ComplyPro

Lot 2 – Cloud Software Services Definition

Prepared for UK Government G-Cloud 13

18 May 2022

ComplyPro Lot 2 – Cloud Software Services Definition

BENTLEY CONTRACTING ENTITY

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EXECUTIVE SUMMARY

ComplyPro Delivering Progressive Assurance

ComplyPro has been developed to streamline and simplify the processes involved in managing project-wide assurance including the better alignment of many contributing systems, engineering processes and activities, including requirements management, design verification & validation, assumptions management, interface management and hazard management.

ComplyPro maintains a single central assurance view accessed by the programme team through a Software-as-a-Service (SaaS)-based collaborative interface, where the information is managed progressively to monitor overall design and build integrity. ComplyPro has been designed to hide the typical complexities of assurance and associated systems integration processes "under the hood" whilst presenting users with a user-friendly, intuitive interface. This enables a much wider engineering community (across both the internal and supply chain organisations) to engage the assurance processes and to maintain their own compliance regime – this being one of the major contributors to the overall efficiency of the progressive assurance approach.

Systems and requirements engineering knowledge and expertise are vital to delivering a successful project that is fit for purpose. ComplyPro enables this expertise to be deployed centrally and delivered across the programme within a collaborative framework that significantly improves engineering efficiency, reduces error-prone duplication and rework and provides engineering, project management and the project owner with unprecedented visibility of progressive assurance coverage.

ComplyPro Progressive Assurance is a tightly coupled alignment of methodology, highly integrated functional assurance process and a collaborative cloud-based software platform. It delivers powerful process management and role-based access through a highly intuitive user interface. These elements interact to deliver an operational progressive assurance capability, including:

- Central assignment of assurance related expertise to maintain all assurance related processes and to design the rules by which a wider engineering community can collaborate, thus removing off-line "silos" of expert assurance activity
- Assurance processes are captured, developed, and configured centrally for project-wide deployment and integrated with associated controls and approvals procedures such as, for instance, verification and validation processes
- Standardised and centrally maintained assurance processes can be accessed both internally and by the supply chain organisation
- User role-based access rules and rules that define the project topology, hierarchy and boundaries are configured and maintained centrally; providing "virtual partitioning" of the project (for contractual boundary requirements, for example) but maintaining overall system information integrity

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- The evolution of project requirements and demonstration of compliance with assurance requirements is carried out by the design and delivery engineering community directly as an integral part of the design and delivery process

The Key Elements of ComplyPro

ComplyPro incorporates many key functional elements which combine to deliver a working progressive assurance solution. These include:

- **Role Based Access**. To enable large teams of non-expert users to engage with Progressive Assurance processes the system must be able to discriminate users. ComplyPro incorporates a Dynamic Access Control System (DACS) which establishes the rules that determine what users can see and how they interact with the system. This capability uses rules to establish project and contractual boundaries, for example whilst maintaining an overall "systems based" view of the assurance status for the owner:

  - Users can only see the data, documents, tables, etc. they are allowed to see

  - Where a user can see a document, they can only see the data within the document that they are allowed to see

  - Access can be controlled on an attribute-by-attribute level

  - At various points in a process, users may only be able to set data to certain pre-determined values

- **Integrated Approvals and Controls**. To allow extensive engineering communities to engage with ComplyPro, the system includes comprehensive and integrated approvals and controls processes to ensure that input data is verified and validated by competent individuals who are able to monitor input and evidence within a defined approvals process. This enables the "centralisation" and more efficient use of specialist expertise – and where 95% of the assurance task is undertaken by the wider engineering community as an integral part of their role

- **Ease of Use**. To ensure that all users can easily engage with the Progressive Assurance system, the user-interface has been designed to be highly intuitive and easy to use. ComplyPro has been designed to look and feel "spreadsheet-like", as engineers are most comfortable with this type of interface. To ensure that users engage successfully with the system, ComplyPro training takes a maximum of two hours – after which the user is able to use the system productively and obtain perceived value from engaging

- **Powerful Process Modelling**. ComplyPro manages complex assurance processes in the background. Underlying the ComplyPro system is a powerful process modelling system that captures complex assurance related processes and manages them "under the hood", thus hiding the complexity from the user. This capability enables assurance-based processes to be highly integrated with a multi-user workflow that ensures that correct methodology and procedures are followed:

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- – An entire process may be highly complex, involving many steps and many potential users working together within it. But, for any given user, their view will be much simpler as ComplyPro hides the process complexity and only lets users see what they need to see when they need to see it.
- – ComplyPro also controls how users interact with processes and how they are able to proceed based on what they are authorised to do at any given stage of the process. This makes it much easier for users to adhere to complex processes – they do not need to remember the whole process. They just need to know what they need to do in their part of the process. This is a core aspect of progressive assurance deployment

- **A Single Central Progressive Assurance Database**. ComplyPro has a single central assurance database (currently IBM DOORS) that provides "one version of the truth" for all users, globally. This removes many of the information reliability issues that typically hinders projects, related to the divergence of specification data across complex supply chain organisations

- **"Cloud" Based Collaboration**. With many infrastructure projects deploying globally distributed engineering teams it is vital that ComplyPro system is available anywhere globally 24x7 365 days a year, in order that progressive assurance data exchange can be maintained dynamically

- **Standard Integration with Bentley ProjectWise and AssetWise as described in the respective Lot 2 offerings**. Provides an auto synchronisation of document-based evidence information held in ProjectWise to ComplyPro in support of assurance verification and validation (V&V) processes

What Processes can ComplyPro Manage to Maximise Engineering Efficiency and Collaboration?
- Requirement's specification development embedded with verification and validation
- Requirements management
- Change management embedded with change impact assessment
- Interface management
- Assumptions management
- Issues and query management
- Tender assessment embedded with clarification question management
- Safety hazard management
- Document management system integration

These activities have traditionally been challenging to manage efficiently on large-scale projects where they tend to become bottlenecks to design and build activity – and where vital assurance information is often available too late to support design and build decisions – and to provide progressive visibility of the health of the project to management and the user.

