



Ministry of
Transportation
and Infrastructure

PROJECT NO. 23880-0001

HIGHWAY 99 TEN MILE SLIDE



LOCATION MAP
N.T.S

- R0-23880-000
- R0-23880-001
- R0-23880-100
- R0-23880-101
- R0-23880-102
- R0-23880-103
- R0-23880-104



Ministry of
Transportation
and Infrastructure

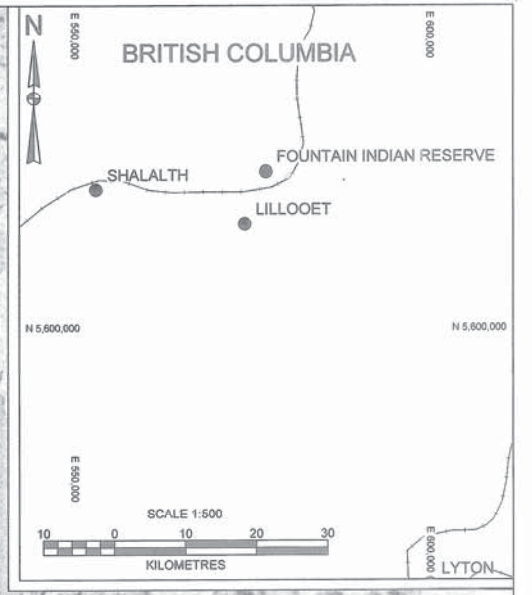
PROJECT NO. 23880-0001

HIGHWAY 99 TEN MILE SLIDE

DRAWING INDEX

- TITLE PAGE
- DRAWING INDEX
- SITE PLAN
- ANCHOR AND FOOTING LAYOUT
- TYPICAL EXCAVATION SECTIONS
- SOIL ANCHOR DETAILS
- SOIL ANCHOR DETAILS NOTES

 BRITISH COLUMBIA		MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE			
		SOUTHERN INTERIOR REGION		GEOTECHNICAL, MATERIALS & PAVEMENT ENGINEERING	
LOCATION MAP AND DRAWING INDEX					
HIGHWAY 99 TEN MILE SLIDE					
 <small>DIRECTOR, ENGINEERING</small>			 <small>REGIONAL DIRECTOR</small>		
<small>DATE</small> 2016/11/17		<small>DATE</small> Nov 17 2016			
<small>FILE NUMBER</small>	<small>PROJECT NUMBER</small>	<small>REG</small>	<small>DRAWING NUMBER</small>	<small>REV</small>	
	R0-23880-0001	SIR	R0-23880-001		

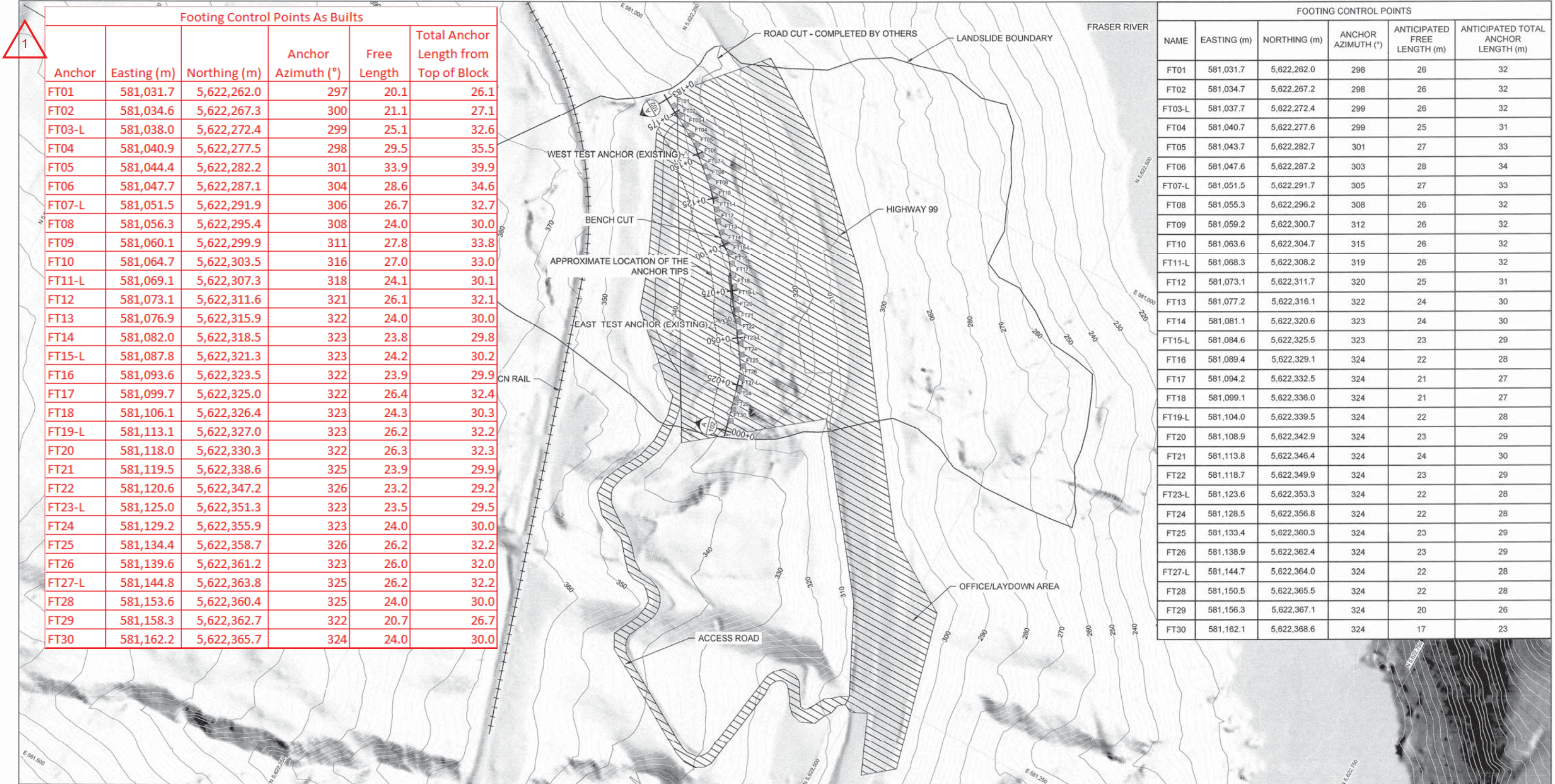


NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED.
2. BASE ORTHOGRAPHIC DATA BASED PROVIDED BY TERRA REMOTE SENSING, DATED OCTOBER 2016.
3. PROJECTION IS UTM NAD83 ZONE 10N.
4. 2016 INVESTIGATION BY BGC ENGINEERING INC. ARE SHOWN. ADDITIONAL EXISTING SITE INVESTIGATION DATA IS AVAILABLE FROM THE MINISTRY.
5. UNLESS INDICATED OTHERWISE ON DRAWINGS OR SPECIAL PROVISIONS, ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE PROVINCE OF BRITISH COLUMBIA, MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE, 2016 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, ADOPTED JULY 1, 2016.
6. UNLESS THE MINISTRY AGREES OTHERWISE IN WRITING, THIS DRAWING SHALL NOT BE MODIFIED OR USED FOR ANY PURPOSE OTHER THAN THE PURPOSE FOR WHICH THE MINISTRY GENERATED IT. THE MINISTRY SHALL HAVE NO LIABILITY FOR ANY DAMAGES OR LOSS ARISING IN ANY WAY FROM ANY USE OR MODIFICATION OF THIS DOCUMENT NOT AUTHORIZED BY THE MINISTRY. ANY USE OF OR RELIANCE UPON THIS DOCUMENT OR ITS CONTENT BY THIRD PARTIES SHALL BE AT SUCH THIRD PARTIES' SOLE RISK.

LEGEND	
	BGC DRILLHOLE
	TEST ANCHOR
	CN RoW
	BC HYDRO RoW
	THE SITE

	SCALE 0 10 1:1000 50m CAD FILENAME: R0-23880-100 DATE: 2016-11-10	 MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE SOUTHERN INTERIOR REGION GEOTECHNICAL, MATERIALS & PAVEMENT ENGINEERING	SITE PLAN HIGHWAY 99 TEN MILE SLIDE																														
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>REVISIONS</th> <th>SIGNATURE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	REV	DATE	REVISIONS	SIGNATURE													<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DESIGNED: <i>S. GAB</i> DATE: 2016-11-10</td> </tr> <tr> <td>QUALITY CONTROL: <i>J. JACKSON</i> DATE: 2016-11-10</td> </tr> <tr> <td>QUALITY ASSURANCE: <i>S. GAB</i> DATE: 2016-11-10</td> </tr> <tr> <td>DRAWN: <i>S. GAB</i> DATE: 2016-11-10</td> </tr> </table>	DESIGNED: <i>S. GAB</i> DATE: 2016-11-10	QUALITY CONTROL: <i>J. JACKSON</i> DATE: 2016-11-10	QUALITY ASSURANCE: <i>S. GAB</i> DATE: 2016-11-10	DRAWN: <i>S. GAB</i> DATE: 2016-11-10	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>FILE NUMBER</td> <td>PROJECT NUMBER</td> <td>REG</td> <td>DRAWING NUMBER</td> <td>REV</td> </tr> <tr> <td> </td> <td>23880-0001</td> <td>SIR</td> <td>R0-23880-100</td> <td> </td> </tr> </table>	FILE NUMBER	PROJECT NUMBER	REG	DRAWING NUMBER	REV		23880-0001	SIR	R0-23880-100	
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	23880-0001	SIR	R0-23880-100																														



Footing Control Points As Built					
Anchor	Easting (m)	Northing (m)	Anchor Azimuth (°)	Free Length	Total Anchor Length from Top of Block
FT01	581,031.7	5,622,262.0	297	20.1	26.1
FT02	581,034.6	5,622,267.3	300	21.1	27.1
FT03-L	581,038.0	5,622,272.4	299	25.1	32.6
FT04	581,040.9	5,622,277.5	298	29.5	35.5
FT05	581,044.4	5,622,282.2	301	33.9	39.9
FT06	581,047.7	5,622,287.1	304	28.6	34.6
FT07-L	581,051.5	5,622,291.9	306	26.7	32.7
FT08	581,056.3	5,622,295.4	308	24.0	30.0
FT09	581,060.1	5,622,299.9	311	27.8	33.8
FT10	581,064.7	5,622,303.5	316	27.0	33.0
FT11-L	581,069.1	5,622,307.3	318	24.1	30.1
FT12	581,073.1	5,622,311.6	321	26.1	32.1
FT13	581,076.9	5,622,315.9	322	24.0	30.0
FT14	581,082.0	5,622,318.5	323	23.8	29.8
FT15-L	581,087.8	5,622,321.3	323	24.2	30.2
FT16	581,093.6	5,622,323.5	322	23.9	29.9
FT17	581,099.7	5,622,325.0	322	26.4	32.4
FT18	581,106.1	5,622,326.4	323	24.3	30.3
FT19-L	581,113.1	5,622,327.0	323	26.2	32.2
FT20	581,118.0	5,622,330.3	322	26.3	32.3
FT21	581,119.5	5,622,338.6	325	23.9	29.9
FT22	581,120.6	5,622,347.2	326	23.2	29.2
FT23-L	581,125.0	5,622,351.3	323	23.5	29.5
FT24	581,129.2	5,622,355.9	323	24.0	30.0
FT25	581,134.4	5,622,358.7	326	26.2	32.2
FT26	581,139.6	5,622,361.2	323	26.0	32.0
FT27-L	581,144.8	5,622,363.8	325	26.2	32.2
FT28	581,153.6	5,622,360.4	325	24.0	30.0
FT29	581,158.3	5,622,362.7	322	20.7	26.7
FT30	581,162.2	5,622,365.7	324	24.0	30.0

