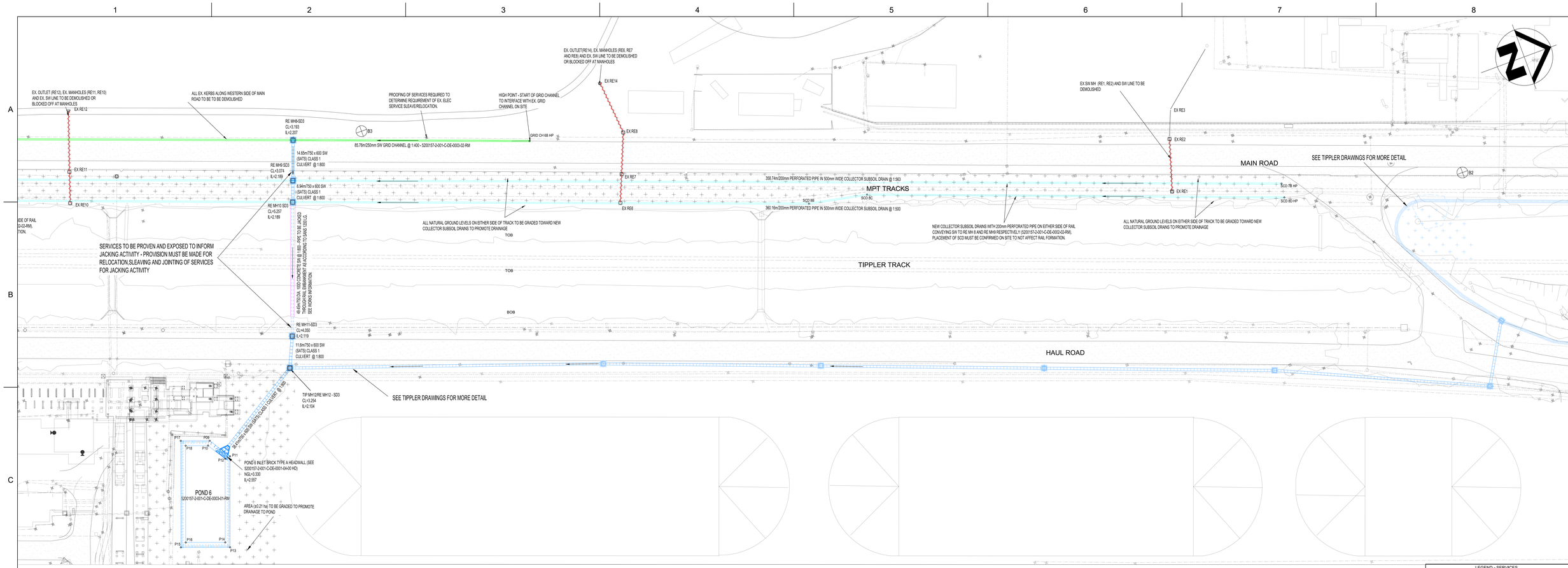

RAIL EMBANKMENT LAYOUT DETAIL
SCALE 1:500

GENERAL NOTES:-

1. THE CONTRACTOR WILL BE DEEMED TO HAVE INSPECTED THE SITE AND BE IN AGREEMENT WITH THE WORKS REQUIRED AS PER THE TENDER DOCUMENTS. UNLESS ALTERNATIVE PROPOSALS WITH COST IMPLICATIONS ARE RECEIVED TOGETHER WITH THE TENDER DOCUMENTS. ALTERNATIVE PROPOSALS SUBMITTED DURING CONSTRUCTION SHALL BE ON A DESIGN AND CONSTRUCT BASIS, WITH THE DESIGN AT CONTRACTOR'S EXPENSE.
2. VARIATIONS DEEMED NECESSARY BY THE CONTRACTOR SHALL BE FORWARDED TO THE PROJECT MANAGER IN WRITING FOR APPROVAL BEFORE ANY CONSTRUCTION BASED ON THE VARIATION COMMENCES.
3. SERVICES SHOWN ON DRAWING ARE KNOWN OR SOURCED FROM EXISTING DRAWINGS. THE CONTRACTOR MUST ENSURE THAT ALL SERVICES THAT INTERSECT OR RUN ALONGSIDE THE PROPOSED WORKS ARE LOCATED BEFORE CONSTRUCTION COMMENCES. ANY CLASHES SHALL BE REPORTED TO THE PROJECT MANAGER IN WRITING. THE CONTRACTOR SHALL BE HELD LIABLE FOR ANY DAMAGES TO EXISTING SERVICES DUE TO NEGLIGENCE.
4. ALL EXISTING PIPES AND MANHOLES INCORPORATED INTO THE NEW SYSTEM SHALL HAVE DEFECTS RECTIFIED TO COMPLY TO STANDARDS FOR NEW WORKS.
5. DIMENSIONS SHOWN ON DRAWINGS SHALL TAKE PREFERENCE OVER DIMENSIONS SCALED.
6. ALL LEVELS AND DIMENSIONS SHALL BE CHECKED BEFORE ANY WORK COMMENCES. FAILURE TO DO SO SHALL DEEM THE CONTRACTOR LIABLE FOR ANY WORK REQUIRED TO RECTIFY ERRORS AS A RESULT OF THE FAILURE TO CHECK THE LEVELS AND DIMENSIONS.
7. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS, UNLESS OTHERWISE INDICATED
