



Site Preparation (WBS 121.06.02)

Breakout Session Title

Randy Wielgos

PIP-II IPR

4-6 December 2018

In partnership with:

India/DAE

Italy/INFN

UK/STFC

France/CEA/Irfu, CNRS/IN2P3

Charge Questions Addressed

1. Is the project making adequate technical progress to ensure that the completed project will perform as planned and meet the key performance parameters?
2. Will execution of PIP II design plans and planned R&D program activities ensure most major technical risks will be appropriately mitigated or retired prior to CD-3?
3. Has the project made adequate progress on its resource-loaded schedule to complete it by the time of CD-2?
4. Are preparations for defining, documenting, and managing the international in-kind contributions suitable to ensure their timely delivery and technical fidelity?
5. Is the proposed CD-2 timeline reasonable and consistent with the current project status?
6. Is ESH&Q being handled appropriately?
7. Are the proposed risk mitigation strategies reasonable and are the proposed contingencies acceptable?
8. Has the project satisfactorily responded to the recommendations from previous reviews?
9. Are there any other significant issues that require HEP or project's attention?

Outline

- Scope/Deliverables
 - (Including In-Kind Contributions)
- Requirements
- Interfaces
- Preliminary Design, Maturity
- Technical Progress to Date
- ESH&Q
- Risks and Mitigations
- Summary

About Me:

- PIP-II Deputy Manager for Conventional Facilities
- Relevant Experience
 - Licensed Professional Engineer;
 - Project Management Professional (PMP);
 - 9+ years at Fermilab;
 - 18+ years utility and infrastructure engineering;
 - UUP-SLI Project L3 Manager for High Voltage Infrastructure;
 - 2018 CD-4
 - General Plant Project Manager
 - Master Substation Bypass;
 - Computer System Upgrades – VoIP;

- **WBS 121.06.02 – CnvF - Site Preparation (SitePrep)**

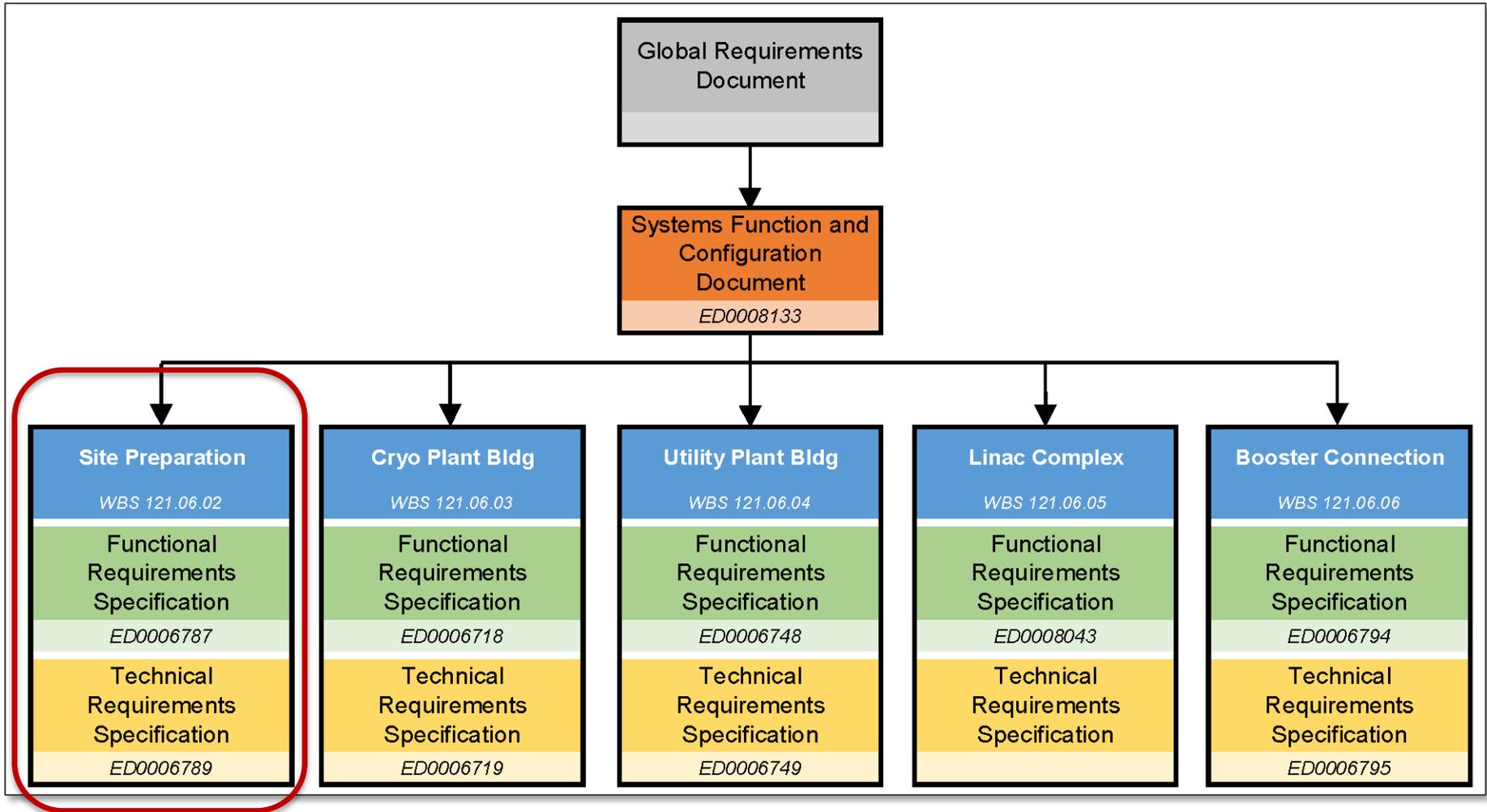
Procurement and management for all contracted labor, materials, tools, equipment, and services needed for the construction of the Site Preparation work scope. It describes the labor resources, materials and services necessary for management, organization, planning, oversight and engineering, design, inspection and administration (EDIA).

