



**THURBER** ENGINEERING LTD.

**FOUNDATION DESKTOP STUDY REPORT  
PRELIMINARY DESIGN AND ENVIRONMENTAL ASSESSMENT  
ZELLENS ROAD OVERHEAD AT CPR, MILEAGE 61.90  
STRUCTURE REHABILITATION  
HAMILTON, ONTARIO  
W.O. #16-20004  
SITE 36-503**

**GEOCRES NO. 30M5-348**

**Latitude: 43.298246°  
Longitude: -79.902167°**

**Report**

**to**

**AECOM**

Date: November 8, 2022  
File: 25963



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## **1.0 INTRODUCTION**

This report presents the results of a foundation desktop study carried out by Thurber Engineering Ltd. (Thurber) for the preliminary design and environmental assessment for the rehabilitation of the Zellens Road Overhead at CPR in Hamilton, Ontario.

This Phase 1 study is carried out for planning, structure evaluation and preliminary design purposes only. As part of the Phase 1 scope, a desktop study is to be carried out based on currently available subsurface and foundation information. Should this study determine that the existing foundation information is insufficient to complete the preliminary design, additional foundation investigation and assessment would be recommended for completing Phase 1. It is understood that the budget for this additional investigation is to be drawn from the Phase 2 contingency upon approval by MTO.

Thurber was retained by AECOM to carry out this Phase 1 study under the Ministry of Transportation Ontario (MTO) Assignment Number 2016-E-0027.

This site is a part of the overall Highway 403 and Highway 6 Interchange Improvements project where 14 bridges, 3 structural culverts and 15 retaining walls are planned to be replaced, reconstructed or rehabilitated.

The following references and drawings are available in the general vicinity of this site.

- Technical Memorandum, Foundation Design Recommendations, Zellens Road Structure Over CP Rail, Highway 6 Widening between Highway 403 and 5, G.W.P. 19-95-00, Report 001-1141F-MEM, prepared by Golder Associates, dated December 8, 2004. (Reference 1).

Client: AECOM

File No. 25963

E file: H:\20000-29999\25000-25999\25963 Hwy 403 & 6 2016-E-0027\Reports & Memos\Phase 1\Zellens Rd. Overhead-Site 36-503-REHABILITATION\FINAL\25963-FINAL-Zellens Rd Overhead at CPR-site 36-503.doc

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- Archive drawings, Zellens Road Overhead at CPR, Mileage 61.90, Contract No. 2005-2019, W.P. 19-95-05, prepared by URS, dated July 2005. (Reference 2).
  - General Arrangement, Sheet 278
  - Foundation Layout, Sheet 281
  - Abutment, Sheet 282
  - Wingwalls, Sheet 283
  - Retained Soil System, Sheet 290
- Ontario Bridge Management System (OBMS), Ontario Structure Inspection Manual – Inspection Form, Zellens Road Bridge Over CPR, Site number 36-503, Regular OSIM 09-30-2016 dated December 14, 2016. (Reference 3).

It is a condition of this report that Thurber's performance of its professional services is subject to the attached Statement of Limitations and Conditions.

## **2.0 SITE AND PROJECT DESCRIPTION**

The existing bridge is located at the crossing of Zellens Road and CPR tracks in Hamilton, Ontario. At the site, the overhead structure carries Zellens Road over the CPR tracks.

The lands surrounding Zellens Road and CPR tracks are generally of residential usage. Lands on the northwest side of the site are vacant. Highway 6 runs in a north to south direction approximately 220 m east of the site.

The existing single span bridge carrying Zellens Road over CPR tracks was constructed in 2006. According to available information (Reference 2), the existing overhead consists of a single-span reinforced cast-in place concrete rigid frame structure supported on two abutments. Archive design drawings indicate that the abutments are supported by spread footings. The bridge is at an approximate 10° skew to the CPR track alignment. The clear distance between the abutment faces is about 12.2 m and the width of the bridge is about 12.3 m. The existing grade of Zellens Road at the bridge is at approximate Elevation 142.5 while the top-of-rail at CPR is near Elevation 133. The existing north and south approaches are in the order of 9.5 m high. RSS walls are located at each corner of the structure. These retaining walls are 14 m and 16 m in length. The maximum height of the walls near the abutments ranges between 6.2 m and 6.8 m, then tapering away from the bridge.

Selected photographs of the site are included in Appendix C.



There is no record of any rehabilitation program carried out for this structure since its construction in 2006.

The project area is situated within the physiographic region known as the Niagara Escarpment, which forms a north-south trending strip, and is a major topographic break in the bedrock between the carbonate Amabel Formation to the west and the soft sediments of the Queenston Formation to the northeast. At many locations, the Queenston Formation consists of up to 1.2 m of very weathered bedrock (red clay) which grades downward into typical brick-red shale and often with green mottling. Thin to medium beds of grey-green and reddish argillaceous limestone are present in most sections. The Queenston shale is overlain by Halton Till in the area of the site. The Halton Till is a red clay to clayey silt till and is exposed in the form of a till plain extending from Lake Ontario southward to the Niagara escarpment.

### **3.0 SITE OBSERVATIONS**

A site reconnaissance visit was conducted by a Thurber Senior Geotechnical Engineer on March 27, 2022, to observe conditions related to the foundation performance of the existing bridge and approaches. The following observations have been noted during our site visit:

- There was no visible sign of settlement or distress along the bridge alignment.
- The existing approach embankments are covered with vegetation including bushes and trees, and appeared to be in good condition. The side slopes did not exhibit obvious sign of instability or bulging.
- The RSS walls appear to be in good condition.
- The overhead structure shows no signs of structural distress.
- Wet stains were noted at the top of the deck.
- Graffiti was observed on the four retaining walls, abutment walls and deck fascia.
- At the northeast retaining wall, movement/misalignment was noted at the wall cap at the east end of the wall.
- Throughout the Zellens Road platform, longitudinal and transverse cracks were observed along the pavement on both lanes, at the overhead location.

Selected photographs of the site taken during the site visit are presented in Appendix C.



#### **4.0 SUBSURFACE CONDITIONS**

A foundation investigation was carried out at this site (Reference 1) for the design and construction of the existing bridge. The investigation consisted of drilling and sampling six (6) boreholes (numbered Z-3 to Z-8) near the proposed abutments and immediate approach embankments. It is noted that Record of Borehole Sheets for this site are not available for preparation of this Desktop Study. The subsurface conditions were interpreted from information provided in Reference 1 as well as from soil profile drawings presented in Appendix A.

In general, the subsurface stratigraphy encountered at the site, during the previous field investigation, consisted of surficial topsoil or fill overlying layers of clayey silt and glacial tills.

Topsoil was contacted surficially in Boreholes Z-3, Z-6 to Z-8. Fill was encountered surficially in Boreholes Z-4 and Z-5, drilled on the south side of the rail tracks. Firm clayey silt (possible fill) was contacted below the topsoil in Borehole Z-6. This layer was approximately 900 mm thick. Below the fill, topsoil or clayey silt, and deposits of glacial tills were contacted in all the boreholes as follows:

- Clayey silt till/residual soils at approximate Elevations 130.5 to 127.5; measured SPT 'N' values ranged from 14 to 74 blows per 0.3 m of penetration indicating a stiff to hard consistency.
- Sandy silt till/residual soil at approximate Elevations 125.5 to 126.5; SPT 'N' values were greater than 100 blows per 0.3 m of penetration indicating a very dense state.
- In Borehole Z-5, a lower layer of clayey silt till/residual soil was contacted near Elevation 123.5; measured SPT 'N' values were 75 to greater than 100 blows per 0.3 m of penetration, indicating a hard consistency.

It is noted that glacial tills inherently contain cobbles and boulders.

Shale bedrock was contacted below the clayey silt till/residual soil at Elevation 119.7 in Borehole Z-5.

Groundwater levels measured in Borehole Z-3 was near Elevation 129.8.

#### **5.0 EXISTING FOUNDATIONS**

Based on archive design drawings (Reference 2), the existing Zellens Road overhead at CPR was designed to be supported on two abutments.



Reference 2 indicates that the abutments are supported on spread footings founded at Elevation 131.0 within the very stiff to hard clayey silt till. The spread footings are 4.5 m wide and about 12 m long.

Reference 1 recommended the following geotechnical resistances and founding elevations for 3 m wide spread footings founded on native undisturbed clayey silt till:

Foundation Element	Founding Elevation	Factored Geotechnical Resistance at ULS (kPa)	Geotechnical Resistance at SLS * (kPa)
South Abutment	132	600	450
North Abutment	132	450	400
	131	600	400

\* For 25 mm settlement

RSS walls are located at each corner of the existing overhead structure. General available information of the retaining walls from Reference 2 is as follows:

RSS Wall Location Relative to overhead structure	Length (m)	Height (m)	Approximate Founding Level (m)
SW	16	6.7	132.5 to 133.5
SE	14	6.2	
NW	14	6.8	
NE	16	6.6	

## 6.0 PROPOSED REHABILITATION PROGRAM

Based on the preliminary GA drawing dated April 2022, the proposed rehabilitation of the existing structure involves:

- Removal and repair of deteriorated and delaminated concrete from the deck, approach slabs, barrier walls, parapet walls, sidewalk, wingwalls, abutments, deck soffits and fascia.



