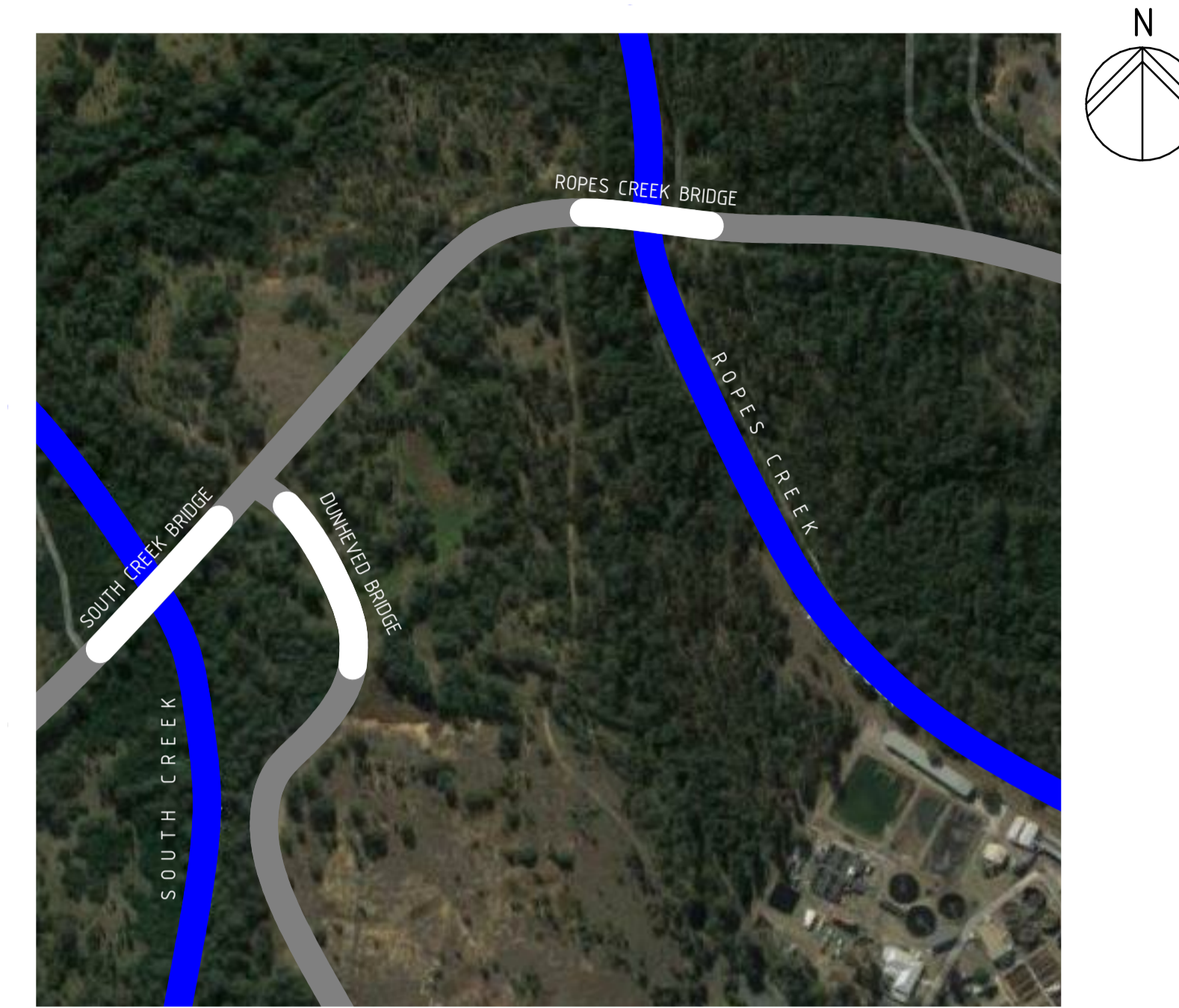


BRIDGE REPLACEMENT

JORDAN SPRINGS EAST EAST WEST CONNECTOR ROAD

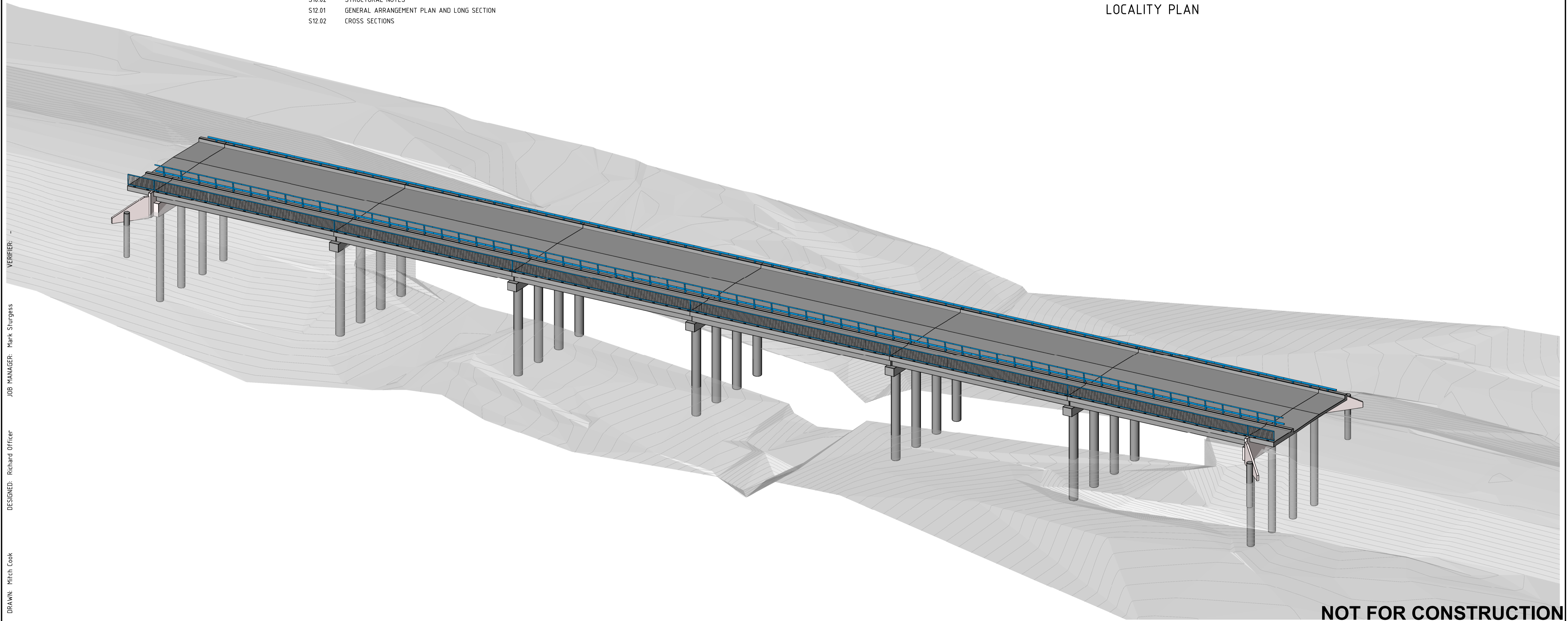
- SOUTH CREEK BRIDGE DRAWINGS -



LOCALITY PLAN

SOUTH CREEK DRAWING SCHEDULE

DRG. No.	DRAWING TITLE
S10.01	COVER SHEET AND DRAWING SCHEDULE
S10.02	STRUCTURAL NOTES
S12.01	GENERAL ARRANGEMENT PLAN AND LONG SECTION
S12.02	CROSS SECTIONS



VERIFIER: -
 JOB MANAGER: Mark Sturgess
 DESIGNED: Richard Officer
 DRAWN: Mitch Cook

NOT FOR CONSTRUCTION

REV	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CONSTRUCTION CERTIFICATE	MC		RO	20.12.17

WAEGER
Inspired To Construct
 Ph. (02) 4932 4900

BRIDGES PRE-CAST CONSTRUCTION

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 ABN 81 094 433 100

PROJECT
**BRIDGE REPLACEMENT
 JORDAN SPRINGS EAST
 EAST WEST CONNECTOR ROAD**

DRAWING TITLE
**SOUTH CREEK BRIDGE
 COVER SHEET AND DRAWING
 SCHEDULE**

JOB NUMBER NL172056	
DRAWING NUMBER S10.01	REVISION 1
DRAWING SHEET SIZE = A1	

GENERAL

- G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S DRAWINGS.
- G2. ALL DISCREPANCIES SHALL BE REFERRED TO THE PROJECT MANAGER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
- G3. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS. DIMENSIONS ARE IN MILLIMETRES (mm), STATIONS AND REDUCED LEVELS ARE IN METRES (m). REDUCED LEVELS RELATE TO AUSTRALIAN HEIGHT DATUM (AHD)
- G4. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.