- Site Clearing package
- Site Work package
- Electrical Feeder package
- Site Restoration/Landscaping package

[1] Definitions from WBS Dictionary, PIP-II-doc-599

WBS L3 System Requirements

Charge #2



Functional Requirements Specification ^[1]

Charge #2

Requirement #	Requirement Statement
F-121.06.02-001	The SP shall provide a safe environment for employees and the public.
F-121.06.02-002	The SP shall provide and extension of the existing Fermilab utility infrastructure to the PIP-II site. This includes electrical, domestic water, industrial cooling water, sanitary sewer, chilled water and data/communication.
F-121.06.02-003	The SP shall provide an extension of the existing Fermilab road network.
F-121.06.02-004	The UPB shall comply with the overall character of the PIP-II campus.

[1] See TeamCenter Document ED0006718

Technical Requirements

Charge #2

UTILITY MATRIX

revision -6 SEP 07 2018

SITE PREP - UTILITIES		LINAC COMPLEX	CRYO COLD	CRYO WARM	UPB
LCW (supply & return)	use for	PROCESS LCW	NONE	NONE	Pipes To/From LINAC (see Linac info)
	amount	~ 6,145 gpm (~9MW @ 10F DT)* UPB to/from Linac Gallery			
TW (supply & return)	use for	NONE	NONE	NONE	HEAT REJECTION for LCW
	amount				~ 6,145 gpm (~9MW @ 10F DT)*
CHW (supply & return)	use for	BLDG & PROCESS	BLDG & PROCESS	NONE	CONTROL ROOM HVAC
	amount	technical equip HLA ~1200KW** ^a	technical equip HLA none ^c		technical equip HLA none
		conventional equip HLA by AE	conventional equip HLA by AE		conventional equip HLA by AE
		CHW process load = ~110 KW* ^b	process allowance = ~150 gpm* Vendor's actual ~42 gpm* ^c		CHW direct load = none
ICW (supply)	use for	BLDG FIRE PROTECTION	BLDG FIRE PROTECTION	BLDG FIRE PROTECTION & PROCESS	BLDG FIRE PROTECTION & PROCESS
	amount	technical reqmnt = none	technical reqmnt = none	project allowance = 1400 gpm vendor 1 = 881 gpm ^c vendor 2 = 991 gpm ^c	technical reqmnt ~2 gpm for LCW* Backwash for twr filtration by AE cooling tower makeup, gpm by AE
		fire protection reqmnt = by AE	fire protection reqmnt = by AE	fire protection reqmnt = by AE	fire protection reqmnt = by AE
ICW (return)		NA	NA	see ICW supply	see ICW supply
DWS	use for	BLDG PLUMBING	BLDG PLUMBING	BLDG PLUMBING	BLDG PLUMBING
	amount	by AE	by AE	by AE	by AE
SAN	use for	BLDG PLUMBING		BLDG PLUMBING	BLDG PLUMBING
	amount	by AE	by AE	by AE	by AE
STORM	use for	BLDG PLUMBING	BLDG PLUMBING	BLDG PLUMBING	BLDG PLUMBING
	amount	by AE	by AE	by AE	by AE
SUMP PUMP DISCH	use for	underdrain (tunnel & high bay sump)	?	?	?
	amount	by AE	by AE	by AE	by AE