- Removal and repair of barrier wall with railing at west side, and parapet wall with railing at east side.
- Removal of existing asphalt from approach slabs and existing waterproofing system.
- Placement of new asphalt and waterproofing system on deck and approach slabs.

It is anticipated that a temporary protection system (TPS) will not be required for the proposed structural rehabilitation of the existing Zellens Road overhead at CPR tracks.

The designer should establish the additional loading on the footings, if any, that will be associated with the proposed structural rehabilitation of the main body of the bridge. Should the additional foundation loading be less than 10 percent of the existing loading and in accordance with current MTO practice, it is not anticipated that the proposed rehabilitation works for the bridge would have an impact on the existing bridge foundations, provided that the footings are structurally sound. Should such rehabilitation works result in foundation loading greater than 10 percent of the existing loading, further foundation evaluation would be required. There is no available subsurface information on the existing embankment fill at this site.

No additional boreholes and/or subsurface field investigation would be required at this site for the rehabilitation items indicated on the preliminary GA drawing dated April 2022. However, if this rehabilitation program is changed or modified at any stage of the project, the comments provided in this desktop study should be revisited and updated if necessary.

Where applicable, the rehabilitation of the bridge must be carried out in accordance with the CPR design manuals, American Railway Engineering and Maintenance-of-Way Association (AREMA) guidelines, and all other applicable codes and standards having jurisdiction over the project.

## **7.0 ADJACENT STRUCTURES AND BURIED UTILITIES**

It is recommended that the exact locations of any existing utilities that are present in the vicinity of the work areas be established by the designer and compared with the extent of the potential work zones related to the proposed rehabilitation of existing structure.

The utilities should not be undermined or damaged during rehabilitation of the existing bridge. Relocation of, and/or special protective measures for, some or all of these affected utilities may be required.





## **8.0 CLOSURE**

Engineering assessment and preparation of this desktop study report were carried out by Rocio Reyna, P,Eng. The report was reviewed by Sydney Pang, P.Eng. and P.K. Chatterji, P.Eng., a Designated Principal Contact for MTO Foundations Projects.



THURBER ENGINEERING LTD.



Rocío Palomeque Reyna, P.Eng.  
Senior Geotechnical Engineer



Sydney Pang, P.Eng.  
Senior Associate, Senior Foundation Engineer



P.K. Chatterji, P.Eng.  
Review Principal, Designated MTO Contact

## STATEMENT OF LIMITATIONS AND CONDITIONS

### 1. STANDARD OF CARE

This Report has been prepared in accordance with generally accepted engineering or environmental consulting practices in the applicable jurisdiction. No other warranty, expressed or implied, is intended or made.

### 2. COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment are a part of the Report, which is of a summary nature and is not intended to stand alone without reference to the instructions given to Thurber by the Client, communications between Thurber and the Client, and any other reports, proposals or documents prepared by Thurber for the Client relative to the specific site described herein, all of which together constitute the Report.

IN ORDER TO PROPERLY UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. THURBER IS NOT RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT.

### 3. BASIS OF REPORT

The Report has been prepared for the specific site, development, design objectives and purposes that were described to Thurber by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the Report, subject to the limitations provided herein, are only valid to the extent that the Report expressly addresses proposed development, design objectives and purposes, and then only to the extent that there has been no material alteration to or variation from any of the said descriptions provided to Thurber, unless Thurber is specifically requested by the Client to review and revise the Report in light of such alteration or variation.

### 4. USE OF THE REPORT

The information and opinions expressed in the Report, or any document forming part of the Report, are for the sole benefit of the Client. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION THEREOF WITHOUT THURBER'S WRITTEN CONSENT AND SUCH USE SHALL BE ON SUCH TERMS AND CONDITIONS AS THURBER MAY EXPRESSLY APPROVE. Ownership in and copyright for the contents of the Report belong to Thurber. Any use which a third party makes of the Report, is the sole responsibility of such third party. Thurber accepts no responsibility whatsoever for damages suffered by any third party resulting from use of the Report without Thurber's express written permission.

### 5. INTERPRETATION OF THE REPORT

- a) Nature and Exactness of Soil and Contaminant Description: Classification and identification of soils, rocks, geological units, contaminant materials and quantities have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors are judgmental in nature. Comprehensive sampling and testing programs implemented with the appropriate equipment by experienced personnel may fail to locate some conditions. All investigations utilizing the standards of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarizing such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and the Client and all other persons making use of such documents or records with our express written consent should be aware of this risk and the Report is delivered subject to the express condition that such risk is accepted by the Client and such other persons. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. If special concerns exist, or the Client has special considerations or requirements, the Client should disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.
- b) Reliance on Provided Information: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to Thurber. Thurber has relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, Thurber does not accept responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of misstatements, omissions, misrepresentations, or fraudulent acts of the Client or other persons providing information relied on by Thurber. Thurber is entitled to rely on such representations, information and instructions and is not required to carry out investigations to determine the truth or accuracy of such representations, information and instructions.
- c) Design Services: The Report may form part of design and construction documents for information purposes even though it may have been issued prior to final design being completed. Thurber should be retained to review final design, project plans and related documents prior to construction to confirm that they are consistent with the intent of the Report. Any differences that may exist between the Report's recommendations and the final design detailed in the contract documents should be reported to Thurber immediately so that Thurber can address potential conflicts.
- d) Construction Services: During construction Thurber should be retained to provide field reviews. Field reviews consist of performing sufficient and timely observations of encountered conditions in order to confirm and document that the site conditions do not materially differ from those interpreted conditions considered in the preparation of the report. Adequate field reviews are necessary for Thurber to provide letters of assurance, in accordance with the requirements of many regulatory authorities.

### 6. RELEASE OF POLLUTANTS OR HAZARDOUS SUBSTANCES

Geotechnical engineering and environmental consulting projects often have the potential to encounter pollutants or hazardous substances and the potential to cause the escape, release or dispersal of those substances. Thurber shall have no liability to the Client under any circumstances, for the escape, release or dispersal of pollutants or hazardous substances, unless such pollutants or hazardous substances have been specifically and accurately identified to Thurber by the Client prior to the commencement of Thurber's professional services.

