

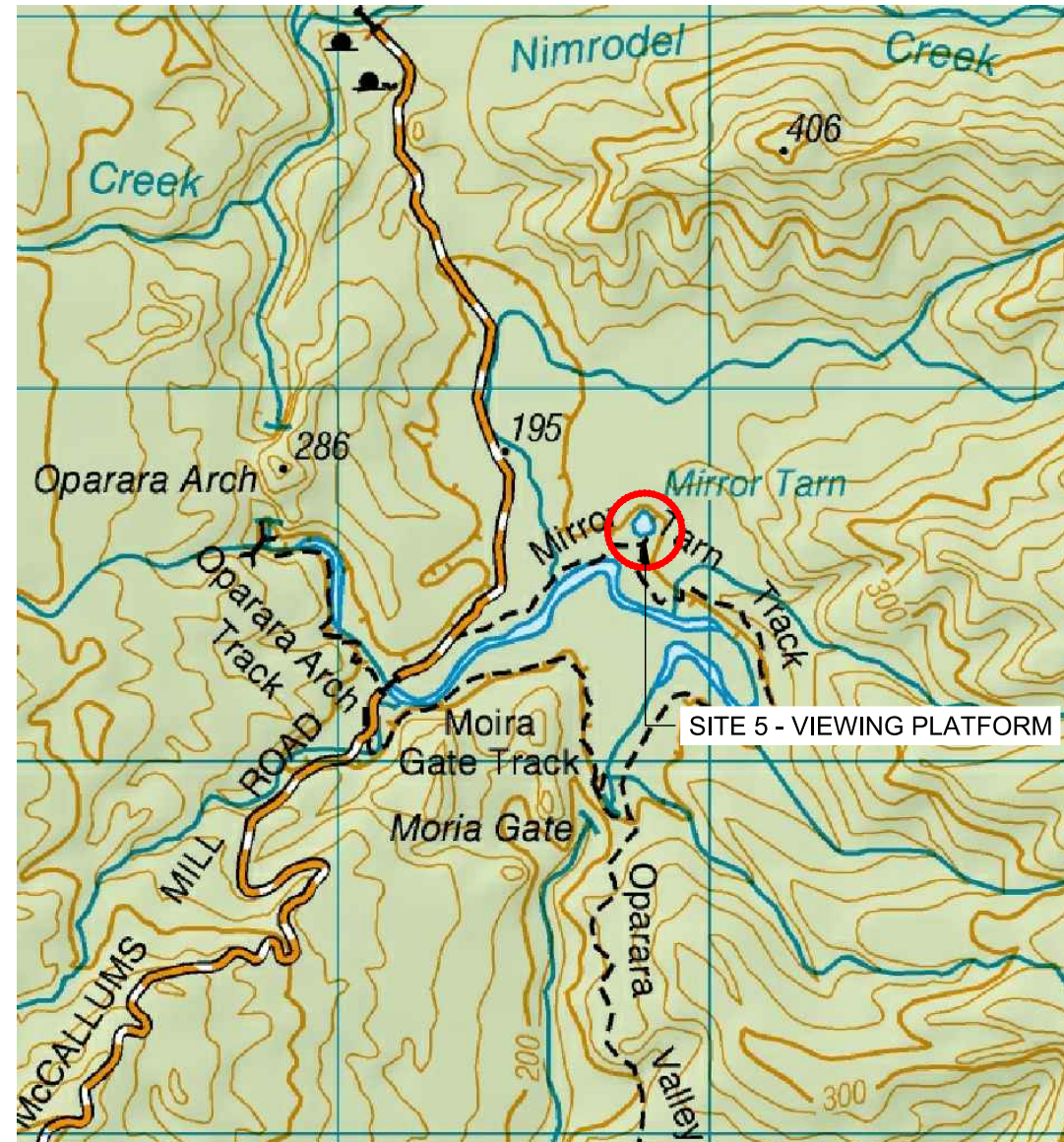
# Department of Conservation Te Papa Atawhai

## OPAPARA ARCHES TRACK MIRROR TARN VIEWING PLATFORM

DRAWING INDEX	
SHEET	TITLE
S-500	COVER, DRAWING INDEX & LOCALITY PLAN
S-501	TIMBER SUBFLOOR FRAMING PLAN
S-502	CROSS SECTION
S-503	TYPICAL DETAILS
S-504	TYPICAL NOTES

DESIGN PARAMETERS	
THIS STRUCTURE IS DESIGNED IN ACCORDANCE WITH SNZ HB 8630:2004 'TRACKS AND OUTDOOR VISITOR STRUCTURES'	
SITE VISITOR GROUP (TABLE 1)	SHORT STOP TRAVELER (SST)
DESIGN LOAD (TABLE 8)	4.5kPa *
DECK DESIGN LOAD (SPECIAL)	NOT APPLICABLE
FALL SURFACE (TABLE 21)	FAVOURABLE
EFFECTIVE FALL HEIGHT	1.5m - 3m
BARRIER TYPE (TABLE 22)	A **

