

WINDSOR-ESSEX PARKWAY PROJECT

PHASE 1 – STRUCTURE TB-8 90% MTO SUBMISSION

LIST OF DRAWINGS

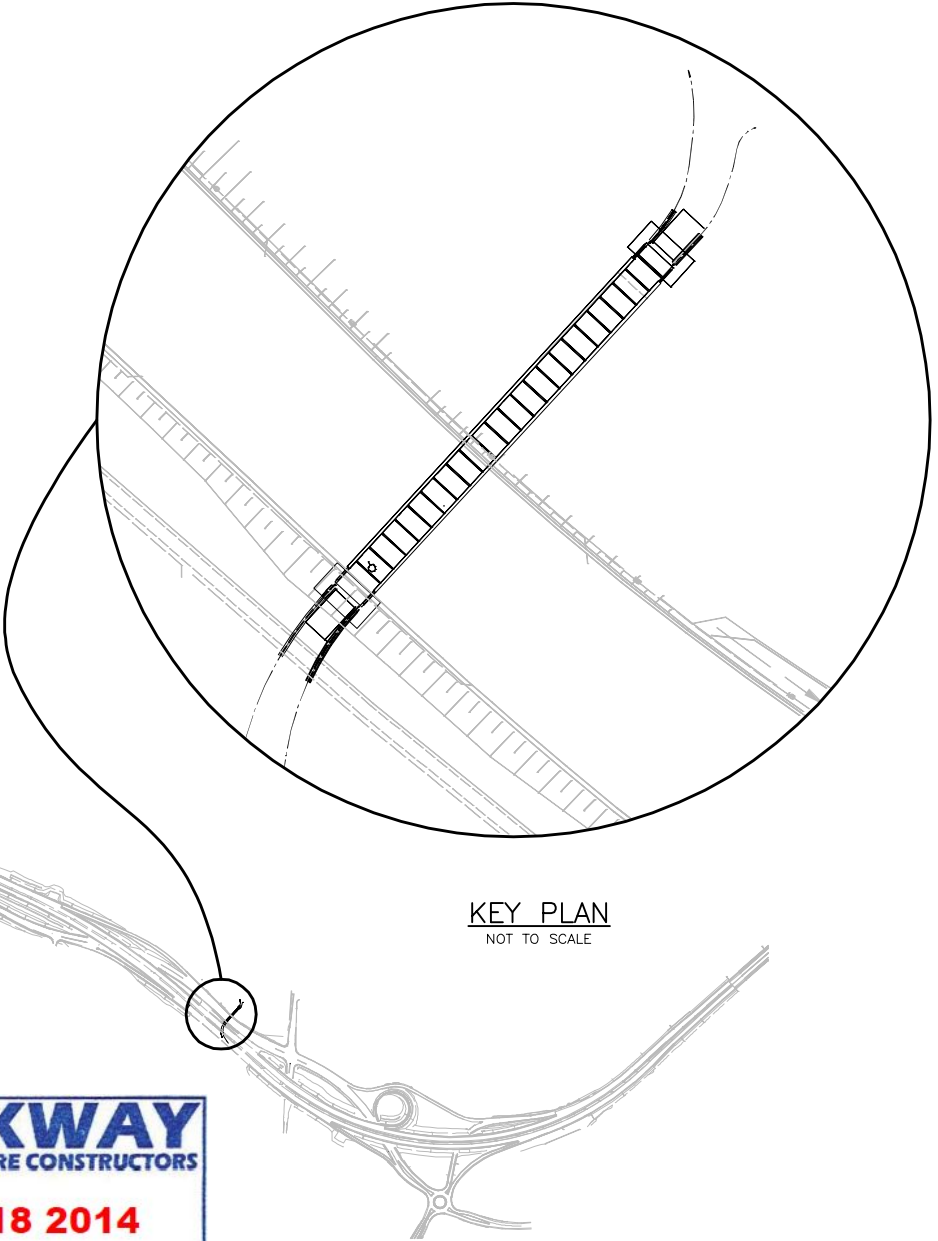
SHEET_NO	TITLE
S6801	GENERAL ARRANGEMENT
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S6823	6000mm APPROACH SLAB (IN PROGRESS)
S6824	STANDARD DETAILS
S6825	EMBEDDED ELECTRICAL WORK (IN PROGRESS)

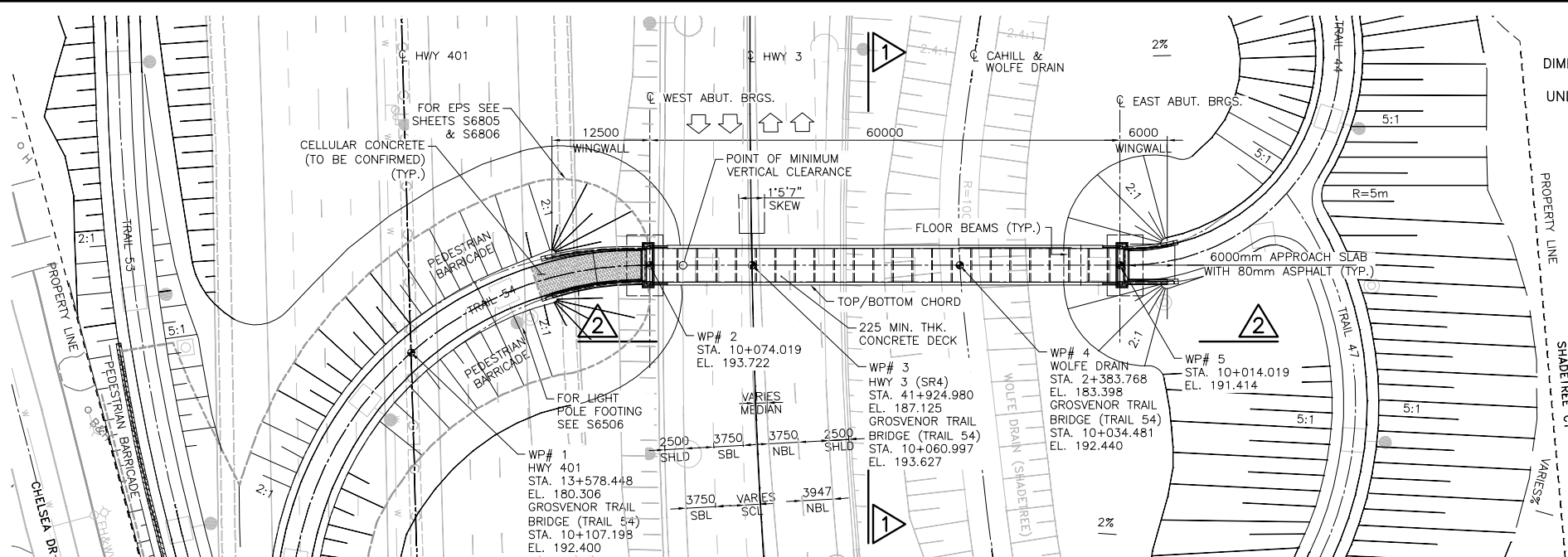
CONTEMPLATED LIST OF DRAWINGS TO BE SUPPLIED BY BRIDGE SUPPLIER:

- TRUSS LAYOUT AND DETAILS
- DECK LAYOUT AND DETAILS
- BEARING DETAILS
- EXPANSION JOINT DETAILS
- TRUSS RAILING DETAILS

ENVIROMENTAL NOTES:

- WOLFE DRAIN IS SITUATED WITHIN THE CONSTRUCTION FOOTPRINT OF TB-8. ALL WORKS TO BE UNDERTAKEN FOLLOWING GUIDELINES MANDATED BY FISHERIES AND OCEANS CANADA (DFO) IN RELATION TO THE FISHERIES ACT, APPROVALS UNDER THAT ACT AND REGULATORY/INDUSTRY BEST MANAGEMENT PRACTICES.
- CONSTRUCTION TO BE UNDERTAKEN WITH REFERENCE TO IN-WATER WORKS TIMING RESTRICTIONS.
- SITE ACCESS AND STAGING TO MINIMIZE DISTURBANCE TO WATERCOURSES AND NATURAL HERITAGE AREAS.
- THE CONTRACTOR IS RESPONSIBLE TO CONTROL EROSION AND SEDIMENT CAUSED BY CONSTRUCTION RELATED ACTIVITIES SO AS TO MEET ALL LEGISLATIVE REQUIREMENTS AND PROJECT AGREEMENT. REFER TO MTO ENVIRONMENTAL GUIDE FOR EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION OF HIGHWAY PROJECTS AND THE RELEVANT PROJECT SPECIFIC EROSION AND SEDIMENT CONTROL PLANS.
- TB-8 IS NOT LOCATED IN PROXIMITY TO KNOWN SPECIES AT RISK (SAR) HABITAT. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING DUE DILLIGENCE WITH REGARDS TO SAR CLEARANCE AND POTENTIAL SITE INTERACTIONS WITH SAR. ALL INDIVIDUALS ON THE PROJECT ARE REQUIRED TO UNDERGO SAR AWARENESS TRAINING.
- ALL DISTURBED AREAS TO BE STABILIZED AND RESTORED WITH NATIVE/NON-INVASIVE SPECIES UPON COMPLETION OF WORKS IN ACCORDANCE WITH THE LANDSCAPE PLAN.
- WORKS ARE REQUIRED TO BE UNDERTAKEN WITHIN THE TIMING WINDOWS PERMITTED BY LOCAL NOISE BY-LAWS.
- TREE PROTECTION MAY BE REQUIRED AS PER THE VEGETATION PRESERVATION PLAN TO BE PUT FORWARD IN THE FINAL LANDSCAPE PLANS. ALL TREE PROTECTION IS TO BE COMPLIANT WITH OPSS 801.
- IF PUMPING IS REQUIRED FOR CONSTRUCTION, PERMIT TO TAKE WATER GUIDELINES SHALL BE FOLLOWED. A DEWATERING PLAN MAY BE REQUIRED IN CONJUNCTION WITH CONSTRUCTION ACTIVITIES.
- STOCKPILE LOCATIONS TO COMPLY WITH THOSE NOTED IN THE DCR AND OTHER APPROVED ENVIRONMENTAL DOCUMENTATION.
- EXCESS EARTH TO BE MANAGED AS OUTLINED WITHIN THE EXCESS EARTH MANAGEMENT PLAN AND DCR.
- REFER TO GENERAL ENVIRONMENTAL NOTES SPECIFIED IN ENVIRONMENTAL PROTECTION PACKAGE SHEETS E9001 AND E9002 FOR ADDITIONAL ENVIRONMENTAL CONSTRAINTS AND MITIGATION MEASURES.

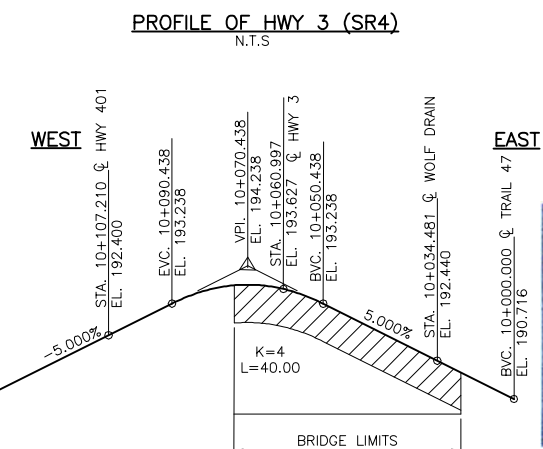
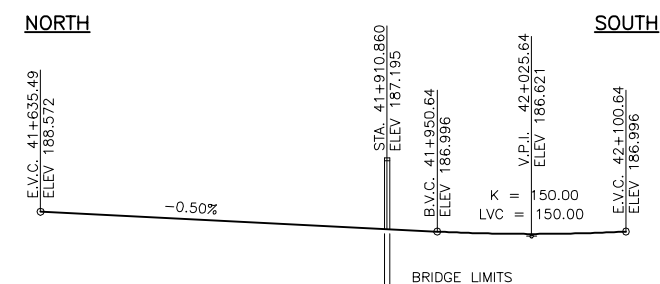
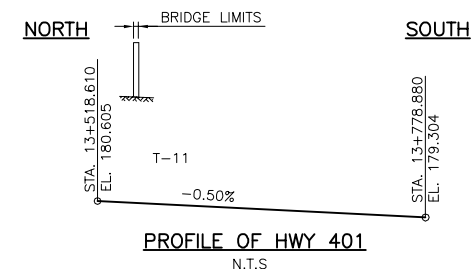




METRIC

DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWNParkway
Infrastructure
EngineersWindsor-Essex
Parkway Project
RFP No. 09-54-1007NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB-8
GENERAL ARRANGEMENTSHEET
S6801Phase 1
90% Sub

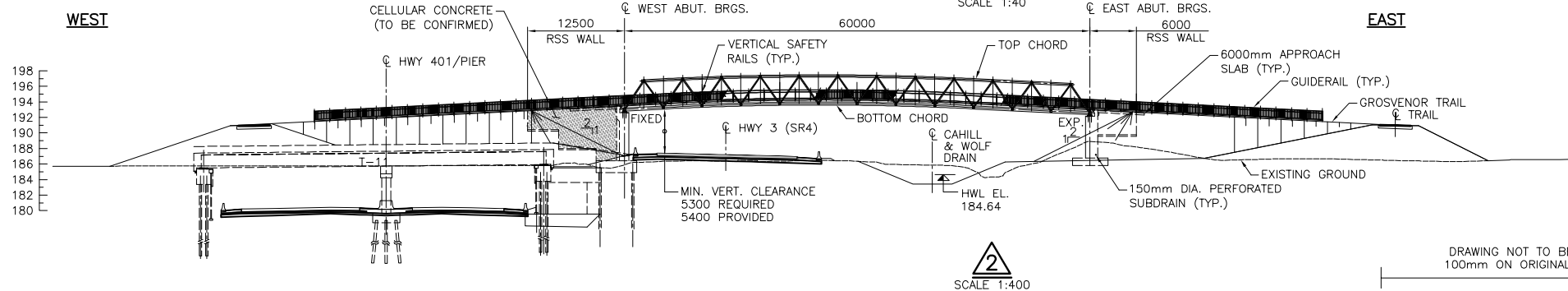
CELLULAR CONCRETE HAS BEEN INCLUDED IN THE BACKFILL DESIGN AT THE REQUEST OF PIC. CELLULAR CONCRETE IS NOT AN MTO APPROVED BACKFILL MATERIAL FOR BRIDGE ABUTMENTS OR RSS WALLS AND THEREFORE IS NOT PERMITTED FOR USE IN THIS APPLICATION UNDER THE TERMS OF THE PROJECT AGREEMENT. ANY REFERENCE TO CELLULAR CONCRETE CONTAINED WITHIN THIS DRAWING SET SHALL BE CONSIDERED ON HOLD UNTIL MTO APPROVAL IS GRANTED.



PARKWAY
INFRASTRUCTURE CONSTRUCTORS

MAR 18 2014

PROCESSED
PROJECT DOCUMENT AND DATA MANAGEMENT

NOT FOR
CONSTRUCTION

REVISIONS	DATE	REV.	BY	DESCRIPTION
10-JAN-14	B	JL		90% MTO SUBMISSION
04-OCT-12	A	MAS		60% MTO SUBMISSION
DESIGN	BM	CHK	JL	CODE CAN/CSA S6-06 LOAD SEE T.A.F. DOC.
DRAWN	RD	CHK	MAS	SITE 6-624 DATE JULY 2010

DATE PLOTTED: 1/15/2014 2:15:49 PM
FILE LOCATION: C:\pwworking\hmmg_285380\dms20478\285380-03-060-SEG1-6802.dwg

MINISTRY OF TRANSPORTATION, ONTARIO

PR-D-707

BB-05

NOTES:

1. CLASS OF CONCRETE:
•CAST-IN-PLACE DECK:
•REMAINDER:

40 MPa
30 MPa

2. CLEAR COVER TO REINFORCING STEEL:
•FOOTINGS:
•DECK:
TOP
BOTTOM

100 ± 25
70 ± 20
40 ± 10
70 ± 20

3. REINFORCING STEEL:
•REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.
•BAR MARKS WITH PREFIX 'C' DENOTE COATED BARS.
•BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.
•STAINLESS REINFORCING STEEL SHALL BE TYPE 316LN OR DUPLEX 2205 OR TYPE XM-28 AND HAVE A MINIMUM YIELD STRENGTH OF 500 MPa, UNLESS OTHERWISE SPECIFIED.
•UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES SHALL BE CLASS B.
•BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12-1 AND SS12-2 UNLESS SHOWN OTHERWISE.

4. STRUCTURAL STEEL: (NOT PART OF THIS PACKAGE)
•ALL STRUCTURAL STEEL SHALL CONFORM TO CSA STANDARD CAN/CSA-G40.20-04/G40.21-04. STEEL MARKED "AT" SHALL BE AT LEAST GRADE 350AT CATEGORY 2. ALL OTHER STEEL SHALL BE GRADE 350A. ROLLED SECTIONS SHALL CONFORM TO CAN/CSA-G40.20-04/G40.21-04 OR ASTM SPECIFICATION A588.
•MEMBERS OR COMPONENTS OF MEMBERS FOR WHICH "AT" STEEL IS SPECIFIED ARE PRIMARY TENSION MEMBERS AND FRACTURE-CRITICAL MEMBERS, STIFFENERS AND GUSSETS ATTACHED TO "AT" MEMBERS SHALL BE "AT" STEEL CATEGORY 2 OR GREATER. PLATE SECTIONS SHALL BE GRADE 350AT CATEGORY 3, CAN/CSA-G40.20-04/G40.21-04.
•BOLTS ON ATMOSPHERIC CORROSION RESISTANT STEEL SHALL BE ASTM A325 TYPE 3, M22. BOLTS ON COATED STEEL SHALL BE GALVANIZED ASTM A325M TYPE 1, M22. BOLT THREADS SHALL BE EXCLUDED FROM THE SHEAR PLANES.
•STUD SHEAR CONNECTORS SHALL BE 22mm DIA. AND SHALL CONFORM TO ASTM A108 AND CSA W59.
•ALL LENGTHS SHOWN ARE IN THE HORIZONTAL PLANE AND MEASURED AT 20°C.
•THE TRUSS AND BEARING STIFFENERS SHALL BE TRULY VERTICAL UNDER FULL DEAD LOAD.
•ALL BUTT WELDS IN FLANGE, WEB AND BOX SECTION SHOP SPLICES SHALL BE FINISHED FLUSH OR SMOOTH. BY GRINDING WHERE NECESSARY IN THE DIRECTION OF THE APPLIED STRESSES.
•UNLESS OTHERWISE NOTED. THE MINIMUM FILLET WELD SHALL BE AS FOLLOWS:

MATERIAL THICKNESS OF THICKER PART JOINED (mm)

MINIMUM SIZE OF SINGLE PASS FILLET WELD (mm)

TO 12 INCLUSIVE
OVER 12 TO 20
OVER 20 TO 40
OVER 40 TO 60
OVER 60 TO 120

5
6
8
10
12

•ALL STEEL SURFACES SHALL BE COATED EXCEPT FOR THE SURFACE OF MEMBERS THAT WILL BE IN CONTACT WITH CONCRETE OR CONTACT SURFACES OF BOLTED CONNECTIONS. THE COLOUR OF THE TOPCOAT SHALL BE 504-217 BROWN (1-GP-12C).
•THE CONTRACTOR SHALL ENSURE THE STABILITY OF ALL COMPONENTS DURING HANDLING TRANSPORTATION AND ERECTION AND UNTIL THE STRUCTURAL STEEL IS IN THE FINAL LOCATION WITH ALL THE PERMANENT BRACING CONNECTIONS AND SUPPORTS IN PLACE AND THE CONCRETE IN THE DECK HAS REACHED A STRENGTH OF 25MPa.

5. CONCRETE FINISH OF ALL EXPOSED SURFACES SHALL HAVE A RUBBED FINISH.

6. TRUSS BRIDGE SUPPLIER RESPONSIBLE FOR MEETING ALL REQUIREMENTS OF APPLICABLE CODE & STANDARDS.

7. REQUIREMENTS FOR TRAIL BRIDGE PAINTING, ANIMAL ICONS AND OTHER AESTHETIC TREATMENTS ARE PROVIDED IN THE TECHNICAL MEMO FOR AESTHETICS PACKAGE (DOC. NO. 285380-72-126-0014). ALL STRUCTURAL STEEL PAINT COATING SYSTEMS SHALL MEET THE REQUIREMENTS OF THE MTO STRUCTURAL MANUAL, OPSS 911 AND OPSS 1704.

CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESSES FROM THE TOP OF BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH THE BEARING DESIGN DATA, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.

2. THE CONTRACTOR IS FULLY RESPONSIBLE FOR GROUNDWATER CONTROL ON TIMING OF CONSTRUCTION AND PREVAILING WEATHER CONDITIONS.

3. BACKFILL SHALL NOT BE PLACED AGAINST ANY PORTION OF THE ABUTMENTS OR WINGWALLS UNTIL THE CONCRETE FOR THE DECK HAS BEEN PLACED AND ITS COMPRESSIVE STRENGTH HAS REACHED 30 MPa.

4. ALL EXISTING UTILITIES SHALL BE ACCURATELY LOCATED PRIOR TO ANY CONSTRUCTION BEING CARRIED OUT. UNLESS NOTED OTHERWISE ON STRUCTURAL AND UTILITIES DRAWINGS, ALL EXISTING UTILITIES ARE TO REMAIN IN PLACE AND SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION OF THE TUNNEL EMBANKMENTS.

5. TEMPORARY EXCAVATION, SUBGRADE EXPOSURE AND PROTECTION, AND BACKFILLING SHALL CONFORM TO OPSS 902.

6. SETTLEMENTS AND GROUND DEFORMATIONS SHALL BE MONITORED DURING AND AFTER CONSTRUCTION.

7. VIBRATIONS SHALL BE MONITORED AT STRATEGIC LOCATIONS DURING PILING AND CONSTRUCTION ON TEMPORARY SLOPES AND ADJACENT TO UTILITIES.

8. FOR ALL HIGHWAY WORKS REFER TO HIGHWAY NEW CONSTRUCTION DRAWINGS.

9. FOR ALL ELECTRICAL AND ATMS WORKS REFER TO ELECTRICAL AND ATMS NEW CONSTRUCTION DRAWINGS.

10. FOR ALL UTILITY WORKS REFER TO UTILITY NEW CONSTRUCTION DRAWINGS.

11. APPROVED RSS WALL SUPPLIER TO REFER TO UTILITIES NEW CONSTRUCTION DRAWINGS AND CONFIRM LOCATION OF ALL UTILITIES. RSS WALL DESIGN SHALL ACCOUNT FOR ALL INTERFERENCE WITH UTILITIES.

12. FOR LIGHT AND TRAFFIC POLE LOCATIONS REFER TO ELECTRICAL AND ATMS DRAWING PACKAGE.

13. RSS WALL SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE 'MTO RSS DESIGN GUIDELINES' AND SPECIAL PROVISIONS SP599S22 AND SP599S23.

14. THE FACTOR-OF-SAFETY AGAINST EXTERNAL MODES OF FAILURE FOR RSS WALLS SHALL BE AS PER CANADIAN FOUNDATION ENGINEERING MANUAL (CFEM).

15. FOR INFORMATION ON EXISTING PAVEMENT AND INFRASTRUCTURE REFER TO HIGHWAYS REMOVAL DRAWINGS AND GENERAL NOTES PROVIDED WITHIN HIGHWAY REMOVALS DRAWING PACKAGE.

16. ALL WORKS OCCURRING AFTER CONSTRUCTION OF RSS WALLS AND ABUTMENTS THAT INVOLVE EXCAVATION BELOW ROAD SUBGRADE SHALL BE COORDINATED WITH GEOTECHNICAL DESIGN.

