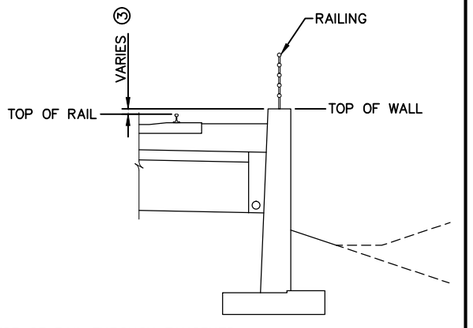
RTW-W301 TYPICAL SECTION
STA. 5+01 TO STA. 6+33
STA. 7+64 TO STA. 10+74

SCALE IN FEET
0 5 10 20 VERTICAL
0 25 50 100 HORIZONTAL



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW-W302 TYPICAL SECTION
STA. 0+50 TO STA. 5+01



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW-W302 TYPICAL SECTION
STA. 6+33 TO STA. 7+64
STA. 10+74 TO STA. 12+31

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

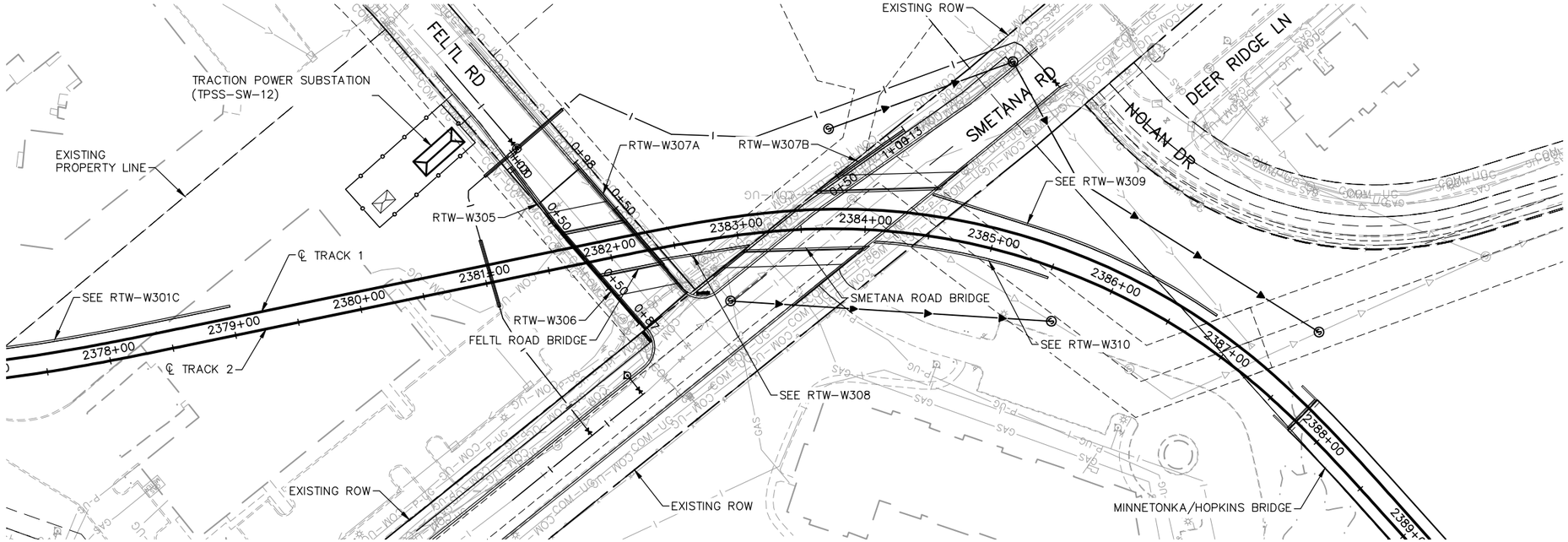
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 3
RTW-W302
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-RTW-PPFL-004

SHEET 199 OF 204

Aug. 28 2014 08:41 am V:\3200_pec-w\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-RETW.dwg By: mnutzmann

