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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army **Date:** March 2024

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	-	36.707	13.581	19.134	-	19.134	9.345	1.916	1.938	1.957	Continuing	Continuing
016: Close Combat Capabilities ENG DEV	-	34.635	11.160	16.914	-	16.914	7.448	-	-	-	Continuing	Continuing
CS2: Render Safe Sets Kits and Outfits (RS-SKO)	-	0.989	1.008	2.220	-	2.220	1.897	1.916	1.938	1.957	0.000	11.925
CS3: Next Generation Advanced Bomb Suit (NGABS)	-	1.083	1.413	-	-	-	-	-	-	-	0.000	2.496

A. Mission Description and Budget Item Justification

This Program Element (PE) provides for the Engineering and Manufacturing Development (EMD) and demonstration of networked munitions, countermine systems, Explosive Ordnance Disposal (EOD) render safe, and counter improvised explosive device capabilities. This PE also implements the National Landmine Policy to develop alternatives to the non-self-destructing counter mobility anti-personnel landmine systems. The PE contributes to anti access and area denial (A2/AD) to support unified land operations and improve soldier survivability.

Project 016: Close Combat Capabilities, covers three programs: Next Generation Advanced Bomb Suit (NGABS), Explosive Ordnance Disposal Render Safe (EOD RS) and Enhanced Robotics Payload - Render Safe (ERP-RS). It provides for the Engineering and Manufacturing Development (EMD) and demonstration of capabilities needed for Explosive Ordnance Disposal. Explosive Ordnance Disposal Render Safe (EOD RS) provides for the Engineering and Manufacturing Development (EMD) and demonstration of capabilities needed for Explosive Ordnance Disposal (EOD) teams to Render Safe (RS) US and foreign ordnance and improvised explosive devices, enabling ground force commanders to retain freedom of maneuver and secure lines of communications in multi-domain operations (MDO). Technical refresh of capabilities ensures Army 2030 formations maintain overmatch capability. EOD RS-SKO equips EOD teams with low light visual augmentation system, electronic countermeasures, subsurface explosive and hazard detection, dismounted X-ray imager, X-ray generator, trace explosive, Chemical, Biological, Radiological, and Nuclear (CBRN), and drug detection, unmanned aerial system, power management, gamma and neutron search and detection, and render safe initiation. This project will continue to support cross-service initiatives to increase commonality among information reporting and control systems. Enhanced Robotics Payload - Render Safe is a suite of modular capabilities to provide an increased level of standoff, disruption capability, and dexterity to respond to current and emergent EOD, CBRN and Engineer requirements. The Tech Effects program is in response to Army priorities and guidance to support identified gaps for Army passive defense requirements. Tech Effects executes research, development, test, and evaluation (RDT&E) on passive defense capabilities, next generation devices, and technologies to support Army's ability to meet current and emerging requirements. Tech Effects integrates RDT&E prototypes with component programs for acquisition, sustainment and maintenance.

NGABS will increase the Warfighter lethality and mobility by optimizing Soldier protection for EOD personnel, while effectively managing all life cycle aspects of Personal Protective Equipment (PPE). Warfighter lethality is increased through bomb suit weight reduction utilizing extensive investments in protective material research and development. The result is material solutions that are lighter and are pieced together in a manner which increases Soldier mobility and longevity. EOD Soldier

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Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i>
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situational awareness and exposure to ballistic threats is enhanced through the NGABS HUD which allows the Soldier increased visibility under various obscurants and low/no-light situations.

Enhanced Robotics Payload - Render Safe (ERP-RS) will enable EOD teams to access, render safe, and dispose of explosive ordnances (EO) while removing Soldiers from the direct effects of explosive blast and fragmentation. ERP-RS consists of three modules that will mount on existing Host Unmanned Ground Vehicles (HUGVs) in EOD units: (1) Highly Dexterous Manipulation System that has increased lift capacity and dexterity over current manipulators, using dual arm manipulation, will contribute to access, render safe, and disposal of sensitive EO, (2) a Multi-Shot Disruptor Module that provides remote selectable and precise disruption of surface laid or suspended EO, and (3) a Precision Aim module to provide accurate disruption of surface laid or suspended EO with the Multi-Shot Disruptor Module. These ERP-RS capabilities will provide a level of access, render safe, and disposal of EO that would currently require a Soldier to expose themselves to explosive hazards.