\* DESIGN LOAD FOR APPROACH BOARDWALK = 3.6kPa.  
 \*\* BARRIER TYPE FOR APPROACH BOARDWALK = B



WORK IN PROGRESS

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REVISION	AMENDMENT	APPROVED	DATE
A	ISSUED FOR CLIENT REVIEW	M.S.	2020-12-23
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STRUCTURAL

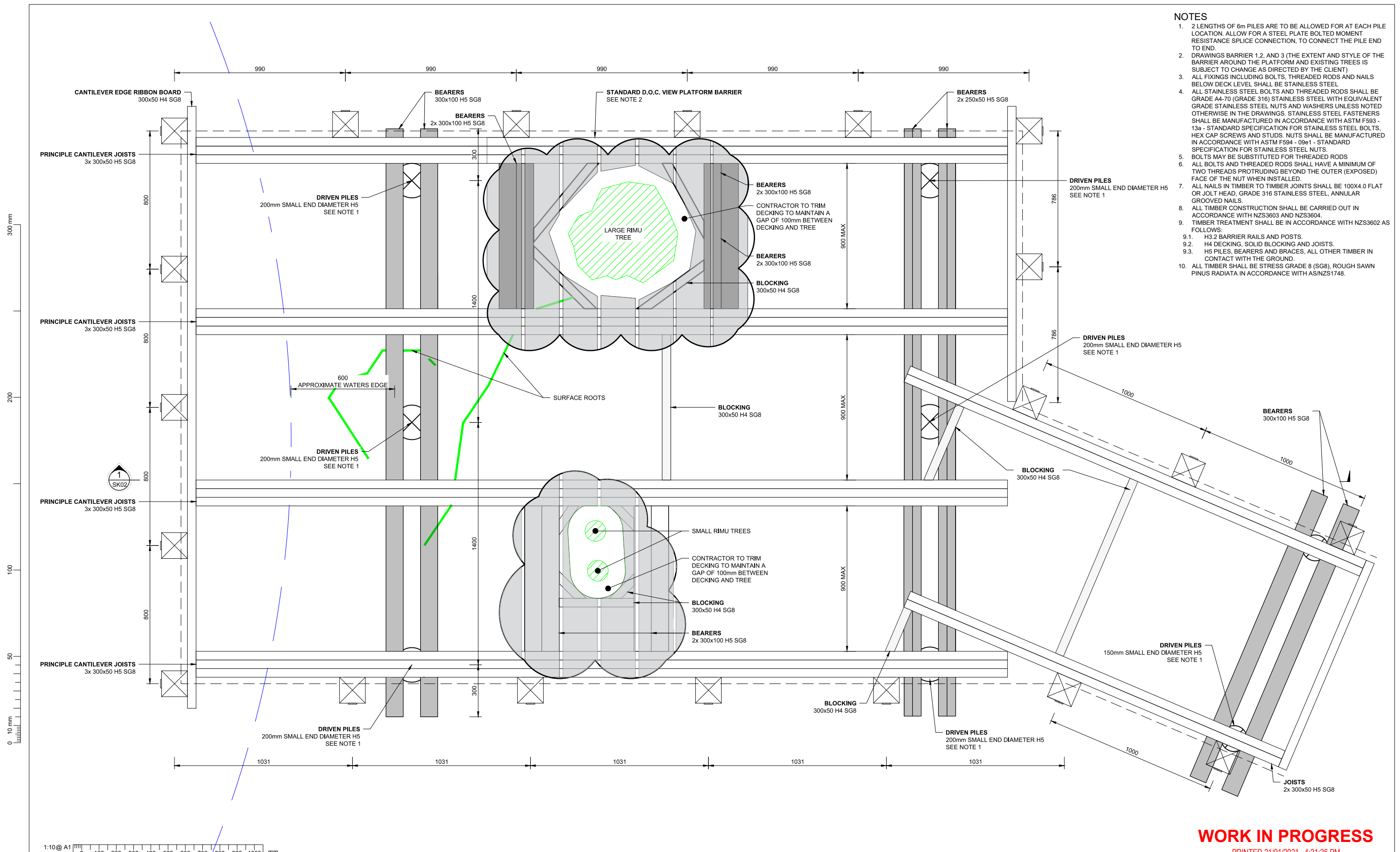
SCALES		ORIGINAL SIZE
1:10 (A1), 1:20 (A3)		A1
DRAWN	DESIGNED	APPROVED
H. RUDDICK	B. THOMAS	M. SMITH
DRAWING VERIFIED	DESIGN VERIFIED	APPROVED DATE
P. FIEREK	S. CRUNDWELL	2021-01-21

