Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Digital Multi Purpose Range Complex				
Common Items				
A. Targets				
1	Quantities meet DD1391, applicable TC 25-8, and CEHNC Design Guide 1110-1-23			
2	Oriented to face firing line or firing positions/points			
B. Roads-Service; Lanes				
1	Number of lanes meets DD 1391, applicable TC 25-8, and CEHNC Design Guide 1110-1-23. Note: Two tank trails per lane for armor ranges			
2	Trails and service roads provide adequate access to targets for maintenance			
C. Line of Sight				
1	Targets can be adequately seen from pertinent firing positions to allow 90% of target to be viewed			
2	Vegetation does not obscure target positions			
3	Left and right limit markers are outside greatest angle of fire from firing positions/points			
D. Testing Results-provided to the local government construction representative				
1	Secondary power cabling tests			
2	Data cabling tests including fiber optic and/or copper network (ie. Cat5e)			
3	Target berm compaction tests.			
4	Grounding tests results. Control building (ie. ROC) has 25 Ohms or less earth resistance			
E. Drawings				
1	Contract drawings are available on-site			
2	"As-builts" will be made available to government representative after completed construction			

Target Interface / Construction Compliance Inspection Checklist

	Date: Location:	YES	NO	NOTES
	Digital Multi Purpose Range Complex			
	Control Tower			
A.	**Power**			
1	Minimum 120V is provided via incoming service power.			
2	SPD is provided for the DTR and Range Control System (RCS) panelboard.			
3	Receptacles (120V, 20A) are provided for RCS and printer along front wall of control room under work table.			
4	Two dedicated circuits (120V, 20A) provided near the DTR (two duplex or one quadplex receptacle).			
B.	**Data Termination Rack (DTR)**			
1	DTR is an enclosed 36"Dx22"Wx84"H free standing rack with 19" rack frame.			
2	36" space is available to front and rear and one side. DTR is located a minimum of 6" from the wall on the remaining side			
4	DTR rack is properly grounded to TMGB or a single point ground via a minimum #6 AWG insulated ground cable.			
5	4"x4" wireway is provided under the floor or along the side wall from the DTR location to the RCS workstation located along the front wall.			
6	Data cabling from downrange is only a single type entering DTR (ie. fiber or Cat5e).			
7	Data cabling armor or shield is properly grounded as close as practical to the point of entrance.			
8	Data cabling is properly terminated (ie. fiber-SC connectors, Cat5e-female RJ45 connectors). Copper cabling from downrange also has data network surge protection with 16V clipping voltage installed.			
9	Data cabling in DTR is neat and orderly and adequately anchored.			
10	3 meter minimum service loop of data cabling is provided in DTR.			
11	Data cables are be permanently tagged identifying destination (ie. SIT X or lane X).			
12	Fiber cabling has no visible microbending, pinching, or other marking to indicate fiber damage.			
13	Patch panels have labeling identifying each cable's destination.			
15	Buffer tube fanout kits and furcation units are installed and adequately anchored in DTR.			
16	Conduits entering DTR are properly sealed to prevent entry of moisture and rodents.			
17	Innerduct in conduits or spare conduits are provided from the DTR to downrange.			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Digital Multi Purpose Range Complex				
Control Tower				
C.	**Department of Information Management (DOIM)**			
1	DOIM cabling is not terminated or entering the DTR.			
2	RJ45 jacks for DOIM cabling are properly labeled and identified as "Common User".			
D.	**Miscellaneous**			
1	Back wall of control room is windowless.			
2	Work table surface is 36" deep, the width of the tower and has a minimum of one slot for cable access.			
3	HVAC is provided in an appropriate location.			
4	Pull wires are provided in all empty conduits.			
5	Lightning protection is provided.			
6	Red lights are provided on separate switching from other lighting. (Applicable if range is used for night firing).			
7	Limit marker switch is provided and labeled properly. Note: Only provide limit marker switch on non-maneuverable ranges.			
E.	**Digital Range Towers (2-story towers)**			
1	A wire way system provides connectivity from the DTR to the workstation at the front of each floor.			
2	The wireway systems on each floor are interconnected.			
3	Minimum of 24 strands of single mode fiber optic cable is installed between the DTR in the ROC-AAR and the DTR in the Control Tower.			
4	There are counters at the front of the rooms on each floor.			
5	Provide a sleeve for antennas on the floor where the DTR is installed.			
6	Verify there are provisions for mounting antennas, either on the tower or on a separate antenna tower.			

