

April 2022

TECHINICAL MEMORANDUM

DATE April 2022
TO Mackenzie Valley Land and Water Board
FROM NTPC

Taltson Overhaul- Type A LUP MV2020X0004- Project Update

A refurbishment of key infrastructure at the facility began in 2020 to ensure the continued reliability of power generation for the South Slave Region. The refurbishment for supporting infrastructure on the site included the replacement of the facilities for staff lodging, replacement of maintenance buildings, construction of additional storage areas, operation of existing quarries and the construction and operation of a winter road to transport equipment and materials. In 2019 NTPC obtained Type B WL MV2019L8-0008 and Type A Land Use Permit (LUP) MV2019F0015 to regulate the construction and operation of the Taltson Winter Road. The refurbishment for supporting infrastructure at the facility is regulated by Type A LUP MV2020X0004 issued in 2020.

The scope of the refurbishment for supporting infrastructure on the site was presented in detail in the initial application submitted in 2020 but detailed design was not completed for all infrastructure. Any updates to the initial application are presented below and in the attached appendices. The schedule for all civil works at Taltson Hydro is included in Appendix A.

New Water Intake:

In 2021 NTPC Dam Safety Engineer advised NTPC that the initial design for the water intake for the replacement staff accommodation was high risk as it is not recommended to run waterlines, irrespective of size, on dams since ruptures could result in wash-out damage and the waterline could be in the way of future maintenance or upgrades required.

To mitigate these risks NTPC developed an updated design and an alternative shallow well option for the water intake. The proposed pumphouse and water intake will be constructed along the shoreline of the Taltson Forebay near the Twin Gorges Dam.

The proposed location of the pumphouse facility, consists of silty clay glacial overburden material, capped with a layer of gravel about 1 m thick (as indicated by test pit excavation). The excavated material will be saturated and not suitable as backfill and will therefore be disposed of in a suitable spoil area. Clean pit-run gravel available from a site borrow pit will be used for backfilling the inlet and around the well casing. The intake well will consist of an HDPE Perforated Manhole, and perforated drainpipes will be installed to enhance water flow through the fill gravel from the Forebay to the Well.

The inlet will be excavated to a depth of approximately 4 m, or to an elevation of 237 m, and lined with a non-woven geotextile filter fabric, overlapped at the joints to a minimum of 1.5 m. The maximum width of the trench below the High-Water Mark within the forebay will be approximately 4.8 m wide. A layer of pit-run gravel 1 m thick shall be placed over the filter fabric along the invert of the inlet prior to installation of the well and perforated drainpipes. The well, or HDPE perforated manhole, shall be lifted into place using the lifting lugs provided on the exterior and set on the bedding gravel and leveled. The work, (excavation, installation of well and drainpipes then backfilling), shall be carried out in a timely manner to minimize

instability of the excavation. The total excavation and backfill material for the Project is estimated to be 200 m³.

- Erosion and Sediment and Control Measures will be installed prior to in water work as per the Taltson Hydro- Construction of Replacement Facilities and Overhaul- Erosion and Sediment Control Plan
 - Silt fence on shore and turbidity curtain in the water
 - Fish isolation of the working area will occur as required by Department of Fisheries and Oceans
 - TSS monitoring will occur during active in-water construction
- Excavation of approximately 85 cubic metres (m³) of material at the shoreline with approximately 63 m³, or footprint of 36.5 m² square metres (m²), of the excavation transpiring below the highwater mark in wetted conditions.
 - Intake is located in a previously cleared area therefore no clearing or grubbing of riparian vegetation is anticipated
- Clean 3 inch minus gravel will be used to back fill the excavation. Focused effort will be taken to ensure that the gravel backfill within the wetted excavation area conforms with the existing lake shore slope and underwater topography. Following the back filling of the wetted excavation area, the vertical standpipe workspace will be back filled with clean 3 inch minus gravel and packed to approximately 90% proctor.
- Installation of the water intake structure and pumphouse
- Installing a permanent waterline to the camp.

Construction is proposed to commence July 16, 2022 which is in accordance with the Department of Fisheries and Oceans Timing Windows for the Protection of Fish and Fish Habitat NWT Zone 1. The duration of in-water works is expected to occur over 3 days. The latest anticipated date of completion of construction is August 14, 2022. The detailed schedule is provided in Appendix A. Design drawings for excavation and installation of the water intake and pumphouse are attached in Appendix B.

Fuel Storage:

Additional fuel storage will be needed on site to run the facility on back-up diesel generation during the extended shutdowns and to account for the increased staffing on site. Four 90,000L double walled diesel storage tanks and one 1,000L double walled gas tank will be installed on site for additional fuel storage for the project. The tanks will be installed on NTPC owned lands adjacent to the existing double walled fuel tank. The diesel tanks will be hard piped to the backup generator. The layout, design and vendor drawings for the fuel storage are provided in Appendix C.

Hazardous Waste Storage:

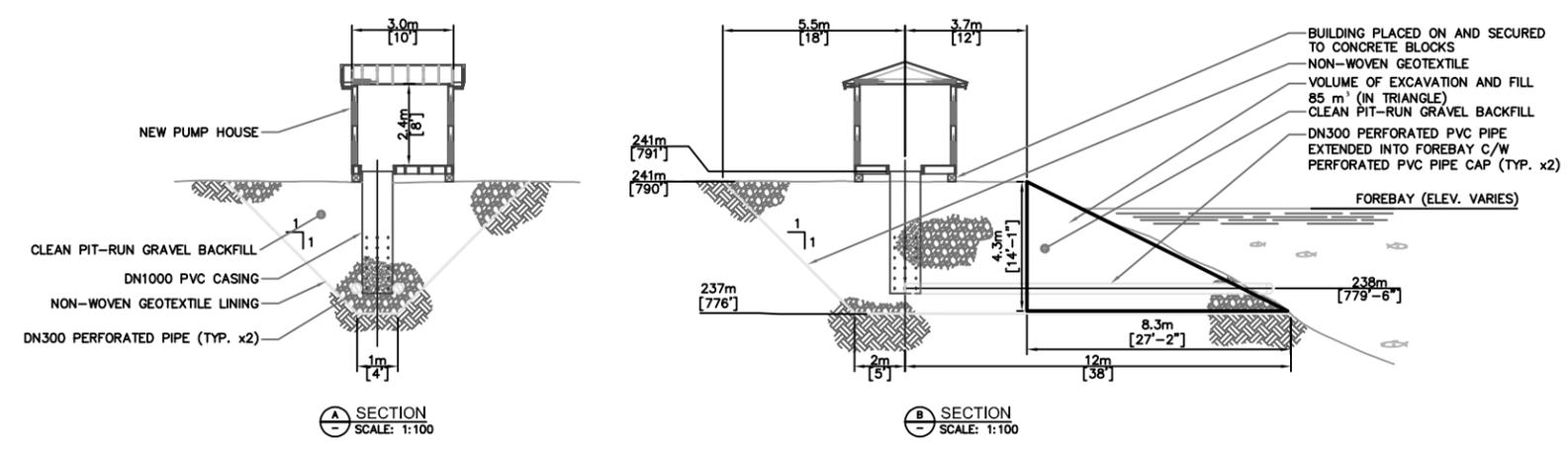
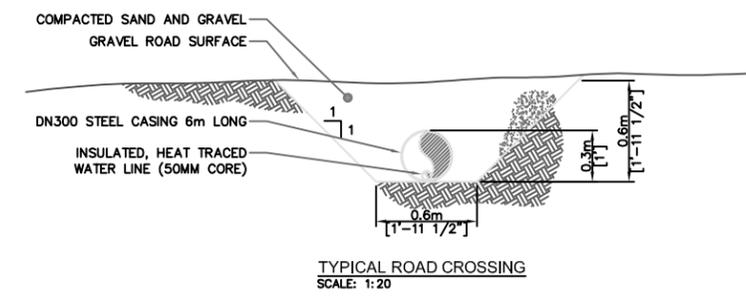
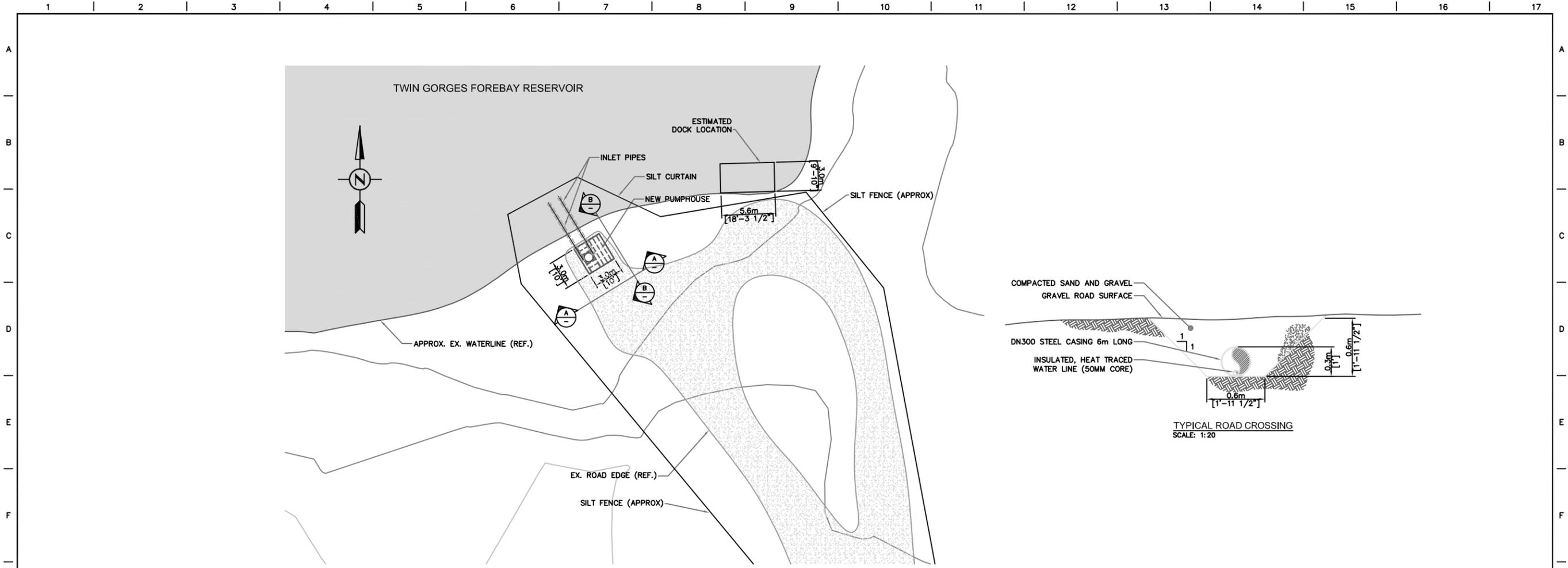
To ensure proper capacity for increased amounts of hazardous waste a lined hazardous waste berm storage area will be constructed at the airstrip. The berm was initially 30m x 20m with a 0.75m berm around the storage around with a gate for trucks to drive in/out if required. Based off of a reassessment of hazardous materials provided in the updated Waste Management Plan and the timing of shipments of waste off of site the design has been reduced for efficiency to 15m x 15m 0.75m and slightly moved to an area where less vegetation clearing and earthworks is required for efficiency to reduce cost and minimize environmental impact. A design drawing for the Hazardous Waste Storage is provided in Appendix D.

