

# DoD Airfield Pavement Construction Database and Standardized Submittal Templates

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**2024 Annual Tri-Service & Industry Review Meeting**  
**Airfield Asphalt User/Producer Group**  
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# Overview

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- ERDC is working on an effort to develop the following tools as part of a collective pavement construction database:
  1. Standardized mix design and lot report submittal templates
  2. Online software for contractors to provide submittals
  3. Tools within the software for submittal analysis and review
  4. Database for long-term, organized, and accessible storage of construction data
- Scope: asphalt and concrete; mix design and lot report submittals
- Motivations:
  - Streamline submittal process for individual construction projects
  - Increase efficiency and accuracy with reviewing project submittals
  - Provide simple checks against specification criteria and alert project teams if out of compliance
  - Store project data in a consistent format for all projects across the DOD to facilitate post-construction analysis (e.g. forensics, research regarding trends and specification requirements across all projects, etc.)



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# What Can Go Wrong?

- Runway in the southeast US (conventional PG 76-22 gradation 2 mix) began rapidly deteriorating 2 years after construction (severe raveling, FOD, L&T cracking)
- Initial suspect was aggregate quality, other aspects believed to be non-issues
- Cores exhibited extremely low density
- Triggered deeper dive into project submittal data, which had not been well maintained
- The density discrepancy was traced to error due to inconsistent terminology

Location	Project %G <sub>mm</sub>	Project Result	ERDC %G <sub>mm</sub>	ERDC Result
Mat	95.4	Full Pay	89.7	Remove
Joint <sup>a</sup> (1 <sup>st</sup> five sublots)	89.5	Remove	85.6 <sup>b</sup>	Remove <sup>b</sup>
Joint <sup>a</sup> (other sublots)	93.7	Full Pay	89.9 <sup>b</sup>	Remove <sup>b</sup>

a) Joint cores were cut on the joint as required for first 5 sublots then off the joint for rest of project.

b) ERDC joint densities based on average correction.



# Motivations

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- Independent testing lab determined in-place density using  $G_{mm}$  from paving sub; however, they incorrectly used the lab  $G_{mb}$  for  $G_{mm}$  instead.

### Paving Subcontractor Lab Test Report

Field Laboratory Asphalt Worksheet

Project No. CAFB Day Friday Date 9-11-18

Sp.Gr. 2.333 2.335 Comb. Bulk Sp. Gr. 2.578

Sample # 7

Pats	1	2	3	Sample Wt.	1933.7	1949.1	Job Mix	Pass Size	Sample Wt.	%Pass	Dev.
Air Wt.	4656.8	4663.0						1"			
H2O Wt.	2676.0	2675.9						3/4"	0		
SSD Wt.	4667.1	4672.9						1/2"	19.7		
Volume	1776.1	1772.0						3/8"	182.6		
Sp.Gr.	2.333	2.335						#4	730.4	39.4	
voids	3.9	3.8						#8	111.1	37.8	
VMA	14.3	14.3						#16	132.8	26.7	
Dial								#30	1467.3	18.9	
Stability								#50	1604.9	11.3	
%AC Ga.	5.38							#100	1691.4	6.6	
%Moist.	.04							#200	1722.5	4.8	
%AC Cor.	5.34										
	94.66										

Cal. Wt. 1515.7 1515.7 Final Wt. 2653.6 2664.0 Volume 795.8 800.8 Max Sp. Gr. 2.430 2.434 Dry. Back .004 .004 Corr. Sp. Gr. 2.426 2.430

Average GMM: 2.428

Field Trials Sample No. 2

Gyrations 75 Height Data 115.4

Gyrations 75 Height Data 115.3

Average GMM: 2.428

**Incorrectly used  $G_{mb}$  for  $G_{mm}$**

**Should have used this value**

### 3rd Party Testing Field Density Report

ASPHALT CORE DATA

SPECIFIC GRAVITY H  
ATURATED SURFAC  
AASHTO - T 166

PROJECT: Outside Runway Repair  
CAFB, MS

DATE: 9/11/2018

MAX S.G.: 2.334 (Plant Mix)

Specimen No.	Location/ID	THICKNESS (" )	Dry WT Specimen	SSD WT	WT Water	BSG	% DEN.
13	Lot #2 Sublot #3 MAT - Laid on 9/7/2018	2.8	2822.9	2847.3	1574.3	2.223	95.2
14	Lot #2 Sublot #3 JOINT - Laid on 9/7/2018 ( CORE CUT 4" OFF JOINT )	2.5	2412.6	2438.2	1338.1	2.193	94.0