Target Interface / Construction Compliance Inspection Checklist

	Date: Location:	YES	NO	NOTES
	Digital Multi Purpose Range Complex			
	Range Operations Center - After Action Review (ROC-AAR)			
A.	**Miscellaneous**			
1	All empty conduits have a pull string			
2	HVAC is provided for comm. and control room			
3	Lightning protection is provided. Verify UL listing will be obtained per contract (UL Listing not required per this checklist).			
4	All data jacks are labeled permanently			
5	All metal conduits and cable trays are bonded together and grounded			
6	Panelboards are recessed mounted in finished areas			
7	Exterior lighting is provided on separate switching from interior lighting			
8	Wall mounted exterior red lighting is located near points of egress and is on separate switching from white lights			
9	Ceiling mounted interior red lighting is located in rooms with exterior windows and is on separate interior switches from white lighting			
10	Emergency lighting and exits signs are provided			
11	SPD is provided in main service panelboard			
12	A 12" raised floor minimum is installed in comm. and control rooms with a 384 sq. in. cross sectional area hole provided between the raised floors of each room for wiring by others			
B.	**Data Termination Rack (DTR)**			
1	DTR is an enclosed 36"Dx22"Wx84"H free standing rack with 19" rack frame.			
2	36" space is available to front and rear and one side. DTR is located a minimum of 6" from the wall on the remaining side			
4	DTR rack is properly grounded to TMGB or a single point ground via a minimum #6 AWG insulated ground cable.			
5	4"x4" wireway is provided under the floor or along the side wall from the DTR location to the RCS workstation located along the front wall.			
6	Data cabling from downrange is only a single type entering DTR (ie. fiber or Cat5e).			
7	Data cabling armor or shield is properly grounded as close as practical to the point of entrance.			
8	Data cabling is properly terminated (ie. fiber-SC connectors, Cat5e-female RJ45 connectors). Copper cabling from downrange also has data network surge protection with 16V clipping voltage installed.			
9	Data cabling in DTR is neat and orderly and adequately anchored.			
10	3 meter minimum service loop of data cabling is provided in DTR.			
11	Data cables are be permanently tagged identifying destination (ie. SIT X or lane X).			
12	Fiber cabling has no visible microbending, pinching, or other marking to indicate fiber damage.			
13	Patch panels have labeling identifying each cable's destination.			
15	Buffer tube fanout kits and furcation units are installed and adequately anchored in DTR.			
16	Conduits entering DTR are properly sealed to prevent entry of moisture and rodents.			
17	Innerduct in conduits or spare conduits are provided from the DTR to downrange.			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Digital Multi Purpose Range Complex				
Range Operations Center - After Action Review (ROC-AAR)				
C.	**Communication Room (Room Houses DTRs)**			
1	Panelboard has adequate working space and clearance IAW NEC			
2	Panelboard has SPD installed properly			
3	Panelboard has panel schedule provided and completed			
4	Each rack has two single pole 20A circuit breakers provided in the panelboard			
5	Double throw switch or manual transfer switch is installed and labeled properly			
6	A separate disconnect switch is provided for the UPS (UPS will be provided by others)			
7	The UPS disconnect, switch, and rack panelboard are wired properly to allow the UPS to be removed and maintain power to range operation equipment in ROC.			
8	Floor space for UPS is provided, and is not installed on a raised floor that does not adequately support the weight of the UPS.			
9	A mushroom type button is provided by the door way that will disconnect the panel board in the Communications from all loads served by the panel board.			
10	The mushroom type button by the door is pull type to operate or has a cover to prevent inadvertent pressing of the button.			
11	The number of Data Termination Racks (DTR) installed is sufficient to terminate all incoming fiber optic cables. Adequate space is available for OPA funded racks			
12	Rack power outlets are located underneath raised floor.			
13	If cable trays are used under raised floor , ensure they are located under the future racks to be provided by others, continue to the control room and are properly bonded to ground.			
14	Raised floor has grounding grid installed properly.			
15	Downrange communication conduits are stubbed up underneath DTRs and grounded properly.			
16	Innerduct is installed where downrange optical fiber cable enters the building in rigid conduit.			
17	Minimum of 24 strands of fiber optic cable are installed between DTRs in AAR and ROC unless ROC and AAR are combined into one facility.			
	Minimum of 24 strands of fiber optic cable are installed between DTRs in ROC/AAR and Control Tower.			
18	Two 4 inch conduits coming from the communications room are stubbed up next to exterior wall under the raised floor and are capped on both ends.			
D.	**Department of Information Management (DOIM)**			
1	DOIM cabling is not terminated or entering the DTR.			
2	RJ45 jacks for DOIM cabling are properly labeled and identified as "Common User".			
E.	**Control Workstations**			
1	Adequate space is available for target installer work stations. Power receptacles are provided on dedicated 20 amp circuits for each work station.			
2	(2) 1 1/4" conduits are installed from cable tray to recess mounted junction boxes for each workstation in Control Rooms.			
3	No counters are provided.			

