



# DISTRIBUTION CONSTRUCTION STANDARDS

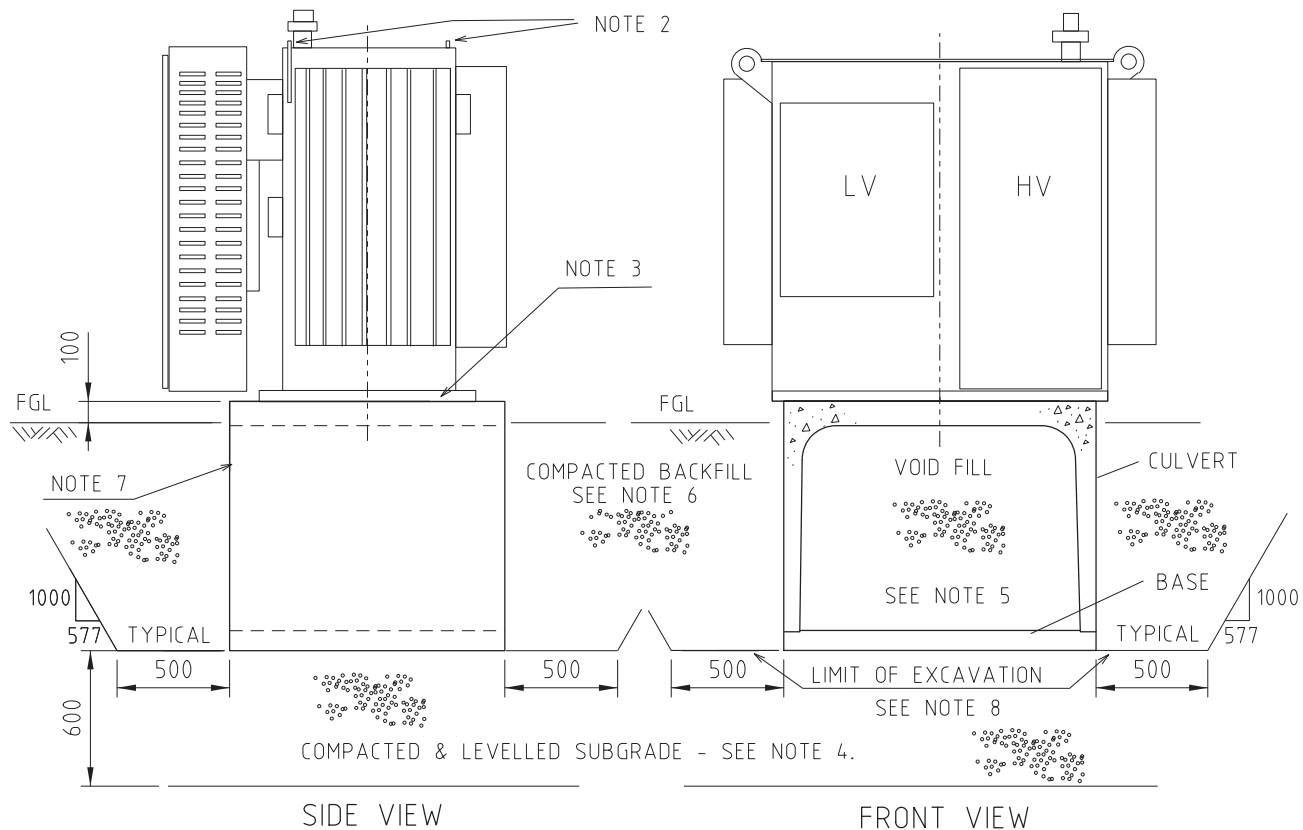
*Date Published: 14 May 2020*

## PART 10 - SUBSTATIONS DSM 7 (G7) – SUPERCEDED EQUIPMENT

For application to  
Horizon Power  
Electricity Distribution Networks

## DSM 7 – SUPERCEDED EQUIPMENT – Drawing Register

Number	Description
<a href="#">DSM-7-01</a>	315, 500, 1000kVA Superceded Transformers Installed in Non Fire Rated Enclosures – Installation Guide
<a href="#">DSM-7-02</a>	315 – 500kVA Superceded IPS Kiosk – Installation Guide
<a href="#">DSM-7-03</a>	315 – 500kVA Superceded IPS Kiosk with HV Switchgear – Installation Guide
<a href="#">DSM-7-04</a>	Superceded Arrangement for MPS Up to 630kVA with MPS HV Switchgear – F & G Swtichgear – Civil & Land Requirements
<a href="#">DSM-7-05</a>	Superceded Arrangement for Sole Use Single & Double 1000kVA Substation – Civil Requirements
<a href="#">DSM-7-06</a>	Superceded Arrangement for 1000kVA Substation Compound Suitable for LV and MV Kiosks – Civil Requirements
<a href="#">DSM-7-07</a>	Customer Owned Substation HV Indoor Ground Mounted Switchgear (Alstom Fludkit M24 Switchgear with PFA Fuse Switches)
<a href="#">DSM-7-08</a>	Non MPS HV Switchgear Kiosk – ALSTOM FBA Switchgear



**EQUIPMENT WEIGHT**

BOX CULVERT - CROWN = 948kg  
 BASE = 384kg  
 TRANSFORMER = 4580kg

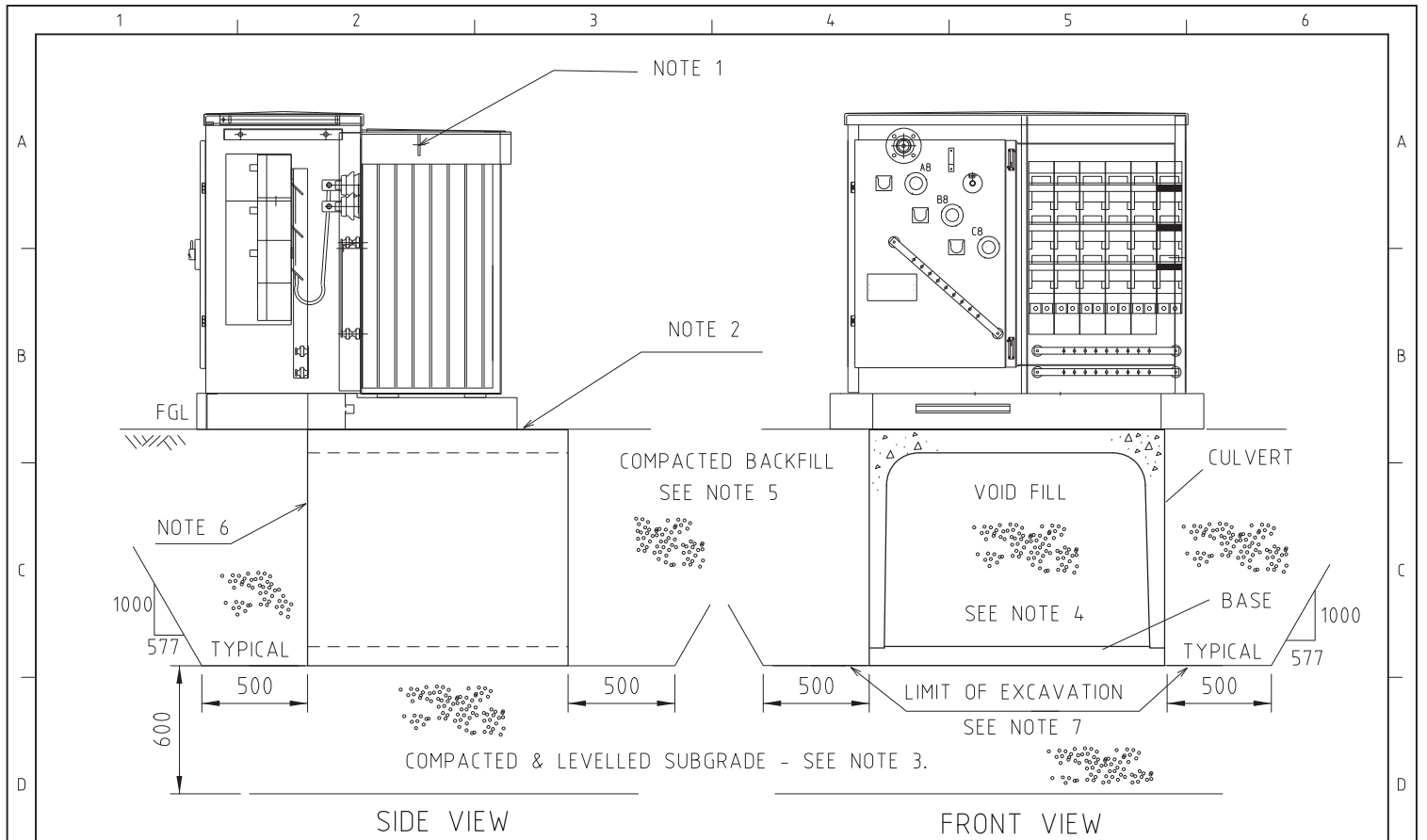
**NOTES:**

1. DRAWING SHOWS SUPERSEDED 1000kVA UNIT. USE SAME FOUNDATION ARRANGEMENT FOR SUPERSEDED STYLE 315kVA TRANSFORMERS INSTALLED IN NON FIRE RATED ENCLOSURES
2. LIFTING POINT FOR TRANSFORMER
3. TRANSFORMER TO BE INSTALLED DIRECTLY ONTO CULVERT
4. COMPACTION OF SUBGRADE TO BE A MINIMUM MODIFIED DENSITY RATIO OF 92% TO AS 1289.5.2.1 FOR A DEPTH OF 600mm BELOW CULVERT BASE. IN CLEAN SAND THIS MAY BE MEASURED AS 8 BLOWS PER 300mm WITH A STANDARD PENETROMETER
5. VOID TO BE FILLED WITH SAND, COMPACTION NOT NECESSARY
6. COMPACTED BACKFILL MATERIAL IS TO BE SAND. COMPACTION OF THE SAND IS TO BE CARRIED OUT IN LAYERS NOT EXCEEDING 300mm. COMPACTION LEVEL TO ACHIEVE A MINIMUM MODIFIED DENSITY RATIO OF 92% TO AS 1289.5.2.1. THIS MAY BE MEASURED AS 8 BLOWS / 300mm WITH A STANDARD PENETROMETER
7. PRECAST REINFORCED BOX CULVERT AND BASE TO AS 1597 (90kN). NOMINAL SIZE OF CULVERT 1200 WIDE x 900 HIGH x 1220 LONG
8. THE BASE OF THE EXCAVATION IS TO BE A MINIMUM OF 500mm LARGER THAN THE BASE OF THE CULVERT, ON ALL SIDES. THE SIDES OF THE EXCAVATION ARE TO HAVE A SLOPE OF NOT LESS THAN 30°

*THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SUBSTATION INSTALLATION TECHNICAL REQUIREMENTS - HPC-9DJ-23-0001-2012. THIS DRAWING IN NO WAY RELATES TO WESTERN POWER DRAWING WITH THE SAME NO.*

HORIZON POWER		315, 500, 1000kVA SUPERSEDED TRANSFORMERS INSTALLED IN NON FIRE RATED ENCLOSURES INSTALLATION GUIDE
JOB / FILE No:		
DRN:	08.11.11	
CHK'D:		
DES:		
DES APP'D:		
APP'D:		
FILEPATH:		

<b>HORIZON POWER</b>		
DRAWING NUMBER:		REV:
DSM-7-01		A
SCALE:	NA	SHEET: 1
DATE: 11/1/2013 9:36:28 AM		SIZE: A4
		BY: H087890