FOOTING CONTROL POINTS					
NAME	EASTING (m)	NORTHING (m)	ANCHOR AZIMUTH (°)	ANTICIPATED FREE LENGTH (m)	ANTICIPATED TOTAL ANCHOR LENGTH (m)
FT01	581,031.7	5,622,262.0	298	26	32
FT02	581,034.7	5,622,267.2	298	26	32
FT03-L	581,037.7	5,622,272.4	299	26	32
FT04	581,040.7	5,622,277.6	299	25	31
FT05	581,043.7	5,622,282.7	301	27	33
FT06	581,047.6	5,622,287.2	303	28	34
FT07-L	581,051.5	5,622,291.7	305	27	33
FT08	581,055.3	5,622,296.2	308	26	32
FT09	581,059.2	5,622,300.7	312	26	32
FT10	581,063.6	5,622,304.7	315	26	32
FT11-L	581,068.3	5,622,308.2	319	26	32
FT12	581,073.1	5,622,311.7	320	25	31
FT13	581,077.2	5,622,316.1	322	24	30
FT14	581,081.1	5,622,320.6	323	24	30
FT15-L	581,084.6	5,622,325.5	323	23	29
FT16	581,089.4	5,622,329.1	324	22	28
FT17	581,094.2	5,622,332.5	324	21	27
FT18	581,099.1	5,622,336.0	324	21	27
FT19-L	581,104.0	5,622,339.5	324	22	28
FT20	581,108.9	5,622,342.9	324	23	29
FT21	581,113.8	5,622,346.4	324	24	30
FT22	581,118.7	5,622,349.9	324	23	29
FT23-L	581,123.6	5,622,353.3	324	22	28
FT24	581,128.5	5,622,356.8	324	22	28
FT25	581,133.4	5,622,360.3	324	23	29
FT26	581,138.9	5,622,362.4	324	23	29
FT27-L	581,144.7	5,622,364.0	324	22	28
FT28	581,150.5	5,622,365.5	324	22	28
FT29	581,156.3	5,622,367.1	324	20	26
FT30	581,162.1	5,622,368.6	324	17	23

- NOTES:
- ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED.
 - BASE TOPOGRAPHIC DATA BASED ON 2016 LIDAR PROVIDED BY TERRA REMOTE SENSING, DATED OCTOBER 2016. CONTOUR INTERVAL IS 2 m.
 - PROJECTION IS UTM NAD83 ZONE 10N.
 - EXCAVATION DETAILS SEE DRAWING RO-23880-102.
 - ANTICIPATED FREE STRESSING LENGTH IS SUBJECT TO ADJUSTMENT BY MINISTRY REPRESENTATIVE BASED ON OBSERVED FIELD CONDITIONS, REFER TO DRAWING RO-23880-103.
 - TOTAL ANTICIPATED ANCHOR LENGTH INCLUDES ANTICIPATED BOND LENGTH AND FREE LENGTH. STICK UP IS NOT INCLUDED.
 - UNLESS INDICATED OTHERWISE ON DRAWINGS OR SPECIAL PROVISIONS, ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE PROVINCE OF BRITISH COLUMBIA, MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE, 2016 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, ADOPTED JULY 1, 2016.
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LEGEND

- FT15-L FOOTING NUMBER, L DENOTES LOAD SENSOR ON ANCHOR BAR
- ANCHOR BLOCK FOOTING
- THE SITE
- CN RAIL

CONSTRUCTION REVISIONS			
REV	DATE	DESCRIPTION	INITIALS
01	8-Mar-17	ASBUILT LOCATION AND AZIMUTH	JM

SCALE 0 10 1:1000 50m

CAD FILENAME: RO-23880-000
DATE: 2016-11-10

REV	DATE	REVISIONS	SIGNATURE

BRITISH COLUMBIA
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTHERN INTERIOR REGION
GEOTECHNICAL, MATERIALS & PAVEMENT ENGINEERING

DESIGNED: BGC DATE: 2016-11-10
QUALITY CONTROL: J.JACKSON DATE: 2016-11-10
QUALITY ASSURANCE: S.G.AIB DATE: 2016-11-10
DRAWN: BGC DATE: 2016-11-10

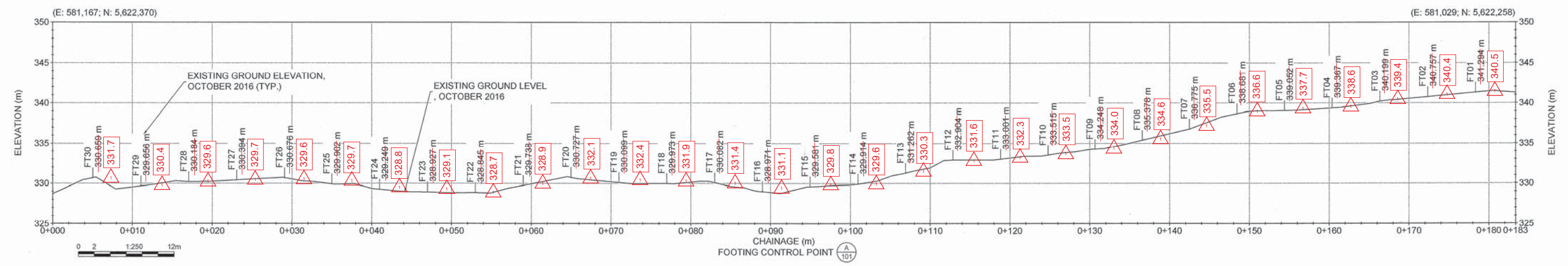
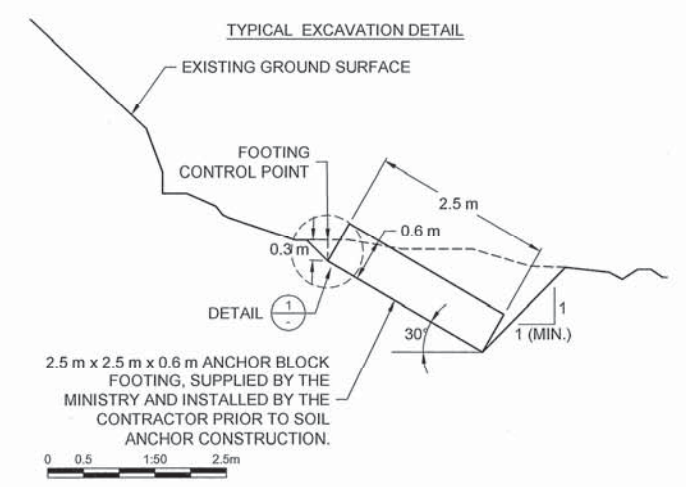
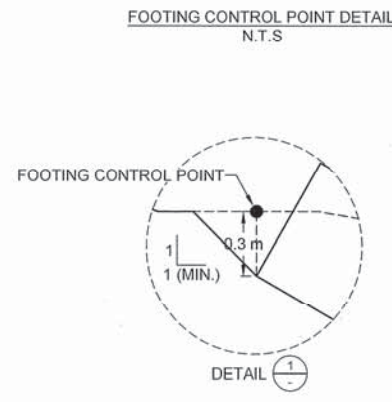
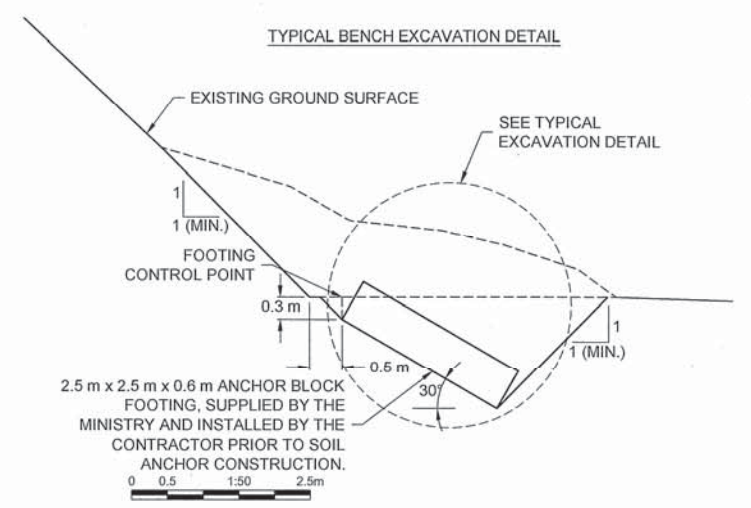
REGISTERED PROFESSIONAL ENGINEER
S. E. GAIB # 27670

SENIOR DESIGNER
DATE: 2016-11-10

ANCHOR AND FOOTING LAYOUT

HIGHWAY 99
TEN MILE SLIDE

FILE NUMBER	PROJECT NUMBER	REG	DRAWING NUMBER	REV
	23880-0001	SIR	RO-23880-101	



EXCAVATION, FOUNDATION PREPARATION AND BACKFILLING

- ALL MATERIALS SHALL BE REMOVED AS NECESSARY FOR THE CONSTRUCTION OF ANCHOR BLOCK FOOTINGS. FOOTING EXCAVATIONS SHALL NOT BE LARGER THAN IS REASONABLY NECESSARY. EXCAVATIONS SHALL BE CONSTRUCTED IN COMPLIANCE WITH THE APPLICABLE WORKERS COMPENSATION ACT, OCCUPATIONAL HEALTH AND SAFETY REGULATIONS, BC.
- THE MINISTRY REPRESENTATIVE WILL FINALIZE THE LOCATION OF EACH FOOTING IN THE FIELD TO OPTIMIZE THE LOCATION RELATIVE TO EXISTING CONDITIONS AND FOR CONSTRUCTABILITY.
- IF THE BOTTOM OF THE EXCAVATION COMPRISES UNSUITABLE SOIL, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE UNSUITABLE MATERIAL AS INDICATED BY THE MINISTRY REPRESENTATIVE. IT WILL BE AT THE DISCRETION OF THE MINISTRY REPRESENTATIVE IF THE FOOTING DEPTH WILL BE INCREASED SO THAT THE FOOTING IS ON NATIVE SOIL, OR IF THE MATERIAL WILL BE REPLACED WITH SUITABLE ON-SITE MATERIAL AND COMPACTED.
- THE BOTTOM OF THE EXCAVATION IS TO BE GRADED AND COMPACTED WITH A HOE PACK TO FORM A FLAT SURFACE FOR THE ANCHOR BLOCK. THE EXCAVATION BASE MUST BE APPROVED BY THE MINISTRY REPRESENTATIVE PRIOR TO PLACING THE ANCHOR BLOCK.
- AFTER THE ANCHOR BLOCK IS PLACED, THE UPSLOPE AND LATERAL SIDES OF THE EXCAVATION SHALL BE BACKFILLED AND GRADED TO PROMOTE DRAINAGE OF SURFACE WATER AND AVOID EROSION OF THE SUBGRADE OF THE ANCHOR BLOCK.
- THE BACKFILL MUST ALLOW FOR ACCESS TO THE ANCHOR HEAD THROUGHOUT THE DURATION OF THE CONSTRUCTION PROJECT.
- NO EXCAVATED MATERIAL SHALL BE TAKEN OFFSITE. THE CONTRACTOR MAY DISPOSE OF EXCESS MATERIAL LOCALLY ALONG THE ROW OF ANCHOR BLOCKS AND CONTOUR THE SOIL TO PROMOTE DRAINAGE. WITH THE EXCEPTION OF ACCESS ROAD SURFACING, NO MATERIAL SHALL BE IMPORTED ONTO THE LANDSLIDE.