Target Interface / Construction Compliance Inspection Checklist

	Date: Location:	YES	NO	NOTES
	Digital Multi Purpose Range Complex			
	Range Operations Center - After Action Review (ROC-AAR)			
F.	AAR Classroom			
1	All metal conduits and cable trays are bonded together and grounded.			
2	A 20A duplex receptacle is provided near each overhead projector location in the theater area(s).			
3	A continuous 12" minimum ladder type wireway extends from DTR to the Control rooms and into the front of the AAR Classroom.			
4	A 1 1/4" conduit is provided from a junction box at each overhead projector location in the theater area to the cable tray.			
5	1 1/4" conduit is installed from cable tray to recess mounted 4' X 4" junction box with blank face plate flush with wall surface at the front of each AAR Classroom. This is defined as the podium location.			
6	A 120V duplex receptacle is located adjacent to junction box at the podium location in the front of each AAR Classroom.			
7	HVAC is provided in the theater and is on separate thermostat from Communications Room, Development Room, and Control Room.			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Digital Multi Purpose Range Complex				
Stationary Infantry Target (SIT)				
A.	**Miscellaneous**			
1	Emplacement size: Front wall height is 18". Front wall length is 54". Floor width is 54".			
2	A minimum of 29" of clearance is provided to the rear of the emplacement allowing space for the target in the down position.			
3	Adequate space is available in emplacement for target mechanism.			
4	Berm fill is level with the top of the protective timber at the front of the emplacement and free of holes.			
5	Emplacements are sloped to the rear for drainage.			
6	All emplacements and enclosures are clean of dirt and debris.			
7	All power and data enclosures are mounted no higher than 2 inches from top of wall.			
8	Target power outlet is (1) NEMA L14-20R and (2) NEMA L5-20R with wet location covers.			
9	GFCI maintenance receptacle (20A, 120V) is provided with an in-use weatherproof cover.			
10	All boxes and enclosures have weatherproof covers installed			
11	A 6-foot free length coil of #6 AWG bare copper ground cable is provided above ground from the grounding rod for future bonding to target mechanism.			
12	Emplacement is permanently labeled (ie. SIT X) and power center panel schedule agrees with label.			
13	All data and power conduits are routed to the rear or side of emplacement.			
B.	**Loadcenter (LC)**			
1	120/240V is provided via feeder circuit.			
2	Size of LC is maximum 13"Hx12"Wx6"D.			
3	LC has SPD installed properly			
4	A 2 pole 20A circuit breaker is provided for the target power outlet.			
5	LC is properly grounded via a minimum #6 AWG bare copper ground cable to SIT ground rod.			
6	Location of LC is adequate to allow lid to be opened.			
7	Panel schedule is provided which indicates circuit designations and where feeder circuit originates (ie. SIT X and panelboard PB-X)			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Digital Multi Purpose Range Complex				
Stationary Infantry Target (SIT)				
C.	**Master Target Data Panel (MTDP) and Target Data Panel (TDP)**			
1	Size of MTDP is 24"x12"x6" - TDP is minimum 12"x12"x6"			
2	Type of MTDP/TDP enclosure is galvanized steel NEMA 4. NEMA rating is maintained after installation (ie. screws do not penetrate the enclosure).			
3	The gasket is one piece and seamless in the enclosure cover.			
4	Cable seal fittings are properly installed on cables entering MTDP/TDP from underground.			
5	Location of MTDP/TDP is adequate to allow lid to be opened.			
6	A back plate is installed that covers the entire back of the MTDP/TDP.			
7	A 10"x10" space is available for target installer equipment in MTDP. 6"x6" space required in TDP.			
8	Data cabling is installed neatly and orderly and properly anchored or fastened in the MTDP/TDP.			
9	Fiber cabling is armored and properly grounded.			
10	Fiber is terminated with SC connectors.			
11	Fiber is permanently tagged and labeled (ie. To SIT X or From SIT X).			
12	Fiber SC connectors are terminated on a patch panel with number of ports to support total number of fiber strands terminated.			
13	Fiber patch panel is mounted to the back plate.			
14	Minimum 1 meter service loop of fiber cabling is provided and properly secured inside MTDP.			
15	Fiber cabling has no visible microbending, pinching, or other marking to indicate fiber damage.			
16	Fiber terminations allow adequate space for target installer to jumper to target installer equipment.			
17	Buffer tube fanout kit and furcation unit for the fiber cabling is anchored or securely fastened.			
18	A standard duplex receptacle (20A, 120V) is mounted to the back plate and properly grounded.			
19	The duplex receptacle is not GFCI protected.			
20	Cat5e or better cabling is shielded and properly grounded.			
21	Each end of Cat5e shall be terminated on a data network surge protector with a 15V-20V clamping voltage. Each surge protector shall not be larger than 5"x5".			
22	Cat5e cable is terminated on a 110-block style modular outlet. RJ-45 connertor patch cable connects modular outlet to surge protector.			
23	MTDP/TDP is grounded to the target ground rod via #6 AWG bare copper ground cable.			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Digital Multi Purpose Range Complex				
Stationary Infantry Target (SIT)				
D.	**SIT Clusters**			
1	Data cables from non-MTDP emplacements are home run to MTDP emplacements.			
2	Data cables from MTDP emplacements shall serve no more than 3 non-MTDP emplacements.			
3	Loadcenters feed a maximum 4 target mechanisms.			
4	SIT Cluster emplacements meet all other applicable criteria to SIT emplacements.			
E.	**Widened SIT Emplacements**			
1	Emplacement size: Front wall height is 18". Front wall length is 80". Floor width is 54".			
2	Target power outlet is (2) NEMA L14-20R and (4) NEMA L5-20R with wet location covers.			
3	Target power outlets are located to serve two separate target mechanisms. Outlets should be configured such that (1) L14-20R and (2) L5-20R outlets serve their respective mechanism.			
4	6-foot free length coils of #6 AWG bare copper ground cable is provided above ground from the grounding rod for future bonding to each target mechanism.			