PRELIMINARY

PROJECT	
DEPARTMENT OF CONSERVATION OPARARA BASIN, MCCALLUMS MILL ROAD MIRROR TARN VIEWING PLATFORM	
TITLE	
SITE 5 LOCATION PLAN AND INDEX	
WSP PROJECT NO. (SUB-PROJECT) 6-WCON0.79	SHEET NO. S-500
	REVISION B

**NOTES**

- 2 LENGTHS OF 6m PILES ARE TO BE ALLOWED FOR AT EACH PILE LOCATION. ALLOW FOR A STEEL PLATE BOLTED MOMENT RESISTANCE SPLICE CONNECTION, TO CONNECT THE PILE END TO END.
- DRAWINGS BARRIER 1, 2, AND 3 (THE EXTENT AND STYLE OF THE BARRIER AROUND THE PLATFORM AND EXISTING TREES IS SUBJECT TO CHANGE AS DIRECTED BY THE CLIENT)
- ALL FIXINGS INCLUDING BOLTS, THREADED RODS AND NAILS BELOW DECK LEVEL SHALL BE STAINLESS STEEL
- ALL STAINLESS STEEL BOLTS AND THREADED RODS SHALL BE GRADE A4-70 (GRADE 316) STAINLESS STEEL WITH EQUIVALENT GRADE STAINLESS STEEL NUTS AND WASHERS UNLESS NOTED OTHERWISE IN THE DRAWINGS. STAINLESS STEEL FASTENERS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM F593 - 13a - STANDARD SPECIFICATION FOR STAINLESS STEEL BOLTS, HEX CAP SCREWS AND STUDS. NUTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM F594 - 09e1 - STANDARD SPECIFICATION FOR STAINLESS STEEL NUTS.
- BOLTS MAY BE SUBSTITUTED FOR THREADED RODS
- ALL BOLTS AND THREADED RODS SHALL HAVE A MINIMUM OF TWO THREADS PROTRUDING BEYOND THE OUTER (EXPOSED) FACE OF THE NUT WHEN INSTALLED.
- ALL NAILS IN TIMBER TO TIMBER JOINTS SHALL BE 100X4.0 FLAT OR JOLT HEAD, GRADE 316 STAINLESS STEEL, ANNULAR GROOVED NAILS.
- ALL TIMBER CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH NZS3603 AND NZS3604.
- TIMBER TREATMENT SHALL BE IN ACCORDANCE WITH NZS3602 AS FOLLOWS:
  - H3.2 BARRIER RAILS AND POSTS.
  - H4 DECKING, SOLID BLOCKING AND JOISTS.
  - H5 PILES, BEARERS AND BRACES, ALL OTHER TIMBER IN CONTACT WITH THE GROUND.
- ALL TIMBER SHALL BE STRESS GRADE 8 (SG8), ROUGH SAWN PINUS RADIATA IN ACCORDANCE WITH AS/NZS1748.



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1:10 @ A1  
 1:20 @ A3  
 0 100 200 300 400 500 600 700 800 900 1000 mm

