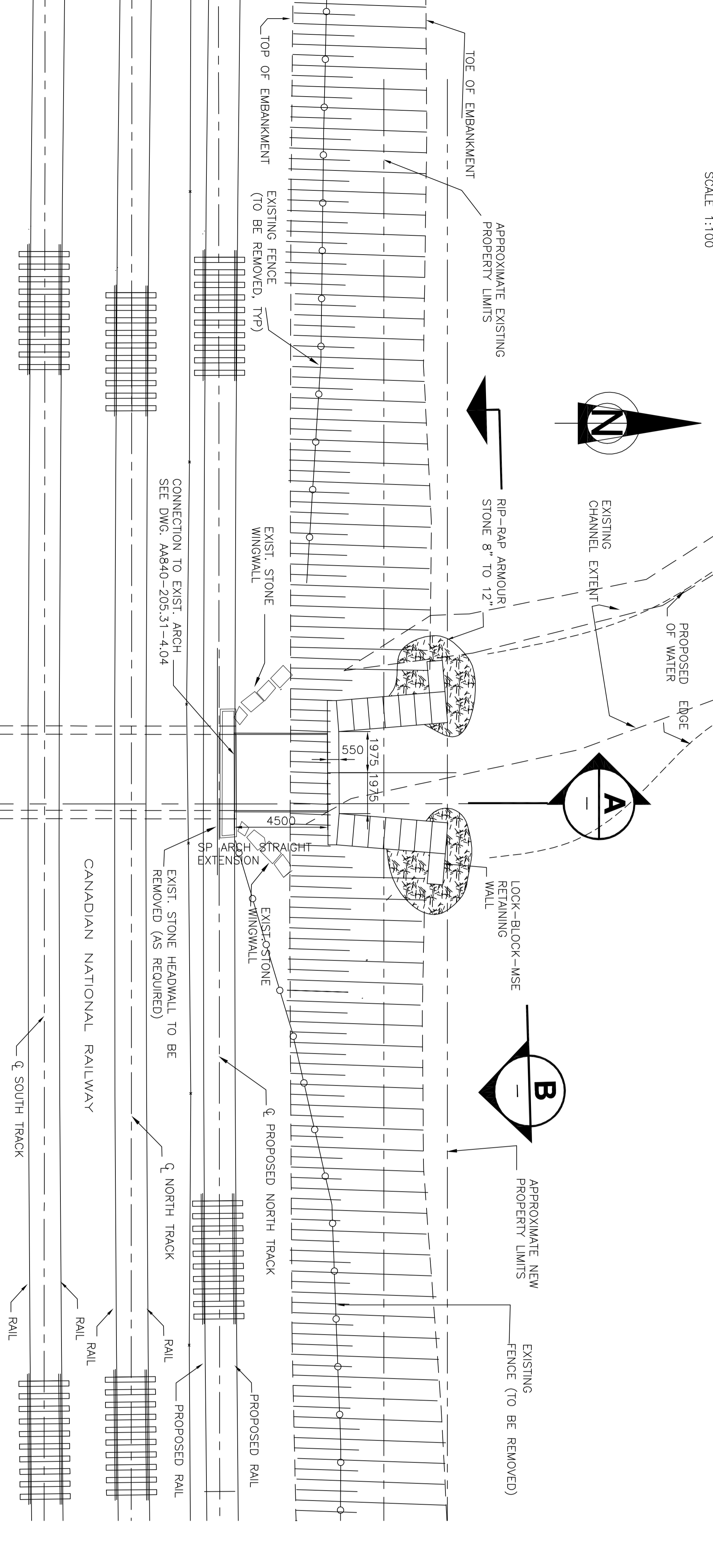
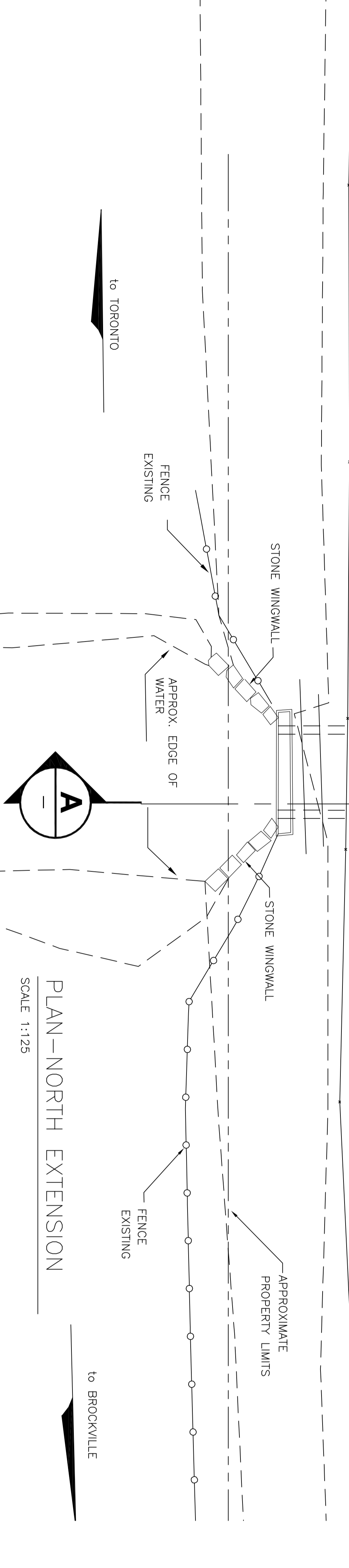