8. THE LATEST REVISION OF SANS SPECIFICATIONS SHALL APPLY. ALL WORK SHALL BE DONE IN ACCORDANCE WITH RELEVANT SANS SPECIFICATIONS, UNLESS OTHERWISE INDICATED.
9. ALL LENGTHS SHOWN ARE APPROXIMATE AND SHALL BE CONFIRMED ON SITE BY CONTRACTOR.

STORMWATER NOTES:-

1. TRENCHES FOR PIPES TO BE EXCAVATED AND BACKFILLED IN ACCORDANCE WITH THE REQUIREMENT OF SANS 1200 DB - PIPE TRENCHES.
2. ALL RIGID CONCRETE PIPES SHALL HAVE CLASS B BEDDING UNLESS STATED OTHERWISE.
3. FOR STORMWATER PIPES SHALL BE SPIGOT & SOCKET CLASS 100D (SANS 677).
4. ALL CONCRETE PIPE JOINTS TO BE WRAPPED WITH '42 BIDIM (NONWOVEN,CONTINUOUS FILAMENT,NEEDLE PUNCHED, POLYESTER,GEOTEXTILE) MIN. WIDTH TO BE 750mm FOR PIPES 300D TO 600D.
5. NB. ALL MANHOLE COVERS TO SUIT CROSSFALL OF FINISHED PAVING .
6. ON COMPLETION, THE INSTALLATION SHALL BE TESTED TO THE ENGINEER'S SPECIFICATION.
7. THE CONTRACTOR SHALL SUBMIT A FULL SET OF AS-BUILT DRAWINGS UPON COMPLETION OF THE INSTALLATION.
8. ALL EXISTING STORMWATER PIPES, MANHOLES, CHANNELS AND ANY OTHER STORMWATER INFRASTRUCTURE TO BE CLEANED AND CLEARED OF ALL DEBRIS BEFORE ANY WORK COMMENCES. ALL DAMAGED EXISTING STORMWATER INFRASTRUCTURE SHALL BE REINSTATED TO ORGINAL CONDITION.
9. ANY DISCREPANCIES IN LEVELS AND SETTING OUT DATA TO BE QUERIED WITH THE ENGINEER PRIOR TO COMMENCEMENT OF ANY WORK.
10. ALL EXISTING STORMWATER PIPES ARE CONCRETE UNLESS STATED OTHERWISE.
11. WHERE MINIMUM COVER OF 1000mm FOR OPERATIONAL AREAS & 600mm FOR NON OPERATIONAL AREA CANNOT BE ACHIEVED, CONCRETE ENCASEMENT IS REQUIRED AS PER THE DETAIL DRAWINGS.