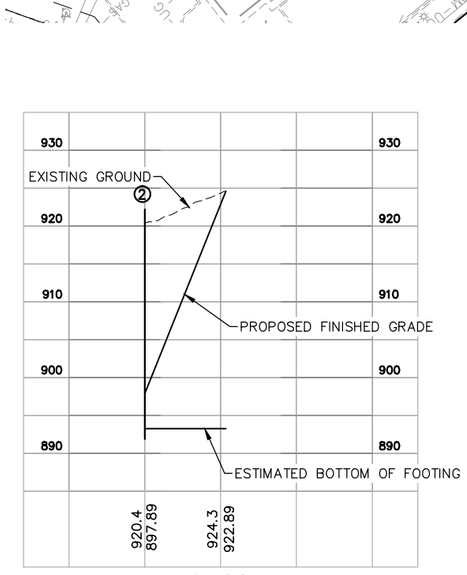


RTW-W305, RTW-W306, RTW-W307A & RTW-W307B PLAN

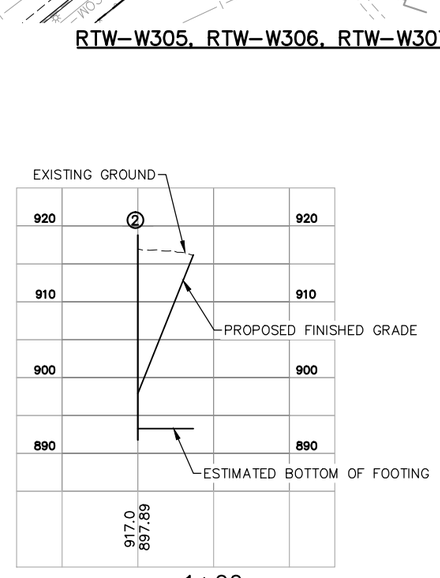
NOTE:
RTW-W305, RTW-W306, RTW-W307A AND RTW-W307B ARE ANTICIPATED TO BE CAST-IN-PLACE RETAINING WALLS ON SPREAD FOOTINGS.

② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL.

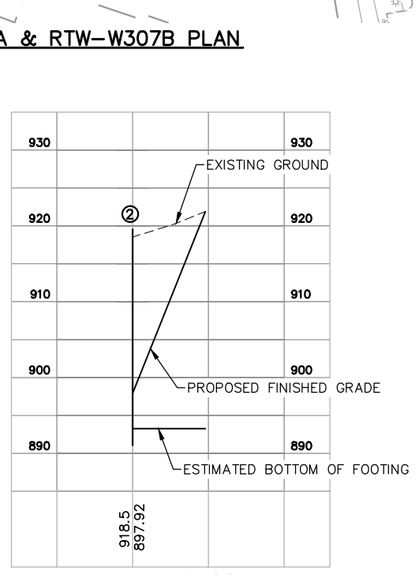
0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