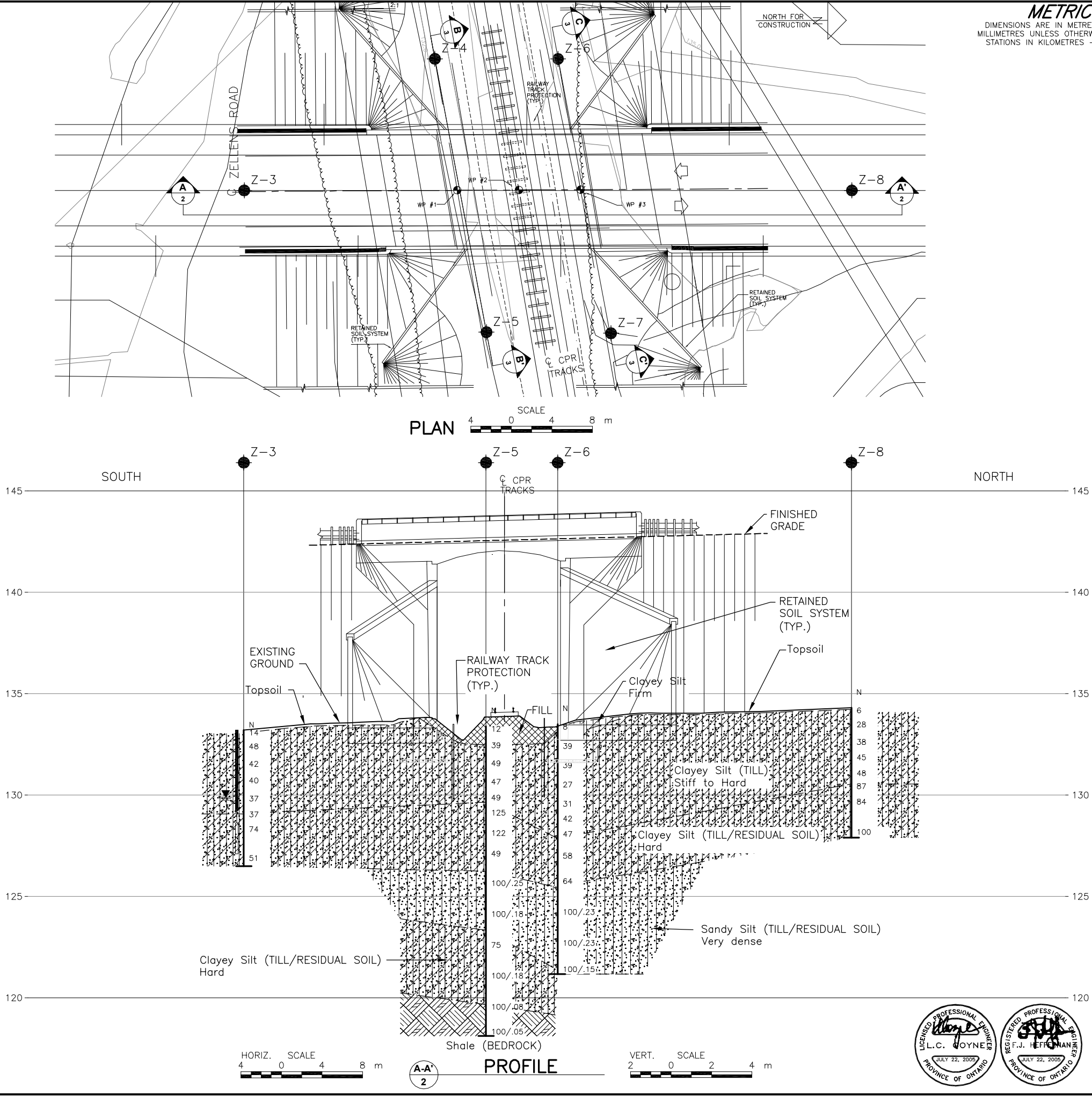
### 7. INDEPENDENT JUDGEMENTS OF CLIENT

The information, interpretations and conclusions in the Report are based on Thurber's interpretation of conditions revealed through limited investigation conducted within a defined scope of services. Thurber does not accept responsibility for independent conclusions, interpretations, interpolations and/or decisions of the Client, or others who may come into possession of the Report, or any part thereof, which may be based on information contained in the Report. This restriction of liability includes but is not limited to decisions made to develop, purchase or sell land.



## **Appendix A**

### **Borehole Plan and Soil Profile Drawings (Geocres)**



**METRIC**  
DIMENSIONS ARE IN METRES AND/OR  
MILLIMETRES UNLESS OTHERWISE SHOWN.  
STATIONS IN KILOMETRES + METRES.

CONT No.2005-2019  
WP No. 19-95-05

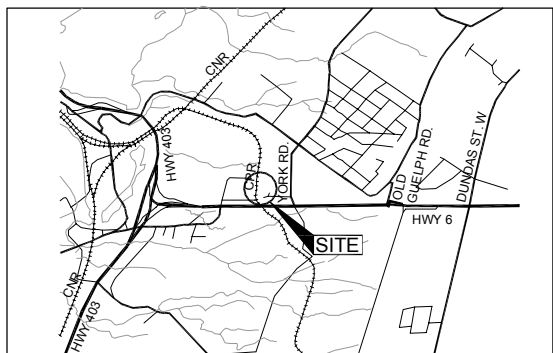


ZELLENS ROAD OVERHEAD  
BOREHOLE LOCATIONS & SOIL STRATA

SHEET  
279



**Golder Associates Ltd.**  
MISSISSAUGA, ONTARIO, CANADA



KEY PLAN



LEGEND

- Borehole - Current Investigation
- Seal
- Piezometer
- N Standard Penetration Test Value
- 16 Blows/0.3m unless otherwise stated (Std. Pen. Test, 475 j/blow)
- WL in piezometer
- WL upon completion of drilling

No.	ELEVATION	CO-ORDINATES	
		NORTHING	EASTING
Z-3	133.2	4795210.7	272172.3
Z-4	134.4	4795214.6	272149.7
Z-5	133.4	4795237.4	272165.0
Z-6	133.5	4795223.1	272141.1
Z-7	133.5	4795246.1	272156.3
Z-8	134.3	4795252.7	272129.4

NOTES

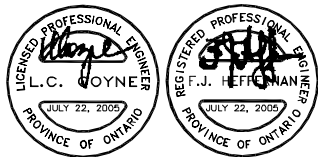
This drawing is for subsurface information only. The proposed structure details are shown for illustration purposes only and may not be consistent with the final design configuration as shown elsewhere in the Contract Documents.

The boundaries between soil strata have been established only at borehole locations. Between Boreholes the boundaries are assumed from geological evidence.

The complete foundation investigation and design report for this project and other related documents may be examined at the Materials Engineering and Research Office, Downsview. Information contained in this report and related documents is specifically excluded in accordance with Section GC 2.01 of OPS General Conditions.

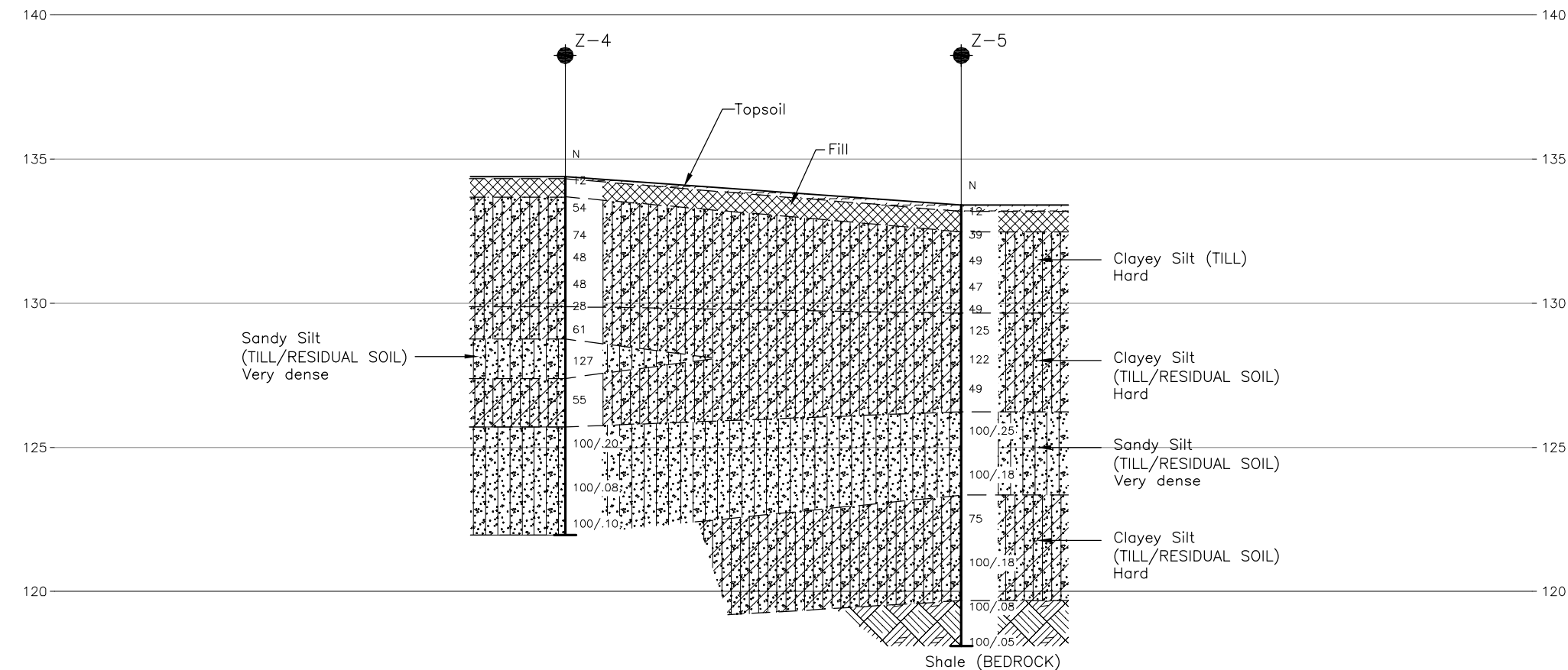
REFERENCE

General Arrangement file (ZellensGA.dwg) provided in digital format by URS Canada Inc., received April 1, 2005.