NOTES:

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CONSTRUCTION REVISIONS			
REV	DATE	DESCRIPTION	INITIALS
01	8-Mar-17	ASBUILT LOCATION ELEVATIONS	JM

SCALE AS SHOWN		CAD FILENAME: R0-23880-000	
REV	DATE	REVISIONS	SIGNATURE

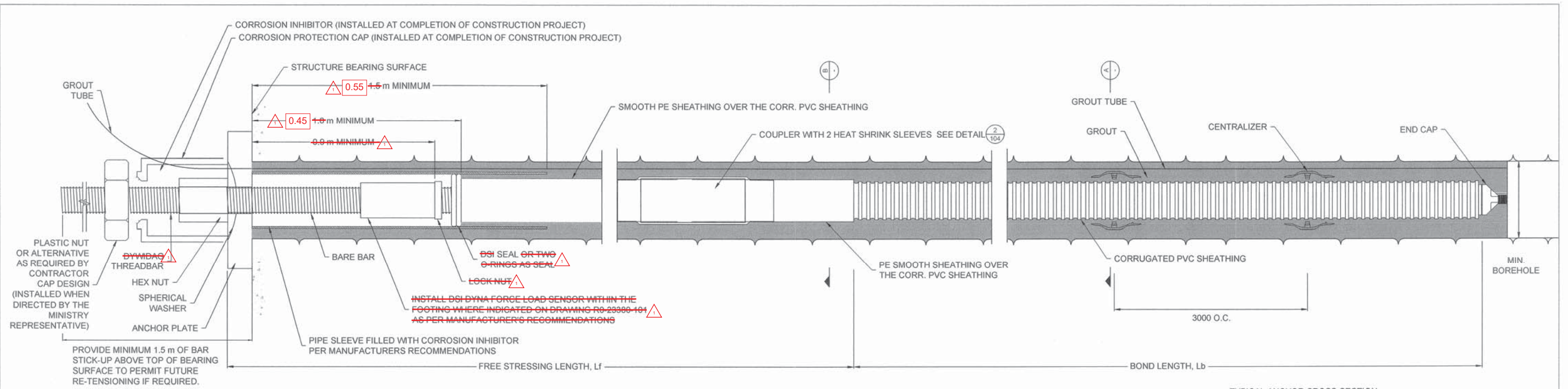
BRITISH COLUMBIA
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTHERN INTERIOR REGION
GEOTECHNICAL MATERIALS & PAVEMENT ENGINEERING

DESIGNED: BGC DATE: 2016-11-10
 QUALITY CONTROL: J. JACKSON DATE: 2016-11-10
 QUALITY ASSURANCE: S. GABR DATE: 2016-11-10
 DRAWN: BGC DATE: 2016-11-10

PROFESSIONAL ENGINEER
S. E. GABR
27670
BRITISH COLUMBIA

SENIOR DESIGNER
DATE: 2016-11-10

TYPICAL EXCAVATION SECTIONS				
HIGHWAY 99 TEN MILE SLIDE				
FILE NUMBER	PROJECT NUMBER	REG	DRAWING NUMBER	REV
	23880-0001	SIR	R0-23880-102	



PLASTIC NUT OR ALTERNATIVE AS REQUIRED BY CONTRACTOR CAP DESIGN (INSTALLED WHEN DIRECTED BY THE MINISTRY REPRESENTATIVE)

PROVIDE MINIMUM 1.5 m OF BAR STICK-UP ABOVE TOP OF BEARING SURFACE TO PERMIT FUTURE RE-TENSIONING IF REQUIRED.

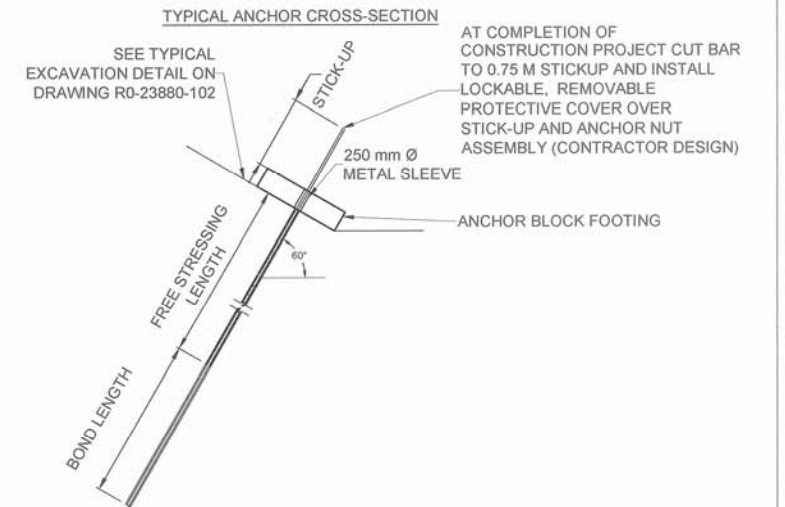
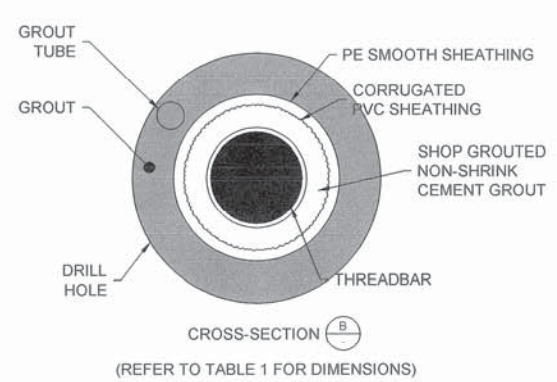
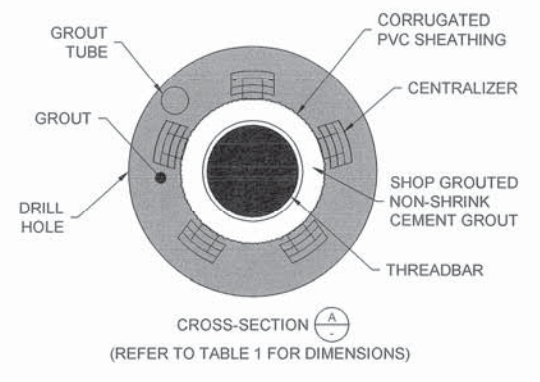


TABLE 1: SOIL ANCHOR SPECIFICATION

	DOUBLE CORROSION PROTECTION (DCP)	DCP CORROSION PROTECTION CAP REQUIRED?	THREADBAR DIAMETER DESIGNATION (mm)	THREADBAR MINIMUM ULTIMATE TENSILE STRENGTH (MPa) f_u	PLUNGE (DEGREES BELOW HORIZONTAL)	BOND LENGTH, L_b (mm) (NOTE 3)	FREE STRESSING LENGTH, L_f (mm) (NOTE 3)	DESIGN LOAD (kN)	LOCK-OFF LOAD (kN)	MIN. DRILL HOLE DIAMETER (mm)	SMOOTH SHEATHING DIAMETER OD (mm)	CORRUGATED SHEATHING DIAMETER OD (mm)	COUPLER HOUSING DIAMETER OD (mm)
GROUND ANCHORS	Y	Y	66	1,034	45 for FT10, FT12, FT15 and FT17 60	6000	FREE STRESSING LENGTH TO EXTEND FROM THE BOTTOM OF THE HEX NUT TO 1000 mm BELOW THE CONTACT WITH THE UNDIFFERENTIATED GLACIAL SEDIMENT	2,050	1,500 750	190	166 125	166 117	120

- NOTES:
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
 - SEE DRAWING R0-23880-104 FOR CONSTRUCTION SPECIFICATION.
 - SEE DRAWING R0-23880-101 FOR ANTICIPATED TOTAL ANCHOR LENGTHS. DEPTH FOR THE TOP OF THE BOND ZONE WILL BE DETERMINED BY THE MINISTRY REPRESENTATIVE.
 - CORROSION PROTECTION CAP DESIGN SUBJECT TO MINISTRY REVIEW AND ACCEPTANCE.
 - UNLESS INDICATED OTHERWISE ON DRAWINGS OR SPECIAL PROVISIONS, ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE PROVINCE OF BRITISH COLUMBIA, MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE, 2016 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, ADOPTED JULY 1, 2016.
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CONSTRUCTION REVISIONS			
NUMBER	DATE	DESCRIPTION	INITIALS
01	8-Mar-17	DESIGN CHANGES AS PER CONTECH SYSTEM SUPPLY	JM
02	8-Mar-17	MINISTRY DIRECTED CHANGE	JM

SCALE NTS		CAD FILENAME	
REV	DATE	REVISIONS	SIGNATURE

BRITISH COLUMBIA
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTHERN INTERIOR REGION
GEOTECHNICAL MATERIALS & PAVEMENT ENGINEERING

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QUALITY ASSURANCE: S.GAB DATE: 2016-11-10
DRAWN: BGC DATE: 2016-11-10

PROFESSIONAL ENGINEER
S. E. GAB
27670
2016

SOIL ANCHOR DETAILS			
HIGHWAY 99 TEN MILE SLIDE			
FILE NUMBER	PROJECT NUMBER	REV	DRAWING NUMBER
	23880-0001	SIR	R0-23880-103

SOIL ANCHOR INSTALLATION NOTES

1. GENERAL

1.1. DESCRIPTION OF WORK

- 1.1.1. SUPPLY ANCHOR BARS, GROUT, HARDWARE, AND EQUIPMENT NECESSARY TO INSTALL GROUTED ANCHORS AS SHOWN ON THE DRAWINGS.
- 1.1.2. INSTALL ANCHORS AT THE LOCATIONS SHOWN ON THE DRAWINGS AND AS SPECIFIED AFTER CONSTRUCTION OF THE ANCHOR BLOCK FOOTING IS COMPLETED. TEST LOAD ANCHORS AS SPECIFIED.
- 1.1.3. DESIGN CONSTRUCT AND TEST SOIL ANCHORS IN CONFORMANCE WITH PTI STANDARDS.
- 1.1.4. CONSTRUCTION OF THE SOIL ANCHORS IS REQUIRED TO BE COMPLETED IN WINTER AND THE CONTRACTOR SHALL PROVIDE ENCLOSURES, SHELTER, HEATING AND ANY OTHER MEASURES NECESSARY TO PERMIT THE WORK TO BE COMPLETED AS SPECIFIED UNDER COLD WEATHER CONDITIONS.