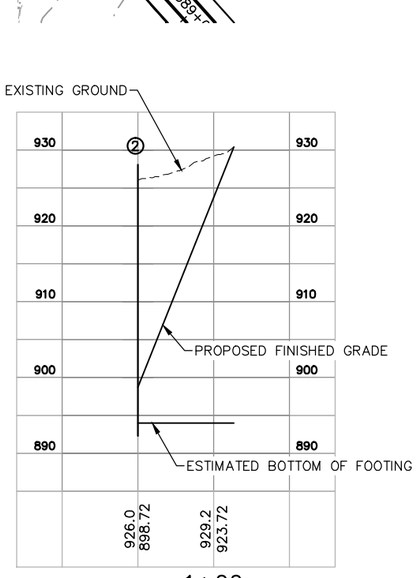
RTW-W305 PROFILE



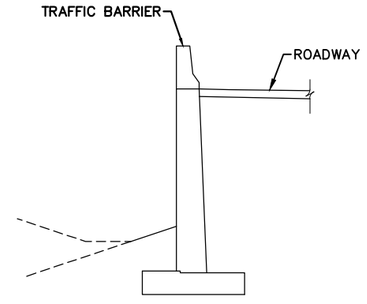
RTW-W306 PROFILE



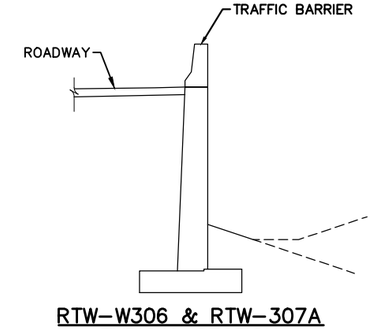
RTW-W307A PROFILE



RTW-W307B PROFILE



RTW-305 & RTW-W307B
TYPICAL SECTION



RTW-W306 & RTW-307A
TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

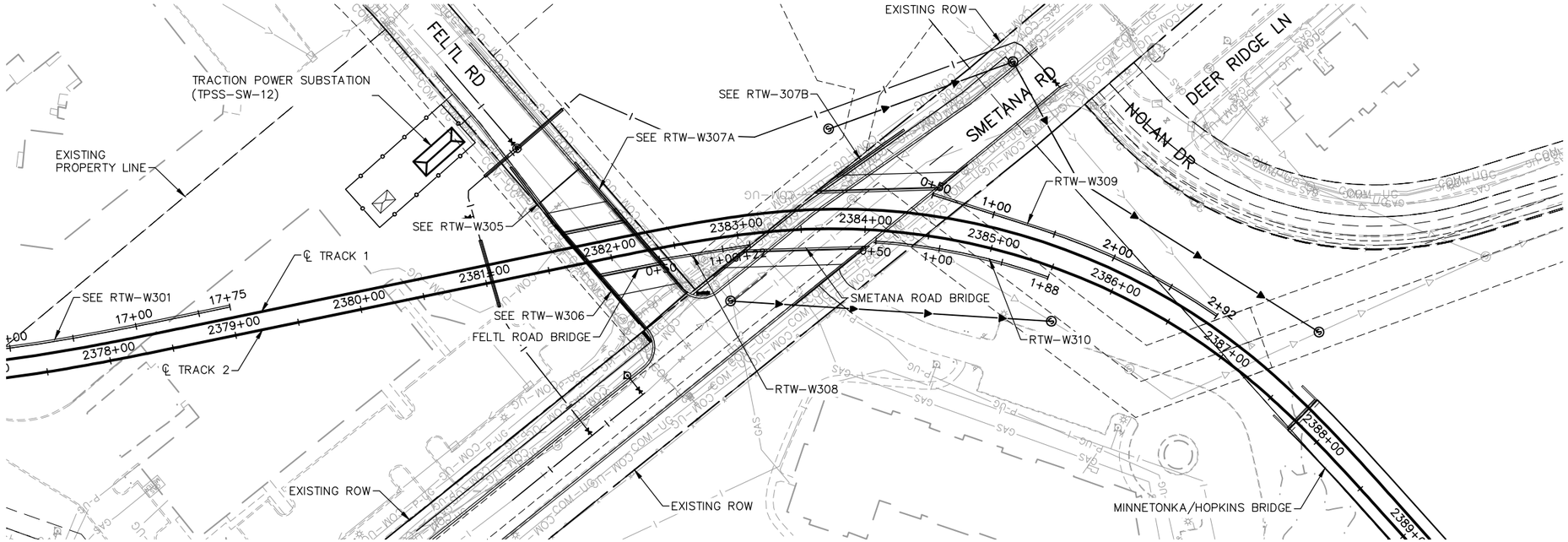
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 3 - RTW-W305, RTW-W306, RTW-W307A & RTW-W307B
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-RTW-PPFL-005

SHEET 200 OF 204

Aug, 28 2014 08:42 am V:\3200_pec-w\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-RETW.dwg By: mnutzmann



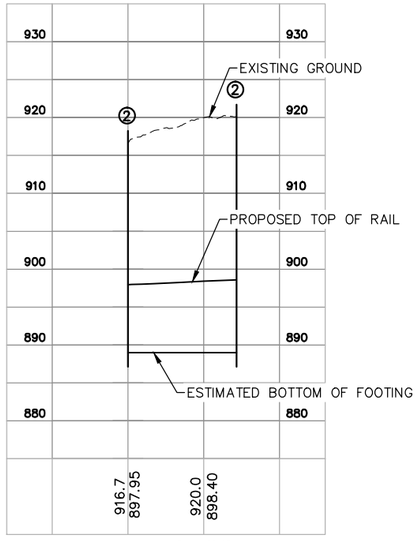
RTW-W308, RTW-W309 & RTW-W310 PLAN

NOTE:
RTW-W308, RTW-W309 AND RTW-W310 ARE ANTICIPATED TO BE CAST-IN-PLACE RETAINING WALLS ON SPREAD FOOTINGS.

