GENERAL NOTES:

1. ABUTMENTS SHALL BE PRECAST CONCRETE UNLESS OTHERWISE APPROVED BY THE MINISTRY REPRESENTATIVE. IF CAST-IN-PLACE CONCRETE ABUTMENTS ARE APPROVED BY THE MINISTRY REPRESENTATIVE, THEN ABUTMENTS SHALL BE CAST FULL LENGTH WITH CONTINUOUS REINFORCING STEEL ACROSS THE ABUTMENT CENTRELINE.
2. NOTES 13, 14 AND 15 APPLY TO THE PRECAST CONCRETE OPTION ONLY.
3. DESIGN LIVE LOAD FOR THE UNGULATE GUARD IS CL-625 TRUCK AS PER CAN/CSA-S6-00.
4. DETAILS OF WILDLIFE FENCE SHALL BE AS PER CONTRACT DRAWINGS AND SPECIAL PROVISIONS OR AS DIRECTED BY THE MINISTRY REPRESENTATIVE.
5. WARNING SIGNS SHALL BE INSTALLED ON THE APPROACHES TO THE UNGULATE GUARDS TO WARN CYCLISTS TO STOP AND DISMOUNT.

CONCRETE:

6. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 35 MPa AT 28 DAYS.
7. REINFORCING STEEL SHALL CONFORM TO CSA G30.18M, GRADE 400R.
8. ALL REINFORCING STEEL SHALL HAVE 50 mm MINIMUM COVER UNLESS NOTED OTHERWISE.
9. ALL EXPOSED EDGES OF CONCRETE SHALL HAVE 20 mm CHAMFER UNLESS NOTED OTHERWISE.
10. ANCHOR BOLTS SHALL CONFORM TO ASTM A307 AND SHALL BE HOT DIP GALVANIZED TO CAN/CSA G164M.
11. GROUT SHALL BE PRE-MIXED, NON-SHRINK, NON-METALLIC, NON-STAINING CEMENTITIOUS GROUT SUITABLE FOR WITHSTANDING VIBRATIONS AND IMPACT LOADINGS IN EXTERIOR SERVICE CONDITIONS, AND SHALL BE SUBJECT TO APPROVAL BY THE MINISTRY REPRESENTATIVE. GROUT SHALL ACHIEVE A MINIMUM COMPRESSIVE STRENGTH OF 40 MPa AT 28 DAYS AND HAVE AIR CONTENT BETWEEN 5% AND 7% BY VOLUME.
12. REINFORCING STEEL SPLICES SHALL NOT BE PERMITTED FOR PRECAST CONCRETE ABUTMENTS. FOR CAST-IN-PLACE ABUTMENTS, MINIMUM LAP SPLICE LENGTHS FOR HORIZONTAL REINFORCING BARS SHALL BE AS FOLLOWS:
    15M BARS – 525 mm 20M BARS – 700 mm
13. LIFTING DEVICES SATISFACTORY TO THE ENGINEER SHALL BE PROVIDED. ONLY VERTICAL LIFTS SHALL BE PERMITTED. CARE SHALL BE TAKEN TO PREVENT SUDDEN IMPACT LOADS.
14. THE CONTRACTOR SHALL ENSURE THAT ALL PRECAST CONCRETE IS CHECKED FOR STRIPPING AND HANDLING STRESSES.
15. PRECAST CONCRETE ELEMENTS SHALL CONFORM WITH M.O.T. STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, SECTION 415, MANUFACTURE AND ERECTION OF PRECAST AND PRESTRESSED CONCRETE MEMBERS.

STRUCTURAL STEEL:

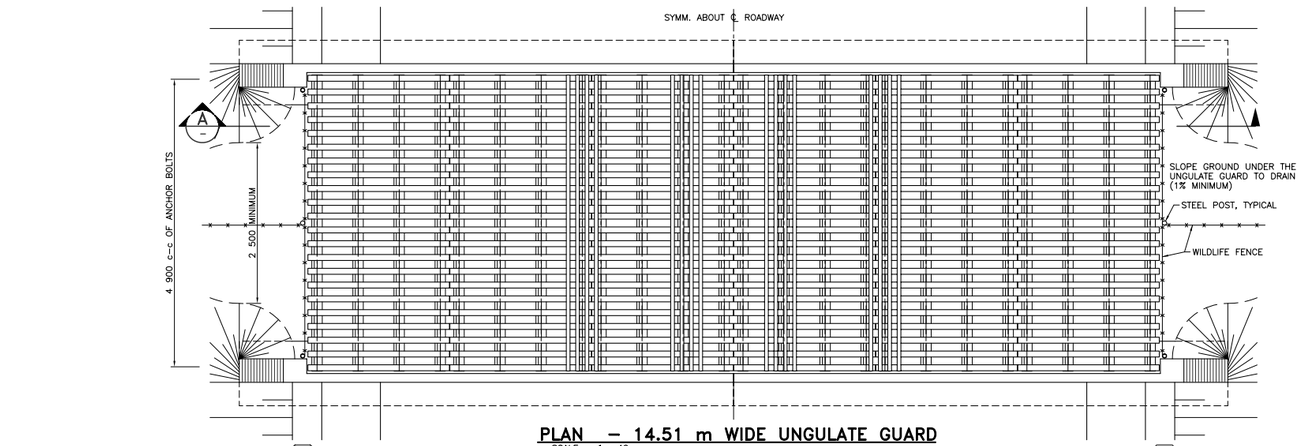
16. STEELWORK SHALL BE SUPPLIED, FABRICATED AND COATED IN ACCORDANCE WITH M.O.T. STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, SECTION 422, MISCELLANEOUS STEELWORK, WITH THE EXCEPTION THAT THE PAINT SYSTEM TO BE APPLIED SHALL BE AS NOTED BELOW UNDER 'PAINTING'.
17. STRUCTURAL STEEL BEAMS, ANGLES AND MISCELLANEOUS PLATES SHALL CONFORM TO CSA G40.21M, GRADE 300W. HSS MEMBERS SHALL CONFORM TO CSA G40.21M, GRADE 350W.
18. STEEL PIPES SHALL BE SEAMLESS PIPE CONFORMING TO ASTM A53 WITH MINIMUM YIELD STRENGTH OF 241 MPa.
19. WELDING SHALL ONLY BE UNDERTAKEN BY A COMPANY CERTIFIED BY THE CANADIAN WELDING BUREAU TO THE REQUIREMENTS OF CSA W47.1, DIVISION 3 OR BETTER, WITH ALL WORK PERFORMED TO THE REQUIREMENTS OF CSA W59.
20. ALL COMPONENTS OF THE PRECAST CONCRETE ABUTMENT SPLICE DETAIL (IF REQUIRED) SHALL BE GALVANIZED TO CAN/CSA G164M.

EXCAVATION AND BACKFILLING:

21. SUBGRADE AND COMPACTED FILL SHALL BE PREPARED IN ACCORDANCE WITH RECOMMENDATIONS OF A MINISTRY GEOTECHNICAL ENGINEER, WITH CONSIDERATION GIVEN TO PREVENTION OF FROST DAMAGE TO FOUNDATIONS. (i.e. – USE OF SELECT GRANULAR MATERIALS, ADEQUATE DRAINAGE, ETC.)
22. FOUNDATION EXCAVATION TO SUITABLE MINERAL SOIL WITH A SAFE ALLOWABLE BEARING PRESSURE OF 120 kPa IS ASSUMED. OVER-EXCAVATION UNDER THE FOOTING SHALL BE BACKFILLED WITH SELECT GRANULAR SUB-BASE MATERIAL.
23. FOOTING EXCAVATION SHALL NOT BE LARGER THAN IS REASONABLY NECESSARY TO CONSTRUCT THE FOUNDATION.
24. PIPE DECK PANELS SHALL BE INSTALLED AND SECURELY CONNECTED TO ABUTMENTS PRIOR TO BACKFILLING.
25. ABUTMENTS SHALL BE INSTALLED PLUMB AT SITES WHERE THE GUARD IS INSTALLED ON A LONGITUDINAL GRADE. FINAL LONGITUDINAL GRADE OF DECK PANELS SHALL NOT EXCEED 8% AND SHALL BE ACCOMMODATED BY VARYING THE GROUT PACK THICKNESS A MAXIMUM OF ±10 mm AT BEAM SUPPORT LOCATIONS. TAPERED WASHERS SHALL BE PROVIDED UNDER ANCHOR BOLT NUTS FOR DECK PANELS INSTALLED ON A GRADE.
26. BACKFILLING OF THE ROAD SUBGRADE SHALL BE CARRIED OUT USING EXCAVATED MATERIAL, UNLESS OTHERWISE DETERMINED BY THE MINISTRY REPRESENTATIVE. BACKFILL ABOVE THE ROAD SUBGRADE ELEVATION SHALL MATCH THE PAVEMENT STRUCTURE EXCAVATED AND SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH M.O.T. STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, SECTION 202, GRANULAR SURFACING BASE AND SUB-BASES.
27. FINAL SOIL GRADE BENEATH THE GUARD SHALL BE SHAPED TO PROVIDE DRAINAGE OF SURFACE WATER TO ROADSIDE DITCHES AND PREVENT PONDING OF WATER BENEATH THE GUARD.
28. EXCAVATED MATERIAL NOT REQUIRED SHALL BE HAULED AWAY AND DISPOSED OF BY THE CONTRACTOR.
29. ROADWAY, INCLUDING ANY DISTURBED PAVEMENT, SHALL BE RESTORED TO ITS ORIGINAL CONDITION AS DIRECTED BY THE MINISTRY REPRESENTATIVE.