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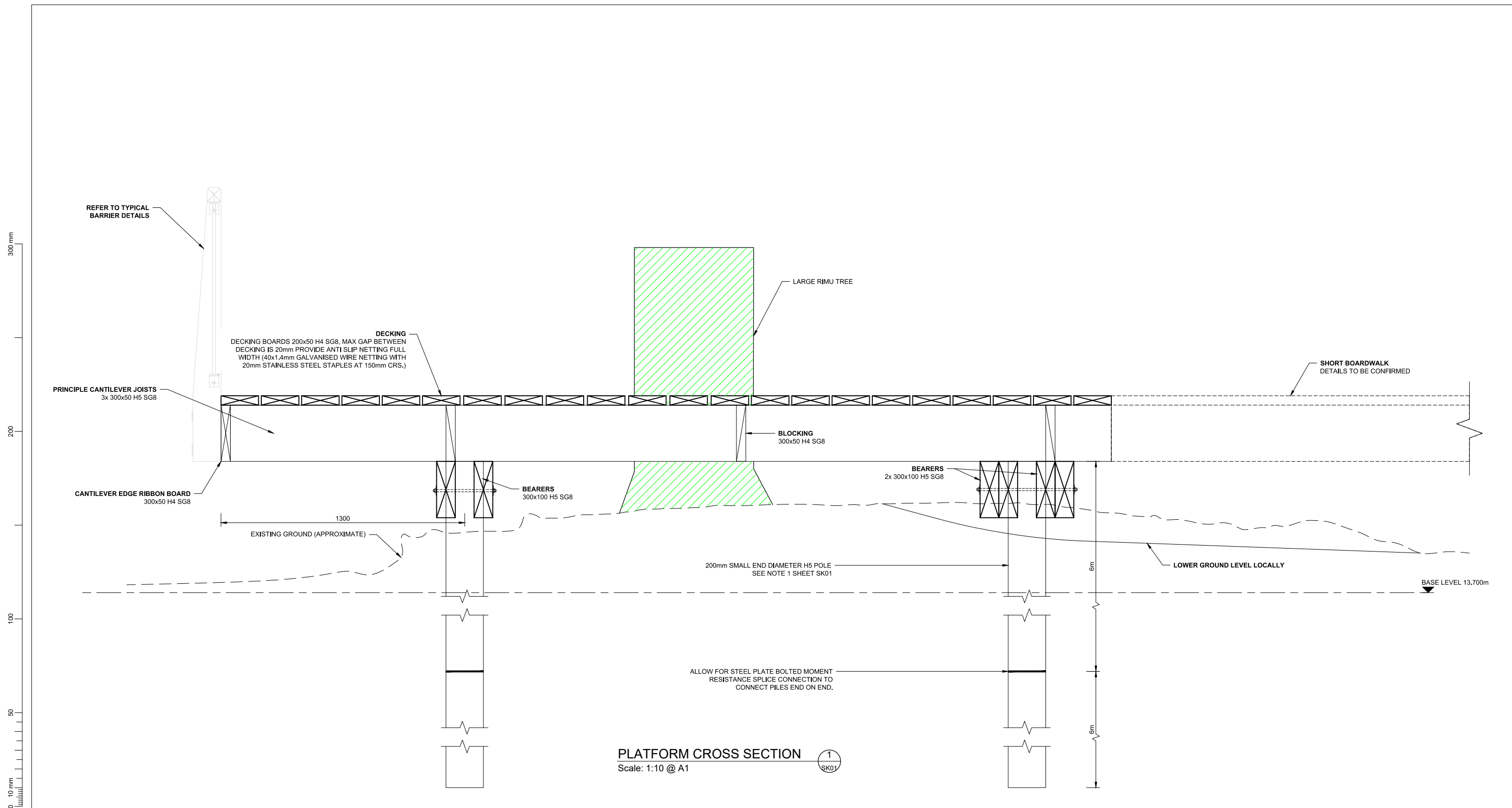
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SCALES	DESIGNED	APPROVED	ORIGINAL SIZE
1:10 (A1), 1:20 (A3)	B. THOMAS	M. SMITH	A1
DRAWN	DESIGNED	APPROVED	
H. RUDDICK	B. THOMAS	M. SMITH	
DRAWING VERIFIED	DESIGN VERIFIED	APPROVED DATE	
P. FIEREK	S. CRUNDWELL	2021-01-21	

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PROJECT	TITLE	SHEET NO.	REVISION
DEPARTMENT OF CONSERVATION OPARARA BASIN, MCCALLUMS MILL ROAD MIRROR TARN VIEWING PLATFORM	SITE 5 TIMBER SUBFLOOR FRAMING PLAN	S-501	B
WSP PROJECT NO. (SUB-PROJECT) 6-WCON0.79			



**PLATFORM CROSS SECTION**  
Scale: 1:10 @ A1

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1:10 @ A1  
1:20 @ A3

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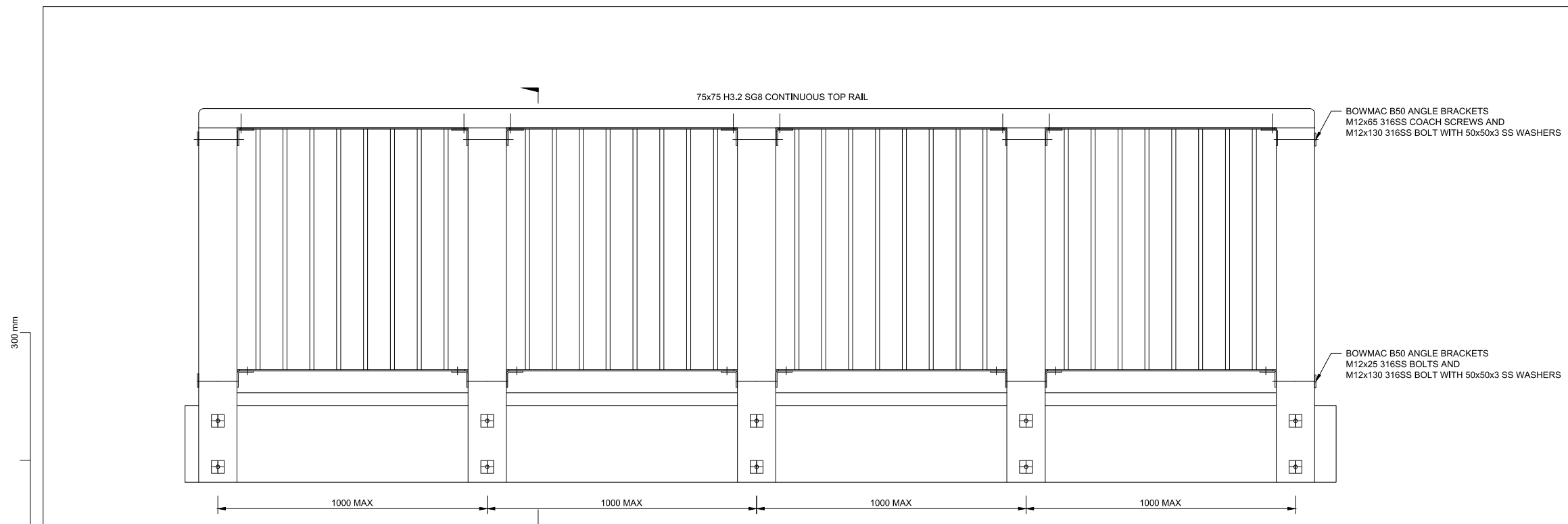
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DEPARTMENT OF CONSERVATION OPARARA BASIN, MCCALLUMS MILL ROAD	MIRROR TARN VIEWING PLATFORM	6-WCON0.79	S-502	B