Target Interface / Construction Compliance Inspection Checklist

	Date: Location:	YES	NO	NOTES
	Digital Multi Purpose Range Complex			
	Moving Infantry Target (MIT)			
A.	**Miscellaneous**			
1	Emplacement size. Front wall is 26". Front length is 709" (59') for 15 meter MIT and 1693" (141') for 40 meter MIT. Floor width is 54".			
2	A minimum of 24" of clearance is provided to the rear of the emplacement allowing space for the target in the down position.			
3	Adequate space is available in emplacement for target mechanism.			
4	Berm fill is level with the top of the protective timber at the front of the emplacement and free of holes.			
5	Emplacements are sloped to the rear for drainage.			
6	All emplacements and enclosures are clean of dirt and debris.			
7	All power and data enclosures are mounted no higher than 2 inches from top of wall.			
8	Target power outlet is (1) NEMA L14-20R and (2) NEMA L5-20R with wet location covers.			
9	GFCI maintenance receptacle (20A, 120V) is provided with an in-use weatherproof cover.			
10	All boxes and enclosures have weatherproof covers installed			
11	A 10-foot free length coil of #6 AWG bare copper ground cable is provided above ground from the grounding rod for future bonding to target mechanism.			
12	Emplacement is permanently labeled (ie. MIT X) and power center panel schedule agrees with label.			
13	All power and data enclosures are located at the end of the MIT nearest the direction of fire.			
14	All enclosures do not exceed 79" from end of MIT			
15	All data and power conduits are routed to the rear or side of emplacement.			
B.	**Loadcenter (LC)**			
1	120/240V is provided via feeder circuit			
2	LC is minimum 6"-8" from emplacement floor			
4	LC has SPD installed properly			
5	A 2 pole 20A circuit breaker is provided for the target power outlet			
6	LC is properly grounded via a minimum #6 AWG bare copper ground cable to MIT ground rod			
7	Location of LC is adequate to allow lid to be opened.			
8	Panel schedule is provided which indicates circuit designations and where feeder circuit originates (ie. MIT X and panelboard PB-X)			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Digital Multi Purpose Range Complex				
Moving Infantry Target (MIT)				
C.	**Master Target Data Panel (MTDP) and Target Data Panel (TDP)**			
1	Size of MTDP is 24"x12"x6" - TDP is minimum 12"x12"x6"			
2	Type of MTDP/TDP enclosure is galvanized steel NEMA 4. NEMA rating is maintained after installation (ie. screws do not penetrate the enclosure).			
3	The gasket is one piece and seamless in the enclosure cover.			
4	Cable seal fittings are properly installed on cables entering MTDP/TDP from underground.			
5	Location of MTDP/TDP is adequate to allow lid to be opened.			
6	A back plate is installed that covers the entire back of the MTDP/TDP			
7	A 10"x10" space is available for target installer equipment in MTDP. 6"x6" space required in TDP.			
8	Data cabling is installed neatly and orderly and properly anchored or fastened in the MTDP/TDP			
9	Fiber cabling is armored and properly grounded.			
10	Fiber is terminated with SC connectors			
11	Fiber is permanently tagged and labeled (ie. To MIT X or From SIT X)			
12	Fiber SC connectors are terminated on a patch panel with number of ports to support total number of fiber strands terminated.			
13	Fiber patch panel is mounted to the back plate			
14	Minimum 1 meter service loop of fiber cabling is provided and properly secured inside MTDP			
15	Fiber cabling has no visible microbending, pinching, or other marking to indicate fiber damage.			
16	Fiber terminations allow for adequate space for target installer to jumper to target installer equipment			
17	Buffer tube fanout kit and furcation unit for the fiber cabling is anchored or securely fastened.			
18	A standard duplex receptacle (20A, 120V) is mounted to the back plate and properly grounded.			
19	The duplex receptacle is not GFCI protected.			
20	Cat5e or better cabling is shielded and properly grounded.			
21	Each end of Cat5e shall be terminated on a data network surge protector with a 16V clipping voltage. Each surge protector shall not be larger than 5"x5". Multiple surge protectors may need to be mounted to an angle bracket to minimize space used in MTDP/TDP			
22	Cat5e cable is terminated on a 110-block style modular outlet. RJ-45 connertor patch cable connects modular outlet to surge protector.			
23	Ground the MTDP/TDP to the target ground rod via #6 AWG bare copper ground cable.			