1.2. DEFINITIONS

- 1.2.1. MINISTRY REPRESENTATIVE: OWNER'S REPRESENTATIVE, AS DEFINED IN THE MAJOR WORKS GENERAL CONDITIONS OF THE CONTRACT.
- 1.2.2. PTI STANDARDS: RECOMMENDATIONS FOR PRESTRESSED ROCK AND SOIL ANCHORS PUBLISHED BY THE POST-TENSIONING INSTITUTE (PTI), 2014. (PTI PUBLICATION PTI DC35.1-14)

1.3. SUBMITTALS

- 1.3.1. THE CONTRACTOR SHALL SUBMIT THE FOLLOWING ITEMS TO THE MINISTRY REPRESENTATIVE AT LEAST 7 DAYS PRIOR TO THE START OF WORK:
 - 1.3.1.1. MILL CERTIFICATES COVERING CHEMICAL AND PHYSICAL PROPERTIES OF THE STEEL USED IN THE WORK INCLUDING STEEL YOUNG MODULUS.
 - 1.3.1.2. SHOP DRAWINGS OF THE SOIL ANCHOR ASSEMBLY.
 - 1.3.1.3. CALIBRATION RECORDS INDICATING THE RELATIONSHIP BETWEEN THE GAUGE PRESSURE AND LOAD FOR ALL JACKS, AND LOAD CELLS TO BE USED FOR LOAD TESTING THE ANCHORS, CALIBRATED WITHIN THE PAST 6 MONTHS.
 - 1.3.1.4. A DETAILED DESCRIPTION OF THE PROPOSED ANCHOR INSTALLATION AND TESTING PROCEDURES INCLUDING: DRILLING METHOD, METHOD FOR ORIENTING THE DRILL MAST, BOREHOLE AND ANCHOR CLEANING PROCESS, GROUTING PROCEDURE, TESTING PROCEDURE, AND ENVIRONMENTAL MANAGEMENT PLAN. THE CONTRACTOR SHALL ALSO SUBMIT A DETAILED DESCRIPTION OF THE EQUIPMENT TO BE USED FOR INSTALLING AND TESTING THE ANCHORS.
 - 1.3.1.5. A DETAILED DESCRIPTION OF THE MATERIALS, EQUIPMENT AND METHODS THAT WILL BE EMPLOYED TO PERMIT SOIL ANCHOR CONSTRUCTION AND RELATED WORK TO BE COMPLETED AS SPECIFIED UNDER COLD WEATHER CONDITIONS, INCLUDING ANCHOR DRILLING, GROUTING, LOAD TESTING AND MONITORING.
- 1.3.2. THE CONTRACTOR SHALL KEEP DAILY RECORDS, AND SUBMIT THE FOLLOWING TO THE MINISTRY REPRESENTATIVE:
 - 1.3.2.1. IDENTIFICATION NUMBER, SEQUENCE OF INSTALLATION, AND LOCATION OF EACH ANCHOR.
 - 1.3.2.2. DATE OF INSTALLATION AND START AND FINISH TIME OF INSTALLATION AND GROUTING OF EACH ANCHOR.
 - 1.3.2.3. GROUT BATCH NUMBER USED ON EACH ANCHOR AND VOLUME OF GROUT USED FOR EACH ANCHOR.
 - 1.3.2.4. BOREHOLE DIAMETER, DEPTH OF DRILLING AND DESCRIPTION OF SOIL CONDITIONS ENCOUNTERED.
 - 1.3.2.5. INSTALLED TOTAL LENGTH OF THREADBAR, FREE-LENGTH, BOND LENGTH AND DRILLHOLE DEPTH.

1.4. QUALITY CONTROL

- 1.4.1. A REPRESENTATIVE OF (OR AN INDEPENDENT TESTING AGENCY APPOINTED BY THE CONTRACTOR) SHALL:
 - 1.4.1.1. PREPARE AT LEAST 4 GROUT SAMPLE CUBES FOR EACH BATCH OF CEMENTITIOUS GROUT USED IN ANCHOR BOND ZONE, IN ACCORDANCE WITH CSA A23.2 (METHODS OF TEST FOR CONCRETE). GROUT CUBES SHALL BE LABELED, AND TESTED FOR COMPRESSIVE STRENGTH AT 3,7, AND 28 DAYS.
 - 1.4.1.2. CARRY OUT AND DOCUMENT ANCHOR LOAD TESTS IN TABULAR AND GRAPH FORM.

1.5. RESTRICTIONS

- 1.5.1. ANY DAMAGE TO PROPERTY, SERVICES, AND INSTALLATIONS DUE TO LACK OF GOOD WORKMANSHIP SHALL BE MADE GOOD AT THE CONTRACTOR'S EXPENSE.
- 1.5.2. ALL WATER, DRILL CUTTINGS, FLUSHING FLUIDS, DUST, AND GROUT SHALL BE CONFINED TO THE WORKING AREA. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTROL THESE. THE GROUTING WORK MUST BE DONE IN ACCORDANCE WITH THE CONTRACTOR'S ENVIRONMENTAL MANAGEMENT PLAN.

2. MATERIALS

- 2.1. ANCHORS SHALL BE 66 mm DIAMETER, 1034 MPa, COLD ROLLED ~~STEEL~~ ^{STEEL} THREADBAR (ASTM 722), WITH A PVC SHEATH TO PROVIDE BONDED BREAK ALONG THE FREE STRESSING LENGTH. THREADBAR DIAMETER, CORROSION PROTECTION, AND STEEL GRADE SHALL BE AS SPECIFIED.
- 2.2. SEE DRAWINGS R0-23880-101 FOR ANTICIPATED ANCHOR FREE LENGTHS AND DRAWING R0-23880-103 FREE LENGTH REQUIREMENTS
- 2.3. ANCHOR COMPONENTS INCLUDING COLLAR NUTS, ANCHOR PLATES, COUPLERS, CENTRALIZERS, O-RINGS, PVC SHEATHING, AND END CAPS ARE TO COMPLY WITH MANUFACTURER SPECIFICATIONS
- 2.4. ANCHOR GROUT SHALL BE UNSAUNDED, NON-METALLIC, NON-SHRINK, PORTLAND CEMENT GROUT ("BASALITE MICROSIL" ANCHOR GROUT, OR APPROVED EQUIVALENT.) THE GROUT SHALL BE MIXED TO THE SUPPLIERS SPECIFICATION WITH UNCONFINED COMPRESSIVE STRENGTH TO BE MINIMUM 20 MPa IN 24 HOURS AND 40 MPa IN 28 DAYS.
- 2.5. CENTRALIZERS SHALL BE INSTALLED ON 3 m CENTERS IN THE BONDED LENGTH
- 2.6. GROUT TUBE TO CONVEY GROUT TO THE DISTAL END OF THE BONDED LENGTH, WITH MINIMUM DIAMETER OF 13 mm.
- 2.7. ANCHOR BLOCK FOOTINGS AS PER DRAWING R0-23880-102.
- 2.8. ALL POST-STRESSING COMPONENTS SHALL BE THE PRODUCT OF AN ANCHOR MANUFACTURER REGULARLY ENGAGED IN THE FABRICATION OF PERMANENT THREADBAR ANCHOR SYSTEMS. THE FABRICATION PROCEDURE SHALL BE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S DETAILS.
- 2.9. THE ANCHOR ASSEMBLY SHALL CONSIST OF A FREE LENGTH, BONDED LENGTH, AND STICKUP LENGTH ABOVE THE ANCHOR PLATE. THE BONDED LENGTH SHALL BE AS SPECIFIED FOR THE DESIGN LOAD, BUT MAY BE LENGTHENED BY THE CONTRACTOR OR GEOTECHNICAL ENGINEER BASED ON THE ENCOUNTERED GROUND AND/OR DRILL HOLE CONDITIONS. PROVIDE STICKUP BEYOND THE ANCHOR PLATE ASSEMBLY, TO ALLOW FOR INSTALLATION OF THE END HARDWARE. STICKUP LENGTH SHALL ALSO BE OF SUFFICIENT LENGTH TO FACILITATE TENSIONING AND TESTING WITH A HYDRAULIC JACK.
- 2.10. COUPLERS SHALL BE USED IN THE FREE STRESSING LENGTH AS NEEDED. NO COUPLERS SHALL BE USED IN THE BONDED LENGTH.

3. EXECUTION

3.1. DRILLING

- 3.1.1. DRILL HOLES FOR ALL ANCHORS WILL PROVIDE THE MINIMUM DRILL HOLE DIAMETER AS SPECIFIED BY DRAWINGS AND COMPLETED USING TEMPORARY STEEL CASING DURING DRILLING FOR THE ENTIRE LENGTH OF THE HOLE.
- 3.1.2. DRILL HOLES MUST BE CLEANED OF ALL CUTTINGS AND LOOSE DEBRIS PRIOR TO ANCHOR INSTALLATION
- 3.1.3. THE MINISTRY REPRESENTATIVE WILL WITNESS DRILLING AND DETERMINE THE TOP OF THE UNDIFFERENTIATED GLACIAL SEDIMENTS WITHIN EACH DRILL HOLE.
- 3.1.4. DRILL HOLES AND INSTALL ANCHORS WITHIN 2 DEGREES OF THE SPECIFIED AZIMUTH AND PLUNGE ANGLES.

3.2. ANCHOR INSTALLATION

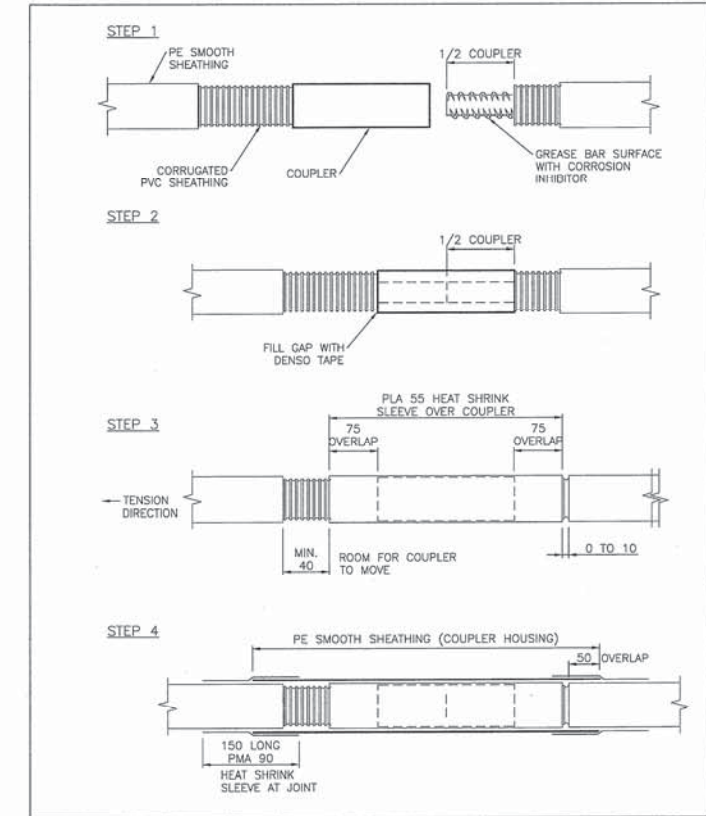
- 3.2.1. DRILL HOLES MUST BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO ANCHOR INSTALLATION.
- 3.2.2. ANCHORS SHALL BE INSTALLED WITH BOND ZONE AT THE MINIMUM EMBEDMENT DEPTH INTO UNDIFFERENTIATED GLACIAL SEDIMENTS TO PROVIDE NEEDED PULL OUT RESISTANCE.

