


**JACOBS™**

## Site Technical Query - Form

SN1809-0000/XE.FRM/0001 Rev 4 03/02/2022

TQ Number:		Project:	
<b>CW2148472 -A010- 00109</b>		<b>Oyu Tolgoi Underground Project</b>	
A. To be completed by or on behalf of the Contractor			
Contractor/Sub-Contractor Name:	MCS International	Date Response	15/09/2022
Contract Title:	Haulage Truck Workshop /C-004D/	Plant Area &	1883
Contract No.	CW2148472	Contractor TQ Number:	TWS-0415-TQ-0109
Discipline Codes (Mandatory) <b>D1 (CSA)</b> - <input type="checkbox"/> <b>D2 (MP)</b> - <input checked="" type="checkbox"/> <b>D3 (E&amp;I)</b> - <input type="checkbox"/> <b>D4 (Other)</b> - <input type="checkbox"/>			
<p><i>Description of Technical Query (List affected drawings and specifications):</i></p> <p><b>Subject: To change pipe elevation in west access due to underbreak of shotcrete wall.</b></p> <p>Following pipelines can't be installed as per its design due to underbreak of shotcrete in west access and oil room area.</p> <p>1883-OLL-2131-S4B-1.5"-NI      1883-OLL-2137-S4B-1.5"-NI      1883-OLL-2143-S4B-1.5"-NI      1883-OLL-2167-S4B-002"-NI      1883-OLL-2158-S4B-002"-NI      1883-OLL-2149-S4B-1.5"-NI      1883-OLL-2207-S4B-1.5"-NI      1883-OH-2201-S4B-1.5"-NI      1883-AP-2084-C1A-002"-NI      1883-FW-2730-G2F-003"-NI      1883-FW-2702-G2F-002"-NI      1883-WP-2032-C1A-002"-NI</p>			
<input type="checkbox"/> Routine		<input checked="" type="checkbox"/> Urgent	Refer Technical Query instructions
<p><i>Proposed Action (List all attachments)</i></p> <p>The Contractor is proposing to change elevation of pipelines. Therefore, pipe support will not clash with shotcrete. Proposed elevation of pipelines red highlighted in attachment 5 and 6.</p> <ol style="list-style-type: none"> <li>1. 1883-50-T1-1103_1</li> <li>2. 1883-50-T1-1112_2</li> <li>3. 1883-50-T1-1121_1</li> <li>4. Clash check of west access</li> <li>5. Survey result of oil room</li> <li>6. Survey result of west access</li> <li>7. 1861-50-T1-1146_2</li> </ol>			
<b>If more space is required use extra page at the end of this FORM</b>			
Effect on cost (USD):	YES		
Effect on schedule (Days):	YES		
Effect on quality:	NO		
Requested by (Name):	Nyamsuren O.	Position:	SMP Engineer
Signature:		Date: (dd/mm/yyyy)	15/09/2022

B. To be completed by Jacobs Field Engineer

*Comments/recommendations by Engineering*

Proposal is technically acceptable.

Redline the relevant drawings accordingly.