Temporary Sewage Lagoon

A temporary sewage lagoon will be constructed on the site road to the South Valley Spillway. This lagoon will be used for the sewage from 4 portable toilets that will be placed outside the plant during the overhaul. The temporary sewage lagoon is proposed for the waste from the 4 portable toilets to minimize risk to the septic system for the accommodation buildings during the temporary staffing peaks. It is estimated that 12 people would be using the sewage lagoon. Conservatively assuming each person creates 6L of waste per day over the 8 month period for the overhaul the total storage required is 17.3m³. Lime will be applied before closure. A design drawing for the temporary sewage lagoon is provided in Appendix E.

Appendix A- Project Schedule

Appendix B- Design Drawings for Water Intake

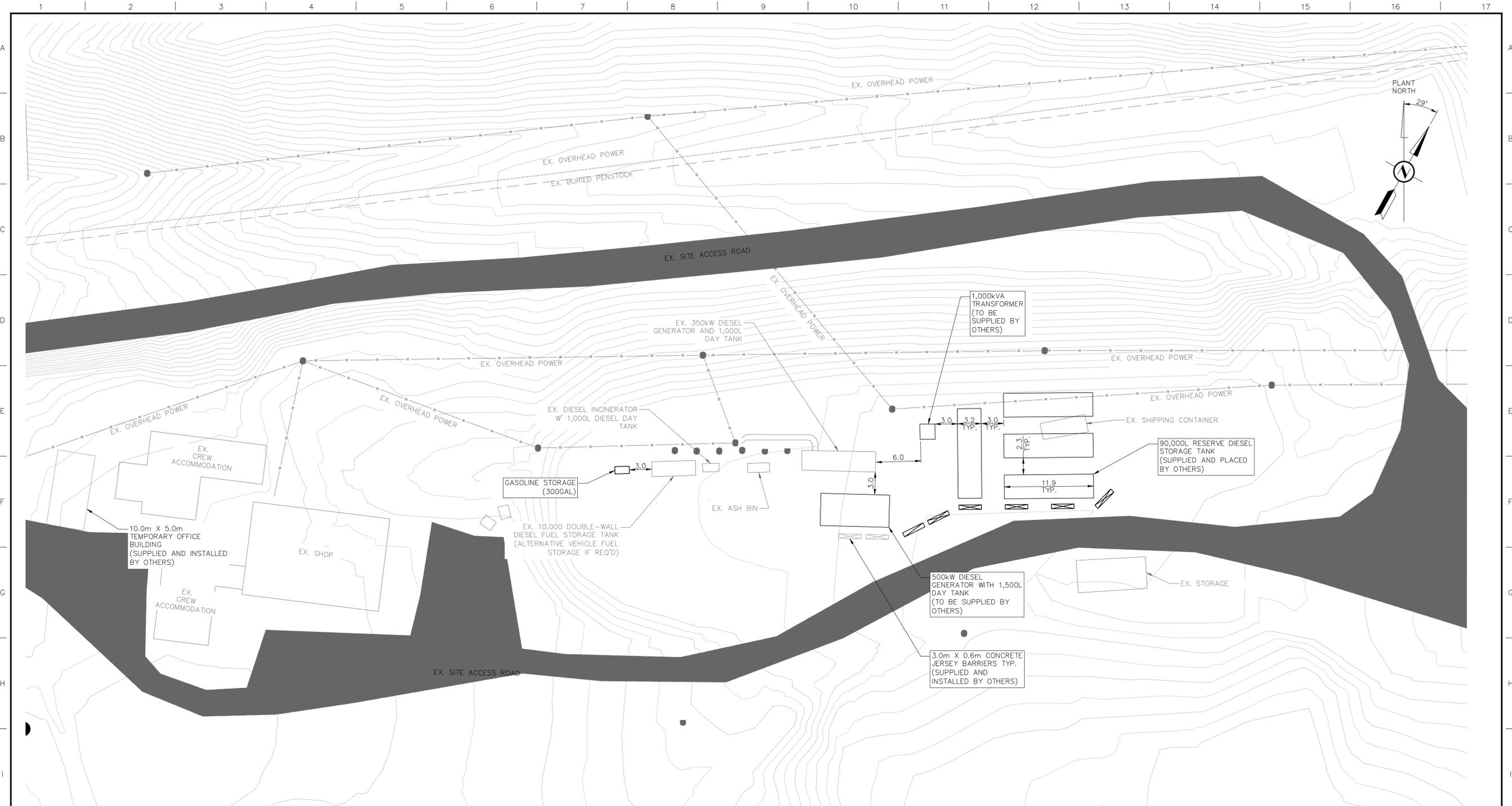


- NOTES:**
1. WELL CASING SHALL HAVE A BOTTOM PLATE, BOTTOM 1.8m [6'] OF CASING SHALL BE PERFORATED AT 150mm [6"] CENTRES
 2. THE EXISTING SHORELINE SHALL REMAIN UNCHANGED FOLLOWING CONSTRUCTION
 3. EXCAVATE INLET AS SHOWN, EXCAVATED MATERIAL TO SPOIL PILES
 4. BACKFILL WITH CLEAN PIT RUN GRAVEL FROM PIT "W". STOCKPILE FILL NEAR SITE PRIOR TO EXCAVATION
 5. NON-WOVEN GEO TEXTILE SHALL BE NILEX STYLE 4512 OR APPROVED EQUIVALENT
 6. (2) DN200 [8"] PERFORATED PIPES SHALL EXTEND INTO FOREBAY AND BE CAPPED
 7. INSTALL TEMPORARY SILT CURTAIN IN FOREBAY TO MITIGATE SPREAD OF SILT DURING CONSTRUCTION
 8. LAKE ELEVATION 2020/09/05: 240.49m [789.02"], CREST ELEV. OF SOUTH VALLEY SPILLWAY: 239.33m [785.20"]
 9. PUMP HOUSE CONSTRUCTION:
 - WALLS SHALL BE STICK FRAMED 2x6 AT 410mm [16"] O.C., INSULATED TO R20 C/W 9mm [3/8"] PLYWOOD SHEATHING, BUILDING WRAP AND WHITE EXTERIOR METAL SIDING. VAPOUR BARRIER ON INSIDE OF STRUCTURE COMPLETE WITH 9MM [3/8"] PLYWOOD SHEATHING AND ELECTRICAL
 - ROOF SHALL BE STICK FRAMED 2x6 AT 410mm [16"] O.C., INSULATED TO R20 C/W 3/4" PLYWOOD ROOF DECKING, ICE GUARD AND ROOFING PER CLIENT SPEC.
 - FLOOR FRAMING SHALL BE 2x10 AT 410mm [16"] O.C., COMPLETE WITH 19MM [3/4"] T&G PLYWOOD DECK, NO INSULATION.
 - ONE 915mm [36"] MAN DOOR ON SOUTH WALL OF STRUCTURE
 - FLOOR FRAMING SHALL BE 2x10 AT 410mm [16"] O.C., COMPLETE WITH 19MM [3/4"] T&G PLYWOOD DECK, NO INSULATION.
 - BUILDING SHALL BE COMPLETELY SKIRTED, FRAME SKIRTING WITH 2x6 LUMBER, SKIRTING PER CLIENT SPEC, INSULATED TO R20

										PROFESSIONAL STAMP	PERMIT STAMP	LOCATION TALSTON, NT	
										TITLE TALSTON CAMP WATER SUPPLY WELL AND PUMP HOUSE LOC'N SITE PLAN & SECTIONS			
										SCALE NTS	SHEET 1 OF 1	DRAWING NO. -	REV. 0

ID	DRAWING NO.	TITLE	REVISION LETTER	ORIGINAL	REVISION	WORK ORDER	NAME	DATE	CHECKED BY	DESIGNED BY	STATUS OF DRAWING	DATE
-	-	-	0	ISSUED FOR CONSTRUCTION	-	-	-	-	LC	LC	IFC	2021-03-09
-	-	-	A	ORIGINAL	-	-	SDM	2020-12-04	LC	LC	IFR	2020-12-04

Appendix C- Design Drawings for Fuel Storage



GENERAL NOTES:

1. SURVEY TO SET MARKER STAKES TO ESTABLISH SITE CONTROL IN UNIVERSAL TRANSVERSE MERCATOR COORDINATES ZONE 12, CENTRAL MERIDIAN 111° WEST (NAD83).
2. ALL DIMENSIONS ARE IN SI METRIC UNITS, UNLESS OTHERWISE NOTED.
3. ALL EXISTING UTILITIES MUST BE INDEPENDENTLY VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES AND OTHER SITE SPECIFIC FEATURES THAT ARE REQUIRED TO REMAIN INTACT DURING THE COURSE OF CONSTRUCTION.
5. THE CONTRACTOR IS RESPONSIBLE TO RESTORE SITE CONDITIONS, NOT ALTERED BY FINAL CONSTRUCTION, TO THE ORIGINAL OR BETTER CONDITION. AS APPROVED BY NTPC OR IT'S AGENT.
6. ALL ELEVATIONS SHOWN ARE EXISTING GROUND CONDITIONS.