Target Interface / Construction Compliance Inspection Checklist

	Date: Location:	YES	NO	NOTES
	Digital Multi Purpose Range Complex			
	Stationary Armor Target (SAT)			
A	**Miscellaneous**			
1	Emplacement size: Front wall height is 41" (53" aerial). Front wall length is 168" (336" flank).			
2	Adequate space is available in emplacement for target mechanism.			
3	Berm fill is sloped 3" above wall level and tapers to level with protective timber at the front of the emplacement and free of holes.			
4	Emplacements are sloped to the rear for drainage.			
5	All emplacements and enclosures are clean of dirt and debris.			
6	All power and data enclosures are mounted no higher than 12 inches from top of wall.			
7	Target power outlet is (1) NEMA L14-20R and (4) NEMA L5-20R with wet location covers.			
8	GFCI maintenance receptacle (20A, 120V) is provided with an in-use weatherproof cover.			
9	All boxes and enclosures have weatherproof covers installed			
10	A 10-foot free length coil of #6 AWG bare copper ground cable is provided above ground from the grounding rod for future bonding to target mechanism.			
11	Emplacement is permanently labeled (ie. SAT X) and power center panel schedule agrees with label.			
12	All data and power conduits are routed to the rear or side of emplacement.			
B	**Loadcenter (LC)**			
1	120/240V is provided via feeder circuit			
2	LC is minimum 6"-8" from emplacement floor			
4	LC has TVSS installed properly			
5	A 2 pole 20A circuit breaker is provided for the target power outlet			
6	LC is properly grounded via a minimum #6 AWG bare copper ground cable exothermic welded to SIT ground rod			
7	Location of LC is adequate to allow lid to be opened.			
8	Panel schedule is provided which indicates circuit designations and where feeder circuit originates (ie. SAT X and panelboard PB-X)			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Digital Multi Purpose Range Complex				
Stationary Armor Target (SAT)				
C.	**Master Target Data Panel (MTDP) and Target Data Panel (TDP)**			
1	Size of MTDP is 24"x12"x6" - TDP is minimum 12"x12"x6"			
2	Type of MTDP/TDP enclosure is galvanized steel NEMA 4. NEMA rating is maintained after installation (ie. screws do not penetrate the enclosure).			
3	The gasket is one piece and seamless in the enclosure cover.			
4	Cable seal fittings are properly installed on cables entering MTDP/TDP from underground.			
5	Location of MTDP/TDP is adequate to allow lid to be opened.			
6	A back plate is installed that covers the entire back of the MTDP/TDP			
7	A 10"x10" space is available for target installer equipment in MTDP. 6"x6" space required in TDP.			
8	Data cabling is installed neatly and orderly and properly anchored or fastened in the MTDP/TDP			
9	Fiber cabling is armored and properly grounded.			
10	Fiber is terminated with SC connectors			
11	Fiber is permanently tagged and labeled (ie. To MIT X or From SIT X)			
12	Fiber SC connectors are terminated on a patch panel with number of ports to support total number of fiber strands terminated.			
13	Fiber patch panel is mounted to the back plate			
14	Minimum 1 meter service loop of fiber cabling is provided and properly secured inside MTDP			
15	Fiber cabling has no visible microbending, pinching, or other marking to indicate fiber damage.			
16	Fiber terminations allow for adequate space for target installer to jumper to target installer equipment			
17	Buffer tube fanout kit and furcation unit for the fiber cabling is anchored or securely fastened.			
18	A standard duplex receptacle (20A, 120V) is mounted to the back plate and properly grounded.			
19	The duplex receptacle is not GFCI protected.			
20	Cat5e or better cabling is shielded and properly grounded.			
21	Each end of Cat5e shall be terminated on a data network surge protector with a 16V clipping voltage. Each surge protector shall not be larger than 5"x5". Multiple surge protectors may need to be mounted to an angle bracket to minimize space used in MTDP/TDP			
22	Cat5e cable is terminated on a 110-block style modular outlet. RJ-45 connertor patch cable connects modular outlet to surge protector.			
23	Ground the MTDP/TDP to the target ground rod via #6 AWG bare copper ground cable.			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Digital Multi Purpose Range Complex				
Moving Armor Target (MAT)				
A.	Miscellaneous			