- G5. PROPRIETARY ITEMS SPECIFIED SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN RECOMMENDATIONS. DO NOT VARY SPECIFIED PROPRIETARY PRODUCTS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
- G6. THESE DRAWINGS AND ISSUED WRITTEN INSTRUCTIONS DURING THE COURSE OF THE CONTRACT DEPICT THE COMPLETE STRUCTURE. THEY DO NOT DESCRIBE A WORK METHOD. THE ARRANGEMENT, DESIGN AND INSTALLATION OF TEMPORARY WORKS REMAINS THE RESPONSIBILITY OF THE CONTRACTOR.
- G7. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT WHICH POSES AN UNACCEPTABLE LEVEL OF SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE STRUCTURAL ENGINEER. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
- G8. THE BUILDER SHALL PROVIDE CERTIFICATION ON ANY DESIGN AND CONSTRUCT COMPONENT BY A CHARTERED PROFESSIONAL ENGINEER (NER).
- G9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL SERVICES IN THE VICINITY OF THE WORKS. ANY SERVICES SHOWN ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL SERVICES PRIOR TO COMMENCING AND SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGE CAUSED TO SERVICES, AS WELL AS ANY LOSS INCURRED AS A RESULT OF THE DAMAGE TO ANY SERVICE.
- G10. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS ARE JOB SPECIFIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING WIND LOADS, EARTHQUAKE LOADS FLOODING LOADS AND TRAFFIC LOADING REQUIREMENTS.