1   SOLUTION OVERVIEW

ComplyPro is an easy-to-use SaaS system which can be accessed globally at any given time. Throughout the entire project lifecycle, ComplyPro enables a collaborative approach to progressive compliance, assurance, and handover while allowing individuals to focus on their tasks. With minimal IT footprint, ComplyPro can be rapidly deployed with the immediate benefit of assurance and evidence capture. ComplyPro enables processes such as bid/tender management; requirements management; hazard, safety and risk management; issues, assumption and interface management.

1.1   Example Processes

e-Collaborative Progressive Programme Assurance (PPA)

ComplyPro Progressive Assurance provides the bridge between the client organisation, lead contractors and sub-contractors to demonstrate that the agreed contractual requirements have been met at each stage of the project – significantly reducing project risk.

Because of ComplyPro Progressive Assurance's highly secure web-based interface – contractors can update the master project specification with their compliance status as the project progresses. Fully audited and traceable associated compliance evidence can be linked and stored on submission to prove compliance.

Deploying ComplyPro ensures the client has organisation-wide visibility of design and build delivery performance, providing unprecedented, progressive evidence that your project is on track to deliver – as well as providing feedback on areas of risk which may cause delay.

ComplyPro e-Collaborative Progressive Assurance works on a complementary path with project management processes providing richer, more up to date and comprehensive visibility of delivery status and combines a number of key elements – specification development, requirements management, issues and assumptions management, interface management and verification and validation.

Powerful Hazard, Safety and Risk Management

Within the lifecycle of any programme, safety regulations are ever-changing. Compliance with any number of regulations is an important element of achieving a sign-off. ComplyPro delivers a programme-wide hazard record of safety risks associated with the engineering design of an operational system and the adjacent operational systems throughout the project lifecycle. This solution has been developed to ensure consistency, accuracy, efficiency and impartiality in project safety assessment activities, and where necessary to support a NoBo (Notified Body) or equivalent to oversee the final assurance of the project.

At a project level, ComplyPro helps keep up with the changes in regulations and helps ensure that risk processes are maintained correctly and efficiently, thereby reducing overheads. A dashboard snapshot highlighting project high-level risk categories such as safety, time, and financial risks, can be drilled into to view the granular detail within the risk registers.

ComplyPro delivers the capability to manage major project risk; in addition, global construction companies can aggregate their risks across multiple projects into an enterprise risk view. This allows for better understanding of corporate exposure to risk and provides the information needed to ensure informed decisions at appropriate level.