FUEL STORAGE AREA - SITE PLAN



CIVIL GRADING LEGEND

- (238.49) EXISTING ELEVATION
- 242.0 — EXISTING GROUND CONTOUR

REFERENCE DRAWINGS	REVISION LETTER	REVISION
	E	REVISE EXISTING LAYOUT PER SURVEY
	D	ISSUED FOR REFERENCE
	C	ISSUED FOR LAND USE PERMITTING
	B	ISSUED FOR REFERENCE
	A	ISSUED FOR REFERENCE
	0	ORIGINAL - ISSUED FOR TENDER REVIEW

WORK ORDER	NAME	DATE	CHECKED BY	DESIGNED BY	STATUS OF DRAWING	DATE
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	KMP	03MAY21	DC	DC	TENDER	23APR21
	DJW	23APR21	DC/CB	DC	TENDER	23APR21
	DJW	21JAN21	DC/CB	DC	TENDER	21JAN21
	DJW	11JAN21	DC / DP	DC	DRAFT	11JAN21

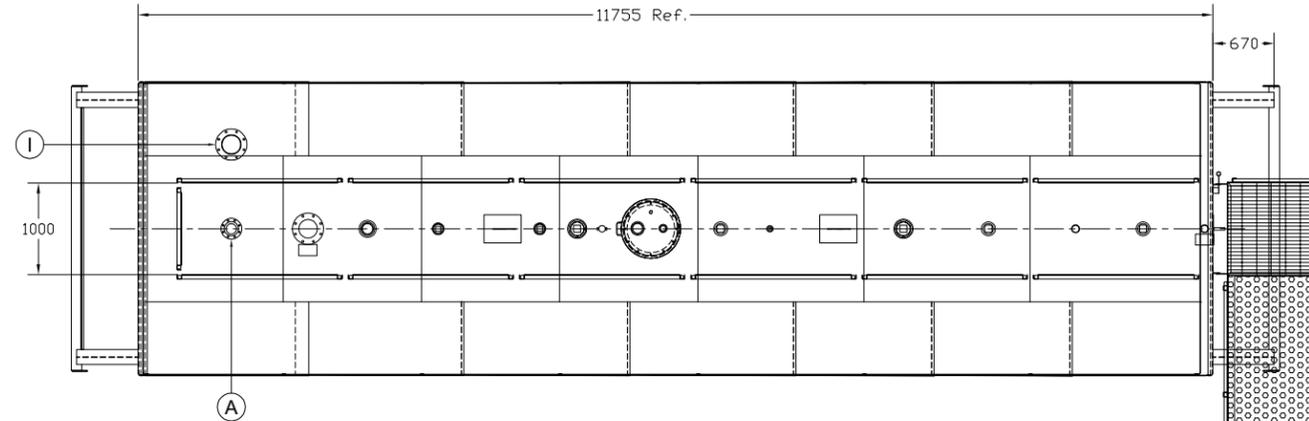
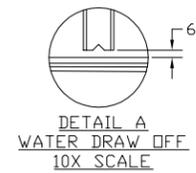
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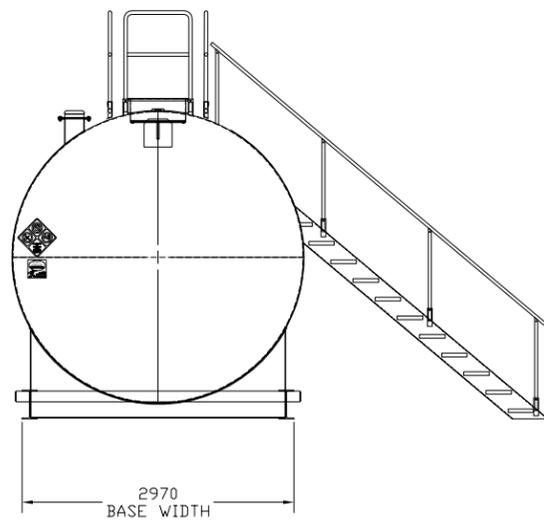
NOTES:

- 1 - UNIT CONFORMS TO ULC-S601-14 SPECIFICATIONS.
- 2 - PRODUCTION TESTING: 10 - 20 kPa (1.5 - 2.9 psi) AIR TEST.
- 3 - DIMENSIONS ARE IN SI UNITS AND MAY VARY DUE TO MANUFACTURING TOLERANCES.
- 4 - ALL COMPONENTS ARE SUPPLIED BY WESTEEL UNLESS OTHERWISE SPECIFIED.
- 5 - DECALS: WESTEEL AND ULC STANDARD DECALS ARE INSTALLED AS REQUIRED.
- 6 - ALL EXTERIOR SURFACES ARE PREPARED WHITE TO WCS-2 SPECIFICATIONS. ALL INTERIOR SURFACES ARE AS WELDED.
- 7 - UNITS c/w DIPSTICKS AND TOUCH-UP PAINT.

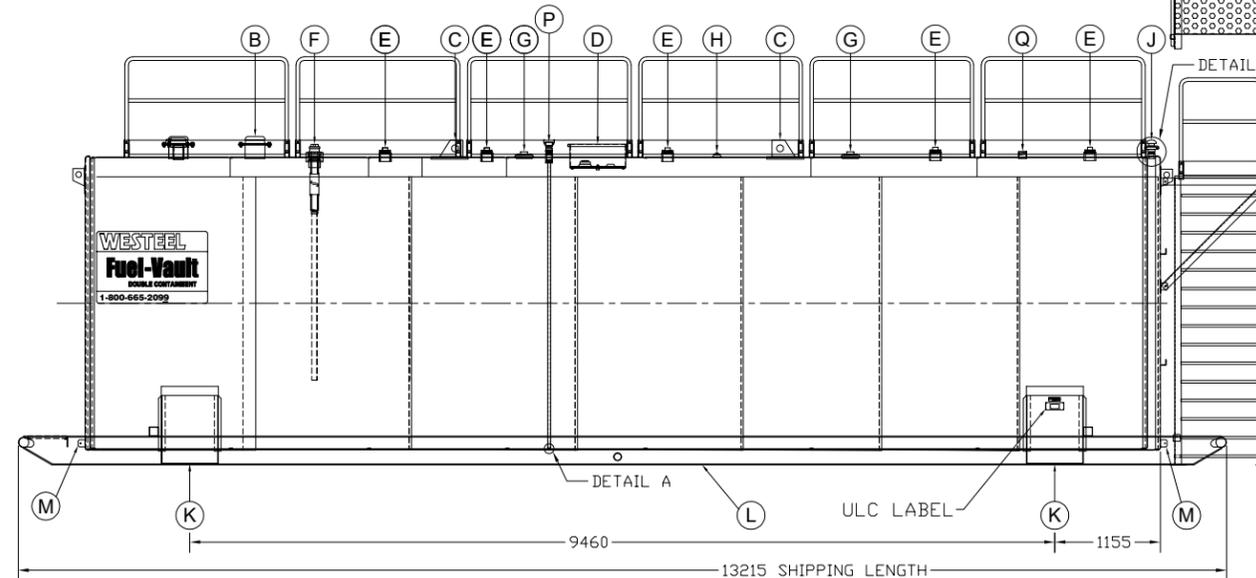
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A	1	102mm (4") Dia. NPT - PRIMARY TANK NORMAL VENT PORT	VENT PV ENARDO 4" MODEL 900
B	1	PRIMARY TANK EMERGENCY VENT 203mm (8")	VENT: MORRISON 2440F
C	2	LIFT LUGS	
D	1	610mm Dia. ACCESS SPILLBOX - 51mm CAMLOCK DIP PORT - 102mm NPT SPARE PORT - 19mm DRAIN PORT	c/w REMOVEABLE FITTING PLATE FOR PRIMARY TANK ACCESS
E	5	102mm (4") NPT - SPARE PORT (CPLG)	c/w M.I. PLUG
F	1	152mm (6") NPT - 76mm(3") FILL PORT - RTF / OVERFILL	OVERFILL: OPW-61FSTOP
G	2	152mm (6") NPT - SPARE PORT (TANK FLANGE)	c/w M.I. PLUG
H	1	51mm (2") NPT - SPARE PORT (TANK FLANGE)	c/w M.I. PLUG
I	1	SECONDARY TANK EMERGENCY VENT 203 mm (8")	VENT: MORRISON 2440F
J	1	51mm (2") NPT - SECONDARY TANK INSPECTION PORT	CAP: MORRISON 379
K	2	BASE SUPPORT SADDLES	
L		WF 12 x 26 lb/ft BEAM SKID BASE, AND 4" Sch.40 TOW BARS	
M	2	GROUND LUGS	
N	1	PERPENDICULAR STAIRCASE / TOP PLATFORM 40" SQ / REMOVEABLE HANDRAILS TOP OF TANK AROUND FITTINGS / NON SLIP PAINT TOP OF TANK	c/w GALV. HANDRAILS / 40 DEG STAIRS / GALV. GRATING ON PLATFORM
O	1	VERTICAL DIPSTICK HOLDER	c/w 320 cm (12 ft.) DIPSTICK
P	1	50mm (2") NPT - WATER DRAW OFF	c/w RED. BUSHING 2"x1". AL. PIPE TO 1/2" OFF FLOOR, TYPE F & DC CAMLOCK
Q	1	50mm (2") PIPE NIPPLE 3" LG TOE	c/w DIP STICK GAUGE CAP