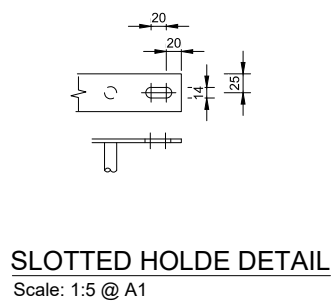


- NOTES**
1. ALL STEEL FABRICATION WORK SHALL BE IN ACCORDANCE WITH AS/NZS5131 AND NZS3404.
  2. THE EDGES OF ALL STEEL SECTIONS AND PLATES SHALL BE ROUNDED OFF TO A MINIMUM RADIUS OF 3MM.
  3. ALL BOLTS, NUTS AND WASHERS SHALL COMPLY WITH NZS3404:1997.
  4. ALL BOLTS USED SHALL BE SNUG TIGHT AS PER NZS 3404 .1 SECTION 15.2 UNLESS NOTED OTHERWISE IN THE DRAWINGS.
  5. ALL STEEL PLATE SHALL BE GRADE 250 MILD STEEL IN ACCORDANCE WITH AS/NZS3679.1.
  6. ALL WELDING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS/NZS1554.1.
  7. UNLESS SPECIFIED OTHERWISE ALL WELDS SHALL BE 5MM GP FILLET WELDS ALL AROUND.
  8. ALL STEELWORK SHALL BE COATED AS FOLLOWS: ALL STEELWORK SHALL BE COATED AS FOLLOWS:
    - 8.1. LAYER 1: HDG600 HOT DIP GALVANISED COATING IN ACCORDANCE WITH AS/NZS2312.2 (85MICRONS / 650G/M MINIMUM COATING 2 MINIMUM COATING THICKNESS).
    - 8.2. LAYER 2: HIGH BUILD EPOXY (2 PACK) (PRN = C13) 225 MICRONS NOMINAL COATING THICKNESS IN ACCORDANCE WITH AS/NZS2312.1:2014. APPLY AFTER A LIGHT SAND / DENIB. (COLOUR 'GREEN' TO MATCH INFILL PANELS ON EXISTING VIEWING PLATFORM ON SITE).
    - 8.3. LAYER 3: POLYURETHANE 50 MICRONS NOMINAL COATING THICKNESS (PRN = C26) IN ACCORDANCE WITH AS/NZS2312.1:2014.