WIND LOADS:

- IMPORTANCE LEVEL = 2
- REGION = A2
- ANNUAL PROBABILITY OF EXCEEDENCE = 1:2000
- REGIONAL WIND SPEED V = 48 m/s
- TERRAIN CATEGORY = 2.5
- TERRAIN MULTIPLIER M_z cat = 1
- WIND DIRECTION MULTIPLIER M_d = 1
- SHIELDING MULTIPLIER M_s = 1
- TOPOGRAPHIC MULTIPLIER M_t = 1
- SITE WIND SPEED = 48 m/s

DESIGN TRAFFIC LOADS:

- SM1600 TO ASS100.2 (2017)
- TRAFFIC DESIGN SPEED = 60 km/h
- MINIMUM DESIGN LATERAL LOAD = 500kN
- BARRIER TYPE = VARIES. REFER TO GA PLAN.

FLOOD DATA:

- 100 YEAR ARI FLOW VELOCITY = TBC
- 100 YEAR ARI WATER LEVEL = TBC
- PROBABLE MAXIMUM FLOOD VELOCITY = TBC
- PROBABLE MAXIMUM FLOOD WATER LEVEL = TBC

EARTHQUAKE LOADS:

- ANNUAL PROBABILITY OF EXCEEDENCE (P) = 1:2000
- PROBABILITY FACTOR (kp) = 1.0
- HAZARD FACTOR (Z) = 0.11
- SITE SUB-SOIL CLASS = Ce - SHALLOW SOIL
- BRIDGE EARTHQUAKE DESIGN CATEGORY = BEDC-1

MINE SUBSIDENCE :

- = NA

- G11. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT TO SAFETY THE MATTER SHALL BE REFERRED TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
 - G12. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM NORTHROP CONSULTING ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. NORTHROP CONSULTING ENGINEERS SHALL BE CONTACTED TO CONFIRM PRIOR TO CONSTRUCTION.
 - G13. CONSTRUCTION USING THESE DRAWINGS SHALL NOT COMMENCE UNTIL APPROPRIATE APPROVALS HAVE BEEN GRANTED AND ONLY IF THE DRAWINGS ARE DESIGNATED "ISSUED FOR CONSTRUCTION".
 - G14. NORTHROP CONSULTING ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT APPROVED BY NORTHROP CONSULTING ENGINEERS DURING CONSTRUCTION.
- ABBREVIATIONS:
- FF DENOTES FAR FACE
 - NF DENOTES NEAR FACE
 - EF DENOTES EACH FACE
 - LV DENOTES LENGTH VARIES
 - USO DENOTES STATED OTHERWISE
 - NSOP DENOTES NOT SHOWN ON PLAN
 - CFW DENOTES CONTINUOUS FILLET WELD
 - CBW DENOTES CONTINUOUS BUTT WELD

CONSTRUCTION PHASE SERVICES (WITNESS POINTS)

- WP1. OBTAIN NORTHROP CONSULTING ENGINEERS WRITTEN INSTRUCTION AT THE FOLLOWING HOLD POINTS:
 - PREPARATION OF FOUNDING MATERIAL, INCLUDING PIER BORE HOLES.
 - REINFORCEMENT PRIOR TO PLACEMENT OF CONCRETE
 - ANY HOLD POINTS OUTLINED IN REFERENCED SPECIFICATIONS.
- WP2. PROVIDE MINIMUM 48 HOURS NOTICE FOR ANY REQUIRED INSPECTIONS.

FOUNDATIONS

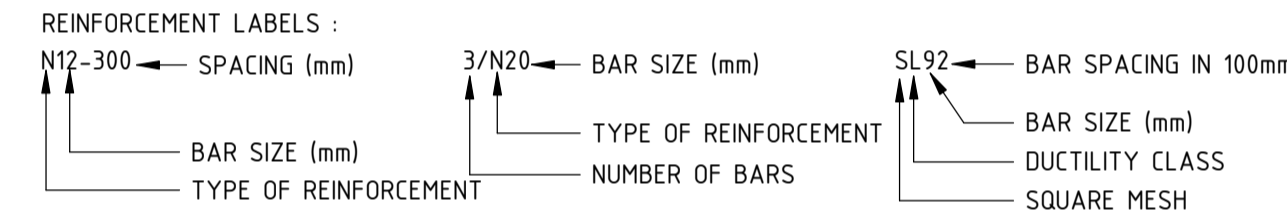
- F1. ASSUMED ALLOWABLE BEARING CAPACITY:
 - BORED PIERS = 700 kPa ALLOWABLE END BEARING
- F2. A GEOTECHNICAL REPORT HAS BEEN CARRIED OUT. REFER TO QUALTEST REPORT ON GEOTECHNICAL INVESTIGATION DATED 15TH MAY 2017, PROJECT REFERENCE NEW 17P-0050-AA.
- F3. THE CONTRACTOR SHALL ENGAGE A QUALIFIED (NER) GEOTECHNICAL ENGINEER TO DESIGN AND CONSTRUCT THE PILED FOUNDATIONS. OBTAIN GEOTECHNICAL ENGINEERS APPROVAL AND SUBMIT CERTIFICATE IN WRITING TO NORTHROP CONSULTING ENGINEERS PRIOR TO CONCRETE FOUNDATIONS.
- F4. ENSURE STABILITY OF ADJACENT STRUCTURES AND UTILITIES IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
- F5. DO NOT ALLOW EXCAVATED MATERIAL TO BE STOCKPILED WITHIN 1500mm OF FOOTING TRENCHES OR PITS. NO EARTH OR DETRITUS IS TO FALL INTO THE FOOTING TRENCHES BEFORE OR DURING CONCRETE PLACEMENT.
- F6. PILING WORKS SHALL BE IN ACCORDANCE WITH RMS SPECIFICATION B59