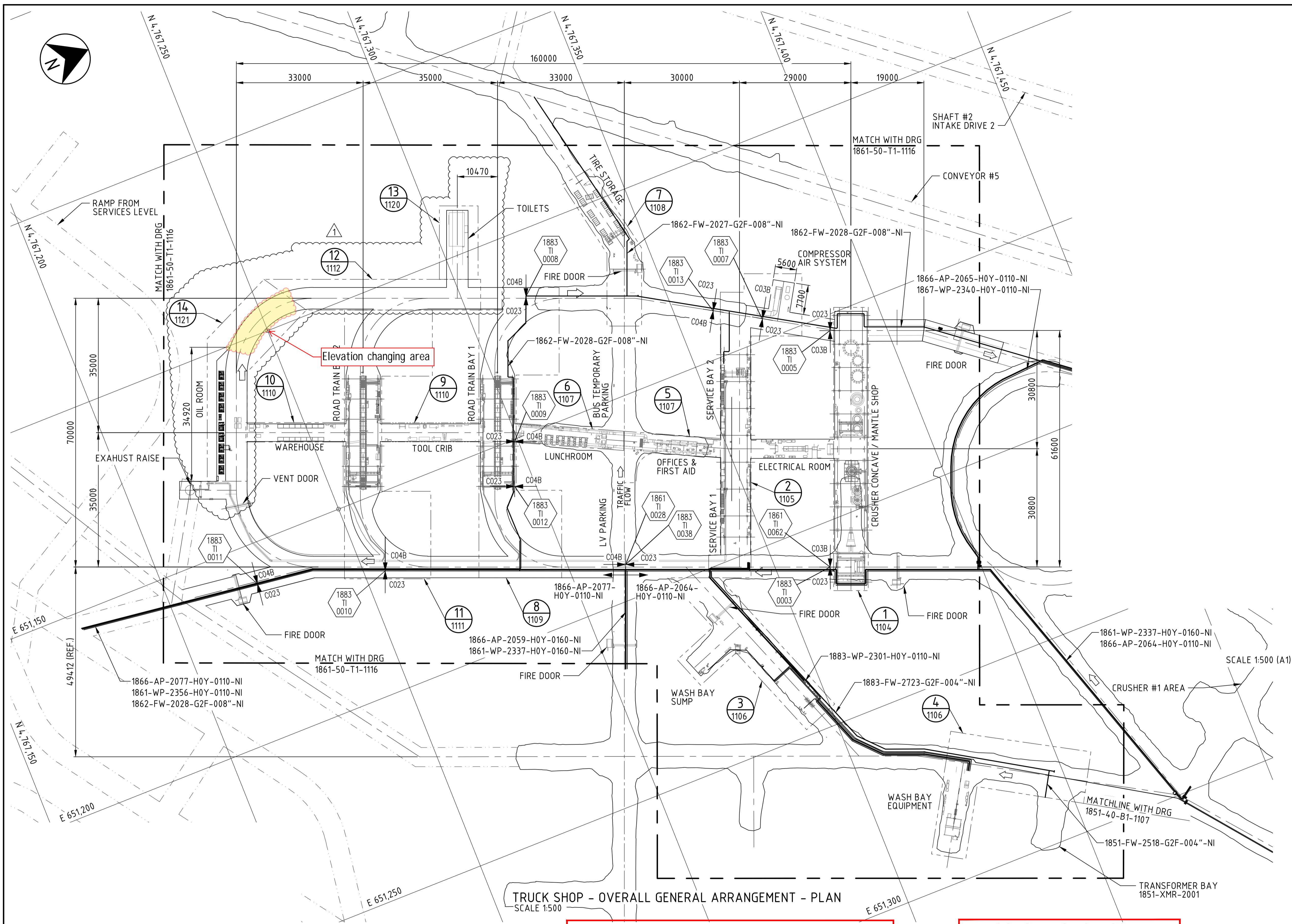
*Disclaimer:*

*Acceptance or rejection of this TQ is only related with technical aspects.*

*If Cost or Schedule Impact are associated with this TQ, it must be discussed separately with Jacobs Contract team.*

C. Engineering Decision		D. Information		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Accept with comments	Reject	<b>Design Change</b> Distribute to: Design Author DA	<b>Cost Impact</b> Distribute to: Contracts, Proj. Controls & Construction Manager	<b>Schedule Impact</b> Distribute to: Proj. Controls & Construction Manager

REVIEWER		APPROVER		CONSTRUCTION MANAGER	
Field Engineer OR Lead Engineer		Lead Engineer OR Chief of Engineering		(If <b>Cost</b> and/or <b>Schedule</b> Impact)	
Date: (dd/mm/yyyy)		Date: (dd/mm/yyyy)		Date: (dd/mm/yyyy)	



**CAUTION - PROJECT DRAWING - NOT AS BUILT**

## **CONSTRUCTION ISSUE**

REV.	DATE	REVISION DESCRIPTION	DES.	APPROVED	REV.	DATE	REVISION DESCRIPTION
			CHK.				
C	29.06.18	ISSUED FOR APPROVAL	MO	CC			
			BM	CC			
0	09.07.18	ISSUED FOR CONSTRUCTION	MO	CC			
			BM	EM			
1	14.09.20	ISSUED FOR CONSTRUCTION	TM	BM			
			AK	SM			