- 3.2.3. ANCHORS MUST BE INSERTED WITH PVC SHEATHS, COUPLERS, HEAT SHRINK SLEEVES, END CAPS, GROUT TUBES, AND CENTRALIZERS, AS PER DRAWING SPECIFICATIONS.
- 3.2.4. ALL COUPLERS SHALL BE INSTALLED IN THE FREE STRESSING LENGTH AND MINIMUM 2.5 m BELOW THE BASE OF THE ANCHOR BLOCK FOOTING. COUPLERS FOR DOUBLE CORROSION PROTECTION ANCHORS SHALL BE INSTALLED AS SHOWN IN DETAIL 2.
- 3.2.5. DURING INSTALLATION THE CONTRACTOR MUST EXERCISE CARE AS TO NOT DAMAGE ANY ANCHOR COMPONENTS INCLUDING THE PVC SHEATHING.
- 3.2.6. DURING ANCHOR COMPLETION AND WHEN APPROVED BY THE MINISTRY REPRESENTATIVE, THE ANCHOR PLATE PIPE SLEEVE MUST BE FILLED WITH CORROSION INHIBITOR. THE CORROSION INHIBITOR IS MADE OF A PERMANENTLY PLASTIC ANTI-CORROSION COMPOUND SUCH AS ANTICORIT 02889, PETROPLAST, OR DENSO PASTE.
- 3.3. ANCHOR GROUTING
 - 3.3.1. GROUT TUBES MUST BE INSTALLED IN THE DRILL HOLE AND EXTEND TO THE LOWEST POINT OF THE ANCHOR COMPONENTS. THE BOND ZONE WILL BE LOCATED IN SOILS OF HIGH PERMEABILITY AND VERY HIGH GROUT TAKE IS EXPECTED. MULTIPLE STAGES OF GROUTING MAY BE REQUIRED. TAKE REASONABLE MEASURES TO MINIMIZE GROUT TAKE IN HIGH PERMEABILITY SOILS, SUBJECT TO THE GROUT MANUFACTURER'S RECOMMENDATIONS AND APPROVAL BY THE MINISTRY REPRESENTATIVE.
 - 3.3.2. GROUT SHALL BE INJECTED THROUGH THE GROUT TUBE AT THE DISTAL END OF THE ANCHOR, UNTIL GROUT HAS FILLED THE DRILL HOLE AND ENCASED THE OUTER ANCHOR COMPONENTS. GROUT IN THE DRILL HOLE MUST EXTEND UP TO THE ANCHOR PLATE.
 - 3.3.3. ANCHORS ARE TO BE LEFT UNDISTURBED UNTIL GROUT CUBE SAMPLES HAVE DEMONSTRATED SUFFICIENT GROUT CURING TIME.
 - 3.3.4. GROUT CUBE SAMPLES MUST BE TAKEN AT THE TIME OF GROUTING FROM THE GROUT BATCH INJECTED IN TO THE DRILL HOLE.
- 3.4. ANCHOR TESTING AND TENSIONING
 - 3.4.1. THE CONTRACTOR SHALL SUPPLY A FRAME OR CRIBBING FOR PROVIDING REACTION TO THE ANCHOR BLOCK FOOTING, JACK, ELECTRONIC LOAD CELL, DIAL GAUGE OR ELECTRONIC DISPLACEMENT TRANSDUCERS, BAR EXTENSION, AND OTHER HARDWARE NECESSARY TO CARRY OUT THE LOAD TESTS. DIAL GAUGES OR TRANSDUCERS SHALL HAVE AN ACCURACY OF 0.03 mm. LOAD CELLS SHALL HAVE AN ACCURACY OF 2% OF THE MAXIMUM TEST LOAD.
 - 3.4.2. THE CONTRACTOR SHALL SET UP A STABLE SYSTEM TO SUPPORT THE DIAL GAUGE USED TO MAKE ABSOLUTE MEASUREMENTS OF THE DEFLECTION OF THE HEAD OF THE ANCHOR. THE CONTRACTOR SHALL ENSURE THAT ALL LOAD/DEFLECTION MEASUREMENTS ARE RECORDED, PROCESSED AND PLOTTED AS PER PTI STANDARDS TO EVALUATE THE PERFORMANCE CRITERIA FOR EACH ANCHOR.
 - 3.4.3. ALL PRODUCTION SOIL ANCHORS SHALL BE SUBJECT TO A PROOF TEST OR A PERFORMANCE TEST, WITH LOAD INTERVALS SHOWN IN TABLE 1.

TABLE 1: PROOF AND PERFORMANCE TEST LOAD INTERVALS

LOADING CONDITION	SOIL ANCHORS
0.25 DL	515 KN
0.50 DL	1,025 KN
0.75 DL	1,540 KN
1.00 DL	2,050 KN
1.20 DL	2,460 KN
1.33 DL	2,725 KN
LOCK-OFF	Δ 750 1,500 KN

- 3.4.4. PROOF TEST PROCEDURE AS PER PTI RECOMMENDATIONS, SECTION 8.3.3
- 3.4.5. A TOTAL OF 10% OF THE PRODUCTION ANCHORS SHALL BE SUBJECT TO PERFORMANCE TESTS. THE ANCHORS TO BE PERFORMANCE TESTED WILL BE DETERMINED BY THE MINISTRY REPRESENTATIVE. ALL OTHER ANCHORS WILL BE PROOF TESTED.
- 3.4.6. PERFORMANCE TEST PROCEDURE AS PER PTI RECOMMENDATIONS, SECTION 8.3.2
- 3.4.7. AFTER LOCKING OFF THE ANCHOR, LOAD SHALL BE RE-APPLIED UNTIL THE NUT JUST LIFTS OFF THE REACTION PLATE AS PER PTI STANDARDS SECTIONS 8.4 AND 8.5. THIS LOAD (LIFT-OFF LOAD) SHALL BE RECORDED AND SUBMITTED TO THE MINISTRY REPRESENTATIVE.
- 3.4.8. ACCEPTANCE CRITERIA FOR THE ANCHOR LOAD TESTS SHALL BE AS INDICATED IN PTI STANDARDS, SECTION 8.6, AND SUBJECT TO APPROVAL BY THE MINISTRY REPRESENTATIVE.
- 3.4.9. ANCHORS SHALL NEVER BE TENSIONED TO A LOAD THAT EXCEEDS 80% OF THE THREADBAR MINIMUM ULTIMATE TENSILE LOAD, AS SPECIFIED BY THE MANUFACTURER.
- 3.4.10. THE CONTRACTOR SHALL TENSION THE ANCHOR BARS IN GROUPS OF ANCHORS, NOT INDIVIDUALLY, WHEN DIRECTED BY THE MINISTRY REPRESENTATIVE. TYPICALLY ANCHORS WILL BE TESTED AND LOCKED OFF WITHIN 14 DAYS OF CONSTRUCTION.
- 3.4.11. ANCHORS WILL HAVE TENSION ADJUSTMENTS AS DIRECTED BY THE MINISTRY REPRESENTATIVE. WHEN TENSION ADJUSTMENTS ARE REQUIRED THE ANCHOR TENSION WILL BE REDUCED TO THE LOCK-OFF LOAD AND A LIFT-OFF TEST WILL BE COMPLETED AS DESCRIBED IN 3.4.7.



DETAIL 2
COUPLER SPLICING DETAIL
N.T.S

CONSTRUCTION REVISIONS			
NUMBER	DATE	DESCRIPTION	INITIALS
01	8-Mar-17	DESIGN CHANGES AS PER CONTECH SYSTEM SUPPLY	JM
02	8-Mar-17	MINISTRY DIRECTED CHANGE	JM

SCALE N.T.S		CAD FILENAME R0-23880-000	
REV	DATE	REVISIONS	SIGNATURE

BRITISH COLUMBIA
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTHERN INTERIOR REGION
GEOTECHNICAL MATERIALS & PAVEMENT ENGINEERING

DESIGNED: BGC DATE: 2016-11-10
QUALITY CONTROL: J. JACKSON DATE: 2016-11-10
QUALITY ASSURANCE: S. GAIB DATE: 2016-11-10
DRAWN: BGC DATE: 2016-11-10

PROFESSIONAL ENGINEER
S. E. GAIB
27670
DATE: 2016-11-10

SOIL ANCHOR DETAILS NOTES				
HIGHWAY 99 TEN MILE SLIDE				
FILE NUMBER	PROJECT NUMBER	REG	DRAWING NUMBER	REV
	23880-0001	SIR	R0-23880-104	