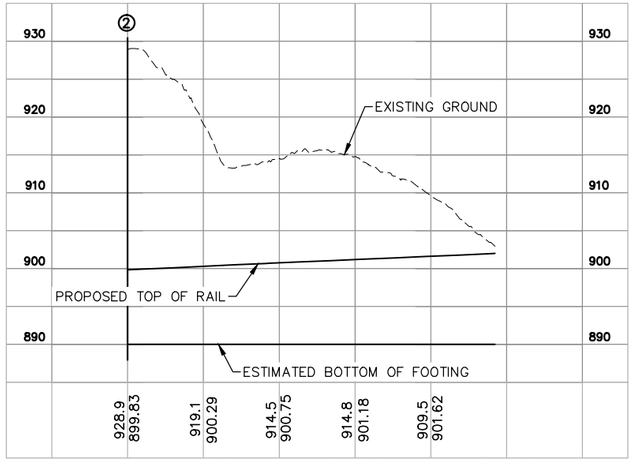
① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL.

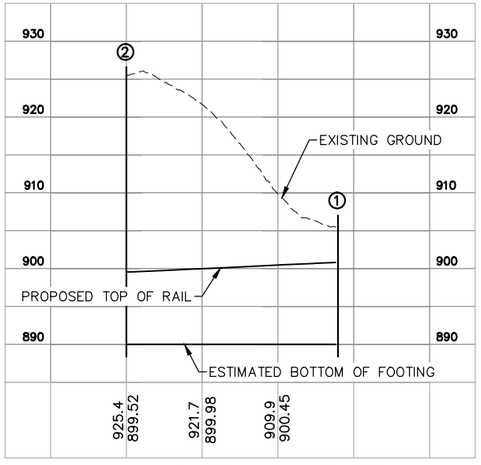
0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