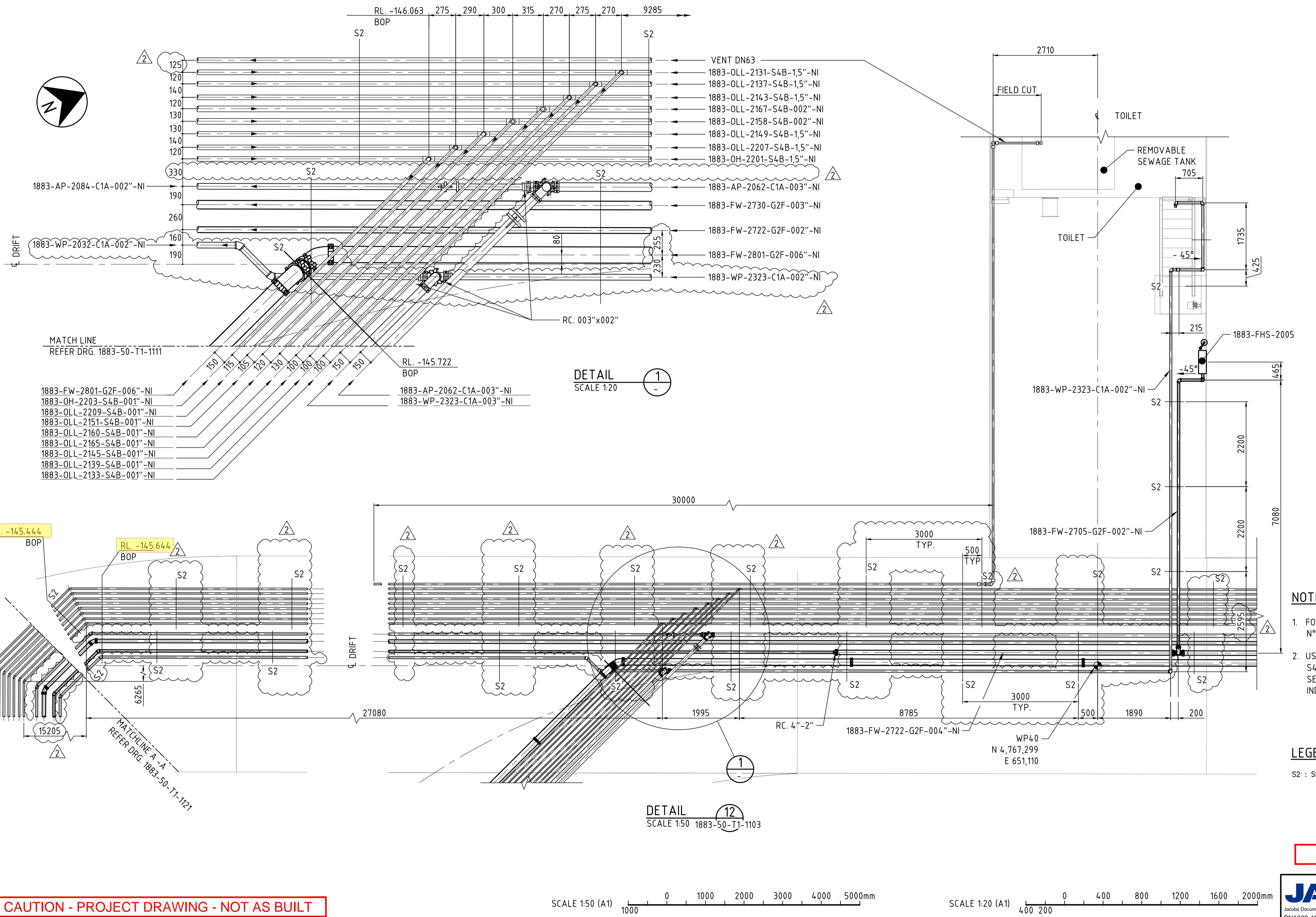


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PRODUCED BY	DESIGNED BY M. OPAZO	DRAWN BY L. TORRES	OYU TOLGOI UNDERGROUND PROJECT UNDERGROUND WORKSHOPS TRUCK SHOP HAULAGE LEVEL GENERAL ARRANGEMENT - PLAN
PROJECT NO SN1809	CHECK DESIGN B. MAUREIRA	CHECK DRAWING B. MAUREIRA	
CONTRACT NO	LEAD ENGINEER C. CID	APPROVAL DATE 09.07.18	
DRAWING SIZE A1	AREA PROJECT ENGINEER	ENGINEERING MANAGER E. MARIN	
LOT SCALE 1:500	PROJECT MANAGER	APPROVAL DATE 09.07.18	
DWG FILE NAME 1883-50-T1-1103.DWG	CLIENT	APPROVAL DATE	SCALE 1:500
			DRAWING NUMBER 1883-50-T1-1103
			REV. 1



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**эргдлээ:** Энэхүү баримт бичиг [бүсийн түүхий хэсэг, хасвартал]-т узүүлсан, хууруулсан, агуулагдсан, мөн нь баримт бичигч ир тавьсан зураг, төвлөвлөгөө, загвар, дизайн болон бусад аливаа мэдээллийг.

Толгой ХХК эмчилж бөгөөд Оюу Толгой ХХК-ийн өмч мян. Иймээс эдгээр мэдээлэл нь зөвхөн Оюу Толгой компанийн додог хэрэгцээнд зориулахад бөгөөд Оюу Толгой ХХК-ийн бичигэн зөвшөөрөлгүйгээр эдгээр эмчилж аливаа газарийн хувьларгас, хувьлан олшрууллас эсхүл эдгээр мэдээлэлд нэвтрэх эхийг аливаа дээрээсээгүй хатуу хоригилоно. Эдгээр нэхлийн (бодиротоо зөрчинен эсхүл зөрчихийг оролдсон) эзэндээлж хувийн хувцаслагад хувьлалгас бөгөөд боломжийт бүх чухлын эзэн эзэг хамжээ зөвхөн