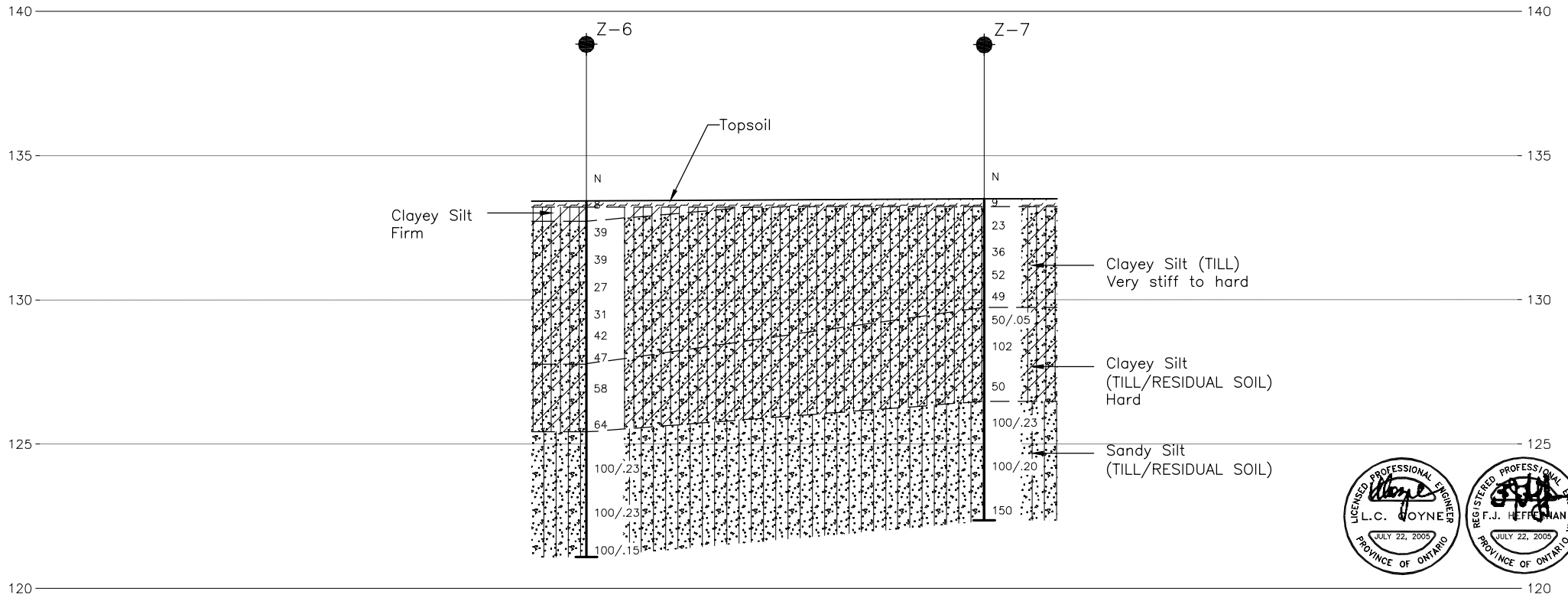


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SUBM'D. PKS	CHKD. LCC	DATE: MARCH 2005	SITE:
DRAWN: JFC	CHKD. PKS	APPD. LCC	DWG. 2

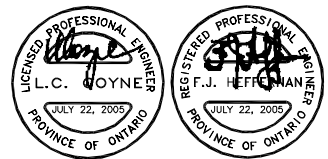
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DIMENSIONS ARE IN METRES AND/OR  
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STATIONS IN KILOMETRES + METRES.



**CROSS SECTION ALONG  
SOUTH ABUTMENT**



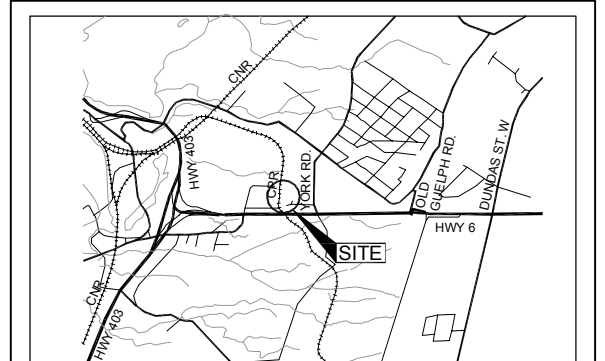
**CROSS SECTION ALONG  
NORTH ABUTMENT**



CONT No. 2000-2019  
WP No. 19-95-05

ZELLENS ROAD OVERHEAD  
SOIL STRATA

SHEET  
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**LEGEND**

- Borehole - Current Investigation
- Seal
- Piezometer
- N Standard Penetration Test Value
- 16 Blows/0.3m unless otherwise stated (Std. Pen. Test, 475 j/blow)
- WL in piezometer
- WL upon completion of drilling

No.	ELEVATION	CO-ORDINATES	
		NORTHING	EASTING
Z-4	134.4	4795214.6	272149.7
Z-5	133.4	4795237.4	272165.0
Z-6	133.5	4795223.1	272141.1
Z-7	133.5	4795246.1	272156.3