ABBREVIATIONS:

ABUT.	ABUTMENT
BF	BACK FACE
BOT.	BOTTOM
BRGS.	BEARINGS
BVC	BEGINNING OF VERTICAL CURVE
C/C	CENTER-TO-CENTER
℄	CENTER LINE
CIP	CAST-IN-PLACE
CLR	CLEAR
CONT.	CONTINUOUS
CSP	CORRUGATED STEEL PIPE
C/W	COMPLETE WITH
DIA	DIAMETER
DR	DRIVE
DWG	DRAWING
EA.	EACH
E.B. (EB)	EASTBOUND
EF	EACH FACE
E.G.	EXISTING GROUND
E.J.	EXPANSION JOINT
EL./ELEV.	ELEVATION
E.P.D.M	ETHYLENE PROPYLENE DIENE MONOMER (M-CLASS) RUBBER
EPS	EXPANDED POLYSTYRENE
EQ	EQUAL
EVA	ETHYLENE VINYL ACETATE
EVC	END OF VERTICAL CURVE
EW	EACH WAY
EXP.	EXPANSION
FF	FRONT FACE
F.G.	FUTURE GROUND
FIX	FIXED
HORIZ.	HORIZONTAL
HP	H-PILE
HWY	HIGHWAY
ID	INSIDE DIAMETER
LTL	LEFT TURN LANE
LWF	LIGHT WEIGHT FILL
MAT.	MATERIAL
MAX.	MAXIMUM
MIN.	MINIMUM
NB	NORTHBOUND
NOM.	NOMINAL
N.T.S.	NOT TO SCALE
OD	OUTSIDE DIAMETER
R/C	REINFORCED CONCRETE
RD	ROAD
REINF.	REINFORCEMENT
R/F	REINFORCED FOOTING
RGM	REINFORCED GRANULAR MAT
RSS	RETAINED SOIL SYSTEM
RTL	RIGHT TURN LANE
R.W. (RW)	RETAINING WALL
SB	SOUTHBOUND
SCL	SPEED CHANGE LANE
SHLD.	SHOULDER
STA.	STATION
STD	STANDARD
STIR.	STIRRUP
TB	TRAIL BRIDGE
T/D	TOP OF DECK
THK.	THICKNESS
T.O.	TOP OF
T/P	TOP OF PAVEMENT
TYP.	TYPICAL
UNO (U.N.O.)	UNLESS NOTED OTHERWISE
U/S	UNDERSIDE
VERT.	VERTICAL
VPI	VERTICAL POINT OF INTERSECTION
W.B.(WB)	WESTBOUND
WP	WORKING POINT
W.W.	WINGWALL
WWR	WELDED WIRE REINFORCEMENT

METRIC

DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

Parkway
Infrastructure
Engineers

Windsor-Essex
Parkway Project
RFP No. 09-54-1007

NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB-8
GENERAL NOTES

SHEET

S6802

Phase 1

90% Sub

APPLICABLE STANDARD DRAWINGS

OPSD 3000.100	FOUNDATION, PILES, STEEL H-PILE DRIVING SHOE
OPSD 3000.150	FOUNDATION, PILES, STEEL H-PILE SPLICE
OPSD 3101.150	WALLS, ABUTMENT, BACKFILL, MINIMUM GRANULAR REQUIREMENT
OPSD 3121.150	WALLS, RETAINING, BACKFILL, MINIMUM GRANULAR REQUIREMENT
OPSD 3190.100	WALLS, RETAINING AND ABUTMENT, WALL DRAIN
OPSD 3370.100	DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
OPSD 3370.101	DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2 mm WIDE AND CONSTRUCTION JOINTS
OPSD 3390.100	DECK, DRIP CHANNEL
OPSD 3941.200	FIGURES IN CONCRETE, SITE NUMBER AND DATE, LAYOUT
OPSD 3950.100	JOINTS, CONCRETE EXPANSION AND CONSTRUCTION, ON STRUCTURE

IN PROGRESS

NOT FOR
CONSTRUCTION

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS					
	10-JAN-14	B	JL	90% MTO	SUBMISSION
	04-OCT-13	A	MAS	60% MTO	SUBMISSION
	DATE	REV.	BY	DESCRIPTION	
DESIGN	BM	CHK	JL	CODE CAN/CSA S6-06	LOAD SEE T.A.F. DOC.
DRAWN	YZ	CHK	MAS	SITE 6-624	DATE JUN 2013

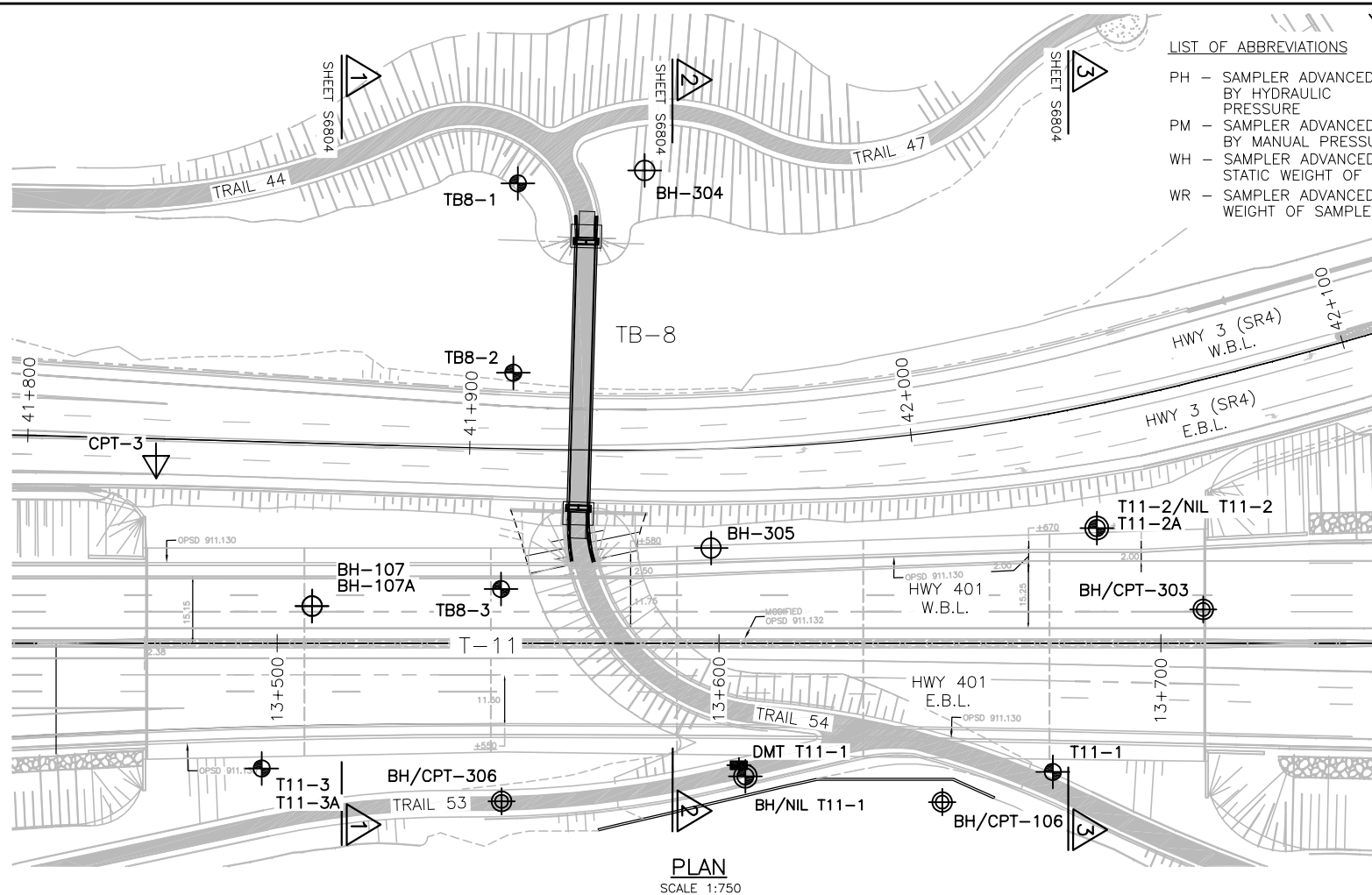
DOC: 285380-03-060-SEG1-6802

PROJECT DOCUMENT AND DATA MANAGEMENT

PROCESSED

MAR 18 2014

PARKWAY
INFRASTRUCTURE CONSTRUCTORS

**METRIC**

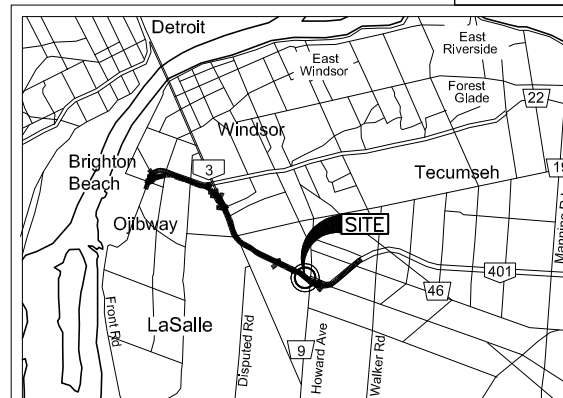
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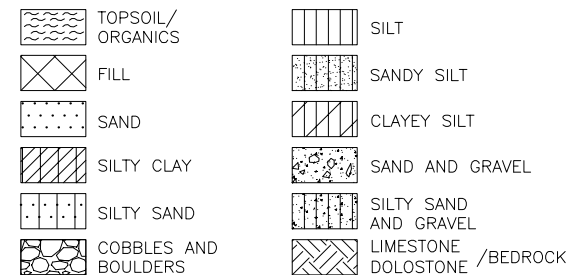
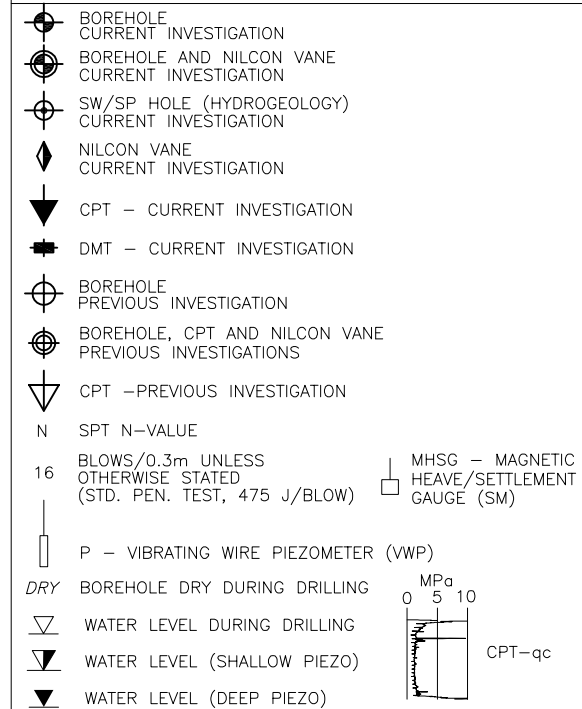
Windsor-Essex
Parkway Project
RFP No. 09-54-1007

**NEW CONSTRUCTION**

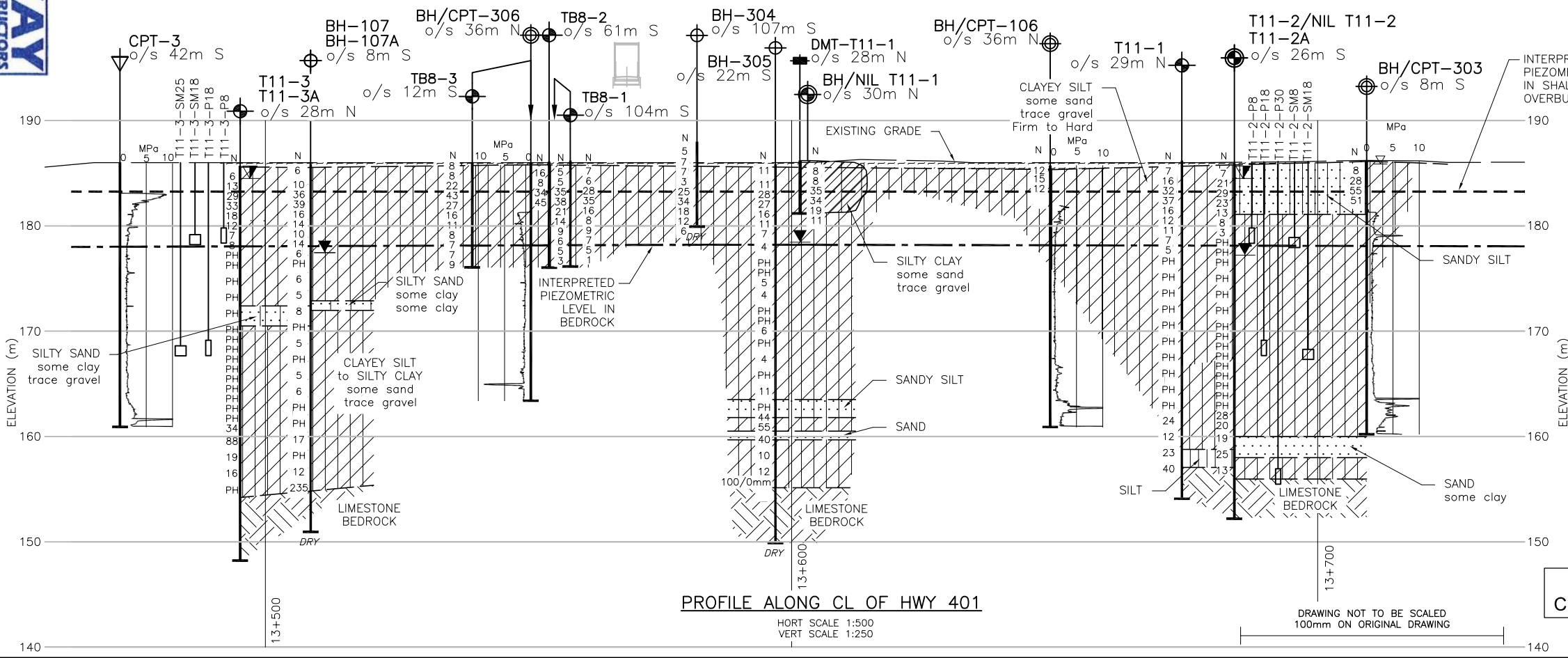
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB-8
BOREHOLE LOCATIONS & SOIL STRATA

SHEET**S6803****Phase 1****90% Sub****KEY PLAN**

SCALE
1 0 2 4Km

MATERIAL LEGEND**LEGEND****NOTES**

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GEOTECHNICAL DESIGN REPORT.
- THE INTERPRETED STRATIGRAPHY REPRESENTS SIMPLIFIED SUBSURFACE CONDITIONS. THE BOUNDARIES BETWEEN SOIL STRATA HAVE BEEN DEFINED AT BOREHOLE LOCATIONS ONLY. CONDITIONS BETWEEN BOREHOLE LOCATIONS COULD DIFFER FROM ILLUSTRATED CONDITIONS.
- ELEVATIONS ARE REFERENCED TO GEODETIC DATUM.

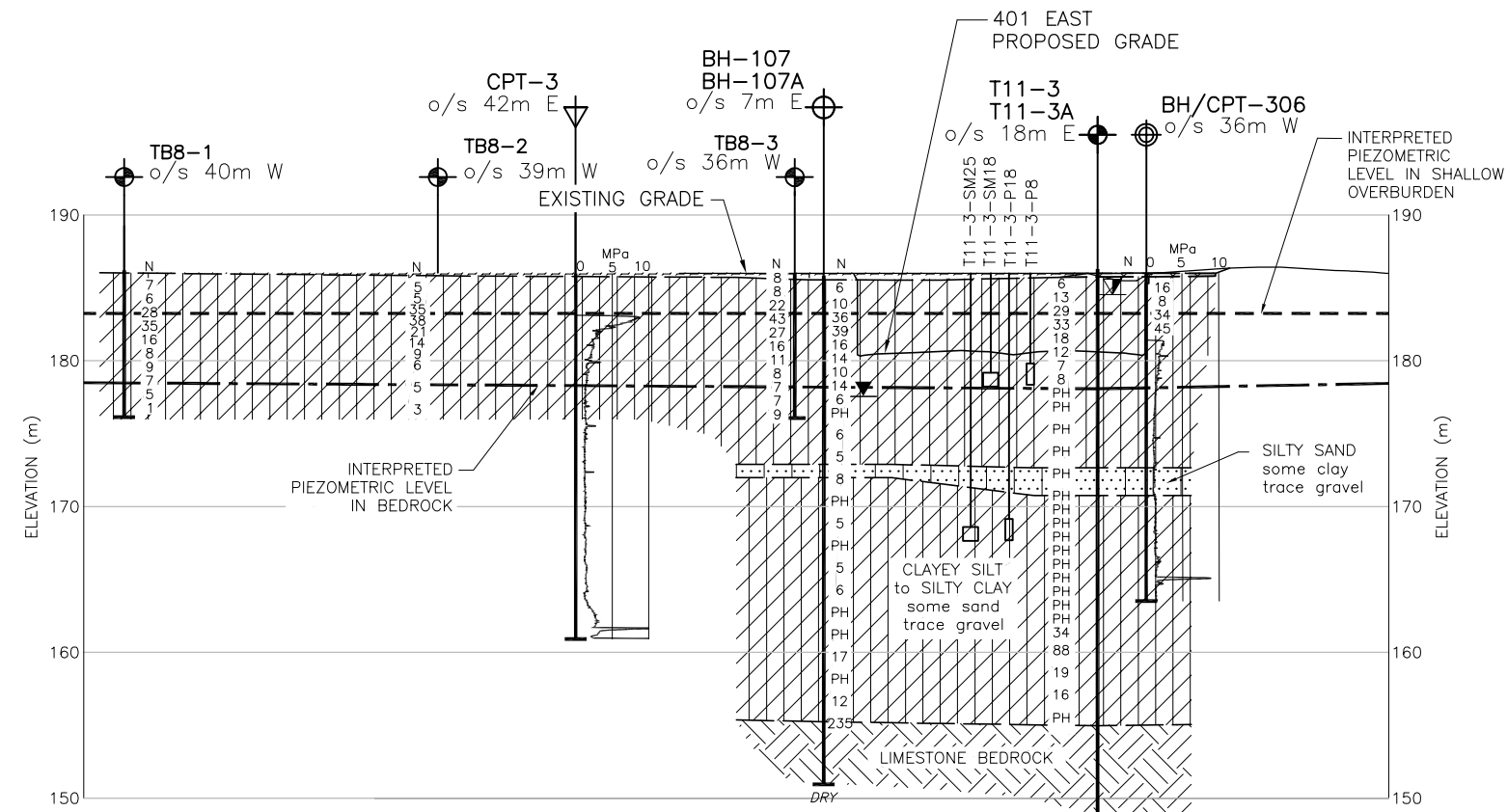


**NOT FOR
CONSTRUCTION**

REVISIONS		DATE	REV.	BY	DESCRIPTION
20-DEC-13	B	EA	90% MTO SUBMISSION		
01-OCT-13	A	EA	60% MTO SUBMISSION		
DESIGN	EA	CHK	DD	CODE	CAN/CSA
DRAWN	SJL	CHK	MO	SITE	6-624
				LOAD	SEE T.A.F. DOC.
				DATE	01-MAY-13

DOC: 285380-04-090-SEG1-6803

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Parkway Project
RFP No. 09-54-1007NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB-8
SOIL STRATIGRAPHYSHEET
S6804Phase 1
90% SubHORIZONTAL SCALE 1:500
VERTICAL SCALE 1:250

MATERIAL LEGEND

	TOPSOIL/ ORGANICS		SILT
	FILL		SANDY SILT
	SAND		CLAYEY SILT
	SILTY CLAY		SAND AND GRAVEL
	SILTY SAND		SILTY SAND AND GRAVEL
	COBBLES AND BOULDERS		LIMESTONE DOLOSTONE /BEDROCK

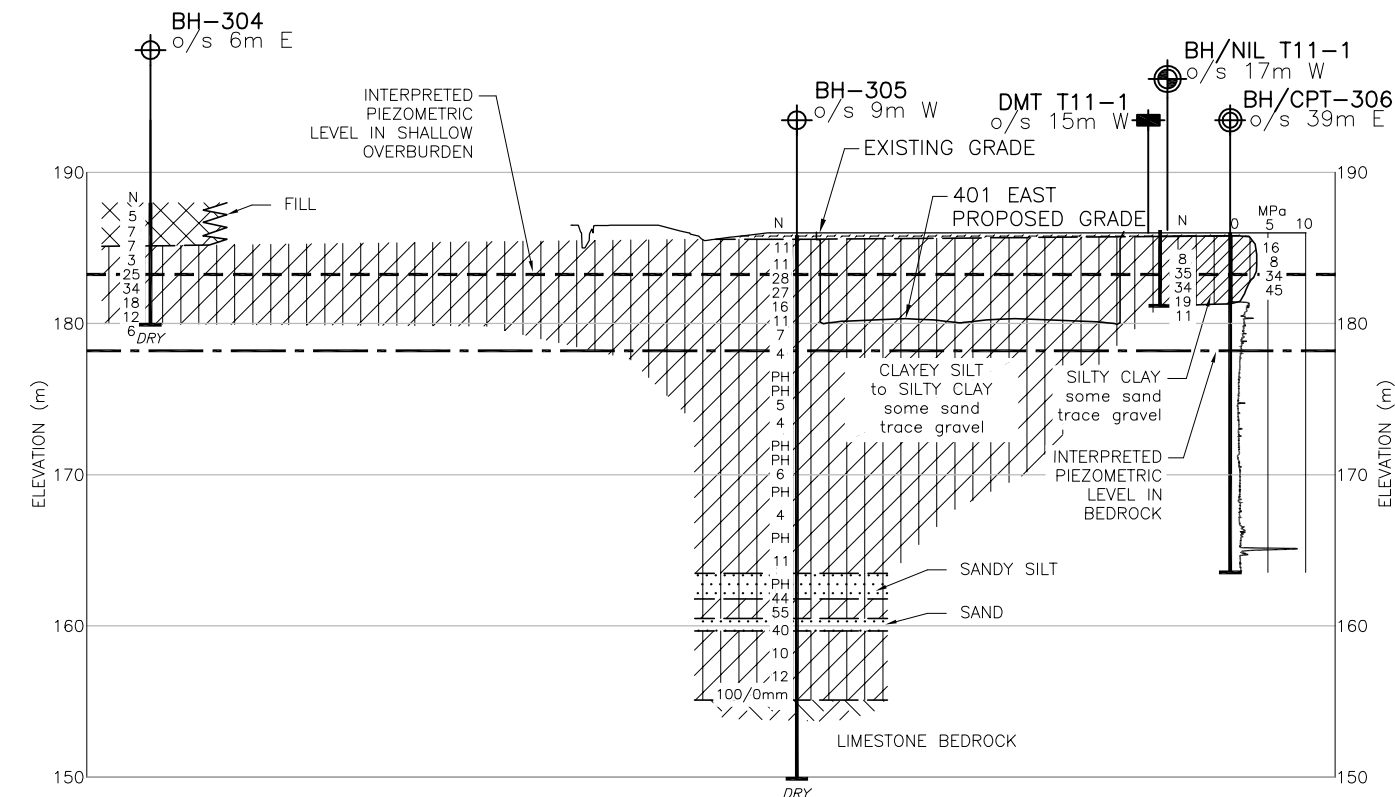
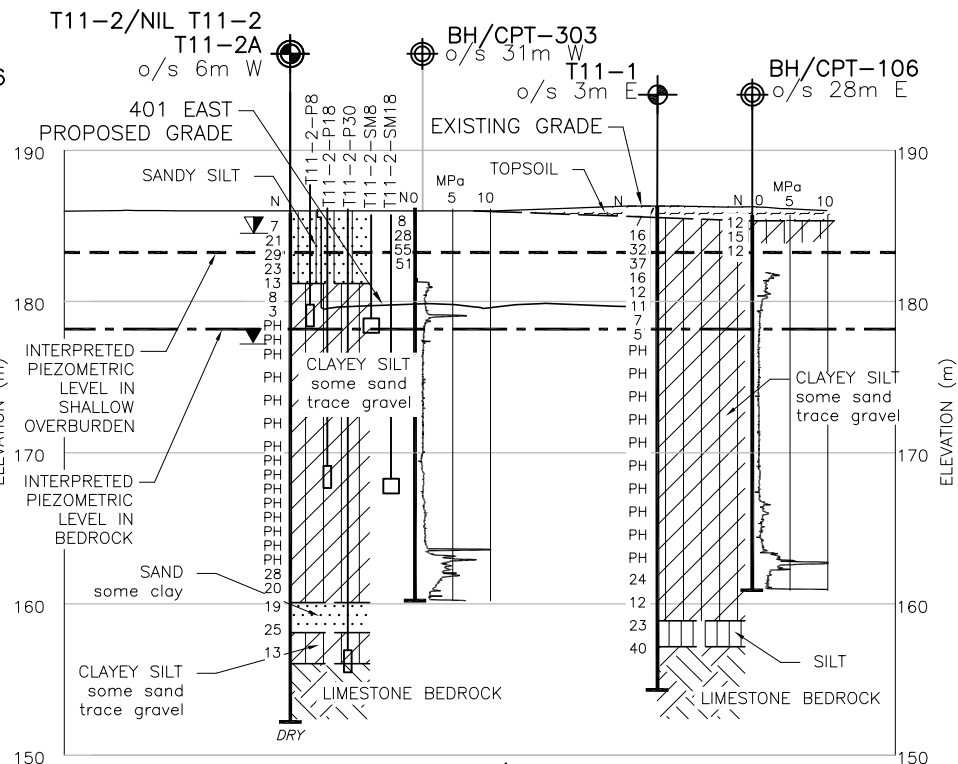
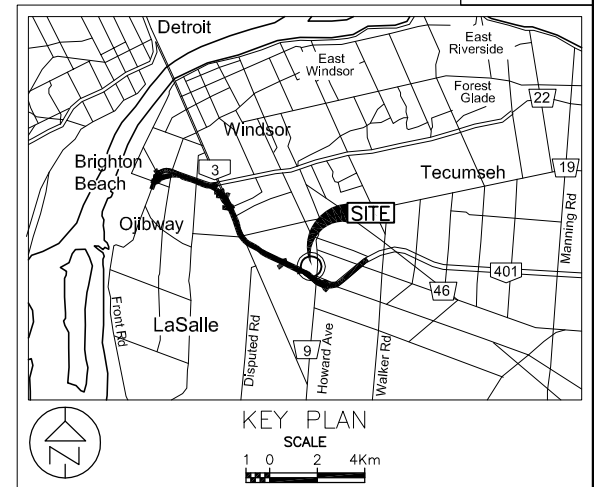
LIST OF ABBREVIATIONS

PH - SAMPLER ADVANCED
BY HYDRAULIC
PRESSURE

PM - SAMPLER ADVANCED
BY MANUAL PRESSURE

WH - SAMPLER ADVANCED BY
STATIC WEIGHT OF HAMMER

WR - SAMPLER ADVANCED BY
WEIGHT OF SAMPLER RODS

HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:250HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:250

KEY PLAN

SCALE
1 0 2 4Km

LEGEND

- BOREHOLE
CURRENT INVESTIGATION
- BOREHOLE AND NILCON VANE
CURRENT INVESTIGATION
- SW/SP HOLE (HYDROGEOLOGY)
CURRENT INVESTIGATION
- NILCON VANE
CURRENT INVESTIGATION
- CPT - CURRENT INVESTIGATION
- DMT - CURRENT INVESTIGATION
- BOREHOLE
PREVIOUS INVESTIGATION
- BOREHOLE, CPT AND NILCON VANE
PREVIOUS INVESTIGATIONS
- CPT -PREVIOUS INVESTIGATION
- N SPT N-VALUE
- BLOWS/0.3m UNLESS
OTHERWISE STATED
(STD. PEN. TEST, 475 J/BLOW)
- MHSg - MAGNETIC
HEAVE/SETTLEMENT
GAUGE (SM)
- P - VIBRATING WIRE PIEZOMETER (VWP)
- DRY BOREHOLE DRY DURING DRILLING
- WATER LEVEL DURING DRILLING
- WATER LEVEL (SHALLOW PIEZO)
- WATER LEVEL (DEEP PIEZO)

NOTES

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- ELEVATIONS ARE REFERENCED TO GEODETIC DATUM.