Date: 9-12-18

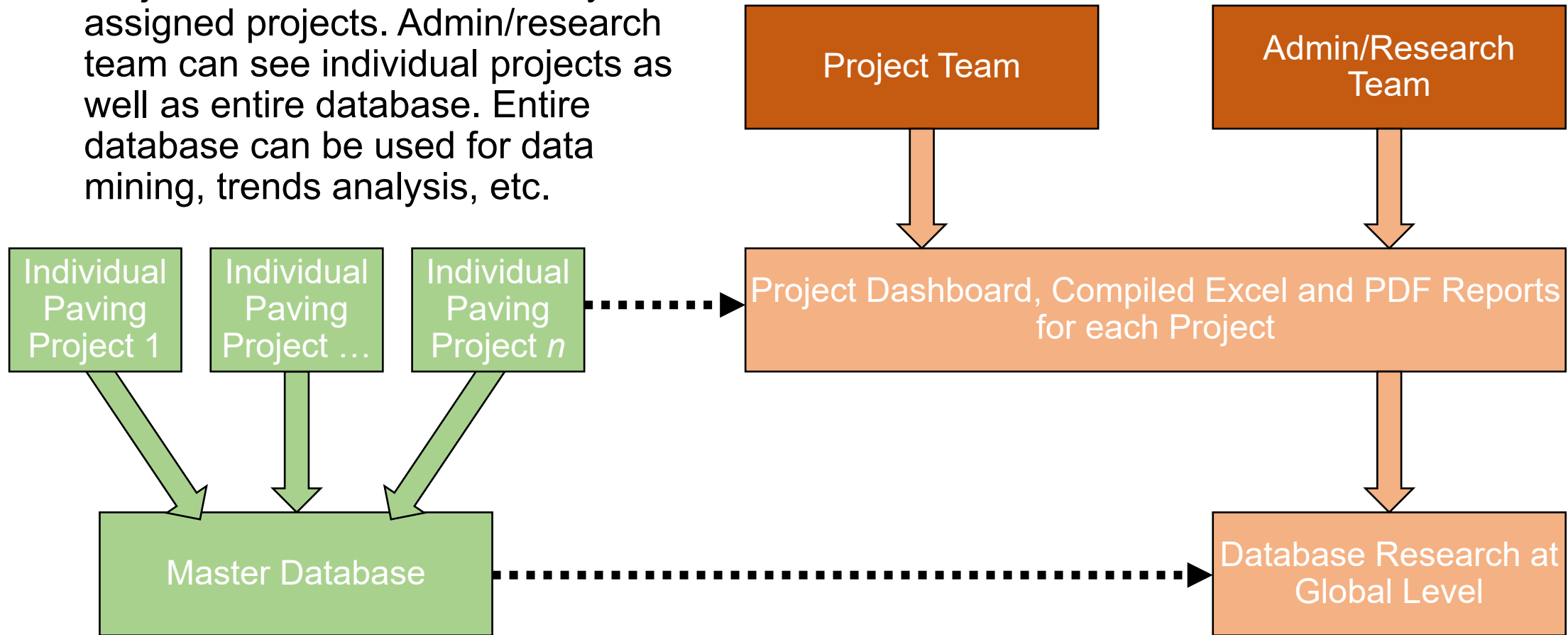
BSG	% DEN.
2.223	95.2

**MAX S.G. : 2.334**



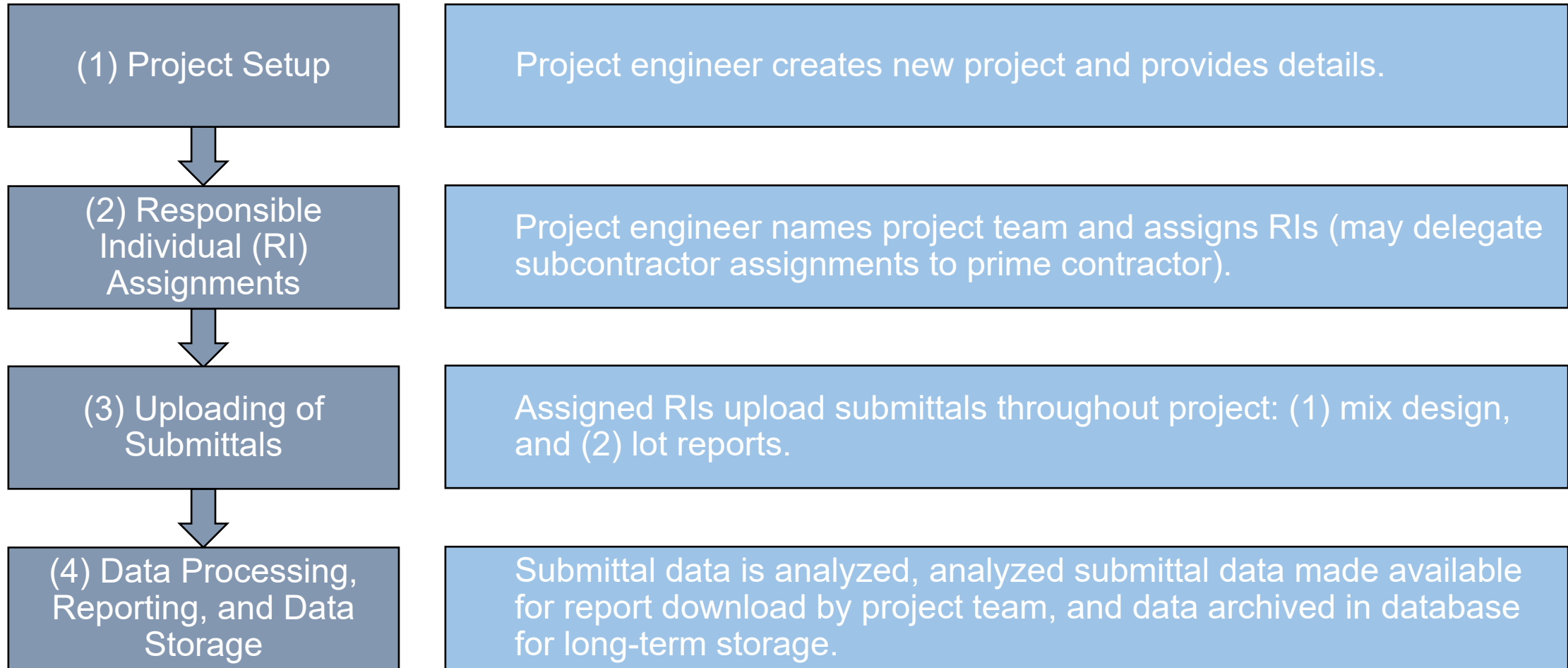
# Envisioned Database Outline at Global Level

- Project team sees data for only their assigned