



GENERAL ARRANGEMENT
1:750

NOTES:

1. REFER TO DRG. No. SE-101 FOR GENERAL NOTES.
2. REFER TO DRG. No. SE-111 TO SE-113 FOR FULL SET OF GRIDS.

DESIGN SPECIFICATION:

1. **DESIGN STANDARDS**
 - 1.1. AS/NZS1170 STRUCTURAL DESIGN ACTIONS
 - 1.2. AS4997-2005 GUIDELINES FOR THE DESIGN OF MARITIME STRUCTURES
 - 1.3. NEW ZEALAND TRANSPORT BRIDGE MANUAL 3RD EDITION
 - 1.4. NZS3101-2006 CONCRETE STRUCTURES STANDARD
 - 1.5. NZS3404-1997 STEEL STRUCTURES STANDARD
REFER TO THE STRUCTURAL DESIGN REPORT FOR FURTHER DETAILS.
2. **DESIGN LIFE**
 - 2.1. DESIGN LOADS BASED ON A 100 YEAR DESIGN LIFE
 - 2.2. DURABILITY REQUIREMENTS BASED ON ACHIEVING A 100 YEAR DESIGN LIFE
3. **DESIGN LOADS**
 - 3.1. DEAD LOAD BASED ON THE FOLLOWING MATERIAL DENSITIES:
 - PRECAST CONCRETE: 26.5kN/m³
 - INSITU CONCRETE: 25.0kN/m³
 - STEELWORK: 78.5kN/m³
 - 3.2. SUPERIMPOSED DEAD LOAD OF 0.25kPa HAS BEEN APPLIED TO THE WHARF DECK TO ACCOUNT FOR PROPOSED AND FUTURE SERVICES.

- 3.3 **LIVE LOADS:**
 - UNIFORMLY DISTRIBUTED LOAD OF 50kPa FOR TEMPORARY STORAGE OF CONTAINERS ON THE WHARF DECK
 - CONCENTRATED LOAD OF 750kN OVER A 400mm X 400mm BEARING AREA. REPRESENTS CONCENTRATED LOAD AT CORNER OF STACK OF CONTAINERS. COVER PLATES AT DECK JOINTS HAVE NOT BEEN DESIGNED FOR THIS LOAD.
 - LADEN REACH STACKER WITH MAXIMUM FRONT AXLE LOADS OF 120t. AXLE CONFIGURATION BASED ON AS4997-2005.
 - LADEN STRADDLE CARRIER LOAD OF 120t EQUALLY DISTRIBUTED OVER 8 WHEELS
 - 8 SERIES TEREX GOTTWALD MOBILE HARBOUR CRANE MOBILE CRANE
 - POST PANAMAX CONTAINER QUAY CRANE WITH A MAXIMUM CRANE RAIL LOAD (FRON & REAR) OF 750kN/m. REFER TO REPORT FOR FURTHER DETAILS.
- 3.4 **EARTHQUAKE LOADS:**
 - IMPORTANCE LEVEL 4
 - LIMIT STATE FACTOR: $R_u = 1.80$ (1/2500 APE)
 - SITE SUBSOIL CLASSIFICATION: C (SHALLOW SOIL)
 - NEAR FAULT FACTOR $N(T,D) = 1.0$
 - STRUCTURAL PERFORMANCE FACTOR $S_p = 0.8$
 - DUCTILITY $\mu = 3$

- 3.5 TEMPERATURE AND SHRINKAGE IN ACCORDANCE WITH TNZBM
- 3.6 EARTH PRESSURES HAVE BEEN CONSIDERED IN ACCORDANCE WITH THE GEOTECHNICAL MEMORANDUM. A VERTICAL 50kPa SURCHARGE HAS BEEN CONSIDERED IMMEDIATELY BEHIND THE REAR RETAINING WALL.
- 3.7 WIND LOADS ARE IN ACCORDANCE WITH AS/NZS1170.2
 - TERRAIN CATEGORY 2
 - REGION A7 (NON-CYCLONIC)
 - BASIC WIND SPEEDS:
 - $V_u = 45\text{m/s}$ (1/500 APE)
 - $V_s = 37\text{m/s}$ (1/25 APE)
 - $V_o = 20\text{m/s}$ (NORMAL OPERATING CONDITION)

- 3.8 **VESSEL BERTHING LOADS:**
 - THE WHARF AND FENDER SYSTEM HAS BEEN DESIGNED TO ACCOMMODATE THE FOLLOWING VESSEL BERTHING CONFIGURATIONS:
 - (a) A SINGLE LARGE CONTAINER VESSEL
 - (b) TWO SMALLER CONTAINER VESSELS BERTHED BACK-TO-BACK

VESSEL DESIGN CRITERIA	SMALL VESSEL	LARGE VESSEL
VESSEL TYPE	GENERAL CARGO	GENERAL CARGO
DEAD WEIGHT TONNAGE	10,000t	104,000t
DISPLACEMENT TONNAGE	16,200t	143,000t
OVERALL LENGTH (L_{ov})	153m	340m
MAXIMUM BEAM (B)	23.7m	42.8m
DRAFT (D)	8.4m	14.5m
MAXIMUM BERTHING ANGLE	3°	3°
MAXIMUM BERTHING VELOCITY	250mm/s	100mm/s

- THE WHARF HAS BEEN DESIGNED FOR A FENDER REACTION OF 1235kN. THIS ASSUMES QUARTER POINT VESSEL BERTHING AND THE FULL IMPACT IS TAKEN BY A SINGLE FENDER.
- 3.10 **VESSEL MOORING LOADS:**
 - THE WHARF HAS BEEN DESIGNED FOR AN UNFACTORED VESSEL MOORING LOAD THAT ASSUMES 3 No. 150t ADJACENT BOLLARDS ARE LOADED SIMULTANEOUSLY.

No.	Revision	By	Chk	Appd	Date
B	PRELIMINARY DESIGN ISSUE	GM	SJL		14.07.16
A	FOR REVIEW	NP	SJL		27.05.16

Drawing Originator:

Original Scale (A1)	Design	S.LEE	14.07.16	Approved For Construction*
1:500	Drawn	N.PEERS	14.07.16	
Reduced Scale (A3)	Design Check	S.LEE	14.07.16	
1:1000	Design Check	S.LEE	14.07.16	

* Refer to Revision 1 for Original Signature

Client:

Project: 6 WHARF DEVELOPMENT

Title: GENERAL ARRANGEMENT PLAN

Discipline	STRUCTURAL
Drawing No.	3124410-SE-110
Rev.	B

RESOURCE CONSENT
NOT FOR CONSTRUCTION