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100mm ON ORIGINAL DRAWINGNOT FOR
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01-OCT-13	A	EA		60% MTO SUBMISSION
DESIGN	EA	CHK	DD	CODE CAN/CSA
DRAWN	SJL	CHK	MO	SITE 6-624
				LOAD SEE T.A.F. DOC.
				DATE 01-MAY-13

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RFP No. 09-54-1007NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB-8
GROUND IMPROVEMENTS - PLANSHEET
S6805Phase 1
90% Sub

NOTES:

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH EPS SECTIONS AND DETAILS. SEE SHEET S6806.
- TOP OF EPS ELEVATIONS NOTED ARE BASED ON 750mm OF SOIL COVER. ACTUAL TOP ELEVATIONS MAY VARY, PROVIDED THE VOLUME OF SOIL AND/OR PAVEMENT DOES NOT EXCEED 8.5m³ OVER AN AREA OF 10.0m² (i.e. AVERAGE COVER DOES NOT EXCEED 750mm), AND MINIMUM COVER OF 500mm IS MAINTAINED.
- SEE ELECTRICAL DWGS FOR POLE TYPE(S) AND LOCATION(S). (APPROX STATIONS PROVIDED IN TABLE 6805-2.) LOCATIONS MAY BE ADJUSTED TO SUIT BLOCK LAYOUT.
- INFORMATION ALSO ON 285380-25-042-SEG1-0022 **HOLD**

TABLE 6805-1 - EPS CONTROL POINTS

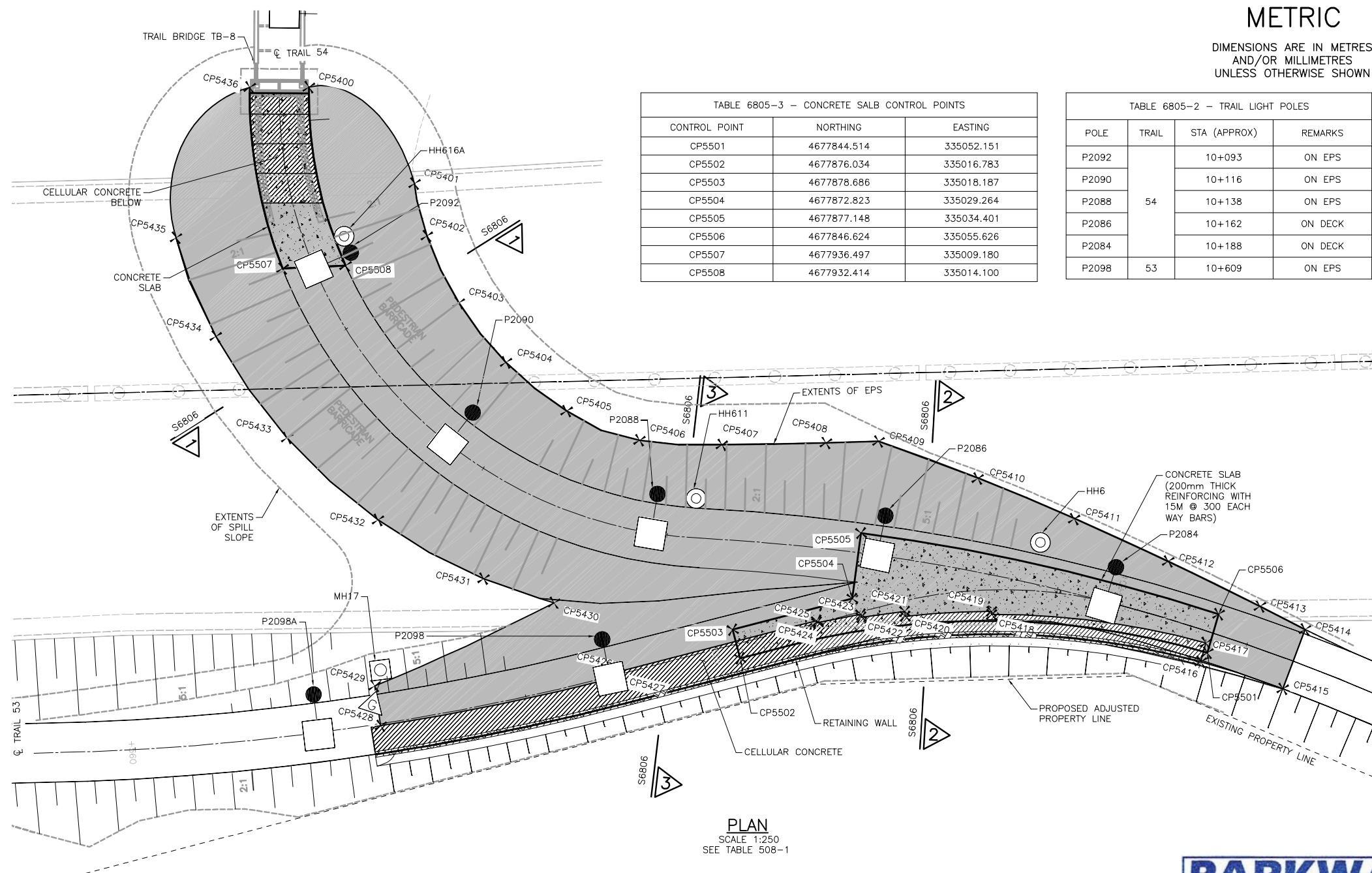
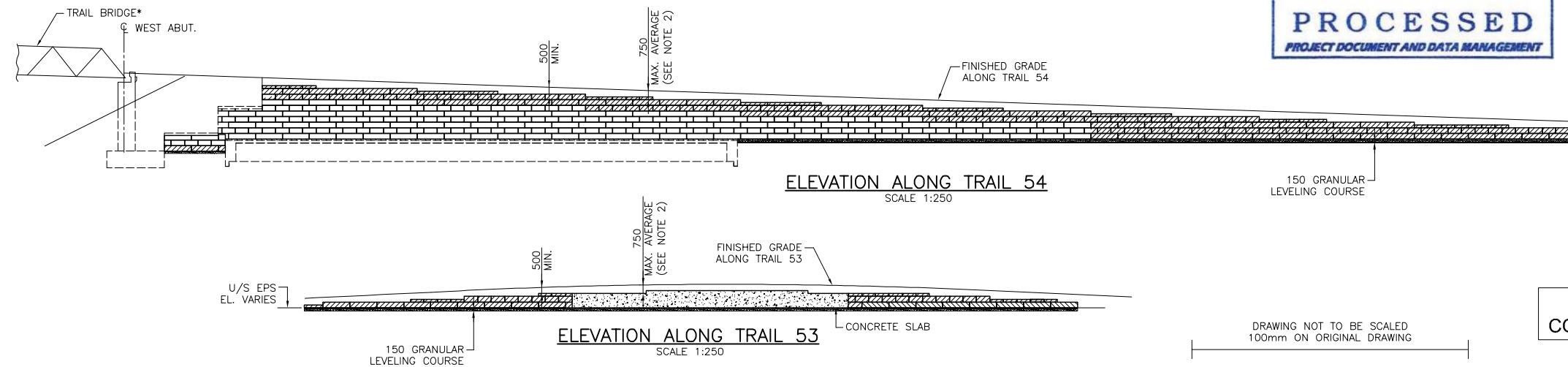
CONTROL POINT	NORTHING	EASTING	TRAIL
CP5400	4677948.279	335023.551	54
CP5401	4677935.460	335025.794	
CP5402	4677929.066	335022.209	
CP5403	4677921.877	335020.027	
CP5404	4677914.200	335019.491	
CP5405	4677906.412	335020.700	
CP5406	4677899.237	335024.157	
CP5407	4677893.263	335030.005	
CP5408	4677886.290	335037.935	
CP5409	4677882.805	335041.975	
CP5410	4677873.254	335046.864	
CP5411	4677863.623	335051.305	
CP5412	4677854.022	335055.460	
CP5413	4677844.387	335059.250	
CP5414	4677839.571	335061.035	
CP5415	4677836.640	335055.296	
CP5416	4677844.280	335051.028	
CP5417	4677845.345	335052.709	
CP5418	4677862.132	335038.603	53
CP5419	4677862.354	335038.805	
CP5420	4677867.894	335032.019	
CP5421	4677868.297	335032.314	
CP5422	4677870.814	335028.672	
CP5423	4677871.065	335028.836	
CP5424	4677873.413	335025.013	
CP5425	4677873.590	335025.107	
CP5426	4677883.323	335006.838	
CP5427	4677882.881	335006.604	
CP5428	4677895.541	334985.266	54
CP5429	4677898.951	334987.525	
CP5430	4677892.888	335006.647	
CP5431	4677899.532	335003.020	
CP5432	4677911.147	334999.139	
CP5433	4677923.501	334997.937	
CP5434	4677935.971	334999.535	
CP5435	4677947.890	335003.973	
CP5436	4677952.303	335019.099	

TABLE 6805-3 - CONCRETE SALB CONTROL POINTS

CONTROL POINT	NORTHING	EASTING
CP5501	4677844.514	335052.151
CP5502	4677876.034	335016.783
CP5503	4677878.686	335018.187
CP5504	4677872.823	335029.264
CP5505	4677877.148	335034.401
CP5506	4677846.624	335055.626
CP5507	4677936.497	335009.180
CP5508	4677932.414	335014.100

TABLE 6805-2 - TRAIL LIGHT POLES

POLE	TRAIL	STA (APPROX)	REMARKS
P2092	54	10+093	ON EPS
P2090		10+116	ON EPS
P2088		10+138	ON EPS
P2086		10+162	ON DECK
P2084		10+188	ON DECK
P2098	53	10+609	ON EPS

PLAN
SCALE 1:250
SEE TABLE 508-1ELEVATION ALONG TRAIL 54
SCALE 1:250ELEVATION ALONG TRAIL 53
SCALE 1:250150 GRANULAR
LEVELING COURSENOT FOR
CONSTRUCTION

IN PROGRESS

REVISIONS	DATE	REV.	BY	DESCRIPTION
10-JAN-14	B	JL		90% MTO SUBMISSION
04-OCT-13	A	JC		60% MTO SUBMISSION
DESIGN	JC	CHK	JL	CODE CAN/CSA S6-06 LOAD SEE T.A.F. DOC.
DRAWN	YZ	CHK	MAS	SITE 6-624 DATE JUN 2013

IN PROGRESS

METRIC

DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

Parkway Infrastructure Engineers



Windsor-Essex
Parkway Project
RFP No. 09-54-1007

NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB-8
GROUND IMPROVEMENTS - SECTIONS

SHEET |

S6806

Phase 1

0% Sub

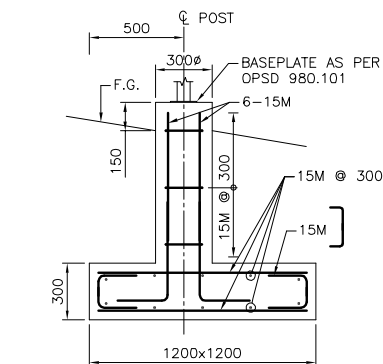
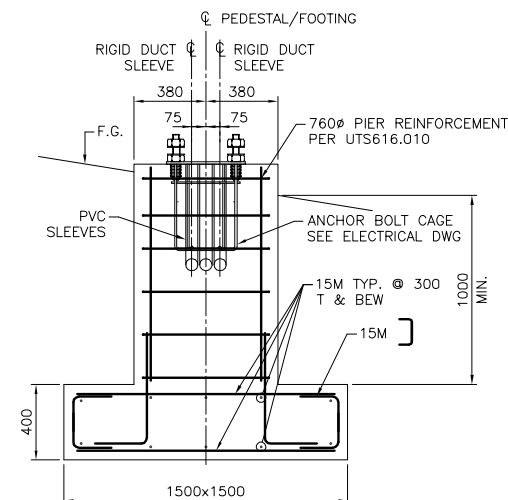
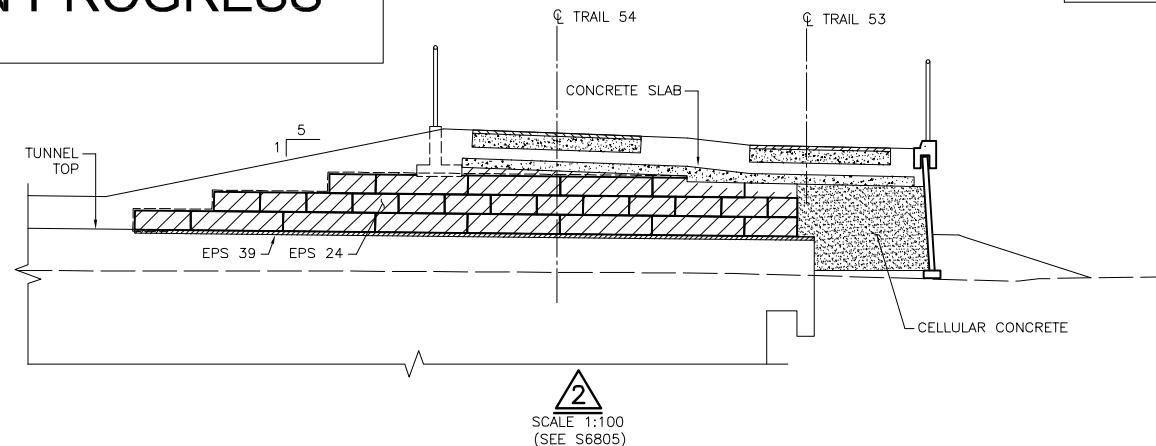
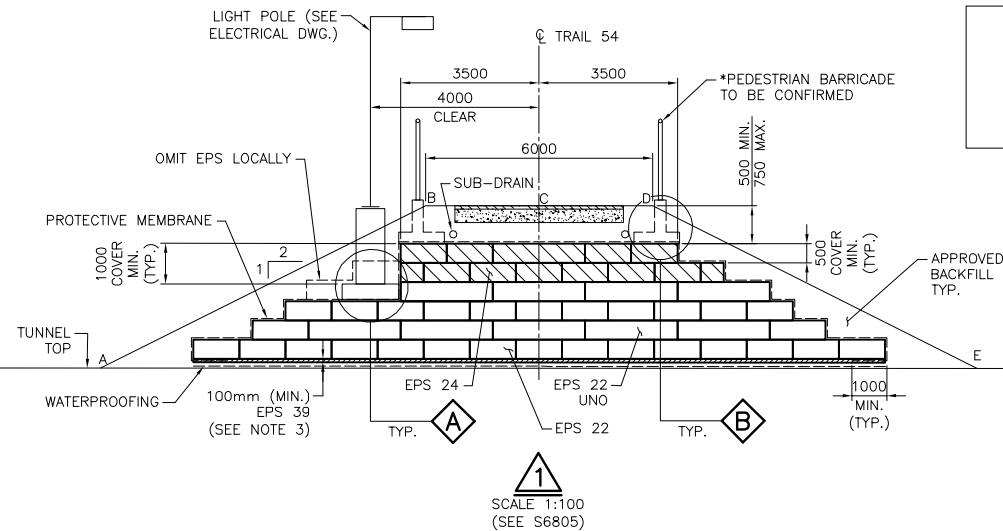
NOTES:

GENERAL:

1. REFER TO CONSTRUCTION NOTES – EXPANDED POLYSTYRENE (SHEET 285380-07-067-SEG2-6209).
2. REFER TO GEOTECHNICAL INVESTIGATION AND DESIGN REPORT – PERMANENT CUTS PHASE 2 (DOC. NO. 285380-04-119-0045).
3. REFER TO TYPICAL SECTIONS (SHEET 285380-25-042-SEG1-0002) FOR PAVEMENT REQUIREMENTS.
4. SETTING OUT POINTS (CONTROL POINTS) ESTABLISH A MINIMUM UNDERSIDE OF EPS AREA.
5. CONTRACTOR MAY INCREASE PERIMETER TO SUIT ACTUAL BLOCK LAYOUT.
6. CONTRACTOR SHALL PROVIDE COMPLETE WORK PLAN AND SHOP DWGS OF EPS BLOCK LAYOUT FOR ENGINEER TO REVIEW.
7. TOP OF EPS SHALL BE 750 MM (MIN) AND 1300 MM (MAX) BELOW FINISHED GRADE. UNLESS NOTED OTHERWISE.
8. ALL EPS SHALL BE ENCAPSULATED WITH A PROTECTIVE MEMBRANE.
9. INFORMATION ALSO ON 285380-25-042-SEG2-0024. **HOLD**
10. CONTRACTOR SHALL COORDINATE INTERFACE BETWEEN CELLULAR CONCRETE AND EPS.
11. TOP OF EPS ELEVATIONS NOTED ARE BASED ON 750mm OF SOIL COVER. ACTUAL TOP ELEVATIONS MAY VARY, PROVIDED THE VOLUME OF SOIL AND/OR PAVEMENT DOES NOT EXCEED 8.5m³/ OVER AN AREA OF 10.0m²/ (i.e. AVERAGE COVER DOES NOT EXCEED 850mm), AND MINIMUM COVER OF 500mm IS MAINTAINED.
12. BOTTOM LAYER OF EPS APPLIED DIRECTLY TO TUNNEL TOP WATERPROOFING MEMBRANE SHALL BE 100mm MINIMUM EPS 39. THIS LAYER SHALL EXTEND TO COVER THE ENTIRE FOOTPRINT OF EPS. EPS 39 SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 103kPa AT 1% DEFORMATION.

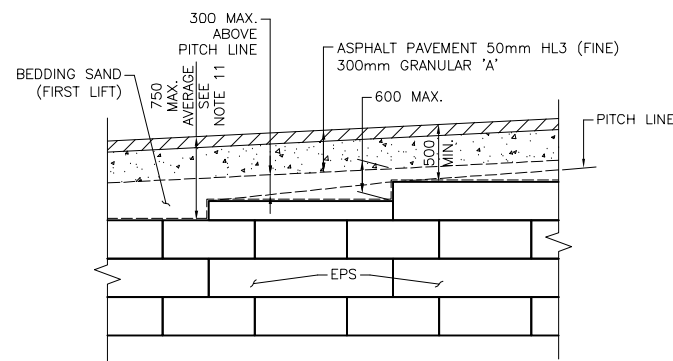
EPS BLOCK LAYOUT NOTES:

1. EPS BLOCK LAYOUT SHOWN IS CONCEPTUAL. CONTRACTOR SHALL PROVIDE COMPLETE SHOP DRAWINGS OF BLOCK LAYOUT BASED ON THE NOTES BELOW.
2. A NOMINAL BLOCK DIMENSION OF 1220 W x 508 HIGH x 2440 LONG HAS BEEN USED TO DEVELOP THE PRELIMINARY LAYOUT. CONTRACTOR MAY ADJUST BLOCK SIZE AS REQUIRED.
3. BLOCKS SHALL BE STAGGERED IN ALTERNATE ROWS TO AVOID CONTINUOUS SEAMS BETWEEN LAYERS (UNLESS NOTED OTHERWISE ON APPROVED SHOP DRAWINGS). BLOCKS SHALL BE INSTALLED TO ENSURE CONTACT WITH ADJACENT BLOCK(S).
4. EPS SHALL BE PLACED TO THE GEOMETRY AND GRADES AS SHOWN ON THE DESIGN DRAWINGS OR AS DIRECTED BY THE DESIGNER. THE SURFACE OF A LAYER OF EPS BLOCKS (EXCEPT TOP LAYER) SHALL BE CONSTRUCTED WITH A TOLERANCE OF NO MORE THAN 15mm IN 3m. ALL BLOCKS SHALL ACCURATELY FIT RELATIVE ADJACENT BLOCKS.
5. A MINIMUM THICKNESS OF 750mm EPS 24 SHALL BE PLACED DIRECTLY BELOW THE PAVEMENT STRUCTURE UNLESS NOTED OTHERWISE ALL OTHER LAYERS SHALL BE EPS 22 UNLESS NOTED OTHERWISE.
6. MINIMUM BLOCK THICKNESS SHALL BE 250mm.



ELEVATION OF
POLE FOUNDATION
REINFORCEMENT

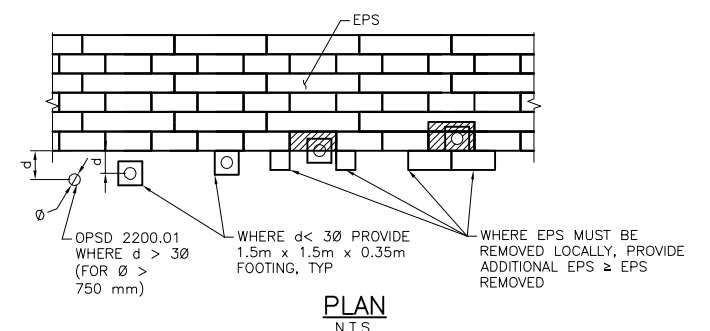
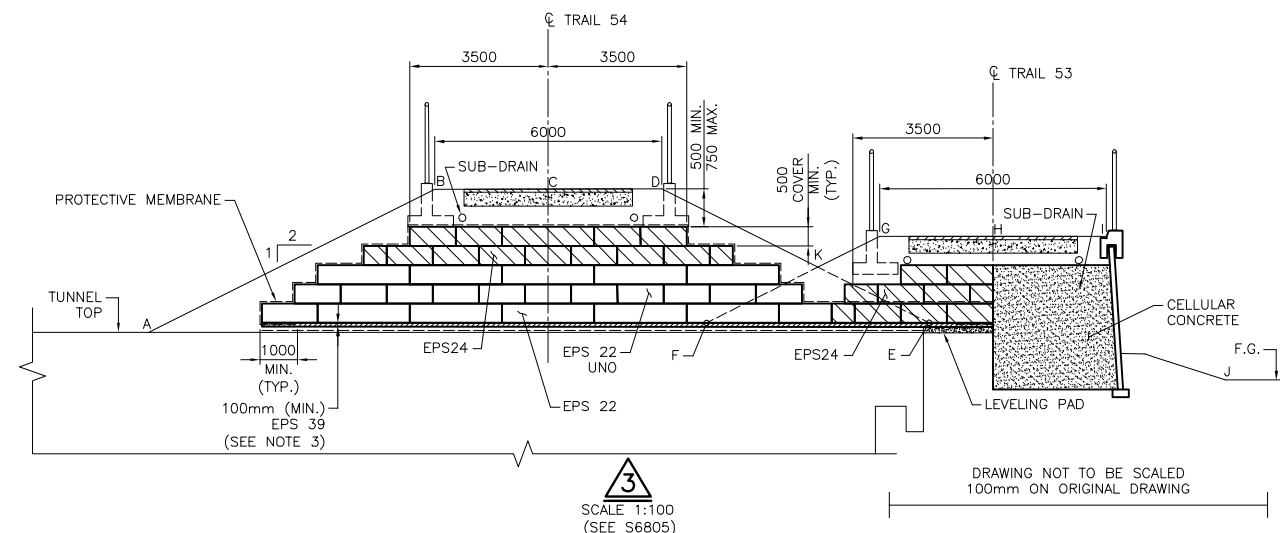
ELEVATION OF
POST FOUNDATION
REINFORCEMENT



BEDDING SAND PLACEMENT SCHEMATIC
N.T.S.

BEDDING SAND NOTES:

1. FIRST LIFT OF BEDDING SAND SHALL BE
 - a) NOT GREATER THAN 600mm;
 - b) NOT GREATER THAN 300mm ABOVE PITCHLINE.
THE PITCHLINE IS DEFINED AS THE LINE CONNECTING THE TOPS OF EPS STEPS.
2. BEDDING SAND SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% (STANDARD PROCTOR MAX DRY DENSITY) THROUGHOUT THE TOP 150mm OF THE FIRST LIFT.
3. OVERALL THICKNESS OF BEDDING SAND SHALL NOT EXCEED 600mm.