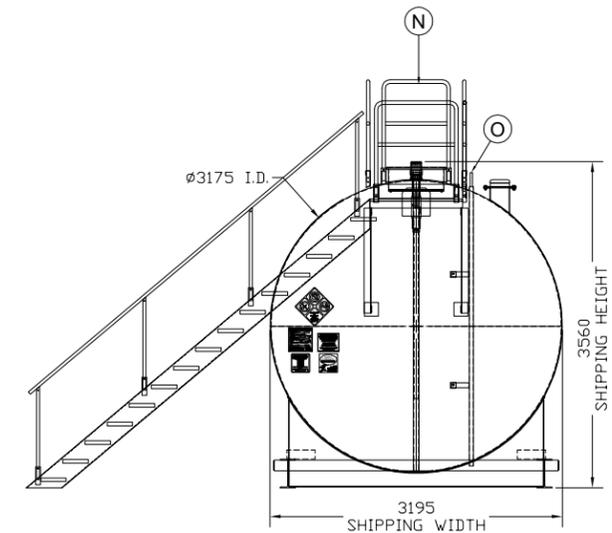
PLAN VIEW



END VIEW



SIDE VIEW



END VIEW

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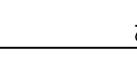
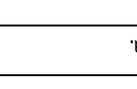
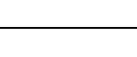
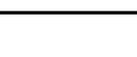
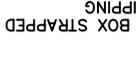
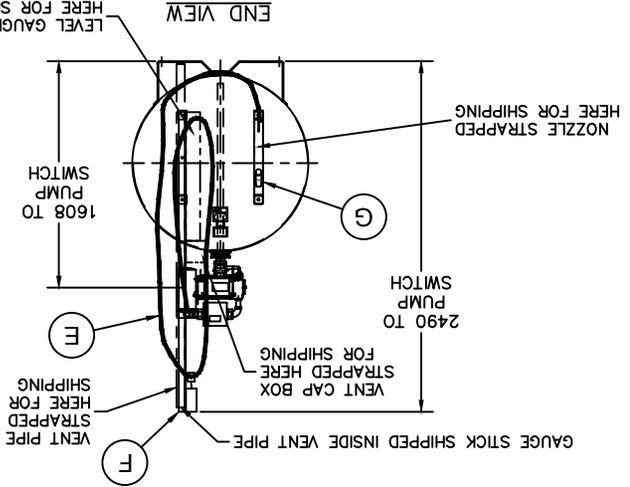
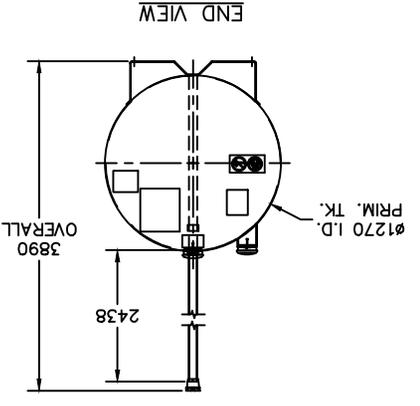
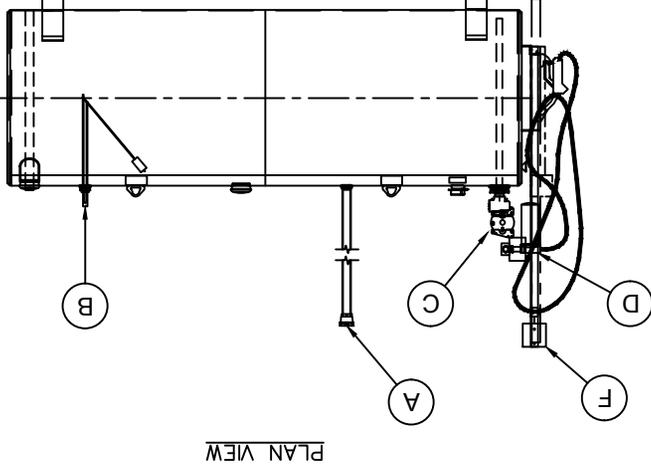
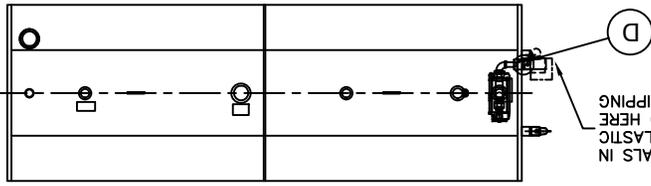
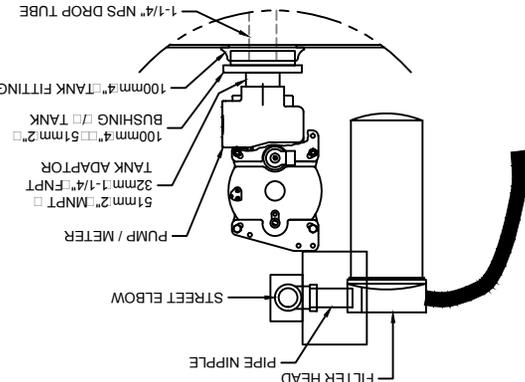
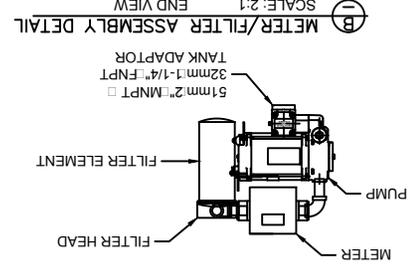
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WEIGHT: 16,692 kg. (36,800 lbs.)		CHECKED BY:	CHECKED DATE:		
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PAINT SPEC: WCS-2 WHITE	UNLESS OTHERWISE SPECIFIED: 1. ALL DIMENSIONS ARE IN mm 2. DIMENSION TOLERANCES ARE: - LINEAR +/- 10mm. - ANGLES: +/- 1°. DONOT SCALE THIS DRAWING	DXF BY:	DXF DATE:	DRAWING / FILE No.: HFV-C 91500 25017197	SHEET 1 OF 1

PUMP PACKAGE A - P/N 00742-50 - LOW FLOW RATE (20 GPM) - FR 701 COMPONENTS

MARK	QTY	P/N	DESCRIPTION	MATL	REMARKS
A	1	00114	VENT STACK	ALUM	51mm 2" 2406" LL - TOE
B	1	264311	TANK LEVEL GAUGE	ALUM	AT-A-GLANCE D-2-50
C	1	FR700NK	PUMP	FR700NK	PUMP FR 700 1/3 HP 20 GPM 115 VAC
	1	FR-07CLMK	METER	FR-07CLMK	METER FR-07 PUMP MNT FITTINGS
	1	FR-KIT700AVP	TANK ADAPTOR	ALUM	2" MNPT 1-1/4" FNPT ANTI-SIPHON PORT
	1	273410	DROP TUBE	ALUM	1-1/4" 1245 4" LL - TOE
D	1	262733	FILTER HEAD	ALUM	FILTER HEAD 0.75" FNPT ALUM.
	1	262713	FILTER ELEMENT	SS	FILTER 4" 60 MICRONS
	1	262750	PIPE NIPPLE	SS	NIPPLE 3/4" X 2.0" S/S NPT
	1	262751	STREET ELBOW	SS	ELB 3/4" S/S STREET LOD
E	1	27461-20	HOSE	HOSE	HOSE 3/4" LOW TEMP. 20' 3/4" M.M.S
F	1	262744	NO. LE - AUTO	NO. LE - AUTO	NO. LE - AUTO 0.75 DIESEL FILTRITE
	1	262114	HOSE RETRACTOR	HOSE RETRACTOR	HOSE RETRACTOR GR GASB 3265
	1	272103	RETRACTOR MAST	A63	51 64 12134 LL - PAINTED
	1	262115	HOSE CLAMP	HOSE RETRACTOR	HOSE RETRACTOR CLAMP 1"
G	1	272115	NO. LE HOLDER	WESTEEL FABRICATED	WESTEEL FABRICATED
H	1	272117	HARDWARE PKG	WOOD	11 021 01100 63"
I	1	273463	DIPSTICK	WOOD	11 021 01100 63"

NOTES:

- PIPE THREADS ARE TO BE SEALED WITH GASOLIA OR EQUIVALENT.
- INSTALL ALL ITEMS WITH EXCEPTION TO VENT PIPE, VENT CAP, DIPSTICK AND LEVEL GAUGE, WHICH ARE SHIP LOOSE.
- USING DUCT TAPE (OR SIMILAR), TAPE OFF ONE END OF VENT PIPE AND INSERT DIPSTICK FOR SHIPPING.
- ATTACH VENT PIPE TO INSTALLED RETRACTOR MAST WITH SHRINK WRAP AND TAPE.
- SEAL VENT CAP BOX WITH SHRINK WRAP AND TAPE (MUST BE WATER RESISTANT).
- SHRINK WRAP AND TAPE TO VENT PIPE / RETRACTOR MAST SECURELY.
- SHRINK WRAP LEVEL GAUGE BOX (OR SIMILAR) TO KEEP IT DRY.
- WRAP AND SECURELY FASTEN HOSE TO RETRACTOR MAST. PLACE NO. LE IN NO. LE HOLDER AND TIE TOGETHER TO SECURE.
- PART MANUALS (FOR PUMP, METER, ETC.) ARE PLACED IN A WATERPROOF PLASTIC BAG.
- SHRINK WRAP AND TAPE TO VENT PIPE / RETRACTOR MAST SECURELY.
- FINAL INSPECTION REQUIRED BEFORE SHIPPING.
- ENSURE FILTER HEAD AND METERS ARE INSTALLED CORRECTLY.)



No.	DATE	REVISION DESCRIPTION	ECN #	CHKD
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1	20 NOV 12	UPDATE CLAMP - RETR. ORIENTATION	L10106C	HMU
2	25 APR 14	REV BOM, BLK, INSTALL STEPS	L10196C	CDS
3	18 SEP 15	REV. PUMP MODEL TO ELIM. STOCK HOSE	L10262C	N.K.

WORK ORDER:	BY:	CHKD:

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APPROVED BY:	APPROVED DATE:
WKD	14 OCT 11

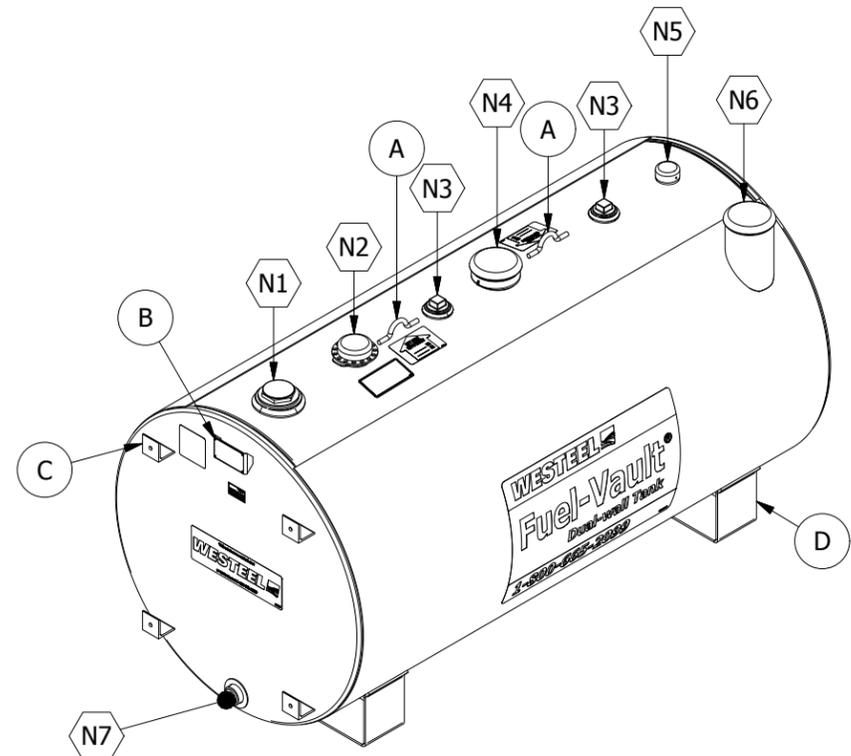
DEF. BY:	DEF. DATE:
SEE REV.	SEE REV.

UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN mm
2. DIMENSION TOLERANCES ARE:
- LINEAR +/- .10mm
- ANGLES +/- .1°
DONOT SCALE THIS DRAWING

