BECHTEL	Mechanical Handling Data Sheet Top Running, Double Girder	**CM** ⚠4	Data Sheet No. 24590-HLW-M0D-HSH-00181 Rev. 4 Plant Item No. 24590-HLW-MJ-HSH-CRN-00014

Project	RPP-WTP	Description	Melter 2 Cave Main Crane
Project No.	24590	Supporting Calculation No.	N/A
Planning Area		Associated Drawing No.	N/A
System No.	HSH	Associated Specification No.	24590-WTP-3PS-MJKG-T0003
Building No.	30	Associated MR No.	24590-QL-MRA-MJKG-00002
Quality Level	▶CM ⚠4	Associated MHD No.	24590-HLW-M7-HSH-00002002
Seismic Category	SC-II		
Function	Melter Cave 2 Support		

R10704044

DESIGN CRITERIA

ISSUED BY RPP-WTP PDC

Design Life	40 years	Safety Classification	▶APC ⚠4

OPERATING ENVIRONMENT			In-Cave Rm # H-0106		CMA Rm # H-0303		List All Special Conditions
			Min	Max	Min	Max	
Temperature		deg F	59	113	59	113	TID is derived using maximum local exposure assumed full time, ie multiplied by 24x365x40
Relative Humidity		%	0	70	0	70	
Radiological	gamma	rad/ 40 yrs	▶ 7.0*E+6 TID ⚠4		▶3.5*E+3 ⚠4		
	neutron	rad/ 40 yrs	Negligible		Negligible		
Radiological Classification			R5		▶R3 ⚠4		
Contamination Classification			C5		▶C3 ⚠4		

CRANE REQUIREMENTS

Type of Crane	Top Running Double Girder Electric Overhead Traveling Crane		
Service Information	CMAA 70-2000, Class E	Capacity	25 Ton
Crane Operation Indoors?	Yes, In-Cave	Main Hoist	25 Ton
Material Handled	Melter Cave Components	Auxiliary Hoist	N/A
Class Information	Class E	Trolley	25 Ton
No. of Cranes Required	1	Bridge	25 Ton
ASCE Rail Type	175 lb/yd		
Max Wheel Load	42,000 lbs		

OPERATING CHARACTERISTICS AND FREQUENCY OF MOVEMENT

Hoist- Range of Lift	41'-9"	No. lifts/day	1
Average Moves - Bridge	1/2 Runway Length	Moves/day	1
Average Moves - Trolley	3/4 Bridge Length	Moves/day	1

CRANE DIMENSIONS AND ELEVATIONS	ft - in.
Lowest Obstruction Elevation	52'-0"
Uppermost bridge feature ⚠4	▶ (47'-7" MAXIMUM) BY VENDOR
Bridge Rail Elevation	45'-1"
Lowest Point of Crane Elevation	44'-10"
High Hook Elevation	44'-9"
Low Hook Elevation	3'-0"
Side Approach - hoist center line to West Rails	3'-9" MAXIMUM
Side Approach - hoist center line to East Rails	3'-9" MAXIMUM
Distance from Grid line "9" to Inside face of West Wall ⚠4	▶ 6'-3" (REF) - SEE SKETCH (pg 3)
Distance from hoist center line to end-truck South bumper	5'-0" MAXIMUM
Distance from hoist center line to end-truck North bumper	6'-6" MAXIMUM
Distance from hoist center line to In-Cave South Wall ⚠4	▶ 6'-9" MAXIMUM (REF)
Distance from hoist center line to CMA North Wall	10'-6" MAXIMUM (REF)
Distance from Grid Line "L" to inside face of South Wall ⚠4	▶ 13'-0"
Total distance between inside wall faces of CMA and Cave	131'-10" (REF)
Runway Rails Span	34'-4"

Date	REV	Revisions	By	Checked	Supervisor	Approved
8/10/06	4	See note 17	N J Darwen	A. Whitford	P. Snider	D. Wilsey
02/10/05	3	See note 13	Matt Robinson	Andy Whitford	Phil Snider	Dave Wilsey
09/08/03	2	See note 15	Andy Whitford	Lawrnel Harrison	Grant Marr	Dave Wilsey
11/27/02	1	See note 14	David Horton	Paul Carter	Joni Weamer/ Jim	Dave Wilsey
02/26/02	0	Issued for Procurement	Joeseph Roach	Andy Whitford	Jim Brower	Dave Wilsey