CONCRETE

- C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH ASS100.5 (2017) AND RMS B80 SPECIFICATION
- C13. REINFORCEMENT QUALITY AND NOTATION :

REINFORCEMENT NOTATION				
SYMBOL	BAR TYPE	STRENGTH GRADE (MPa)	DUCTILITY CLASS	TO COMPLY WITH AUSTRALIAN STANDARD
S	STRUCTURAL GRADE DEFORMED RIB BAR	250	NORMAL	AS/NZS 4671-2001
N	HOT ROLLED DEFORMED RIB BAR	500	NORMAL	AS/NZS 4671-2001
R	PLAIN ROUND BAR	250	NORMAL	AS/NZS 4671-2001

ALL REINFORCING BARS SHALL BE GRADE D500N TO AS/NZS 4671-2001 AND ALL MESH SHALL BE GRADE 500L TO AS/NZS 4671-2001. UNLESS NOTED OTHERWISE CLASS L REINFORCEMENT SHALL NOT BE USED.



- C14. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED.
- C17. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY NORTHROP CONSULTING ENGINEERS. LAPS SHALL NOT BE LESS THAN THOSE SPECIFIED ON THE DRAWINGS.

RELEVANT RMS SPECIFICATIONS

- RMS B30 = EXCAVATION AND BACKFILL FOR BRIDGES
- RMS B80 = CONCRETE WORK FOR BRIDGES
- RMS B59 = BORED CAST IN PLACE REINFORCED CONCRETE PILES (WITHOUT PERMANENT CASING)
- RMS B110 = SUPPLY OF PRETENSIONED PRECAST CONCRETE MEMBERS
- RMS B115 = PRECAST CONCRETE MEMBERS (NOT PRETENSIONED)

STEELWORK NOTES

- STRUCTURAL STEEL FOR PLATES AND BARS SHALL BE MINIMUM 300 GRADE TO AS3679.1
- STRUCTURAL STEEL HOLLOW SECTIONS SHALL BE GRADE 350 TO AS1163
- BOLTING PROCEDURE TO ASS100.6 USO HS BOLTS DENOTE 8.8/TB
- BOLTS, NUTS AND WASHERS TO BE HOT DIP GALVANISED TO AS1214
- SURFACE TREATMENT FOR STEELWORK SHALL BE HDG 600 AFTER FABRICATION
- ALL WELDS TO BE 6mm CONTINUOUS FILLET WELDS UNO
- WELD CATEGORY TO BE SP UNO
- THESE DRAWINGS HAVE BEEN PREPARED TO INDICATE THE STRUCTURAL INTENT. THE SHOP DETAILER IS TO USE THESE DRAWINGS AS A BASIS FOR DIMENSIONAL COORDINATION. FABRICATOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE BUILDER FOR REVIEW PRIOR TO FABRICATION.

PRECAST CONCRETE (NORTHROP DESIGN)

- PC1. ALL PRECAST CONCRETE WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH AS3850.1-2015, AS3850.2-2015, AS3600-2009 AND AS3610-1995 AS APPROPRIATE, AND THE VICTORIAN WORKCOVER AUTHORITY INDUSTRY STANDARD "PRECAST AND TILT-UP CONCRETE FOR BUILDINGS" APRIL 2001.
- PC2. REINFORCEMENT SHOWN ON STRUCTURAL DRAWINGS IS THE MINIMUM REQUIRED FOR IN-SERVICE CONDITIONS. THE SUPPLIER IS RESPONSIBLE FOR ANY ADDITIONAL REINFORCEMENT REQUIRED FOR LOADS DUE TO HANDLING, PROPPING, TRANSPORTATION AND ERECTION. A SUITABLY QUALIFIED ENGINEER SHALL BE ENGAGED (BY OTHERS) TO FILL THE ROLE OF "ERECTION DESIGN ENGINEER". THE ERECTION DESIGN ENGINEER SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL ELEMENTS FOR CASTING, HANDLING, TRANSPORTATION & ERECTION. THEY SHALL PROVIDE WRITTEN CERTIFICATION TO NORTHROP CONSULTING ENGINEERS PRIOR TO FABRICATION.
- PC3. THE SUPPLIER SHALL PREPARE SHOP DRAWINGS SHOWING DIMENSIONS OF ALL ELEMENTS INCLUDING REBATES, FIXINGS, ETC. AND ALL STRUCTURAL DETAILS. WHERE NECESSARY THE SHOP DETAILER IS TO MAKE ASSUMPTIONS AND SUBMIT TO NORTHROP CONSULTING ENGINEERS FOR RESOLUTION. THESE DRAWINGS SHALL COVER THE HANDLING PROCEDURE OF THE UNITS THROUGHOUT ALL STAGES INCLUDING STRIPPING, LIFTING, STACKING, TRANSPORTING AND ERECTION
- PC5. GROUT TO BE USED SHALL BE NON-SHRINK, AND HAVE A 28 DAY CHARACTERISTIC STRENGTH OF 40 MPa U.N.O. DETAILS OF THE PROPOSED GROUT SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR APPROVAL.