1	Emplacement size: Front wall height is 60" (72" aerial).			
2	Adequate space is available in emplacement for target mechanism.			
3	Berm fill is sloped 3" above wall level and tapers to level with protective timber at the front of the emplacement and free of holes.			
4	Emplacements are sloped to the rear for drainage.			
5	All emplacements and enclosures are clean of dirt and debris.			
6	All power and data enclosures are mounted no higher than 12 inches from top of wall.			
7	Target power outlet is (1) NEMA L14-20R and (2) NEMA L5-20R with wet location covers.			
8	GFCI maintenance receptacle (20A, 120V) is provided with an in-use weatherproof cover.			
9	All boxes and enclosures have weatherproof covers installed			
10	A 15-foot free length coil of #1/0 AWG bare copper ground cable is provided above ground from the grounding rod for future bonding to target mechanism.			
11	Emplacement is permanently labeled (ie. MAT X) and power center panel schedule agrees with label.			
12	All data and power conduits are routed to the rear or side of emplacement.			
13	Track bed/service road width is a minimum of 8.25 meters (27').			
14	MAT track bed/service road grade does not exceed 5.7 degrees (10 percent).			
15	The first 40 meters (131 feet) of MAT roadbed (at its power source end) and the last 40 meters (131 feet) of track has a grade of 0 degrees ±1 percent.			
16	The minimum turning radius of curved track is 152.4 meter (500 feet).			
B.	Loadcenter (LC)			
1	120/240V is provided via feeder circuit			
2	LC is minimum 6"-8" from emplacement floor			
4	LC has TVSS installed properly			
5	A 2 pole 20A circuit breaker is provided for the target power outlet			
6	LC is properly grounded via a minimum #6 AWG bare copper ground cable exothermic welded to MIT ground rod			
7	Location of LC is adequate to allow lid to be opened.			
8	Panel schedule is provided which indicates circuit designations and where feeder circuit originates (ie. MAT X and panelboard PB-X)			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Digital Multi Purpose Range Complex				
Moving Armor Target (MAT)				
C.	**Master Target Data Panel (MTDP) and Target Data Panel (TDP)**			
1	Size of MTDP is 24"x12"x6" - TDP is minimum 12"x12"x6"			
2	Type of MTDP/TDP enclosure is galvanized steel NEMA 4. NEMA rating is maintained after installation (ie. screws do not penetrate the enclosure).			
3	The gasket is one piece and seamless in the enclosure cover.			
4	Cable seal fittings are properly installed on cables entering MTDP/TDP from underground.			
5	Location of MTDP/TDP is adequate to allow lid to be opened.			
6	A back plate is installed that covers the entire back of the MTDP/TDP			
7	A 10"x10" space is available for target installer equipment in MTDP. 6"x6" space required in TDP.			
8	Data cabling is installed neatly and orderly and properly anchored or fastened in the MTDP/TDP			
9	Fiber cabling is armored and properly grounded.			
10	Fiber is terminated with SC connectors			
11	Fiber is permanently tagged and labeled (ie. To MIT X or From SIT X)			
12	Fiber SC connectors are terminated on a patch panel with number of ports to support total number of fiber strands terminated.			
13	Fiber patch panel is mounted to the back plate			
14	Minimum 1 meter service loop of fiber cabling is provided and properly secured inside MTDP			
15	Fiber cabling has no visible microbending, pinching, or other marking to indicate fiber damage.			
16	Fiber terminations allow for adequate space for target installer to jumper to target installer equipment			
17	Buffer tube fanout kit and furcation unit for the fiber cabling is anchored or securely fastened.			
18	A standard duplex receptacle (20A, 120V) is mounted to the back plate and properly grounded.			
19	The duplex receptacle is not GFCI protected.			
20	Cat5e or better cabling is shielded and properly grounded.			
21	Each end of Cat5e shall be terminated on a data network surge protector with a 16V clipping voltage. Each surge protector shall not be larger than 5"x5". Multiple surge protectors may need to be mounted to an angle bracket to minimize space used in MTDP/TDP			
22	Cat5e cable is terminated on a 110-block style modular outlet. RJ-45 connertor patch cable connects modular outlet to surge protector.			
23	Ground the MTDP/TDP to the target ground rod via #6 AWG bare copper ground cable.			