PROJECT NO. 23880-0001
HIGHWAY 99 – TEN MILE SLIDE
SOIL ANCHOR INSTALLATION

ANCHOR ASBUILT DATA

Anchor	Anchor Block Asbuilt at Installation										Anchor Block Asbuilt Post Tensioning				Anchor			
	Footing Control Point Asbuilt			Footing Control Point Design		Footing Control Point		Plunge			Azimuth			Plunge		Azimuth		
	Northing (m)	Easting (m)	Elev (m)	Northing (m)	Easting (m)	ΔNorth (m)	ΔEast (m)	Asbuilt (Deg)	Design (Deg)	Delta (Deg)	Asbuilt (Deg)	Design (Deg)	Delta (Deg)			Asbuilt (Deg)	Delta (Deg)	
FT01	5622262.0	581031.7	340.5	5622262.0	581031.7	0.0	0.0	30	30	0	297	298	-1	33	3	307	9	FT01
FT02	5622267.3	581034.6	340.4	5622267.2	581034.7	0.1	-0.1	30	30	0	300	298	2	33	3	304	6	FT02
FT03-L	5622272.4	581038.0	339.8	5622272.4	581037.7	0.0	0.3	30	30	0	299	299	0	35	5	299	0	FT03-L
FT04	5622277.5	581040.9	338.6	5622277.6	581040.7	-0.1	0.2	30	30	0	298	299	-1	32	2	300	1	FT04
FT05	5622282.2	581044.4	337.7	5622282.7	581043.7	-0.5	0.7	31	30	1	301	301	0	31	1	300	-1	FT05
FT06	5622287.1	581047.7	336.6	5622287.2	581047.6	-0.1	0.1	29	30	-1	304	303	1	31	1	310	7	FT06
FT07-L	5622291.9	581051.5	335.5	5622291.7	581051.5	0.2	0.0	30	30	0	306	305	1	31	1	303	-2	FT07-L
FT08	5622295.4	581056.3	334.6	5622296.2	581055.3	-0.8	1.0	30	30	0	308	308	0	31	1	308	0	FT08
FT09	5622299.9	581060.1	334.0	5622300.7	581059.2	-0.8	0.9	30	30	0	311	312	-1	32	2	313	1	FT09
FT10	5622303.5	581064.7	333.5	5622304.7	581063.6	-1.2	1.1	45	45	0	316	315	1	46	1	318	3	FT10
FT11-L	5622307.3	581069.1	332.3	5622308.2	581068.3	-0.9	0.8	30	30	0	318	319	-1	31	1	320	1	FT11-L
FT12	5622311.6	581073.1	331.6	5622311.7	581073.1	-0.1	0.0	45	45	0	321	320	1	46	1	321	1	FT12
FT13	5622315.9	581076.9	330.3	5622316.1	581077.2	-0.2	-0.3	31	30	1	322	322	0	32	2	325	3	FT13
FT14	5622318.5	581082.0	329.6	5622320.6	581081.1	-2.1	0.9	30	30	0	323	323	0	31	1	324	1	FT14
FT15-L	5622321.3	581087.8	329.8	5622325.5	581084.6	-4.2	3.2	43	45	-2	323	323	0	45	0	325	2	FT15-L
FT16	5622323.5	581093.6	331.1	5622329.1	581089.4	-5.6	4.2	31	30	1	322	324	-2	31	1	324	0	FT16
FT17	5622325.0	581099.7	331.4	5622332.5	581094.2	-7.5	5.5	45	45	0	322	324	-2	47	2	323	-1	FT17
FT18	5622326.4	581106.1	331.9	5622336.0	581099.1	-9.6	7.0	30	30	0	323	324	-1	33	3	327	3	FT18
FT19-L	5622327.0	581113.1	332.4	5622339.5	581104.0	-12.5	9.1	30	30	0	323	324	-1	31	1	326	2	FT19-L
FT20	5622330.3	581118.0	332.1	5622342.9	581108.9	-12.6	9.1	30	30	0	322	324	-2	29	-1	322	-2	FT20
FT21	5622338.6	581119.5	328.9	5622346.4	581113.8	-7.8	5.7	30	30	0	325	324	1	29	-1	325	1	FT21
FT22	5622347.2	581120.6	328.7	5622349.9	581118.7	-2.7	1.9	29	30	-1	326	324	2	29	-1	328	4	FT22
FT23-L	5622351.3	581125.0	329.1	5622353.3	581123.6	-2.0	1.4	28	30	-2	323	324	-1	28	-2	324	0	FT23-L
FT24	5622355.9	581129.2	328.8	5622356.8	581128.5	-0.9	0.7	32	30	2	323	324	-1	32	2	325	1	FT24
FT25	5622358.7	581134.4	329.7	5622360.3	581133.4	-1.6	1.0	29	30	-1	326	324	2	30	0	324	0	FT25
FT26	5622361.2	581139.6	329.6	5622362.4	581138.9	-1.2	0.7	30	30	0	323	324	-1	31	1	323	-1	FT26
FT27-L	5622363.8	581144.8	329.7	5622364.0	581144.7	-0.2	0.1	30	30	0	325	324	1	35	5	334	10	FT27-L
FT28	5622360.4	581153.6	329.6	5622365.5	581150.5	-5.1	3.1	30	30	0	325	324	1	34	4	321	-3	FT28
FT29	5622362.7	581158.3	330.4	5622367.1	581156.3	-4.4	2.0	31	30	1	322	324	-2	35	5	322	-2	FT29
FT30	5622365.7	581162.2	331.7	5622368.6	581162.1	-2.9	0.1	30	30	0	324	324	0	31	1	324	0	FT30



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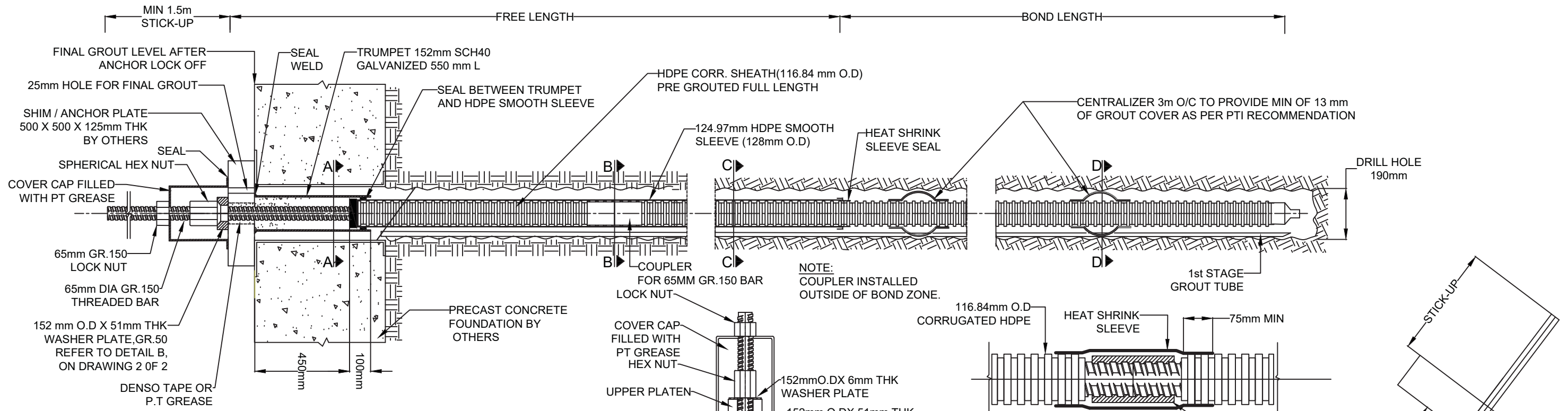
PROJECT NO. 23880-0001
HIGHWAY 99 – TEN MILE SLIDE
SOIL ANCHOR INSTALLATION

ANCHOR ASBUILT DATA

Anchor Bar Asbuilt Post Tensioning										
Anchor	Anchor Bar Tip CL (before trimming)			Plunge			Azimuth			Anchor
	Northing (m)	Easting (m)	Elev (m)	Asbuilt (Deg)	Design (Deg)	Delta (Deg)	Asbuilt (Deg)	Design (Deg)	Delta (Deg)	
FT01	5622263.1	581029.7	341.5	28	30	-2	301	298	3	FT01
FT02	5622268.4	581032.7	341.2	29	30	-1	300	298	2	FT02
FT03-L	5622273.5	581035.9	340.9	30	30	0	301	299	2	FT03-L
FT04	5622278.6	581038.9	339.6	30	30	0	297	299	-2	FT04
FT05	5622283.4	581042.5	338.8	28	30	-2	300	301	-1	FT05
FT06	5622288.5	581045.7	337.8	31	30	1	307	303	4	FT06
FT07-L	5622293.1	581049.5	336.6	31	30	1	306	305	1	FT07-L
FT08	5622296.8	581054.4	335.6	31	30	1	306	308	-2	FT08
FT09	5622301.4	581058.4	335.1	28	30	-2	315	312	3	FT09
FT10	5622305.8	581062.7	334.4	45	45	0	319	315	4	FT10
FT11-L	5622308.8	581067.7	332.9	29	30	-1	320	319	1	FT11-L
FT12	5622313.8	581071.3	332.3	45	45	0	321	320	1	FT12
FT13	5622317.7	581075.5	331.2	33	30	3	320	322	-2	FT13
FT14	5622320.3	581080.6	330.6	30	30	0	324	323	1	FT14
FT15-L	5622323.3	581086.3	330.0	45	45	0	323	323	0	FT15-L
FT16	5622325.3	581092.3	332.0	30	30	0	324	324	0	FT16
FT17	5622327.0	581098.1	331.8	45	45	0	322	324	-2	FT17
FT18	5622328.3	581104.7	332.7	33	30	3	326	324	2	FT18
FT19-L	5622328.9	581111.7	333.4	29	30	-1	323	324	-1	FT19-L
FT20	5622332.1	581116.6	333.2	30	30	0	323	324	-1	FT20
FT21	5622340.4	581118.2	330.0	31	30	1	324	324	0	FT21
FT22	5622349.1	581119.4	329.5	28	30	-2	328	324	4	FT22
FT23-L	5622353.1	581123.7	330.1	28	30	-2	324	324	0	FT23-L
FT24	5622357.9	581127.8	329.9	31	30	1	325	324	1	FT24
FT25	5622360.6	581133.0	330.7	30	30	0	327	324	3	FT25
FT26	5622363.3	581138.2	330.9	31	30	1	322	324	-2	FT26
FT27-L	5622365.9	581143.6	330.6	31	30	1	330	324	6	FT27-L
FT28	5622362.4	581152.1	330.7	33	30	3	322	324	-2	FT28
FT29	5622364.7	581156.9	331.3	34	30	4	324	324	0	FT29
FT30	5622367.5	581160.8	332.9	31	30	1	324	324	0	FT30