NOT FOR
CONSTRUCTION

REVISIONS								
	10-JAN-14	B	JL	90% MTO SUBMISSION				
	04-OCT-13	A	JC	60% MTO SUBMISSION				
	DATE	REV.	BY	DESCRIPTION				
DESIGN	JC	CHK	JL	CODE	CAN/CSA	S6-06	LOAD	SEE T.A.F. DOC.
DRAWN	YZ	CHK	MAS	SITE	6-624		DATE	JUN 2013

DOC: 285380-03-060-SEG1-6806

CONSTRUCTION NOTES – BACKFILL AT STRUCTURES

1.0 GENERAL REQUIREMENTS

- 1.1.

THESE CONSTRUCTION NOTES RELATE TO THE SUPPLY AND PLACEMENT OF BACKFILL MATERIALS AT THE STRUCTURES AT THE WINDSOR-ESSEX PARKWAY (WEP) PROJECT AS ILLUSTRATED ON THE ACCOMPANYING DRAWINGS. THE REQUIREMENTS GIVEN HEREFTER ARE THE GENERAL REQUIREMENTS. FOR DETAILED REQUIREMENTS, THE CONTRACTOR SHOULD REFER TO APPROPRIATE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS) LISTED IN SECTION 1.6.
- 1.2.

THESE CONSTRUCTION NOTES ARE TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GEOTECHNICAL DESIGN DRAWINGS AND REPORT.
- 1.3.

FOR LIGHTWEIGHT FILL (LWF), REFER TO CONSTRUCTION NOTES FOR LIGHTWEIGHT FILL MATERIAL.
- 1.4.

FOR EXPANDED POLYSTYRENE (GEOFOAM, EPS) FILL, REFER TO CONSTRUCTION NOTES FOR EXPANDED POLYSTYRENE FILL.
- 1.5.

THESE REQUIREMENTS DO NOT APPLY TO THE HIGHWAY PAVEMENT CONSTRUCTION.
- 1.6.

THE CONSTRUCTION WORKS SHALL BE EXECUTED IN ACCORDANCE WITH THE GEOTECHNICAL DESIGN ILLUSTRATED ON THE ACCOMPANYING DRAWINGS, THE SUPPLIER SPECIFICATIONS AND THE REQUIREMENTS SPECIFIED IN THE FOLLOWING STANDARDS, SPECIFICATIONS AND PUBLICATIONS:
- ASTM D422

•

ASTM D2216

•

ASTM D2850

PARTICLE-SIZE ANALYSIS OF SOILS
MOISTURE CONTENT OF SOILS
UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST ON COHESIVE SOILS

•

ASTM D2922

•

ASTM D3017

DENSITY OF SOIL AND SOIL-AGGREGATE IN PLACE BY NUCLEAR METHODS
WATER CONTENT OF SOIL AND ROCK IN PLACE BY NUCLEAR METHODS

•

ASTM D5856

HYDRAULIC CONDUCTIVITY OF POROUS MATERIALS USING A RIGID WALL PERMEAMETER

•

OPSS 201

•

OPSS 206

•

OPSS 212

•

OPSS 401

•

OPSS 501

•

OPSS 517

CLEARING, CLOSE CUT CLEARING, GRUBBING, REMOVAL OF SURFACE AND PILED BOULDERS
GRADING
BORROW
TRENCHING, BACKFILLING AND COMPACTING
COMPACTING
DEWATERING OF PIPELINE, UTILITY AND ASSOCIATED STRUCTURE EXCAVATION

•

OPSS 518

•

OPSS 805

•

OPSS 902

CONTROL OF WATER FROM DEWATERING OPERATIONS
TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES
CONSTRUCTION SPECIFICATIONS FOR EXCAVATING AND BACKFILLING – STRUCTURES

•

OPSS 1001

•

OPSS 1004

•

OPSS 1010

AGGREGATES – GENERAL
AGGREGATES – MISCELLANEOUS
AGGREGATES – BASE, SUBBASE, SELECT SUBGRADE AND BACKFILL MATERIAL

•

OPSS 1860

•

OPSD 208.010

GEOTEXTILE
BENCHING OF EARTH SLOPES

1.7.

IF THERE IS ANY CONFLICT BETWEEN THE REQUIREMENTS GIVEN ON THIS DRAWING AND THE STANDARDS AND SPECIFICATIONS DOCUMENTS LISTED IN SECTION 1.6, THE DESIGNER SHOULD BE CONSULTED FOR CLARIFICATION AND RECOMMENDATIONS.

1.8.

IN THE FOLLOWING CONSTRUCTION NOTES, THE CONTRACTOR MEANS PIC AND ITS SUB-CONTRACTORS, THE SUPPLIER MEANS THE MANUFACTURER AND PROPRIETARY SUPPLIER, THE ENGINEER MEANS THE GEOTECHNICAL SITE ENGINEER, AND THE DESIGNER MEANS THE GEOTECHNICAL DESIGNER OF THE PROJECT.

2.0 SITE PREPARATION AND EXCAVATION

2.1

CLEARING AND GRUBBING AREA SHALL EXTEND MINIMUM 3 m BEYOND THE FOOTPRINT AREA OF THE STRUCTURE, OR AS REQUIRED BY THE ENGINEER. THE TREES AND SHRUBS REMOVED FROM THE GROUND SHALL BE TRANSPORTED TO DESIGNATED AREAS.

2.2

THE STRIPPING AREA SHALL EXTEND MINIMUM 1 m BEYOND THE FOOTPRINT AREA OF THE STRUCTURE, OR AS REQUIRED BY THE ENGINEER. ALL PEAT/MUSKEG, WETLAND VEGETATION AND OTHER UNSUITABLE MATERIAL SHOULD BE STRIPPED AND TRANSPORTED TO DESIGNATED AREAS.

2.3

CONTRACTOR IS FULLY RESPONSIBLE FOR THE DESIGN, CONSTRUCTION METHODS AND PERFORMANCE OF THE TEMPORARY SLOPES AND WORKS.

2.4

ALL EXCAVATION WORKS SHOULD BE CARRIED OUT IN ACCORDANCE WITH THE GUIDELINES OUTLINED IN OCCUPATIONAL HEALTH AND SAFETY ACT (OHSA) AND ONTARIO PROVINCIAL STANDARD SPECIFICATION (OPSS) 902. NATIVE DEWATERED SOILS AT THE SITE AND COMPACTED FILLS MAY BE CLASSIFIED IN GENERAL AS TYPE 3 SOILS. UNDEWATERED FILLS, NATIVE SAND AND SILTS, AND WATER BEARING BACKFILL WITHIN TRENCHES OF ACTIVE AND/OR ABANDONED UTILITIES MAY DEVELOP TYPE 4 SOIL CONDITIONS AND SHALL BE ADDRESSED ACCORDINGLY.

2.5

THE SOILS AT THE PROJECT SITE ARE HIGHLY SUSCEPTIBLE TO RAPID DETERIORATION WHEN EXPOSED TO ELEMENTS, WEATHERING, WATER INFLOW AND PONDING, DISTURBANCE FROM CONSTRUCTION TRAFFIC, AND THE LIKE. SUBGRADE SOILS AND BACKFILL IN PROGRESS SHALL BE APPROPRIATELY PROTECTED AT ALL TIMES AGAINST SURFACE EROSION, DESICCATION, AND FREEZE-THAW EFFECTS, REGULARLY INSPECTED AND MONITORED, AND TREATED AS REQUIRED.

2.6

TO PROTECT THE SUBGRADE INTEGRITY, THE FINAL EXCAVATION LAYER ABOVE THE DESIGN ELEVATION IN GENERAL SHOULD NOT BE LESS THAN 0.5 m AND SHOULD BE CARRIED OUT ONLY WHEN THE CONTRACTOR IS READY TO PREPARE AND COVER/PROTECT THE SUBGRADE SAME DAY THE FINAL EXCAVATION IS EXPOSED AND APPROVED.

2.7

NO CONSTRUCTION TRAFFIC SHOULD BE PERMITTED OVER THE SUBGRADE WITHOUT APPROVED PROTECTIVE COVERS.

2.8

THE SUBGRADE EXCAVATION SHALL BE CUT TO NEAT LINES AND GRADES USING BUCKETS EQUIPPED WITH SMOOTH LIPS. ONCE EXPOSED, THE SUBGRADE MUST BE IMMEDIATELY INSPECTED. UPON APPROVAL, THE SUBGRADE SURFACE SHOULD BE COVERED WITH SKIM COAT OF LEAN CONCRETE MUD MAT, GRANULAR OVER GEO-FABRIC, GRANULAR OVER SUBGRADE, ETC., AS APPROVED BY THE ENGINEER, FOR PROTECTION AGAINST DISTURBANCE AND TO PROVIDE A WORKING SURFACE.

2.9

THE TEMPORARY EXCAVATION SURFACES SHALL BE BENCHED ACCORDING TO OPSD 208.010. UNLESS THE GRANULAR BACKFILL IS FILTER GRADED WITH RESPECT TO THE NATIVE SUBGRADE MATERIAL, A GEOTEXTILE LAYER (TERRAFIX 360R OR EQUIVALENT) SHALL BE PLACED AT THE BENCHED INTERFACE BETWEEN THE EXCAVATED SURFACE AND THE GRANULAR BACKFILL TO FUNCTION AS A SEPARATOR AND PREVENT MIGRATION OF FINES.

2.10

IF PRESENCE OF GASSY SOILS IS EVIDENCED (FOR EXAMPLE, DISSOLVED GAS BUBBLES COMING OUT OF SOLUTION AND/OR SOFTENING OF THE EXCAVATION FACE), THE EXCAVATION PROGRESS SHALL BE REVIEWED WITH THE ENGINEER IN TERMS OF TIMING, STAGING AND OTHER MITIGATION MEASURES.

2.11

THE CONTRACTOR SHOULD EMPLOY APPROPRIATE GROUND IMPROVEMENT APPROACH (E.G., SUITABLE FILL LAYER, GEOGRID SHEET, ETC.) TO FACILITATE CONSTRUCTABILITY, WHERE REQUIRED, AS APPROVED BY THE ENGINEER.

2.12

THE SUBGRADE SHOULD BE SLOPED APPROPRIATELY TO ACHIEVE POSITIVE DRAINAGE OF SEEPAGE AND SURFACE WATER TO SUBDRAINS, DITCHES OR SUMPS TO AVOID PONDING BENEATH ANY FILL PLACED. NO PONDING OR FLOODING SHALL BE ALLOWED TO OCCUR IN AREAS OF FINAL EARTHWORKS (SEE SECTION 6 ON DRAINAGE – REQUIREMENTS).

3.0 REINFORCED GRANULAR MAT (RGM)

3.1

THE RGM ARE REINFORCED SOIL MATS COMPRISING SELECT COMPACTED GRANULAR FILL AND REINFORCEMENT (GEOSYNTHETICS OR METALLIC)

3.2

GRANULAR FILL FOR RGM: THE FILL MATERIAL SHALL BE GRANULAR 'A' OR GRANULAR 'B' TYPE II (OPSS 1010) PLACED AS PER NOTE 5.4 AND COMPACTED TO NOT LESS THAN 98%.

3.3

REINFORCEMENT FOR RGM: AS PER CONTRACT DOCUMENTS.

4.0 FILL MATERIALS

4.1

ALL FILL MATERIALS TO BE USED AS BACKFILL FOR STRUCTURES SHALL BE INERT MATERIAL, FREE OF ORGANIC MATERIAL AND DELETERIOUS SUBSTANCES. ALL FILL MATERIALS SHALL BE APPROVED BY THE ENGINEER AT THE BORROW SOURCE AND AT PLACEMENT LOCATION.

4.2

SILTY CLAY FILL: THE UPPER CLAY CRUST ZONE MATERIAL OBTAINED FROM REQUIRED EXCAVATIONS IN THE DEPRESSED SEGMENTS OF THE WEP OR OTHER SOURCES APPROVED BY THE ENGINEER SHALL BE USED AS PER DRAWINGS PROVIDED IT MEETS THE OPSS 902 REQUIREMENTS AND CAN BE COMPACTED TO AT LEAST 95% SPMDD. THE SUITABILITY OF THE CLAY FILL MATERIALS SHALL BE VERIFIED IN TERMS OF ITS GRADATION (E.G., SILTY CLAY TO CLAYEY SILT), PLASTICITY CHARACTERISTICS (LOW TO MEDIUM PLASTICITY INDEX) AND THE IN-SITU MOISTURE CONTENT. ALL SUITABLE METHODS TO ACHIEVE THE SPECIFIED PLACEMENT MOISTURE CONTENT SHALL BE EMPLOYED.

4.3

GRANULAR FILL FOR GENERAL BACKFILL: THE GRANULAR FILL MATERIAL SHALL BE GRANULAR 'B' TYPE I OR II, OR ALTERNATIVE GRANULAR MATERIALS APPROVED BY THE ENGINEER. THE SUITABILITY OF GRANULAR FILL MATERIALS SHALL BE DETERMINED AS PER THE OPSS 1010 STANDARD AND THE REQUIREMENTS OF THE RSS/RGM SUPPLIER.

4.4

RIPRAP: THE RIPRAP MATERIAL FOR EROSION PROTECTION OF PERMANENT SLOPES AND CHANNEL SURFACES SHALL BE R-10 (MINUS 180 mm) FOR LIGHT TO MEDIUM EROSION RISK CONDITIONS AND R-50 (MINUS 305 mm) FOR HIGH RISK CONDITIONS, AS SHOWN ON THE DESIGN DRAWINGS OR AS REQUIRED BY THE ENGINEER (OPSS 1004). GEOTEXTILE SHALL BE USED AT INTERFACE BETWEEN THE SOIL SLOPES AND RIPRAP LAYER TO PREVENT LOSS OF MATERIAL FROM THE SOIL SLOPE.

4.5

LWF AND EPS: SEE RESPECTIVE CONSTRUCTION NOTES.

4.6

ROCK FILL INSIDE CULVERT SHALL BE RIVER STONE AND SHALL MEET THE FOLLOWING REQUIREMENTS: 20% 100–200mm DIA. STONE, 50% 100mm DIA. STONE, 20% 50–100mm DIA. STONE, 10% CLEAN SAND.

4.7

ROCK FILL INSIDE CULVERT SHALL BE MIXED WITH PARENT MATERIAL AND TOPSOIL. MIXTURE RATIO TO BE 60% ROCK TO 40% SOIL.

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

Windsor–Essex
Parkway Project
RFP No. 09–54–1007

NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB–8
CONSTRUCTION NOTES – BACKFILL AT STRUCTURES

SHEET
S6807

Phase 1

90% Sub

5.0 FILL PLACEMENT AND COMPACTION

5.1

GENERAL:
 - THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THEIR QC/QA INSPECTION AND TEST PLAN FOR REVIEW/COMMENT PRIOR TO THE PLACEMENT/COMPACTION OF FILL.
 - FILL SHALL NOT BE PLACED ON SURFACES HAVING STANDING WATER, OR SURFACES WHICH HAVE BEEN RUTTED AND HEAVED BY TRAFFICKING. FILL SHALL NOT BE PLACED ON FROZEN SURFACES. FROZEN FILL IS DEFINED AS MATERIALS WITH SOIL WATER IN FROZEN STATE.
 - ALL EARTHWORKS TO BE ADEQUATELY PROTECTED AGAINST EROSION, FROST AND WATER INGRESS UNTIL THE LANDSCAPING REQUIREMENTS HAVE BEEN INSTALLED (SEE SECTIONS 2.6 TO 2.8).

5.2

IF NOT SPECIFIED IN THE CONTRACT DOCUMENTS, TARGET DENSITIES WILL BE ESTABLISHED UTILIZING CONTROL STRIPS AS PRESENTED IN OPSS 501. THE MINIMUM TARGET DENSITIES SHALL BE AS PER NOTES 5.3 AND 5.4.

5.3

THE SILTY CLAY FILL SHALL BE PLACED IN MAXIMUM 200 mm THICK LOOSE LIFTS AND COMPACTED AT WOPT±2% MOISTURE CONTENT TO A MINIMUM OF 95% SPMDD UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS. THE TERMS WOPT AND SPMDD REFER TO OPTIMUM WATER CONTENT AND MAXIMUM DRY DENSITY, RESPECTIVELY, DETERMINED BY STANDARD PROCTOR TESTS.

5.4

THE GRANULAR FILL MATERIALS SHALL BE PLACED IN MAXIMUM 300 mm THICK LOOSE LIFTS AND COMPACTED AT WOPT±2% MOISTURE CONTENT TO A MINIMUM OF 95% SPMDD UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.

5.5

THE COMPACTION EQUIPMENT SHALL BE APPROPRIATE FOR THE MATERIAL TO BE COMPACTED AND THE SITE CONDITIONS, AND SHOULD BE PROPOSED TO THE ENGINEER FOR APPROVAL. ADEQUATE NUMBER OF PASSES SHALL BE EMPLOYED TO ACHIEVE THE SPECIFIED PLACEMENT DENSITIES. HEAVY COMPACTION EQUIPMENT SHOULD NOT BE EMPLOYED NEAR STRUCTURAL WALLS.

5.6

COMPACTION AND PLACEMENT OF GRANULAR MATERIALS FOR RSS WALLS SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS.

5.7

FILL PLACEMENT SHALL CONFORM TO THE REQUIREMENTS PRESENTED IN OPSS 501. THE CONTRACTOR SHOULD USE APPROPRIATELY SIZED EQUIPMENT TO AVOID DAMAGING ANY STRUCTURES, DEGRADING THE AGGREGATE, OR EPS BLOCKS.

6.0 DRAINAGE – DEWATERING

6.1

REFER TO OPSS 518 FOR DEWATERING REQUIREMENTS.

6.2

THE CONSTRUCTION SITE WILL BE KEPT CLEAN AND DRY, FREE OF WATER PUDDLES, MUD AND DEBRIS.

6.3

MINOR TO SIGNIFICANT SEEPAGE FROM RUNOFF INFILTRATIONS OR PERCHED WATER WITHIN UPPER GRANULAR DEPOSITS AND/OR FILL IS ANTICIPATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TEMPORARY DEWATERING SYSTEM.

7.0 USE

7.1

THIS DRAWING PROVIDES CONSTRUCTION REQUIREMENTS FOR GEOTECHNICAL ASPECTS OF BACKFILLING AT TRAIL EMBANKMENTS AND STRUCTURES.

NOT FOR
CONSTRUCTION

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS					
	20-DEC-13	B	EA	90% MTO	SUBMISSION
	01-OCT-13	A	EA	60% MTO	SUBMISSION
	DATE	REV.	BY	DESCRIPTION	
DESIGN	SF	CHK	NSV	CODE CAN/CSA S6-06	LOAD SEE T.A.F. DOC.
DRAWN	MM	CHK	DD	SITE 6-624	DATE 20-DEC-11

DOC: 285380-04-094-SEG1-6807

DATE PLOTTED: 1/15/2014 2:40:57 PM
FILE LOCATION: c:\working\hmmg_285380\dlh52467\dm429478\285380-04-094-SEG1-6808.dwg

MINISTRY OF TRANSPORTATION, ONTARIO

PR-D-707

BB-05

CONSTRUCTION NOTES – LIGHTWEIGHT FILL MATERIAL

1.0 GENERAL REQUIREMENTS

- 1.1.

THE CONSTRUCTION NOTES ON THIS DRAWING COVER THE REQUIREMENTS FOR THE SUPPLY AND PLACEMENT OF WATER COOLED ULTRA LIGHTWEIGHT BLAST FURNACE SLAG TO BE USED FOR CONSTRUCTION OF THE STRUCTURES FOR THE WINDSOR–ESSEX PARKWAY (WEP) PROJECT. AT THE WEP PROJECT, THE ULTRA LIGHTWEIGHT BLAST FURNACE SLAG MATERIAL IS GENERALLY REFERRED TO AS THE LIGHT WEIGHT FILL (LWF).
- 1.2.

THESE CONSTRUCTION NOTES ARE TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING DESIGN DRAWING(S), OTHER RELEVANT CONSTRUCTION NOTES AND GEOTECHNICAL REPORT.
- 1.3.

THE CONSTRUCTION WORKS SHALL BE EXECUTED IN ACCORDANCE WITH THE DESIGN ILLUSTRATED ON THE ACCOMPANYING DRAWINGS, AND THE REQUIREMENTS SPECIFIED IN THE FOLLOWING STANDARDS, SPECIFICATIONS AND PUBLICATIONS:

- MTO
 - ASTM D422
 - ASTM D2216
 - ASTM D2922
 - ASTM D3017
 - OPSS 212
 - OPSS 501
 - OPSS 517
 - OPSS 1010
 - OPSS 1860

NSSP ULTRA LIGHTWEIGHT BLAST FURNACE SLAG (WATER COOLED)

PARTICLE–SIZE ANALYSIS OF SOILS

MOISTURE CONTENT OF SOILS

DENSITY OF SOIL AND SOIL–AGGREGATE IN PLACE BY NUCLEAR METHODS

WATER CONTENT OF SOIL AND ROCK IN PLACE BY NUCLEAR METHODS

BORROW

COMPACTION

DEWATERING

AGGREGATES–BASE, SUBBASE, SELECT SUBGRADE, AND BACKFILL MATERIAL

GEOTEXTILES

1.4.

IF THERE IS ANY CONFLICT BETWEEN THE REQUIREMENTS GIVEN ON THIS DRAWING AND THE STANDARDS AND SPECIFICATIONS DOCUMENTS LISTED IN SECTION 1.3, THE DESIGNER SHOULD BE CONSULTED FOR CLARIFICATION AND RECOMMENDATIONS.

1.5.

IN THE FOLLOWING SPECIFICATIONS, THE CONTRACTOR MEANS PIC AND ITS SUB–CONTRACTORS, AND THE ENGINEER MEANS THE GEOTECHNICAL SITE ENGINEER, AND THE DESIGNER MEANS THE GEOTECHNICAL DESIGNER OF THE PROJECT.
- 2.0 SITE PREPARATION AND EXCAVATION
- 2.1

THE SITE PREPARATION AND EXCAVATION REQUIREMENTS ON THE CONSTRUCTION NOTES FOR THE BACKFILL AT STRUCTURES ARE APPLICABLE.
- 3.0 SUBMISSION AND DESIGN REQUIREMENTS
- 3.1

THE CONTRACTOR SHALL SUBMIT TO PIC AND THE ENGINEER CERTIFICATES OF CONFORMANCE SEALED AND SIGNED BY THE QUALITY VERIFICATION ENGINEER AS FOLLOWS:

a.

PRIOR TO THE PLACEMENT OF THE LIGHTWEIGHT FILL MATERIAL ON THE PROJECT, THE CONTRACTOR SHALL SUBMIT TO THE CONTRACT ADMINISTRATOR A CERTIFICATE OF CONFORMANCE STATING THAT THE MATERIAL SATISFIES THE MATERIAL PROPERTIES SPECIFIED IN SECTION 4.1.

b.

FOLLOWING FILL PLACEMENT, THE CONTRACTOR SHALL SUBMIT TO THE CONTRACT ADMINISTRATOR A CERTIFICATE OF CONFORMANCE STATING THAT THE MATERIAL SATISFIES THE REQUIREMENTS OF THIS SPECIFICATION AND THAT THE WORK HAS BEEN CARRIED OUT IN GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS. THE CONTRACTOR SHALL ALSO SUBMIT ALL QUALITY CONTROL TEST RESULTS FOR INFORMATION ONLY.
- 4.0 MATERIAL
- 4.1

THE LWF SHALL SATISFY THE FOLLOWING PHYSICAL, MECHANICAL AND CHEMICAL PROPERTY REQUIREMENTS:

- ANGLE OF INTERNAL FRICTION
 - HYDRAULIC CONDUCTIVITY
 - CHEMICAL COMPOSITION
 - IN SITU WET UNIT WEIGHT

>35° (ASTM 2850–85)

>8 E–03 CM/S (ASTM 5856–95, METHOD A)

THE MATERIAL SHALL MEET THE LEACHATE CRITERIA ESTABLISHED UNDER ONTARIO REGULATION 347

<12.5 kN/m³ (ASTM D2922) (MAXIMUM WHEN PLACED AND COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS)

5.0 CONSTRUCTION

5.1

THE LWF (BLAST FURNACE SLAG) IS SUSCEPTIBLE TO CRUSHING IF OVERCOMPACTED AND CAREFUL CONSTRUCTION PROCEDURES AND SUPERVISION ARE REQUIRED. THE CONTRACTOR SHALL PLACE THE LWF MATERIAL AND SHALL ACHIEVE COMPACTION WITHOUT CRUSHING THE MATERIAL SINCE CRUSHING INCREASES ITS UNIT WEIGHT. THE CONTRACTOR SHALL PLACE THE LWF MATERIAL WITHOUT EXCEEDING THE SPECIFIED IN SITU UNIT WEIGHT AND MAINTAINING CRUSHING OF THE MATERIAL BELOW 5%.

5.2

TO PREVENT OVER–CRUSHING AND OVER–COMPACTION, THE LWF SHALL BE PLACED AS FOLLOWS:

a.

FOR EMBANKMENTS THE LWF SHALL BE PLACED IN LIFTS OF 300 mm AND COMPACTED BY 3 PASSES OF SINGLE DRUM VIBRATORY EQUIPMENT APPROVED BY THE ENGINEER (E.G., BOMAG 142 OR EQUIVALENT, TABLE 1).

b.

FOR BACKFILL TO STRUCTURES, THE LWF SHALL BE PLACED IN LIFTS OF 300 mm AND COMPACTED WITH 8 PASSES OF MANUALLY GUIDED TAMPER SUCH AS A BOMAG BPR 30/38 D OR EQUIVALENT (TABLE 1).

c.