REV.	SIZE	CUSTOMER:
3		PUMP PKG A 50 FRO FLOW
		TSPL / OLDS

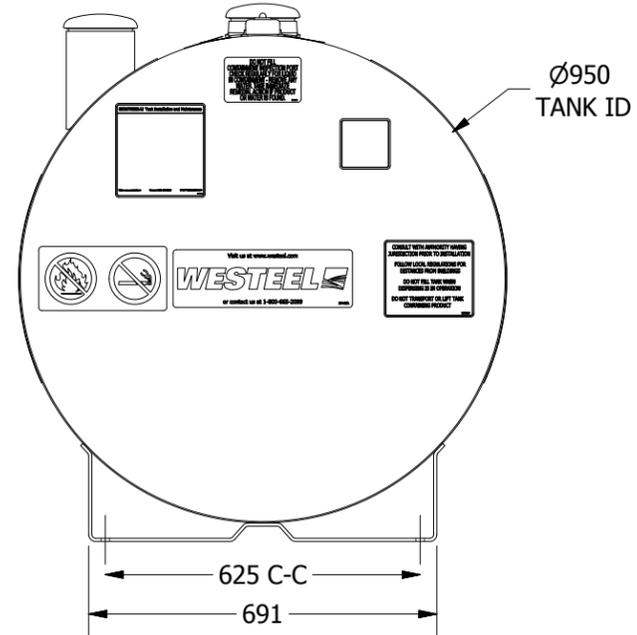
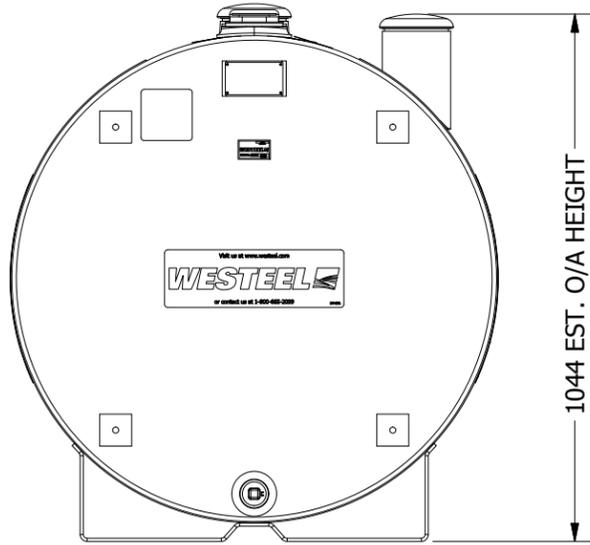
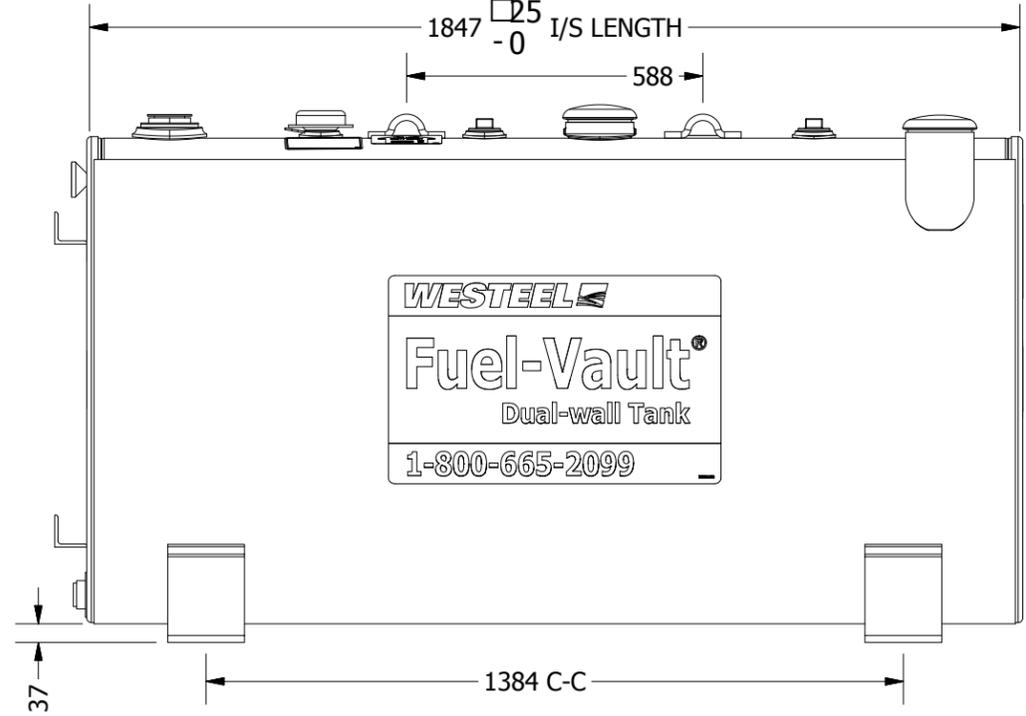
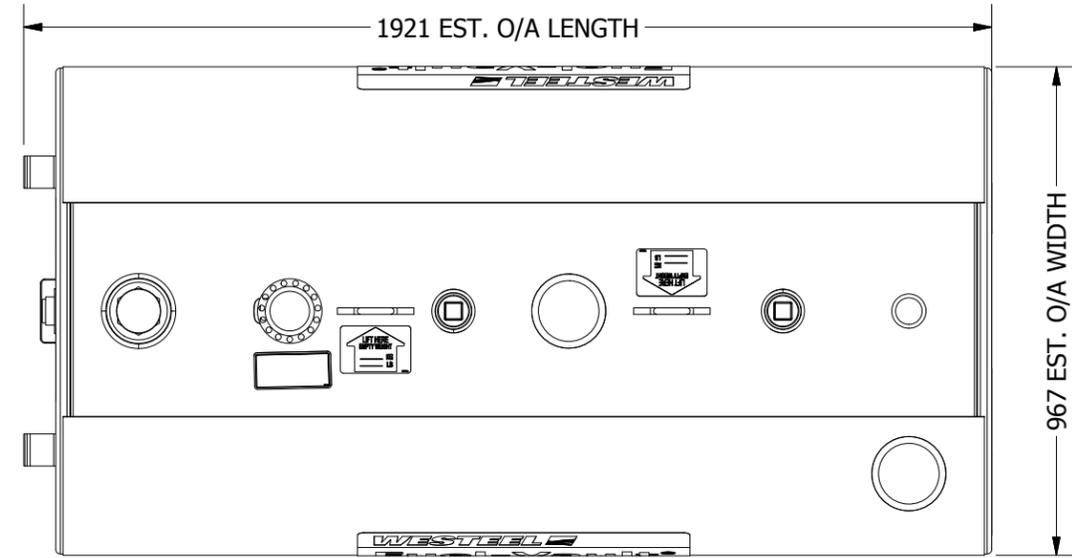
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- NOTES:
1. SEE TANK SPECIFICATIONS.
 2. PRODUCTION TESTING: 35kPa (5 psi) AIR/SOAP TEST.
 3. DIMENSIONS & CAPACITY MAY VARY SLIGHTLY DUE TO MANUFACTURING TOLERANCES.
 4. DECALS: WESTEEL AND ULC STANDARD DECALS ARE INSTALLED AS REQUIRED.
 5. EXTERIOR FINISH - PHOSPHATE WASH, POWDER COAT WHITE.
INTERIOR FINISH - AS WELDED
 6. IF INSTALLING PUMP WITH 115 LPM OR HIGHER, ADDITIONAL VENTING REQUIRED.
CONTACT WESTEEL.

MARK	QTY	DESCRIPTION	REMARKS
N1	1	4" NPT TANK FLANGE c/w 4" X 2" RED	PUMPOUT
N2	1	2" NPT TANK FLANGE c/w LOCKING CAP	FILL/VENT
N3	2	2" NPT TANK FLANGE c/w CI PLUG	SPARE
N4	1	4" NPS VENT COLLAR w/ CAP	PRI E-VENT
N5	1	2" NPT PIPE	SEC INSPECTION
N6	1	4" NPS VENT ASSEMBLY w/ CAP	SEC E-VENT
N7	1	1.5" NPT TANK COUPLING c/w CNTRSUNK PLUG	DRAIN
A	2	LIFTING LUGS	
B	1	ULC NAMEPLATE	
C	4	ACCESSORY TABS	
D	2	CRADLES	



TANK SPECIFICATIONS:
 FABRICATION CODE: ULC S601-14
 TANK TYPE: INTEGRAL CONTAINED
 NOMINAL CAPACITY: 1311 L ± 16
 MATERIAL: CARBON STEEL
 MINIMUM MATERIAL THICKNESS: 2.5 mm
 MAX. OPERATING PRESSURE: 7 kPa
 MAX. OPERATING VACUUM: 300 Pa
 LIFT LUG **NOT** CERTIFIED TO LIFT TANK WITH CONTAINING PRODUCT

NO	DATE	DESCRIPTION	ECR	BY	CH
9	26 MAY 16	REPLACE 2" DRAIN FLG W/1.5" FULL CPLG	L10291C	FR	CDS
8	24 SEPT 15	ADDED DRAIN FITTING	L10267C	HWU	GD
7	11 JUL 13	CHANGED FOR HRPO SHEET	L10156C	HWU	CDS
6	27 MAY 13	REV BOM PER SAP/REV T-BLOCK	L10131C	CDS	HWU
5	11 JAN 13	264301 & 264301B WERE 235152	L10114C	HWU	KA
4	09 MAY 12	ADD BLT/NUT-N7/CRMV A.T. DISC/REV NP	L10060C	CDS	IB
3	06 SEPT 11	ADD NOTE 8/ANTI-THEFT DISC	L10008F	NK	CS
NO	DATE	DESCRIPTION	ECR	BY	CH

	This drawing is the exclusive property of WESTEEL and all rights are reserved. No part of this drawing may be used or reproduced in any manner whatsoever without written permission from WESTEEL.		CALCULATED WEIGHT 700.4 lbmass	LOCATION 5067
	DRAWING TITLE CST 300G FV DW S601 GENERAL ARRANGEMENT		QUOTE NO. 264903	ORDER NO.
CUSTOMER WESTEEL DESIGN STANDARD		DRAWING NO.	REV. 9	SHEET 1 of 1