**NOTES**

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## **Appendix B**

### **Archive Drawings of Existing Bridge**

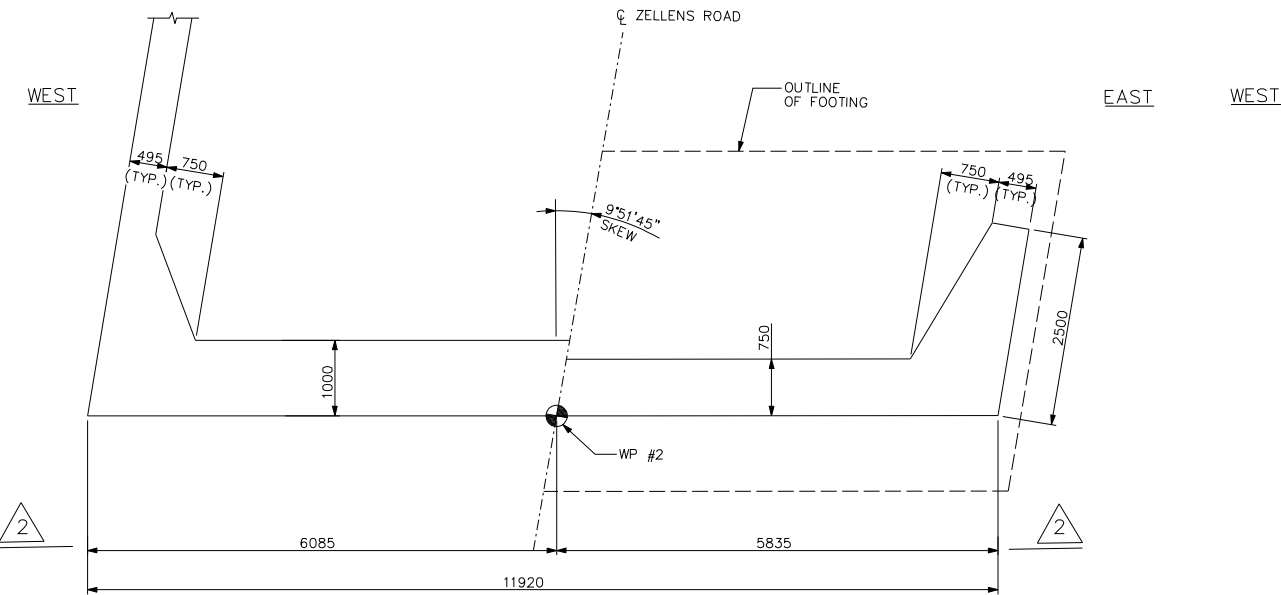






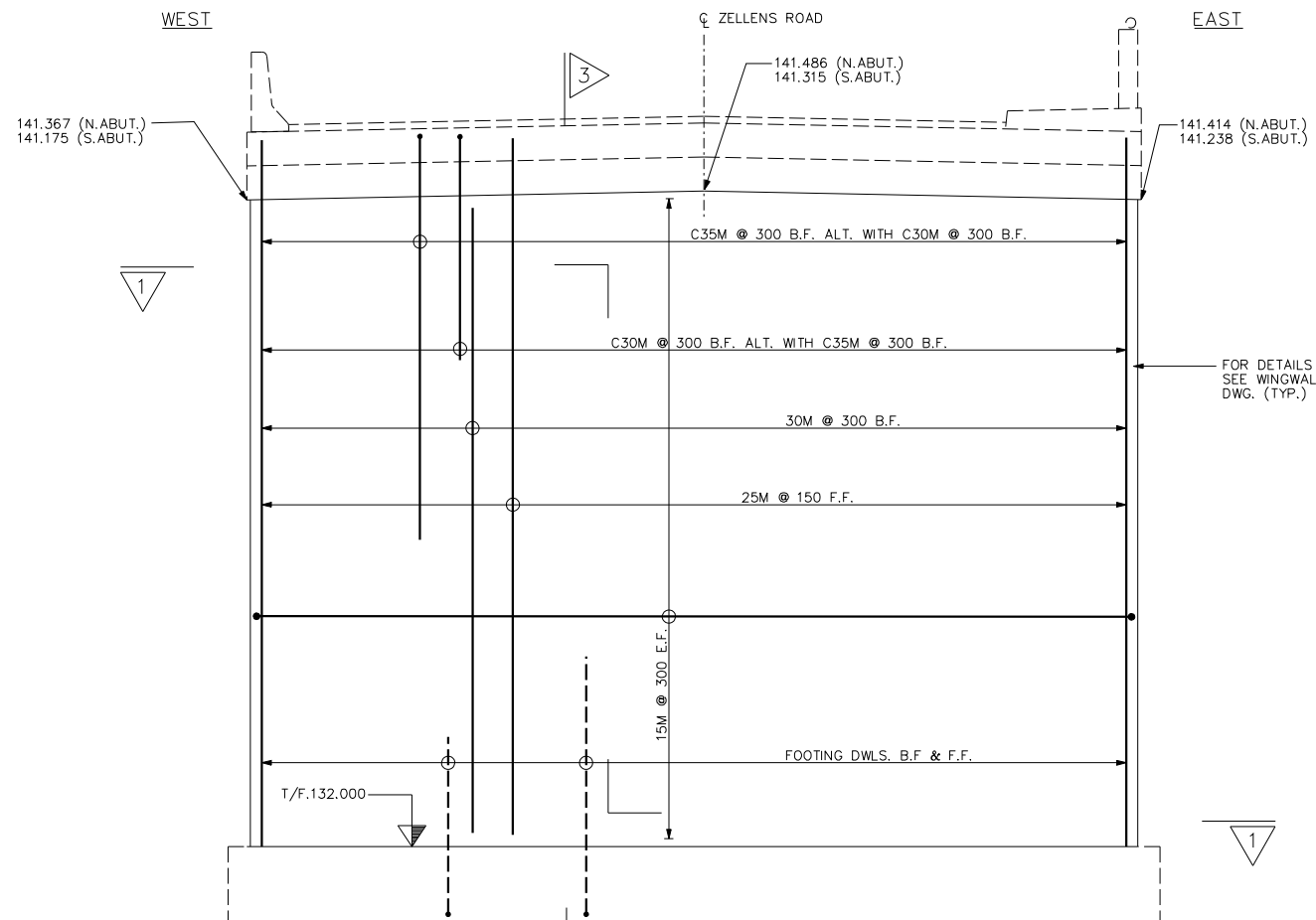


CADD FILE NAME : N:\Sfr-Trans\CADD\00 Projects\00137 HWY6\Zellen Road\Zellen-Abutment Reinforcement.dgn



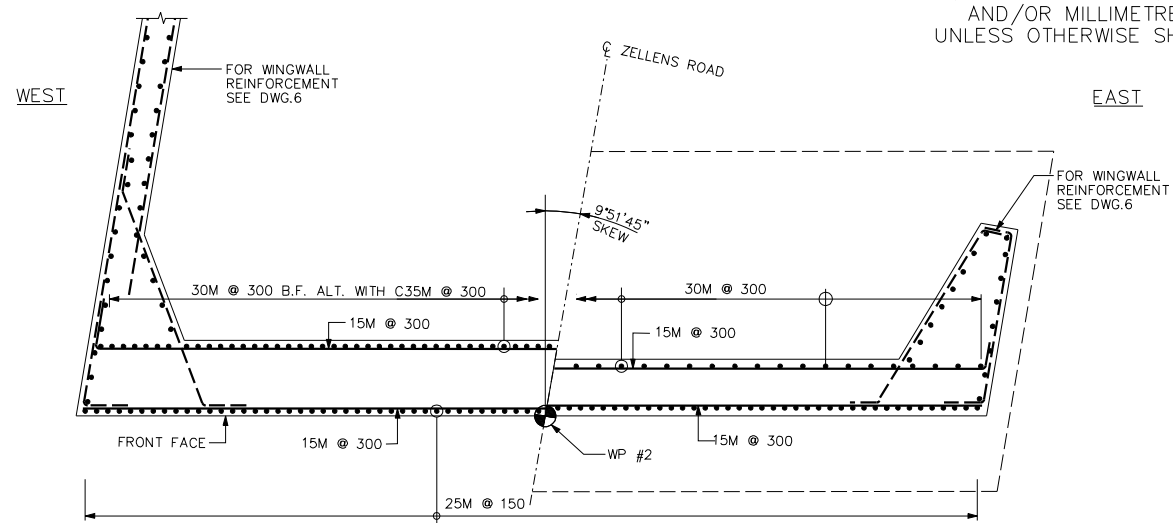
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PLAN - DIMENSIONS

NORTH ABUTMENT SHOWN. SOUTH ABUTMENT SIMILAR. FOR ORIENTATION SEE DWG. 1.



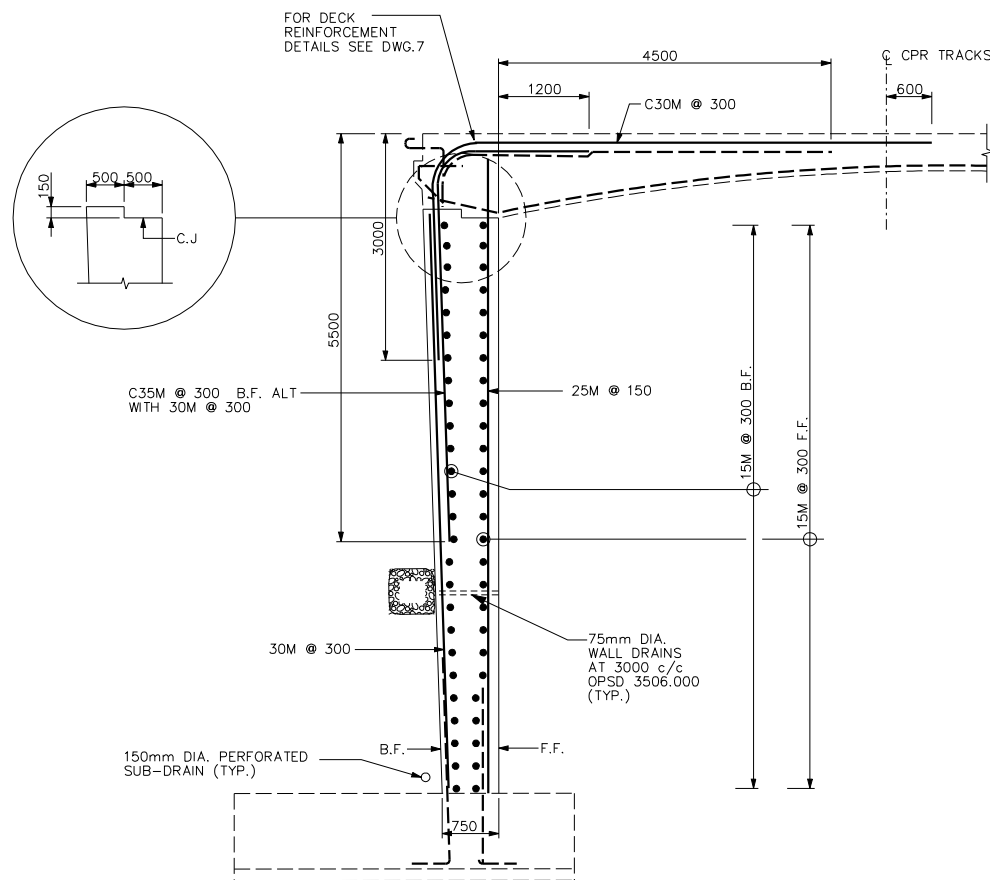
2  
1:50  
ELEVATION

NORTH ABUTMENT SHOWN  
SOUTH ABUTMENT SIMILAR



1  
1:50  
REINFORCING

NORTH ABUTMENT SHOWN.  
SOUTH ABUTMENT SIMILAR.