POWER (BUILDING)	use for	lighting, hvac, cranes, conv power	lighting, hvac, cranes, conv power	lighting, hvac, cranes, conv power	lighting, hvac, cranes, conv power
	amount	technical reqmnt = none conventional = by AE	technical reqmnt = none conventional = by AE	technical reqmnt = none conventional = by AE	technical reqmnt = TBD conventional = by AE
POWER (PROCESS)	use for	RF Amplifier and Power Supplies	Misc Coldbox Equipment	Cryo Compressors & Oil Pumps	no specific process
	amount	~11 MW*	~95KW (480V & 120V)* ^c	~4.7MW (4160V) and ~0.3MW (480V)* ^c	NA
POWER (STDBY)	use for	sump pump,	sump pump,	sump pump,	?
	amount	by AE	by AE	by AE	by AE
POWER (EMERGENCY)	use for	odh, lighting	odh, lighting	odh, lighting	?
	amount	by AE	by AE	by AE	by AE
COMMUNICATION	use for				
additional info for ventilation	use for	technical equip HLA - see CHW info	technical equip HLA 15KW ^d	technical equip HLA ~200KW ^d	technical equip HLA = none
	amount	conventional equip HLA by AE	conventional equip HLA by AE	conventional equip HLA by AE	conventional equip HLA by AE**
TWR MAKEUP?		NA	NA	NA	from ICW or CUB? - amount by AE
PTWR BLOWDOWN		NA	NA	NA	to Pond? - amount by AE
(Tower makeup) Softener		NA	NA	NA	To Sanitary - amount by AE
misc WTR TRTMTNT DISCHARGES?		NA	NA	NA	to Pond? - amount by AE
Compressed Air		from UPB to High Bay? - TBD by user	NA	by user (local?)	from UPB to High Bay? - TBD by user
Nitrogen		from UPB to High Bay? - TBD by user	NA	NA	from UPB to High Bay? - TBD by user
PCW		NA	NA	not used (use direct ICW to cryo)	
PW		NA	NA	not used (use direct ICW to cryo)	
GCHW				not used- assume glycol FX system inside each building	
NAT GAS				not used- assume use of electric for heating	

*PLACEHOLDER USING CDR DATA for CW mode. Project direction as of 2018 is to design to CW mode. (The various loads numbers are still changing). Majority of the RF Amplifier in the current list are assumed to be 40% efficient.

**may include LCW pumps and accessories

HLA = heat load to air (use for sizing of HVAC unit)

a = preliminary CW mode heat load to air

b = LCW heat rejection from ion source, RFQ vanes and RFQ walls (assume 10 F delta T)

c = preliminary info from Ben Hansen (Cryo) 5/16/2018 and 6/12/2018 emails

d = preliminary info from Ben Hansen (Cryo) 9/7/2018 emails

Technical Requirements

Charge #2

PIP2 CONVENTIONAL MECH CRITERIA- draft

SEP 07 2018

Misc areas (toilet, mech room, stairs, etc) are not shown. All mech rooms are ventilated and heated. Exterior Spaces are not included in this.