EARTHWORKS:-

1. ANY DISCREPANCIES IN LEVELS AND SETTING OUT DATA TO BE QUERIED WITH THE ENGINEER PRIOR TO COMMENCEMENT OF ANY WORK.
2. ALL WORKMANSHIP TO BE IN ACCORDANCE WITH SANS 1200 PART D : EARTHWORKS AND THE RELEVANT PROJECT SPECIFICATIONS AS INCLUDED IN THE CONTRACT.
3. BEFORE PLACING ANY FILL MATERIAL, THE EXISTING GROUND SURFACE MUST BE CLEARED AND GRUBBED OF ALL VEGETATION AND ORGANIC MATTER.
4. UNLESS OTHERWISE INDICATED, ALL BANK BATTERS TO BE : 1:1.5 CUT AND 1:2 FILL
5. THE UNCOMPLICATED THICKNESS OF FILL LAYERS SHALL NOT EXCEED 300mm
6. LOCATE ALL EXISTING SERVICES IN AREA PRIOR TO ANY CONSTRUCTION TAKING PLACE.
7. THE CONTRACTOR IS TO TAKE DEWATERING AND ENCOUNTERING BEDROCK INTO ACCOUNT IN ACCORDANCE TO THE TRUE NATURE AND EXTENT OF THE WORKS. SEE WORKS INFORMATION FOR MORE DETAIL.

CONSTRUCTION & REHABILITATION ACTIVITIES FOR STORMWATER SYSTEM:-

1. REMOVE ALL DUST & CAKED MATERIAL FROM SURFACE & SUB-SURFACE DRAINAGE SYSTEMS.
2. REPAIR EROSION RUNNELS & RE-SHAPE ALL HARD STANDING AREAS TO ENSURE DRAINAGE TOWARDS THE DETENTION POND.
3. PIPES, CULVERTS, MANHOLES & CHANNELS NEED TO BE CLEANED REGULARLY AS SYSTEM IS BLOCKED & MANHOLES ARE SILTED UP.
4. LENGTHS OF PIPES, NUMBER OF CULVERTS & MANHOLES CLEARLY SHOWN IN LONGITUDINAL SECTION FOR QUANTIFYING.
5. CLEAN OUT ALL SLABS & DRYING BEDS.
6. RE-SHAPE ALL HARD STANDING AREAS TO ENSURE DRAINAGE AWAY FROM THE ROADS TOWARDS THE STORMWATER POND.
7. LOW POINTS TO BE REPAIRED WITH A MINIMUM OF 150 mm G2 LAYER COMPACTED TO 95 % MOD-AASHTO.

CONSTRUCTION & REHABILITATION ACTIVITIES FOR POND 6 AND POND 12:-

1. FOR RESPECTIVE POND DETAIL REFER TO DRAWING 5200157-2-001-C-DE-0002-01.
2. CLEAR ALL GRUB & VEGETATION.
3. COMPACT TO 90 % MOD AASHTO.
4. REPAIR & REINSTATE ALL DOWN CHUTES IF APPLICABLE.
5. PLACE STONE PITCHING ENERGY DISSIPATORS AT OUTLET OF CULVERTS & DOWN CHUTES.
6. DETENTION POND TO BE CONSTRUCTED TO NEW APPROVED LAYERWORKS.
7. PLEASE SEE 5200157-2-001-C-DE-0003-01 FOR POND 6 AND POND 12 LAYERWORKS.
8. STEEL BOLLARDS (QUANTITY 40) TO BE PLACED AROUND POND 12:
   - 8.1. 6mm THICK MILD STEEL
   - 8.2. 150mm IN DIAMETER
   - 8.3. AT LEAST 900mm ABOVE GROUND
   - 8.4. REMOVABLE TO ALLOW ACCESS FOR MAINTENANCE (PERMANENT METAL GROUND SOCKET ANCHORED IN A CONCRETE FOUNDATION)
   - 8.5. 40MPa PLAIN CONCRETE FOUNDATION OF 400mm X 400mm X 450mm DEEP - MIN COVER OF 50mm
   - 8.6. PAINTED IN REFLECTIVE YELLOW PAINT