3  
1:50



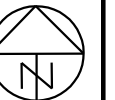
DRAWING NOT TO BE SCALED  
100 mm ON ORIGINAL DRAWING

REVISIONS		DATE	BY	DESCRIPTION
DESIGN	U.P.	CHK	R.S.R	CODE CSA-S6-00
DRAWN	M.V.	CHK	D.I.	SITE 36-503
		LOAD CL-625-ONT	DATE	JULY 2005
		STRUCT	DWG	5

## METRIC

DIMENSIONS ARE IN METRES  
AND/OR MILLIMETRES  
UNLESS OTHERWISE SHOWN

HWY 6  
CONT No 2005-2019  
WP No 19-95-05



ZELLENS ROAD OVERHEAD AT CPR  
ABUTMENT

SHEET  
282

URS

### NOTES

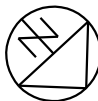
- THIS DRAWING TO BE READ IN CONJUNCTION WITH FOUNDATION DWG. 4 AND DECK DWGS. 7 & 8

### LIST OF ABBREVIATIONS

T/F DENOTES TOP OF FOOTING  
F.F. DENOTES FRONT FACE  
B.F. DENOTES BACK FACE  
DWLS. DENOTES DOWELS  
ALT. ALTERNATE  
TYP. TYPICAL

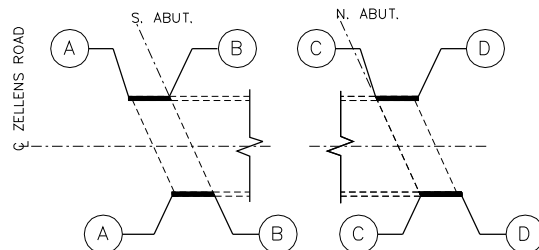
### APPLICABLE STANDARD DRAWINGS

OPSD 4670.000 TYPICAL JOINT DETAILS  
OPSD 3506.000 RETAINING WALL AND ABUTMENT WALL DRAIN DETAIL  
OPSD 3504.000 MINIMUM GRANULAR BACKFILL REQUIREMENTS

**URS**

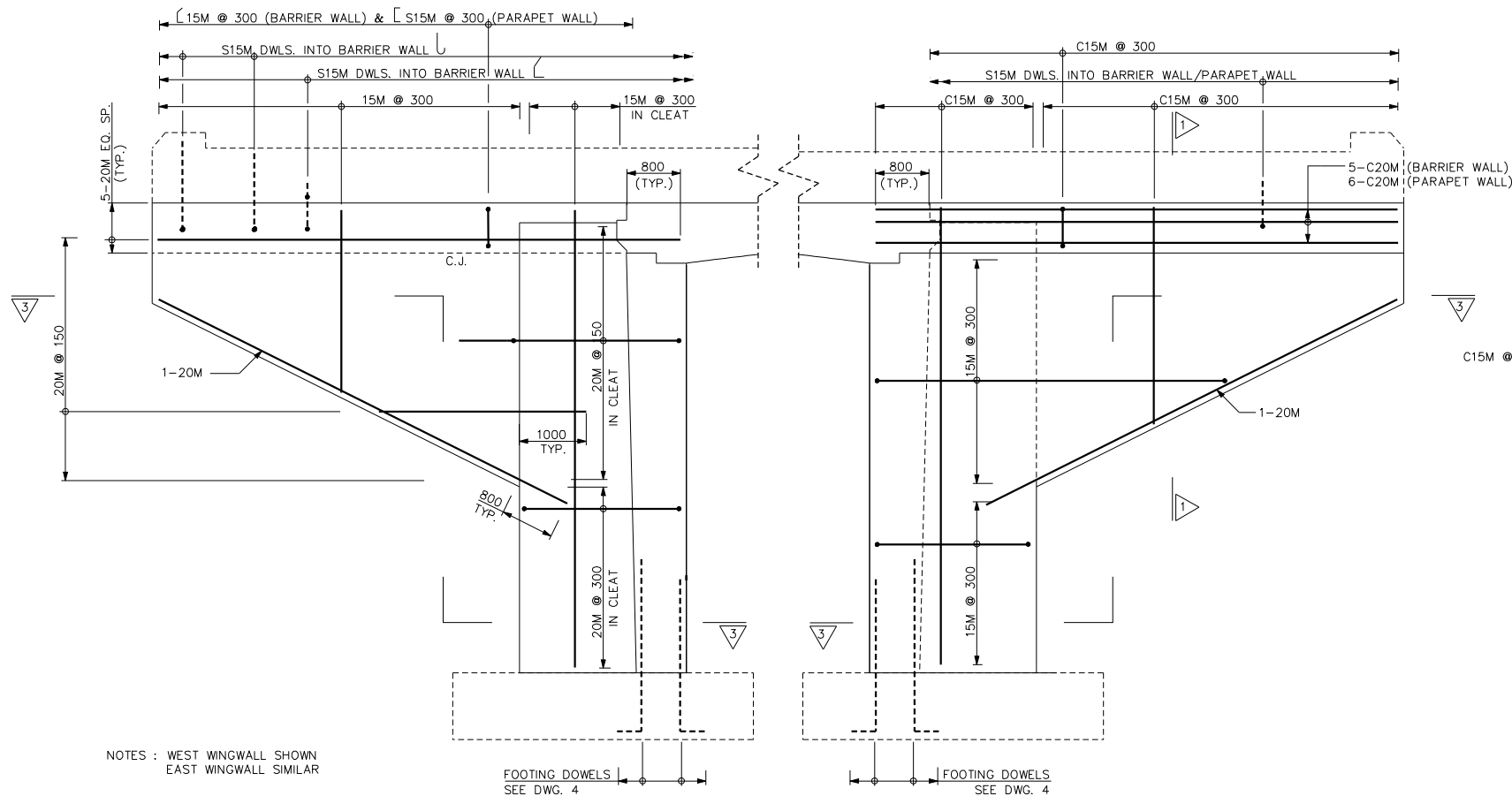
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DWGS. 5 AND 10.

DWLS.	DENOTES	DOWELS
I.F.	DENOTES	INSIDE FACE
O.F.	DENOTES	OUTSIDE FACE
C.J.	DENOTES	CONSTRUCTION JOINT
TYP.	DENOTES	TYPICAL
ABUT.	DENOTES	ABUTMENT
EL.	DENOTES	ELEVATION
RSS	DENOTES	RETAINED SOIL SYSTEM



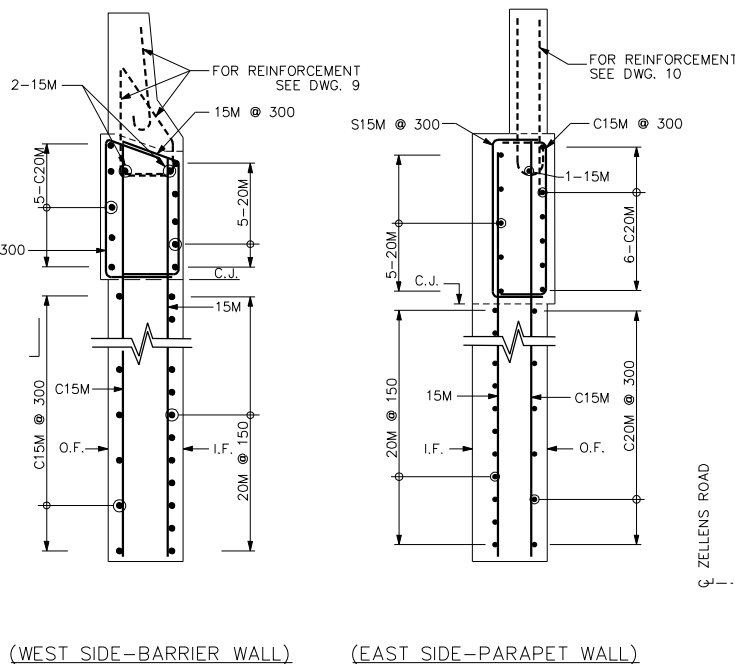
KEY PLAN  
N.T.S.

WINGWALL ELEVATIONS (TOP OF CONCRETE)				
POINT	(A)	(B)	(C)	(D)
EAST	142.360	142.523	142.688	142.743
WEST	142.131	142.303	142.482	142.545