Bldgs/Spaces	121.6.3				121.6.4				121.6.5							121.6.6
	CRYO PLANT BUILDINGS				UTIL PLANT BLDG				LINAC COMPLEX							BOOSTER CONN.
	WARM COMPILATION	COLD BOX STATION High Bay	CONTROL RM & TechSpace	PUR (PIP2 UTIL BLDG)	CONTROL RM & Elec Space	Tech Support Space	Control Room / Conf Rm	Mech Elec Space	SPACE for sensitive electronics	HIGH BAY	GALLERY	BEAM TRANS FLTS	LINAC ENCLOSURE	BEAM LINE TUNNEL	ABSORBER	BEAMLINE
PHSB CHECKLIST (see bldg)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
HVAC	HEAT/VENTIL	HVAC	HVAC	HEAT/VENTIL	HVAC	HVAC	HVAC	HEAT/VENTIL	HVAC	HVAC	HVAC	HVAC	none	none	none	none
SPACE TEMP (deg F (max))	ambient + 10F 14F to 113F (d)	78 (+/- 5)	75 (+/- 5)	ambient + 10F 41F - 104F (d)	78	78 (+/- 5)	78 (+/- 5)	ambient + 10F 78 (+/- 5)	78 (+/- 5)	78 (+/- 5)	78 (+/- 5)	78 (+/- 5)	desired 70-75F	not controlled	none	none
SPACE TEMP (deg F (min))	68	68 (+/- 5)	68 (+/- 5)	68	68	68 (+/- 5)	68 (+/- 5)	68	68 (+/- 5)	68 (+/- 5)	68 (+/- 5)	68 (+/- 5)	68 (+/- 5)	not controlled	none	none
No of Occupant	normally unoccupied	normally unoccupied														
HUMIDITY %RH (max)	none	55%/not controlled	55%/not controlled	ambient/ not controlled	not controlled	55%/not controlled	55%/not controlled	ambient/ not controlled	55%/not controlled	55%/not controlled	55%/not controlled	55%/not controlled	55%/not controlled	55%/not controlled	55%/not controlled	55%/not controlled
HUMIDITY %RH (min)	no minimum	no minimum	no minimum	no minimum	no minimum	no minimum	no minimum	no minimum	no minimum	no minimum	no minimum	no minimum	no minimum	no minimum	no minimum	no minimum
SPACE TEMPERATURE STABILITY F	none	not critical (+ - 2)	not critical (+ - 2)	not critical (+ - 2)	not critical (+ - 5)	not critical	not critical	not critical	not critical	not critical (+ - 2)	not critical (+ - 2)	not critical (+ - 2)	not critical (+ - 2)	not critical (+ - 2)	not critical (+ - 2)	not critical (+ - 2)
Pressurization	none	-0.05" w.r.t. adjacent central room (b)	-0.05" w.r.t. adjacent central room (b)	none	none	none	none	none	none	+0.05" w.r.t. linac tunnel (b)	+0.05" w.r.t. linac tunnel (b)	+0.05" w.r.t. linac tunnel (b)	-0.05" w.r.t. adjacent Linac Gallery & High Bay (b)	none	none	none
HEAT LOAD TO AIR (technical)	200 KW (d)	15 KW (f)	none (d)	tbd - see equip equip from LCW group	(a)	(a)	NA	NA	(a)	(a)	(a)	(a)	(a)	(a)	na	none required
HEAT LOAD TO AIR (conventional)	tbd (by AE)	tbd (by AE)	tbd (by AE)	tbd (by AE)	tbd (by AE)	tbd (by AE)	tbd (by AE)	tbd (by AE)	tbd (by AE)	tbd (by AE)	tbd (by AE)	tbd (by AE)	tbd (by AE)	tbd (by AE)	NA	none required
HEAT LOAD TO CHW (technical)	none	150 gpm allowance @ 45 F supply from sub interface isolation/balancing valve with meter near the floor	none	none	tbd			bldg load and (a)			bldg load & (a)	bldg load & (a)	none	none	none required	