DIMENSIONS SHOWN ARE MM
 IMPERIAL UNITS ARE IN BRACKETS

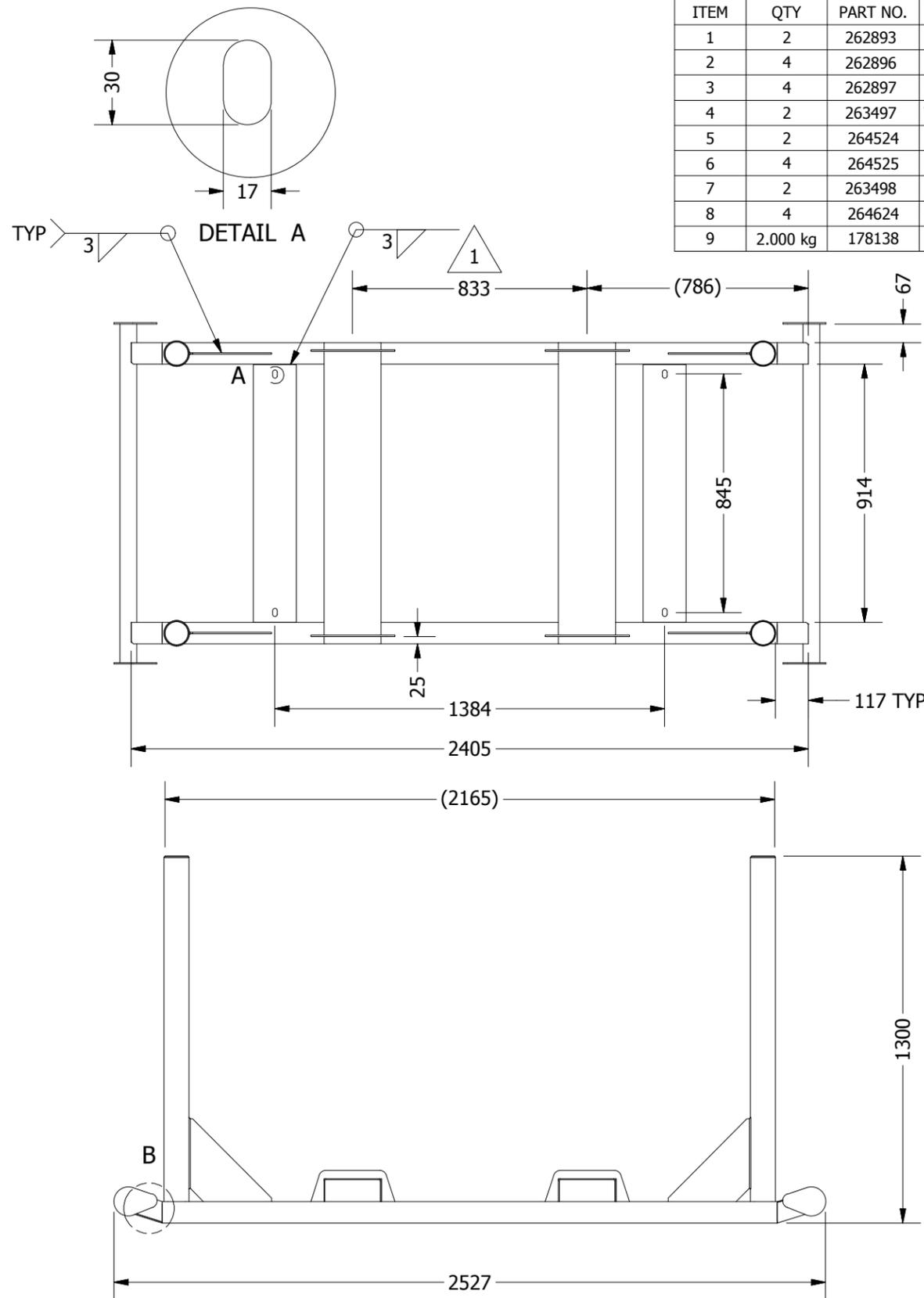
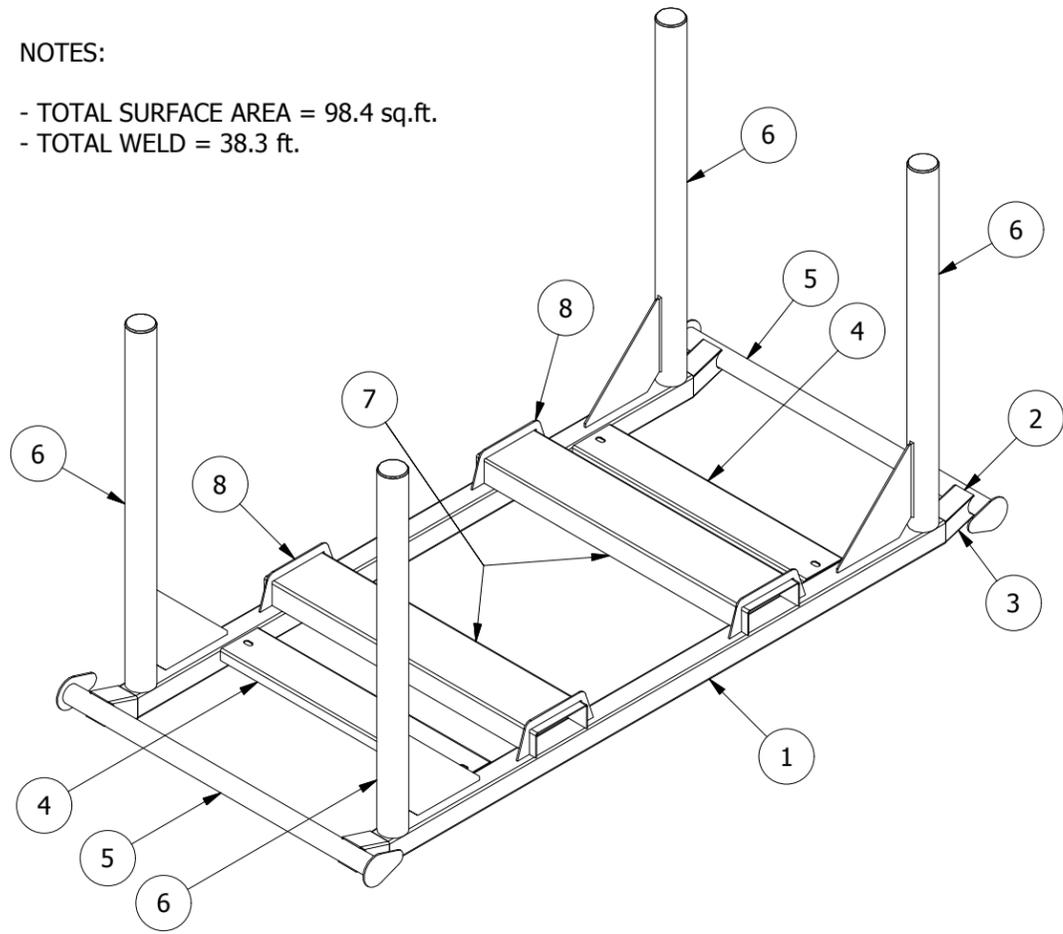
TOLERANCES
 (UNLESS OTHERWISE NOTED)

DIMENSIONS:
 METRIC (mm) IMPERIAL (in.)
 x ± 2 .x ± 1
 .x ± 1.0 .xx ± .03
 .xx ± .50 .xxx ± .010

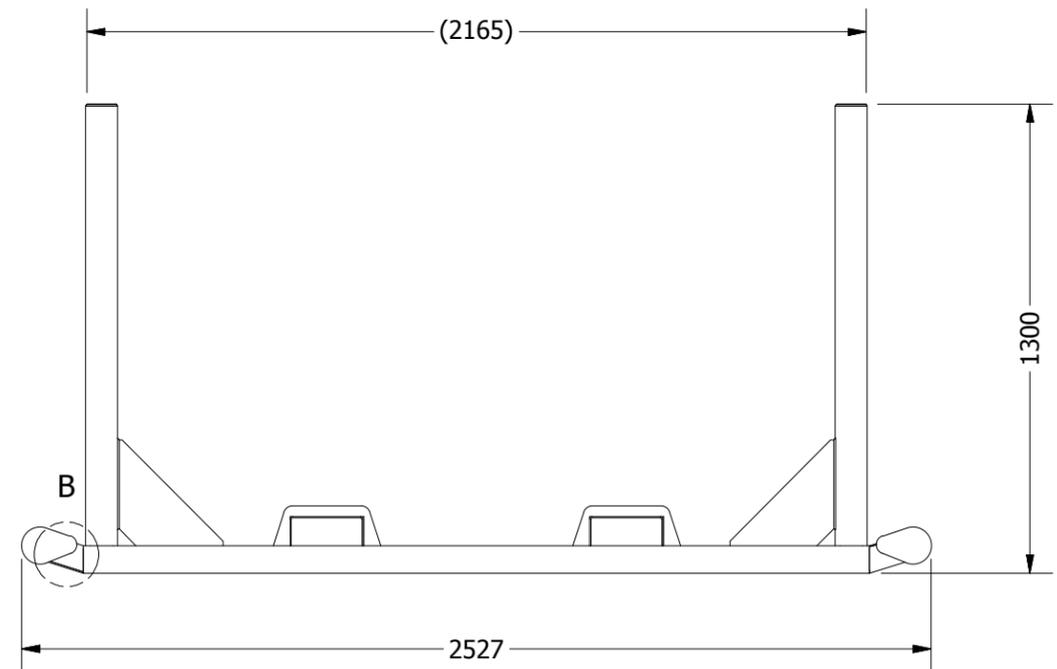
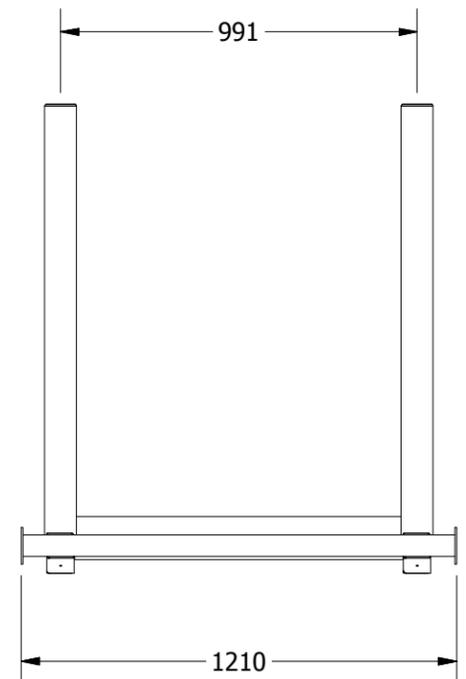
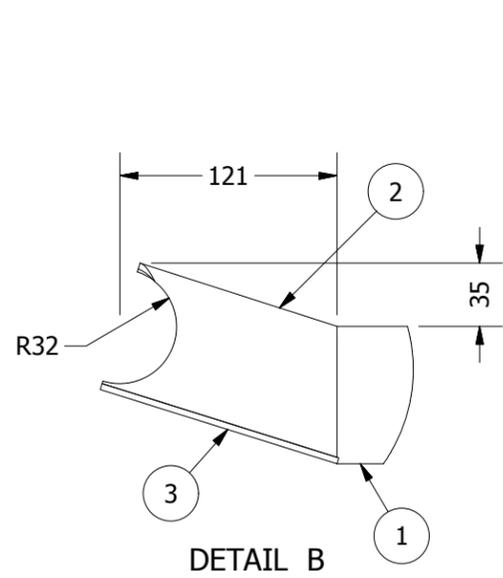
ANGULAR: ± 1°

NOTES:

- TOTAL SURFACE AREA = 98.4 sq.ft.
- TOTAL WELD = 38.3 ft.