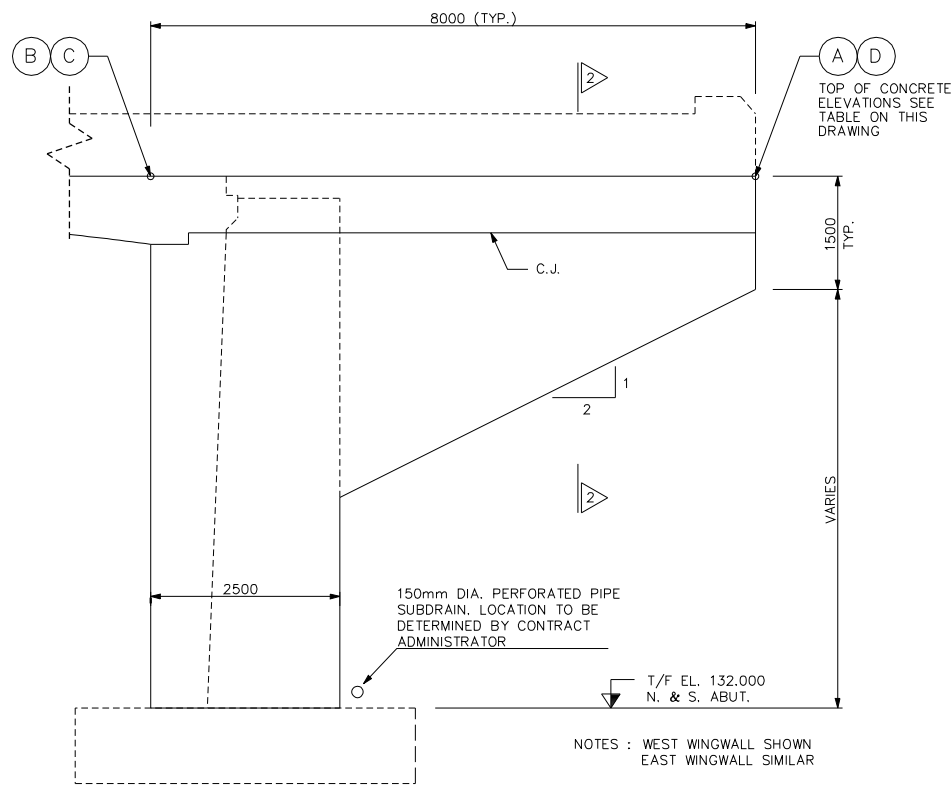


TYPICAL INSIDE FACE SECTION  
1:50

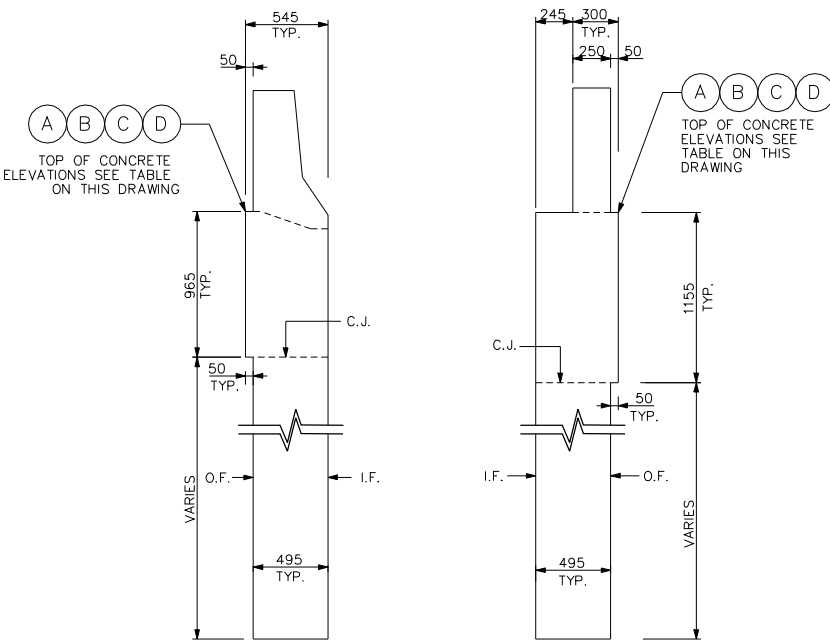
TYPICAL OUTSIDE FACE SECTION



1  
1:25  
TYPICAL



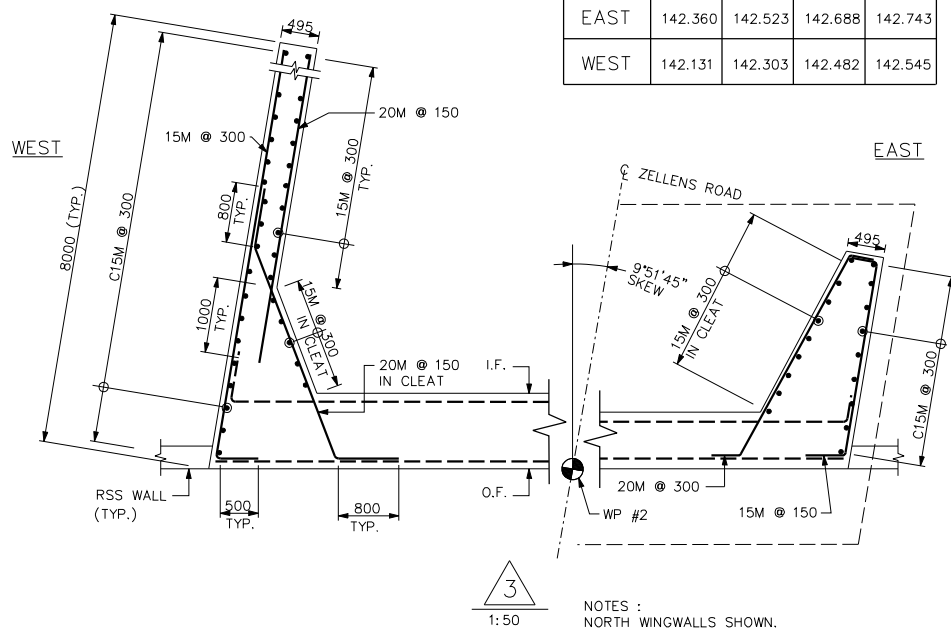
TYPICAL DIMENSIONS  
1:50



(WEST SIDE-BARRIER WALL)

(EAST SIDE-PARAPET WALL)