THE CONTRACTOR SHALL PLACE AND SPREAD THE LOOSE LIFTS USING A RUBBER TIRE FRONT–END LOADER SUCH AS A CATERPILLAR 980 F OR EQUIVALENT.

5.3

COMPACTION EQUIPMENT TECHNICAL DETAILS ARE PROVIDED IN TABLE 1.

5.4

THE LWF ZONES SHALL BE APPROPRIATELY WRAPPED IN GEOTEXTILE TO AVOID LOSS OF FINES FROM THE ADJACENT BACKFILL OR NATIVE MATERIALS IN CONTACT WITH THE LWF ZONES.

6.0 QUALITY CONTROL

6.1

QUALITY CONTROL (QC) TESTING SHALL BE CARRIED OUT BY THE CONTRACTOR TO ENSURE THAT THE LWF MATERIAL IS PLACED AND COMPACTED AS SPECIFIED. FIELD DENSITY AND FIELD MOISTURE DETERMINATION SHALL BE MADE IN ACCORDANCE WITH ASTM D2922 AND ASTM D3017, RESPECTIVELY.

6.2

THE CONTRACTOR SHALL BUILD A CONTROL STRIP TO VERIFY THAT THE PLACEMENT AND COMPACTION PROCEDURE WILL ACHIEVE THE REQUIREMENTS OF THESE SPECIFICATIONS WITHOUT EVIDENCE OF CRUSHING AND WITHOUT EXCEEDING THE SPECIFIED MAXIMUM IN SITU WET UNIT WEIGHT OF 12.5 kN/m³.

6.3

MATERIAL PLACED IN THE CONTROL STRIP SHALL HAVE THE MOISTURE CONTENT THAT WILL YIELD THE SPECIFIED IN–SITU UNIT WEIGHT. FOR THE CONTROL STRIP DETERMINATION, THE NUCLEAR GAUGE METHOD WILL NOT BE CONSIDERED AN ACCEPTABLE METHOD OF DETERMINING THE IN–SITU MOISTURE CONTENT OF THE LWF MATERIAL. MOISTURE CONTENT SHALL BE DETERMINED BY THE OVEN DRY METHOD ON SELECTED COMPACTED EMBANKMENT MATERIAL SAMPLES IN ACCORDANCE WITH ASTM D2216.

6.4

AFTER THE TRIAL AREA IS COMPLETE, SAMPLES FOR MOISTURE CONTROL AND IN SITU UNIT WEIGHT DETERMINATION TESTING SHALL BE AS PER ASTM D2922.

6.5

IN ADDITION, GRADATION AS PER ASTM D422–63 BEFORE AND AFTER COMPACTION EFFORT SHALL BE PERFORMED TO DETERMINE THAT CRUSHING IS KEPT WITHIN 5%.

6.6

THE REQUIREMENTS OF THE CONTROL STRIP MUST BE SATISFIED AS PART OF THE ACCEPTANCE CRITERIA OF ANY PROPOSED CHANGE TO THE SPECIFIED COMPACTION METHOD OF THIS SPECIAL PROVISION.

7.0 USE

7.1

THIS DRAWING PROVIDES CONSTRUCTION REQUIREMENTS FOR GEOTECHNICAL ASPECTS OF BACKFILLING AT TRAIL EMBANKMENTS AND STRUCTURES.

METRIC

DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

Windsor–Essex
Parkway Project
RFP No. 09–54–1007

NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB–8
CONSTRUCTION NOTES – LIGHTWEIGHT FILL MATERIAL

SHEET

S6808

Phase 1

90% Sub

TABLE 1: COMPACTION EQUIPMENT TECHNICAL DETAILS

	BOMAG 142 D	BOMAG BPR 30/38 D
WEIGHTS		
• OPERATING WEIGHT (kg)	4690±	175±
• MASS PER SQUARE METRE OF BASE PLATE (kg/m²)	N/A	1439
DIMENSIONS		
• DRUM WIDTH (mm)	1426±	N/A
• DRUM DIAMETER (mm)	1058±	N/A
• WIDTH OF BASE PLATE (mm)	N/A	380
• LENGTH OF BASE PLATE (mm)	N/A	730
DRIVE		
• PERFORMANCE DIN 6271 IFN (kW)	37±	3.7
• PERFORMANCE SAE (kW)	39.5	N/A
• SPEED (RPM)	2300	3600
VIBRATORY SYSTEM		
• FREQUENCY (Hz)	32±	68±
• AMPLITUDE (mm)	1.24±	N/A
• CENTRIFUGAL FORCE (KN)	66±	30±

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

NOT FOR
CONSTRUCTION

REVISIONS					
	20–DEC–13	B	EA	90% MTO	SUBMISSION
	01–OCT–13	A	EA	60% MTO	SUBMISSION
	DATE	REV.	BY	DESCRIPTION	
DESIGN	SF	CHK	NSV	CODE CAN/CSA S6–06	LOAD SEE T.A.F. DOC.
DRAWN	MM	CHK	DD	SITE 6–624	DATE 20–DEC–11

DOC: 285380–04–094–SEG1–6808

DATE PLOTTED: 1/15/2014 2:42:25 PM
FILE LOCATION: C:\working\mmdm_285380.dwg

MINISTRY OF TRANSPORTATION, ONTARIO

PR-D-707

88-05

CONSTRUCTION NOTES – EXPANDED POLYSTYRENE FILL

1.0 GENERAL REQUIREMENTS

- 1.1.THE REQUIREMENTS ON THIS DRAWING RELATE TO THE CONSTRUCTION OF THE EXPANDED POLYSTYRENE (EPS) FILL WITHIN BACKFILL AT THE STRUCTURES AND HIGH EMBANKMENTS TO BE BUILT ALONG THE WINDSOR–ESSEX PARKWAY (WEP) PROJECT AS ILLUSTRATED ON THE DRAWINGS. THE REQUIREMENTS GIVEN HEREFTER ARE THE PRINCIPAL REQUIREMENTS. FOR DETAILED REQUIREMENTS, THE CONTRACTOR SHOULD REFER TO MTO MATERIAL SPECIFICATION REQUIREMENTS STATED IN NSSP EXPANDEDPOLYSTYRENEREQUIREMENT.DOC.
- 1.2.THESE CONSTRUCTION NOTES ARE TO READ IN CONJUNCTION WITH THE ACCOMPANYING GEOTECHNICAL DESIGN DRAWINGS AND REPORT.
- 1.3.THE CONSTRUCTION WORKS SHALL BE EXECUTED IN ACCORDANCE WITH THE GEOTECHNICAL DESIGN ILLUSTRATED ON THE ACCOMPANYING DRAWINGS, THE SUPPLIER SPECIFICATIONS AND THE REQUIREMENTS SPECIFIED IN THE FOLLOWING STANDARDS, SPECIFICATIONS AND PUBLICATIONS:

- MTO NSSP EXPANDED POLYSTYRENE REQUIREMENT
- CAN/ULC–S701–11 THERMAL INSULATION, POLYSTYRENE BOARDS AND PIPE COVERING
- ASTM D1621 COMPRESSIVE PROPERTIES OF RIGID CELLULAR PLASTICS
- ASTM C203 BREAKING LOAD AND FLEXURAL PROPERTIES OF BLOCK TYPE THERMAL INSULATION
- ASTM C177 STEADY STATE HEAT FLUX MEASUREMENTS AND THERMAL TRANSMISSION PROPERTIES BY MEANS OF THE HEAT FLOW APPARATUS
- ASTM D2842 WATER ABSORPTION BY RIGID CELLULAR PLASTICS
- ASTM D2863 MEASURING THE MINIMUM OXYGEN CONTENT
- ASTM D2126 RESPONSE OF RIGID CELLULAR PLASTICS TO THERMAL AND HUMID AGING
- ASTM D6817 STANDARD SPECIFICATION FOR RIGID CELLULAR POLYSTYRENE GEOFOAM
- OPSS 201 CLEARING, CLOSE CUT CLEARING, GRUBBING, REMOVAL OF SURFACE AND PILED BOULDERS
- OPSS 212 BORROW
- OPSS 501 COMPACTION
- OPSS 518 DEWATERING
- OPSS 904 CONSTRUCTION SPECIFICATION FOR CONCRETE STRUCTURES
- OPSS 905 CONSTRUCTION SPECIFICATION FOR STEEL REINFORCEMENT FOR CONCRETE
- OPSS 1010 AGGREGATES – GRANULAR A, B, M, AND SELECTED SUBGRADE MATERIAL
- OPSS 1440 MATERIAL SPECIFICATION FOR STEEL REINFORCEMENT FOR CONCRETE
- OPSS 1605 EXPANDED EXTRUDED POLYSTYRENE PAVEMENT INSULATION
- OPSS 1860 GEOTEXTILES
- NCHRP REPORT 529 GEOFOAM APPLICATIONS IN HIGHWAY EMBANKMENTS
- CAN/ULC–S102.2–10–EN BURNING CHARACTERISTICS

- 1.4 IF THERE IS ANY CONFLICT BETWEEN THE REQUIREMENTS GIVEN ON THIS DRAWING AND THE STANDARDS AND SPECIFICATIONS DOCUMENTS LISTED IN SECTION 1.3, THE DESIGNER SHOULD BE CONSULTED FOR CLARIFICATION AND RECOMMENDATION.
- 1.5 IN THE FOLLOWING CONSTRUCTION NOTES, THE CONTRACTOR MEANS PIC AND ITS SUB–CONTRACTORS, THE SUPPLIER MEANS THE MANUFACTURER AND PROPRIETARY SUPPLIER OF THE EPS, THE ENGINEER MEANS THE GEOTECHNICAL SITE ENGINEER, AND THE DESIGNER MEANS THE GEOTECHNICAL DESIGNER OF THE PROJECT.

2.0 SITE PREPARATION

- 2.1 CLEAR AND GRUB SITE AND REMOVE ANY SUBGRADE MATERIAL UNSUITABLE FOR EPS BLOCK PLACEMENT AS PER TECHNICAL SPECIFICATIONS FOR CLEARING, GRUBBING AND STRIPPING (OPSS 201).
- 2.2 DEWATERING: THERE SHALL BE NO STANDING WATER OR ACCUMULATED SNOW OR ICE ON THE SUBGRADE WITHIN THE AREA WHERE EPS BLOCKS ARE PLACED. EPS BLOCKS SHALL NOT BE PLACED ON A FROZEN SUBGRADE (OPSS 518).
- 2.3 PLACE GRANULAR LEVELLING PAD AS PER DRAWINGS BUT NOT LESS THAN 150 mm THICK CONSISTING OF GRANULAR 'A' OR GRANULAR 'B' MATERIAL WITH GRADATION AND PHYSICAL REQUIREMENTS AS SPECIFIED IN OPSS 1010. WHERE LEVELLING PAD IS THICKER THAN 100 mm, THE PAD SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.
- 2.4 EPS SHALL NOT BE FOUNDED DIRECTLY ON EXISTING ASPHALT PAVEMENT. THE CONSTRUCTOR SHALL REMOVE EXISTING PAVEMENT IN ADDITION TO ANY MATERIAL CONTAINING HYDROCARBONS AND REPLACE WITH CLEAN GRANULAR MATERIAL. WHERE AN EPS EMBANKMENT IS FOUNDED ABOVE A PRE–EXISTING SUBSURFACE PAVEMENT LAYER THERE SHALL BE MINIMUM 200 mm OF FREE DRAINING LEVELING COURSE BELOW THE EPS BLOCKS.

3.0 MATERIALS

- 3.1 THE CONTRACTOR SHALL SUBMIT INFORMATION ON THE EPS MATERIAL, MANUFACTURER, PHYSICAL AND MECHANICAL PROPERTIES OF THE MATERIAL, AND AGING AND DURABILITY CHARACTERISTICS AS PER THE MTO–NSSP REQUIREMENTS.
- 3.2 THE CONTRACTOR SHALL PROVIDE CERTIFICATE OF COMPLIANCE OF PHYSICAL AND MECHANICAL PROPERTIES AND THE IDENTIFICATION OF THE LABORATORY ACCREDITED BY THE STANDARDS COUNCIL OF CANADA TO TEST THE EPS. THE PHYSICAL AND MECHANICAL PROPERTIES INCLUDE GEOMETRY, NOMINAL DENSITY, COMPRESSIVE STRENGTH, FLEXURAL STRENGTH, THERMAL RESISTANCE, DIMENSIONAL STABILITY, FLAMMABILITY AND WATER ABSORPTION.
- 3.3 THE PRODUCT SHALL BE SUITABLY MARKED TO IDENTIFY ITS TYPE, NUMBER AND THE MANUFACTURER’S NAME OR TRADEMARK.
- 3.4 EPS BLOCKS SHALL MEET ASTM D6817 STANDARD SPECIFICATION FOR RIGID CELLULAR POLYSTYRENE GEOFOAM AS PER THE FOLLOWING:

ASTM DESIGNATION	DENSITY, kg/m ³	COMPRESSIVE RESISTANCE, kPa		MAXIMUM WATER ABSORPTION, %
		AT 1% DEFORMATION	AT 5% DEFORMATION	
EPS 22	22	50	115	4
EPS 24	24	65	140	3
EPS 29	29	75	170	2
EPS 39	38	103	240	2

- 3.5 TESTING OF EPS SAMPLES SHALL BE UNDERTAKEN ACCORDING TO ASTM D1621 (PROCEDURE A). FOR EACH EPS GRADE PRODUCED BY THE SUPPLIER, A MINIMUM OF ONE SAMPLE SHALL BE TESTED PER 500 m³ FOR THE FIRST 2000 m³. A MINIMUM OF ONE SAMPLE PER 2000 m³ SHALL BE TESTED THEREAFTER.
- 3.6 THE CONTRACTOR SHALL SUBMIT THE METHOD OF DELIVERY, STORAGE, HANDLING AND PROTECTION FROM DAMAGE BY WEATHER, TRAFFIC, CONSTRUCTION STAGING AND OTHER CAUSES AS PER THE RIGID EXPANDED POLYSTYRENE MANUFACTURER’S REQUIREMENTS.
- 3.7 THE CONTRACTOR SHALL PROTECT THE EXPANDED POLYSTYRENE FROM EXPOSURE TO SUNLIGHT TO AVOID ULTRAVIOLET DEGRADATION AS PER MANUFACTURER’S RECOMMENDATION. PROTECTION OF MATERIALS AND WORKS FROM DAMAGE BY WEATHER, TRAFFIC, CONSTRUCTION STAGING, FIRE OR VANDALISM AND OTHER CAUSES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 3.8 CONCRETE AND CONCRETE MATERIALS SHALL CONFORM TO OPSS 1350 WITH THE FOLLOWING EXCEPTIONS AND/OR ADDITIONS: CLASS OF CONCRETE 36 MPa AT 28 DAYS, COARSE AGGREGATE 19 mm NOMINAL MAXIMUM SIZE, AIR CONTENT 7% ± 1.5%, AND MAXIMUM SLUMP 60 mm. THE STEEL REINFORCEMENT SHALL CONFORM TO THE REQUIREMENT OF OPSS 1440 AND SHALL BE PLACED IN ACCORDANCE WITH OPSS 905.

4.0 CONSTRUCTION

- 4.1 THE CONTRACTOR SHALL SUBMIT FULL DETAILS OF THE METHOD OF FOUNDATION EXCAVATION AND PREPARATION, CONSTRUCTION OF LEVELLING PAD, METHOD OF PLACEMENT OF THE EPS BLOCKS, AND THE METHODS OF PLACEMENT OF MINIMUM 125 mm THICK REINFORCED CONCRETE BASE PAD, SUBBASE MATERIAL AND SIDE SLOPE COVER.
- 4.2 FOUNDATION EXCAVATION SHALL BE CARRIED OUT TO THE DESIGN ELEVATION SHOWN ON THE DRAWINGS. ANY SOFTENED, LOOSENED OR DELETERIOUS MATERIALS AT THE FOUNDATION FOOTING ELEVATION SHALL BE SUBEXCAVATED AND REPLACED WITH GRANULAR 'A' OR GRANULAR 'B' MATERIAL.
- 4.3 PLACE, LEVEL AND COMPLETE A LAYER OF GRANULAR 'A' OR GRANULAR 'B' MATERIAL IN ACCORDANCE WITH OPSS 501 TO WITHIN ±30 mm OF THE DESIGN ELEVATION. THE LEVELLING PAD SHALL NOT DEVIATE BY MORE THAN 10 mm AT ANY PLACE ON A 3 m STRAIGHT EDGE OVER THE LIMITS OF THE BOTTOM COURSE OF BLOCKS. THE LEVELLING PAD SHALL NOT BE PLACED ON FROZEN GROUND.
- 4.4 THE EPS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER’S INSTRUCTIONS AND GOOD CONSTRUCTION PRACTICE. THE INDIVIDUALLY MARKED BLOCKS SHALL BE PLACED ON THE PREPARED LEVELLING PAD. THE TOP SURFACE OF THE FIRST LAYER OF BLOCKS IS TO BE SET PLANE AND LEVEL. LOCAL TRIMMING OF THE BLOCKS MAY BE NECESSARY. SUBSEQUENT SUCCESSIVE LAYERS SHALL BE ORIENTED WITH THE LONG AXIS OF BLOCKS POSITIONED AT 90° TO THE PREVIOUS LAYER IN ORDER TO AVOID CONTINUOUS JOINTS. BLOCK JOINTS SHALL BE OFFSET AND STAGGERED BETWEEN LAYERS AS ILLUSTRATED ON THE DRAWINGS OR RECOMMENDED BY THE SUPPLIER.
- 4.5 SLOPING END ADJUSTMENTS AT THE ABUTMENTS SHALL BE ACCOMPLISHED BY LEVELLING TERRACES IN THE SUBSOIL IN ACCORDANCE WITH THE BLOCK THICKNESS.

METRIC

DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN



Windsor–Essex
Parkway Project
RFP No. 09–54–1007



NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB–8
CONSTRUCTION NOTES – EXPANDED POLYSTYRENE

SHEET

S6809

Phase 1

90% Sub

- 4.6 TEMPORARY BALLAST SHALL BE PROVIDED AS NECESSARY TO PREVENT MOVEMENT OF EXPANDED POLYSTYRENE BOTH IN STORAGE AND AS PLACED DUE TO WINDY CONDITIONS. TIMBER FASTENERS OR EQUIVALENT SHALL BE USED AS NECESSARY.
- 4.7 THE EXPANDED POLYSTYRENE FILL/EMBANKMENTS SHALL BE PROTECTED FROM ACCIDENTAL IGNITION DUE TO WELDING, SMOKING, GRINDING OR CUTTING TOOLS, ETC. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT IGNITION OF THE EXPANDED POLYSTYRENE.
- 4.8 THE EXPANDED POLYSTYRENE SHALL BE PROTECTED FROM ORGANIC SOLVENTS AND OTHER AGGRESSIVE, HARMFUL CHEMICALS DURING CONSTRUCTION. THE PROPOSED METHOD OF PROTECTION DURING CONSTRUCTION SHALL BE SUBMITTED TO THE CONTRACTOR’S QUALITY VERIFICATION ENGINEER FOR REVIEW AND TO THE CONTRACT ADMINISTRATOR FOR INFORMATION PURPOSES.
- 4.9 EXPOSED BLOCKS SHALL BE COVERED IMMEDIATELY TO AVOID POSSIBLE BURROWING BY ANIMALS.
- 4.10 INDIVIDUALLY MARKED BLOCKS SHALL BE FABRICATED AND PLACED TO ENSURE THE TOP SURFACE MATCHES THE ELEVATION AND CROSSFALL SHOWN ON THE DRAWINGS.
- 4.11 THE TOP SURFACE AND SIDE SURFACES OF THE EXPANDED POLYSTYRENE SHALL BE COVERED WITH 10 MIL POLYETHYLENE SHEETING EXTENDING ONTO ADJACENT WORK AT THE LONGITUDINAL ENDS OF THE EMBANKMENT/ABUTMENTS. ALL JOINTS SHALL BE LAPPED A MINIMUM 300 mm TO PROVIDE A FULLY SEALED ENCLOSURE. THE JOINTS IN THE LONGITUDINAL AND TRANSVERSE DIRECTIONS SHALL BE ARRANGED TO OVERLAP THE BLOCKS IN THE LOWER LAYER OF THE EPS.
- 4.12 THE CONTRACTOR SHALL INSTALL THE CONCRETE PAD COVER AS DESCRIBED IN SECTIONS 3.8 AND 4.1 ABOVE. THE STEEL REINFORCEMENT SHALL BE PLACED IN ACCORDANCE WITH OPSS 905. THE TOP OF THE EPS SHOULD BE SLOTTED TO PREVENT RELATIVE DISPLACEMENT BETWEEN THE EPS AND CONCRETE PAD.
- 4.13 THE CONTRACTOR SHALL SUBMIT DETAILS OF THE SEQUENCE AND METHOD OF INSTALLATION TO THE ENGINEER FOR REVIEW AT LEAST 3 WEEKS PRIOR TO THE INSTALLATION OF THE EPS. THE SUBMITTAL SHALL SATISFY ALL SPECIFICATIONS.
- 4.14 TRAFFIC: EQUIPMENT OTHER THAN RUBBER–TIRE SAWING EQUIPMENT SHALL NOT BE PERMITTED ON THE CONCRETE UNTIL IT HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 2 MPa. A LIFT OF GRANULAR NO LESS THAN 600 mm IN THICKNESS SHALL BE PLACED ON THE CONCRETE PAD BEFORE TRAFFIC IS PERMITTED. EQUIPMENT SHALL BE LIMITED IN WEIGHT AND SIZE AND RESTRICTED IN OPERATION TO AVOID DAMAGING THE EPS AS PER THE SUPPLIER’S REQUIREMENT.

5.0 DRAINAGE

- 5.1 TOP SURFACE OF EPS BLOCKS SHALL BE STEPPED OR SLOPED TO MATCH SUPER ELEVATION OR CROSSFALL. DRAINAGE CHANNELS COMPRISING 19 mm CLEAR CRUSH STONE WRAPPED WITH NON–WOVEN GEOTEXTILE (AMOCO 4545 OR APPROVED EQUIV.) SHALL BE PROVIDED UNLESS REQUIRED OTHERWISE BY THE DESIGNER OR NOTED ON THE DESIGN DRAWINGS. SUBDRAINS SHALL BE PERFORATED PVC DRAIN PIPE WITHIN 19 mm CLEAR CRUSH BEDDING WRAPPED IN NON–WOVEN GEOTEXTILE AS PER DESIGN DRAWINGS.
- 5.2 APPROPRIATE DRAINAGE SHALL BE PROVIDED IN EPS EMBANKMENT/FILL FOUNDATION TO ENSURE EFFECTIVE DRAINAGE AND PREVENT PRESENCE OF STANDING WATER OR ACCUMULATED SNOW OR ICE ON THE SUBGRADE WITHIN THE AREA WHERE EPS BLOCKS ARE PLACED.

6.0 USE

- 6.1 THIS DRAWING PROVIDES CONSTRUCTION REQUIREMENTS FOR GEOTECHNICAL ASPECTS OF BACKFILLING AT TRAIL EMBANKMENTS AND STRUCTURES.



DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

NOT FOR
CONSTRUCTION

REVISIONS									
	20–DEC–13	B	EA	90% MTO SUBMISSION					
	01–OCT–13	A	EA	60% MTO SUBMISSION					
	DATE	REV.	BY	DESCRIPTION					
DESIGN	SF	CHK	NSV	CODE	CAN/CSA S6–06	LOAD	SEE T.A.F. DOC.		
DRAWN	MM	CHK	DD	SITE	6–624	DATE	20–DEC–11		

DOC: 285380–04–094–SEG1–6809

METRIC

DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWNParkway
Infrastructure
EngineersWindsor-Essex
Parkway Project
RFP No. 09-54-1007NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB-8
FOUNDATION LAYOUT AND DETAILS I

SHEET

S6810

Phase 1

90% Sub

NOTES:

- FOR GENERAL NOTES SEE SHEET S6802.
- THIS DRAWING TO BE READ IN CONJUNCTION WITH SHEET S6812 AND S6813.