SECTION A-A
SCALE 1:100



SECTION B-B
SCALE 1:100



PLAN-NORTH EXTENSION
SCALE 1:125

1. GENERAL NOTES:

- 1.1. IT IS PROPOSED TO EXTEND THE EXISTING ARCH CULVERT TO ACCOMMODATE ADDITION OF THIRD TRACK ON NORTH SIDE. THIS EXTENSION WILL CONSIST OF A STRUCTURAL PLATE ARCH SUPPORTED ON CAST IN PLACE CONCRETE FOOTINGS FOUNDED ON BEDROCK.
- 1.2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY SURVEY TO CONFIRM THE LOCATION OF THE EXISTING AND THE NEW STRUCTURE
- 1.3. BASE OF RAIL ELEVATION OF PROPOSED TRACK TO MATCH EXISTING NORTH TRACK BASE OF RAIL
- NEAREST STATION: MOHAWK MILE 202.0

2. DESIGN NOTES:

- 2.1. SPECIFICATIONS: AREMA 2009, CHAPTER 1 AND 4, AND CHAPTER 8 MODIFIED BY CN GUIDELINES FOR THE DESIGN OF RAILROAD STRUCTURES, JANUARY 2006 AS NECESSARY.
- 2.2. LIVE LOADS: COOPER E-90+DIESEL IMPACT
- 2.3. LATERAL EARTH PRESSURE PARAMETERS

PARAMETER	OPSS	OPSS
Granular (AREMA Type1 Backfill)	21.2	Granular B Type 1(AREMA Type1 Backfill)
WEIGHT (kN/m ³)	22.0	
MOISTURE (Wt. %)	4.06	3.69
PASSIVE COEFF. Kp	4.80	3.69
ACTIVE COEFF. Ka	0.36	0.45
ACTIVE COEFF. Kα	0.22	0.27

3. MATERIAL SPECIFICATIONS:

- 3.1. CONCRETE ACI 318 OR CSA CAN-A23.1 AND A23.2-2005. MINIMUM SPECIFIED COMPRESSIVE STRENGTH SHALL BE 35 MPa AT 28 DAYS (IF CAST-IN-PLACE)
- 3.2. REINFORCING: NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60 OR CAN/CSA G30.18, GRADE 400 MPa.
- 3.3. MINIMUM CONCRETE COVER FOR REINFORCING SHALL BE 50mm UNLESS NOTED OTHERWISE
- 3.4. HOT TIP GALVANIZING OF IRREGULARLY SHAPED ARTICLES AS PER CAN/CSA G164-M92 (R2003)
- 3.5. MULTI-PLATE-ARCH: CORRUGATED GALVANIZED STRUCTURAL STEEL PLATE PRODUCTS PER CSA STANDARD G401-07 OR AASHTO M167, AS MANUFACTURED BY ARMTEC LTD. OR EQUIVALENT
- 3.6. MULTI PLATE ARCH, UNEQUAL CHANNEL ANCHORAGE AND ASSEMBLY HARDWARE TO BE PROVIDED BY ARCH SUPPLIER.
- 3.7. MSE RETAINING WALL: DESIGNED AND SUPPLIED BY OTHERS
- 3.8. BACKFILL: BACKFILL MATERIAL SHALL BE NON-FROST SUSCEPTIBLE, FREE DRAINING GRANULAR MATERIAL, TYPE 1 AS PER ARENA 2009, CLAUSE 5.2.5
- PLAGE FILL MATERIAL IN LIGHTS NOT EXCEEDING 0.3M IN THICKNESS AND COMPACTED TO NO LESS THAN 95% OF SPMDU.

4. REFERENCES:

- 4.1. GEOTECHNICAL REPORT BY JACQUES WHITFORD STANTEC LTD., JUNE 2009
 - 4.2. CN STANDARD DWG R7A-80.2
 - 4.3. SURVEY OF EXISTING CULVERT BY AECOM, DWG AA840-205.31-3.01 AND AA840-205.31-3.02 DATED 09/05/05
 - 4.4. HYDRAULIC INVESTIGATION COMPLETED BY AECOM, MISSISSAUGA, ON (MEMORANDUM DATED JULY 10, 2009, PROJECT NUMBER: 0431-388-32)
 - 4.5. BENCHMARKS FROM SURVEY
- LIST OF BENCHMARKS (FOR DESCRIPTION SEE SURVEY DRWG NAMED UNDER 4.3.)
- BM #20531N
BM #20531S
BM #20531S1

SENIOR STRUCTURAL ENGINEER

No.	Date	Revision	By/For
C	MAY 16, 2011	GENERAL REVISION	
B	DEC 31, 2010	LOCK-BLOCK-MSE RETAINING WALL MODIFICATIONS	
A	DEC 14, 2010	GENERAL REVISION	
	JAN 15, 2010	ISSUED FOR CONSTRUCTION	
		ISSUED FOR TENDER	

STONE ARCH CULVERT EXTENSION
NEAR MOHAWK, ONTARIO
CULVERT NORTH EXTENSION DETAILS
GENERAL PLAN AND SECTIONS

Drawn	Design	DGT	Conception	DGT	Checked	Scale	Date
						AS NOTED	JAN 15, 2010

Office of Chief Engineer
Bureau de l'ingénieur en chef