Project CS2: Explosive Ordnance Disposal Render Safe - Sets Kits and Outfits (EOD RS-SKO) provides for the demonstration and evaluation of emerging technologies within requirements trade-space and capabilities needed for Explosive Ordnance Disposal (EOD) teams to Render Safe (RS) US and foreign ordnance and improvised explosive devices, enabling ground force commanders to retain freedom of maneuver and secure lines of communications in multi-domain operations (MDO). Technical refresh of capabilities ensures Army 2030 formations maintain overmatch capability. EOD RS-SKO equips EOD teams with low light visual augmentation system, electronic countermeasures, subsurface explosive and hazard detection, dismounted X-ray imager, X-ray generator, trace explosive, Chemical, Biological, Radiological, and Nuclear (CBRN), and drug detection, unmanned aerial system, power management, gamma and neutron search and detection, and render safe initiation. This project will continue to support cross-service initiatives to increase commonality among information reporting and control systems.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	37.150	13.581	23.729	-	23.729
Current President's Budget	36.707	13.581	19.134	-	19.134
Total Adjustments	-0.443	0.000	-4.595	-	-4.595
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.443	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-4.595	-	-4.595

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 016: *Close Combat Capabilities ENG DEV*

Congressional Add: *Congressional Add: Prototype Integration*

	FY 2023	FY 2024
	25.000	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
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Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

	FY 2023	FY 2024
Congressional Add Subtotals for Project: 016	25.000	-
Congressional Add Totals for all Projects	25.000	-

Change Summary Explanation

Project 016: \$4.876 million decrease in funding to support Explosive Ordnance Disposal capabilities (Close Combat Capabilities ENG DEV).
 Project CS2: \$0.281 million increase in funding to support for the demonstration and evaluation of emerging technologies for Explosive Ordnance Disposal Render Safe - Sets Kits and Outfits (EOD RS-SKO)

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army										Date: March 2024		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev				Project (Number/Name) 016 / Close Combat Capabilities ENG DEV			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
016: Close Combat Capabilities ENG DEV	-	34.635	11.160	16.914	-	16.914	7.448	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 016 Close Combat Capabilities, covers multiple programs: Next Generation Advanced Bomb Suit (NGABS) and Enhanced Robotics Payload - Render Safe (ERP-RS).

NGABS directly contributes to Soldier lethality and ground force commander freedom of maneuver by providing next generation sensor and optics in the cutting-edge Heads-Up-Display (HUD) while integrating the Government's latest investments in protective material for the modular, scalable NGABS bomb suit development. NGABS will increase the Warfighter survivability and mobility by optimizing Soldier protection for EOD personnel, while effectively managing all life cycle aspects of Personal Protective Equipment (PPE). Warfighter lethality is increased through bomb suit weight reduction utilizing extensive investments in protective material research and development. The result is material solutions that are lighter and are pieced together in a manner which increases Soldier mobility and longevity. EOD Soldier situational awareness and exposure to ballistic threats is enhanced through the NGABS HUD which allows the Soldier increased visibility under various obscurants and low/no-light situations. Funds were transferred from APE 0604808016 to APE 0604808CS3 to clearly define the functions that are being completed with the NGABS funding line.

Enhanced Robotics Payload - Render Safe (ERP-RS) will enable EOD teams to access, render safe, and dispose of explosive ordnances (EO) while removing Soldiers from the direct effects of explosive blast and fragmentation. ERP-RS consists of three modules that will mount on existing Host Unmanned Ground Vehicles (HUGVs) in EOD units: (1) Highly Dexterous Manipulation System that has increased lift capacity and dexterity over current manipulators, using dual arm manipulation, will contribute to access, render safe, and disposal of sensitive EO, (2) a Multi-Shot Disruptor Module that provides remote selectable and precise disruption of surface laid or suspended EO, and (3) a Precision Aim module to provide accurate disruption of surface laid or suspended EO with the Multi-Shot Disrupter Module. These ERP-RS capabilities will provide a level of access, render safe, and disposal of EO that would currently require a Soldier to expose themselves to explosive hazards.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2023	FY 2024	FY 2025
Title: Prototype Integration for Multi-Domain Operations	9.635	3.566	-
<p>Description: Integrating prototype efforts to support force protection and signature management related to critical mission threads, operational constructs (Multi-Domain Operations) and key weapon system including responding to impending Army requirements. Effort will support capability and capacity to meet Army strategic guidance in support of the National Defense Strategy and other related Army efforts.</p> <p>The Tech Effects program is in response to Army priorities and guidance to support identified gaps for Army passive defense requirements. Tech Effects executes research, development, test, and evaluation (RDT&E) on passive defense capabilities,</p>			