PILE NOTES:

- PILE LENGTHS SHOWN ARE ESTIMATED LENGTHS FROM THE CUT-OFF TO THE ESTIMATED BEDROCK / REFUSAL SURFACE.
- ALL PILES ARE HP310X110 STEEL H-PILES.
- ALL PILES SHALL BE FITTED WITH TYPE I DRIVING SHOE PER OPSD 3000.100 OR APPROVED EQUIVALENT.
- PILE SPLICES SHALL BE BUTT WELDED AS PER OPSD 3000.150 AND OPSS903. SPLICE PLATES ARE NOT PERMITTED.
- ALL PILES ARE TO BE DRIVEN TO BEDROCK OR TO REFUSAL IN THE VERY DENSE COHESIONLESS DEPOSIT OVERLYING BEDROCK IN ACCORDANCE WITH SS103-11 TO DEVELOP AN ULTIMATE GEOTECHNICAL RESISTANCE OF 4000 KN, GIVING A DESIGN FACTORED ULS RESISTANCE OF 2000 KN.
- THE PILE ULTIMATE GEOTECHNICAL RESISTANCE AND REFUSAL CRITERIA SHALL BE CONFIRMED ON AT LEAST 3% OF THE PILES BY PDA METHOD SUPPLEMENTED WITH STATIC LOAD TESTS IN THE AREA OF THE STRUCTURE.
- PILE DRIVING EQUIPMENT SHALL BE APPROPRIATE TO THE DRIVING CONDITIONS TO DEVELOP THE ULTIMATE GEOTECHNICAL RESISTANCE, AND PREVENT DAMAGES TO THE PILES DURING DRIVING. CONSIDERATION SHOULD BE GIVEN TO POTENTIAL DRIVING DIFFICULTIES DUE TO THE PRESENCE OF COBBLES OR BOULDERS.
- HAMMER DETAILS (HAMMER TYPE AND MODEL, RATED ENERGY, HELMET AND CUSHION DETAILS) SHALL BE SUBMITTED 10 DAYS PRIOR TO THE EQUIPMENT MOBILIZATION TO THE SITE.
- SURVEY ALL PILE HEAD ELEVATIONS AT END OF DRIVING AND JUST PRIOR TO FORMING OF PILE CAP. RE-TAP PILES WHERE UPLIFT >5 MM OR AS DIRECTED BY THE ENGINEER.
- DURING PILE DRIVING THE CONTRACTOR SHALL IMPLEMENT APPROPRIATE MITIGATION MEASURES AGAINST ANY SEEPAGE OF NATURAL GAS AND GROUNDWATER THAT MIGHT CAUSE LOSS OF BEARING RESISTANCE.
- THE CONTRACTOR SHALL MONITOR VIBRATIONS AT STRATEGIC LOCATIONS (E.G. TEMPORARY SLOPES, UTILITIES AND STRUCTURES) AND ESTABLISH APPROPRIATE FREQUENCY BASED LIMITS ON PEAK PARTICLE VELOCITIES IN ORDER TO PREVENT DAMAGE CAUSED BY PILE DRIVING.

APPLICABLE STANDARD DRAWINGS:

OPSD-3000.100 FOUNDATION PILES - STEEL H-PILE DRIVING SHOE
OPSD-3000.150 FOUNDATION PILES - STEEL H-PILE SPLICEASSUMED LOADS FROM
SUPERSTRUCTURE-UNFACTORED:CONCRETE DECK 1221kN
ASPHALT 268kN
STEEL TRUSS 589kN
MAINTENANCE VEHICLE 80kN
PEDESTRIANS 4kN/m²

FOOTING BEARING CAPACITY

SLS SOIL RESISTANCE 170 kPa
NET FACTORED ULS RESISTANCE 280 kPa

IN PROGRESS

NOT FOR
CONSTRUCTIONDRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS				
	DATE	REV.	BY	DESCRIPTION
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	04-OCT-13	A	MAS	60% MTO SUBMISSION
DESIGN	BM	CHK	JL	CODE CAN/CSA S6-06 LOAD SEE T.A.F. DOC.
DRAWN	RD	CHK	MAS	SITE 6-624 DATE JUN 2013

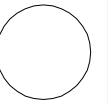
METRIC

DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

Parkway Infrastructure Engineers



Windsor-Essex
Parkway Project
RFP No. 09-54-1007



<p>NEW CONSTRUCTION</p> <p>HWY 401</p> <p>TRAIL BRIDGE OVER HWY 3 (SR4) TB-8</p> <p>FOUNDATION LAYOUT AND DETAILS II</p>	
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SHEET
S6811

Phase 1
90% Sub

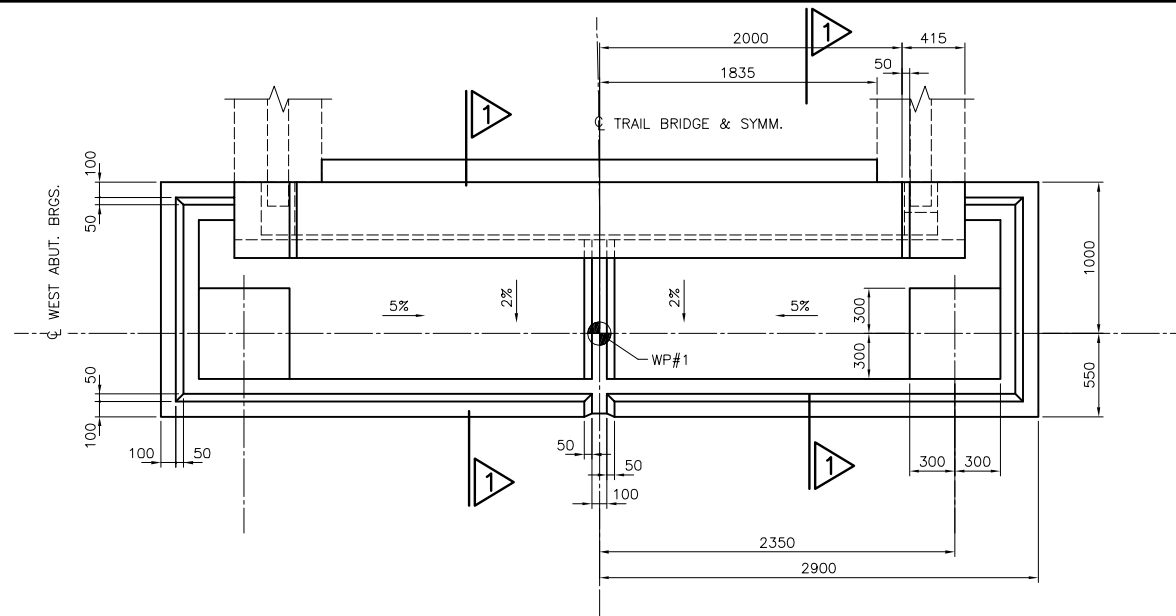
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DRAWING NOT TO BE SCALED
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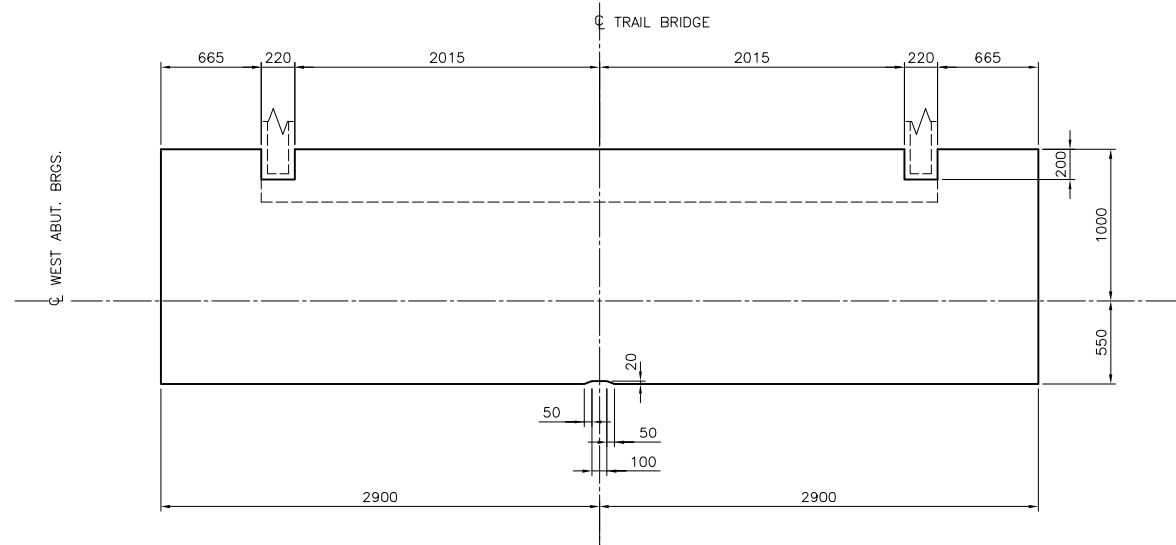
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CONSTRUCTION



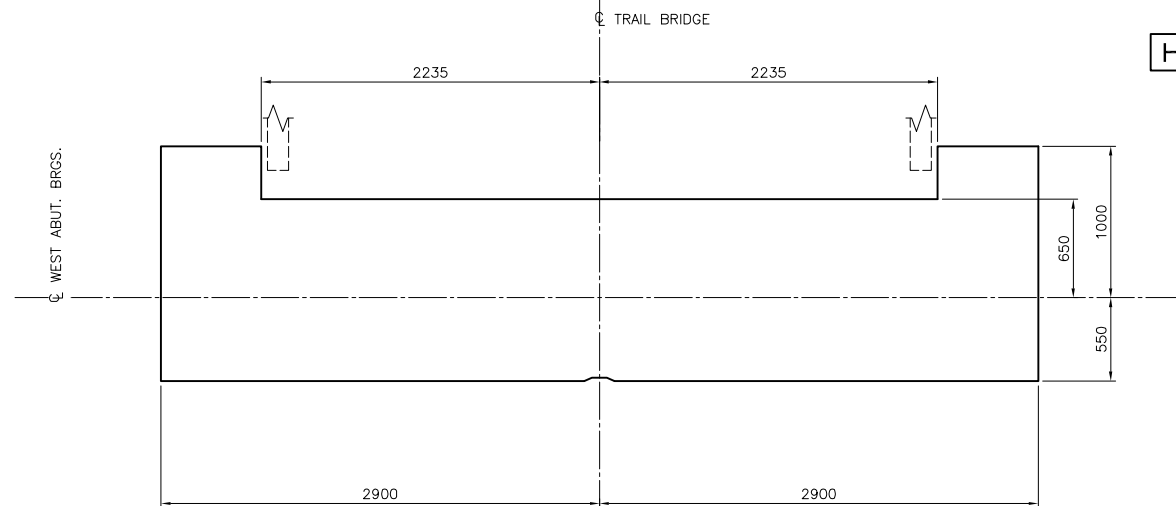
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	04-OCT-13	A	MAS	60% MTO SUBMISSION				
	DATE	REV.	BY	DESCRIPTION				
DESIGN	BM	CHK	JL	CODE	CAN/CSA S6-06	LOAD	SEE T.A.F. DOC.	
DRAWN	YZ	CHK	MAS	SITE	6-624	DATE	JUN 2013	



PLAN 2 WEST ABUTMENT SHOWN
EAST ABUTMENT SIMILAR (AS NOTED)
SCALE 1:25



PLAN 3 WEST ABUTMENT SHOWN
EAST ABUTMENT SIMILAR (AS NOTED)
SCALE 1:25



PLAN 4 WEST ABUTMENT SHOWN
EAST ABUTMENT SIMILAR (AS NOTED)
SCALE 1:25

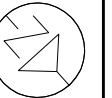


METRIC
DIMENSIONS ARE IN METRES
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Parkway
Infrastructure
Engineers



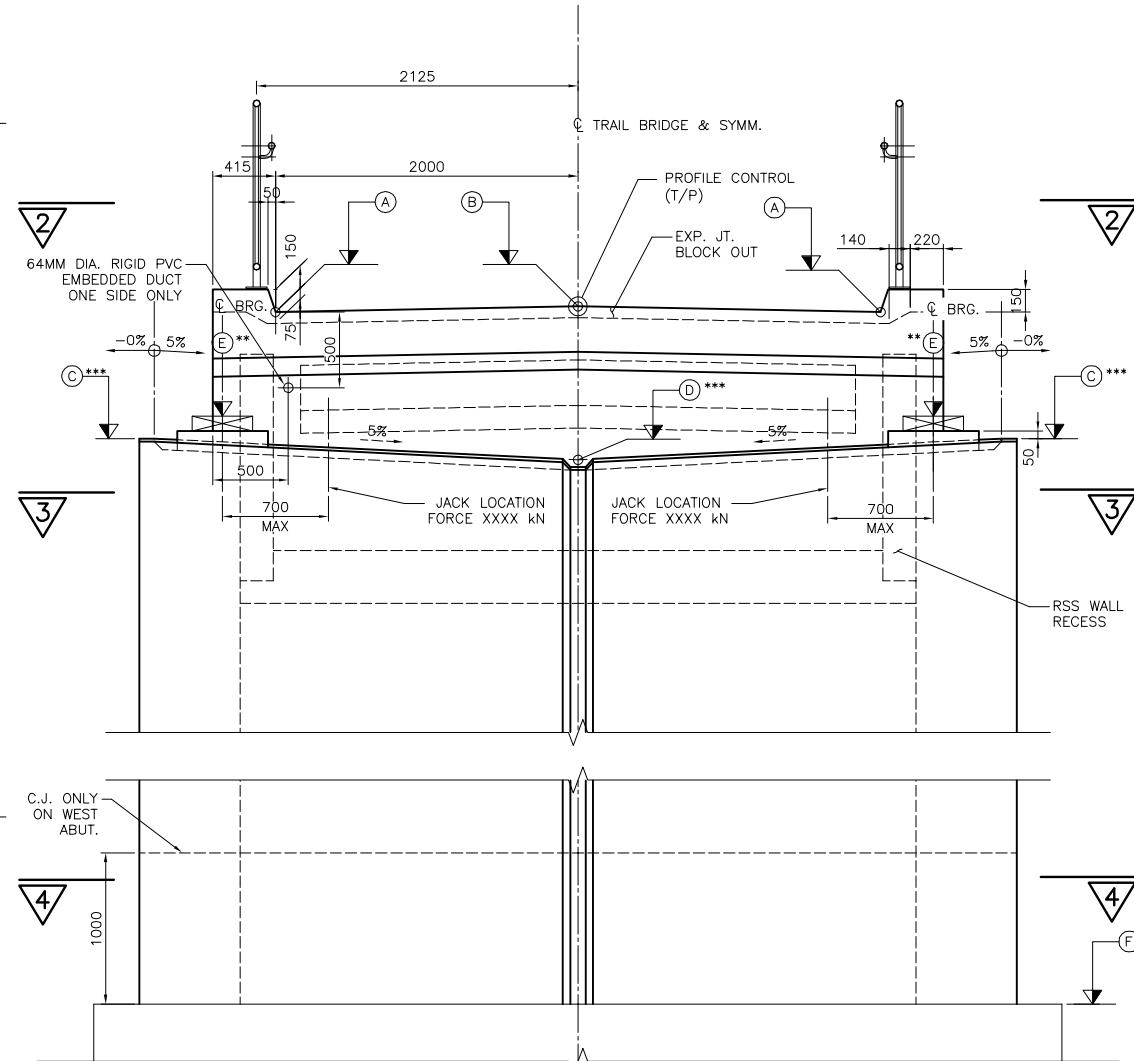
Windsor-Essex
Parkway Project
RFP No. 09-54-1007



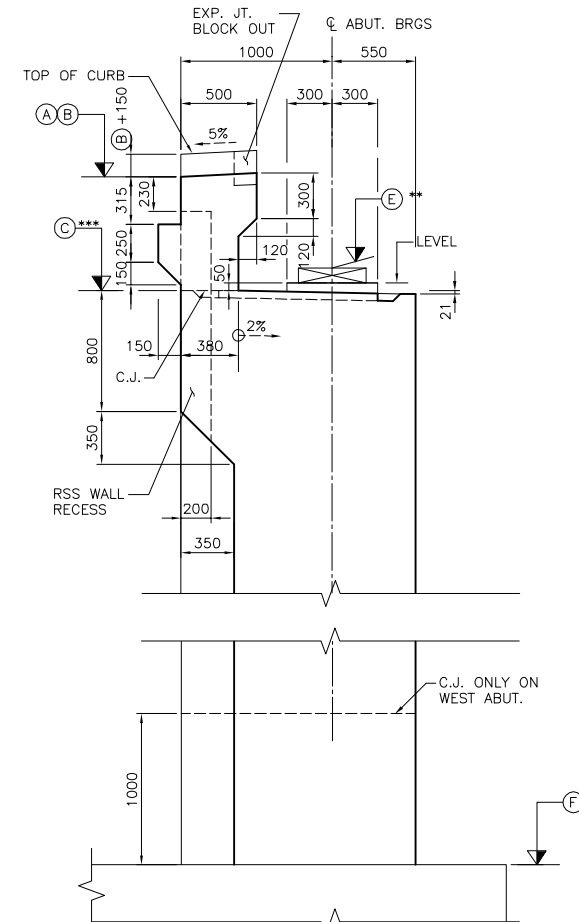
NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB-8
ABUTMENT LAYOUT AND DETAILS I

SHEET
S6812

Phase 1
90% Sub



ELEVATION
SCALE 1:25



ELEVATION 1
SCALE 1:25

HOLD

POINT	W ABUT. ELEVATIONS	E ABUT. ELEVATIONS
A	193.672	191.327
B	193.712	191.367
C***	192.946	190.641
D***	192.806	190.501
E**	193.096	190.791
F	186.400	186.800

** DENOTES TOP OF BEARING ELEVATIONS. SEE CONSTRUCTION
NOTES ON SHEET S6802.

*** VARY ACCOMMODATE ACTUAL BEARING HEIGHT

NOTES:

- BACKFILL SHOULD BE PLACED BEHIND THE ABUTMENTS TO THE CONSTRUCTION JOINT LEVEL BEFORE THE DECK SLAB IS IN PLACE.
- CAST BEARING PEDESTALS LEVEL.
- THIS DRAWING TO BE READ IN CONJUNCTION WITH SHEET S6810 & S6813.
- THE CONTRACTOR SHALL COORDINATE WITH BEARING SUPPLIER FOR THE INSTALLATION OF BEARING ANCHORAGES.

APPLICABLE STANDARD DRAWINGS

OPSD 3101.150 WALLS, ABUTMENT, BACKFILL, MINIMUM GRANULAR REQUIREMENT

OPSD 3102.100 WALLS, ABUTMENT, BACKFILL DRAIN

OPSD 3950.100 JOINTS, CONCRETE EXPANSION AND CONSTRUCTION, ON STRUCTURE

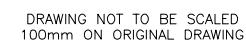
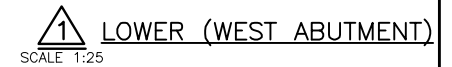
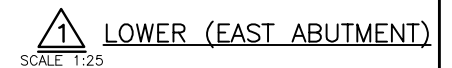
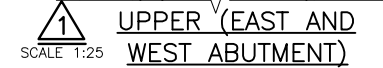
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NOT FOR
CONSTRUCTION



IN PROGRESS

REVISIONS	DATE	REV.	BY	DESCRIPTION
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04-OCT-13	A	MAS		60% MTO SUBMISSION
DESIGN	BM	CHK	JL	CODE CAN/CSA S6-06 LOAD SEE T.A.F. DOC.
DRAWN	RD	CHK	MAS	SITE 6-624 DATE JUN 2013



DOC: 285380-03-061-SEG1-6813

DATE PLOTTED: 1/15/2014 2:22:24 PM
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MINISTRY OF TRANSPORTATION, ONTARIO

PR-D-707

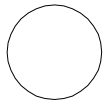
88-05

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

Parkway
Infrastructure
Engineers



Windsor–Essex
Parkway Project
RFP No. 09–54–1007



NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB–8
ABUTMENT LAYOUT AND DETAILS III

SHEET

S6814

Phase 1

90% Sub

IN PROGRESS

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

NOT FOR
CONSTRUCTION



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DRAWN	YZ	CHK	MAS	SITE 6-624	DATE JUN 2013

METRIC

DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
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Parkway
Infrastructure
Engineers



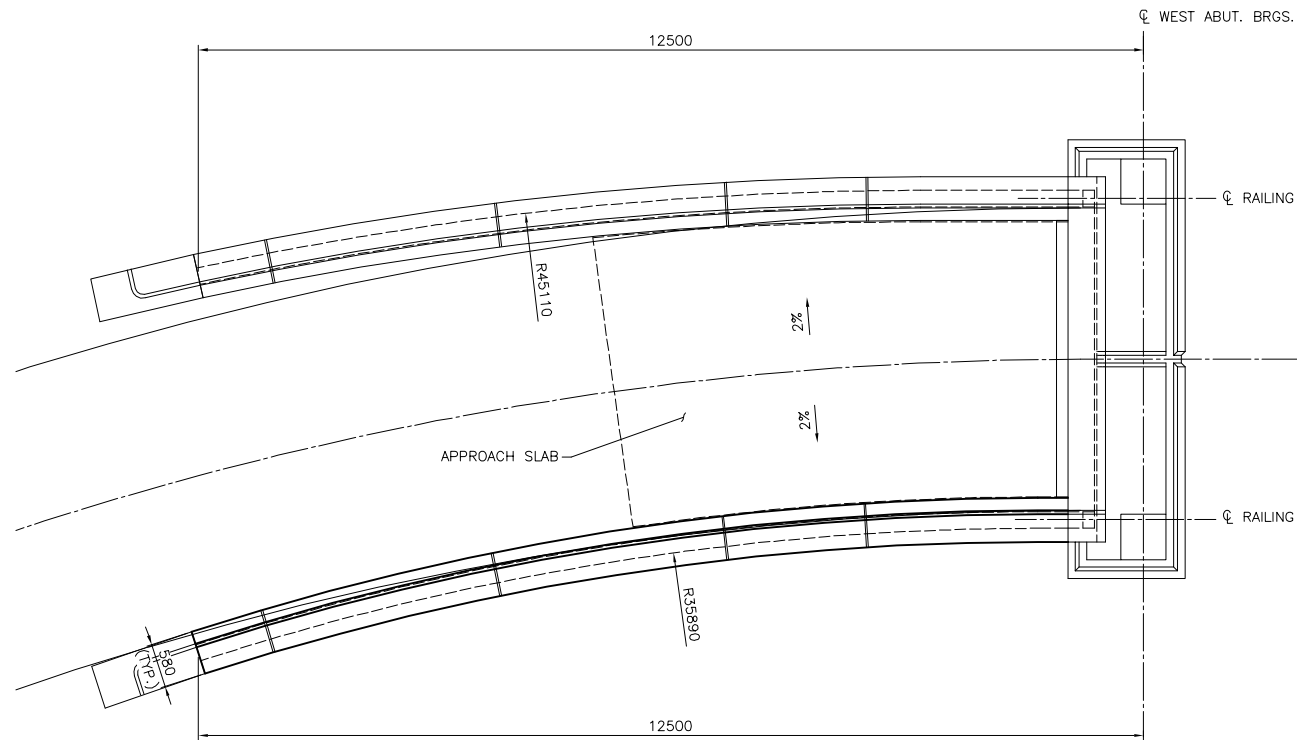
Windsor-Essex
Parkway Project
RFP No. 09-54-1007



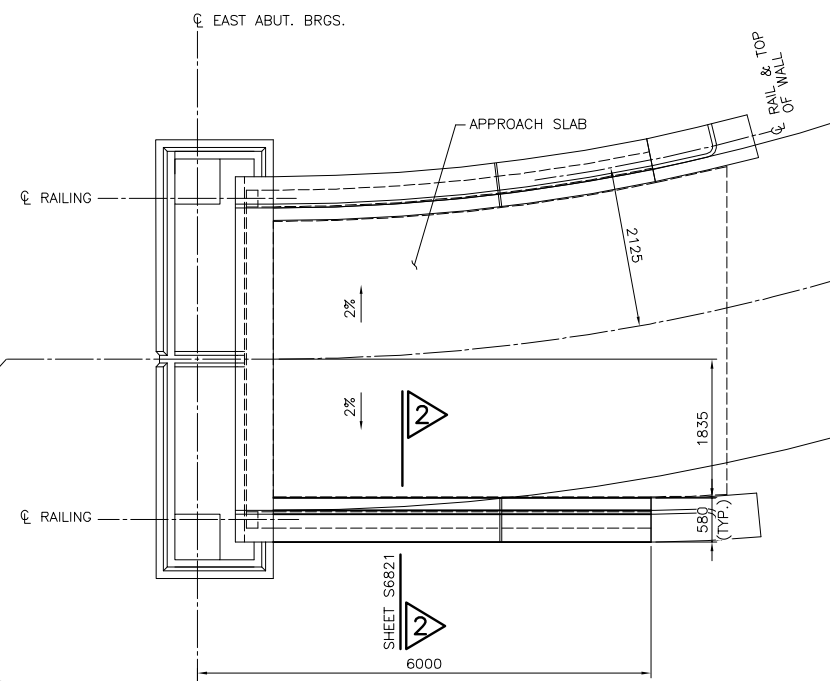
NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB-8
WING WALL LAYOUT