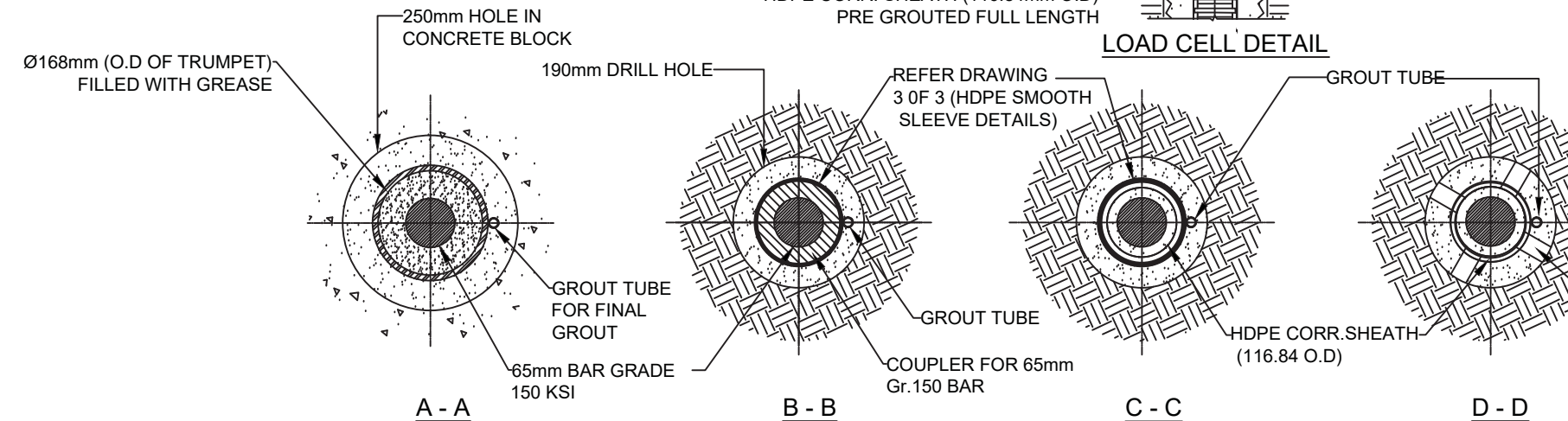
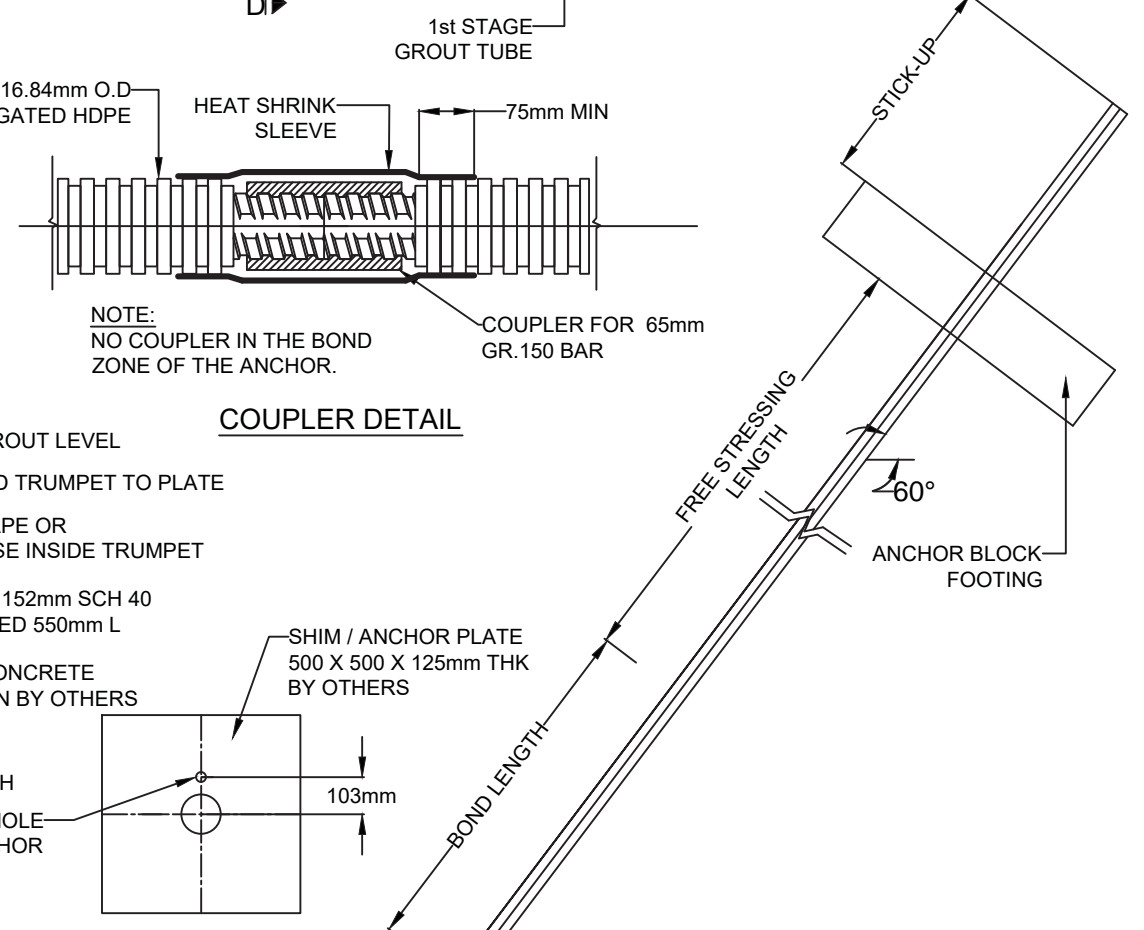
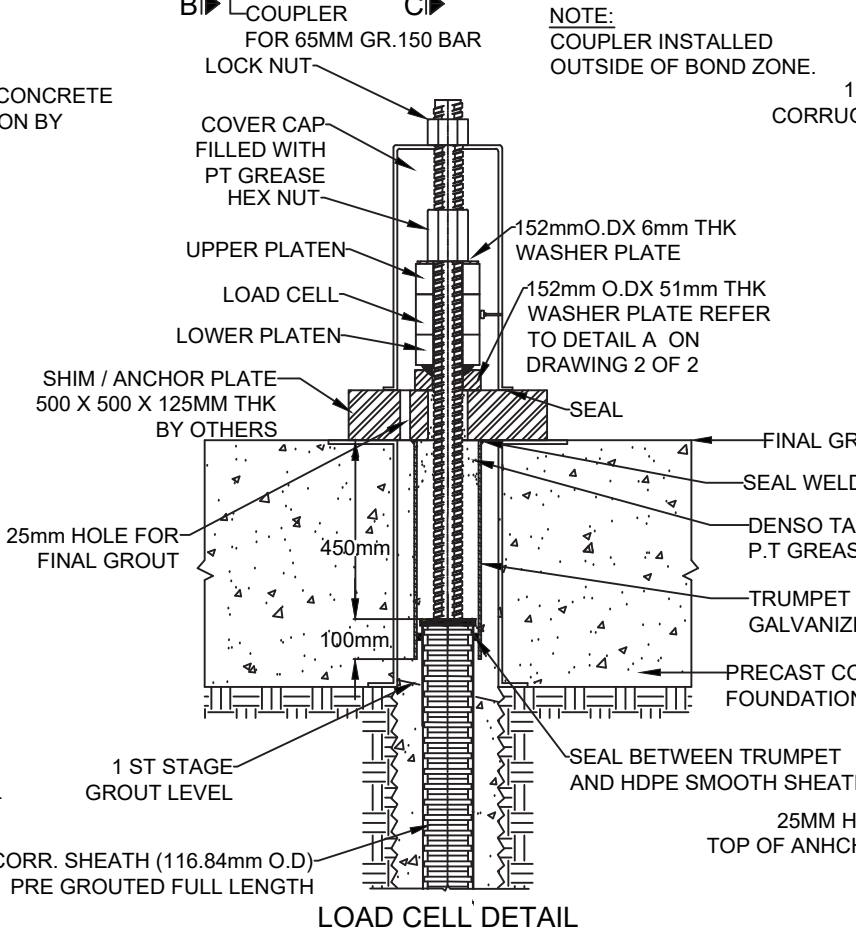


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MATERIAL SCHEDULE					
MATERIAL	QTY	BOND LENGTH (MTRS)	FREE LENGTH (MTRS)	TAIL LENGTH (MTRS)	TOTAL LENGTH (MTRS)
DCP 65MM GR.150	7	6	26	1.5	33.5
DCP 65MM GR.150	2	6	25	1.5	32.5
DCP 65MM GR.150	2	6	27	1.5	34.5
DCP 65MM GR.150	1	6	28	1.5	35.5
DCP 65MM GR.150	3	6	24	1.5	31.5
DCP 65MM GR.150	5	6	23	1.5	30.5
DCP 65MM GR.150	6	6	22	1.5	29.5
DCP 65MM GR.150	3	6	21	1.5	28.5
DCP 65MM GR.150	1	6	17	1.5	24.5

NOTE: 65mm GRADE 150, 1034 MPa CTS HOT ROLLED THREAD BAR (HRTB) IN CONFORMANCE TO ASTM A722. ULTIMATE STRENGTH 3442 KN, YEILD LOAD 2757 KN, MAX JACKING LOAD 2754 KN. MAX DESIGN LOAD 2065 KN.



GROUT HOLE LOCATION IN SHIM / ANCHOR PLATE.

Con-Tech Systems Ltd.
Pioneering Geo-Support Solutions

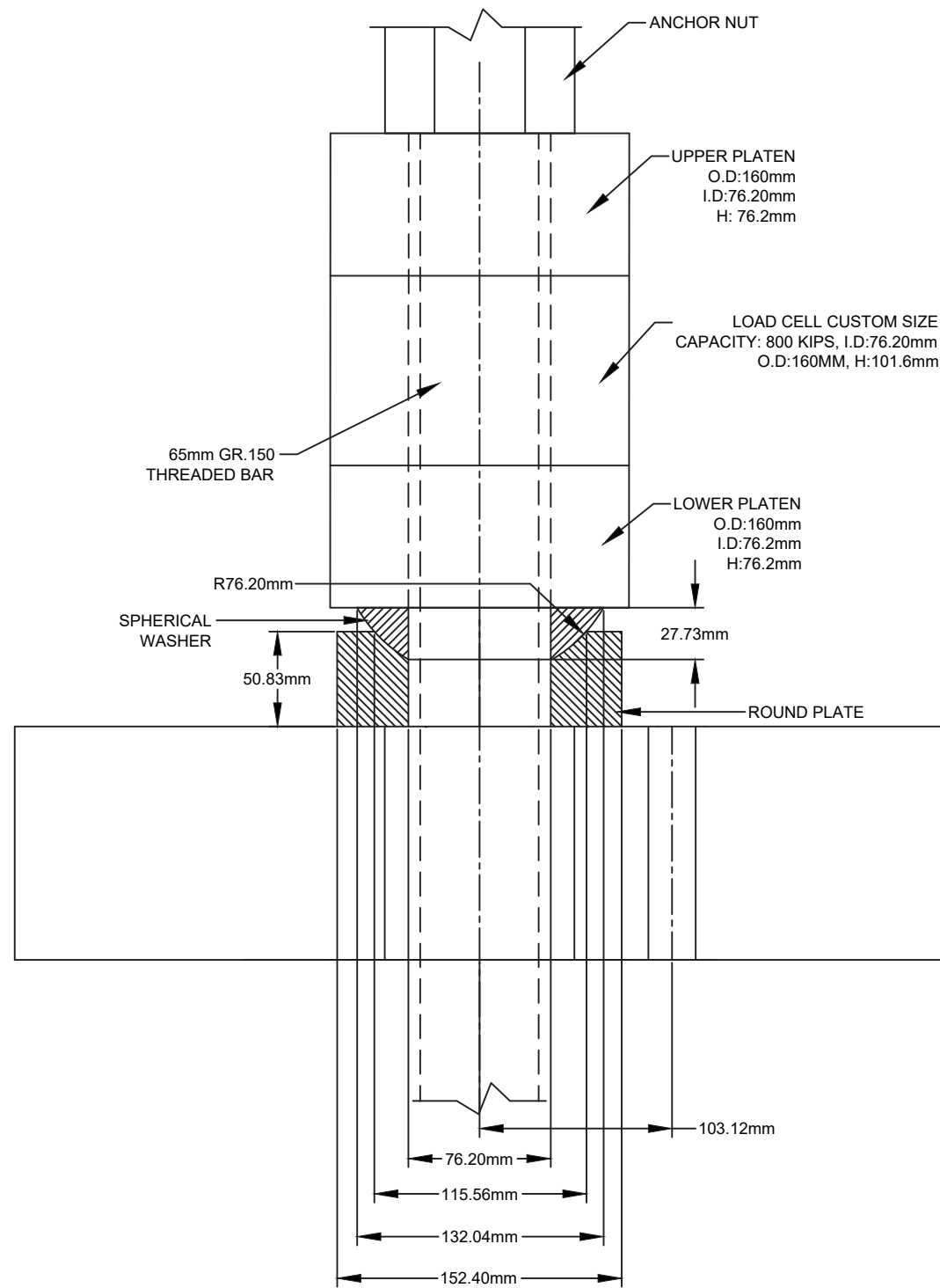
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PETER KIEWIT INFRASTRUCTURE CO.