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Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev	Project (Number/Name) 016 / Close Combat Capabilities ENG DEV

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>next generation devices, and technologies to support Army's ability to meet current and emerging requirements. Tech Effects integrates RDT&E prototypes with component programs for acquisition, sustainment and maintenance.</p> <p>FY 2024 Plans: Will research and prototype singular and hybrid signature management capabilities to meet Army guidance. Will test and evaluate previously developed prototypes within realistic operational environments. Will coordinate current and future priorities with Joint Staff J8, HQDA G/3/5/7 and TRADOC/CAC on investment pathways for technology development, insertion and/or integration. Will integrate best practices, technical innovations, and development pathways with key stakeholders across Joint Staff, Army, and other Service elements.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding decrease due to budget line item restructure in order to protect Army interests.</p>			
<p>Title: Enhanced Robotics Payload - Render Safe (ERP-RS)</p> <p>Description: Develop a suite of three modular capabilities to provide an increased level of standoff, disruption capability, and dexterity to respond to current and emergent EOD, Chemical, Biological, Radiological and Nuclear (CBRN), and Engineer requirements.</p> <p>FY 2024 Plans: FY 2024 funding will be used to enter Milestone B to create integrated prototype within the Engineering and Manufacturing Development phase. Program will award contracts to continue development of the precision aim module and the multi-shot disruptor module for Phase 1 development to support force protection and provide the Warfighter with safe, standoff detection, and render safe capabilities against Explosive Ordnance. Program will also begin a competitive source selection effort for the Highly Dexterous Manipulation System.</p> <p>FY 2025 Plans: FY2025 funding will support the continued Phase 1 development of the precision aim module and multi-shot disruptor. The program will perform Phase 1 development testing. Documentation and preparations for Phase 1 Milestone C will begin. The program also plans to award the Phase 2 contract to develop the highly dexterous manipulation system.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The program increase is caused by the start of Phase 1 development testing, which requires procurement of prototype hardware. The award for a Phase 2 development contract also contributes to the increase.</p>	-	7.594	16.914
Accomplishments/Planned Programs Subtotals	9.635	11.160	16.914

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i>	Project (Number/Name) 016 / <i>Close Combat Capabilities ENG DEV</i>

	FY 2023	FY 2024
Congressional Add: Congressional Add: Prototype Integration	25.000	-
FY 2023 Accomplishments: FY2023 Congressional Add funding will provide research, development, test, evaluation, support, and procurement of information operations related technology and activities.		
Congressional Adds Subtotals	25.000	-

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Next Generation Advanced Bomb Suit (NGABS) Program utilizes a competitive, developmental, innovative and efficient Other Transaction Authority (OTA) in EMD through the Fort Belvoir Sensor Communication and Electronic Consortium (SCEC) which will result in a production ready prototype leading to a Production and Deployment (PD) phase for full capability while ensuring best value to the Army. Milestone (MS) B / Material Development Decision (MDD) occurred in FY 2018 and MS C is scheduled for FY 2022.

The Multi-Domain Operations (MDO) program utilizes existing government contract vehicles to integrate prototype efforts to support force protection and signature management related to critical mission threads, operational constructs and key weapons systems.