RAIL EMBANKMENT SETTING OUT COORDINATES

Position X	Position Y	Coordinate ID
-94140.375	-3654675.634	CMH1
-94107.112	-3654586.046	CMH2
-94027.973	-3654122.573	GRID CH 1A HP
-94027.627	-3654121.635	GRID CH 6A HP
-93873.805	-3653704.506	GRID CH 6B HP
-94193.491	-3654515.989	K01
-94188.086	-3654513.404	K02 (BC)
-94171.933	-3654501.694	K03 (CC)
-94161.649	-3654484.596	K04 (EC)
-94152.999	-3654461.164	K05
-94140.747	-3654672.579	P01
-94141.774	-3654670.305	P02
-94150.765	-3654668.863	P03
-94148.483	-3654667.816	P04
-94128.137	-3654613.011	P05
-94129.174	-3654610.733	P06
-94119.156	-3654614.449	P07
-94121.438	-3654615.496	P08
-93811.357	-3653850.623	P09
-93809.928	-3653851.789	P10
-93803.561	-3653845.645	P11
-93803.332	-3653847.603	P12
-93772.542	-3653856.889	P13
-93774.811	-3653857.940	P14
-93778.622	-3653873.666	P15
-93779.691	-3653871.405	P16
-93814.935	-3653860.500	P17
-93812.667	-3653859.448	P18
-94147.538	-3654686.953	RSM1
-94139.537	-3654678.137	RSM2
-94117.379	-3654618.142	RSM3
-94014.385	-3654129.037	SCD 2A HP
-94007.595	-3654131.564	SCD 3A HP
-94069.874	-3654296.556	SCD 3A MID
-94013.066	-3654125.508	SCD 7A HP
-93766.080	-3653453.529	SCD 7B HP
-94006.265	-3654128.004	SCD 8A HP
-93817.828	-3653617.042	SCD 8B
-93813.713	-3653596.127	SCD 8C
-93761.022	-3653454.274	SCD 8D HP

STEEL BOLLARD SETTING OUT COORDINATES

Position X	Position Y	COORDINATE ID
-94151.00	-3654668.78	SB01
-94149.86	-3654665.72	SB02
-94148.73	-3654662.66	SB03
-94147.59	-3654659.60	SB04
-94146.45	-3654656.54	SB05
-94145.32	-3654653.48	SB06
-94144.18	-3654650.42	SB07
-94143.05	-3654647.36	SB08
-94141.91	-3654644.30	SB09
-94140.77	-3654641.24	SB10
-94139.63	-3654638.18	SB11
-94138.50	-3654635.12	SB12
-94137.36	-3654632.06	SB13
-94136.23	-3654629.00	SB14
-94135.09	-3654625.94	SB15
-94133.95	-3654622.88	SB16
-94132.82	-3654619.82	SB17
-94131.68	-3654616.77	SB18
-94130.54	-3654613.71	SB19
-94129.41	-3654610.65	SB20
-94140.46	-3654672.59	SB21
-94139.33	-3654669.53	SB22
-94138.19	-3654666.47	SB23
-94137.05	-3654663.41	SB24
-94135.92	-3654660.35	SB25
-94134.78	-3654657.29	SB26
-94133.64	-3654654.24	SB27
-94132.51	-3654651.18	SB28
-94131.37	-3654648.12	SB29
-94130.24	-3654645.06	SB30
-94129.10	-3654642.00	SB31
-94127.96	-3654638.94	SB32
-94126.83	-3654635.88	SB33
-94125.69	-3654632.82	SB34
-94124.55	-3654629.76	SB35
-94123.42	-3654626.70	SB36
-94122.28	-3654623.64	SB37
-94121.14	-3654620.58	SB38
-94120.01	-3654617.52	SB39
-94118.87	-3654614.46	SB40