SHEET
S6815

Phase 1
90% Sub



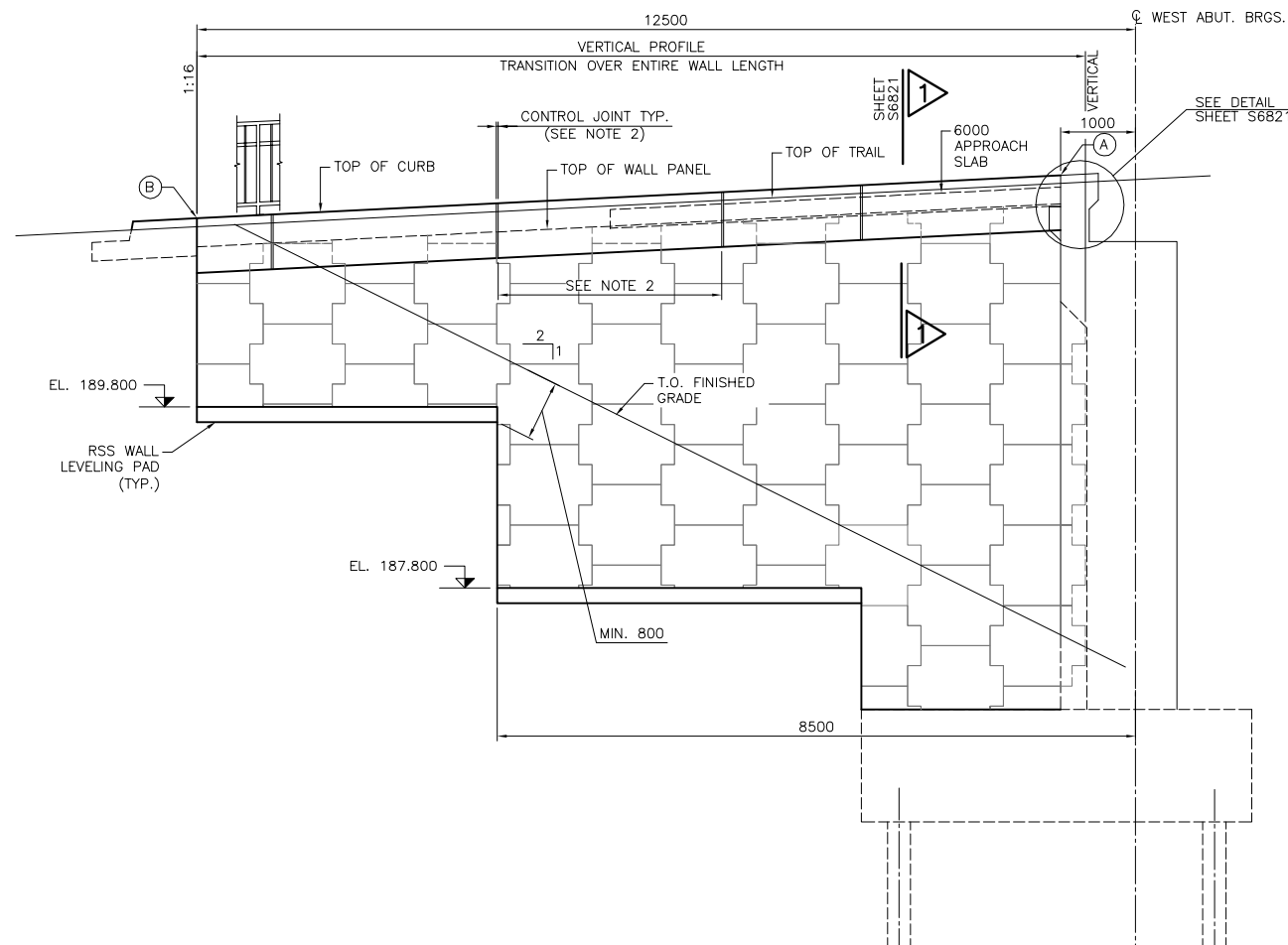
PLAN
SCALE 1:50



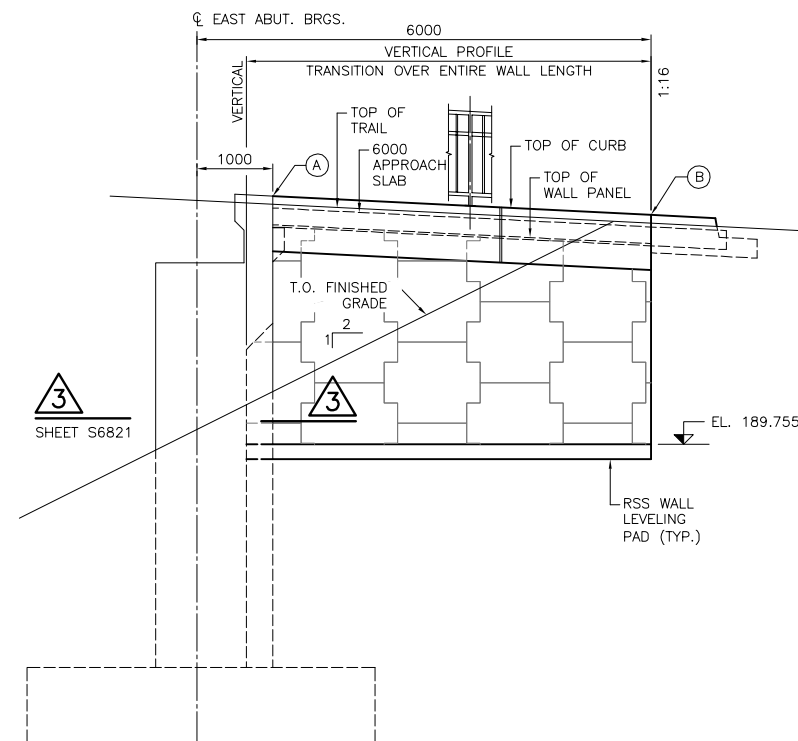
NOTES:

- FOR GENERAL NOTES SEE SHEET S6802.
- MAXIMUM RSS WALL COPING LENGTHS BETWEEN, EXPANSION, CONSTRUCTION AND CONTROL JOINTS ARE NOT TO EXCEED THE FOLLOWING:
 - 3000 BETWEEN CONSTRUCTION AND CONTROL JOINTS.
 - 9000 BETWEEN EXPANSION JOINTS.CONSTRUCTION AND CONTROL JOINTS ARE TO BE CONSTRUCTED AS PER DETAILS SHOWN ON STANDARD DRAWING SS110-64 AND EXPANSION JOINTS ARE TO CONSTRUCTED AS BE DETAIL SHOWN ON OPSD 3950.100.
- THIS DRAWING TO BE READ IN CONJUNCTION WITH SHEET S6821.

TOP OF CONCRETE ELEVATIONS		
WINGWALL	(A)	(B)
NORTHWEST	193.822	193.545
SOUTHWEST	193.822	193.493
NORTHEAST	191.477	191.204
SOUTHEAST	191.477	191.242



ELEVATION
SCALE 1:50



NOT FOR
CONSTRUCTION



IN PROGRESS

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

REVISIONS		DATE	REV.	BY	DESCRIPTION
10-JAN-14		B	JL		90% MTO SUBMISSION
04-OCT-13		A	MAS		60% MTO SUBMISSION
DESIGN		BM	CHK	JL	CODE CAN/CSA S6-06
DRAWN		YZ	CHK	MAS	SITE 6-624
					LOAD SEE T.A.F. DOC.
					DATE JUN 2013

DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN



**Hatch Mott
MacDonald**

SHEET
S6816

0% Sub

IN PROGRESS

[illegible]

NOT FOR
CONSTRUCTION

REVIEWS								
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	04-OCT-13	A	MAS	60% MTO SUBMISSION				
	DATE	REV.	BY	DESCRIPTION				
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DOC: 285380-03-061-SEG1-681

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PR-D-707 88-05

MINISTRY OF TRANSPORTATION, ONTARIO

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MINISTRY OF TRANSPORTATION, ONTARIO

PR-D-707

88-05

METRIC
DIMENSIONS ARE IN METRES
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Windsor–Essex
Parkway Project
RFP No. 09–54–1007



NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB–8
RSS WINGWALL LAYOUT AND DETAILS I

SHEET
S6817

Phase 1
90% Sub

IN PROGRESS

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

NOT FOR
CONSTRUCTION



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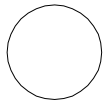
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MINISTRY OF TRANSPORTATION, ONTARIO
PR-D-707
88-05

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

Parkway
Infrastructure
Engineers



Windsor–Essex
Parkway Project
RFP No. 09–54–1007



NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB–8
RSS WINGWALL LAYOUT AND DETAILS II

SHEET

S6818

Phase 1

90% Sub

IN PROGRESS

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

NOT FOR
CONSTRUCTION

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DRAWN	YZ	CHK	MAS	SITE	6–624		DATE	JUN 2013	



METRIC

DIMENSIONS ARE IN METRES
 AND/OR MILLIMETRES
 UNLESS OTHERWISE SHOWN



Windsor-Essex
Parkway Project
RFP No. 09-54-1007



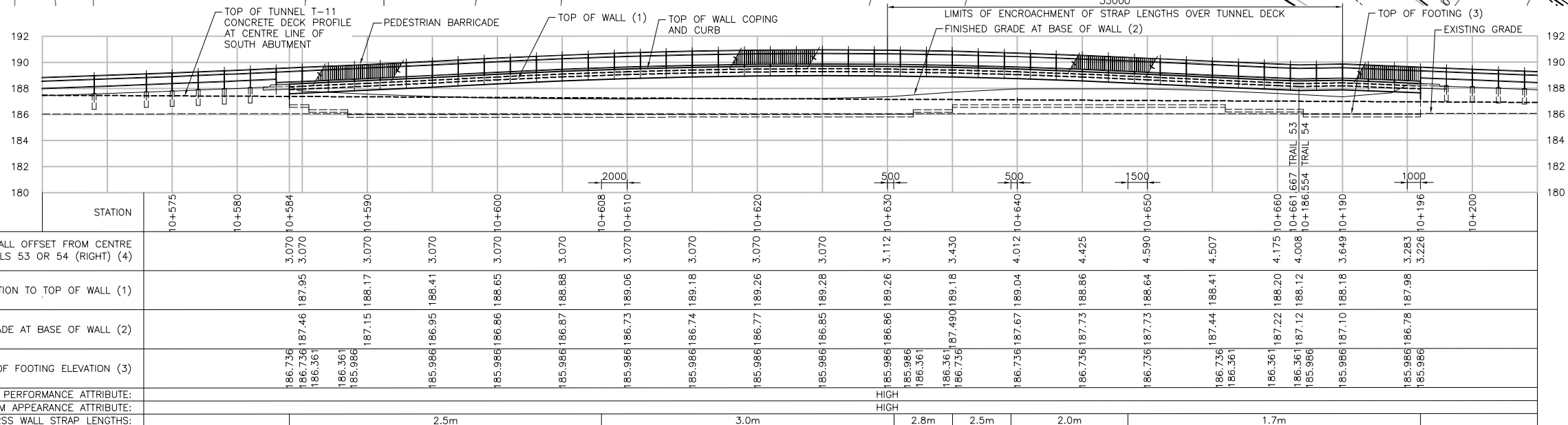
SHEET
S6819

Phase 1
90% Sub

→ NORTH FOR
- CONSTRUCTION



PLAN
SCALE 1:200



PROFILE
SCALE 1:200

NOTES:

1. THE DRAWINGS SHOULD BE READ IN CONJUNCTION WITH THE GEOTECHNICAL REPORTS (285380-04-119-00xx AND 285380-04-119-00xx) AND MEMO (285380-04-119-0xxx)
2. THE MINIMUM REINFORCING STRIP WIDTH SHALL BE EQUAL TO THE TOTAL RSS WALL DESIGN HEIGHT.
3. THE SLOPE IN FRONT OF THE RSS WALL SHALL BE MAINTAINED WITHOUT ANY SLOUGHING/EROSION AT ALL TIMES.
4. REFER TO HWY DRAWINGS FOR ALL HIGHWAY INFORMATION INCLUDING THE LOCATION OF DRAINS AND CATCH BASINS.
5. THE FACTOR OF SAFETY AGAINST EXTERNAL MODES OF FAILURE FOR RSS WALLS SHALL BE AS PER CANADIAN FOUNDATION ENGINEERING MANUAL (CFEM).
6. APPROVED RSS WALL SUPPLIER TO REFER TO UTILITIES NEW CONSTRUCTION DRAWINGS AND CONFIRM LOCATION OF ALL UTILITIES. RSS WALL DESIGN SHALL ACCOUNT FOR ALL INTERFERENCE WITH UTILITIES.

RETAINED SOIL SYSTEM;

1. RSS WALL SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE 'MTO RSS DESIGN GUIDELINES' AND SPECIAL PROVISIONS SP599S22 AND SP599S23.
2. REFER TO RSS CONSTRUCTION NOTES-BACKFILL AT STRUCTURES (SHEET S6807).

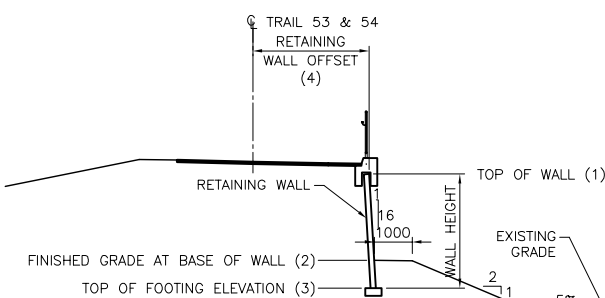
3. EPOXY COATED REINFORCEMENT SHALL BE USED IN THE FRONT SURFACE OF RSS PANELS AND ALL RSS COPING FOR ANY WALL WITHIN THE SPLASH ZONE. THIS INCLUDES PANEL SURFACES AND COPING WITHIN 10M OF AN EXISTING OR FUTURE ROADWAY, MEASURED HORIZONTAL FROM THE EDGE OF PAVEMENT UNLESS THE SURFACE IS MORE THAN 5M ABOVE THE ROADWAY.
4. LIMIT OF EXCAVATION AND TEMPORARY WORK TO BE CONFIRMED AND DESIGNED BY THE CONTRACTOR.
5. BENCHING OF EARTH SLOPES TO BE AS PER OPSD 208.010.
6. UNLESS REGULAR BACKFILL IS FILTER GRADE WITH RESPECT TO THE ADJACENT NATIVE CLAY DEPOSIT. A GEOTEXTILE LAYER (TERRAFIX 360R OR EQUIVALENT) SHALL BE PLACED ALONG THE BENCHED INTERFACE.
7. WITHIN THE RSS REINFORCING STRIPS, GRANULAR FILL IS TO BE SPECIFIED BY THE RSS SUPPLIER, UNLESS NOTED OTHERWISE.
8. FOR BACKFILL OUTSIDE OF RSS REINFORCING STRIPS, REGULAR FILL INDICATES APPROVED MATERIAL, INCLUDING SILTY CLAY, THAT MEETS THE PARAMETERS SPECIFIED IN THE GEOTECHNICAL REPORT, TO BE CONFIRMED BY THE RSS SUPPLIER AND SPECIFIED ON THE RSS SHOP DRAWINGS.

DRAINAGE:

1. CONNECT RSS SUBDRAIN(S) AND PROVIDE A POSITIVE OUTLET TO THE DRAIN IN FRONT OF THE WALL.

UTILITIES:

1. REFER TO ELECTRICAL AND ATMS DRAWINGS FOR LOCATION, SITE & CONNECTION DETAILS FOR LIGHTING, POWER AND TRAFFIC MANAGEMENT.
2. INSTALLATION OF ELECTRICAL MANHOLE TO BE COORDINATED WITH THE WALL MANUFACTURE AND TO BE INSTALLED DURING THE WALL INSTALLATION NOT EXCAVATED AFTERWARD.



WALL LAYOUT KEY PLAN
SCALE 1:100

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

NOT FOR
CONSTRUCTION

REVISIONS								
	10-JAN-14	B	JL	90% MTO SUBMISSION				
	04-OCT-13	A	MAS	60% MTO SUBMISSION				
	DATE		REV.	BY				DESCRIPTION
DESIGN	BM	CHK	JL	CODE	CAN/CSA	S6-06	LOAD	SEE T.A.F. DOC.
DRAWN	YZ	CHK	MAS	SITE	6-624		DATE	JUN 2013

DOC: 285380-03-061-SEG1-6819

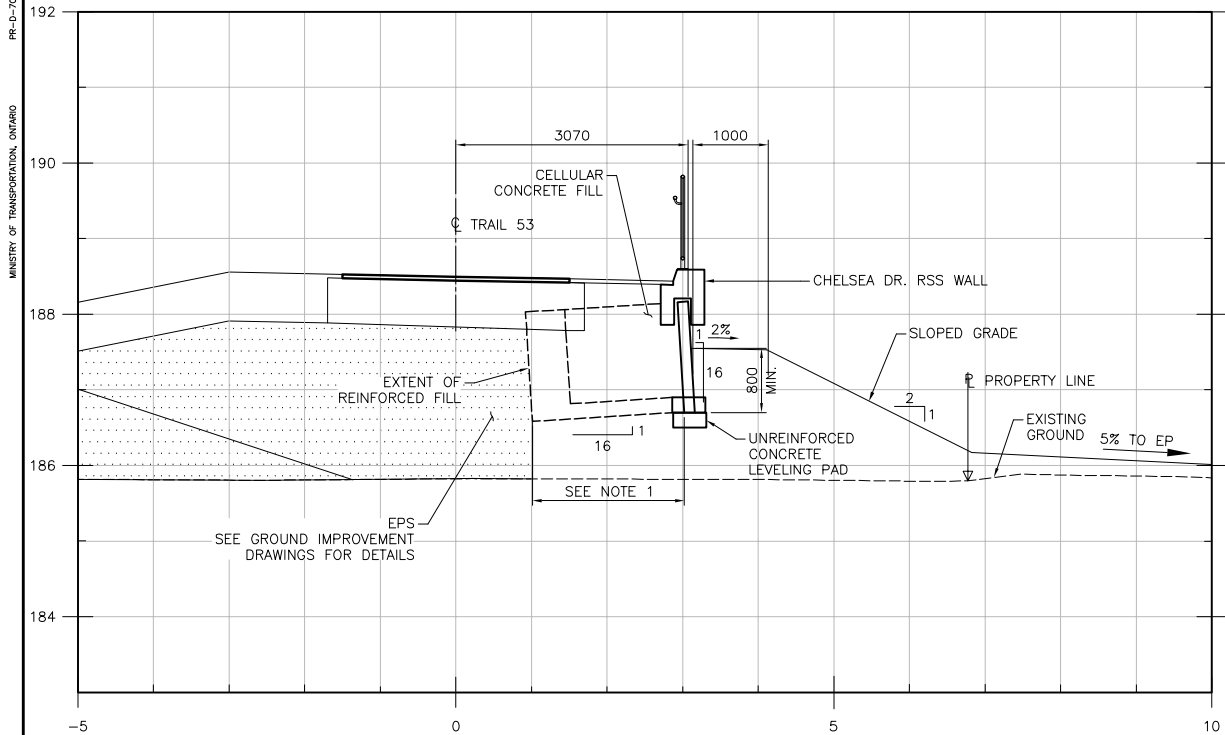
NOTES:

1. THE MINIMUM REINFORCING STRIP WIDTH SHALL BE EQUAL TO THE TOTAL RSS WALL DESIGN HEIGHT.

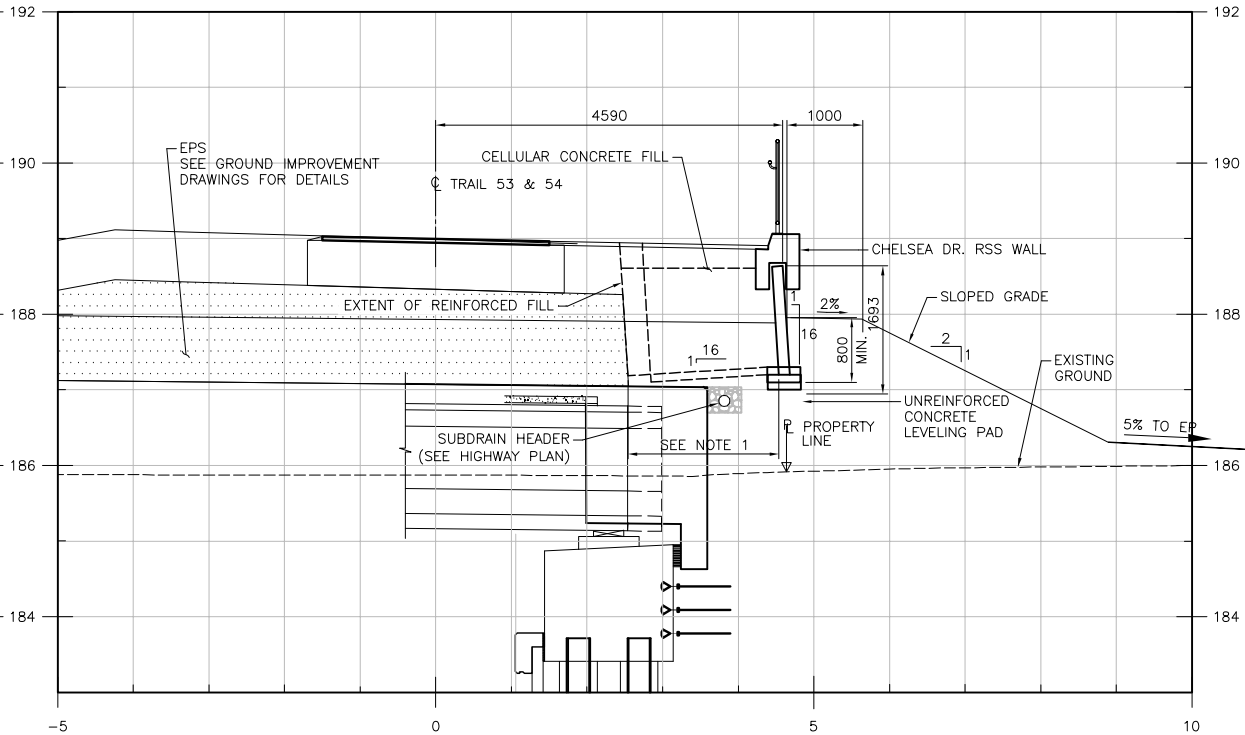
PR-D-707

MINISTRY OF TRANSPORTATION, ONTARIO

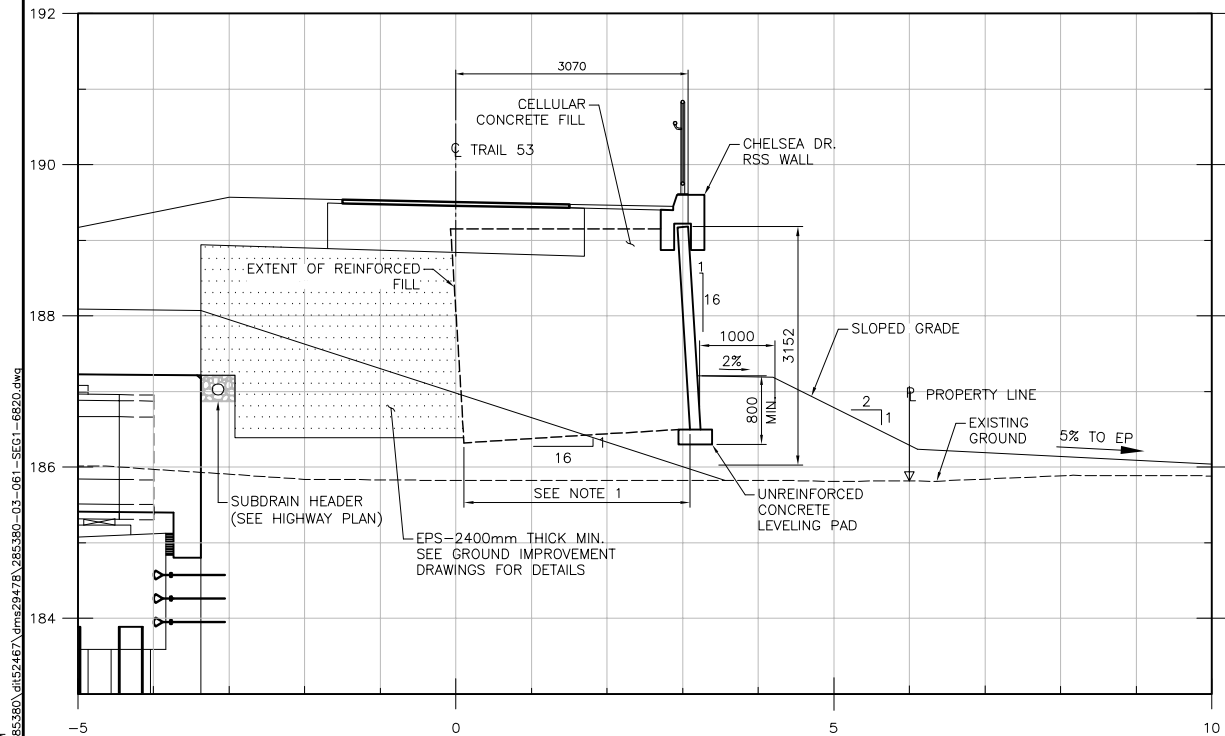
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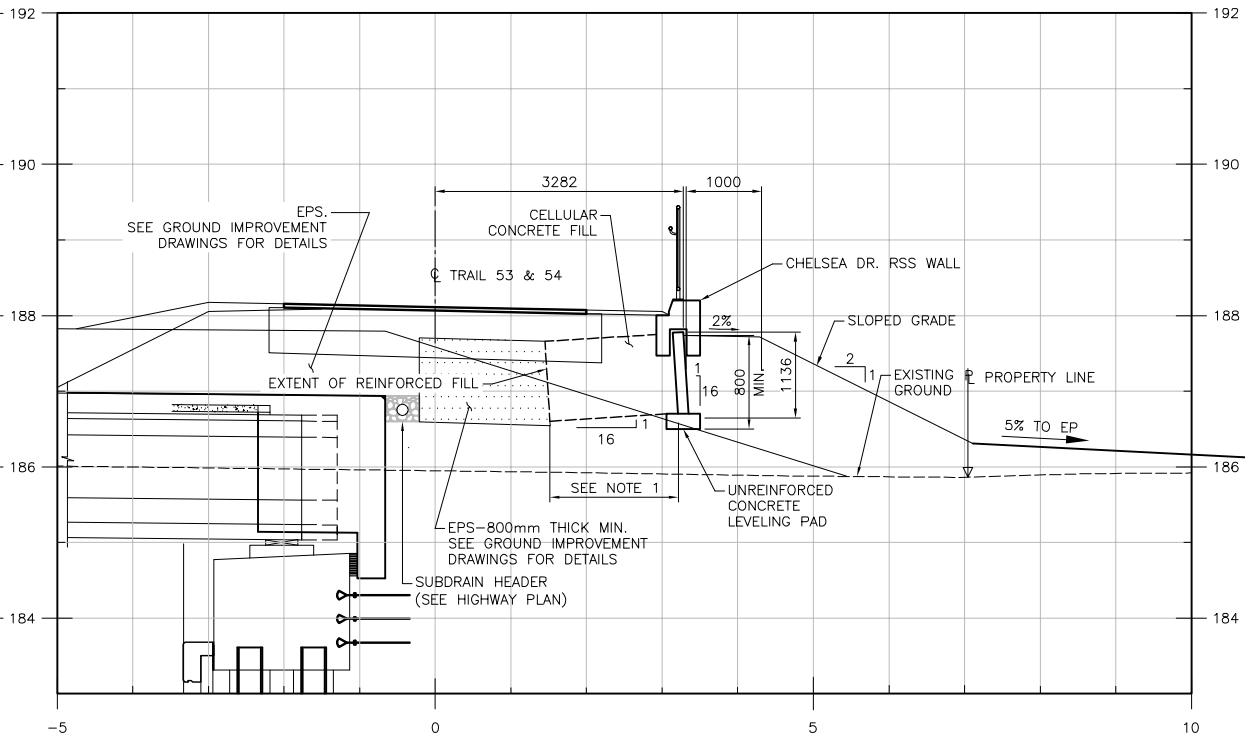
TYPICAL WALL SECTION BETWEEN STA. 10+580 AND 10+595 (TRAIL 53)
SCALE 1:50