The Enhanced Robotics Payload - Render Safe (ERP-RS) will utilize government contracts to integrate technologies and test competitive prototypes of the Precision Aim Module and Multi-Shot Disruptor Module in Phase 1. Government contracts are anticipated for the integration and test of the High Dexterous Manipulation System Module in Phase 2. The Phase 2 contracts allow for further assessment and understanding of performance and integration challenges of competitive prototypes. Government contracts will be utilized for the production and deployment of each module. Initial first article test samples will undergo an operational assessment prior to full production.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army												Date: March 2024			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0604808A / Landmine Warfare/Barrier - Eng Dev				016 / Close Combat Capabilities ENG DEV							
Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ERP RS Development Contract	C/CPFF	Various : Various	-	-		6.624	Mar 2024	11.379	Jan 2025	-		11.379	0.000	18.003	-
ERP-RS Precision Aim Module Development	MIPR	DEVCOM Armaments Center : Picatinny, NJ	-	-		-		1.225	Dec 2024	-		1.225	0.000	1.225	-
Prototype Integration for Multi-Domain Opertions	TBD	TBD : TBD	21.230	9.635	May 2023	3.566	Jan 2024	-		-		-	0.000	34.431	Continuing
Prototype Integration for Multi-Domain Operations - Cong Add	Option/ IDIQ	Huntsville Alabama : Huntsville AL	30.000	25.000	May 2023	-		-		-		-	0.000	55.000	-
Subtotal			51.230	34.635		10.190		12.604		-		12.604	0.000	108.659	N/A
Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ERP RS Engineering Support	MIPR	DEVCOM Armaments Center : Picatinny Arsenal, NJ	-	-		0.670	Oct 2023	1.553	Oct 2024	-		1.553	Continuing	Continuing	-
Subtotal			-	-		0.670		1.553		-		1.553	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ERP RS Modeling and Simulation (M&S)	MIPR	DEVCOM Armaments Center : Picatinny Arsenal, NJ	-	-		0.300	Jun 2024	0.781	Nov 2024	-		0.781	Continuing	Continuing	-
ERP RS Performance Testing	MIPR	DEVCOM Armaments Center : Picatinny Arsenal, NJ	-	-		-		1.976	Jan 2025	-		1.976	Continuing	Continuing	-
Subtotal			-	-		0.300		2.757		-		2.757	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev	Project (Number/Name) 016 / Close Combat Capabilities ENG DEV

Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Prototype Integration (PI) for Multi-Domain Operations (MDO)																												
Prototype Integration (PI) for Multi-Domain Operations (...)																												
ERP RS																												
ERP RS Phase I Development Contract																												
ERP RS Phase I Prototype Testing																												
ERP RS Phase I Critical Design Review																												
ERP RS Phase I Operational Assessment																												
ERP RS Phase I Milestone C																												
ERP RS Phase I Multi-Shot Procurement																												
ERP RS Phase I PAM Procurement																												
ERP RS Phase I Material Release																												
ERP RS Phase I Initial Operational Capability																												
ERP RS Phase II Development Contract																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev	Project (Number/Name) 016 / Close Combat Capabilities ENG DEV

Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ERP RS Phase II Preliminary Design Review																												
ERP RS Phase II Prototype Testing																												
ERP RS Phase II Critical Design Review																												
ERP RS Phase II Operational Assessment																												
ERP RS Phase II Milestone C																												
ERP RS Phase II Procurement																												
ERP RS Phase II Material Release																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev	Project (Number/Name) 016 / Close Combat Capabilities ENG DEV

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Next Generation Advanced Bomb Suit (NGABS)	1	2017	4	2022
NGABS Materiel Development Decision (MDD)	2	2018	2	2018
NGABS OTA phase 1 (suit, sensors, HUD PDR/CDR)	4	2019	2	2020
NGABS OTA phase 2 (sensor, HUD CDR, suit HFE)	2	2020	4	2020
NGABS OTA phase 3 (integration, developmental test)	4	2020	3	2021
NGABS Support Contract	1	2022	1	2022
Prototype Integration (PI) for Multi-Domain Operations (MDO)	3	2023	3	2024
Prototype Integration (PI) for Multi-Domain Operations (MDO) - Cong Add	3	2022	3	2023
ERP RS	1	2025	4	2026
ERP RS Phase I Development Contract	2	2024	3	2026
ERP RS Phase I Prototype Testing	1	2025	3	2025
ERP RS Phase I Critical Design Review	4	2025	4	2025
ERP RS Phase I Operational Assessment	1	2026	2	2026
ERP RS Phase I Milestone C	3	2026	3	2026
ERP RS Phase I Multi-Shot Procurement	3	2026	1	2030
ERP RS Phase I PAM Procurement	2	2027	1	2031
ERP RS Phase I Material Release	3	2027	4	2027
ERP RS Phase I Initial Operational Capability	3	2028	3	2028
ERP RS Phase I Full Operational Capability	2	2030	2	2030
ERP RS Phase II Development Contract	3	2025	4	2027
ERP RS Phase II Preliminary Design Review	3	2025	3	2025
ERP RS Phase II Prototype Testing	2	2026	3	2026