1.2 Product Overview

Clear and easy to use interface

ComplyPro has clear controls and a highly visual landing page for all users, incorporating metrics showing the progress of assurance tasks across the programme lifecycle and its work packages. The landing page delivers integrated navigation through to the programme's detailed requirements and evidence breakdown.
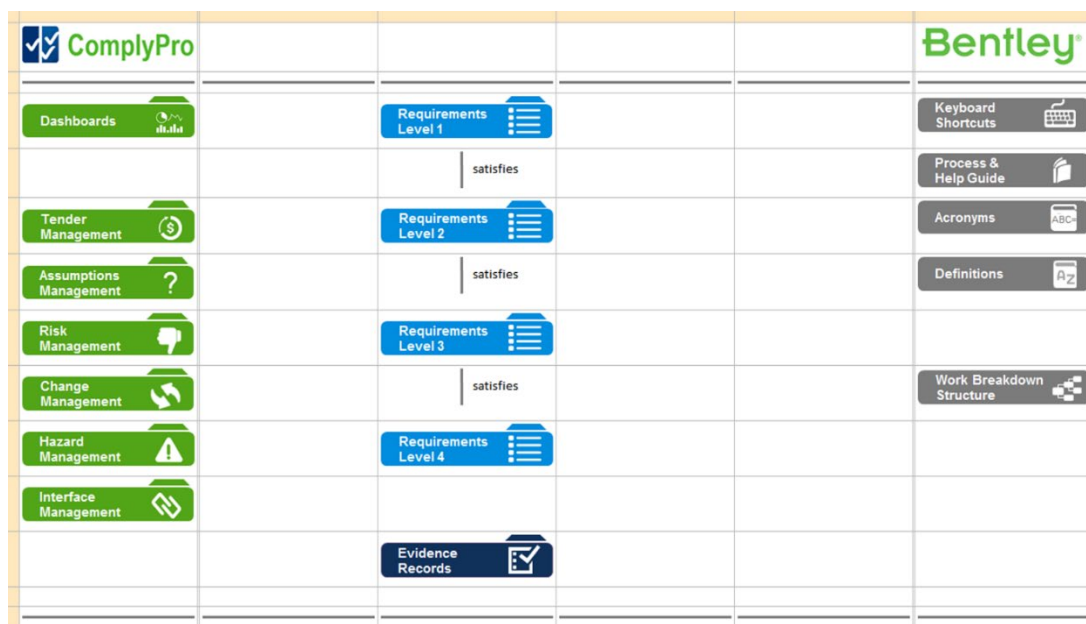
Figure 1 ComplyPro example home page
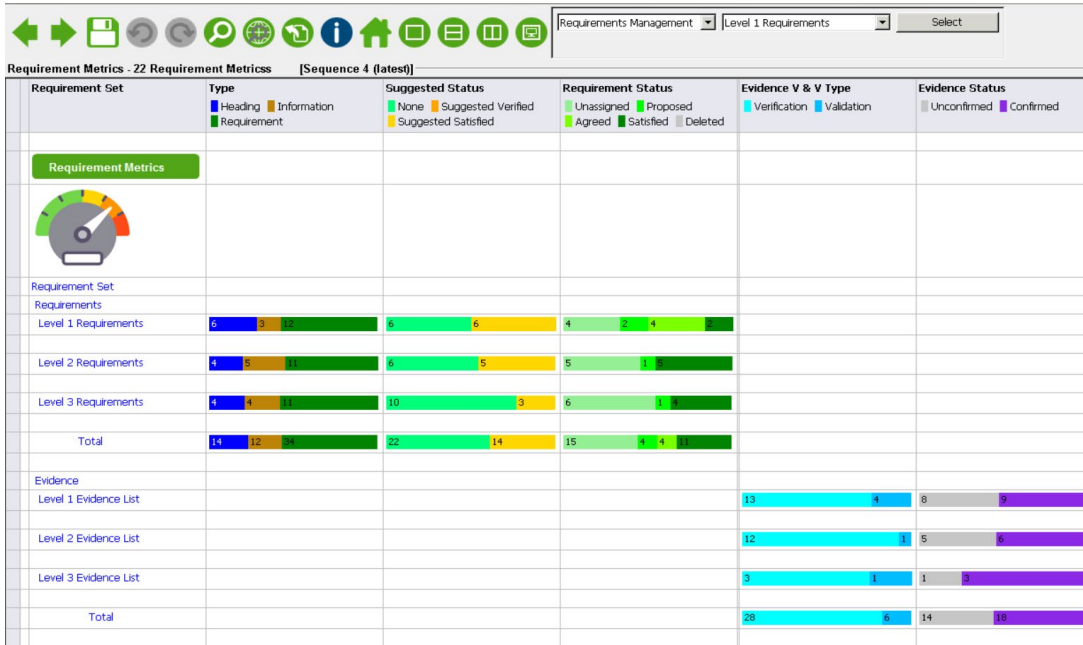
Figure 2 ComplyPro Example Dashboard metrics

Traceability and impact analysis of linked specifications

ComplyPro supports top-down and bottom-up visibility across assurance processes, ComplyPro ensures easy access to traceability across the programme, yielding immediate visibility of change impact anywhere in the cycle.

Ability to manage complex workflows and processes

ComplyPro incorporates definable workflow and powerful configuration capability, allowing it to map intricate progressive project compliance and assurance processes.
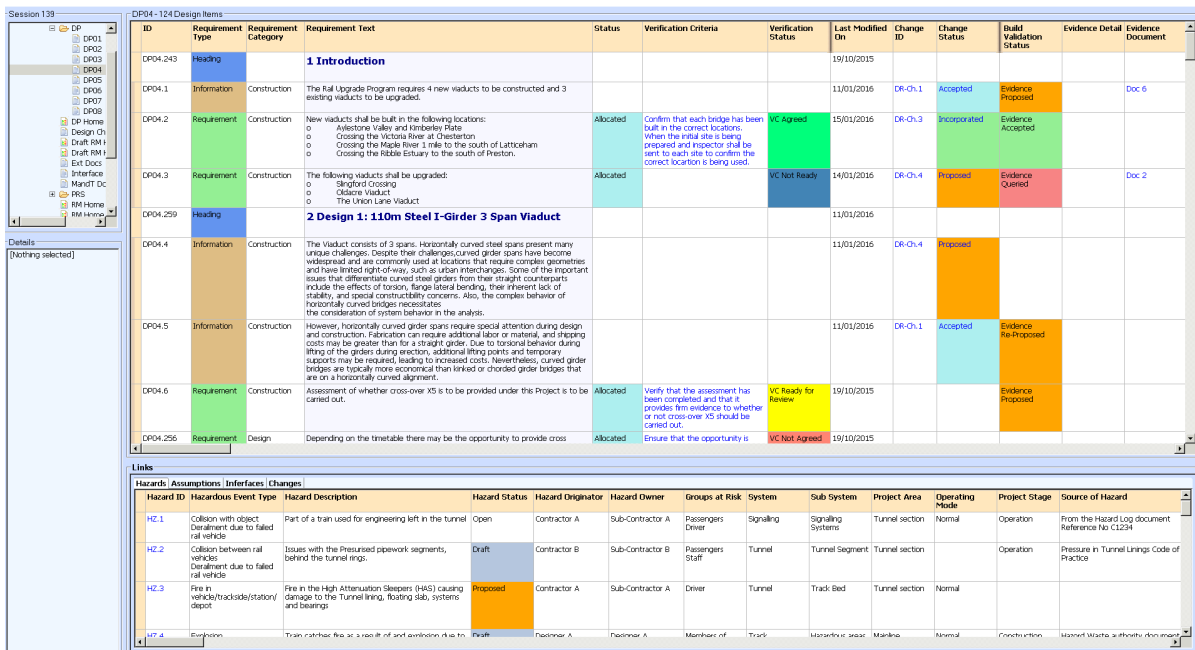
Figure 3 ComplyPro integrated assurance processes simply represented to the user

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Immediate Impact

ComplyPro delivers progressive assurance for processes including risk management and safety and offers clear visibility of progress and results through a simple and highly intuitive interactive navigation screen.