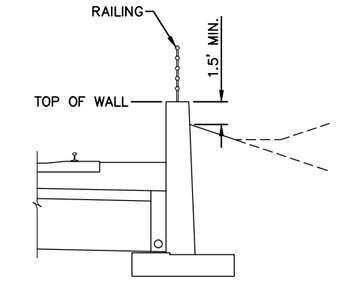
RTW-W308 PROFILE



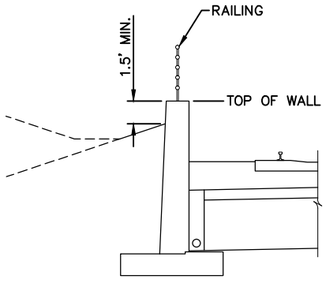
RTW-W309 PROFILE



RTW-W310 PROFILE



RTW-W308 & RTW-W310 TYPICAL SECTION



RTW-W309 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

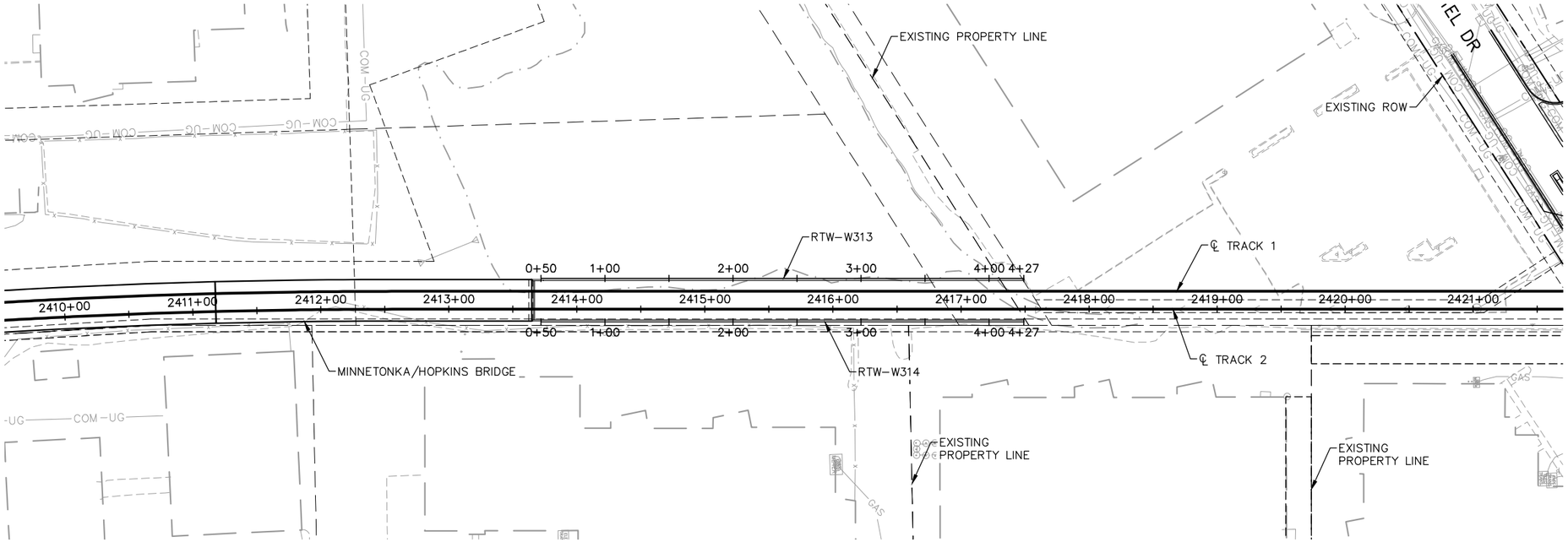
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 3
RTW-W308, RTW-W309 & RTW-W310
PLAN AND PROFILE

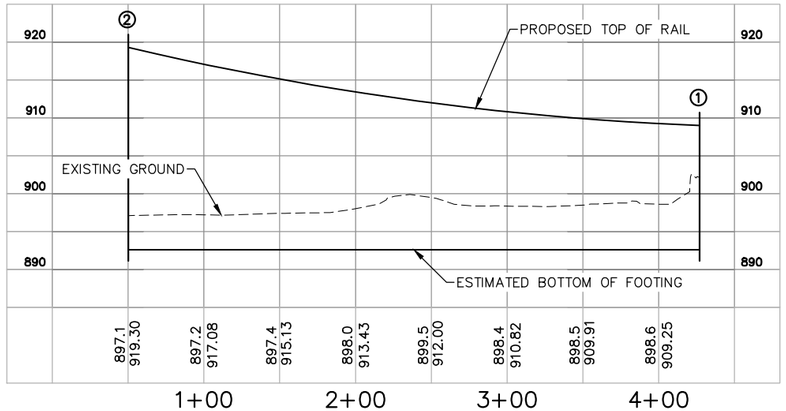
DISCIPLINE: STRUCTURES
SHEET NAME: W3-STU-RTW-PPFL-006

SHEET 201 OF 204

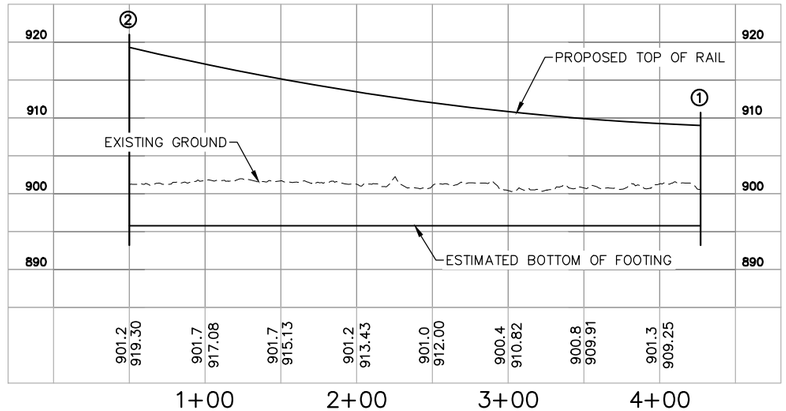
Aug. 28 2014 08:42 am v:\3200_pec-w\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-RETW.dwg By: mnutzmann