VERIFIER :

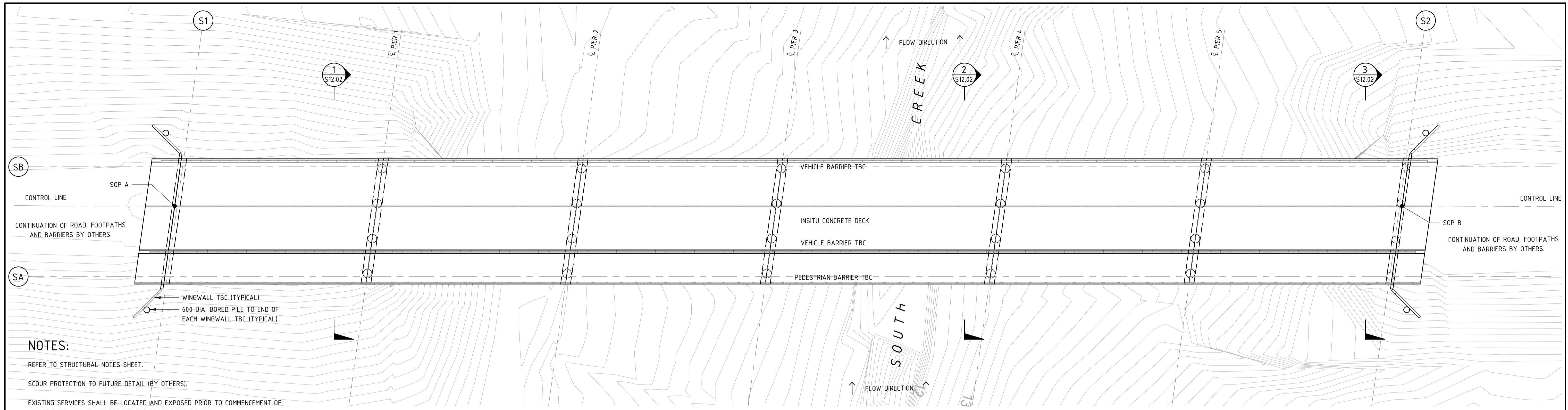
JOB MANAGER: Mark Sturgess

DESIGNED: Richard Officer

DRAWN: Mitch Cook

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1	ISSUED FOR CONSTRUCTION CERTIFICATE	MC		RO	20.12.17		<p>Newcastle Level 1, 215 Pacific Highway, Charlestown N.S.W. 2290 Ph (02) 4943 1777 Email: newcastle@northrop.com.au ABN 81 094 433 100</p>	<p>BRIDGE REPLACEMENT JORDAN SPRINGS EAST EAST WEST CONNECTOR ROAD</p>	<p>SOUTH CREEK BRIDGE STRUCTURAL NOTES</p>	<p>NL172056</p> <table border="1"> <tr> <td>DRAWING NUMBER</td> <td>REVISION</td> </tr> <tr> <td>S10.02</td> <td>1</td> </tr> <tr> <td colspan="2">DRAWING SHEET SIZE = A1</td> </tr> </table>	DRAWING NUMBER	REVISION	S10.02	1	DRAWING SHEET SIZE = A1	
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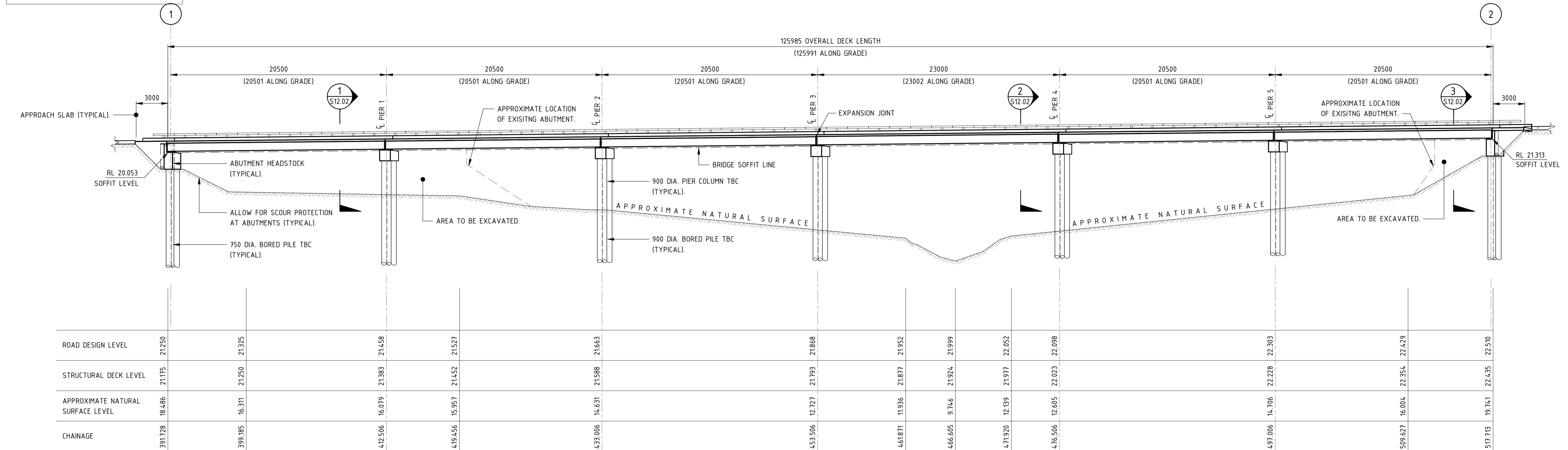