Role-based interface

ComplyPro provides role-based security and access, allowing specific individuals working on the assurance piece to be provided with a targeted interface giving them a clear vision of their responsibilities and the progress of other supply chain members working on specific sections of the project.

| Operating Mode	Hazard Description	Hazard Cause	Effect/Consequence	Exposed Group	Linked Safeguard ID	Linked Safeguard Owner	Linked Safeguard Description	Linked Safeguard Status	Linked Safeguard Evidence Reports	IS	IF	Calc Risk	Linked Mitigation ID
Normal	Collision between trains	Non-communicating train enters reserved route	Collision with UTO train. Multiple fatalities and/or injuries to passengers.	Passengers	CM-165	S&TC	All works trains and self-propelled vehicles to be fitted with UTO equipment.	Proposed		S1	F4	R2	CM-1
Degraded	Collision between trains	Driver or Control Room error	Injuries to passengers and/or Train Operator.	Passengers Staff	CM-166	Maintenance Vehicle	Speed restricted to 20 kph to allow safe line of sight driving.	Closed		S2	F4	R3	CM-2B
					CM-167	ET	Crashworthiness specification.	New					
Normal	Collision with power cables	Power cables fall on track	Damage to train. Possible injuries to passengers. Possible derailment.	Passengers System	CM-175	V201	Detailed design to inpower line to achieve the required clearance.	Open	*** Evidence Not Accepted (PDP Agreement Status = Draft)	S2	F5	R3	
					CM-176		Design protective framework.	New					
Normal	External fire	None specifically identified	Smoke inhalation injuries to passengers.	Passengers	CM-183		Smoke detection system capable of identifying source			S1	F5	R3	CM-19
					CM-188		Tunnel ventilation.						
					CM-189		Station and tunnel fire alarm monitoring by Signalling. Prevent train from entering fire zone						
Emergency	Toxic fumes and smoke	Fire in station	Fatalities and Smoke inhalation injuries to passengers.	Passengers	CM-731		LSOH cables used.	Proposed		S2	F4	R3	
					CM-732		Design free-standing machines in stainless steel cases to reduce risk of spread of fire; internal fire constrained by lack of oxygen within case.	Open					
Emergency	Toxic fumes and smoke	Fire on train in tunnel	Train evacuation leads to Smoke inhalation injuries to passengers	Passengers						S1	F5	R3	CM-18
Normal	Overcrowding in stations / rushing into trains	Crossing passenger flows, peak hours or major festivals	Fatalities and possible injuries to passengers (Crush injuries, fall down stairs / escalator, fall from platform).	Passengers	CM-689		Option to close fare gates, stop escalators.			S3	F3	R3	CM-10E
					CM-690	CMMS	Passenger flow predictions addressed in architectural design.	Open	*** Evidence Not Accepted (PDP Agreement Status = Draft)				
					CM-169		CCTV surveillance						
					CM-691	APG	Control of lifts and escalators from Station Control Room.	Linked	*** Evidence Not Accepted (PDP Agreement Status = Draft)				
Normal	Unauthorised access to viaduct	Access via platform end door or PSD	Person hit by train. Electrocution injuries to passengers from Conductor Rail.	Passengers	CM-177		Platform Screen Doors installed on above ground stations.			S2	F4	R3	
					CM-358		Electro-magnetic locks.						
					CM-1490		EAC control on Platform Screen Door.						
Normal	Collision with walkway during derailment	Walkway intrudes into structure gauge & swept envelope of derailed train	Damage to train and walkway. Possible injuries to passengers.	Passengers System	CM-236		Frangible walkway edge.			S1	F5	R3	
Normal	Collision with platform edge	Platform edge intrudes into structure gauge	Damage to train. Possible injuries to passengers.	Passengers System	CM-171		Rubber comb platform gap filler.			S2	F5	R3	
					CM-172	LDC STN	Tapered end to platforms to 'pick up' derailed train on approach to platform.		*** Evidence Not Accepted (PDP Agreement Status = Draft)				
					CM-173		Speed restriction for above-ground platforms to reduce KE (wind effects).						
Degraded	Pressure pulse damage to PSDs	High speed transit through underground platform	Damage to PSDs. Possible injuries to passengers on platform.	Passengers System	CM-174		Assess maximum pressure pulse, and if necessary, apply permanent speed restriction through platform.			S3	F4	R3	
Normal	Derailment	Objects on track - in station trackway or at tunnel portal	Derailment. Fatalities and/or injuries to passengers.	Passengers	CM-177		Platform Screen Doors installed on above ground stations.			S1	F4	R2	CM-8
					CM-178		CCTV coverage at tunnel portals. (Check tunnel portal).						
					CM-179		Obstruction detector.						
					CM-180		Trackside cables to be clear of swept envelope of derailed train.						