RTW–W313 & RTW–W314 PLAN



RTW–W313 PROFILE



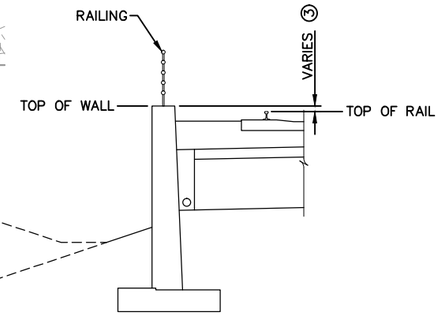
RTW–W314 PROFILE

NOTE:
RTW–W313 AND RTW–W314 ARE ANTICIPATED TO BE CAST–IN–PLACE RETAINING WALLS ON SPREAD FOOTINGS.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

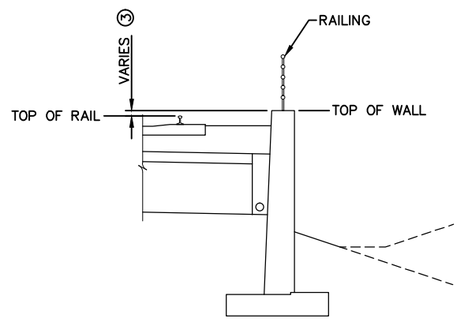
② JOINT LOCATION BETWEEN RETAINING WALL AND BRIDGE WINGWALL.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW–W313 TYPICAL SECTION



③ TOP OF WALL = TOP OF RAIL THROUGH TANGENTS
TOP OF WALL = TOP OF RAIL + SUPERELEVATION THROUGH CURVES & SPIRALS

RTW–W314 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

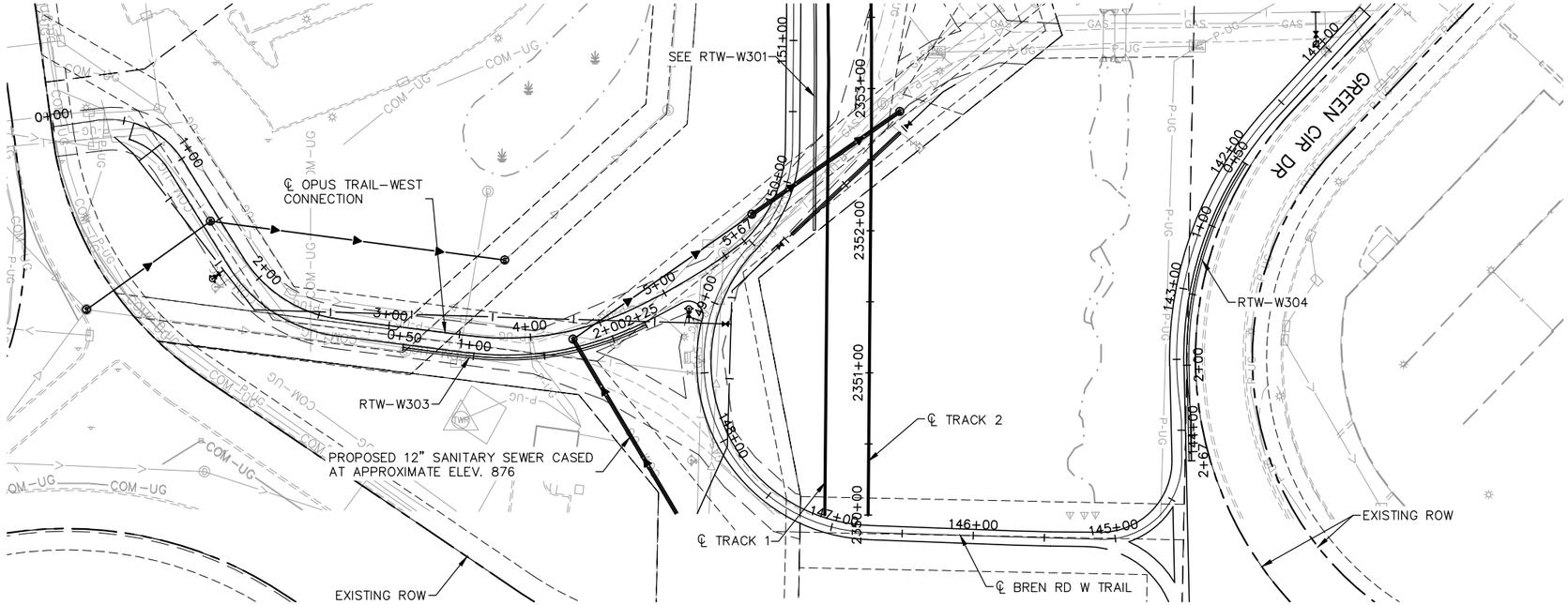
SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 3
RTW-W313 & RTW-W314
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-RTW-PPFL-007