**EQUIPMENT WEIGHT**

BOX CULVERT - CROWN = 948 kg  
 BASE = 384 kg

TRANSFORMERS - 2750 kg

**NOTES:**

1. LIFTING POINT FOR TRANSFORMER
2. IPS PLINTH - BED ON DRY 2:1 SAND/CEMENT MIXTURE 20mm THICK
3. COMPACTION OF SUBGRADE TO BE A MINIMUM MODIFIED DENSITY RATIO OF 92% TO AS 1289.5.2.1 FOR A DEPTH OF 600mm BELOW CULVERT BASE. IN CLEAN SAND THIS MAY BE MEASURED AS 8 BLOWS / 300mm WITH A STANDARD PENETROMETER
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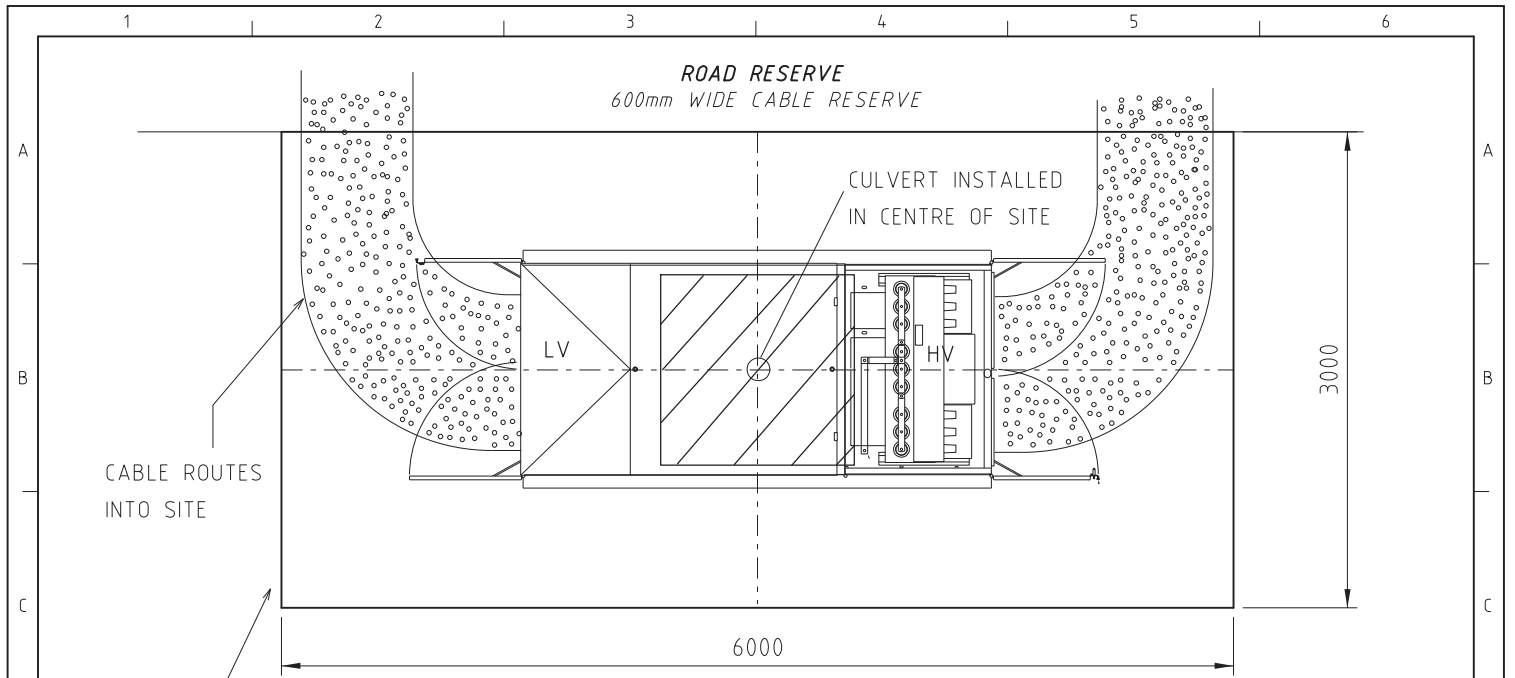
HORIZON POWER JOB / FILE No:	
DRN:	08.11.11
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DES:	
DES APP'D:	
APP'D:	

315 - 500kVA  
 SUPERSEDED IPS KIOSK

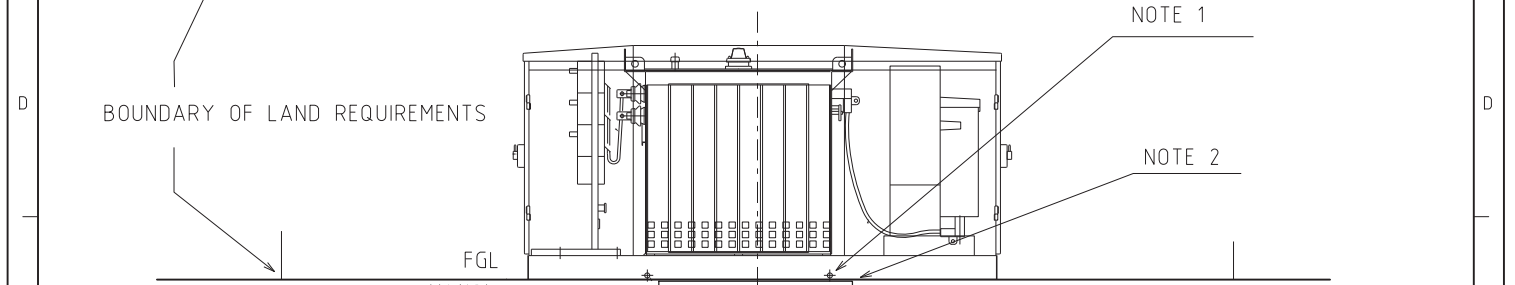
INSTALLATION GUIDE



DRAWING NUMBER:		REV:
DSM-7-02		A
SCALE: NA	SHEET: 1	SIZE: A4



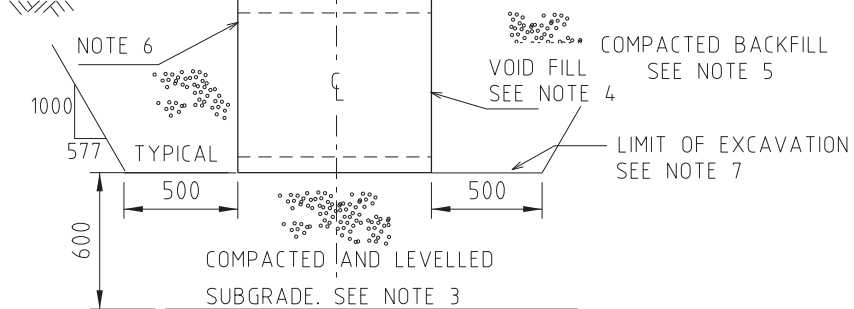
PLAN VIEW



SIDE VIEW

EQUIPMENT WEIGHT

BOX CULVERT -  
 CROWN = 948kg  
 BASE = 384kg  
 TRANSFORMERS - 4300kg



NOTES:

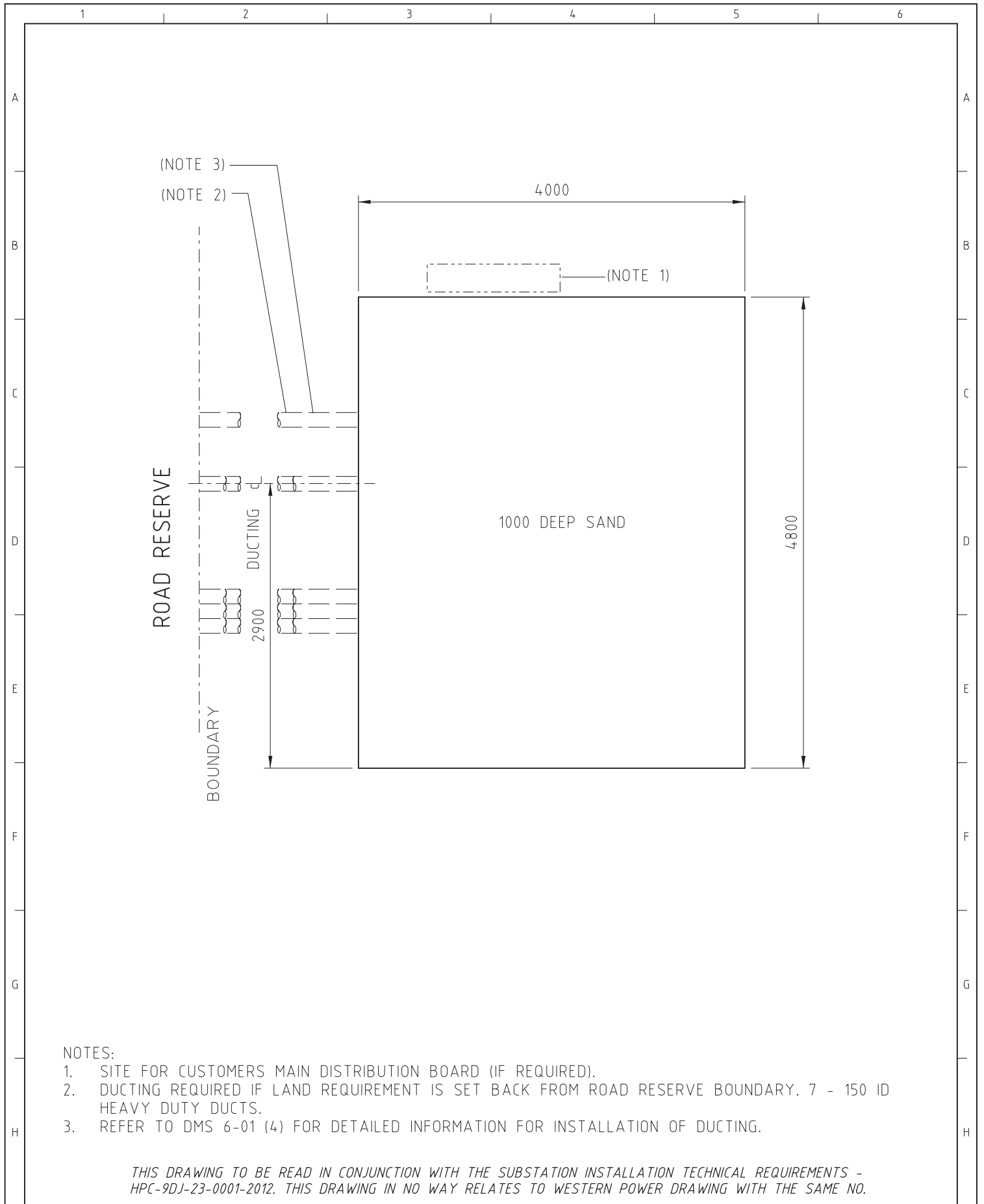
1. LIFTING POINT FOR TRANSFORMER.
2. IPS PLINTH - BED ON DRY 2:1 SAND/CEMENT MIXTURE 20mm THICK
3. COMPACTION OF SUBGRADE TO BE A MINIMUM MODIFIED DENSITY RATIO OF 92% TO AS 1289.5.2.1 FOR A DEPTH OF 600mm BELOW CULVERT BASE. IN CLEAN SAND THIS MAY BE MEASURED AS 8 BLOWS / 300mm WITH A STANDARD PENETROMETER
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HORIZON POWER	
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DRN:	08.11.11
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DES APP'D:	
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315 - 500kVA  
 SUPERSEDED IPS KIOSK WITH HV SWGR  
 INSTALLATION GUIDE

<b>HORIZON POWER</b>	
DRAWING NUMBER: DSM-7-03	
REV: A	
SCALE: NA	SHEET: 1
SIZE: A4	



NOTES:

1. SITE FOR CUSTOMERS MAIN DISTRIBUTION BOARD (IF REQUIRED).
2. DUCTING REQUIRED IF LAND REQUIREMENT IS SET BACK FROM ROAD RESERVE BOUNDARY. 7 - 150 ID HEAVY DUTY DUCTS.
3. REFER TO DMS 6-01 (4) FOR DETAILED INFORMATION FOR INSTALLATION OF DUCTING.