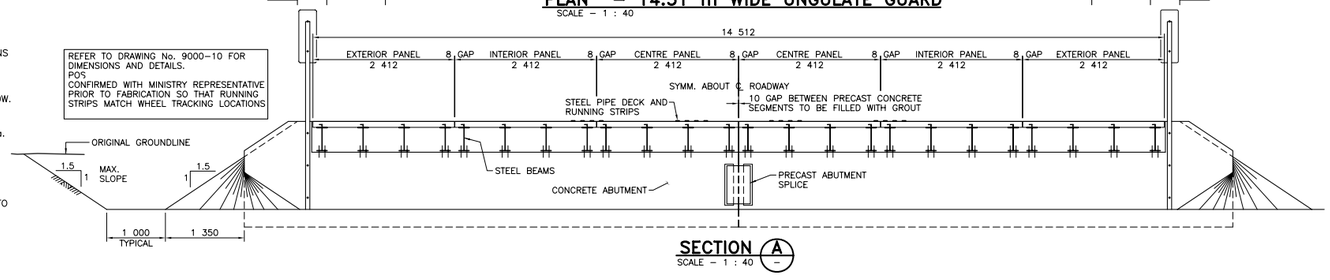
PAINTING:

30. UNLESS OTHERWISE NOTED, ALL STRUCTURAL STEEL SHALL BE BLAST CLEANED AND SHOP SOLVENT WASHED TO SSPC-SP6, AND SHALL RECEIVE ONE PRIME COAT OF DEVOE CATHA COAT 302H OR EQUIVALENT AS APPROVED BY THE MINISTRY REPRESENTATIVE WITH A MINIMUM THICKNESS OF 65 um, AND A MID COAT OF DEVOE BARRUST 235 OR EQUIVALENT AS APPROVED BY THE MINISTRY REPRESENTATIVE WITH A MINIMUM THICKNESS OF 100 um. TOP COAT IS NOT REQUIRED.
31. ANY DAMAGED AREA OF COATING SHALL BE TOUCHED UP IN ACCORDANCE WITH M.O.T. STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, SECTION 422, MISCELLANEOUS STEELWORK.
32. ALL FIELD WELDS AND OTHER DAMAGED GALVANIZED SURFACES SHALL BE THOROUGHLY CLEANED AND TOUCHED UP WITH TWO COATS OF A MINISTRY APPROVED ORGANIC ZINC RICH PAINT.



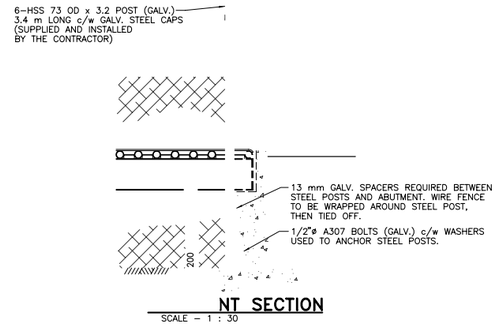
PLAN – 14.51 m WIDE UNGULATE GUARD

SCALE – 1 : 40



SECTION A

SCALE – 1 : 40



NT SECTION

SCALE – 1 : 30

AUTHORIZED BY	
RECOMMENDED	ACCEPTED FOR CONSTRUCTION
ORIGINAL SIGNED BY: K. BASKIN, P.ENG.	ORIGINAL SIGNED BY: D. NYLAND, P.ENG.
CHIEF BRIDGE ENGINEER	CHIEF ENGINEER
DATE JUNE 14, 2007	DATE JUNE 15, 2007

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Rev	Date	Description	Init
A	Mar 14/05	REVISED TO 8 mm GAP BETWEEN PIPE DECK PANELS	S.P.S.

REVISIONS

BRITISH COLUMBIA Ministry of Transportation Bridge Engineering

14.51 m WIDE UNGULATE GUARD
GENERAL ARRANGEMENT

PREPARED UNDER THE DIRECTION OF
ORIGINAL SIGNED BY: P. SARGENT, P.ENG.
ENGINEER OF RECORD
DATE JUNE 12, 2007

DESIGNED A.A.S. DATE Nov., 2003
CHECKED S.P.S. DATE Nov., 2003
DRAWN D.R.M. DATE Mar., 2005
SCALE AS NOTED
NEGATIVE No.

FILE No. | PROJECT No. | REG. | DRAWING No. 9000-9 | A

M-308Rev4(10-03)

CANCEL PRINTS BEARING PREVIOUS LETTER

TRI KON Precast Concrete Products

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Cranbrook BC V1C 6T3
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PRODUCT
Custom Precast
DRAWING
14.51 m Ungulate Guard: General Arrangement

WEIGHT

DRAWING NO. **9000-9**
DATE As per drawing
SHEET **07 of 8**
UNITS / SCALE As per drawing

Request A Quote

Dimensions and specifications as per drawing. Confirm handling weights before lifting. Project example: drawn for a specific job, not a standard design.

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