SHEET 202 OF 204



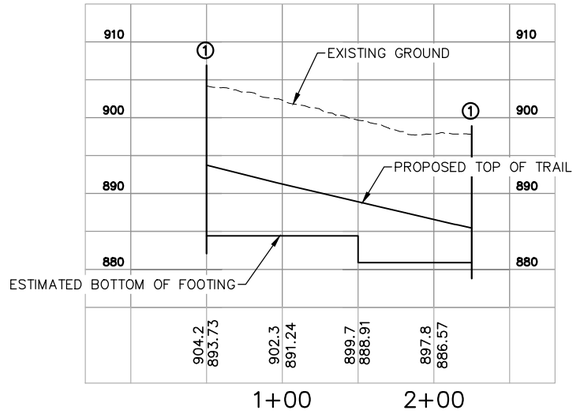
RTW-W303 & RTW-W304 PLAN

NOTE:
RTW-W303 IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON SPREAD FOOTINGS.

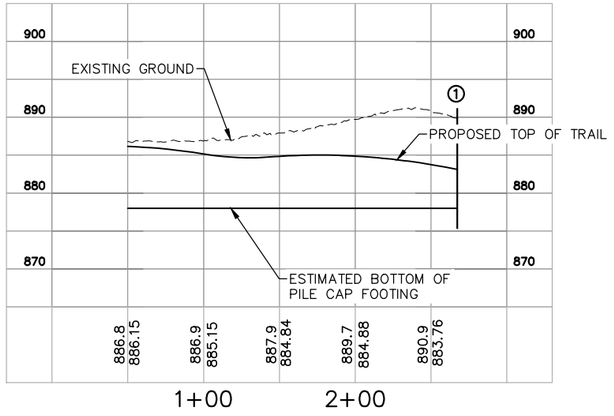
RTW-W304 IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON A PILE SUPPORTED FOUNDATION.

① PROPOSED GROUND LINE AT 2H:1V MAXIMUM SLOPE AT WALL TERMINATION NOT SHOWN.

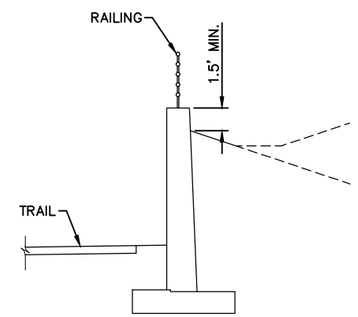
0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