NOTES:

- REFER TO STRUCTURAL NOTES SHEET.
- SCOUR PROTECTION TO FUTURE DETAIL (BY OTHERS).
- EXISTING SERVICES SHALL BE LOCATED AND EXPOSED PRIOR TO COMMENCEMENT OF EARTHWORKS. ALLOW FOR RELOCATION OF EXISTING SERVICES.
- LOCATION AND SIZE OF NEW SERVICES SHALL BE CONFIRMED WITH APPROPRIATE UTILITY AUTHORITY PRIOR TO CONSTRUCTION.
- DEMOLITION OF EXISTING BRIDGE IN ACCORDANCE WITH RMS SPECIFICATION B341.

CONTOURS SHOWN INDICATE THE EXISTING SURFACE. DESIGN SURFACE IS TO BE CONFIRMED BY OTHERS.

GENERAL ARRANGEMENT PLAN



GENERAL ARRANGEMENT - LONG SECTION (ALONG CONTROL LINE)

NOTES:

- REFER TO STRUCTURAL NOTES SHEET.
- LOCATION AND SIZE OF NEW SERVICES SHALL BE CONFIRMED WITH APPROPRIATE UTILITY AUTHORITY PRIOR TO CONSTRUCTION.
- R - DENOTES RESTRAINED BEARING ABOUT BOTH PRIMARY AXIS.

NOT FOR CONSTRUCTION

REV	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	MC	RO		12.10.17
2	ISSUED FOR INFORMATION	MC	RO		10.11.17
3	ISSUED FOR INFORMATION	MC	RO		15.11.17
4	ISSUED FOR CONSTRUCTION CERTIFICATE	MC	RO		20.12.17

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BRIDGES ■ PRE-CAST ■ CONSTRUCTION ■