Figure 4 ComplyPro targeted interface for role-based user access

Backup/Restore and Disaster Recovery

In addition to the production data centre, Bentley uses a separate hosting partner environment as a geographically independent secondary hosting centre which comes into operation in the unlikely event of losing access to the primary hosting centre. This delivers comprehensive backup and disaster recovery management including:

- Incremental and full daily data backups stored in a geographically independent location to operational servers
- Full server system resiliency with system backup in a geographically separate colocation facility

1.3 On-Boarding and Off-Boarding Processes/Scope

During initial configuration, ComplyPro can import data from the following formats:

- IBM DOORS database
- Spreadsheet (Excel and .CSV)
- Word
- XML

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In addition, at the end of the contract term, ComplyPro can export the data back to the client in the following formats:

- IBM DOORS database
- Spreadsheet (self-service output to Excel and .CSV)
- XML

1.4 Integration to Third Party Products

One of ComplyPro's key strengths is that it delivers the authoritative source of data for each aspect of the projects on which our users deploy the solution. Bentley recognises that allowing geographically distributed teams to collaborate on managing this data is not always enough; there will often be the need to transform the data we manage and re-use it in other contexts through integration with other applications.

Bentley has taken a modular approach to this requirement which allows ComplyPro to respond to all but the most complex integration needs "out of the box".

The first element of this is the provision of standard import and export functionality. These facilities range from simple PDF output of ComplyPro data through to file formats which ensure that users familiar with common desktop applications, such as Microsoft Excel, can rapidly extract and transform the data ComplyPro manages. Equally, data held in external "silos", such as spreadsheets visible only to a single user, can be rapidly imported into ComplyPro to benefit from the control and collaboration facilities offered by the application.

Where integration requirements are more complex than simple data exchange with desktop applications, ComplyPro provides a template-based solution which allows most integration needs to be satisfied without recourse to bespoke programming.

ComplyPro understands a generic XML file format which can be transformed by using templates to and from other file formats. This enables data exchange with applications which use specialised data formats without the need to modify the ComplyPro application.

Where this type of integration needs to be undertaken on a regular basis, the mechanisms described above can be automated to ensure that ComplyPro and the systems it is exchanging data with remain in sync.

2 BENTLEY PROFESSIONAL SERVICES

To ensure that the user maximises the value capabilities of the proposed ComplyPro solution, Bentley recommends that the user uses Bentley's Professional Services expertise. In addition to the standard services described within Appendix 1 of this document, it is expected that additional configuration and user training will be required by the user.

Bentley has developed a Scope of Services for detailed tasks to accomplish the required implementation, training, and delivery of the proposed solution. These services have been described in the following places:

Table 1: Subscription Fee Services

Subscription Fee Services	Standard services included within your ComplyPro Subscription fees.
	Appendix 1: Scope of Service – ComplyPro Standard Services
Implementation/Deployment Services	One-time services typically required to deliver the initial configuration and training for your ComplyPro deployment.
	ComplyPro Lot 3– Cloud Support – Services Definition

Bentley will deliver the ongoing support services described in Appendix 1 of this proposal within the ComplyPro subscription fee. These services will continue to deliver support and guidance to you throughout the duration of the subscription term.

APPENDICES

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APPENDIX 1 – Scope of Service

This section describes the standard services that Bentley provides within the software product subscription fees in order to support your ComplyPro SaaS environment provided through this ComplyPro SaaS proposal.

Service and Data Location

The ComplyPro SaaS environment will be provisioned and made available, currently, from a secure data centre in the UK.

Access to the Services

In order for Bentley to issue user logins to enable you to access the Services you must provide user credentials for ALL users that wish to use the system in the following format:

- First Name Last Name   Company   Email Address

You may state preferred user names: Bentley may refuse to allocate a username that impersonates someone else, refers to a trademark or other proprietary right, is already in use, or is vulgar or otherwise offensive and may then substitute a name of Bentley's choosing. Bentley will also substitute an alternative username where the username suggested by you already exists.

No generic user logins will be provided by Bentley and ALL users' logins have to be associated with valid/current employee credentials.

Access to the Services is strictly on a Named User basis only and usernames and passwords issued to you must not be shared by users. Should additional users require access to the Services then you must request additional user logins for those users, which may require an additional Subscription charge per User (if you have reached the User limit of the Subscription).

You and your users must keep the usernames and passwords confidential and must notify Bentley immediately of any unauthorised use of user names or any other breach of security regarding Bentley's Services that comes to your attention.

Bentley will provide a service, once every three months, to allow you to change the listed user credentials (swap out/swap in/replace) and Bentley will issue user logins to you that reflect the requested changes. These changes will be limited to one set of changes every three months. No other changes to the user credentials list will be allowed outside the three-monthly changes other than the addition of extra users to the system (which may require an additional Subscription charge per User if you have reached the User limit of their Subscription).

You are entirely responsible for all access to the Services that is facilitated by the user names and passwords allocated to you and access must be authorised by your nominated personnel.

Operation and Support

Bentley's ComplyPro Operations team ensures that the cloud provisioned services we provide are available and operating according to the ComplyPro SaaS Service Level Agreement (SLA) outlined in this proposal. In addition, our ComplyPro application specialists ensure that ComplyPro is running with sufficient capacity, performance, and responsiveness. We manage software upgrades

for you and ensure you have the most up-to-date version of our software. Our Bentley network and data security experts ensure that your data is protected and safeguarded.

There are some specific Operation and Support activities related to ComplyPro that are the responsibility of Bentley or User, respectively.