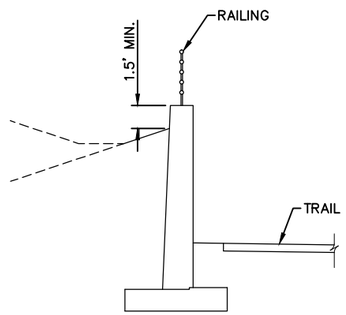
RTW-W303 PROFILE



RTW-W304 PROFILE



RTW-W303 TYPICAL SECTION



RTW-W304 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

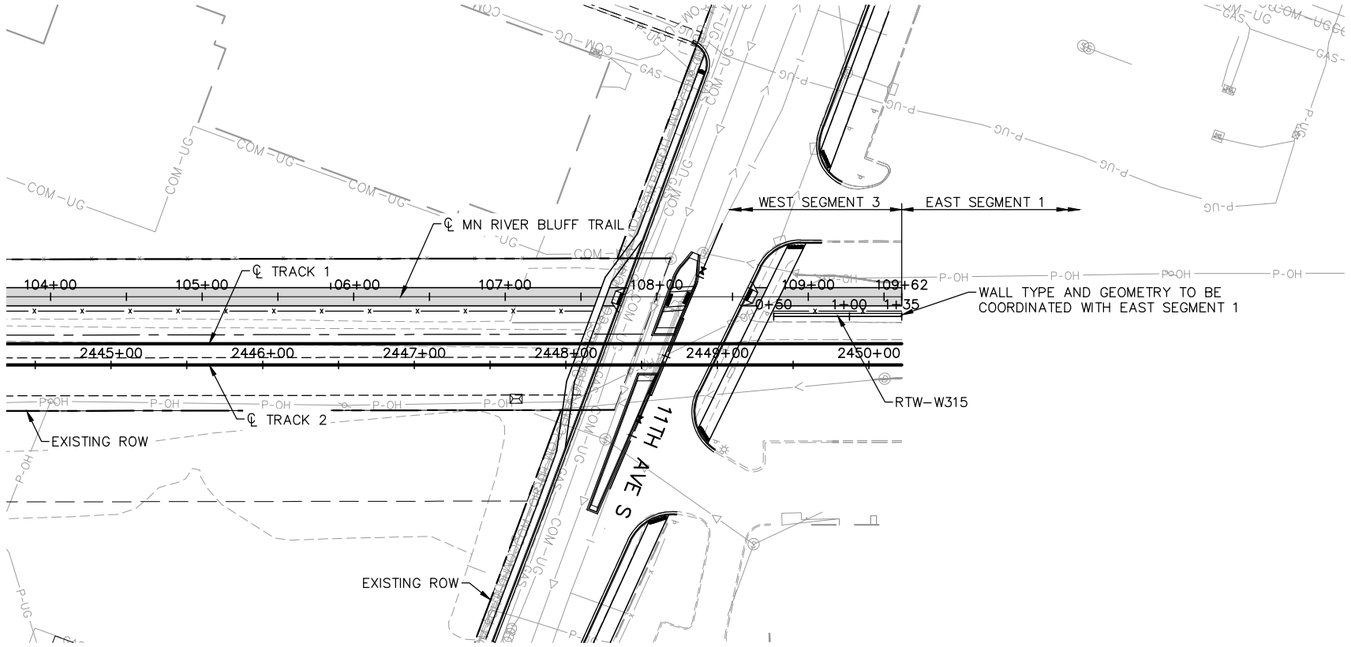
WEST-VOLUME 2 (STRUCTURES)
SEGMENT 3
RTW-W303 & RTW-W304
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-RTW-PPFL-008

SHEET 203 OF 204

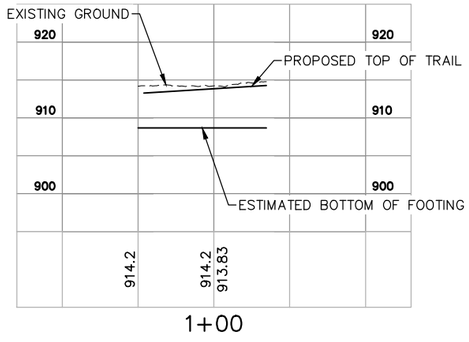
Aug. 28 2014 08:42 am v:\3200_pec-w\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-RETW.dwg By: mnutzmann



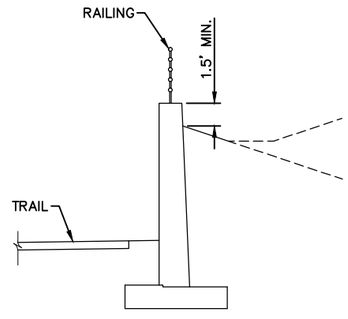
RTW-W315 PLAN

NOTE:
RTW-W315 IS ANTICIPATED TO BE A CAST-IN-PLACE RETAINING WALL ON SPREAD FOOTINGS.

0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



RTW-W315 PROFILE



RTW-W315 TYPICAL SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extention

WEST-VOLUME 2 (STRUCTURES)
SEGMENT 3
RTW-W315
PLAN AND PROFILE

DISCIPLINE: STRUCTURES

SHEET NAME: W3-STU-RTW-PPFL-009

SHEET 204 OF 204

Aug. 28 2014 08:42 am V:\3200_pec-w\CAD\SEGMENT-W3\SHEET\STRUCTURES\W3-STU-RETW.dwg By: mnutzmann