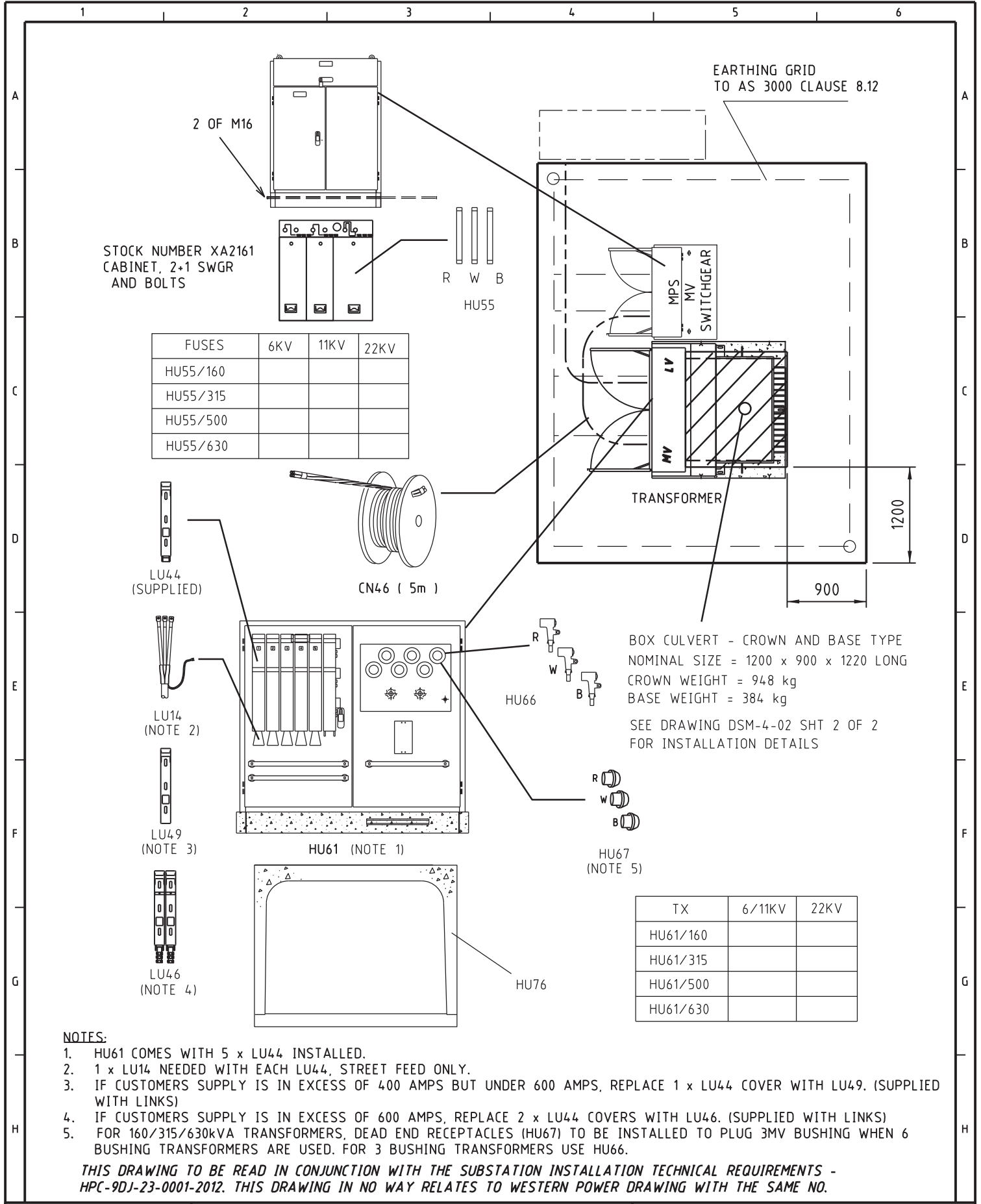
*THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SUBSTATION INSTALLATION TECHNICAL REQUIREMENTS - HPC-9DJ-23-0001-2012. THIS DRAWING IN NO WAY RELATES TO WESTERN POWER DRAWING WITH THE SAME NO.*

HORIZON POWER	
JOB / FILE No:	
DRN:	08.11.11
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DES APP'D:	
APP'D:	

SUPERSEDED ARRANGEMENT FOR  
 MPS UP TO 630kVA  
 WITH MPS HV SWGR  
 F & G SWITCHGEAR  
 CIVIL & LAND REQUIREMENTS



DRAWING NUMBER:		REV:
DSM-7-04		A
SCALE: NA	SHEET: 1 OF 5	SIZE: A4




**NOTES:**

- HU61 COMES WITH 5 x LU44 INSTALLED.
- 1 x LU14 NEEDED WITH EACH LU44, STREET FEED ONLY.
- IF CUSTOMERS SUPPLY IS IN EXCESS OF 400 AMPS BUT UNDER 600 AMPS, REPLACE 1 x LU44 COVER WITH LU49. (SUPPLIED WITH LINKS)
- IF CUSTOMERS SUPPLY IS IN EXCESS OF 600 AMPS, REPLACE 2 x LU44 COVERS WITH LU46. (SUPPLIED WITH LINKS)
- FOR 160/315/630kVA TRANSFORMERS, DEAD END RECEPTACLES (HU67) TO BE INSTALLED TO PLUG 3MV BUSHING WHEN 6 BUSHING TRANSFORMERS ARE USED. FOR 3 BUSHING TRANSFORMERS USE HU66.

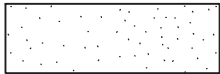
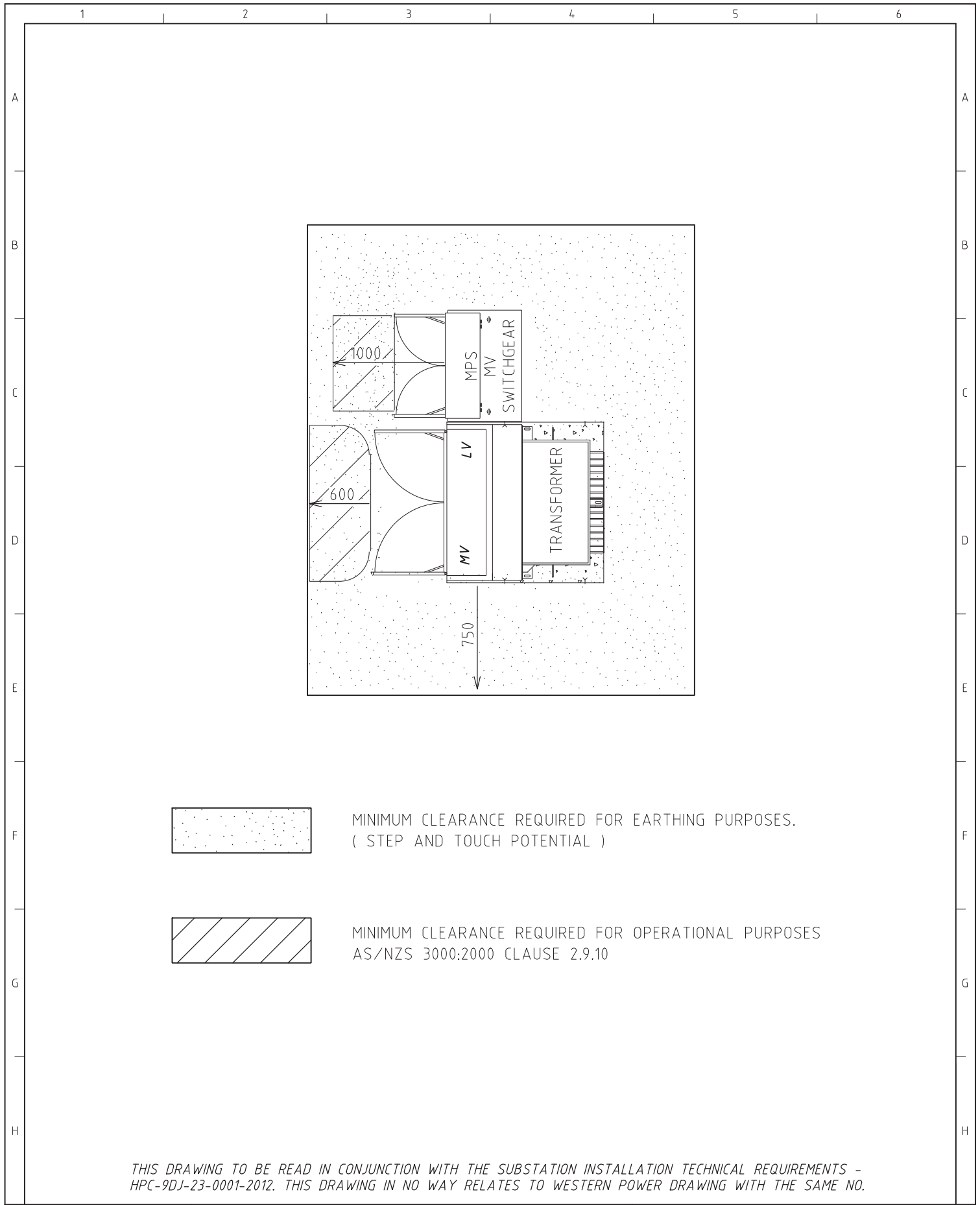
**THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SUBSTATION INSTALLATION TECHNICAL REQUIREMENTS - HPC-9DJ-23-0001-2012. THIS DRAWING IN NO WAY RELATES TO WESTERN POWER DRAWING WITH THE SAME NO.**

<b>HORIZON POWER</b>	
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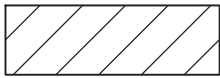
**SUPERSEDED ARRANGEMENT FOR**  
**MPS UPTO 630kVA**  
**WITH MPS MV SWGR**  
**EQUIPMENT & INSTALLATION DETAILS**



DRAWING NUMBER:		REV:
DSM-7-04		A
SCALE: NA	SHEET: 2 OF 5	SIZE: <b>A4</b>
DATE: 11/5/2013 1:25:36 PM		BY: H087890



MINIMUM CLEARANCE REQUIRED FOR EARTHING PURPOSES.  
( STEP AND TOUCH POTENTIAL )