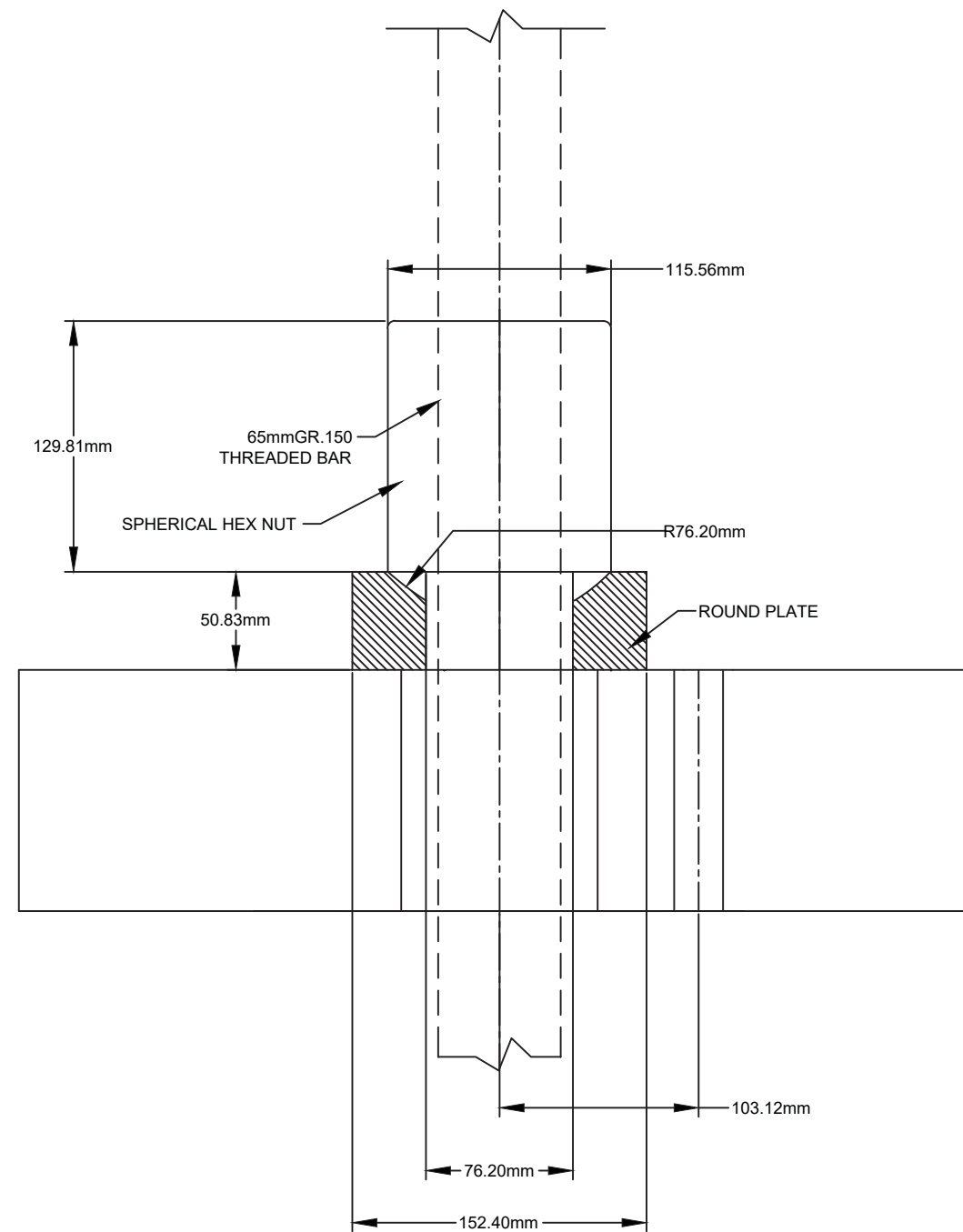
HIGHWAY 99 TEN MILE SLIDE

SOIL ANCHOR DETAILS

03-02-2017	REV 7	KK	DRAWING NO.: 1 OF 3	SCALE: NTS
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DETAIL A



DETAIL B

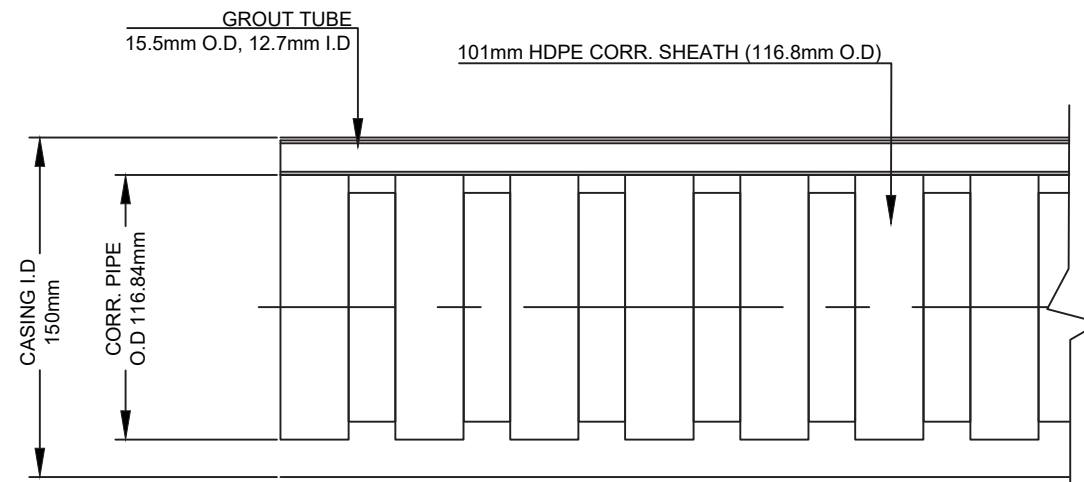

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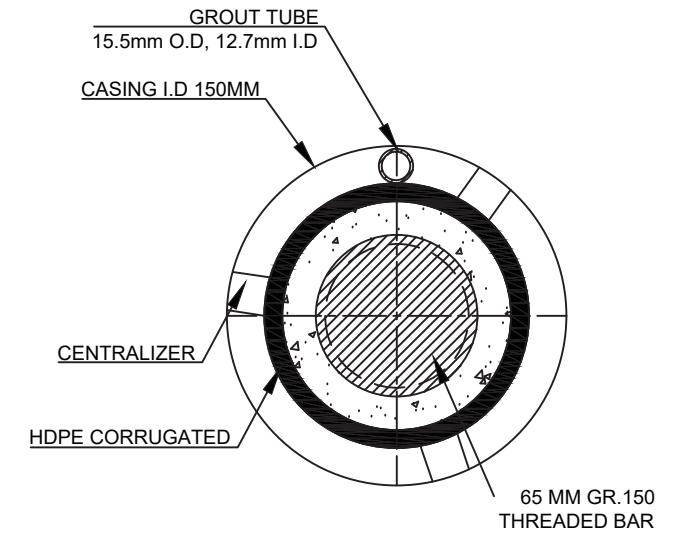
HIGHWAY 99 TEN MILE SLIDE

ROUND PLATE & WASHER DETAILS

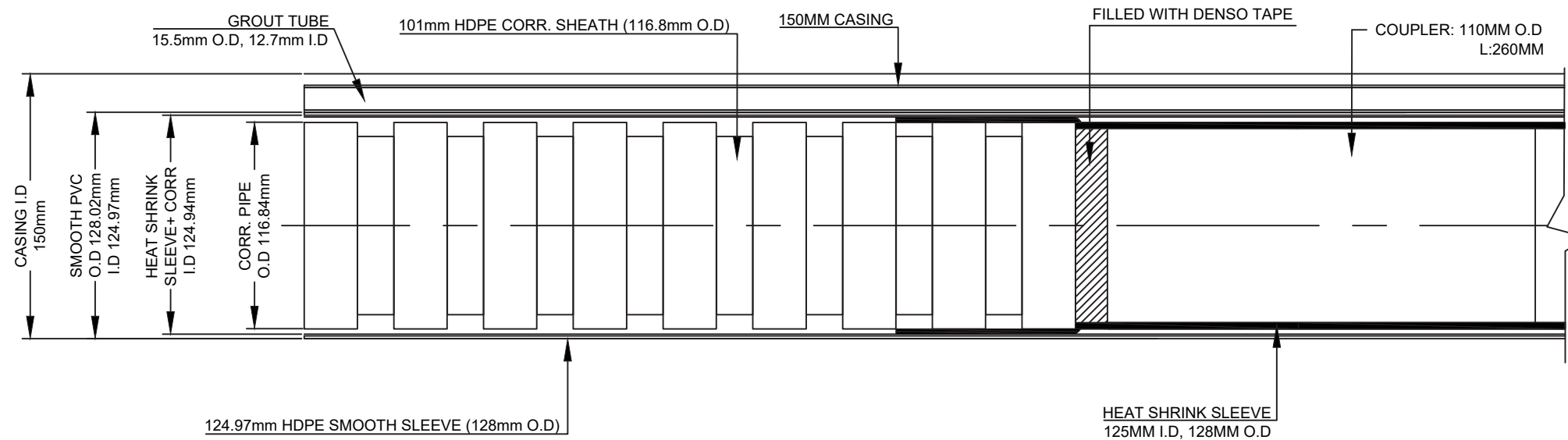
02-02-2017	REV 2	KK	DRAWING NO: 2 OF 3	SCALE: NTS
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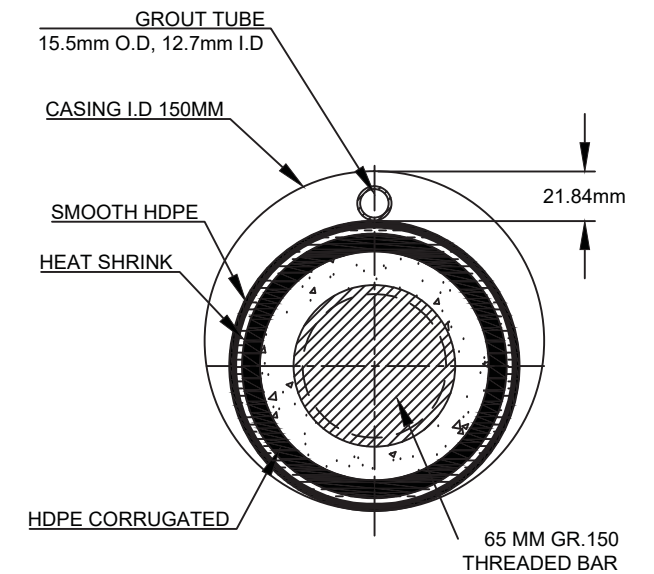
BAR CENTERED IN A CASING IN BOND LENGTH



BOND LENGTH



ACTUAL POSITION OF THE BAR IN FREE LENGTH IN THE CASING



FREE LENGTH


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HIGHWAY 99 TEN MILE SLIDE

PVC DETAILS

02-02-2017	REV 2	KK	DRAWING NO: 3 OF 3	SCALE: NTS
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