Bentley Responsibilities

Updates/Upgrades and Release Management

In order to ensure that you are taking full advantage of the capabilities of ComplyPro, Bentley's team will schedule outages for software updates and upgrades. The schedule for minor updates will be published thirty (30) days in advance and are expected to align with General Maintenance weekends (see Availability Commitment in Appendix 2: Service Level Agreement). Major software upgrade schedules will be coordinated with you to minimise impact on project workflows but must occur within the software support window as defined in Exhibit A, Section 2.03 of the SELECT Program Agreement.

Configuration Management

Formal Configuration Management processes are followed by Bentley's team with respect to the hardware and software environment. A system's register will be updated and appropriately version controlled to describe all changes to the system commencing at initial provisioning.

Service Desk and Technical Support Services

Bentley offers technical support services as defined in Exhibit A of the SELECT Program Agreement. Bentley's Service Desk will manage all incident and problem management processes. For all service tickets, the nature of the incident will be assessed and forwarded to the appropriate Service Team who will then confirm the severity, priority, and criticality of the incident in accordance with Bentley's standard Incident Management process defined in Appendix 2: Service Level Agreement that forms part of this proposal.

The Service Desk will be the final owner of all service tickets and will be responsible for the closure of each ticket. They will contact the originator and agree on satisfactory resolution and closure.

Your Responsibilities On-premises Infrastructure Configuration

You are responsible for maintaining the necessary on-premise infrastructure and network configuration to allow users to access ComplyPro.

First-level Support Activities for your End-users

Your super-users are responsible for providing first-level support services for your end-users. These first-level support activities include:

- Communicating your work processes to your staff
- Addressing frequently asked questions
- Announcements
- Documenting and routing of calls to Bentley's Service Desk

Standard Support Services

The following tables demonstrate the standard support services provided by Bentley for a cloud provisioned service.

Table 2 Operations Management

Operations Management		
Proactive Monitoring	✓	Infrastructure Monitoring including system availability (system health, access, node availability), hardware (CPU, Disk Queue, storage availability, etc.) and software performance to provide proactive scaling and necessary load balancing.
Reporting	✓	SELECT Server reporting is available for both cloud-provisioned and on-premises deployments.
SLA Tracking/Management	✓	A continuous improvement process that is used to track the SLA for Bentley to improve the services provided to users. A collection of data from a number of monitoring points throughout the network and servers allows Bentley to monitor performance and fine tune the system for optimal performance. This includes recording and historical tracking of performance management in support of the SLA.
Maintain Systems Performance	✓	Bentley provides a Service Level Agreement (SLA) to guarantee uptime. Bentley Systems data centres from which our cloud provisioned services are delivered are resilient with diversely routed power supplies both into and within the data centres and all network connectivity utilises two distinct Tier 1 ISPs. Performance monitoring includes software actions (automation job status, orchestration actions, etc.), and hardware performance.
Troubleshoot Server Issues	✓	Bentley's Service Desk troubleshoots server issues through resolution. With an SLA in place, it is Bentley's responsibility to maintain and troubleshoot server issues. This minimises the risk of long outages. Bentley technical support remains available to assist the user in troubleshooting on-premises issues under SELECT services.
Disaster Recovery\Business Continuity to support high availability of systems and if required, backup and restoration of Data	✓	In addition to numerous redundant, high availability systems, backups of the database and file system are done on a regular basis, enabling a rapid return to operation with minimal data loss in the event of catastrophic failure, supporting the target RTO and RPOs. Off-site backups are also maintained. Point in time recovery is available for all services. In the case of a catastrophic failure of multiple components or data centres affecting the production environment, in consultation with the user representative the disaster recovery plan may be invoked which defines the system restoration process.

Operations Management		
Upgrades to Server Operating System Software	✔	Upgrades to new releases are tested and implemented as soon as possible to ensure users always have the most up-to-date versions of the software and can take advantage of innovations as soon as they are released. Operating System upgrades will occur according to a schedule that will be published regularly. Users will be notified in advance of changes outside of that schedule (i.e. emergency).
Change Management	✔	Bentley procedures follow ITIL best practice and are designed to ensure that any changes are managed through to a conclusion with minimal business impact. The change management framework delivers consistent services, using common language, across the various service line teams and technologies.
Systems Maintenance	✔	The system maintenance procedure follows several procedures, including patch management and updates, change management policy, and major release policies. As stated above, systems maintenance will be executed according to a published schedule.
Security Monitoring	✔	Bentley monitors and ensures security in a variety of ways. Commercial antivirus protection, network encryption, routine penetration and vulnerability testing, device hardening, network protection, logging, and auditing are all part of our security monitoring.
Data Centre Physical Security	✔	Data centres used by Bentley in the provision of our services are guarded and secured by multiple layers of security. These may include security personnel, video surveillance, blast and ram raid protection, key security, multi-level electronic authorisation, and security vetting and clearance processes.

Table 3 Application Management

Application Management		
System Deployment	✔	Design and implementation of the ComplyPro service.
Access & Security Management	✔	Includes user management and user security at the datasource level.
Monitoring	✔	Application Performance Monitoring.
Problems/ Incidents	✔	Management and resolution of any problems or incidents that occur within the ComplyPro application.

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Application Management		
Updates/Upgrades	✓	To the ComplyPro hosted software.
High Availability	✓	High availability for the ComplyPro hosted solution.