MINIMUM CLEARANCE REQUIRED FOR OPERATIONAL PURPOSES  
AS/NZS 3000:2000 CLAUSE 2.9.10

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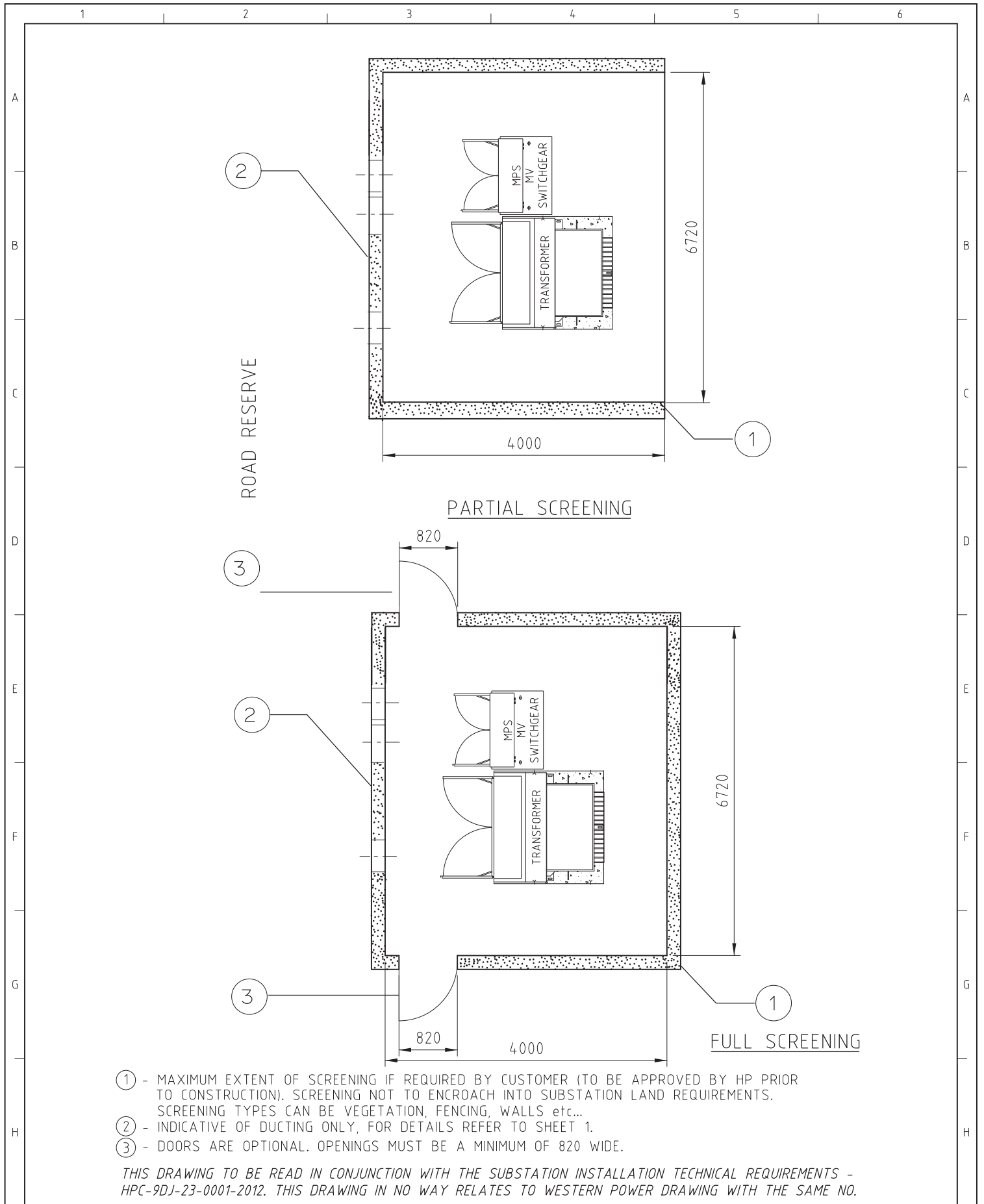
HORIZON POWER JOB / FILE No:		
DRN:		09.11.11
CHK'D:		
DES:		
DES APP'D:		
APP'D:		

DISTRICT SUBSTATION  
MPS UPTO 630kVA  
WITH MPS MV SWITCHGEAR  
  
OPERATIONAL CLEARANCES



DRAWING NUMBER:		REV:
DSM-7-04		A
SCALE: NA	SHEET: 3 OF 5	SIZE: A4





- ① - MAXIMUM EXTENT OF SCREENING IF REQUIRED BY CUSTOMER (TO BE APPROVED BY HP PRIOR TO CONSTRUCTION). SCREENING NOT TO ENCR OACH INTO SUBSTATION LAND REQUIREMENTS. SCREENING TYPES CAN BE VEGETATION, FENCING, WALLS etc...
- ② - INDICATIVE OF DUCTING ONLY, FOR DETAILS REFER TO SHEET 1.
- ③ - DOORS ARE OPTIONAL. OPENINGS MUST BE A MINIMUM OF 820 WIDE.

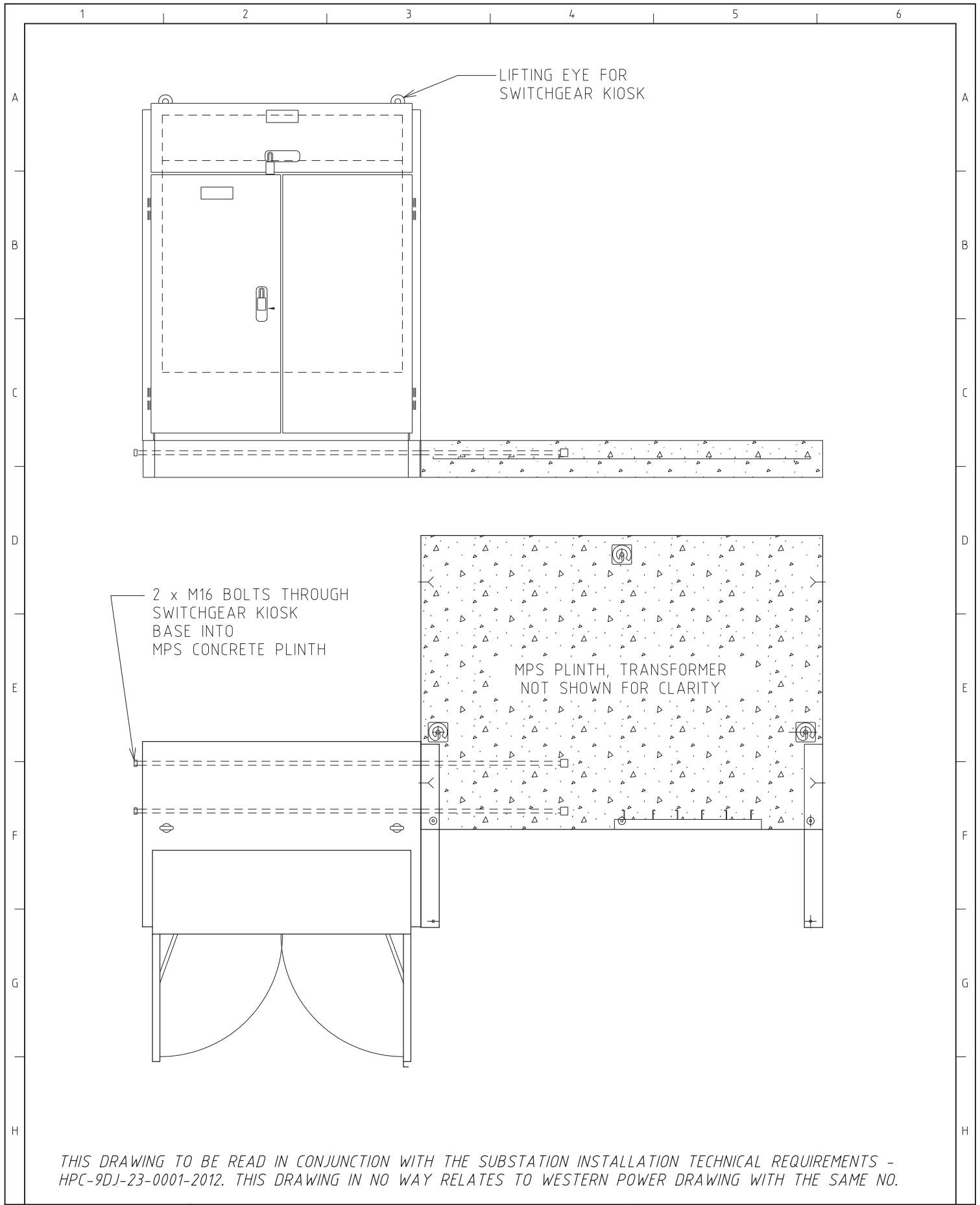
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HORIZON POWER	
JOB / FILE No:	
DRN:	09.11.11
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DES:	
DES APP'D:	
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DISTRICT SUBSTATION  
MPS UPTO 630kVA  
WITH MPS MV SWICHGEAR

PERMISSABLE SCREENING ARRANGEMENTS

<b>HORIZON POWER</b>		DRAWING NUMBER:	REV:
		DSM-7-04	A
SCALE:	NA	SHEET:	4 OF 5
SIZE:	A4		



THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SUBSTATION INSTALLATION TECHNICAL REQUIREMENTS - HPC-9DJ-23-0001-2012. THIS DRAWING IN NO WAY RELATES TO WESTERN POWER DRAWING WITH THE SAME NO.

HORIZON POWER	
JOB / FILE No:	
DRN:	09.11.11
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DES:	
DES APP'D:	
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FILEPATH:	

SUPERSEDED ARRANGEMENT FOR  
MPS UPTO 630kVA  
WITH MPS HV SWGR  
INSTALLATION GUIDE

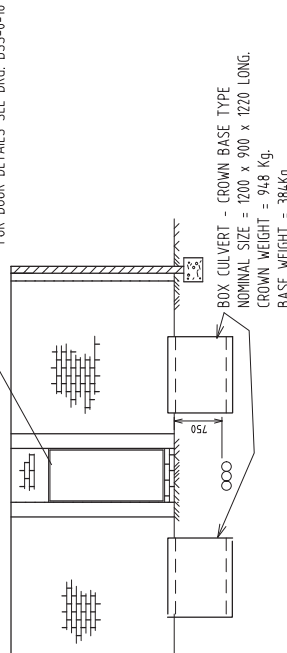
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DRAWING NUMBER:		REV:
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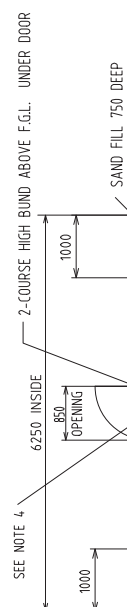
- 1) THIS DRAWING IS INTENDED AS A GUIDE ONLY TO INDICATE ESSENTIAL MINIMUM INTERNAL DIMENSIONS DETAILED. DESIGN SHOULD BE BY AN ARCHITECT. COMPOUND SHAPE AND MASONRY MATERIAL MAY BE VARIED TO MATCH LOCAL ARCHITECTURE.
- 2) COMPOUND CONSTRUCTION AND LOCATION MUST COMPLY WITH UNIFORM BUILDING BYLAWS, COUNCIL AND HP WITH RESPECT TO ADJACENT STRUCTURES OR ESSENTIAL PUBLIC ACCESSWAY/EXITS REQUIRES CONSIDERATION OF FIRE PROTECTION MEASURES TO APPROVAL OF LOCAL COUNCIL.
- 3) OWNER OF PREMISES IS RESPONSIBLE FOR COST AND ERECTION/INSTALLATION OF COMPOUND WALLS, DOORS) AND CABLE DUCTS WHERE RELEVANT.
- 4) EXACT LOCATION AND NUMBER OF CABLE DUCTS TO BE VERIFIED FOR EACH INDIVIDUAL INSTALLATION BY HP DISTRICT OFFICE. DUCTS TO BE ELECTRICAL CAT 'A' PVC TYPE, 100 mm I.D. BURIED TO PROVIDE 750 COVER.
- 5) ACCESS: 24HR HP PERSONNEL ACCESS REQUIRED. HEAVY VEHICLE AND CRANE ACCESS FOR TRANSFORMER INSTALLATION REQUIRED.
- 6) SECURITY: DOOR FASTENINGS TO BE SUITABLE FOR HP PADLOCK.
- 7) CONSUMERS MAINS AND MAIN SWITCHBOARD DESIGN AND LOCATION: DETAILS TO BE CHECKED WITH HP BEFORE COMMENCEMENT OF INSTALLATION.
- 8) THIS DRAWING IS NOT APPLICABLE TO PRIVATELY OWNED HV METERED INSTALLATIONS.
- 9) OTHER BUILDING SERVICES ARE NOT PERMITTED WITHIN THE CONFINES OF THE COMPOUND.
- 10) THE OWNER OF THE PREMISES MUST MAINTAIN THE COMPOUND IN GOOD REPAIR.
- 12) DIMENSIONS BASED ON STANDARD METRIC BRICK 230 x 100 x 76mm.
- 13) CRITICAL DIMENSIONS WORKING CLEARANCE FROM INSIDE WALL TO TX LV AND HV BOX 600mm MIN. WALKING CLEARANCE FROM INSIDE WALL TO TX EDGE 300mm MIN.