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ABN 81 094 433 100

PROJECT
**BRIDGE REPLACEMENT
JORDAN SPRINGS EAST
EAST WEST CONNECTOR ROAD**

DRAWING TITLE
**SOUTH CREEK BRIDGE
GENERAL ARRANGEMENT PLAN
AND LONG SECTION**

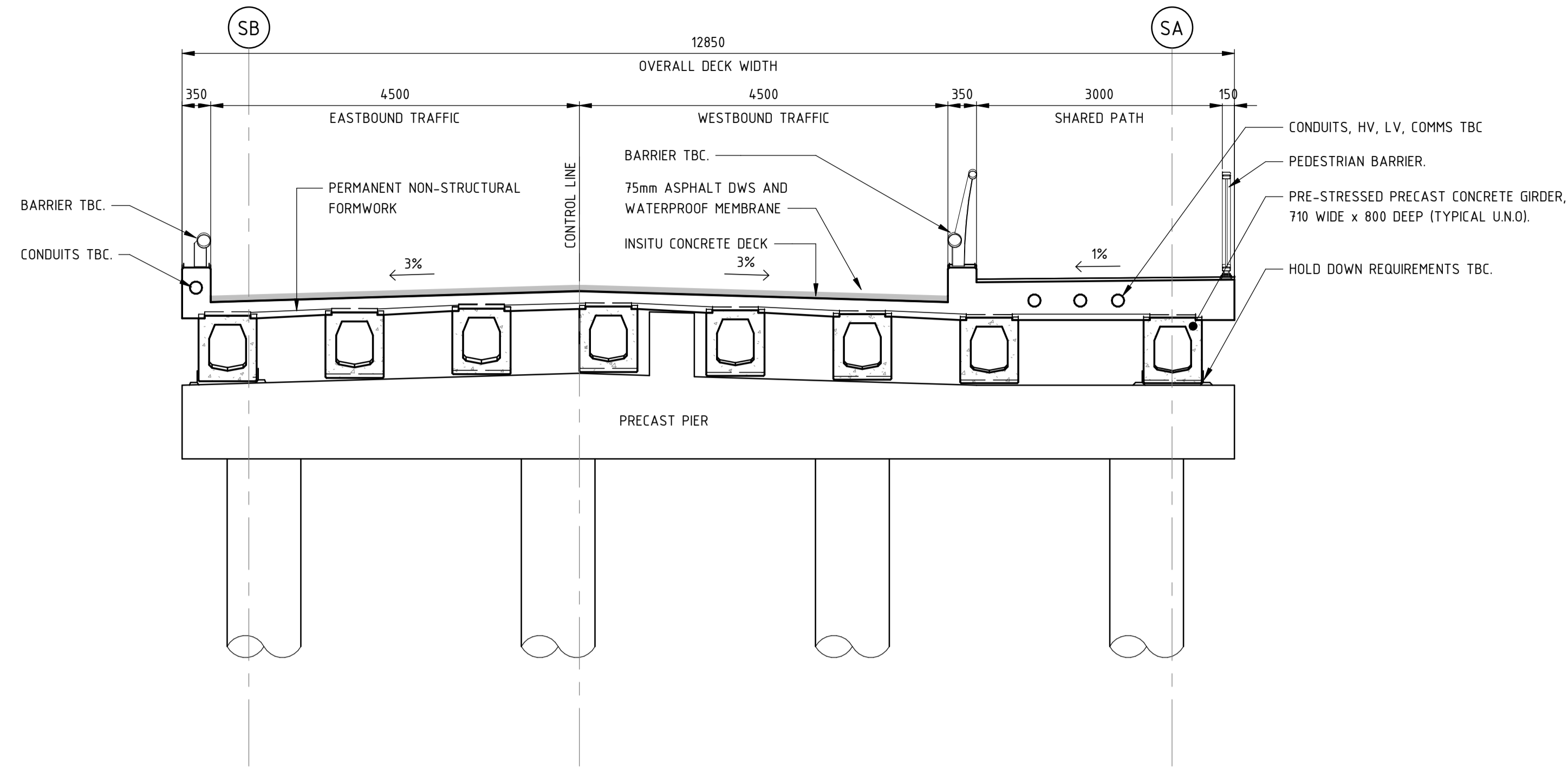
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NL172056

DRAWING NUMBER
S12.01

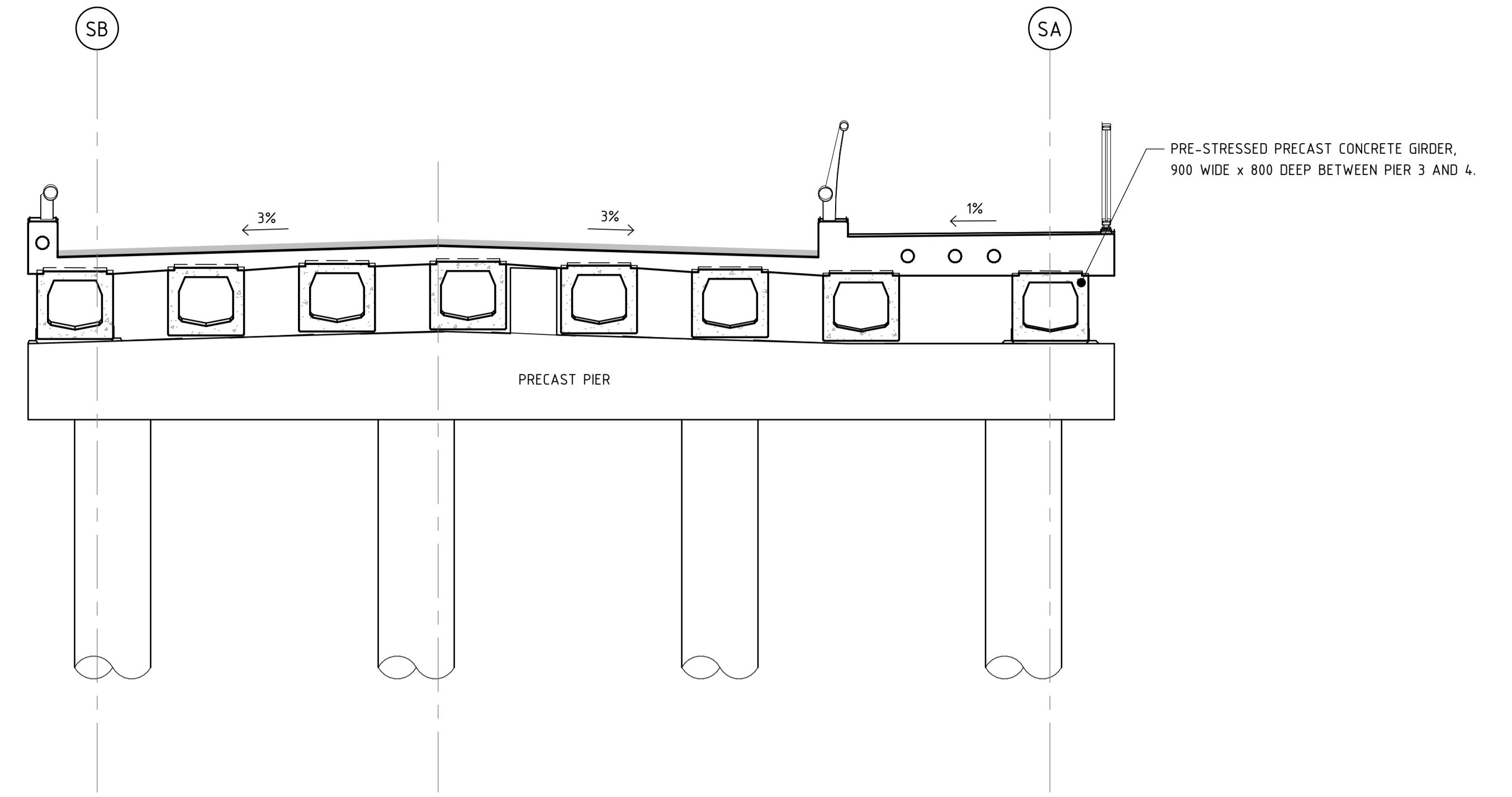
REVISION
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DRAWING SHEET SIZE = A1