**JACOBS**  
Jacobs Document No. SN1800-1800/DP-DPC/1112  
JACOBS ENGINEERING SINGAPORE PTE LTD  
(Registration number 199803266M),  
a company incorporated in Singapore and  
having its registered office at 50 Raffles  
Place #32-01 Singapore Land Tower,  
Singapore, 048623 (the offshore Contractor)

383/PP.DRG/1110 Web: www.jacobs.com  
JULGO UNDERGROUND PROJECT

JULGÜ UNDERGROUND PROJECT  
GROUND WORKSHOPS

# GROUND WORKSHOPS

## CLIMATE MANAGEMENT

## SHOP HAULAGE LEVEL

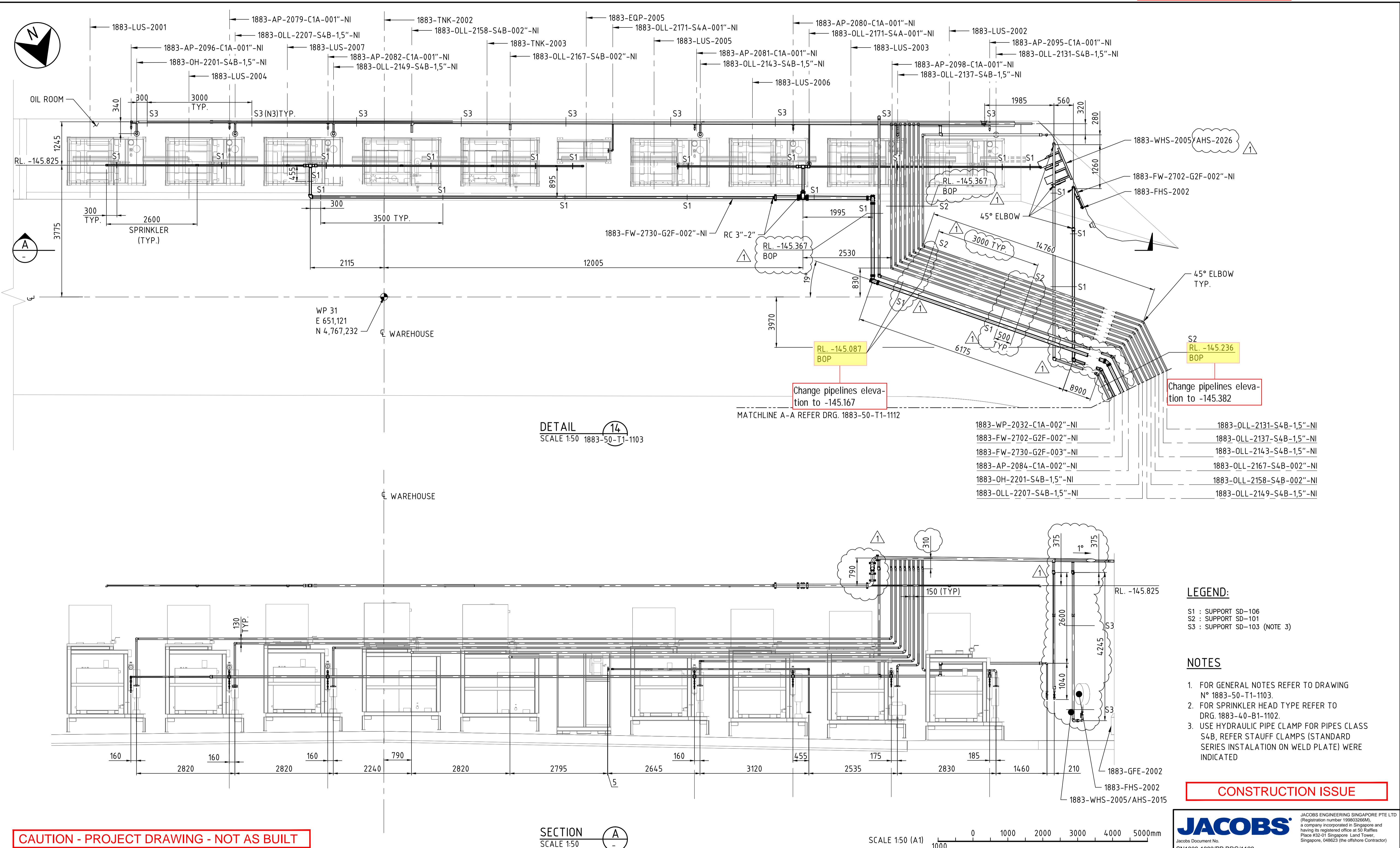
## - DETAILS

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100-111	DRAWING NUMBER 100B-52-T1-1112	REV.
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SHOWN | 1883-50-T1-1112 | 2