projects. Admin/research team can see individual projects as well as entire database. Entire database can be used for data mining, trends analysis, etc.





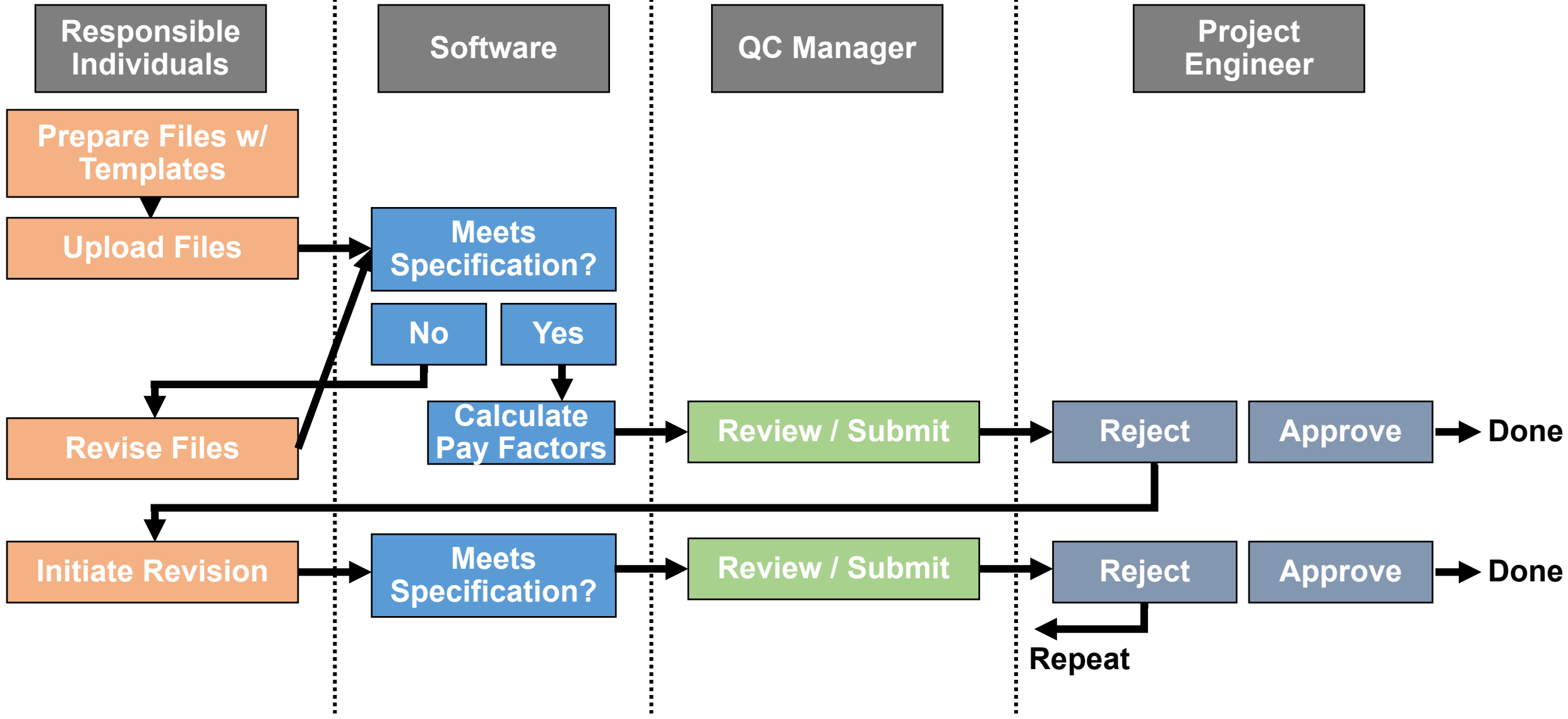
# Envisioned Database Outline at Project Level