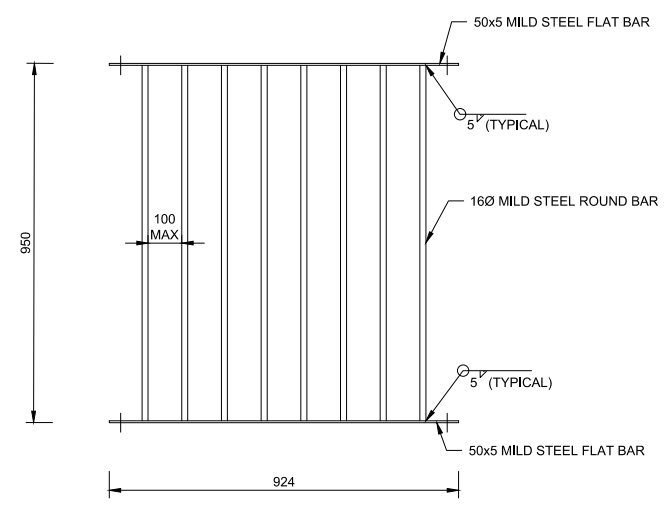


**TYPICAL BARRIER ELEVATION**  
Scale: 1:10 @ A1

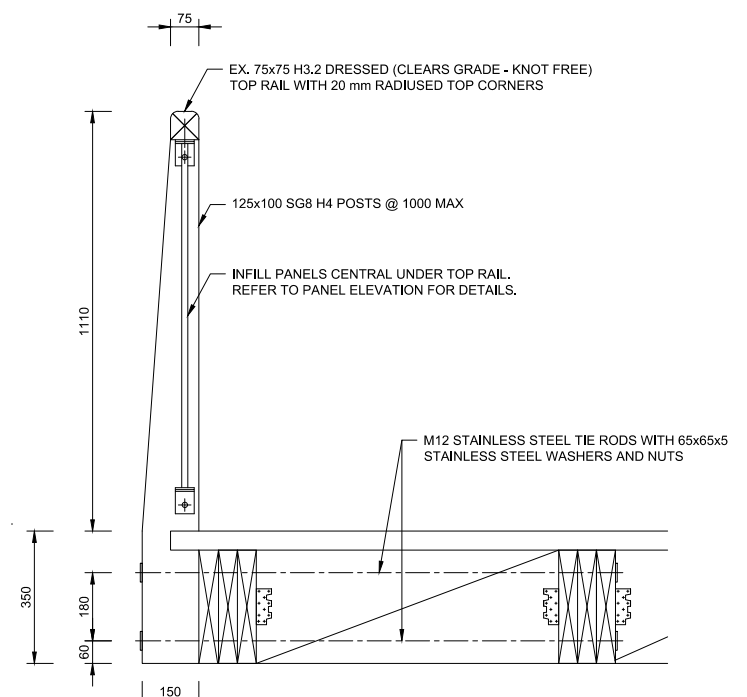
300 mm  
200  
100  
50  
0 - 10 mm



**SLOTTED HOLDE DETAIL**  
Scale: 1:5 @ A1



**TYPICAL PANEL ELEVATION**  
Scale: 1:10 @ A1



**TYPICAL SELECTION**  
Scale: 1:10 @ A1

1:5 @ A1  
1:10 @ A3

1:10 @ A1  
1:20 @ A3

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PROJECT		SHEET NO.	REVISION
DEPARTMENT OF CONSERVATION OPARARA BASIN, MCCALLUMS MILL ROAD MIRROR TARN VIEWING PLATFORM		<b>S-503</b>	<b>B</b>
TITLE			
<b>SITE 5 TYPICAL DETAILS</b>			
WSP PROJECT NO. (SUB-PROJECT)			
<b>6-WCON0.79</b>			

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GENERAL

BOLTED FIXINGS

REINFORCED CONCRETE

- ENGINEER CAN ASSIST WITH SETOUT IF REQUIRED.
- CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND LEVELS ON-SITE BEFORE COMMENCING CONSTRUCTION OR OFF-SITE FABRICATION. SHOULD ANY AMBIGUITIES BE DISCOVERED THE ADVICE OF THE ENGINEER SHALL BE SOUGHT IMMEDIATELY.
- DIMENSIONS SHALL NOT BE SCALED OFF THE DRAWINGS.
- WHERE STANDARDS ARE REFERENCED IN THIS SPECIFICATION, THE STANDARD REFERS TO THE CURRENTLY ADOPTED VERSION WITH STANDARDS NEW ZEALAND AND WHERE APPLICABLE REFERENCED IN CLAUSE B1 OF THE NEW ZEALAND BUILDING CODE.

TIMBER CONSTRUCTION

- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH NZS 3603 AND NZS3604.
- ALL TIMBER SHALL BE PINUS RADIATA TREATED IN ACCORDANCE WITH WITH NZS3602 AND NZS3640 AS FOLLOWS:

TIMBER TREATMENT	ITEMS
H3.2	BARRIER RAILS
H4	BARRIER POSTS, DECKING, BEAMS, BRACING AND BLOCKING.
H5	ALL PILES (POLES).

- ALL TIMBER TREATMENT SHALL BE CARRIED OUT IN A TIMBER TREATMENT PLANT REGISTERED WITH THE NEW ZEALAND TIMBER PRESERVATION COUNCIL.
  - ALL TREATED TIMBER SHALL CARRY THE FOLLOWING:
  - THE IDENTIFICATION NUMBER ISSUED BY THE NZTPC FOR THE PLANT WHERE THE TIMBER WAS TREATED;
  - THE CHEMICAL NUMBER;
  - THE HAZARD CLASS NUMBER TO WHICH THE TIMBER HAS BEEN TREATED (E.G. H4)
  - THE WOODMARK DEVICE.

- CUT FACES OF TIMBER CUT FOLLOWING TREATMENT SHALL BE TREATED WITH A LIBERAL COATING OF METALEX GREEN (OR SIMILAR APPROVED BY THE ENGINEER).