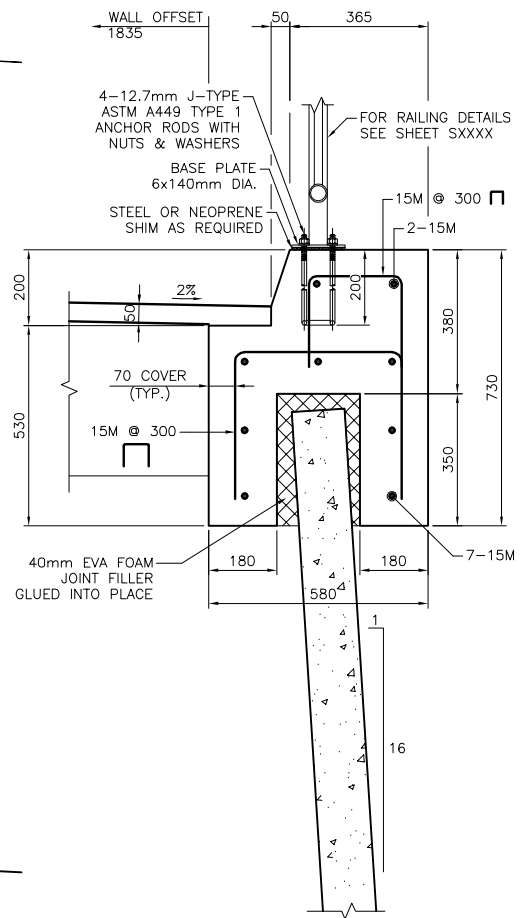
TYPICAL WALL SECTION BETWEEN STA. 10+630 (TRAIL 53) AND 10+190 (TRAIL 54)
SCALE 1:50



TYPICAL WALL SECTION BETWEEN STA. 10+595 AND 10+630 (TRAIL 53)
SCALE 1:50



TYPICAL WALL SECTION BETWEEN STA. 10+190 AND 10+200 (TRAIL 54)
SCALE 1:50




RSS WALL CAP DETAIL
SCALE 1:10

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

NOT FOR
CONSTRUCTION

REVISIONS	DATE	REV.	BY	DESCRIPTION
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04-OCT-13	A	MAS		60% MTO SUBMISSION
DESIGN	BM	CHK	JL	CODE CAN/CSA S6-06 LOAD SEE T.A.F. DOC.
DRAWN	YZ	CHK	MAS	SITE 6-624 DATE JUN 2013



Phase 1
0% Sub

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH SHEET S6815.

DOC: 285380-03-062-SEG1-6821

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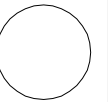
METRIC

DIMENSIONS ARE IN METRES
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Parkway Infrastructure Engineers



Windsor-Essex
Parkway Project
RFP No. 09-54-1007



NEW CONSTRUCTION HWY 401 TRAIL BRIDGE OVER HWY 3 (SR4) TB-8 PEDESTRIAN BARRICADES LAYOUT AND DETAILS	
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SHEET |

S6822

Phase 1

90% Sub

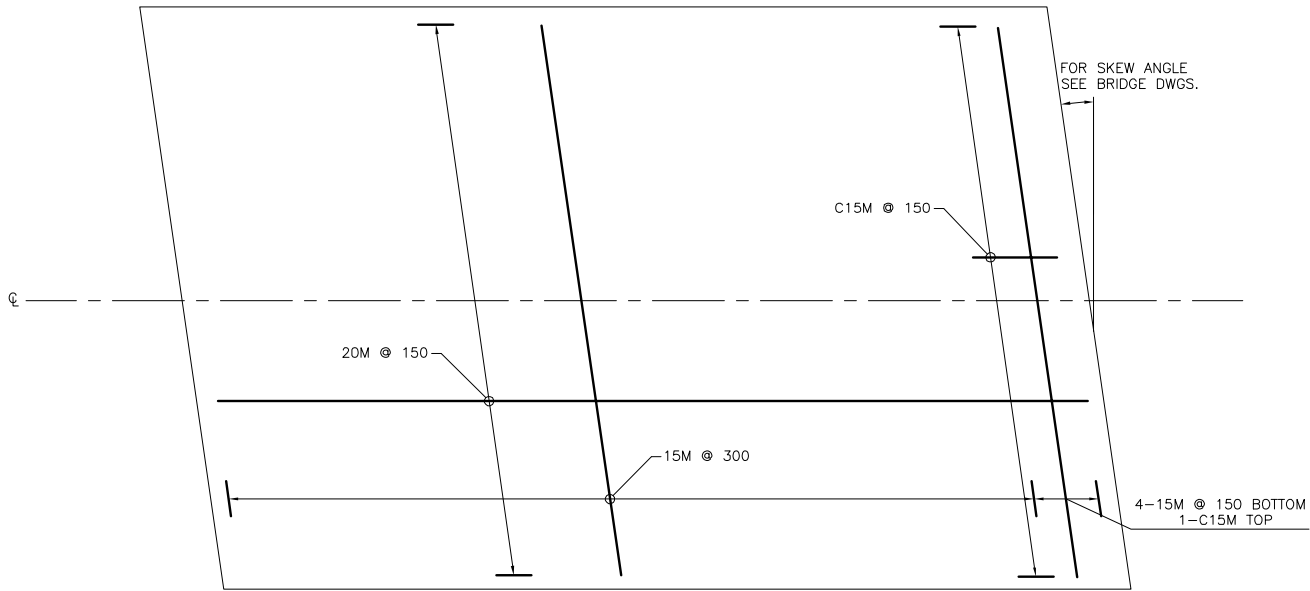
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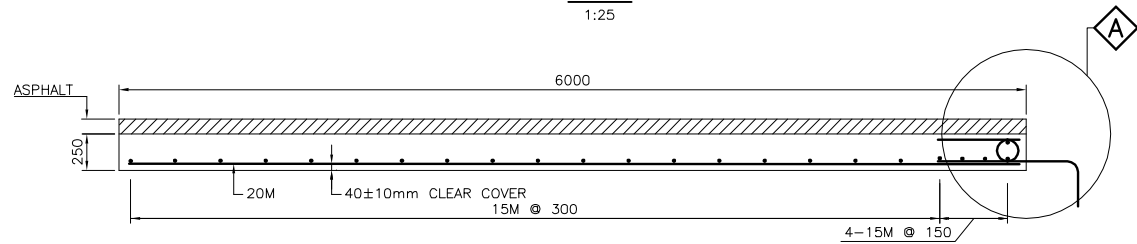
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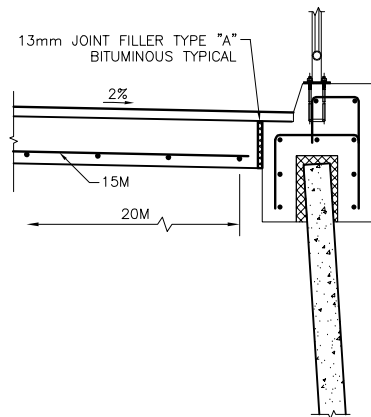
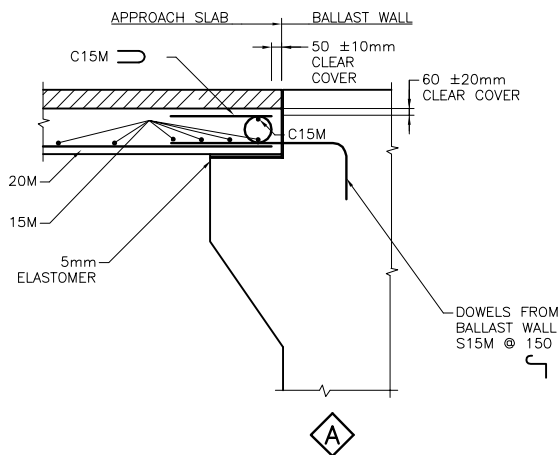
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DESIGN	BM	CHK	JL	CODE	CAN/CSA S6-06	LOAD	SEE T.A.F. DOC.	
DRAWN	YZ	CHK	MAS	SITE	6-624	DATE	JUN 2013	



PLAN
1:25



LONGITUDINAL SECTION
1:25



SECTION AT RSS WINGWALL

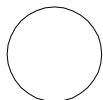
METRIC

DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

Parkway
Infrastructure
Engineers



Windsor-Essex
Parkway Project
RFP No. 09-54-1007



NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB-8
6000mm APPROACH SLAB

SHEET

S6823

Phase 1

90% Sub

NOTES

- CLEAR COVER TO REINFORCING STEEL 70 ± 20 mm EXCEPT AS NOTED.
- LAYOUT OF REINFORCING STEEL WILL BE SIMILAR FOR LEFT HAND AND ZERO DEGREE SKEW.
- BARS MARKED WITH PREFIX C DENOTE COATED BARS.
- WATERPROOFING AT JOINT BETWEEN BRIDGE AND APPROACH SLAB TO BE IN ACCORDANCE WITH OPSD-3370.1000.
- WATERPROOFING FOR BRIDGES WITHOUT EXPANSION JOINTS (RIGID FRAMES AND INTEGRAL ABUTMENTS) TO BE IN ACCORDANCE WITH OPSD-3370.1010.

APPLICABLE STANDARD DRAWINGS

- OPSD-3370.100 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
- OPSD-3370.101 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS

TOP OF CONCRETE ELEVATION		
POINT	WEST APPROACH SLAB	EAST APPROACH SLAB
(A)	-	-
(B)	-	-
(C)	-	-
(D)	-	-
(E)	-	-
(F)	-	-

IN PROGRESS



MODIFIED	
STANDARD DRAWING APRIL 2008	SS116-1
6000 mm APPROACH SLAB	

REVISIONS		DATE	REV.	BY	DESCRIPTION
10-JAN-14		B	JL		90% MTO SUBMISSION
04-OCT-13		A	MAS		60% MTO SUBMISSION
DESIGN		BM	CHK	JL	CODE CAN/CSA S6-06
DRAWN		YZ	CHK	MAS	SITE 6-624
					LOAD SEE T.A.F. DOC.
					DATE JUN 2013

DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

NOT FOR
CONSTRUCTION

DATE PLOTTED: 1/15/2014 2:35:01 PM
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MINISTRY OF TRANSPORTATION, ONTARIO
PR-D-707
88-05

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

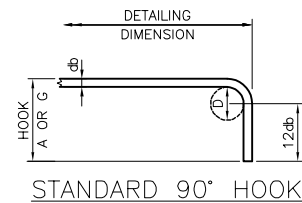
Parkway
Infrastructure
Engineers



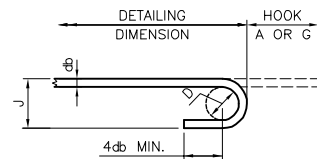
Windsor–Essex
Parkway Project
RFP No. 09–54–1007

NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB–8
STANDARD DETAILS

SHEET
S6824
Phase 1
90% Sub



STANDARD 90° HOOK



STANDARD 180° HOOK

MINIMUM BENDING PIN DIAMETER,
D, mm

BAR SIZE	STEEL GRADE	
	400R ⁽²⁾	400W
10M	70	60
15M	100	90
20M	120	100
25M	150	150
30M	250	200
35M	300	250
45M	450 ⁽¹⁾	400
55M	600 ⁽¹⁾	550

- (1) SPECIAL FABRICATION IS REQUIRED FOR BENDS EXCEEDING 90° FOR BARS OF THESE SIZES AND GRADE.
(2) FOR STAINLESS STEEL, WITH F_y = 420, USE THE SAME D AS FOR 400R.

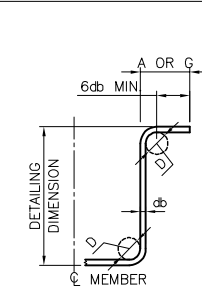
STANDARD HOOK DIMENSIONS

BAR SIZE	90° HOOKS		180° HOOKS			
	A OR G (mm)		A OR G (mm)		J (mm)	
	400R	400W	400R	400W	400R	400W
10M	180	180	140	130	90	80
15M	260	250	180	170	130	120
20M	310	300	220	200	160	140
25M	400	400	280	280	200	200
30M	510	490	400	350	310	260
35M	610	590	480	430	370	320
45M	790	770	680	630	540	490
55M	1030	1010	900	850	710	660

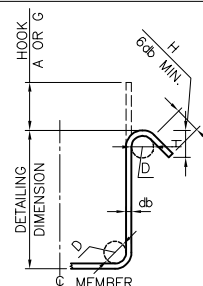
NOTE: ALL HOOK DIMENSIONS ARE ACCORDING TO THE CHBDC–2000.

MINIMUM STIRRUP AND TIE HOOK
DIMENSIONS

BAR SIZE	BAR DIAM. d _b (mm)	PIN DIAM. D (mm)	90°		135°
			A OR G (mm)	A OR G (mm)	H (APPROX.) (mm)
10M	11.3	45	100	100	70
15M	16.0	65	140	140	100
20M	19.5	80	180	175	115
25M	25.2	100	230		



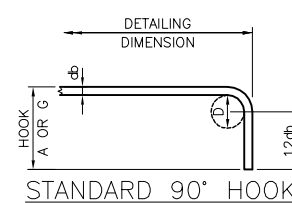
MIN. 90° HOOK



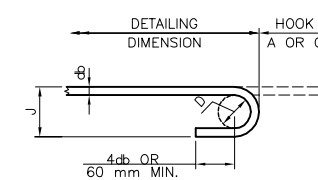
MIN. 135° HOOK

HOOK DIMENSIONS
FOR UNCOATED BARS

Date	JUNE 2002	Rev	
SS12–1			



STANDARD 90° HOOK



STANDARD 180° HOOK

MINIMUM BENDING PIN
DIAMETER, D, mm

BAR SIZE	STEEL GRADE 400
10M	80
15M	120
20M	160
25M	200
30M	240
35M	350
45M	450
55M	550

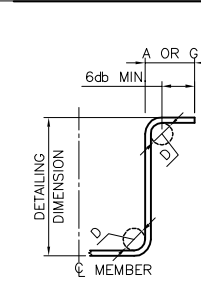
STANDARD HOOK DIMENSIONS

BAR SIZE	90° HOOKS		180° HOOKS
	A OR G (mm)	A OR G (mm)	J (mm)
10M	190	210*	110*
15M	270	260*	160*
20M	330	300*	200
25M	430	330	250
30M	610	460*	300
35M	640	700*	430*
45M	790	850*	540
55M	1010	1050*	680*

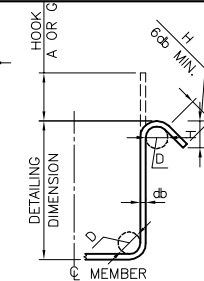
NOTE: TABULATED VALUES FOR STANDARD HOOK DIMENSIONS ARE THE LARGER OF CALCULATED (ACCORDING TO CHBDC–2000) AND REINFORCING STEEL INSTITUTE OF CANADA (RSIC) REQUIREMENTS. VALUE MARKED BY * INDICATE RSIC RECOMMENDED MINIMUM.

MINIMUM STIRRUP AND TIE HOOK
DIMENSIONS

BAR SIZE	BAR DIAM. d _b (mm)	PIN DIAM. D (mm)	90°	135°	
			A OR G (mm)	A OR G (mm)	H (APPROX.) (mm)
10M	11.3	90	180	190	120
15M	16.0	130	190	220	130
20M	19.5	160	230	260	150
25M	25.2	200	280		



MIN. 90° HOOK



MIN. 135° HOOK

NOTE: VALUE MARKED BY '**' INDICATES RSIC RECOMMENDED MINIMUM, BASED ON THE AVERAGE OF 90° AND 180° HOOKS.

HOOK DIMENSIONS
FOR COATED BARS

Date	JUNE 2002	Rev	
SS12–2			



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CONSTRUCTION

REVISIONS		DATE	REV.	BY	DESCRIPTION
10–JAN–14		B	JL		90% MTO SUBMISSION
04–OCT–13		A	MAS		60% MTO SUBMISSION
DESIGN		BM	CHK	JL	CODE CAN/CSA S6–06
DRAWN		YZ	CHK	MAS	SITE 6–624
					LOAD SEE T.A.F. DOC.
					DATE JUN 2013

DOC: 285380–03–066–SEG1–6824

LEGEND:

- SURFACE MOUNTED TRAIL BRIDGE DUCT. REFER TO ELECTRICAL AND ATMS WIRING DIAGRAMS FOR QUANTITY AND SIZE OF DUCT(S).
- 50mm DIA.PVC DIRECT BURIED TRAIL BRIDGE LIGHTING DUCT
- RIGID PVC SURFACE MOUNTED JUNCTION BOX, TYPE P4-7 (MTOD-2300.030)
- ▬ TRAIL BRIDGE LUMINAIRE. REFER TO SPECIAL PROVISION 611 F01M
- W E WOBBLE JOINT AS PER MTO-2102.01
- E EXPANSION COUPLING

NOTES:

- A. ALL ELECTRICAL WORK INCLUDING DUCTS, JUNCTION BOXES, EXPANSION AND DEFLECTION ASSEMBLIES AND FOOTINGS ON STRUCTURE TO BE INSTALLED UNDER STRUCTURAL CONTRACT.
- B. SURFACE MOUNTED ELECTRICAL WORKS ARE TO BE INSPECTED BY ESA PRIOR TO INSTALLATION.
- C. EXACT DUCT ROUTING AND MOUNTING DETAILS, AND LUMINAIRE MOUNTING DETAILS TO BE WORKED OUT WITH THE BRIDGE SUPPLIER.
- D. TRAIL BRIDGE LUMINAIRE TO BE SECURED TO BRIDGE TOP CHORD USING STAINLESS STEEL STRAPPINGS OR BOLTS.
1. EMBEDDED DUCT(S) IN ABUTMENT SEE SHEET S6810.
2. CONNECT TO PATHWAY HANDHOLE. SEE LAYOUT DRAWINGS (TYP.)

IN PROGRESS

METRIC

DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

Parkway
Infrastructure
Engineers



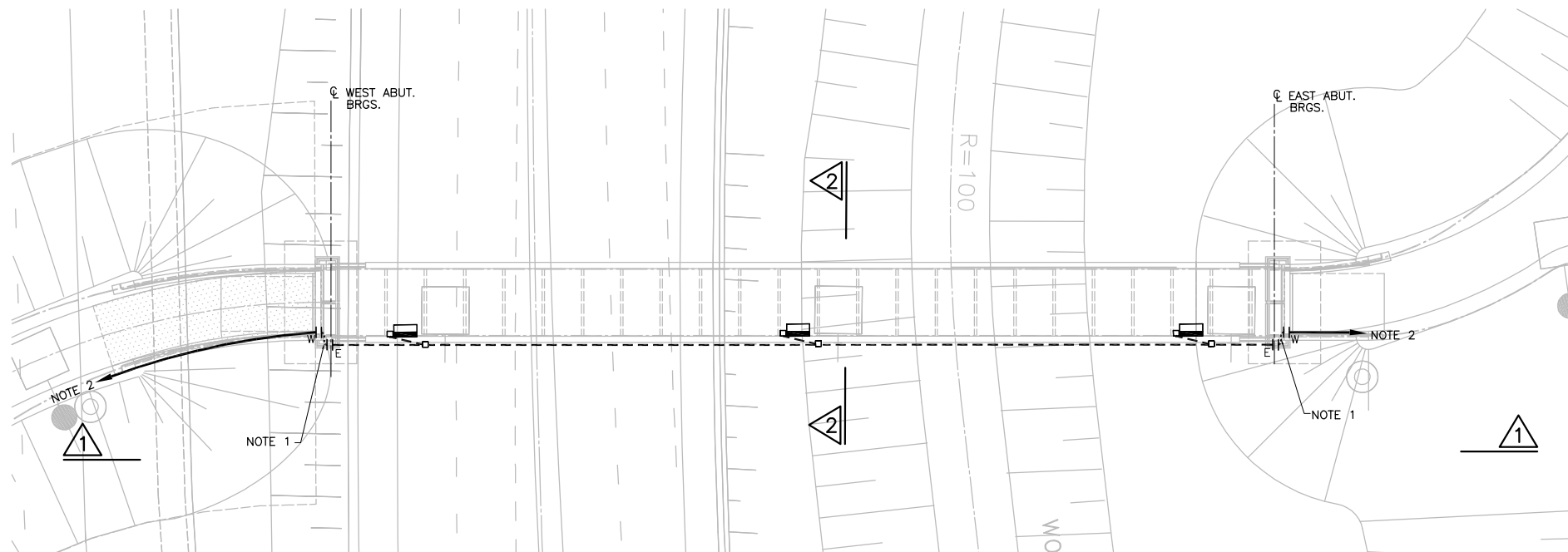
Windsor-Essex
Parkway Project
RFP No. 09-54-1007

NEW CONSTRUCTION
HWY 401
TRAIL BRIDGE OVER HWY 3 (SR4) TB-8
EMBEDDED ELECTRICAL WORK

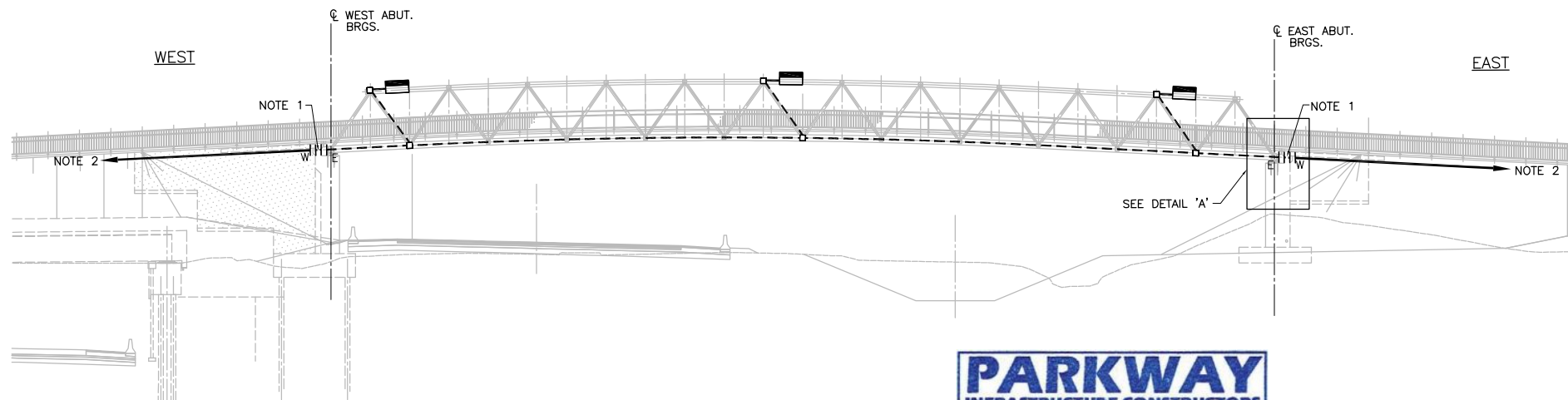


SHEET
S6825

Phase 1
90% Sub



PLAN
N. T. S.



1
N. T. S.



DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

NOT FOR
CONSTRUCTION

REVISIONS										
	DATE	REV.	BY	DESCRIPTION	DESIGN	CHK	CODE	CAN/CSA	LOAD	SEE T.A.F. DOC.
	10-JAN-14	B	JL	90% MTO SUBMISSION						
	04-OCT-13	A	MAS	60% MTO SUBMISSION						
	DATE	REV.	BY	DESCRIPTION						
	DESIGN JS	CHK JL	CODE CAN/CSA S6-06	LOAD	SEE T.A.F. DOC.					
	DRAWN YZ	CHK MAS	SITE 6-624	DATE JUN 2013						

DOC: 285380-07-067-SEG1-6825