2  
1:25  
TYPICAL



3  
1:50

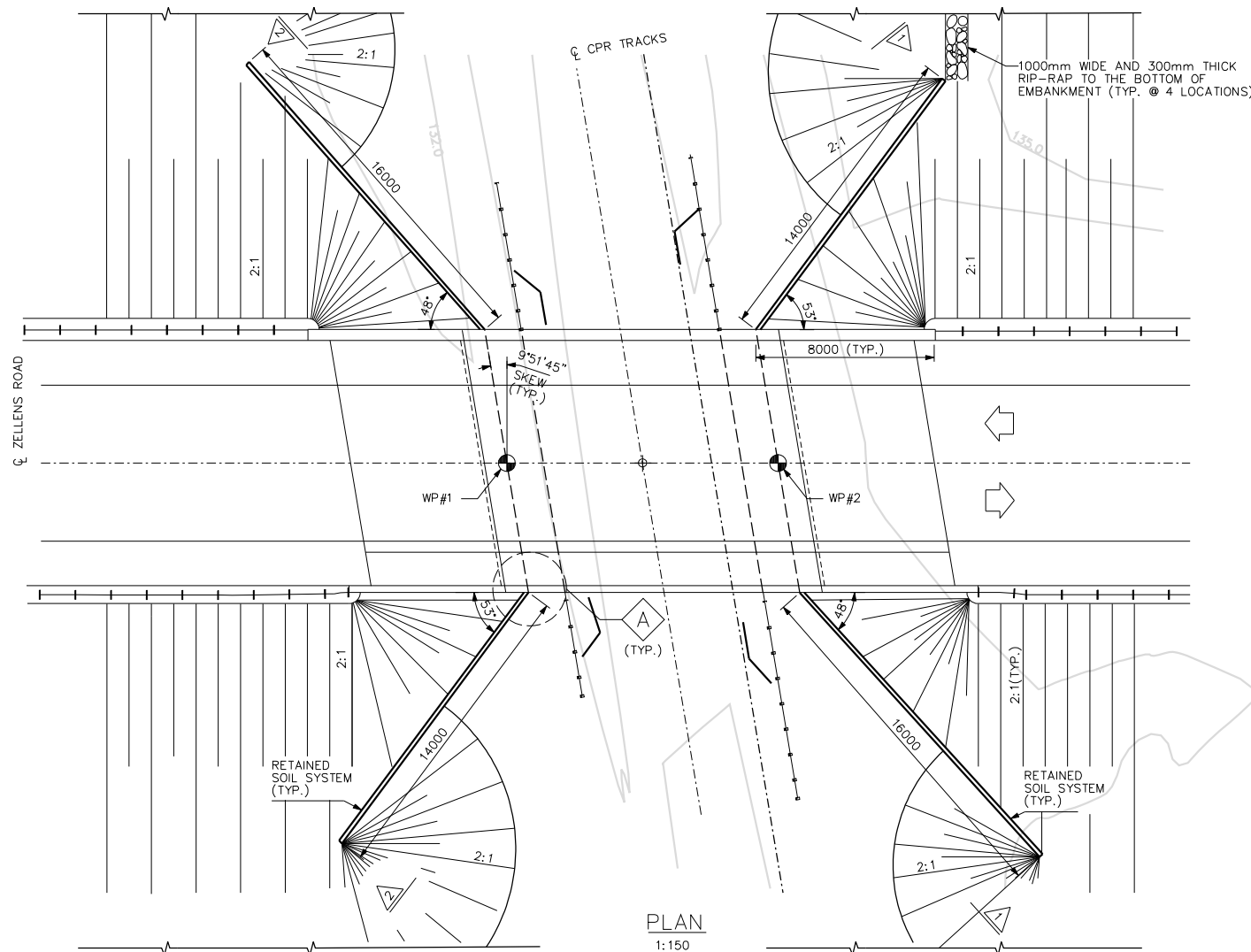
NOTES :  
NORTH WINGWALLS SHOWN  
SOUTH WINGWALLS SIMILAR

OPSD 3515.000 WINGWALL SLEEVE DETAILS FOR PERFORATED DRAIN  
OPSD 3515.000 WINGWALL SLEEVE DETAILS FOR PERFORATED DRAIN

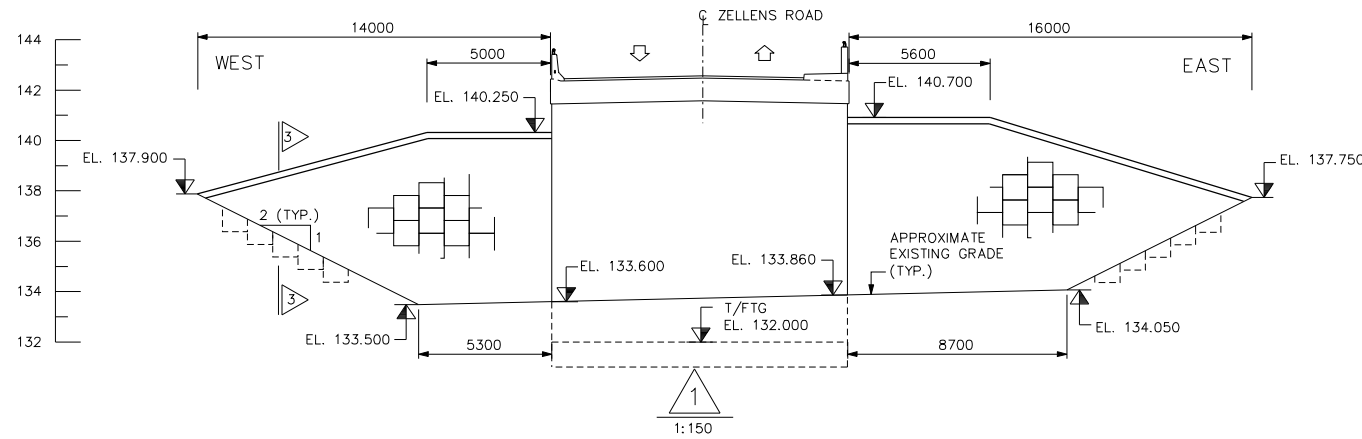
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DRAWING NOT TO BE SCALED  
100 mm ON ORIGINAL DRAWING

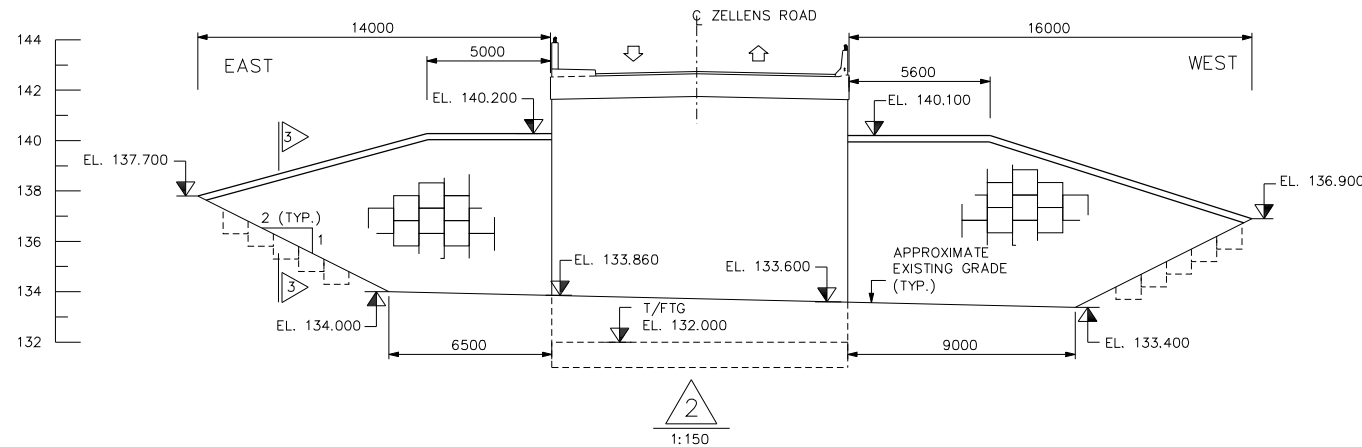
CADD FILE NAME : N:\Srv-Trans\CADD\00 Projects\00137 HWY6\Zellen Road\Zellens-RSS.dgn



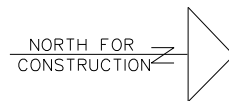
PLAN  
1:150



1  
1:150

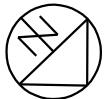


2  
1:150



METRIC  
DIMENSIONS ARE IN METRES  
AND/OR MILLIMETRES  
UNLESS OTHERWISE SHOWN

HWY 6  
CONT No 2005-2019  
WP No 19-95-05



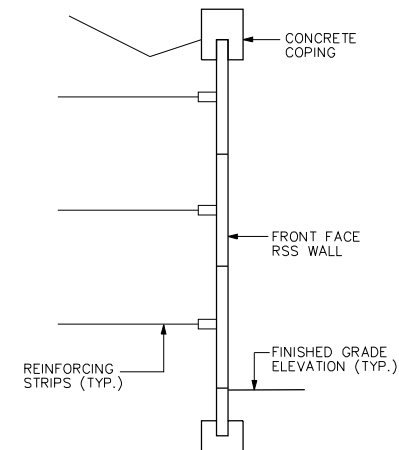
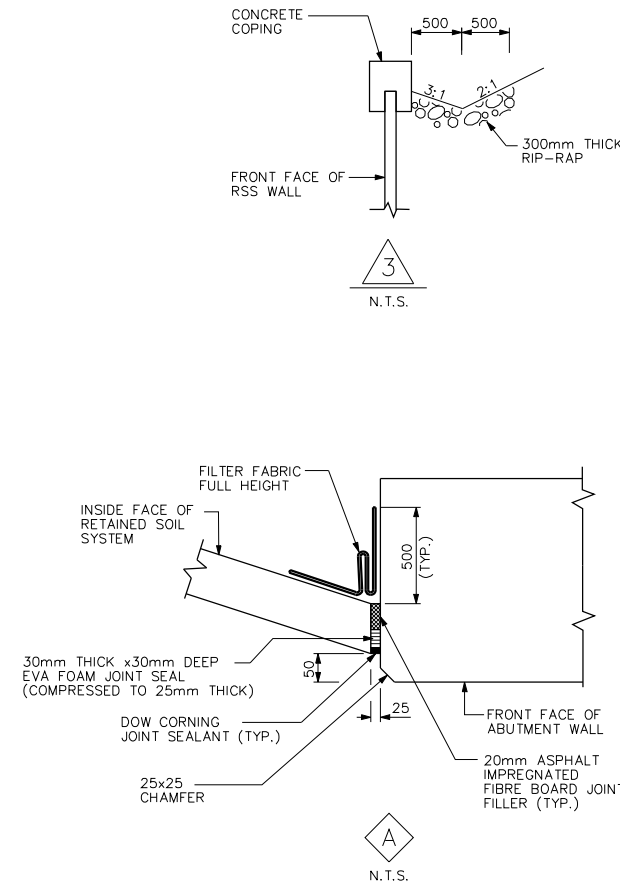
ZELLENS ROAD OVERHEAD AT CPR  
RETAINED SOIL SYSTEM

SHEET  
290

URS

### GENERAL NOTES

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DWG. 4
2. CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN OF RSS WALLS.
3. RETAINING WALL TO BE CONSTRUCTED TO THE GRADES SHOWN IN THIS DRAWING.
4. FOR GRADING SEE GRADING DRAWINGS.



TYPICAL RSS WALL SECTION  
N.T.S.

### LIST OF ABBREVIATIONS

RSS DENOTES RETAIN SOIL SYSTEM  
T/FTG. TOP OF FOOTING



DRAWING NOT TO BE SCALED  
100 mm ON ORIGINAL DRAWING

REVISIONS	DATE	BY	DESCRIPTION
DESIGN	U.P.	CHK	R.S.R
DRAWN	B.M	CHK	D.I.
CODE	CSA-56-00		
LOAD	CL-625-ONT		
DATE	JULY 2005		
DWG	13		



**Appendix C**  
**Selected Site Photographs**



**Photo 1-** Zellens Road Overhead at CPR, East Side, March 27, 2022



Wall cap  
misaligned

**Photo 2-** Zellens Road Overhead at CPR, east side, North Abutment, March 27, 2022





**Photo 3-** Zellens Road Overhead at CPR, east side, South Abutment, March 27, 2022



**Photo 4-** Zellens Road Overhead at CPR, east side, March 27, 2022



**Photo 5-** Zellens Road Overhead at CPR, west side, March 27, 2022



**Photo 6-** Zellens Road at CPR tracks, Looking south, March 27, 2022





**Photo 7-** Zellens Road at CPR tracks, Looking north, March 27, 2022