- TIMBER GRADE AND FINISH TYPE SHALL BE AS NOTED IN THE TABLE BELOW (UNLESS NOTED OTHERWISE IN THE DRAWINGS):

ITEM	TIMBER GRADE	SURFACE FINISH
TIMBER POLES	NORMAL DENSITY ROUND POLES	PEELED
ALL OTHER TIMBER	SG8	ROUGH SAWN (ALL RAILS DRESSED)

- TIMBER SHALL BE INSTALLED WITH THE FOLLOWING MAXIMUM MOISTURE CONTENTS:

ITEM	MAXIMUM MOISTURE CONTENT
ALL TIMBER	NOT APPLICABLE

- UNLESS STATED OTHERWISE IN THE DRAWINGS, ALL BOLTS USED THROUGH TIMBER SHALL BE COACH BOLTS WITH WASHERS OF THE FOLLOWING DIMENSIONS:

BOLT	MINIMUM WASHER DIMENSION
M12	50X50X3
M16	50X50X5
M20	50X50X5

- ALL NAILS SHALL BE AS INDICATED IN THE TABLE BELOW (UNLESS NOTED OTHERWISE IN THE DRAWINGS):

LOCATION	NAILS
STAPLES BETWEEN NON-SLIP MESH AND DECKING	20MM LONG STAINLESS STEEL STAPLES
ALL OTHER LOCATIONS	100X4.0MM DIAMETER HOT DIP GALVANISED NAILS.
IN NAILON PLATES AND FIXINGS	45X3.3Ø GRADE 316 STAINLESS STEEL ANNULAR GROOVED PRODUCT NAILS (LUMBERLOK)

- ALL NAILON PLATES, CLEATS AND STRAPS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS TO ACHIEVE THE FULL STRUCTURAL CAPACITY OF THE PLATE, CLEAT OR STRAP BEING USED.

- ALL BOLTS IN CONTACT WITH TIMBER SHALL BE GREASED WITH GENERAL PURPOSE (GP) GREASE IN PRE-GREASED HOLES.

- ALL BOLTS, NUTS AND WASHERS SHALL COMPLY WITH NZS3404:1997.
- ALL BOLTS SHALL BE EITHER GRADE 4.6 TO AS 1111 (WITH NUTS CONFORMING TO CLASS 5 OF AS 1112) OR GRADE 8.8 TO AS 1252 (WITH NUTS CONFORMING TO CLASS 8 OF AS 1112) AS STATED ON THE DRAWINGS.

- ALL THREADED RODS SHALL BE PROPERTY CLASS 4.6 COMPLYING WITH THE MECHANICAL PROPERTIES SPECIFIED IN AS 4291.1. THE THREAD SHALL BE CUT (NOT ROLLED) TO AS 1275 METRIC COARSE THREAD REQUIREMENTS. NUTS AND WASHERS SHALL CONFORM TO CLASS 5 OF AS 1112.

- ALL BOLTS USED SHALL BE SNUG TIGHT AS PER NZS 3404 .1 SECTION 15.2 UNLESS NOTED OTHERWISE IN THE DRAWINGS.

- ALL BOLTS AND THREADED RODS SHALL BE INSTALLED WITH WASHERS AND NUTS OF THE EQUIVALENT GRADE.

- ALL CUP HEAD (COACH) BOLTS SHALL BE GRADE 4.6 TO AS/NZS4291.1 AND MANUFACTURED IN ACCORDANCE WITH AS/NZS1390:1997.

- ALL STAINLESS STEEL BOLTS AND THREADED RODS SHALL BE GRADE A4-70 (GRADE 316) STAINLESS STEEL WITH EQUIVALENT GRADE STAINLESS STEEL NUTS AND WASHERS UNLESS NOTED OTHERWISE IN THE DRAWINGS. STAINLESS STEEL FASTENERS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM F593 - 13A - STANDARD SPECIFICATION FOR STAINLESS STEEL BOLTS, HEX CAP SCREWS, AND STUDS. NUTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM F594 - 09E1 - STANDARD SPECIFICATION FOR STAINLESS STEEL NUTS.

- BOLTS MAY BE SUBSTITUTED FOR THREADED RODS.

- ALL BOLTS AND THREADED RODS SHALL HAVE A MINIMUM OF TWO THREADS PROTRUDING BEYOND THE OUTER (EXPOSED) FACE OF THE NUT WHEN INSTALLED.

STAINLESS STEEL

- ALL STAINLESS STEEL PLATE AND STRUCTURAL SECTIONS SHALL BE GRADE 316 (ASTM 316) IN ACCORDANCE WITH ASTM A240 AND ASTM A276.

CORROSION PROTECTION

- ALL CORROSION PROTECTION SHALL BE IN ACCORDANCE WITH THE FOLLOWING TABLE.