DRIVE TYPE SPEED AND HORSEPOWER

Drives	Drive Type	Speed	Horsepower	Nominal Speed (ft/m): Slow	Fast
Main Hoist Drive Type	Flux Vector	Variable 0 - 25	30 HP	5	20
Recovery Hoist Drive Type	Single Speed	Single Speed	15 HP	4	
Main Bridge Drive Type	VFD	Variable 0 - 50	4 HP	5	50
Recovery Bridge Drive Type	Single Speed	Single Speed	1 HP	5	
Main Trolley Drive Type	VFD	Variable 0-25	1.5 HP	5	25
Recovery Trolley Drive Type	Single Speed	Single Speed	0.75 HP	5	
Powered Hook	DC Motor	Fixed	0.05 HP	1-2	

CONDUCTOR TYPE

Bridge	Cable Reel
Trolley	Cable Track

CONTROLS

Method of Control	Integrated control network (remote) or panel pushbuttons (local)
Location of Control	Operating corridor or facility control room (remote) or panel (local)
Type of Control Enclosure	NEMA 4X or IP 66

ELECTRICAL REQUIREMENTS

Item	Volts / Phase / Hertz
Motor	480 VAC / 3 Phase / 60 HZ
Special Wiring Conditions	National Electric Code

MAINTENANCE REQUIREMENTS

Construction	Modular for ease of assembly / dismantling
Modularization	Heaviest modular item (excludes bridge beams and end trucks) shall be < 5 tons.
Retrieval	Crane must be retrievable
Decontamination	Crane-mounted equipment to withstand occasional washdown during decontamination.

ADDITIONAL REQUIREMENTS (NOTES):

1. Crane-mounted motors, electrical cabinets, etc. to be sealed to withstand occasional washdown during decontamination.
2. Deleted
3. All cranes shall be designed to allow operator positioning to within +/- 3/8".
4. Deleted
5. Must be able to hold and control suspended payload without mechanical braking for sustained periods.
6. Deleted
7. Deleted
8. Power supply is required at hook for crane held tools.
9. Motor horsepower estimated for plant electrical load sizing. Seller to provide.
10. This drawing provided basic outlines, design objectives, and bounding dimensions to contracted design or fabrication supplier(s) and shall not be used to confirm the as built WTP structure, system or component identified herein. See vendor information for final configuration provided in conformance to purchase order 24590-QL-POA-MJKG-00002.
11. The crane will infrequently be subject to operating temperatures near 150°F for up to 12 hours.
12. The full range of hoist speed is not required for all loads.
13. Revision 3 removed calculation reference, symbols column, shield door corner obstruction information, duplicate "range of lift" dimension, gridline distance requirements, and several notes; changed outcell room name, units of dose, outcell room contamination and radiation classification, capacity, range of lift, uppermost bridge feature callout, bridge rail elevation, lowest point of crane, low hook elevation, side approaches, end approaches, maximum crane dimensions, hoist speeds, and several notes; and added MHD reference, rail type, and maximum wheel load.
14. ► Revision 1 changes: Changed additional requirements, drives, and description △4
15. ► Revision 2 changes: Revised based on 24590-HLW-DCA-PL-03-002 Rev 0, and editorial changes. Changed recovery drive type; was VFD △4
16. ► Trolley may not extend past fully compressed end truck bumper. △4
17. ► Revised sketch on page 3, changed Safety Classification from SDS to APC; Quality Level changed from QL to CM and revised environmental conditions △4