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army **Date:** March 2024

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i>	Project (Number/Name) 016 / <i>Close Combat Capabilities ENG DEV</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
ERP RS Phase II Critical Design Review	4	2026	4	2026
ERP RS Phase II Operational Assessment	1	2027	2	2027
ERP RS Phase II Milestone C	4	2027	4	2027
ERP RS Phase II Procurement	1	2028	4	2033
ERP RS Phase II Material Release	4	2028	1	2029
ERP RS Phase II Initial Operational Capability	2	2030	2	2030
ERP RS Phase II Full Operational Capability	4	2033	4	2033

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Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev				Project (Number/Name) CS2 / Render Safe Sets Kits and Outfits (RS-SKO)			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
CS2: Render Safe Sets Kits and Outfits (RS-SKO)	-	0.989	1.008	2.220	-	2.220	1.897	1.916	1.938	1.957	0.000	11.925
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project CS2: Explosive Ordnance Disposal Render Safe - Sets Kits and Outfits (EOD RS-SKO) provides for the demonstration and evaluation of emerging technologies within requirements trade-space and capabilities needed for Explosive Ordnance Disposal (EOD) teams to Render Safe (RS) US and foreign ordnance and improvised explosive devices, enabling ground force commanders to retain freedom of maneuver and secure lines of communications in multi-domain operations (MDO). Technical refresh of capabilities ensures Army 2030 formations maintain overmatch capability. EOD RS-SKO equips EOD teams with low light visual augmentation system, electronic countermeasures, subsurface explosive and hazard detection, dismounted X-ray imager, X-ray generator, trace explosive, Chemical, Biological, Radiological, and Nuclear (CBRN), and drug detection, unmanned aerial system, power management, gamma and neutron search and detection, and render safe initiation. This project will continue to support cross-service initiatives to increase commonality among information reporting and control systems. FY2025 request will continue to support the yearly review of capabilities for tech refresh needs focusing on the threat overmatch or technology obsolescence of the fielded equipment.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2023	FY 2024	FY 2025
Title: Explosive Ordnance Disposal (EOD) Render Safe (RS)	0.989	1.008	2.220
FY 2024 Plans: FY 2024 funding will support the tech refresh of the RS SKO capabilities to ensure Army 2030 formations maintain overmatch capability, address technology obsolescence and assess solutions to provide increased effectiveness of the RS SKO components by focusing on objective space requirements.			
FY 2025 Plans: FY 2025 funding will continue to support the tech refresh of the RS SKO capabilities to ensure Army 2030 formations maintain overmatch capability, address technology obsolescence, and assess solutions to provide increased effectiveness of the RS SKO components by focusing on objective space requirements. Software/firmware upgrades will be implemented, and troubleshooting will be conducted for dismounted electronic countermeasure system to maintain threat overmatch capability.			
FY 2024 to FY 2025 Increase/Decrease Statement: Increase for software/firmware upgrade implementation which will require rewriting and validation of electronic countermeasure loadset software and for dismounted electronic countermeasure system troubleshooting.			
Accomplishments/Planned Programs Subtotals	0.989	1.008	2.220

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev	Project (Number/Name) CS2 / Render Safe Sets Kits and Outfits (RS-SKO)