# Submittal Workflow

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# Data Processing: Mix Design (MD#.#)

**ERDC Team**

Level 1  
Data Sheet  
Templates & Files  
(.xls)

Level 2  
Test Report (.pdf)

Level 3  
Test Report (.pdf or  
photos)

**ERDC Team**

Mix Design Template  
(.xls)

OCR Conversion

Specification  
Criteria

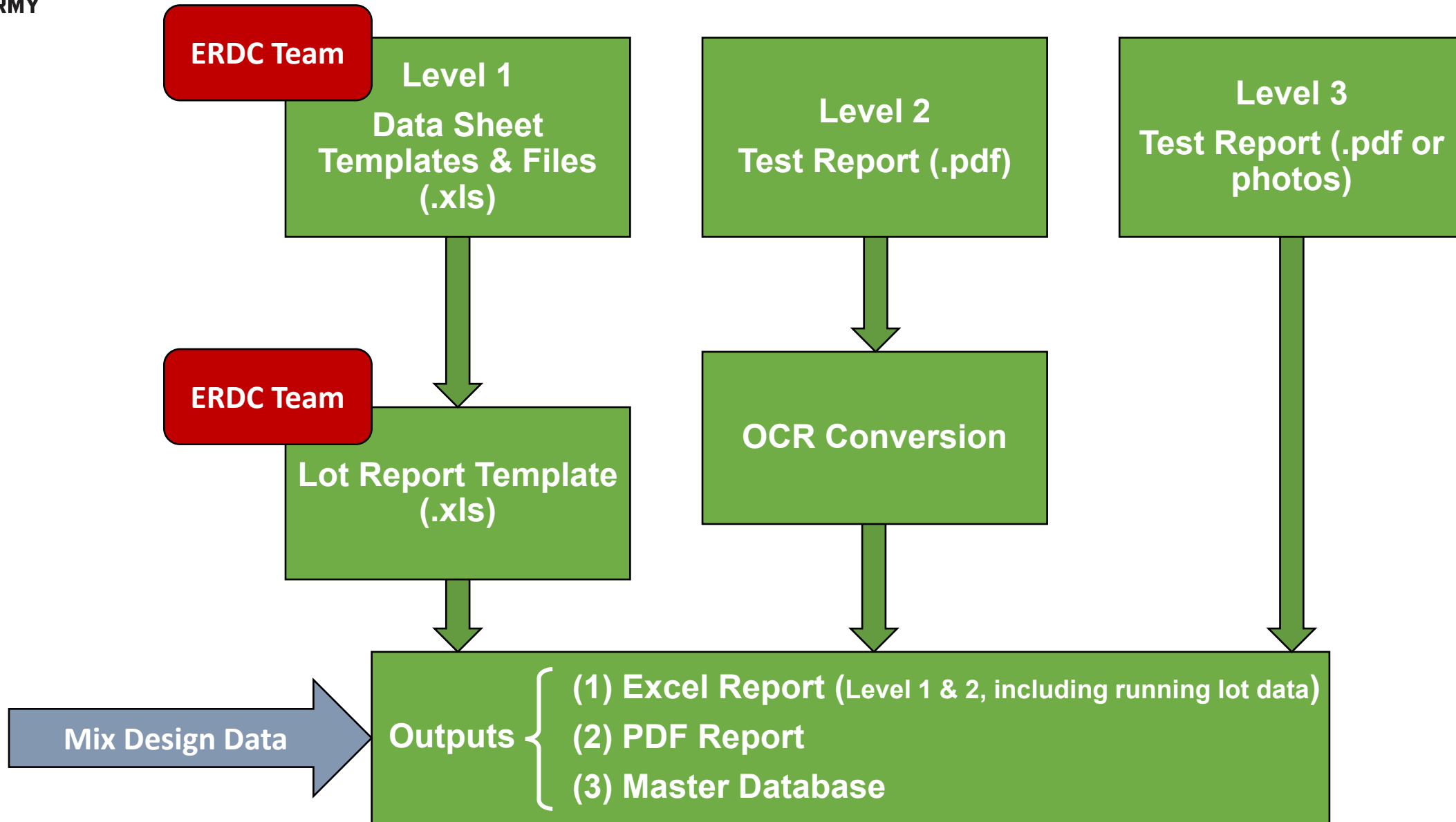
Outputs {  
(1) Excel Report (Level 1 & 2)  
(2) PDF Report  
(3) Master Database