Table 4 Cloud Provisioned by Bentley

Cloud Provisioned by Bentley		
Help Desk	✓	Bentley's Service Desk will provide incident and problem management functions. For all Bentley service tickets, the nature of the incident will be assessed and forwarded to the appropriate Service Line Team who will then confirm the severity, priority, and criticality of the incident in accordance with the standard Incident Management process.
Service Request Fulfilment	✓	User and datasource creation requests, etc.
Problems/ Incidents	✓	Bentley's Service Desk will provide incident and problem management functions. For all Bentley service tickets, the nature of the incident will be assessed and forwarded to the appropriate Service Line Team who will then confirm the severity, priority, and criticality of the incident in accordance with the standard Incident Management process.
System Level Administrative Configurations	✓	Datasource creation and user\group creation and deletion.

Table 5 Technology/Infrastructure Management

Technology/Infrastructure Management		
Access & Security	✓	Bentley monitors and manages the access and security of the cloud provisioned infrastructure.
Monitoring	✓	Bentley monitors the infrastructure health.
Problems/ Incidents	✓	Bentley monitors and manages any problems or incidents that occur within cloud provisioned infrastructure.
Patches/Updates	✓	Bentley will apply patches and updates as required.

Technology/Infrastructure Management		
Capacity Planning	✓	Bentley monitors and manages storage and performance to ensure sufficient capacity for all our users.
Continuity	✓	Bentley provides business continuity services.
Availability	✓	Bentley monitors and manages the system availability.

Table 6 Implementation

Implementation		
Server Installations and Configurations	✓	On-Premise installation of server modules is not included in Bentley's service. Cloud provisioned services by Bentley includes Caching Server installation/configuration assistance.
Server/Client Customisations	✓	Customisations are outside of the scope of the standard offering. Bentley will assess whether any requested customisation can be supported as an additional service.
Global Project Coaching/ Configuration	✓	With many of today's projects extending to many geographies, Bentley will work with the user to determine the best project architecture and setup initial configuration.
Project Health Checks	✓	Regular checks of system statistics will ensure the health of the project. Bentley will use a variety of tools and services to ensure the system stays as healthy as possible and can make best practice recommendations for change.
Adoption Services	✓	As new technology is released and added to the cloud provisioned system, coaching on new features and functionality will be provided.
Best Practices Coaching	✓	Bentley will provide best practice coaching on the use and configuration of the systems.
Remote Caching Server Configuration	✓	Bentley will configure caching servers for optimal use. This can include pre-population as well as on-demand caching.

APPENDIX 2 – SLA

Service Level Agreement

The following Service Level Agreement (SLA) supplements the SELECT Program Agreement, including Exhibit F Bentley Cloud Offerings. In the event there is a conflict between this SLA and the SELECT Program Agreement, this SLA shall prevail. This SLA shall apply to specific Bentley Cloud Offerings only when attached to or incorporated by reference to an applicable commercial offering document, such as a quotation, proposal, or order form. If a commercial offering document does not include this SLA as an attachment or by reference, it shall not apply to that Cloud Offering.

Availability Commitment

Bentley shall provide System Availability per Table 1 below.

Table 1 - Availability

Availability Commitment	System Availability Period
99.9%	24x7

Bentley shall measure performance against the Availability Commitment during a calendar month based on the following calculation:

$$\text{Availability \%} = \frac{\text{Available Minutes} - \text{Unscheduled Downtime Minutes}}{\text{Available Minutes}}$$

Users will be given notice of Maintenance Windows which will be used to apply required patches to the IT infrastructure to ensure the continued security, availability, and performance of the system. Wherever practical, Maintenance Windows will occur outside of Subscriber's core business hours.

- The Availability Commitment excludes downtime due to Scheduled Maintenance.
- Unscheduled Downtime is calculated from the minute it is clearly reported by the Subscriber to Bentley, until Bentley reports it fixed or mitigated. Bentley may subtract from the calculated downtime any time waiting for a response from the Subscriber
- Only "Critical" Incidents (Table 3 below) will be considered as Unscheduled Downtime in the above Availability calculation.
- Where Bentley provides multiple production services, identified by different Universal Resource Locators (URLs), the availability will be calculated for each URL.

Remedies

Bentley shall provide Subscriber remedies for any Bentley failure to meet the Availability Commitment during any single calendar month (the "Cover Period"). Upon the first instance per URL, Bentley shall make a good faith effort to understand the cause and make reasonable repairs to prevent the failure from occurring again. Upon any subsequent instance, in addition to the remedy set forth above, Bentley shall also provide a Service Credit to Subscriber as described in Table 2. If the Monthly Subscription covers multiple Fully Qualified Domain Names (FQDNs), the remedy will be based off a part of the Monthly Subscription proportional to the usage of that FQDN.

Table 2 – Remedies

Availability	Service Credit
98 % -- 99.8%	2% of Monthly Subscription for affected Service
95 % -- 97.9%	4% of Monthly Subscription for affected Service
Below 95%	5% of Monthly Subscription for affected Service

Bentley will apply any Service Credits only against future amounts due from Subscriber for Hosting Fees. Service Credits will not entitle Subscriber to any refund or payment from Bentley. Unless claimed within ninety (90) Days following the end of the Cover Period to which they correspond, all Service Credits are waived with respect to that period of service. Subscriber agrees that the Service Credits set forth herein are Subscriber's sole and exclusive remedy, and Bentley shall have no further liability, for any failure by Bentley to meet the Availability Commitment or System Availability Period.