NOTE: THIS DRAWING SUPERSEDES DSS-2-8 REV. B

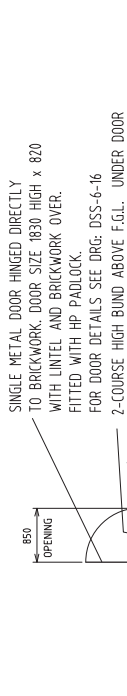
SINGLE METAL DOOR HINGED DIRECTLY TO BRICKWORK. DOOR SIZE 1830 HIGH x 820 WITH LINTEL AND BRICKWORK OVER. FITTED WITH HP PADLOCK. FOR DOOR DETAILS SEE DRG: DSS-6-16



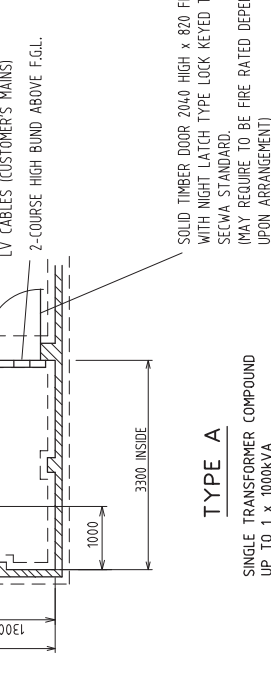
**SECTION B - B**  
 BOX CULVERT - CROWN BASE TYPE  
 NOMINAL SIZE = 1200 x 900 x 1220 LONG.  
 CROWN WEIGHT = 948 Kg.  
 BASE WEIGHT = 384Kg.  
 SEE DRAWING DSM-7-01 SHT 1 OF 1 FOR INSTALLATION DETAILS.  
 NOTE - BOX CULVERT TO BE SUPPLIED & INSTALLED BY HP.  
 INSTALLATION OF CULVERT TO OCCUR PRIOR TO ANY SUBSTATION COMPOUND CONSTRUCTION. CUSTOMER TO SURVEY SITE & PEG LOCATION OF CULVERT POSITION FOR HP.



**SECTION A - A**  
 BOX CULVERT - CROWN BASE TYPE  
 NOMINAL SIZE = 1200 x 900 x 1220 LONG.  
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 BASE WEIGHT = 384Kg.  
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 NOTE - BOX CULVERT TO BE SUPPLIED & INSTALLED BY HP.  
 INSTALLATION OF CULVERT TO OCCUR PRIOR TO ANY SUBSTATION COMPOUND CONSTRUCTION. CUSTOMER TO SURVEY SITE & PEG LOCATION OF CULVERT POSITION FOR HP.



**TYPE A**  
 SINGLE METAL DOOR HINGED DIRECTLY TO BRICKWORK. DOOR SIZE 1830 HIGH x 820 WITH LINTEL AND BRICKWORK OVER. FITTED WITH HP PADLOCK. FOR DOOR DETAILS SEE DRG: DSS-6-16  
 2-COURSE HIGH BUND ABOVE F.G.L. UNDER DOOR  
 SAND FILL 750 DEEP  
 CUSTOMER'S MAIN SWITCHBOARD  
 CUSTOMER'S TRENCH 600 DEEP APPROX.  
 LV CABLES (CUSTOMER'S MAINS)  
 CUSTOMER'S MAIN SWITCHROOM  
 SOLID TIMBER DOOR 2040 HIGH x 820 FITTED WITH NIGHT LATCH TYPE LOCK KEYS TO SECWA STANDARD. (MAY REQUIRE TO BE FIRE RATED DEPENDING UPON ARRANGEMENT)



**TYPE B**  
 2-COURSE HIGH BUND ABOVE F.G.L.  
 DOUBLE BRICK CAVITY WALL (SOLID BRICKS)  
 LV CABLES (CUSTOMER'S MAINS)  
 CUSTOMER'S MAIN SWITCHROOM  
 CUSTOMER'S TRENCH 600 DEEP APPROX.  
 CUSTOMER'S MAIN SWITCHBOARD (SUGGESTED ARRANGEMENT ONLY)  
 DOUBLE TRANSFORMER COMPOUND UP TO 2 x 1000kVA

THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SUBSTATION INSTALLATION TECHNICAL REQUIREMENTS HPC-9DJ-23-0001-2012. THIS DRAWING IN NO WAY RELATES TO WESTERN POWER DRAWING WITH THE SAME NO.

HORIZON POWER JOB / FILE No:	
DRN:	09.11.11
CHK'D:	
DES:	
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SUPERSEDED ARRANGEMENT FOR  
 SOLE USE SINGLE & DOUBLE 1000kVA  
 SUBSTATION  
 CIVIL REQUIREMENTS

DRAWING NUMBER: DSM-7-05		REV: A
SCALE: NA	SHEET: 1	SIZE: A4
DATE: 11/14/2013 11:52:34 AM		BY: H087890

1) THIS DRAWING IS INTENDED AS A GUIDE ONLY TO INDICATE ESSENTIAL MINIMUM INTERNAL DIMENSIONS DETAILED.  
DESIGN SHOULD BE BY AN ARCHITECT. COMPOUND SHAPE AND MASONRY MATERIAL MAY BE VARIED TO MATCH LOCAL ARCHITECTURE.

2) COMPOUND CONSTRUCTION AND LOCATION MUST COMPLY WITH UNIFORM BUILDING BYLAWS, COUNCIL AND HP OR ESSENTIAL PUBLIC ACCESSWAY/EXITS REQUIRES CONSIDERATION OF FIRE PROTECTION MEASURES TO APPROVAL OF LOCAL COUNCIL.

3) OWNER OF PREMISES IS RESPONSIBLE FOR COST AND ERECTION/INSTALLATION OF COMPOUND WALLS, DOOR(S) AND CABLE DUCTS WHERE RELEVANT.

4) EXACT LOCATION AND NUMBER OF CABLE DUCTS TO BE VERIFIED FOR EACH INDIVIDUAL INSTALLATION BY HP DISTRICT OFFICE. DUCTS TO BE ELECTRICAL CAT 'A' PVC TYPE, 100 mm I.D. BURIED TO PROVIDE 750 COVER.

5) ACCESS: 24HR HP PERSONNEL ACCESS REQUIRED. HEAVY VEHICLE AND CRANE ACCESS FOR TRANSFORMER INSTALLATION REQUIRED.

6) SECURITY: DOOR FASTENINGS TO BE SUITABLE FOR HP PADLOCK.

7) CONSUMERS MAINS AND MAIN SWITCHBOARD DESIGN AND LOCATION: DETAILS TO BE CHECKED WITH HP BEFORE COMMENCEMENT OF INSTALLATION.

8) THIS DRAWING IS NOT APPLICABLE TO PRIVATELY OWNED HV METERED INSTALLATIONS.

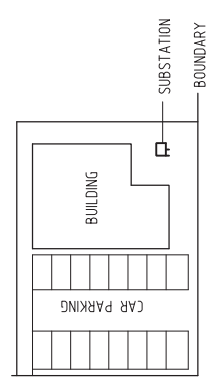
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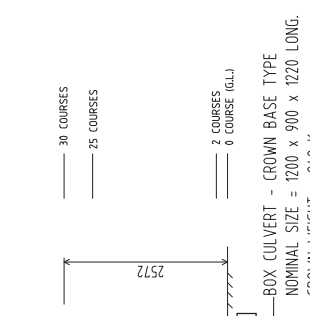
12) DIMENSIONS BASED ON STANDARD METRIC BRICK 230 x 100 x 76mm.

13) CRITICAL DIMENSIONS

WORKING CLEARANCE FROM INSIDE WALL TO TX LV AND HV BOX 600mm MIN.  
WALKING CLEARANCE FROM INSIDE WALL TO TX EDGE 300mm MIN.

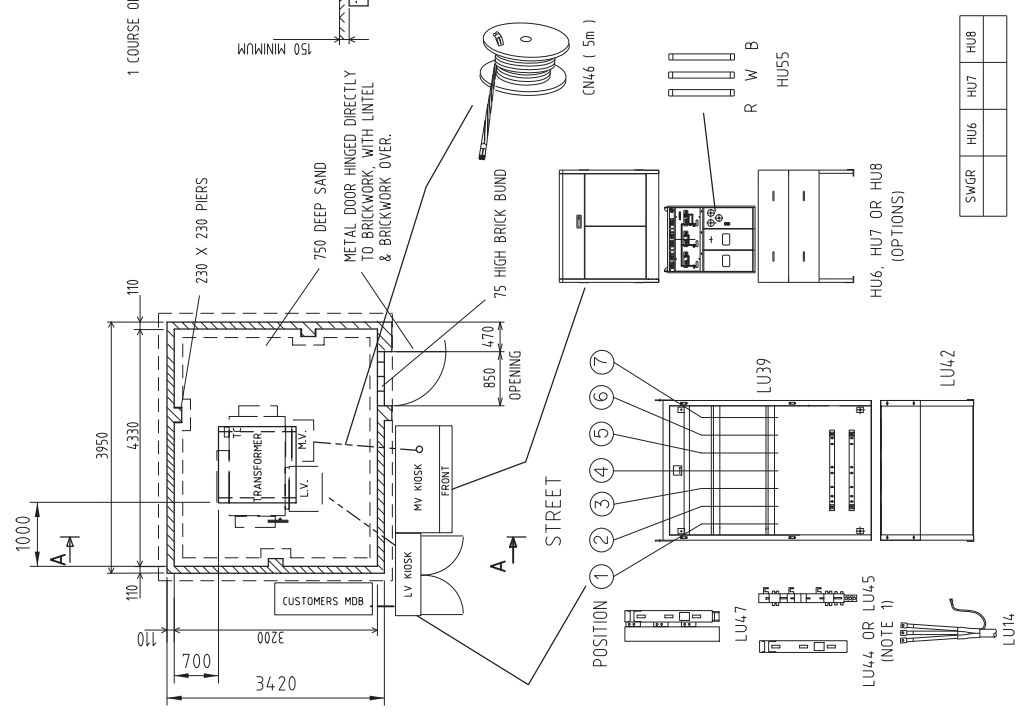


TYPICAL SITE LOCATION  
NOTE: THIS DRAWING SUPERSEDES  
DSS-2-20/2 REV D



BOX CULVERT - CROWN BASE TYPE  
NOMINAL SIZE = 1200 x 900 x 1220 LONG.  
CROWN WEIGHT = 948 Kg.  
BASE WEIGHT = 384Kg.  
SEE DRAWING DSM-7-01 SHT 1 OF 1 FOR INSTALLATION DETAILS.  
NOTE - BOX CULVERT TO BE SUPPLIED & INSTALLED BY HP.  
INSTALLATION OF CULVERT TO OCCUR PRIOR TO ANY SUBSTATION COMPOUND CONSTRUCTION.  
CUSTOMER TO SURVEY SITE & PEG LOCATION OF CULVERT POSITION FOR HP.