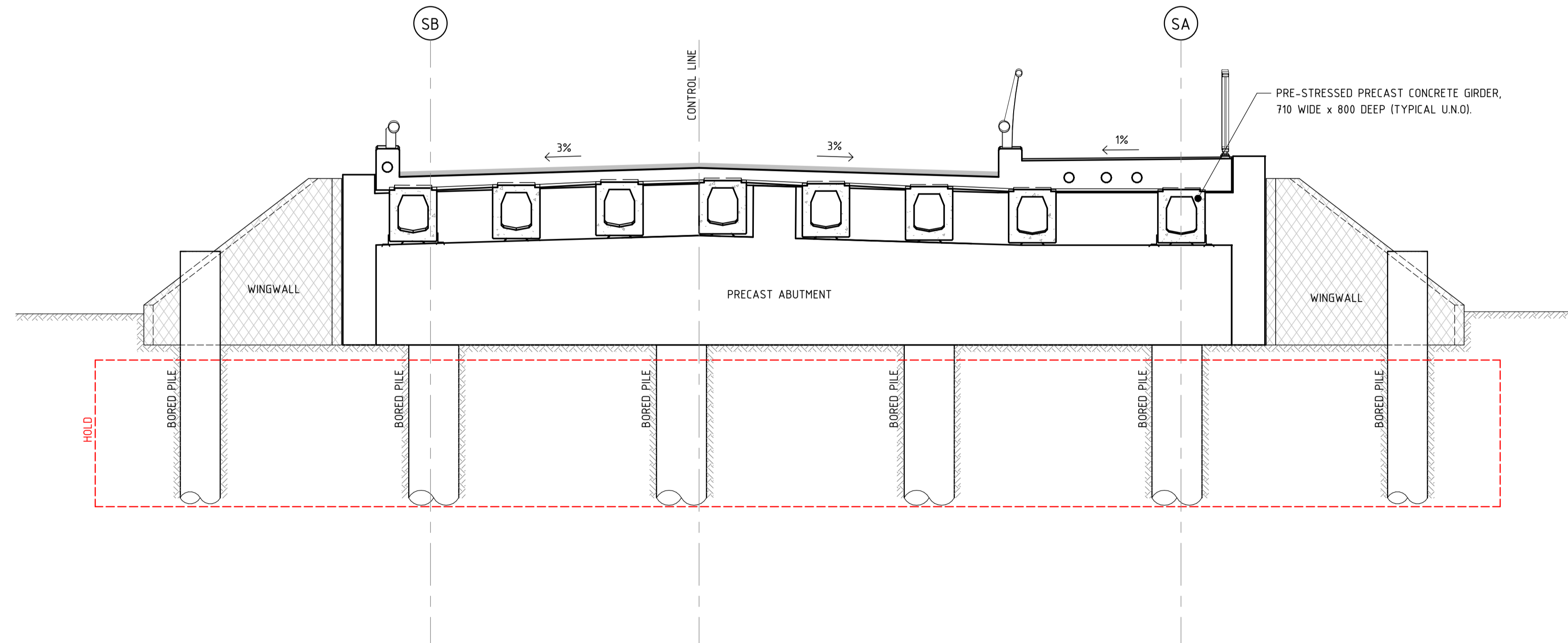
VERIFIER: Mark Sturgess
DESIGNED: Richard Officer
DRAWN: Mitch Cook



SECTION 1
S12.01



SECTION 2
S12.01



SECTION 3
S12.01

DRAWN: Mitch Cook
DESIGNED: Richard Officer
JOB MANAGER: Mark Sturgess
VERIFIER:

NOT FOR CONSTRUCTION

REV	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CONSTRUCTION CERTIFICATE	MC		RO	20.12.17

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0 500 1000 1500 2000 2500 SECTION

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PROJECT
**BRIDGE REPLACEMENT
JORDAN SPRINGS EAST
EAST WEST CONNECTOR ROAD**

DRAWING TITLE
**SOUTH CREEK BRIDGE
CROSS SECTIONS**

JOB NUMBER NL172056	
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