ITEM	QTY	PART NO.	DESCRIPTION
1	2	262893	HSS 3.0x3.0x.125w A500C-50W 2184 mm
2	4	262896	SKIP CAP 3.0 in TOP 3.4
3	4	262897	SKIP CAP 3.0 in BOTTOM 3.4
4	2	263497	TANK MOUNT 3.4 X 38 X 152 X 913
5	2	264524	SKID TOW PIPE ASSEMBLY FV
6	4	264525	BOLLARD & CAP ASSEMBLY
7	2	263498	SKID FORK POCKET 3.4 X 81 X 203 X 1067
8	4	264624	GUSSET FORK POCKET
9	2.000 kg	178138	PNT PWDR WHITE



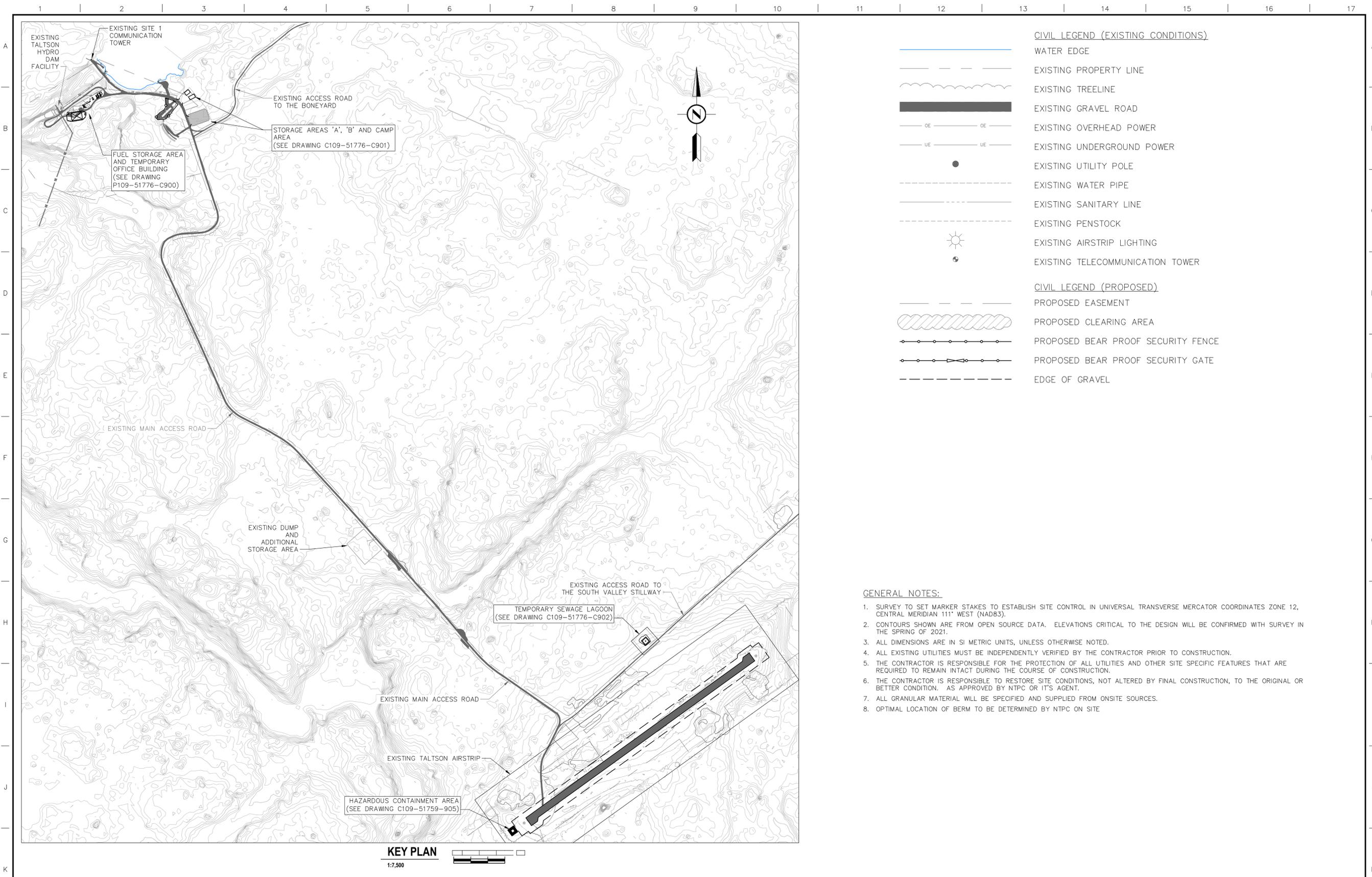
NO	DATE	DESCRIPTION	ECR	BY	CH
1	30 Oct 15	WAS 762		HWU	GD
0	13 Oct 15	RELEASED FOR PRODUCTION	L10268C	HWU	GD

DIMENSIONS SHOWN ARE MM IMPERIAL UNITS ARE IN BRACKETS	DESND. LCS	DATE 28 May 15
TOLERANCES (UNLESS OTHERWISE NOTED)	DWN. lucs	DATE 02 Sep 15
DIMENSIONS: METRIC (mm) IMPERIAL (in.)	CHKD. GD	DATE 09 Oct 15
x ± 2 .x ± .1 .x ± 1.0 .xx ± .03 .xx ± .50 .xxx ± .010	APPD. GD	DATE 09 Oct 15
ANGULAR: ± 1°		

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	DRAWING TITLE	SKID ASSY HSS FV22H W/BLRDS
CUSTOMER	DESIGN STANDARD	

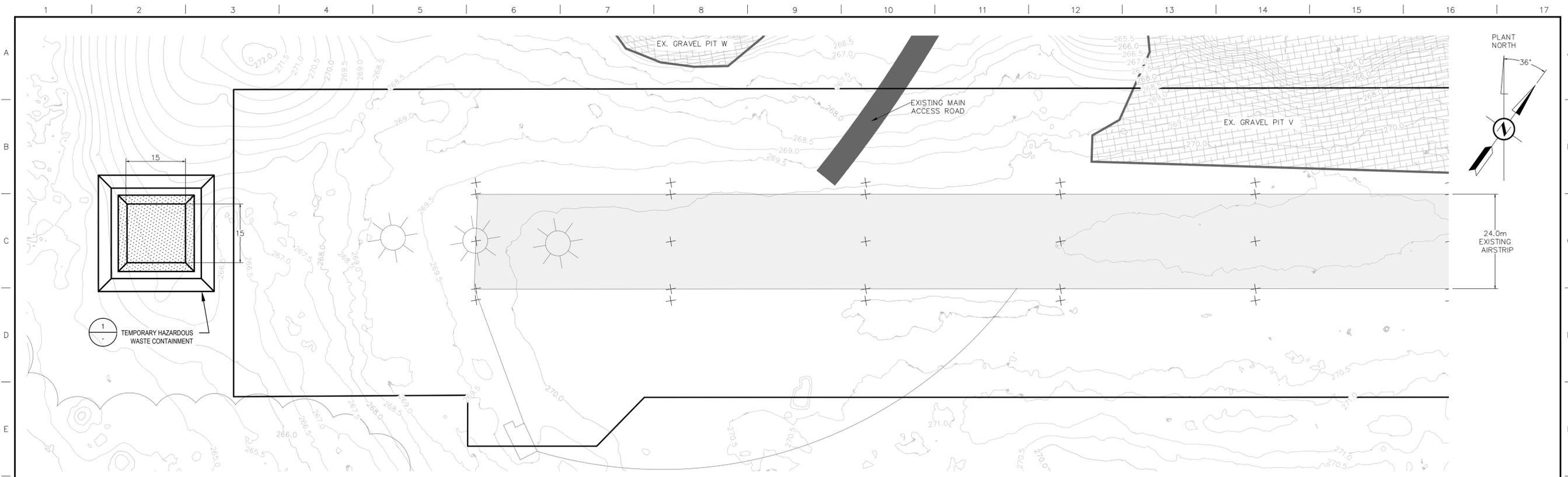
CALCULATED WEIGHT	318.8 lbmass	LOCATION	5067
QUOTE NO.		ORDER NO.	
DRAWING NO.	263681	REV.	1
		SHEET	1 OF 1

Appendix D- Design Drawings for Hazardous Waste Storage



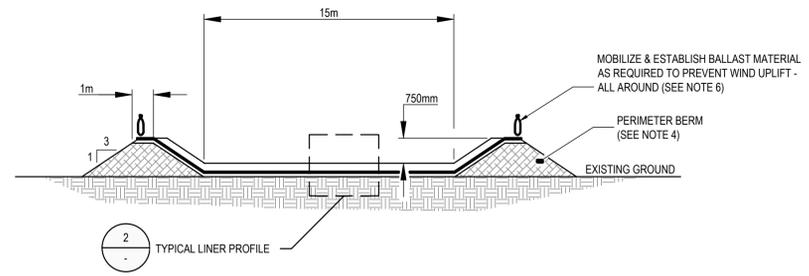
										PROFESSIONAL STAMP	PERMIT STAMP	LOCATION TALTSON, NWT		
										TITLE TALTSON REHABILITATION PROJECT 2021 CONSTRUCTION - TB03 CIVIL KEY PLAN, LEGEND AND GENERAL NOTES				
										SCALE 1:7500		DRAWING NO. P109-51776-C1000(C)		REV. C
										SHEET 1 OF 1				

REVISION LETTER	REVISION	WORK ORDER	NAME	DATE	CHECKED BY	DESIGNED BY	STATUS OF DRAWING	DATE
C	ISSUED FOR LAND USE PERMITTING	-	KMP	03MAY21	DC	DC	TENDER	23APR21
B	ISSUED FOR REFERENCE	-	BJB	23APR21	DC / DP	DC	TENDER	23APR21
A	ISSUED FOR REFERENCE	-	DJW	21JAN21	DC / DP	DC	TENDER	21JAN21
0	ORIGINAL - ISSUED FOR TENDER REVIEW	-	DJW	11JAN21	DC / DP	DC	DRAFT	11JAN21