ITEM	ITEM
BOLTS NUTS AND WASHERS CONNECTING BARRIER RAILS TO POSTS	HOT DIP GALVANISED TO AS/NZS4680:2006.
ALL BOLTS, THREADED RODS, NUTS AND WASHERS BELOW DECK LEVEL	GRADE A4-70 STAINLESS STEEL
ALL NAILS EXCLUDING THOSE THROUGH NAIL PLATES	HOT DIP GALVANISED TO AS/NZS4680:2006.
ALL NAIL PLATES AND PROPRIETARY NAILED FIXINGS (INCLUDING NAILS)	JOIST HANGERS: GRADE 304 (A2) STAINLESS STEEL. NAIL PLATES: GRADE 316 (A4) STAINLESS STEEL (EX. PRYDA) NAILS: GRADE 316 (A4) STAINLESS
STRUCTURAL STEEL BRACKETS AND BRACING	GRADE 316 STAINLESS STEEL.

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH NZS3109.
- ALL CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 25MPA.
- CONCRETE SHALL BE CURED FOR A MINIMUM PERIOD OF 7 DAYS IN ACCORDANCE WITH NZS3109.

- CONSTRUCTION JOINTS (WHERE INDICATED ON THE PLAN BUT ALSO AT ALL LOCATIONS WHERE FRESH CONCRETE IS POURED AGAINST EXISTING HARDENED CONCRETE ON SITE) SHALL BE "TYPE B" CONSTRUCTION JOINTS FORMED IN ACCORDANCE WITH NZS3109:1997. HARDENED CONCRETE SHALL BE ROUGHENED TO A MINIMUM AMPLITUDE OF 5MM AND BE CLEANED TO REMOVE ALL LAITANCE.

- CONCRETE SURFACE FINISHES SHALL BE IN ACCORDANCE WITH NZS3114:1987, AS NOTED BELOW:

- UNFORMED SURFACES - U3 (TROWELLED).
- FORMED SURFACES - F3.

REINFORCING STEEL

- ALL STEEL REINFORCING SHALL COMPLY WITH AS/NZS 4671.2001:

STEEL REINFORCING MATERIALS:

- 'YD' REINFORCING SHALL BE GRADE 500E MA DEFORMED REINFORCING FROM AN APPROVED SOURCE.
- 'D' REINFORCING SHALL BE GRADE 300E MA DEFORMED REINFORCING FROM AN APPROVED SOURCE
- 'R' REINFORCING SHALL BE GRADE 300E MA PLAIN REINFORCING FROM AN APPROVED SOURCE

- BEFORE COMMENCING FABRICATION, THE CONTRACTOR SHALL ADVISE THE ENGINEER IN WRITING OF THE COUNTRY OF ORIGIN OF THE STEEL AND THE NAME OF THE MANUFACTURER, GIVING PRECISELY THE SPECIFICATIONS TO WHICH THE STEEL CONFORMS. THE CONTRACTOR SHALL ALSO PROVIDE BEFORE FABRICATION, WITHOUT CHARGE, CERTIFICATES OF TESTS THAT THE STEEL CONFORMS TO THE APPROPRIATE SPECIFICATIONS. IMPORTED REINFORCING STEEL WILL NOT BE ACCEPTED WITHOUT THE SPECIFIC WRITTEN APPROVAL OF THE ENGINEER.

- MINIMUM LAP LENGTHS (UNLESS NOTED ON THE DRAWINGS) SHALL BE AS FOLLOWS:

- 40 BAR DIAMETERS (40DB) FOR 'D' BARS
- 60 BAR DIAMETERS (60DB) FOR 'YD' BARS

- UNLESS STATED OTHERWISE ON THE DRAWINGS, THE MINIMUM REINFORCEMENT COVER SHALL BE 75MM.

GEOTECHNICAL / FOUNDATIONS

- DEPTH OF FOUNDATIONS / ABUTMENTS TO BE CONFIRMED ON SITE WITH THE ENGINEER.

- ALL NEW FOUNDATIONS TO BE KEYED INTO ROCK BY MECHANICALLY SCABBLING ROCK WITH A SUITABLE BREAKER TO FORM A TYPE B CONSTRUCTION JOINT (5MM MINIMUM AMPLITUDE) COMPLYING WITH THE REQUIREMENTS OF NZS3109.

ENGINEERS INSPECTIONS

- THE ENGINEER SHALL MAKE THE FOLLOWING INSPECTIONS DURING CONSTRUCTION:

- INSPECTION TO SET OUT THE BRIDGE (IF REQUIRED BY CONTRACTOR)
- INSPECTION TO REVIEW FOUNDATIONS PRIOR TO POURING CONCRETE.
- MILESTONE INSPECTIONS DURING CONSTRUCTION (TO BE AGREED WITH ENGINEER ONCE CONSTRUCTION COMMENCES).
- FINAL INSPECTION OF COMPLETED STRUCTURE.
- PLEASE PROVIDE 48HRS (2 WORKING DAYS' NOTICE) OF ANY UPCOMING INSPECTIONS.

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WSP PROJECT NO. (SUB-PROJECT) 6-WCON0.79			