SPECIAL NOTE FOR CONSTRUCTION IN AREAS NORTH OF THE 26th PARALLEL  
IN ADDITION TO REQUIREMENTS ABOVE THE STRUCTURE SHALL BE DESIGNED BY A CHARTERED ENGINEER TO RESIST LOADS AND FORCES AS OUTLINED IN CURRENT AUSTRALIAN STANDARD AS 1170  
THIS IS A LAYOUT DRAWING ONLY. STRUCTURAL DETAILS TO COMPLY WITH THESE CONDITIONS ARE THE RESPONSIBILITY OF THE OWNER.



FUSES	6KV	11KV	22KV
HU55/160			
HU55/315			
HU55/500			
HU55/630			
HU55/1000			

SWGR	HU6	HU7	HUB

POSITION	1	2	3	4	5	6	7	LU14
LU44								
LU45								
LU47								
	T							
	C							

T = TRANSFORMER  
C = CUSTOMER

THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SUBSTATION INSTALLATION TECHNICAL REQUIREMENTS - HPC-9DJ-23-0001-2012. THIS DRAWING IN NO WAY RELATES TO WESTERN POWER DRAWING WITH THE SAME NO.

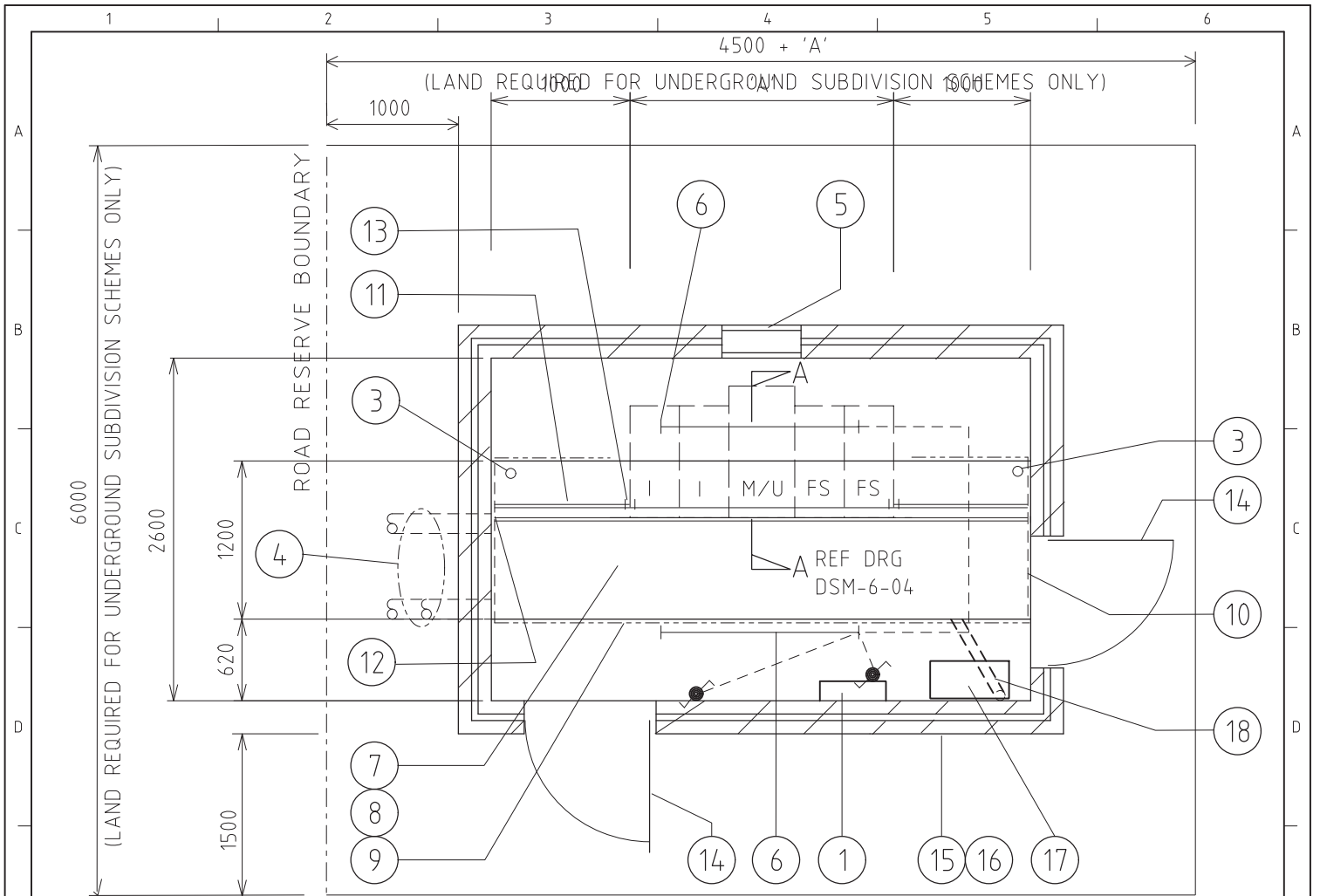
HORIZON POWER JOB / FILE No:	
DRN:	09.11.11
CHK'D:	
DES:	
DES APP'D:	
APP'D:	
FILEPATH:	

SUPERSEDED ARRANGEMENT FOR  
1000kVA SUBSTATION COMPOUND  
SUITABLE FOR LV AND MV KIOSKS  
CIVIL REQUIREMENTS

**HORIZON POWER**

DRAWING NUMBER: DSM-7-06  
SCALE: NA SHEET: 1 SIZE: A4

REV: A  
DATE: 11/14/2013 1:04:59 PM BY: H087890



CUSTOMERS DUCTING NOT SHOWN. POSITION DEPENDANT ON LOCATION OF CUSTOMERS MDB.

1	SUBSTATION DISTRIBUTION BOARD (REF D4)
2	
3	75 DIA PENETRATION THROUGH SLAB FOR EARTHING (REF C5 & C3)
4	125 ID HEAVY DUTY DUCTS (1 EACH UNIT + 1 SPARE) (REF D2)
5	600 x 800 WIDE VENT AT HIGH LEVEL FITTED WITH LOUVRES (REF C4)
6	40W FLUORESCENT BATTEN FITTING (REF C4 & D4)
7	WALLS & FLOOR OF TRENCH TO BE PAINTED WITH SILICON GLAZE S50
8	1200 DEEP TRENCH WITH TRENCH COVERS, MAX 1.2m LONG, GALVANISED STEEL FLOOR GRATING (WEB FORGE C205MPG OR EQUIV) (REF D3)
9	40W x 25D REBATE FOR TRENCH COVERS (REF D3)
10	COVER SUPPORTS - MS ANGLE FIXED TO WALL OF TRENCH (REF D5)
11	SUPPORT BEAM FOR SWITCHGEAR (REF C3)
12	SUPPORT BEAM SECURED TO TRENCH WALL WITH 2 x M12 LOXONS
13	2 STANCHIONS, 1 AT EACH END OF SWITCHGEAR (REF C3)
14	DOOR 2040 x 820 CLEAR, EXIT (REF D4 & E3)
15	DOUBLE BRICK CAVITY WALLS (REF D5)
16	WALLS TO BE 2HR FIRE RATED, CEILING HEIGHT TO BE MIN. 2500mm
17	HV METERS (REF D5)
18	75 DIA. DUCT INSTALLED AT BOTTOM OF TRENCH FOR METERING

	DIMENSION (W)	No. UNITS REQUIRED	TOTAL WIDTH(mm)
ISOLATOR (I)	375		
FUSES WITCH (FS)	375		
METERING UNIT(M/U)	600		
DIM 'A' =			

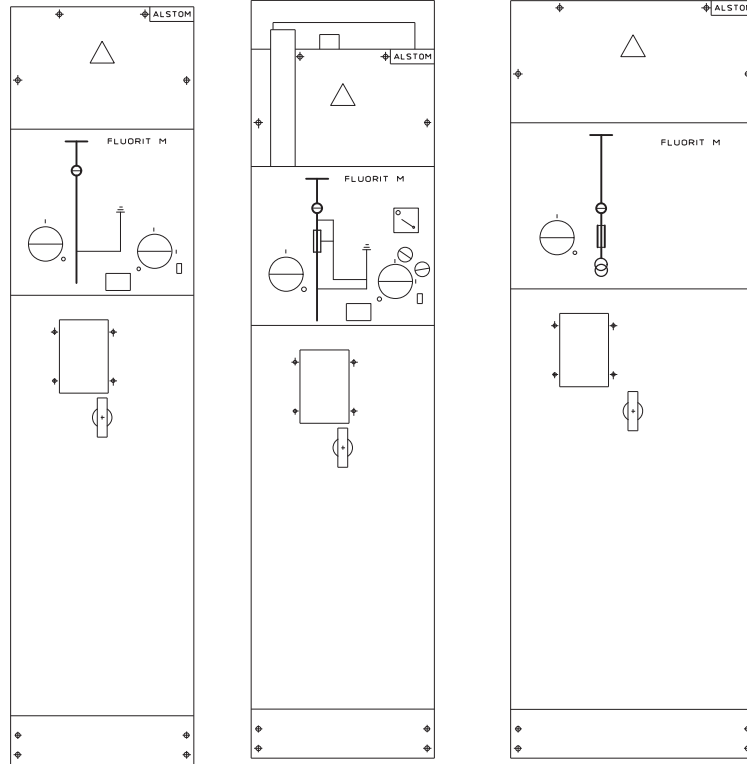
THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SUBSTATION INSTALLATION TECHNICAL REQUIREMENTS - HPC-9DJ-23-0001-2012. THIS DRAWING IN NO WAY RELATES TO WESTERN POWER DRAWING WITH THE SAME NO.