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• R63701: <i>Render Safe Sets Kits Outfits</i>	-	-	16.440	-	16.440	10.374	12.357	12.368	16.781	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Explosive Ordnance Disposal (EOD) Render Safe (RS) program utilizes existing government contract vehicles to acquire RS SKO Kits. C5ISR and DEVCOM AC to acquire modified COTS items for test and evaluation. C5ISR engineers provide support for all RS SKO electronic countermeasure (ECM) components such as the MODI and AN PLT4 and newly developed AN PLT-6v1. DEVCOM AC provides engineering support to the remaining RS SKO components and legacy EOD. Both C5ISR and DEVCOM will continue to meet with vendors to stay informed on the latest technologies for the EOD community. The program will continue to use the existing government contract vehicles for the production and deployment phase as well as to continue the development of capabilities during the 5-phase technical refresh.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army												Date: March 2024			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0604808A / Landmine Warfare/Barrier - Eng Dev				CS2 I Render Safe Sets Kits and Outfits (RS-SKO)							
Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
EOD-RS Evaluation Hardware	TBD	TBD : TBD	-	-		-		0.475	Mar 2025	-		0.475	Continuing	Continuing	-
Operator Control Unit Redesign/Miniaturization	MIPR	C5ISR : Fort Belvoir, VA	-	0.116	Dec 2022	-		-		-		-	0.000	0.116	-
Requirements Review and Conceptual Design	C/CPFF	SAVIT : Picatinny Arsenal, NJ	-	0.215	Dec 2022	-		-		-		-	0.000	0.215	-
Subtotal			-	0.331		-		0.475		-		0.475	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
EOD RS - Engineering Support	MIPR	DEVCOM C5ISR Center : Aberdeen Proving Ground (APG), MD	0.078	-		0.200	Nov 2023	1.070	Nov 2024	-		1.070	Continuing	Continuing	-
EOD-RS - Engineering Support	MIPR	DEVCOM Armaments Center : Picatinny Arsenal, NJ	0.300	0.658	Aug 2023	0.684	Nov 2023	0.565	Nov 2024	-		0.565	Continuing	Continuing	-
Subtotal			0.378	0.658		0.884		1.635		-		1.635	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
EOD- RS Test & Evaluation	MIPR	A TEC - Yuma Test Center : Yuma, AZ	-	-		0.124	Jul 2024	0.110	May 2025	-		0.110	Continuing	Continuing	-
Subtotal			-	-		0.124		0.110		-		0.110	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev	Project (Number/Name) CS2 / Render Safe Sets Kits and Outfits (RS-SKO)

Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Explosive Ordnance Disposal (EOD) Render Safe (RS)																												
EOD RS Phase 0 Loadset Development																												
	<small>EOD RS Loadset Development</small>																											
EOD RS Technical Refresh (Multi Phase)																												
	<small>EOD RS Tech Review</small>																											
EOD RS Initial Technical Refresh																												
	<small>EOD RS Initial Technical Refresh</small>																											
EOD RS Technical Refresh Phase 1																												
					<small>Phase 1 Tech Refresh</small>																							
EOD RS Technical Refresh Phase 2																												
									<small>Phase 2 Tech Refresh</small>																			
EOD RS Technical Refresh Phase 3																												
													<small>Phase 3 Tech Refresh</small>															
EOD RS Technical Refresh Phase 4																												
																	<small>Phase 4 Tech Refresh</small>											
EOD RS Technical Refresh Phase 5																												
																					<small>Phase 5 Tech Refresh</small>							
EOD RS Technical Refresh Phase 6																												
																									<small>Phase 6 Tech Refresh</small>			

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i>	Project (Number/Name) CS2 / <i>Render Safe Sets Kits and Outfits (RS-SKO)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Explosive Ordnance Disposal (EOD) Render Safe (RS)	1	2020	4	2025
EOD RS Phase 0 Market Survey	4	2020	4	2020
EOD RS Phase 0 Development Contracts	4	2020	3	2021
EOD RS Phase 0 Prototype Testing	2	2021	1	2022
EOD RS Phase 0 ECM Preliminary Design Review	4	2021	4	2021
EOD RS Phase 0 Solution Down Selecting	1	2022	1	2022
EOD RS Phase 0 Loadset Development	2	2022	4	2023
EOD RS Phase 0 ECM Final Prototype Design Build	2	2022	4	2022
EOD RS Phase 0 ECM Test and Evaluation	3	2022	4	2022
EOD RS Phase 0 Critical Design Review	4	2022	4	2022
EOD RS Technical Refresh (Multi Phase)	1	2023	4	2028
EOD RS Initial Technical Refresh	1	2023	4	2023
EOD RS Technical Refresh Phase 1	1	2024	4	2024
EOD RS Technical Refresh Phase 2	1	2025	4	2025
EOD RS Technical Refresh Phase 3	1	2026	4	2026
EOD RS Technical Refresh Phase 4	1	2027	4	2027
EOD RS Technical Refresh Phase 5	1	2028	4	2028
EOD RS Technical Refresh Phase 6	1	2029	4	2029

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army										Date: March 2024		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev				Project (Number/Name) CS3 / Next Generation Advanced Bomb Suit (NGABS)			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
CS3: Next Generation Advanced Bomb Suit (NGABS)	-	1.083	1.413	-	-	-	-	-	-	-	0.000	2.496
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funding in this project supports the Soldier Lethality Cross Functional Team (CFT).