HEAT LOAD TO LCW (technical)	none	none	none required	n/a	none required	(a)	(a)	NA	NA	(a)	(a)	(a)	(a)	(a)	(a)	to RAW system
HEAT LOAD TO ICW (technical)	1400 gpm allowance interface isolation/balancing valve, meter and strainer/ filter near the pipe entry	none	none	minimal for Vacuum pump	none	none	none	none	none	none	none	none	none	none	none	none
LCW WATER SUPPLY TEMPERATURES	NA	NA	NA	85F	85F & 81F								~85F	95F	95F	95F
LCW SYSTEM DELTA T	NA	NA	NA	10 F Delta T or better (b)	10 F Delta T or better (b)								10 F Delta T or better (b)			
VENTILATION ODH	55k cfm high/ 10k cfm low (d) interface: CF install equipment and power only. ODH controls by address	55k cfm high/ 10k cfm low (e)	none: space pressurized w.r.t adjacent	NONE	none	NONE	NONE	NONE	NONE	2 ACH (b)	NONE	NONE	2 ACH (b)	NONE	NONE	NONE
VENTILATION general	?	ASHRAE 62.1	ASHRAE 62.1													
VENTILATION OCCUPANCY	?	code	code	code	code	code	code	code	code	code	code	code	code	code	code	code
SUMP	?	?	none	none	none	none	none	none	none	none	none	none	none	none	none	none
FLOOR DRAINS (taken from estimate assumptions) - to be checked	Trench Drain (to Sanitary)? Or none like cmf?	Trench Drain (evaporation) or none like cmf??	none	?	none	Floor drain (to sanitary)?	none	??	??	??	Floor drain (to sanitary)?	Floor drain (to sanitary)?	Trench drain (evaporation)?	none	none	none
DOM WTR	NA	Toilet	NA	NA	ICW, CUR or DW/52											
TOWER MAKEUP	NA	NA	NA	ICW, CUR or DW/52												
OCCUPANCY CLASSIFICATION	Group F-2, Low-Hazard Factory Industrial occupancies				Group F-2, Low-Hazard Factory Industrial occupancies							Underground Structures per Sect 3.3.272.11 Life Safety Code				
	Special Purpose Industrial Occupancies by Section 40.1.2.1.2 of the Life Safety Code, NFPA 101 - 2015				Special Purpose Industrial Occupancies by Section 40.1.2.1.2 of the Life Safety Code, NFPA 101 - 2015							Underground Structures per Sect 3.3.272.11 Life Safety Code				
SMOKE CONTROL (e-30F)	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None
AUTOMATIC SPRINKLER	YES (0.15 gpm/sf over 1500sf)	YES (0.15 gpm/sf over 1500sf)	YES (0.15 gpm/sf over 1500sf)	YES (0.15 gpm/sf over 1500sf)	YES (0.15 gpm/sf over 1500sf)	YES (0.15 gpm/sf over 1500sf)	YES (0.15 gpm/sf over 1500sf)	YES (0.15 gpm/sf over 1500sf)	?	YES (0.20 gpm/sf)	YES (0.15 gpm/sf over 1500sf)	YES (0.15 gpm/sf over 1500sf)	YES (0.15 gpm/sf over 1500sf)	YES (0.15 gpm/sf over 1500sf)	YES (0.15 gpm/sf over 1500sf)	YES (0.15 gpm/sf over 1500sf)
STANDPIPE SYSTEMS (e-30F)	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None
FIRE DETECTION & ALARM	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
SMOKE DETECTION SYSTEM																