Target Interface / Construction Compliance Inspection Checklist

	Date: Location:	YES	NO	NOTES
	Digital Multi Purpose Range Complex			
	Façade			
A.	**Miscellaneous**			
1	Façade layout is IAW CEHNC 1110-1-23. (see drawing FAC-A-01).			
2	Center post and beams across to the two SIT emplacements atop has adequate ballistic protection for outlets and future wiring by others			
3	4 weatherproof power outlets are installed on the center post for the two SITs atop the façade (two NEMA L14-20R and two NEMA L5-20R) with wet location covers			
4	2 Cat5e cables terminated with male RJ45 connectors are installed in a single gang weather proof enclosure with a blank cover and mounted on the center post for the two SITs atop the façade.			
5	2 weatherproof power outlets are installed on the center post for the SIT on the bottom level of the façade (one NEMA L14-20R and one NEMA L5-20R) with wet location covers			
6	Cat5e cable terminated with a male RJ45 connector is installed to a single gang weather proof enclosure with a blank cover and mounted on the center post for the SIT on the bottom level of the façade.			
7	Grounding cables (#6AWG minimum bare copper) are installed to all the metal SIT coffins and terminated to the ground system			
8	In each metal SIT coffin a 6 foot length of ground cable (#6 AWG minimum bare copper) is terminated to the coffin and left coiled for future connection to the target mechanism			
9	Each SIT has ballistic protection to keep from being shot			
10	All metal parts are grounded properly			
11	The façade has 4 double pole circuit breakers, one fore each target outlet. Typically two load centers are provided at the façade.			
12	A rubber matting is provided on the front of the façade to prevent the wood from shattering from the impact of grenades IAW CEHNC 1110-1-23.			
B.	**Loadcenter (LC)**			
1	120/240V is provided via feeder circuit.			
2	Size of LC is maximum 13"Hx12"Wx6"D.			
3	LC has SPD installed properly			
4	The façade has 4 double pole circuit breakers, one for each target outlet. Typically two load centers are provided at each façade.			
5	LC is properly grounded via a minimum #6 AWG bare copper ground cable to SIT ground rod.			
6	Location of LC is adequate to allow lid to be opened.			
7	Panel schedule is provided which indicates circuit designations and where feeder circuit originates (ie. SIT X and panelboard PB-X)			
8	There are no LCs installed in front of the door. Targets cannot be installed directly in front of a LC.			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Digital Multi Purpose Range Complex				
Façade				
C.	**Master Target Data Panel (MTDP) and Target Data Panel (TDP)**			
1	Size of MTDP is 24"x12"x6" - TDP is minimum 12"x12"x6"			
2	Type of MTDP/TDP enclosure is galvanized steel NEMA 4. NEMA rating is maintained after installation (ie. screws do not penetrate the enclosure).			
3	The gasket is one piece and seamless in the enclosure cover.			
4	Cable seal fittings are properly installed on cables entering MTDP/TDP from underground.			
5	Location of MTDP/TDP is adequate to allow lid to be opened.			
6	A back plate is installed that covers the entire back of the MTDP/TDP.			
7	A 10"x10" space is available for target installer equipment in MTDP. 6"x6" space required in TDP.			
8	Data cabling is installed neatly and orderly and properly anchored or fastened in the MTDP/TDP.			
9	Fiber cabling is armored and properly grounded.			
10	Fiber is terminated with SC connectors.			
11	Fiber is permanently tagged and labeled (ie. To SIT X or From SIT X).			
12	Fiber SC connectors are terminated on a patch panel with number of ports to support total number of fiber strands terminated.			
13	Fiber patch panel is mounted to the back plate.			
14	Minimum 1 meter service loop of fiber cabling is provided and properly secured inside MTDP.			
15	Fiber cabling has no visible microbending, pinching, or other marking to indicate fiber damage.			
16	Fiber terminations allow adequate space for target installer to jumper to target installer equipment.			
17	Buffer tube fanout kit and furcation unit for the fiber cabling is anchored or securely fastened.			
18	A standard duplex receptacle (20A, 120V) is mounted to the back plate and properly grounded.			
19	The duplex receptacle is not GFCI protected.			
20	Cat5e or better cabling is shielded and properly grounded.			
21	Each end of Cat5e shall be terminated on a data network surge protector with a 15V-20V clamping voltage. Each surge protector shall not be larger than 5"x5".			
22	Cat5e cable is terminated on a 110-block style modular outlet. RJ-45 connertor patch cable connects modular outlet to surge protector.			
23	MTDP/TDP is grounded to the target ground rod via #6 AWG bare copper ground cable.			