HORIZON POWER	
JOB / FILE No:	
DRN:	
CHK'D:	
DES:	
DES APP'D:	
APP'D:	

CUSTOMER OWNED SUBSTATION  
 HV INDOOR GROUND MOUNTED SWGR  
 (ALSTOM FLUDKIT M24 SWITCHGEAR  
 WITH PFA FUSE SWITCHES)  
 CIVIL AND LAND REQUIREMENTS

<b>HORIZON POWER</b>	
DRAWING NUMBER: DSM-7-07	
REV:	
SCALE: 1:50	SHEET: 1 OF 4
SIZE: A4	

EQUIPMENT WEIGHTS  
 FUSE UNITS - 110 kg  
 SWITCH UNITS - 100 kg  
 METERING UNIT - 250 kg



HU 78  
 SWITCH  
 HU 79  
 FUSE  
 HU 40  
 METERING UNIT

NOTES:-

1. SWITCHGEAR IS SUITABLE FOR TERMINATION OF SINGLE CORE XLPE CABLES ONLY.

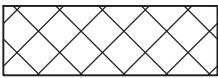
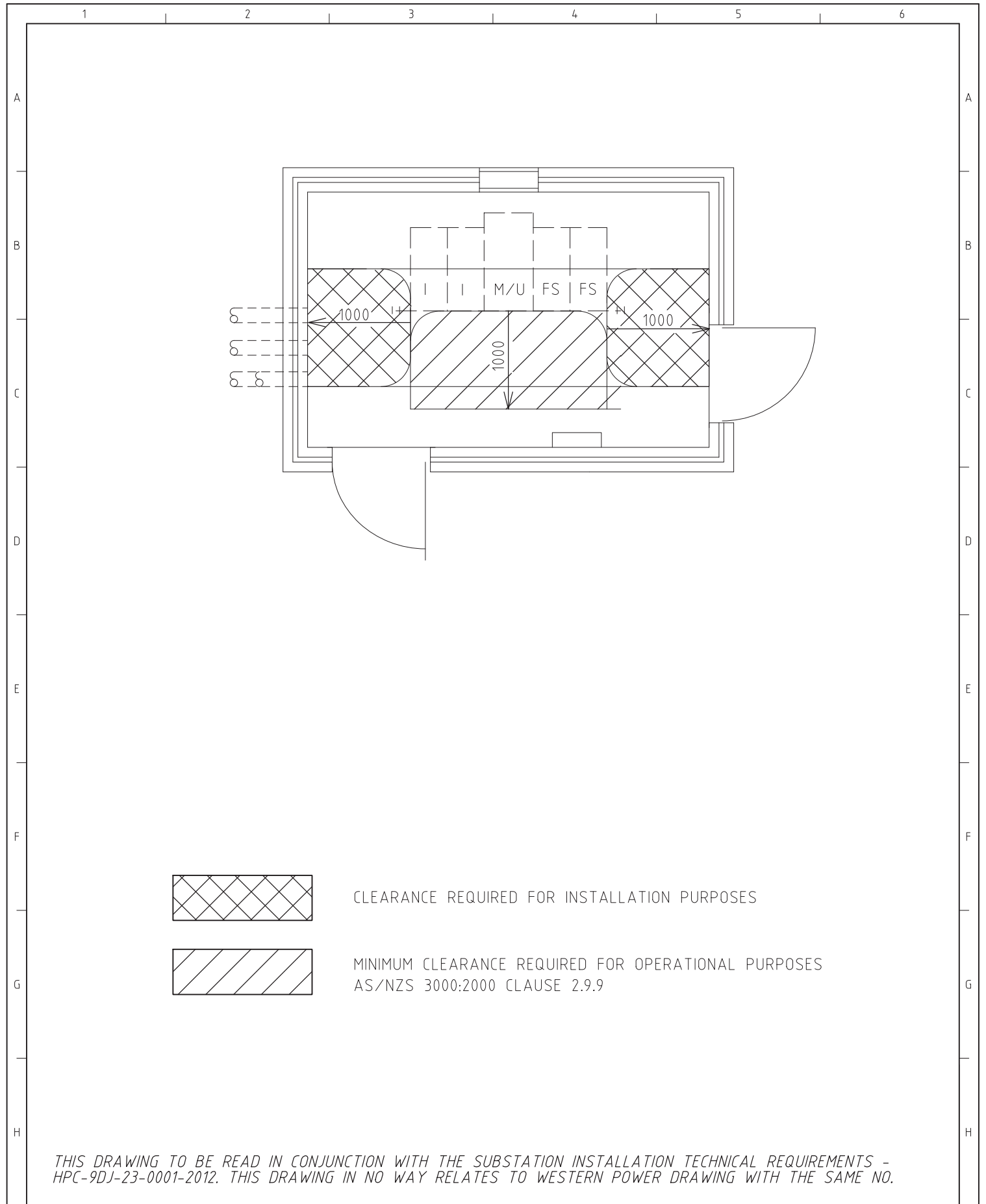
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HORIZON POWER	
JOB / FILE No:	
DRN:	
CHK'D:	
DES:	
DES APP'D:	
APP'D:	

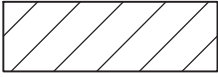
CUSTOMER OWNED SUBSTATION  
 HV INDOOR GROUND MOUNTED SWGR  
 (ALSTOM FLUORIT M24 SWITCHGEAR)  
 EQUIPMENT AND INSTALLATION  
 DETAILS



DRAWING NUMBER:		REV:
DSM-7-07		1
SCALE: 1:50	SHEET: 2 OF 4	SIZE: A4



CLEARANCE REQUIRED FOR INSTALLATION PURPOSES



MINIMUM CLEARANCE REQUIRED FOR OPERATIONAL PURPOSES  
AS/NZS 3000:2000 CLAUSE 2.9.9

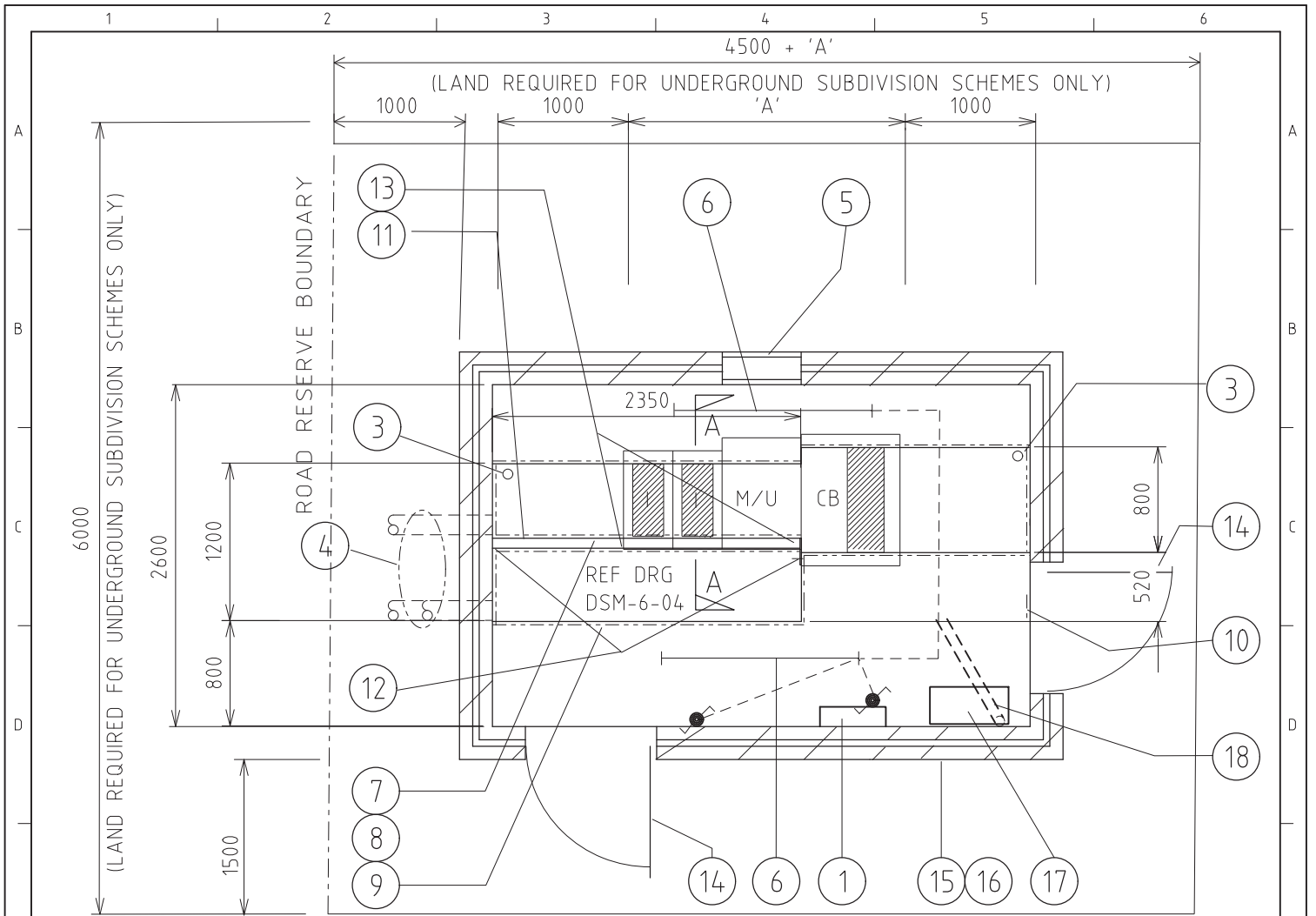
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HORIZON POWER JOB / FILE No:		
DRN:	WP	01.11.10
CHK'D:	WP	01.11.10
DES:	WP	01.11.10
DES APP'D:	WP	01.11.10
APP'D:	WP	01.11.10

CUSTOMER OWNED SUBSTATION  
HV INDOOR GROUND MOUNTED SWGR  
(ALSTOM FLUOKIT M24 SWITCHGEAR)  
OPERATIONAL CLEARANCES



DRAWING NUMBER:		REV:
DSM-7-07		1
SCALE: 1:50	SHEET: 3 OF 4	SIZE: A4



CUSTOMERS DUCTING NOT SHOWN. POSITION DEPENDANT ON LOCATION OF CUSTOMERS MDB.

1	SUBSTATION DISTRIBUTION BOARD (REF D4)
2	
3	75 DIA PENETRATION THROUGH SLAB FOR EARTHING (REF C5 & C3)
4	125 ID HEAVY DUTY DUCTS (1 EACH UNIT + 1 SPARE) (REF C2)
5	600 x 800 WIDE VENT AT HIGH LEVEL FITTED WITH LOUVRES (REF C4)
6	40W FLUORESCENT BATTEN FITTING (REF D4 & C4)
7	WALLS & FLOOR OF TRENCH TO BE PAINTED WITH SILICON GLAZE S50
8	1200 DEEP TRENCH WITH 20 THICK PLY COVERS (REF C3)
9	20mm REBATE FOR TRENCH COVERS (REF D3)
10	COVER SUPPORTS - MS ANGLE FIXED TO WALL OF TRENCH (REF D5)
11	SUPPORT BEAM FOR SWITCHGEAR (REF C3)
12	SUPPORT BEAM SECURED TO TRENCH WALL WITH 2 x M12 LOXONS
13	2 STANCHIONS, 1 AT EACH END OF SWITCHGEAR (REF C3)
14	DOOR 2040 x 820 CLEAR, EXIT (REF D6 & E3)
15	DOUBLE BRICK CAVITY WALLS (REF D5)
16	WALLS TO BE 2HR FIRE RATED, CEILING HEIGHT TO BE MIN. 2500mm
17	HV METERS (REF D5)
18	75 DIA. DUCT INSTALLED AT BOTTOM OF TRENCH FOR METERING (REF D5)

	DIMENSION (W)	No. UNITS REQUIRED	TOTAL WIDTH(mm)
ISOLATOR (I)	375		
CIRCUIT BREAKER (CB)	750		
METERING UNIT(M/U)	600		
DIM 'A' =			