RAIL EMBANKMENT STORMWATER SCHEDULE

Name	Y-Coord	X-Coord
RE MH1	-94152.12	-3654459.29
RE MH2	-94139.38	-3654463.84
RE MH3	-94133.90	-3654465.90
RE MH4	-94148.50	-3654506.93
RE MH5	-94124.14	-3654528.52
RE MH6	-94102.26	-3654537.29
RE MH7	-94119.99	-3654585.23
RE MH8	-93903.53	-3653784.95
RE MH9	-93889.80	-3653790.06
RE MH10	-93883.33	-3653792.55
RE MH11	-93836.87	-3653809.51
RE MH12	-93826.30	-3653814.25
POND 6 INLET	-93806.69	-3653847.28
GRID CH 6A HP	-94026.94	-3654120.09
SCD 2A HP	-94013.58	-3654127.22
RE MH2	-94139.38	-3654463.84
SCD 3A HP	-94007.33	-3654131.04
POND 12 INLET	-94127.78	-3654612.09
GRID CH 1A HP	-94028.50	-3654123.44
GRID CH 6B HP	-93874.25	-3653704.22
SCD 7A HP	-94013.17	-3654126.36
SCD 8A HP	-94006.54	-3654128.75
SCD 7B HP	-93765.82	-3653453.43
SCD 8D HP	-93760.75	-3653454.13
SCD 8C	-93813.49	-3653595.97
SCD 8B	-93817.75	-3653616.60

BENCHMARK NAME	Y	X	Z	TYPE
PN22_S1	-93475.257	-3654091.182	5.492	Pillar Beacon
PN04_S1	-94375.598	-3652758.626	11.637	Pillar Beacon
PN05_S1	-94350.064	-3655384.385	4.526	Pillar Beacon
PN06_S1	-94121.326	-3654507.788	11.216	Pillar Beacon
2DC25_S1	-97921.795	-3653141.320	5.446	Town Survey Mark
B1	-93956.668	-3653004.238	6.915	Drill Hole in Concrete
B2	-93748.380	-3653363.098	3.313	12mm Round Iron Peg
B3	-93899.392	-3653754.514	2.997	12mm Round Iron Peg
B4	-94006.972	-3654037.881	2.839	12mm Round Iron Peg
B5	-94146.158	-3654428.016	3.055	12mm Round Iron Peg
B6	-94380.974	-3654714.558	3.690	Roof Nail in Concrete
B7	-94294.497	-3655014.636	3.386	12mm Round Iron Peg
B8	-93829.849	-3654096.752	4.241	12mm Round Iron Peg
B9	-93195.652	-3653381.885	3.673	12mm Round Iron Peg
B10	-93431.837	-3653261.361	3.484	12mm Round Iron Peg

5200157-2-001-C-LA-0003-01	RAIL EMBANKMENT - STORMWATER RAIL EMBANKMENT GENERAL LAYOUT
5200157-2-001-C-LA-0003-02	RAIL EMBANKMENT - STORMWATER RAIL EMBANKMENT LAYOUT 1:500 SHEET 1 OF 3
5200157-2-001-C-LA-0003-03	RAIL EMBANKMENT - STORMWATER RAIL EMBANKMENT LAYOUT 1:500 SHEET 2 OF 3
5200157-2-001-C-LA-0003-04	RAIL EMBANKMENT - STORMWATER RAIL EMBANKMENT LAYOUT 1:500 SHEET 3 OF 3
5200157-2-001-C-SE-0003-01	RAIL EMBANKMENT - RAIL EMBANKMENT LONGSECTION SHEET 1 OF 6
5200157-2-001-C-SE-0003-02	RAIL EMBANKMENT - RAIL EMBANKMENT LONGSECTION SHEET 2 OF 6
5200157-2-001-C-SE-0003-03	RAIL EMBANKMENT - RAIL EMBANKMENT LONGSECTION SHEET 3 OF 6
5200157-2-001-C-SE-0003-04	RAIL EMBANKMENT - RAIL EMBANKMENT LONGSECTION SHEET 4 OF 6
5200157-2-001-C-SE-0003-05	RAIL EMBANKMENT - RAIL EMBANKMENT LONGSECTION SHEET 5 OF 6
5200157-2-001-C-SE-0003-06	RAIL EMBANKMENT - RAIL EMBANKMENT LONGSECTION SHEET 6 OF 6
5200157-2-001-C-DE-0003-01	RAIL EMBANKMENT - POND 12 AND POND 6 CROSS SECTION DETAIL
5200157-2-001-C-DE-0002-02	TYPICAL GRID CHANNEL, MOUNTABLE KERB, SUBSOIL COLLECTOR DRAIN (SCD) AND TRAPEZOIDAL CHANNEL DETAIL
DRAWING NO.	REFERENCE