Target Interface / Construction Compliance Inspection Checklist

	Date: Location:	YES	NO	NOTES
	Digital Multi Purpose Range Complex			
	Exterior Camera			
A.	Camera Data Enclosure (CDE)			
1	Size is minimum 3'x2'x8" (914x610x203)			
2	Type of CDE is galvanized steel NEMA 4. NEMA rating is maintained after installation.			
3	A back plate is installed that covers the entire back of the CDE.			
4	A standard duplex receptacle (20A, 120V) is mounted to the back plate and properly grounded. Receptacle is mounted in lower left or right corner of CDE.			
5	Duplex receptacle inside CDE is not GFCI protected.			
6	Fiber cabling is armored and grounded properly.			
7	Fiber is terminated with SC connectors			
8	Fiber is permanently tagged and labeled (ie. Homerunned to ROC)			
9	Fiber SC connectors are terminated on a patch panel, the number of ports is sufficient to accomodate the number of strands terminated in the CDE.			
10	Fiber patch panel is mounted to the back plate in the CDE, mounted in an area near the bottom right or left of the CDE opposite the receptacle.			
11	Minimum 2 meter service loop of fiber cabling is provided and properly secured inside CDE.			
12	Fiber cabling has no visible microbending, pinching, or other marking to indicate fiber failure.			
13	Fiber terminations allow adequate space for target installer to jumper to target installer equipment.			
14	Adequate space is available in CDE for target installer equipment.			
15	Buffer tube fanout kit and furcation unit for the fiber cabling is anchored or securely fastened.			
16	Location of CDE allows proper opening of CDE lid and adequate work space for target installer.			
17	Separate conduits are provided for power and data into CDE.			
18	All conduits entering CDE are properly sealed to prevent entry of moisture and rodents.			
19	CDE is properly bonded to ground system for camera tower via minimum #6 AWG bare copper ground.			
20	Fiber cables are free of underground splices from control building to CDE.			
B.	Exterior Camera Power			
1	Loadcenter with spare breakers is provided via a 120/240V feeder circuit.			
2	Surge Protective Device (SPD) is provided locally and installed properly.			
3	Load center is properly grounded.			
C.	Line of Sight (LOS)			
1	The camera tower is located such that it will not be hit by weapon fire.			
D.	Control Tower Mounted Camera			
1	A 24" X 24" steel mounting plate is provided on section of hand rail. This plate is for camera provided by others			
2	Steel mounting plate is secured to prevent movement. Additional bracing of hand rail may be required.			

Target Interface / Construction Compliance Inspection Checklist

	Date: Location:	YES	NO	NOTES
	Digital Multi Purpose Range Complex			
	Limit Markers			
A.	**Miscellaneous**			
1	Limit marker locations are visible from pertinent firing positions.			
2	Lighted or heated for night firing. Red lighting is used on the face of the limit marker or limit marker face is illuminated with white lighting shining upon it.			
3	120V, 20A, duplex GFCI receptacle is provided near the base of the limit marker.			
4	Controls are provided. In the ROC for non-maneuverable range and locally at the LM or nearby location for maneuverable.			
5	Any ground light, receptacle, and control switch are located or protected to avoid direct fire.			