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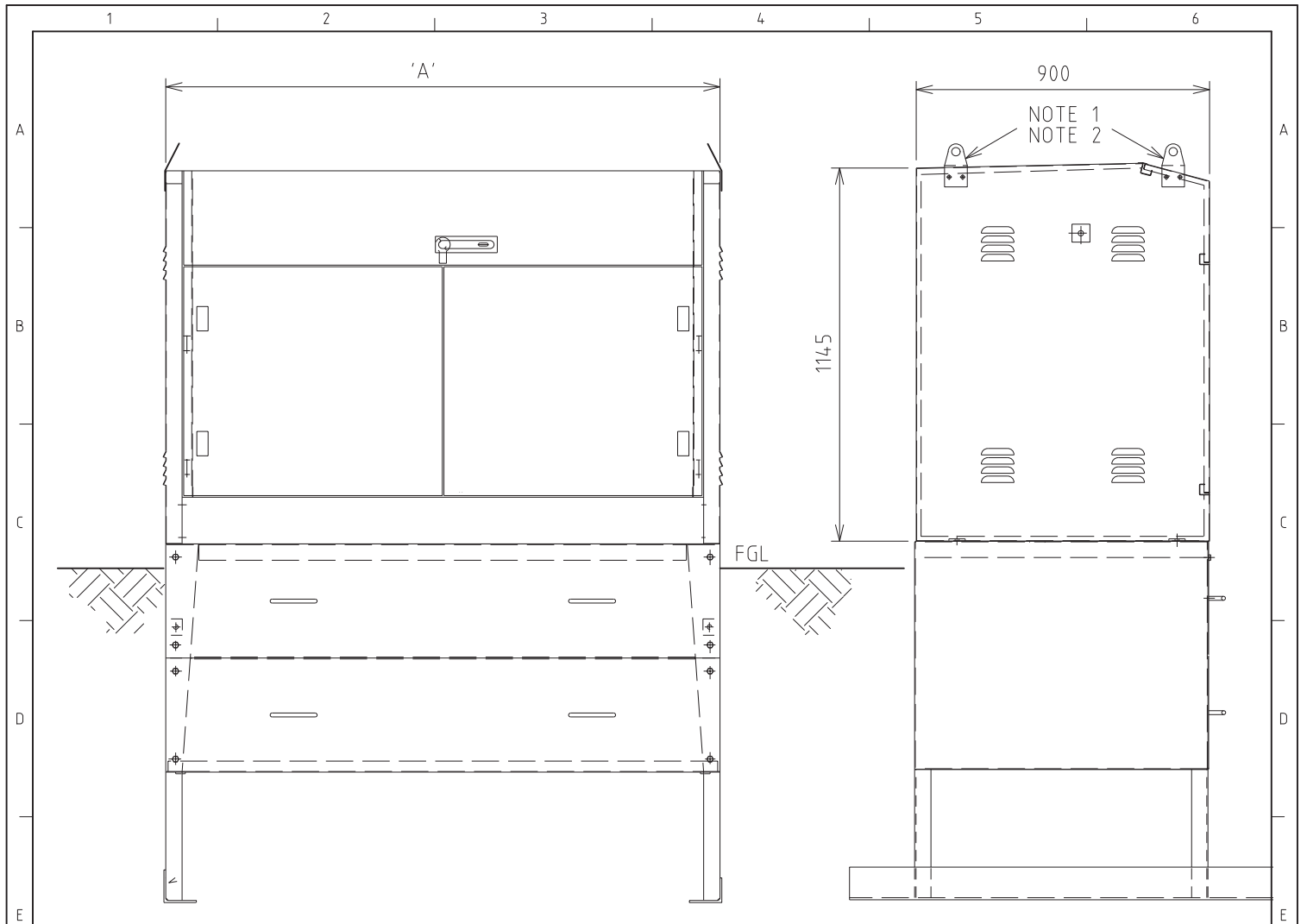
HORIZON POWER JOB / FILE No:		
DRN:	WP	01.11.10
CHK'D:	WP	01.11.10
DES:	WP	01.11.10
DES APP'D:	WP	01.11.10
APP'D:	WP	01.11.10

CUSTOMER OWNED SUBSTATION  
HV INDOOR GROUND MOUNTED SWGR  
(ALSTOM FLUOKIT M24 SWGR WITH  
PGC CIRCUIT BREAKER)  
CIVIL AND LAND REQUIREMENTS

**HORIZON  
POWER**

DRAWING NUMBER:		REV:
DSM-7-07		1
SCALE: 1:50	SHEET: 4 OF 4	SIZE: A4





NUMBER OF UNITS	DIMENSION 'A'	COMPATIBLE UNIT NUMBER
3 + 0	1300	HU5
2 + 1	1300	HU6
2 + 2	1700	HU7
3 + 1	1700	HU8
4 + 0	1700	HU9
2 + 3	2000	HU80
3 + 2	2000	HU81

NOTES

1. KIOSK AND STAND CAN BE LIFTED AT EYELETS WITHOUT RMU INSIDE
2. DO NOT LIFT KIOSK & STAND WITH RMU INSIDE

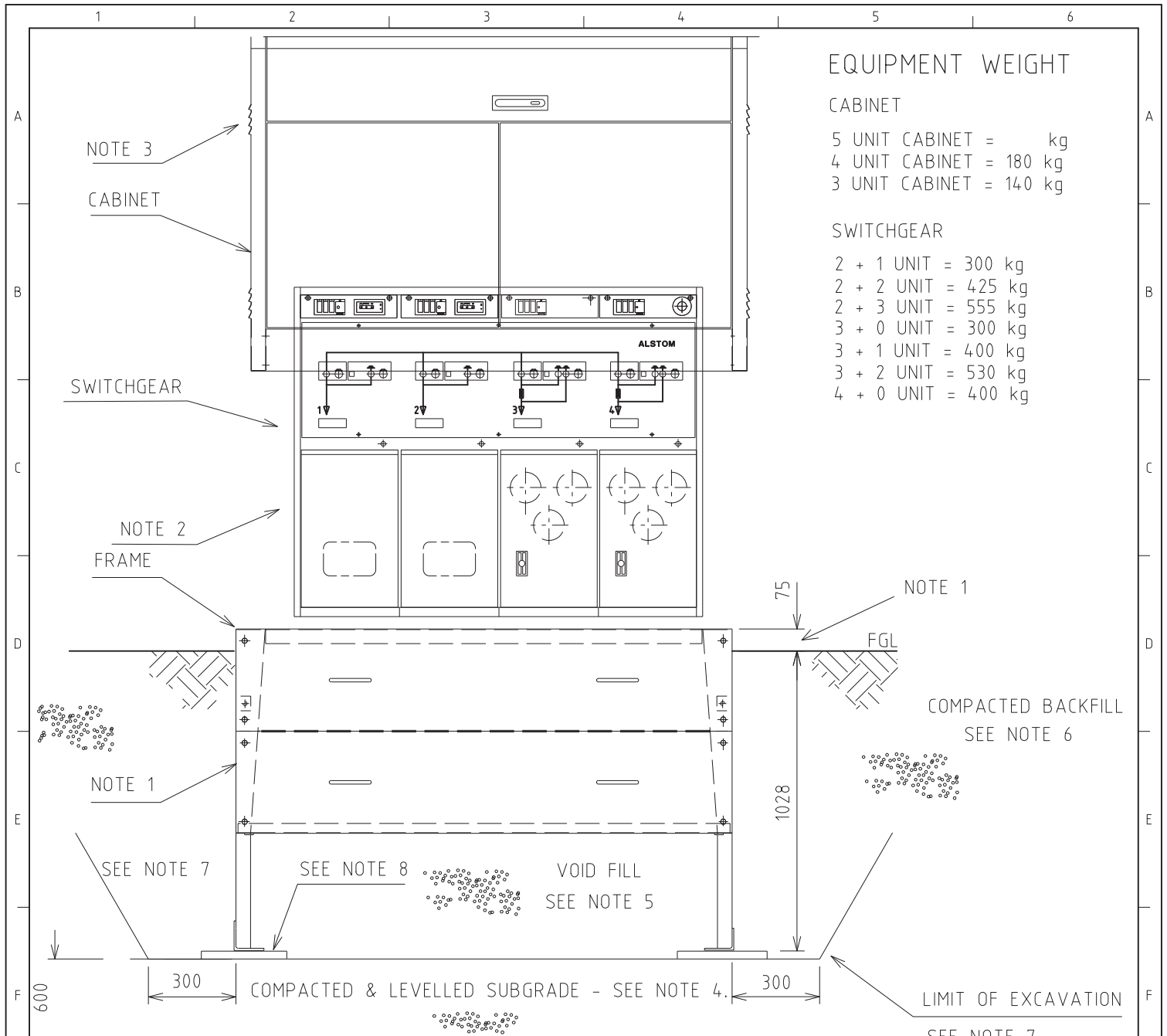
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HORIZON POWER JOB / FILE No:		
DRN:	A.GRUNIG	01.11.13
CHK'D:	P.SAVIG	01.11.13
DES:	WESTERN POWER	01.11.10
DES APP'D:	WESTERN POWER	01.11.10
APP'D:		

NON MPS HV SWITCHGEAR  
KIOSK  
ALSTOM FBA SWITCHGEAR  
GENERAL ARRANGEMENT



DRAWING NUMBER:		REV:
DSM 7-08		1
SCALE: 1:20	SHEET: 1 OF 2	SIZE: A4



EQUIPMENT WEIGHT


CABINET  
 5 UNIT CABINET =     kg  
 4 UNIT CABINET = 180 kg  
 3 UNIT CABINET = 140 kg

SWITCHGEAR  
 2 + 1 UNIT = 300 kg  
 2 + 2 UNIT = 425 kg  
 2 + 3 UNIT = 555 kg  
 3 + 0 UNIT = 300 kg  
 3 + 1 UNIT = 400 kg  
 3 + 2 UNIT = 530 kg  
 4 + 0 UNIT = 400 kg

1. GALVANISED STEEL FRAME BURIED INTO GROUND, 75mm ABOVE FINISHED GROUND LEVEL. [REF D5]
  2. SWITCHGEAR BOLTED TO FRAME AND FITTED WITH DUST COVER. [REF D5]
  3. ALUMINIUM CABINET FITTED OVER SWITCHGEAR AND BOLTED TO FRAME [REF A2]
  4. COMPACTION OF SUBGRADE TO BE A MINIMUM MODIFIED DENSITY RATIO OF 92 % TO AS 1289.5.2.1 FOR A DEPTH OF 600mm BELOW FRAME. IN CLEAN SAND THIS MAY BE MEASURED AS 8 BLOWS / 300mm WITH A STANDARD PENETROMETER. [REF F3]
  5. VOID TO BE FILLED WITH SAND, COMPACTION NOT NECESSARY. [REF E3]
  6. COMPACTED BACKFILL MATERIAL IS TO BE SAND. COMPACTION OF THE SAND IS TO BE CARRIED OUT IN LAYERS NOT EXCEEDING 300mm. COMPACTION LEVEL TO ACHIEVE A MINIMUM MODIFIED DENSITY RATIO OF 92 % TO THIS MAY BE MEASURED AS 8 BLOWS / 300mm WITH A STANDARD PENETROMETER [REF E5]
  7. THE BASE OF THE EXCAVATION IS TO BE A MINIMUM OF 300 mm LARGER THAN THE BASE OF THE STEEL FRAME, ON ALL SIDES. THE SIDES OF THE EXCAVATION ARE TO COMPLY WITH DSM-6-01/3 [REF F5 & E1]
  8. CONCRETE SLABS UNDER FRAME FEET. SLABS TYPICALLY 500 x 200 x 25 THICK. [REF F2]
- THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SUBSTATION INSTALLATION TECHNICAL REQUIREMENTS - HPC-9DJ-23-0001-2012. THIS DRAWING IN NO WAY RELATES TO WESTERN POWER DRAWING WITH THE SAME NO.*

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DRN:	A.GRUNIG	01.11.13
CHK'D:	P.SAVIG	01.11.13
DES:	WESTERN POWER	01.11.10
DES APP'D:	WESTERN POWER	01.11.10
APP'D:		

NON MPS HV SWITCHGEAR  
 KIOSK  
 ALSTOM FBA SWITCHGEAR  
 INSTALLATION GUIDE



DRAWING NUMBER: DSM-7-08		REV: 1
SCALE: NTS	SHEET: 2 OF 2	SIZE: A4