(a) see heat load table

(b) placeholder -

(c) placeholder - need to field measure current booster ventilation prior to design

(d) = preliminary info from Ben Hansen (Crya) 5/16/2018; 6/12/2018 emails & 6/13/2018 meeting; should have separate ventilation & system from ODH per meeting Sep10 2018

(e) = use CMTE book as placeholder per email with Ben Hansen 6/26/2018, awaiting ODH assessment

(f) = per email with Ben Hansen 9/07/2018

Interfaces

- Project Interfaces (*Managed through PIP-II processes*) ^[1]
 - ED0007697 – Interface Control Document
- Fermilab Interfaces
 - Infrastructure Connections (*Managed through FESS processes*)
 - General Plant Projects (*Managed through FESS processes*)
- International Interface
 - None

FESS is the Facilities Engineering Services Section

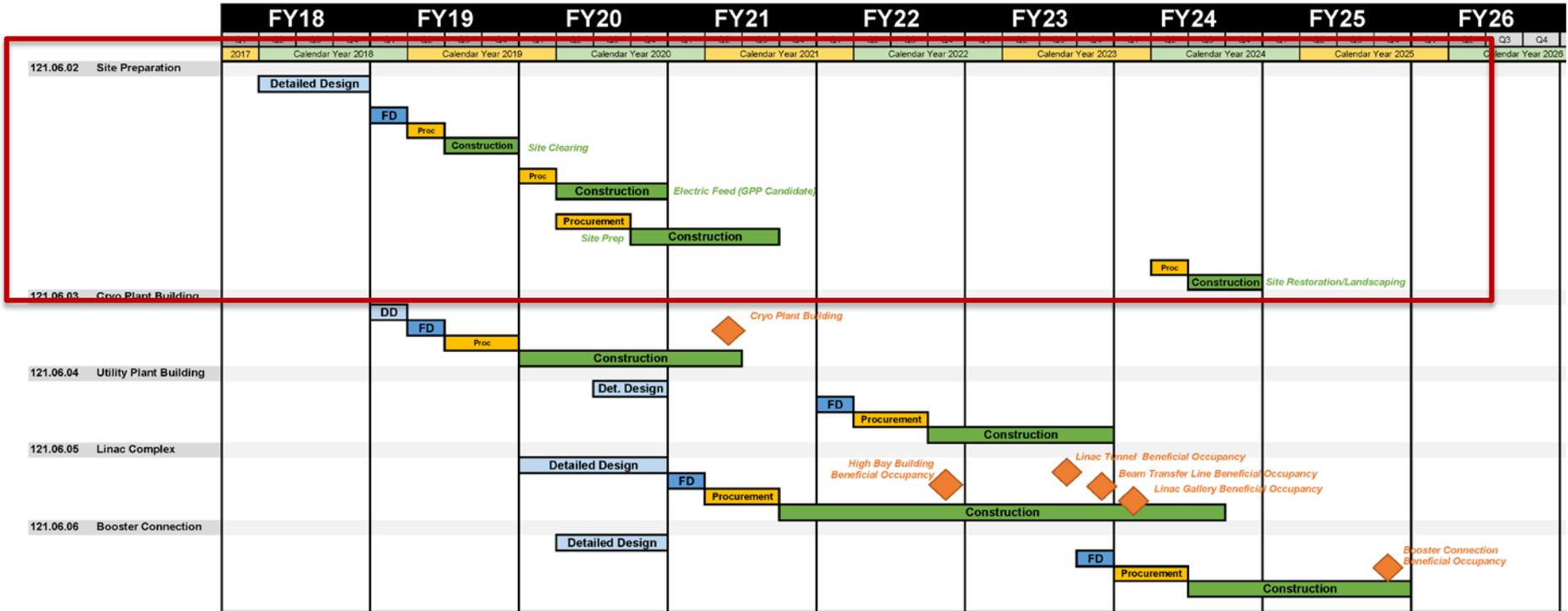
[1] See PIP-II Systems Engineering Management Plan at PIP-II-doc-1539

Preliminary Design and Design Maturity

- Design Phase (~90% Design)
 - Anticipate Complete December 2018;
- Construction Phase
 - Site Clearing package, March 2019
 - October 11, 2018 DOE Authorization for PIP-II Project-Related Site Clearing Work Prior to CD-2/3
 - Site Work package
 - Electrical Feeder package
 - Site Restoration/Landscaping package

Schedule Detail

Charge #2



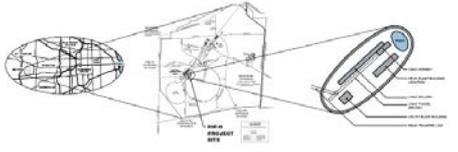
From 18OCT18 Integrated Project Team Meeting