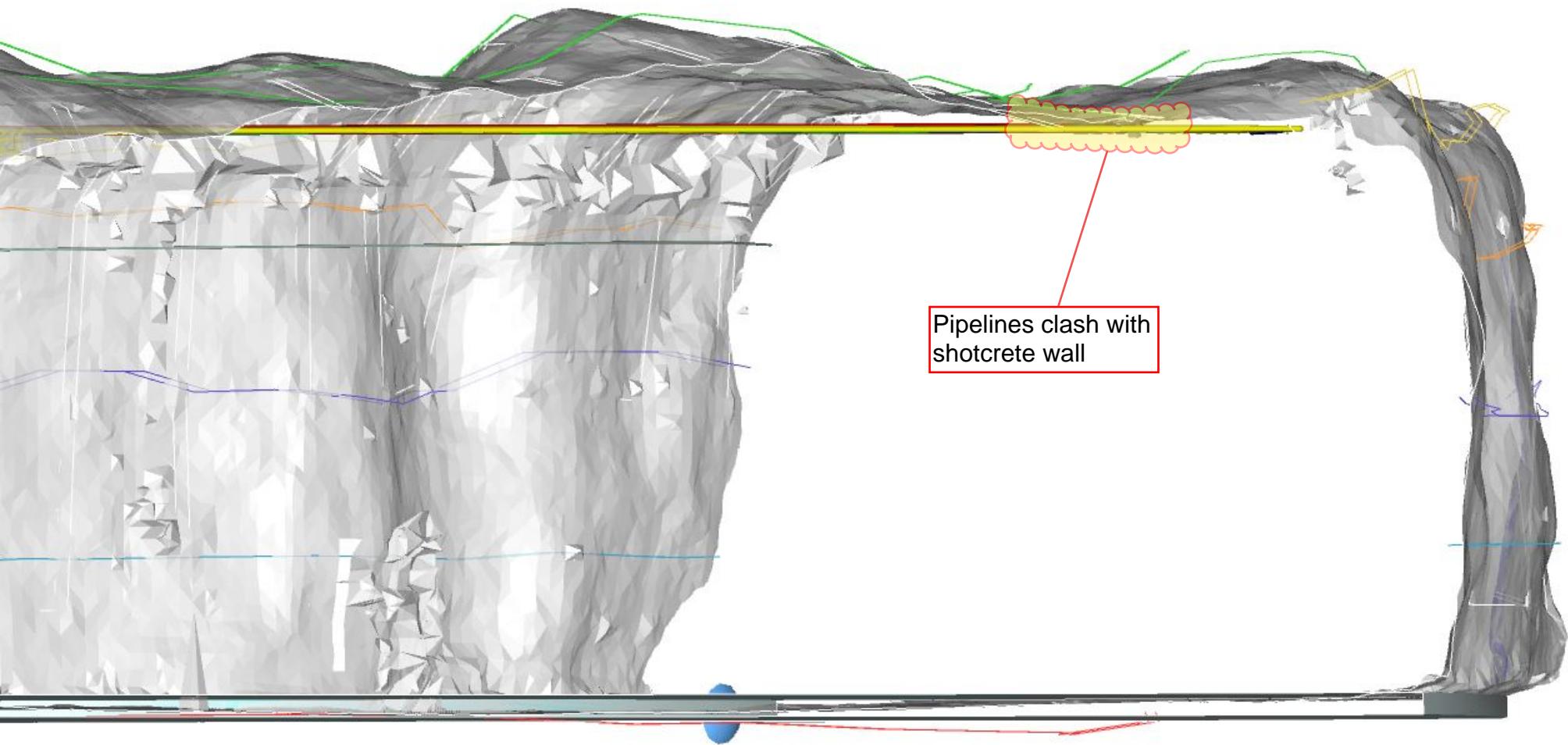
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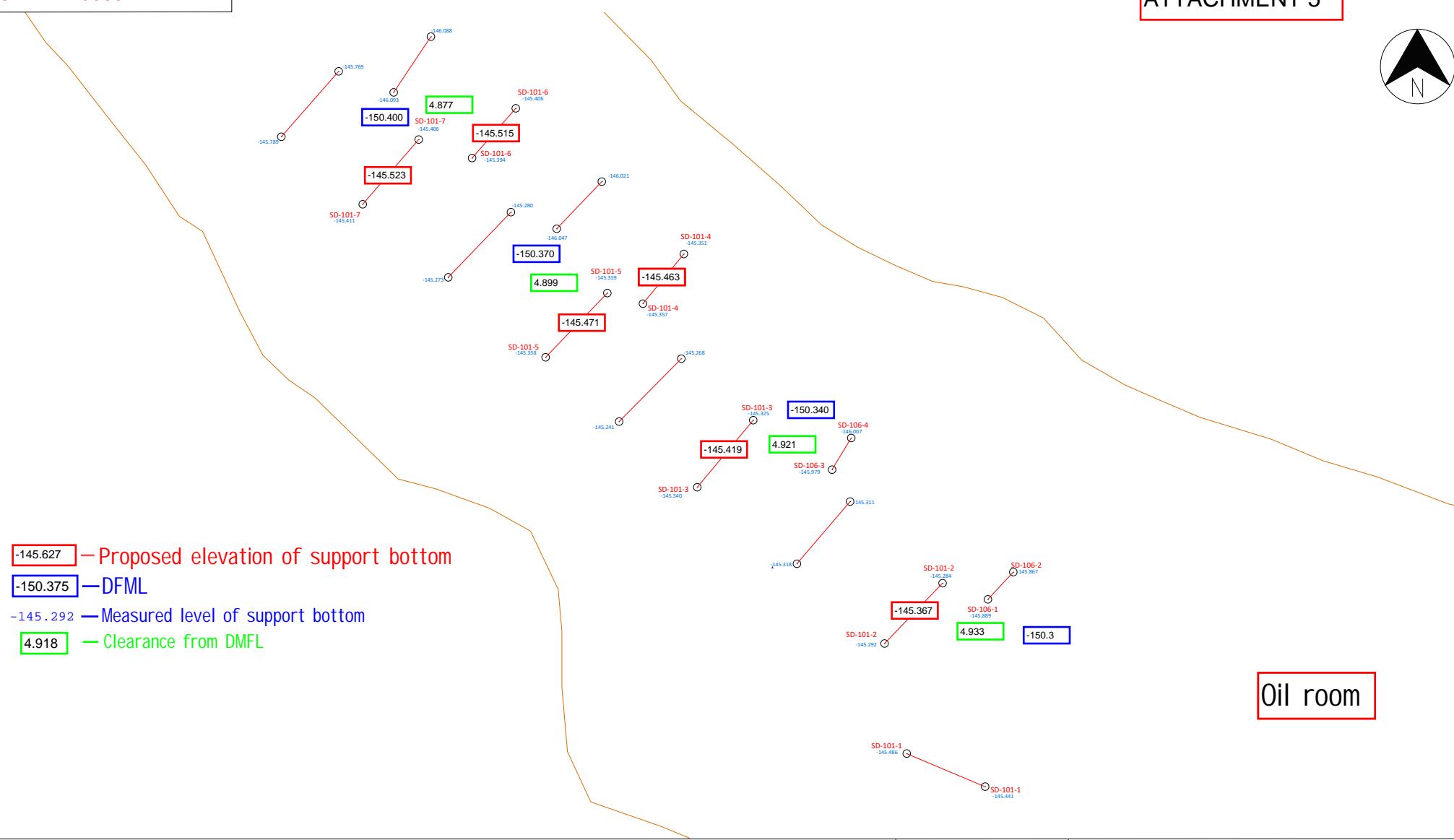