REFERENCE DRAWINGS

NOTES:
a. MEASUREMENTS ARE BASED ON METRIC SYSTEM.
b. ALL LEVELS ARE IN METERS TO MEAN SEA LEVELS (MSL)
c. DO NOT SCALE DRAWING - ONLY DIMENSIONS SHOWN TO BE USED.
d. THE CONTRACTOR SHALL VERIFY ALL SERVICES OR CONDITIONS ON THE SITE AND NOTIFY THE ENGINEERING OF ANY VARIATIONS FROM DIMENSIONS BEFORE CONSTRUCTION.

NO.	DESCRIPTION	BY	CHKD	APPD	DATE
00	ISSUED FOR CONSTRUCTION	RM	HwdW	RN	03/08/2023
0B	ISSUED FOR CLIENT APPROVAL	RM	HwdW	RN	24/04/2023
0A	ISSUED FOR CLIENT APPROVAL	RM	HwdW	RN	01/07/2022

REVISIONS

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CONTRACTOR / CONSULTANT			
TITLE	NAME	SIGN	DATE

OPERATING DIVISIONS			
TITLE	NAME	SIGN	DATE

TRANSNET PORT TERMINALS			
TITLE	NAME	SIGN	DATE
DRAWN	RM		03 08 23
CHECKED	HwdW		03 08 23
DESIGNED	RM		03 08 23
CHECKED	HwdW		03 08 23

PR.ENG. / PR.TECH./PR. ARCH	
NAME	R. NAIDOO
DATE	
SIGNATURE	
REG. NUMBER	201070216
SCALE :	AS SHOWN

LEGEND - SERVICES

PROPOSED	EXISTING	DESCRIPTION
SW	EX. SW	STORMWATER MANHOLE/PIPE
SS	EX. SS	SEWER MANHOLE/PIPE
5000	EX. CP	PROPOSED STORMWATER PIPE - SIZE IS DIRECTED
EFF	EX. EFF	EFFLUENT MANHOLE/PIPE
		RAIL LINE
TEL	TEL	COMMUNICATION MANHOLE/DUCTS
ELEC	ELEC	ELECTRICAL MANHOLE/DUCTS
		WATERMAIN
		FENCE
		CATCHMENTS BOUNDARY
		EXISTING OIL LINE
		NEW STORMWATER IN ADJACENT PROJECT AREAS
		RELOCATED SERVICE
		DEMOLISH EXISTING SERVICE
		ASPHALT ROAD
		EARTH BANKS

R.01 / 3.42 — T01 — HEIGHT AND SETTING OUT COORDINATE ID
- R - RAIL EMBANKMENT
- B - MULTI PURPOSE TERMINAL
- E - STOCKPILE
- C - CAUSEWAY
- T - TIPPLER

B2 — BENCHMARK

PROPOSED STORMWATER CULVERT (SATS) AND MANHOLE
PIPE JACKING
PROPOSED TRAPEZOIDAL CHANNEL
PROPOSED GRID CHANNEL
PROPOSED MOUNTABLE KERB
PROPOSED SUBSOIL COLLECTOR DRAIN (SCD)
PROPOSED POND
NEW BLOCK PAVEMENT

ABBREVIATIONS
BH - BOREHOLE
EP - ELECTRICAL LIGHT POLE
HK - HEAVY KERT

EX - EXISTING
KERB - KERBS
STORMWATER
SCC - SUBSOIL DRAIN COLLECTOR

EF - EFFLUENT
FH - FIRE HYDRANT
V - WATERMAIN VALVE

Transcribe Port Terminals

TRANSNET

PORT OF SALDANHA

SALDANHA PORT - STORMWATER RAIL EMBANKMENT LAYOUT 1:500
SHEET 3 OF 3

PROJECT NUMBER	OD	FBS	DIS	TYPE	DRAWING NO.	SHEET	REV	ID
5200157	2	001	C	LA	0003	04	00	RM

SCALE : AS SHOWN — A0