Progress to Date

Charge #1

PIP-II SITE CLEARING

100% DESIGN DOCUMENTS
09.28.2018



PIP-II SITE PREPARATION PACKAGE | DRAWING INDEX

PROJECT INFORMATION

GENERAL NOTES

GENSLER | CMT | TORWA | IMEG | DESS SCHAULT | Turner

FERMILAB NATIONAL ACCELERATOR LABORATORY
PIP-II SITE CLEARING
COVER

PIP-II SITE PREPARATION

90% DESIGN DOCUMENTS
10.19.2018



PIP-II SITE PREPARATION | DRAWING INDEX

PROJECT INFORMATION

GENERAL NOTES

GENSLER | CMT | TORWA | IMEG | DESS SCHAULT | Turner

FERMILAB NATIONAL ACCELERATOR LABORATORY
PIP-II SITE PREPARATION
COVER

Wetland Area Management
Site Clearing and Erosion Control Measures
Temporary Roads
Stockpile Establishment

Mass Grading
Roads
Utility Corridor
Landscaping
Site Structural
Site Electrical

Progress to Date

- Site Clearing Engineering Package 100% in Final Review
 - Final Site Location Determined
 - SWPPP
 - Wetlands Determination\Classification

- Site Construction Engineering Package 90% in Final Review
 - Coordination with Technical Systems
 - Coordination with Laboratory Conventional Facilities

- Design Phase Incorporates:
 - Architect/Engineer selection included ES&H considerations;
 - Life Safety Assessment requirements; [1]
 - Safety By Design process;
 - Input from Tritium Task Force;
 - Input from Hazard Analysis Report (HAR) hazards [2]

[1] Life Safety Analysis can be found at PIP-II-doc-120

[2] Hazard Analysis Report can be found at PIP-II-doc-140

Quality Management

- Process to date include:
 - Preliminary Design Review (PIP-II process)
 - Comment and Compliance Review (FESS/E process)
 - QAQC Process Report (A/E process)

QAQC REPORT



Fermilab PIP-II– Site Preparation
Kirk Road and Pine Street
Batavia, IL 60510

Owner Fermi National Accelerator Laboratory Kirk Road and Pine Street Batavia, IL – 60510 Du Page County	Prepared by Gensler 11 E Madison St. Chicago, IL 60602 312-456-0123
40% Design Documents – Oct 19, 2018	
Gensler Project Number: 21.0137.004	
Fermilab Project Number: 4-3-2B	