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SYSTEM & DELUGE SYSTEM P&ID	<p><b>Disclaimer:</b> Drawings, plans, models, designs or any other information displayed, contained in, made available or disclosed in this document (or its part or attachment) is owned by Oyu Tolgoi LLC and may be a proprietary of Oyu Tolgoi LLC and hence the internal use of Oyu Tolgoi LLC only. Making a copy or reproduction thereof in any form or giving an access or possession to any third party without Oyu Tolgoi LLC's written consent or permission shall be strictly prohibited. Any violation (actual or attempted) and prohibitions shall be subject legal liabilities and Oyu Tolgoi LLC reserves its rights and entitlements to all available legal remedies.</p> <p><b>Мэдэгдэл:</b> Энэхүү баримт бичиг эсхүл тунний хэсэг, хавсралт-т үзүүлсан, харуулсан, агуулагдсан, мөн энэхүү баримт бичигээр ил тавьсан зураг, төлөвлөгөө, загвар, дэвшиг болгоц бусад аливаа мэдээллийг Оюу Толгой ХХК эмчилж бөгөөд Оюу Толгой ХХК-ийн өмч мен. Иймээс эдгээр мэдээлэл нь зөвхөн Оюу Толгой ХХК-ийн дотоод хэрэгцээнд зориулагдсан бөгөөд Оюу Толгой ХХК-ийн бичгэн зөвшөөрөлгүй ээжээр мэдээллийг аливаа хэлбэрээр хувьлгарах, хувилан олшруулж эсхүл өдөрний мэдээлэл нэвтрэх эрхийг аливаа бусад этгээдэд өгөхийг хатуу хориглоно. Эдгээр нэхцүүдийн (бодитор ёрчирен эсхүл зөрчихийн ордолсон) аливаа зөрчид хуулийн хариуцлага хүлээлгэх бөгөөд боломжит бүх хууль эрх зүйн арга хэмжээ авах эрхээ Оюу Толгой ХХК хадгална.</p>
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PROJECT NO SN1809	CHECK DESIGN B.MYANGANBAATAR		CHECK DRAWING A.KUMAR			
CONTRACT NO	LEAD ENGINEER S.MANGALSUREN		APPROVAL DATE 02.09.20			
DRAWING SIZE A1	AREA PROJECT ENGINEER		ENGINEERING MANAGER L.GOMEZ			
PLOT SCALE 1:50	PROJECT MANAGER		APPROVAL DATE 02.09.20			
CAD FILE NAME 1883-50-T1-1121.DWG	CLIENT OYU TOLGOI	APPROVAL DATE	SCALE 1:50	DRAWING NUMBER 1883-50-T1-1121	REV. 1	