The NGABS program directly contributes to Soldier lethality and ground force commander freedom of maneuver by providing next generation sensor and optics in the cutting-edge Heads-Up-Display (HUD) while integrating the Government's latest investments in protective material for the modular, scalable NGABS bomb suit development. NGABS will increase the Warfighter survivability and mobility by optimizing Soldier protection for EOD personnel, while effectively managing all life cycle aspects of Personal Protective Equipment (PPE). Warfighter lethality is increased through bomb suit weight reduction utilizing extensive investments in protective material research and development. The result is material solutions that are lighter and are pieced together in a manner which increases Soldier mobility and longevity. EOD Soldier situational awareness and exposure to ballistic threats is enhanced through the NGABS HUD which allows the Soldier increased visibility under various obscurants and low/no-light situations.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2023	FY 2024	FY 2025
Title: Next Generation Advanced Bomb Suit (NGABS)	1.083	1.413	-
Description: The objective of this effort is to increase the Warfighter lethality, modularity, and mobility, by optimizing Soldier protection and situational awareness for EOD personnel. The mission of this program is to enhance the tactical utility and applicability of this bomb suit concept by incorporating modularity/scalability and sensor technologies that are non-existent in legacy designs. This new, tailorable, full body protective system will provide a significantly increased capability at a reduced weight.			
FY 2024 Plans: The NGABS program will continue Pre Planned Product Improvement (P3I) that will focus on improving situational awareness and reduce head/neck borne weight that can be on-ramped onto the NGABS production contract. For improving situational awareness, the NGABS program will continue to upgrade and improve the daylight camera, and to upgrade to smaller and higher resolution sensors. For reducing the head/neck borne weight the NGABS program will explore approaches to shift the weight of the NGABS helmet, to include all components, from the head/neck to the shoulders and/or hips.			
FY 2024 to FY 2025 Increase/Decrease Statement: Decreased funding reflects planned lifecycle of the effort and no requirement in FY25.			
Accomplishments/Planned Programs Subtotals	1.083	1.413	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i>	Project (Number/Name) CS3 / <i>Next Generation Advanced Bomb Suit (NGABS)</i>

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>			<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• OMA - 121017000: <i>Central Issue Facilities/Initial Issue: Organizational Clothing and Equip</i>	-	17.205	0.000	-	0.000	-	-	-	-	0.000	17.205

Remarks

D. Acquisition Strategy

The Next Generation Advanced Bomb Suit (NGABS) Program utilizes a competitive, developmental, innovative and efficient Other Transaction Authority (OTA) in EMD through the Fort Belvoir Sensor Communication and Electronic Consortium (SCEC) which will result in a production ready prototype leading to a Production and Deployment (PD) phase for full capability while ensuring best value to the Army.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army												Date: March 2024				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 5				PE 0604808A / Landmine Warfare/Barrier - Eng Dev				CS3 / Next Generation Advanced Bomb Suit (NGABS)								
Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Program Management Support	Allot	PdM SPE : Fort Belvoir	-	0.256		0.303		-		-		-	0.000	0.559	Continuing	
Subtotal			-	0.256		0.303		-		-		-	0.000	0.559	N/A	
Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
NGABS - Production Prototype Development	C/FFP	TBD : Manufacturing Techniques Inc. (MTEQ), Lorton, VA	1.009	0.684		0.981		-		-		-	0.000	2.674	Continuing	
Subtotal			1.009	0.684		0.981		-		-		-	0.000	2.674	N/A	
Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
NGABS Test & Evaluation	Allot	TBD : Various	0.158	0.143		0.129		-		-		-	0.000	0.430	Continuing	
Subtotal			0.158	0.143		0.129		-		-		-	0.000	0.430	N/A	
Project Cost Totals			1.167	1.083		1.413		-		-		-	0.000	3.663	N/A	
Remarks																

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / Landmine Warfare/Barrier - Eng Dev	Project (Number/Name) CS3 / Next Generation Advanced Bomb Suit (NGABS)	

Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
P3I Reduce head/neck borne weight																												
	NGABS Pre Planned Product Improvements																											
P3I Improving situational awareness																												
	NGABS Pre Planned Product Improvements																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i>	Project (Number/Name) CS3 / <i>Next Generation Advanced Bomb Suit (NGABS)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
P3I Reduce head/neck borne weight	1	2023	4	2024
P3I Improving situational awareness	1	2023	4	2024