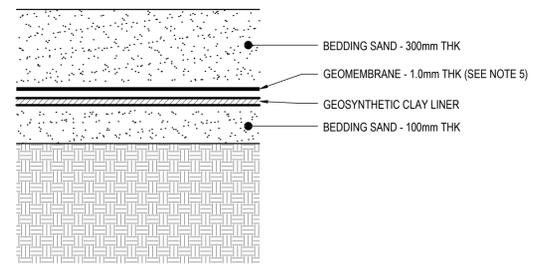
HAZARDOUS WASTE CONTAINMENT - PLAN

1:500



DETAIL - TYPICAL SECTION OF TEMPORARY HAZARDOUS WASTE CONTAINMENT

HORIZ 1:200
VERT. 1:100



DETAIL - TYPICAL LINER PROFILE

NTS

CIVIL LEGEND

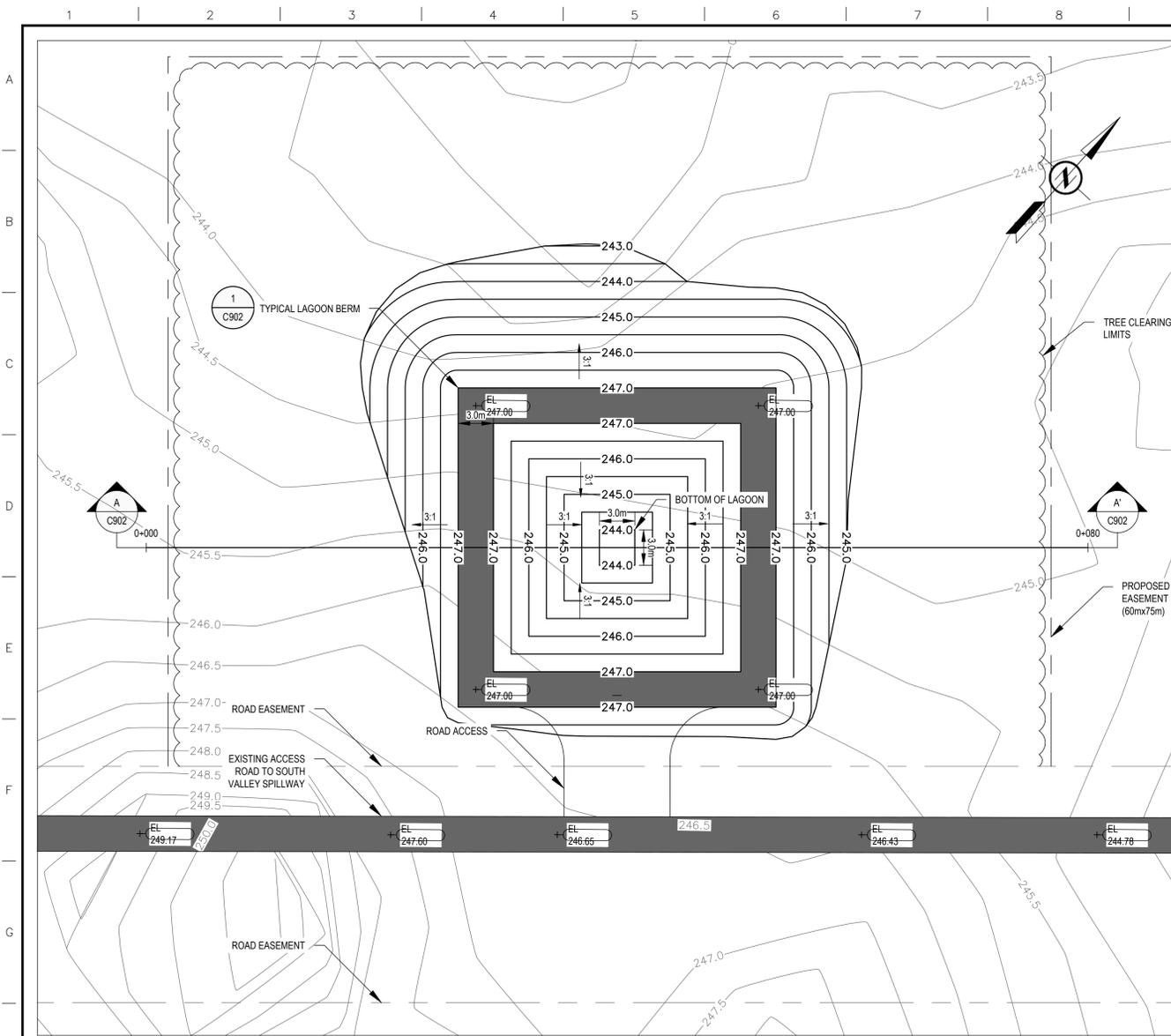
- 242.0 EXISTING GROUND CONTOUR
- EXISTING GRAVEL PIT

CIVIL SITE NOTES:

1. REFER TO GENERAL NOTES ON SHEET P109-51776-C1000(C)
2. EXISTING CONTOURS SHOWN ARE FROM OPEN SOURCE DATA AND AERODOM PRE-FEASIBILITY STUDY SUPPLIED INFORMATION. ELEVATIONS CRITICAL TO THE DESIGN WILL BE CONFIRMED WITH SURVEY IN THE SPRING OF 2021.
3. ALL DIMENSIONS ARE IN SI METRIC UNITS, UNLESS OTHERWISE NOTED.
4. PERIMETER BERM TO BE CONSTRUCTED USING ON-SITE SOURCED MATERIAL PREFERABLY FINE-GRAINED SOIL PLACED IN THIN LIFTS (300mm MAX. LOOSE THICKNESS) AND COMPACTED TO MIN. 95% SMDD IN ACCORDANCE WITH ASTM D698.
5. GEOMEMBRANE TO BE NILEX XR5 REINFORCED GEOMEMBRANE OR APPROVED EQUAL.
6. BALLAST MATERIAL TO BE SAND BAGS, RUBBER TIRES, PRECAST CONCRETE BLOCK, OR APPROVED EQUAL.
7. BERM CONTAINMENT CAPACITY SHALL ALLOW FOR 140 PALLETS WITH 4 DRUMS PER PALLET

										PROFESSIONAL STAMP	PERMIT STAMP	LOCATION TALTSON, NWT		
												TITLE TALTSON REHABILITATION PROJECT 2021 CONSTRUCTION - TB03 HAZARDOUS WASTE CONTAINMENT PLAN AND DETAILS		
01			C	ISSUED FOR LAND USE PERMITTING	-	KMP	03MAY21	DC	DC	TENDER	23APR21	SCALE AS SHOWN	SHEET 2 OF 4 DRAWING NO. P109-51776-C905	REV. C
			B	ISSUED FOR TENDER	-	BJB	23APR21	DC/DP	DC	TENDER	23APR21			
			A	ISSUED FOR TENDER (NOT TENDERED)	-	DJW	21JAN21	DC/DP	DC	TENDER	21JAN21			
			0	ORIGINAL - ISSUED FOR TENDER REVIEW	-	AK	11JAN21	DC / DP	DC	DRAFT	11JAN21			
REFERENCE DRAWINGS			REVISION LETTER	REVISION	WORK ORDER	NAME	DATE	CHECKED BY	DESIGNED BY	STATUS OF DRAWING	DATE			

Appendix E- Design Drawings for Temporary Sewage Lagoon



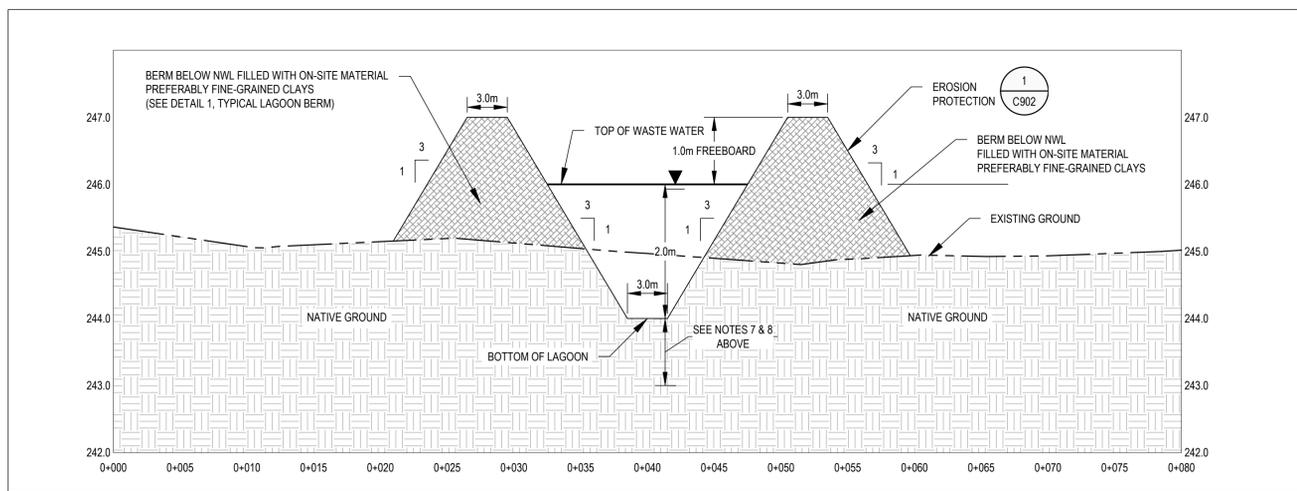
TALTSON HYDRO DAM FACILITY TEMPORARY SEWAGE LAGOON - PLAN

1:250

CIVIL GRADING LEGEND
 - - - 242.0 EXISTING GROUND CONTOUR
 ——— 242.0 PROPOSED GROUND CONTOUR

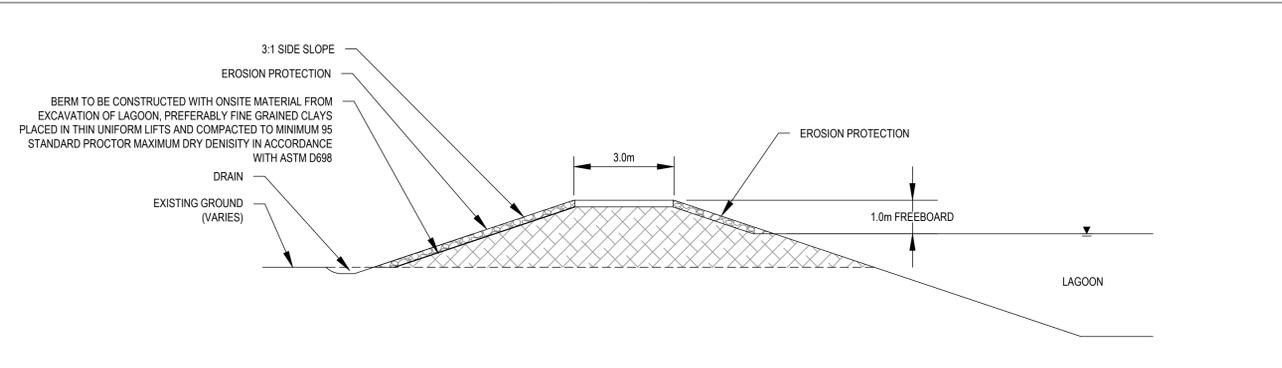
CIVIL SITE NOTES:

1. REFER TO GENERAL NOTES ON SHEET P109-51776-C1000(C)
2. EXISTING CONTOURS SHOWN ARE FROM OPEN SOURCE DATA. ELEVATIONS CRITICAL TO THE DESIGN WILL BE CONFIRMED WITH SURVEY IN THE SPRING OF 2021.
3. ALL DIMENSIONS ARE IN SI METRIC UNITS, UNLESS OTHERWISE NOTED.
4. A GEOTECHNICAL INVESTIGATION WILL BE DONE IN THE SPRING OF 2021.
5. DESIGN DETAILS AND LAYOUT FOR THE TEMPORARY SEWAGE LAGOON AND ACCESS ROAD WILL BE PROVIDED PRIOR TO CONSTRUCTION STARTUP UPON THE REVIEW OF THE SURVEY AND GEOTECHNICAL REPORT.
6. ALL GRANULAR MATERIAL WILL BE SPECIFIED AND SUPPLIED FROM ONSITE SOURCES.
7. SEWAGE LAGOON DESIGN IS BASED ON A BASE SIZE OF 6m X 18m X 2m DEEP.
8. THE ASSUMPTION OF A RELATIVELY PERMEABLE SOIL (SAND/SILTY SAND) AND A K_{SAT} OF 4E-05 CM/SEC AT LEAST 1m THICK ACROSS THE FOOTPRINT OF THE LAGOON WILL BE REQUIRED FOR THE LAGOON TO ACT AS AN INFILTRATION POND.
9. BEDROCK IS ASSUMED TO BE 5m DEEP ACROSS THE FOOTPRINT.



SECTION - LAGOON

A-A' C902 SH:1V 1:250



1 C902 NTS
DETAIL - TYPICAL LAGOON BERM

										PROFESSIONAL STAMP	PERMIT STAMP	LOCATION TALTSON, NWT			
												TITLE TALTSON REHABILITATION PROJECT 2021 CONSTRUCTION - TB03 TEMPORARY SEWAGE LAGOON PLAN, SECTIONS AND DETAIL			
01												SCALE AS SHOWN	SHEET 1 OF 1	DRAWING NO. P109-51776-C902	REV. D
REFERENCE DRAWINGS			REVISION LETTER			REVISION			WORK ORDER	NAME	DATE	CHECKED BY	DESIGNED BY	STATUS OF DRAWING	DATE