### LEGEND

- Shotcrete wall
- Measured point
- Pipe support
- Measured level

Horizontal and Height datum origin:

Point name	Coordinate and Height		
	East	North	Height
TWS15	651100.197	4767280.74	-149.227
TWS20	651093.751	4767249.998	-148.778

Used equipment: Leica TS09



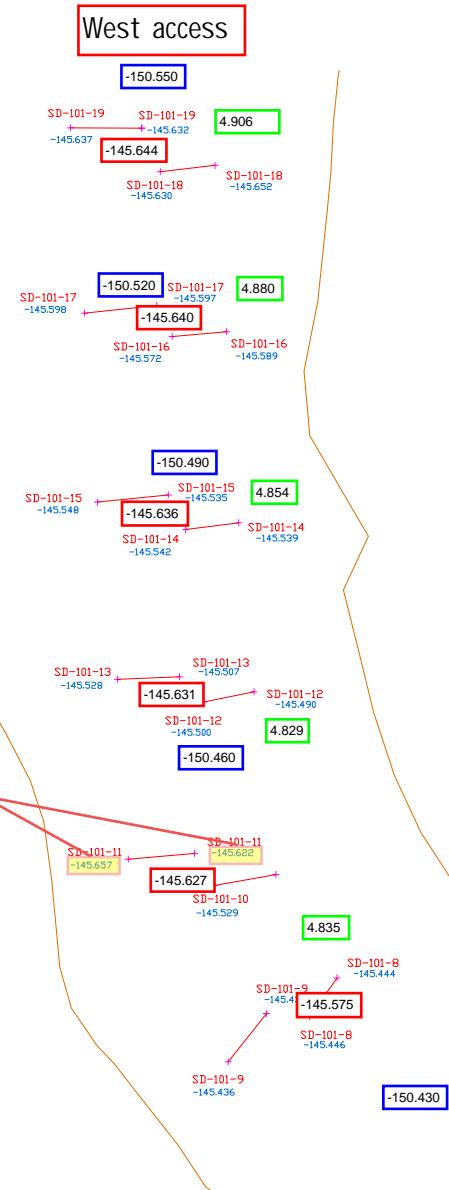
Oyu tolgoi mine site, Khanbogd soum, Umnugovi province, Mongolia

TWS project

Name of drawing:  
Measurement level of Pipe support at Oil room

Surveyed by: /...../	Name of Area: Truck workshop -Oil room	Type: Measured
WBS: 1883		Level: TWS Level
	Coordinate system : OTG system	SCALE : N.S.T
Approved by: /...../	Previous drawing No: 1883-15-R1-1104	DATE : 2022-09-12

## ATTACHMENT 6



Demolish shotcrete by 50 mm approx where pipe support equal angle will be installed

-145.627 – Proposed elevation of support bottom

-150.375 —DFML

-145.292 — Measured level of support bottom

## 4.918 — Clearance from DMFL

## LEGEND

Point name	Coordinate and Height		
	East	North	Height
TWS15	651100.197	4767280.74	-149.227
TWS20	651093.751	4767249.998	-148.778