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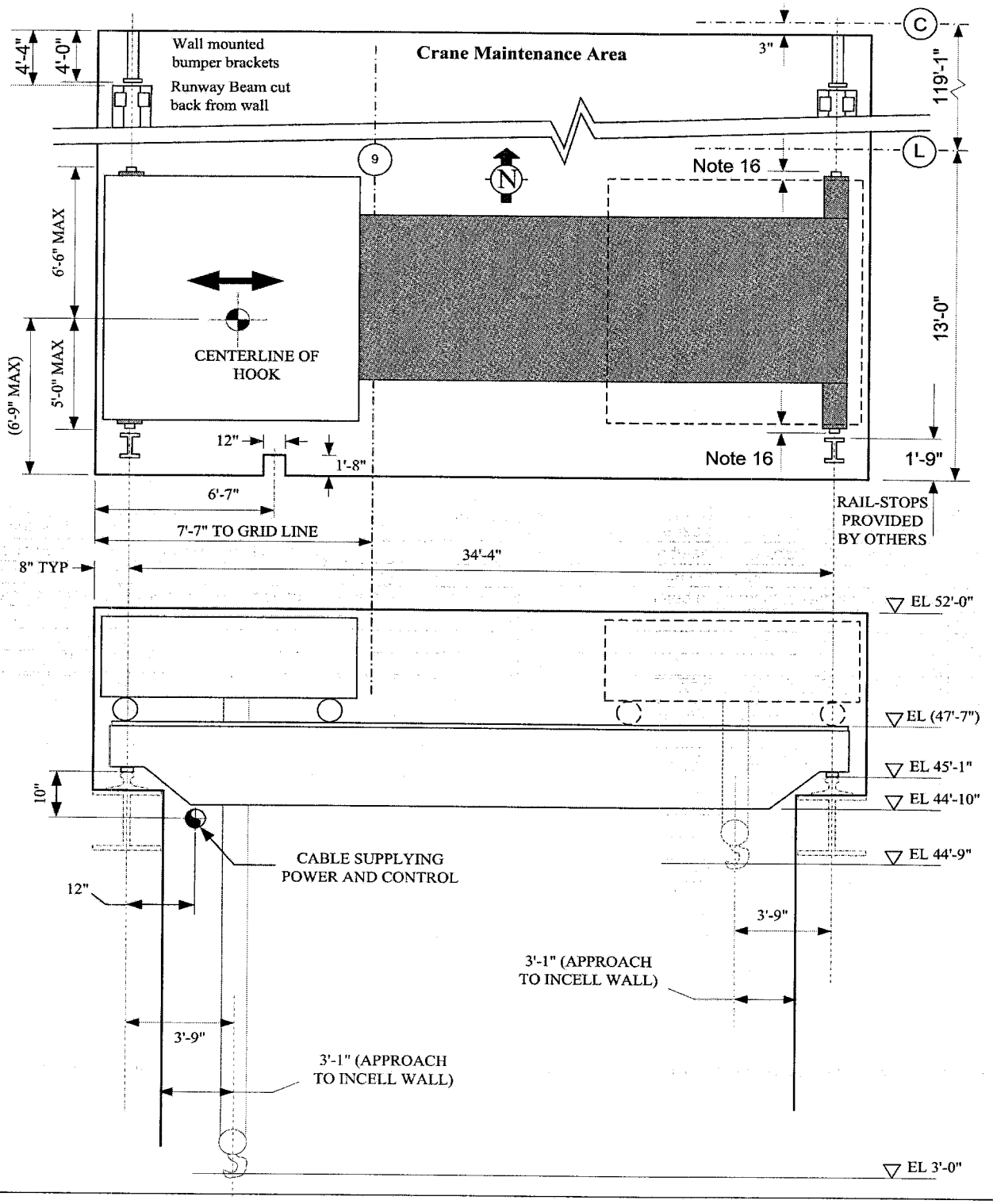
Wall mounted bumper brackets
Runway Beam cut back from wall
Crane Maintenance Area
3"
C
L
9
N
Note 16
Note 16
4'-4"
4'-0"
119'-1"
6'-6" MAX
5'-0" MAX
(6'-9" MAX)
13'-0"
CENTERLINE OF HOOK
12"
1'-8"
1'-9"
6'-7"
7'-7" TO GRID LINE
RAIL-STOPS PROVIDED BY OTHERS
8" TYP
34'-4"
EL 52'-0"
EL (47'-7")
EL 45'-1"
EL 44'-10"
EL 44'-9"
10"
CABLE SUPPLYING POWER AND CONTROL
12"
3'-9"
3'-1" (APPROACH TO INCELL WALL)
3'-9"
3'-1" (APPROACH TO INCELL WALL)
EL 3'-0"