Revision Date: October 8, 2018	PIP-II CONVENTIONAL FACILITIES QUALITY ASSURANCE RESPONSIBILITY MATRIX										Notes
	PIP-II Leadership	Subcontractors		PIP-II CF TEAM		Fermilab SME		Architect/Engineering Team		Construction Subcontractors	
	PIP-II Subgroups	Permit	PIP-II CF TEAM	Fermilab SME	Design Team	Commissioning Agent					
Pre-Design Phase											
Finalize Requirements Specification (FRS)	Review and Approve FRS	Develop and Document Functional Requirements	Develop and Document Functional Requirements	Review Requirements and Functional Requirements	Review and Approve FRS						
Link to High Performance Sustainable Building (HPSB) criteria	Review and Approve HPSB goals			Review Conceptual Design and Establish Goals							See PIP-II plan 104
Finalize Requirements Specification (FRS)	Review and Approve FRS	Develop and Document Technical Requirements	Develop and Document Technical Requirements	Review Requirements and Respond to FR	Review and Approve FRS						
Design Phase											
Issue of Design (BID) Document	Review BID Document	Review BID Document	Review BID Document	Review BID Document	Review BID Document	Develop Bid Document based on FRS and TRS	Review BID Documents				
Issue of Design (BID) Request Materials	Provide Input	Develop Input	Develop Input	Develop Input	Develop Input	Develop	Develop				
Perform Design Review (DR)	Participate and Approve	Participate and Approve	Review Design Documents	Lead Critical Elements and Develop Report	Participate and Approve	Participate	Review Design Documents				
Perform Independent Review	Participate	Participate	Participate	Participate	Participate	Lead design review team (architect/engineer)	Review Design Documents				
Issue Engineering Estimate	Participate	Participate	Participate	Participate	Participate	Develop					
Final Design Review (DR)	Participate and Approve	Participate and Approve	Review Design Documents	Lead Critical Elements and Develop Report	Participate and Approve	Participate	Review Design Documents				
Final Design Review (DR)	Provide Input	Provide Input	Review and Submit to DRB	Review	Provide Input	Provide Input	Review				
Commissioning Review Team											
Commissioning Plan	Provide Input										
Commissioning Materials Specifications, Training equipment, manuals, schedule, etc.											
Approved Documents (Technical spec, etc.) Approval											
Production Readiness Review (PRR)	Participate and Approve	Participate and Approve	Review Design Documents	Lead Critical Elements and Develop Report	Participate and Approve	Participate	Review Design Documents				
Construction Phase											
Request for Information				Assess and Submit to Commissioning		Provide Technical Response	Provide Technical Response	Provide Technical Response			
Request for Clarification	Review as Required	Provide Technical Response	Provide Technical Response	Coordinate Response	Provide Technical Response	Provide Technical Response	Provide Technical Response				
Request for Information	Provide Technical Response	Provide Technical Response	Provide Technical Response	Coordinate Response	Provide Technical Response	Provide Technical Response	Provide Technical Response				
Construction Closeout											
Complete Section and Change Notifications and Review				Coordinate, Track and Review	Review	Review	Review				
Complete Construction Strategy				Coordinate, Track and Review	Review	Review	Review				
Engineering Change	Review and Approve	Assess and Submit to Commissioning	Provide Input	Coordinate, Track and Review	Review and Approve	Provide Input, Coordinate Strategy	Provide Input, Coordinate Strategy				
Approval/Verification	Participate as Needed	Participate as Needed	Participate as Needed	Participate	Participate as Needed	Participate	Participate as Needed				
Commissioning Plan				Review	Review	Review	Review				
Commissioning Activities				Coordinate and Track Progress	Review	Review	Review				
Setup Equipment				Review Compliance Document	Review Compliance Document	Review Compliance Document	Review Compliance Document				
Perform Commissioning				Review Compliance Document	Review Compliance Document	Review Compliance Document	Review Compliance Document				
Testing System Functionality				Review Compliance Document	Review Compliance Document	Review Compliance Document	Review Compliance Document				
As-Built, Measure Loc/Coordinate				Coordinate, Track and Review	Review	Review	Review				
System Start				Coordinate, Track and Review	Review	Review	Review				
Review/Closeout	Review and Approve	Provide Input, Review and Approve	Participate as Needed	Coordinate/Track/Review/Document	Participate as Needed	Participate as Needed	Participate as Needed				
Final Acceptance	Review and Approve	Provide Input, Review and Approve	Participate as Needed	Coordinate/Track/Review/Document	Participate as Needed	Participate as Needed	Participate as Needed				
Post-Construction Documents											
Review/Submit Functional Test				Review Compliance Document	Review Compliance Document	Review Compliance Document	Review Compliance Document				
Security Review	Participate as Needed	Participate as Needed	Participate	Participate	Participate as Needed	Participate as Needed	Participate as Needed				
Closeout											
Finalize Review of Action											

Conventional Facilities Risks

- **0 High Risks**
- **15 Medium Risks**
- **31 Low Risks**

Top 3 Risks

- RT-121-06-001 – Subproject Requirement Changes
- RT-121-06-002 – Accelerator Shutdown Schedule
- RT-121-06-003 – Construction Bids Exceed Estimates

Link to Risk Register:

<https://fermipoint.fnal.gov/organization/ocoo/ippm/Lists/Risk%20Register/all-risks.aspx>

Summary

- Site Preparation Requirements are defined
- Site Preparation Design is sound and meets the requirements as validated by design reviews
- Risks are understood and are being managed
- ESH and QA plans are in place
- Project team is motivated, qualified, and ready to deliver
- We look forward to your feedback
- Thank you for your attention

END