*Used equipment: Leica TS09*

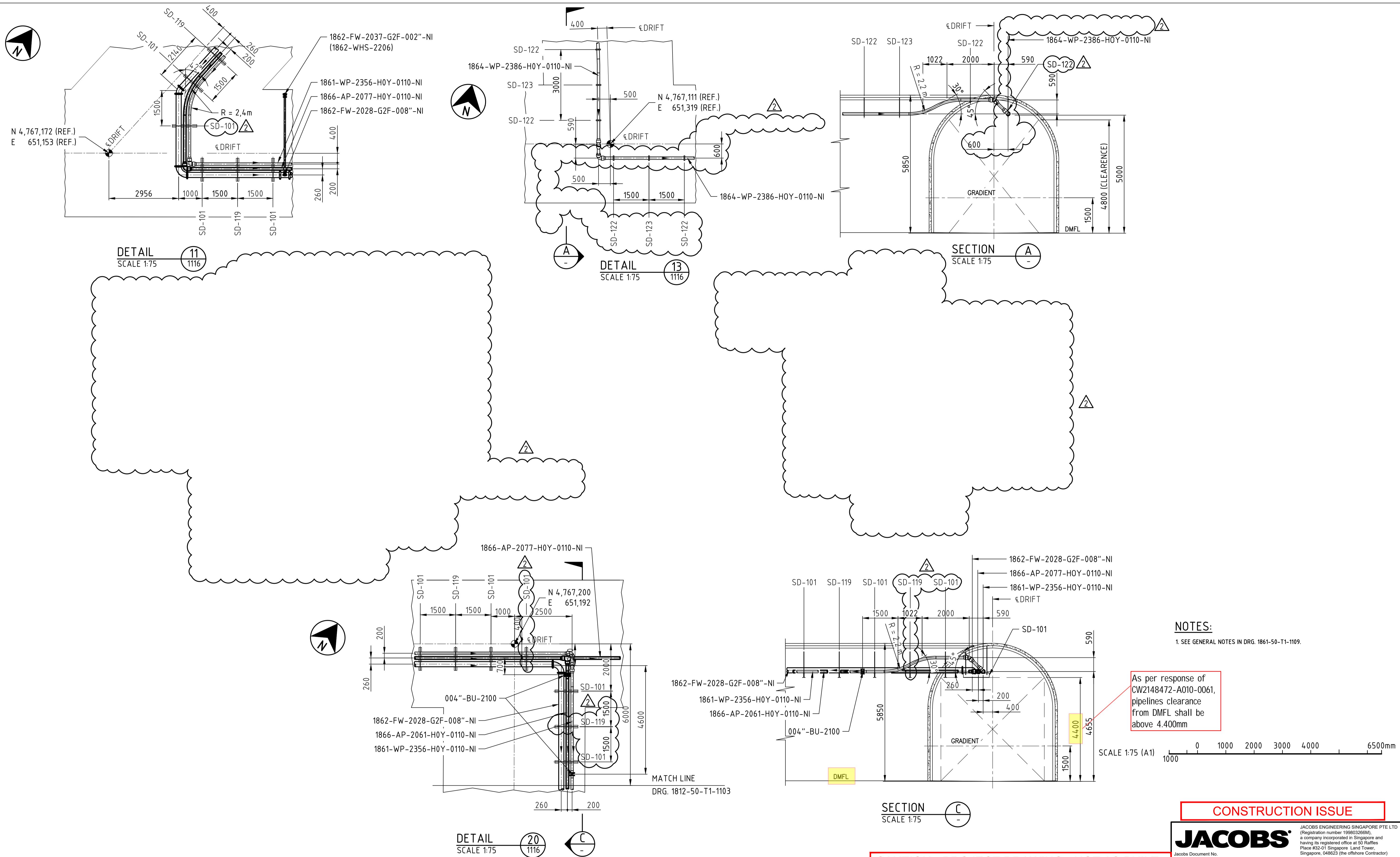
– Shotcrete wall

 – Pipe support

– Measured point

**-145.436** – Measured level

 <b>Oyu Tolgoi LLC</b> ОЮУ ТОЛГОЙ ХХК	<i>Oyu tolgoi mine site, Khanbogd soum, Umnugovi province, Mongolia</i> <b>TWS project</b>
	<i>Name of drawing:</i> <b>Measurement level of Pipe support at West access</b>
	<p>Surveyed by:          .....          .....          .....</p> <p><i>Name of Area:</i>  <b>Truck workshop -West access</b></p> <p><i>WBS:</i>  <b>1883</b></p> <p><i>Type:</i>  <b>Measured</b></p>
 <b>GEOCAD ENGINEERING SERVICE CO.,LTD</b>	<p>Approved by:          .....          .....</p> <p><i>Coordinate system :</i> OTG system</p> <p><i>SCALE :</i> N.S.T</p> <p><i>Previous drawing No:</i>  <b>1883-50-T1-1121</b></p> <p><i>DATE :</i> 2022-09-10</p>



# **OYU TOLGOI LLC**

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—ийн доодог хэрэгцээнээс зориулаагсан бөгөөд Оюу Толгой ХХК-ийн бичгэн зөвшөөрөлжүүлээр эдэгээр

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## **CONSTRUCTION ISSUE**

**JACOBS**  
s Document No.  
809-1861/PP.DRG/1130

JACOBS ENGINEERING SINGAPORE PTE LTD  
(Registration number 199803266M),  
a company incorporated in Singapore and  
having its registered office at 50 Raffles  
Place #32-01 Singapore Land Tower,  
Singapore, 048623 (the offshore Contractor)

Web: [www.jacobs.com](http://www.jacobs.com)

# **OLGOI UNDERGROUND PROJECT GROUND UTILITY RETICULATION SYSTEMS ICE WATER, SERVICES WP, FW, AP S AND SECTIONS**

**DRAWING NUMBER**  
**1861-50-T1-1146**