In respect of all other claims, losses, or damages, whether arising from tort (including negligence), breach of contract, or otherwise under or in connection with this SLA, shall in no event exceed the applicable monthly subscription fees during which the event giving rise to the liability occurs.

Support Objectives

Bentley will, in consultation with the Subscriber, be responsible for classifying each reported, verifiable and reproducible incident per Table 3 and will use commercially reasonable efforts to resolve such incidents in accordance with the targets specified in Table 4.

Table 3 – Priority Classification

Name	Classification	Description	Example
Priority 1 (P1)	Critical	System Down A complete loss of cloud service – no user can interact with the service	Users at multiple sites cannot access the system and no workaround exists.
Priority 2 (P2)	High	Incident which impairs the users' ability to maintain business operation causing a severe degradation of service or resulting in some important functionality being unavailable. Operations can continue in a restricted fashion.	Users can access system however there is material degradation of functionality or performance
Priority 3 (P3)	Medium	Incident which causes a loss of some important functionality.	A service is not available causing inconvenience, however, business operations can continue without major disruption
Priority 4 (P4)	Low	Incident which has little or no significant impact on the business. Low impact & low urgency.	The behavior varies from user expectations, but normal business operations can continue.

The provision of a workaround or temporary fix will lower the Priority of an incident to reflect the residual impact.

Table 4 – Incident Response and Resolution Targets

Priority	Response Target	Resolution Target	Update Interval
P1 - Critical	1 Hour	See below*	1 Hour
P2 - High	2 Hours	1 Business Day	1 Business Day
P3 - Medium	4 Hours	10 Business Days	5 Business Days
P4 - Low	8 Hours	Mutually Agreed	Mutually Agreed

*Critical incidents will be forwarded immediately and worked continuously by qualified team members until it is resolved, or an acceptable workaround is delivered to reduce the priority.

Response, Resolution and Update target levels are indicators and serve as benchmarks for the Bentley Support teams.

"Response Times" and Resolution Times" commence from the point in time accurate and complete information regarding the incident or interruption is correctly entered in Bentley's Incident Tracking system.

If the resolution of any P2, P3 or P4 issue requires an update, fix or patch to the relevant Bentley commercial software product resulting in a modification of standard COTS or customized code, then additional development, testing and release tasks will be required to ensure the quality of the product release. Bentley's support obligations in these instances, including response times, shall not be governed by this SLA, but rather the SELECT Program Agreement or other relevant governing agreement executed by Subscriber and Bentley shall apply.

"Business Day" for support of P2 though P4 incidents is defined as Monday through Friday inclusive excepting Public Holidays in the location where support is provided.

Bentley has designed the systems to meet the recovery time and point objectives described in Table 5 and shall use commercially reasonable efforts meet them in the event of a system failure.

Table 5 – System Disaster Recovery Objectives

Recovery Time Objective (RTO)	Recovery Point Objective (RPO)
8 Hours	1 Hour

Limitations

This SLA and any applicable Service Levels do not apply to any performance or availability issues:

1. Due to factors outside our reasonable control (for example, natural disaster, war, acts of terrorism, riots, government action, or a network or device failure external to our data centers, including at Subscriber's site or between Subscriber's site and Bentley's data center);

2. That result from the use of services, hardware, or software provided by Subscriber, including, but not limited to, issues resulting from inadequate bandwidth or related to third-party software or services;

3. Caused by Subscriber's use of a Service after instruction from Bentley to modify use of the Service;

4. During or with respect to preview, pre-release, beta or trial versions of a Service, feature or software (as determined by Bentley);

5. That result from Subscriber's unauthorized action or lack of action when required, or from Subscriber's employees, agents, contractors, or vendors, or anyone gaining access to Bentley network by means of Subscriber's passwords or equipment, or otherwise resulting from Subscriber's failure to follow appropriate security practices;

6. That result from faulty input, instructions, or arguments (for example, requests to access files that do not exist);

7. That result from use of sandbox, proof of concept, development, QA, or other non-production systems unless explicitly included by Bentley Systems.

Service Termination and Subscriber's Data

Upon termination of the Service, Bentley will deactivate any remaining Subscriber accounts and upon written request provide an export of Subscriber's data in a standard, generally accepted electronic form within ten (10) business days, and places no restrictions on its use by the Subscriber. Unless otherwise requested, Bentley will delete all copies of Subscriber's data from its servers within two (2) weeks of being notified that the Subscriber has successfully read the files, or within four (4) weeks of the data being provided if no confirmation or associated Service Request is received.

Note: it may take up to an additional 30 days for back-ups of that data to expire.

About Bentley Systems

Bentley Systems (Nasdaq: BSY) is the infrastructure engineering software company. We provide innovative software to advance the world's infrastructure – sustaining both the global economy and environment. Our industry-leading software solutions are used by professionals, and organisations of every size, for the design, construction, and operations of roads and bridges, rail and transit, water and wastewater, public works and utilities, buildings and campuses, mining, and industrial facilities. Our offerings include MicroStation-based applications for modeling and simulation, ProjectWise for project delivery, AssetWise for asset and network performance, Seequent's leading geoprofessional software portfolio, and the iTwin platform for infrastructure digital twins. Bentley Systems employs more than 4,500 colleagues and generates annual revenues of approximately $1 billion in 186 countries.

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