Feed Lot Reports





# Data Processing: Lot Reports (L#.#)





# Templates

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- Example of asphalt JMF summary sheet template
- This example would be uploaded as a Level 1 input
- Data from this .xls/.csv would be mapped to database

### UFGS 32 12 15.13 Hot Mix Asphalt Design Verification

Mix ID	233302001-DOD
Date	2/1/2023
Project	Grissom ARB
Producer	E&B Paving, LLC

Gradation	3
Compaction	50 Gyr
Binder Grade	PG 64-22
Source	Seneca

Temperatures	
Mix	310°F
Compact	295°F
STAP	2 hr

RAP %	0.0
Anti-Strip	---
Additives	---

Material	#9 Stone	#11 Stone	#12 Stone	QA #12F	#24 Sand	#23 Natural Sand	BH Fines	KTR Agg Blend Results	ERDC Agg Blend Results	Spec. Limits	Diff.
Source	imi Huntington	imi Huntington	imi Huntington	imi Huntington	imi Plymouth	imi Huntington	Baghouse				
Source ID	2211	2211	2211	2211	2211	2431	---				
Blend %	0.0	22.0	34.0	9.5	20.0	12.0	2.5				
1.5" / 37.5 mm	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100	0.0
1.0" / 25.0 mm	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100	0.0
3/4" / 19.0 mm	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100	0.0
1/2" / 12.5 mm	62.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100	0.0
3/8" / 9.5 mm	33.1	87.4	100.0	100.0	100.0	100.0	100.0	97.2	97.8	90-100	0.6
#4 / 4.75 mm	9.0	19.5	56.7	90.9	100.0	97.8	100.0	66.4	71.5	58-78	5.1
#8 / 2.36 mm	3.9	5.1	12.9	67.3	93.1	87.5	100.0	43.5	44.9	40-60	1.4
#16 / 1.18 mm	2.5	2.7	4.3	49.8	65.3	73.2	100.0	31.1	31.7	28-48	0.6
#30 / 0.60 mm	1.9	2.1	2.7	38.3	43.0	54.4	95.0	22.5	23.1	18-38	0.6
#50 / 0.30 mm	1.7	1.9	2.4	29.8	25.7	20.7	90.0	13.9	14.5	11-27	0.6
#100 / 0.15 mm	1.6	1.7	2.2	21.8	10.4	3.7	85.0	7.8	9.0	6-18	1.1
#200 / 0.075 mm	1.4	1.5	2.1	15.3	3.5	1.4	80.0	5.4	6.4	3-6	1.0
Gsa	2.771	2.753	2.784	2.785	2.803	2.680	---	---	2.766	---	---
Gsb	2.620	2.611	2.594	2.652	2.685	2.577	2.800	2.624	2.639	---	-0.015
Abs, %	2.1	2.0	2.6	1.8	1.6	1.5	1.0	2.0	1.74	---	0.28

Agg Blend Properties				
	KTR	ERDC	Spec	Diff.
F / E / F&E	0.0	0.0	5.0 max	0.0
FAA	45.5	44.1	45 min	1.4

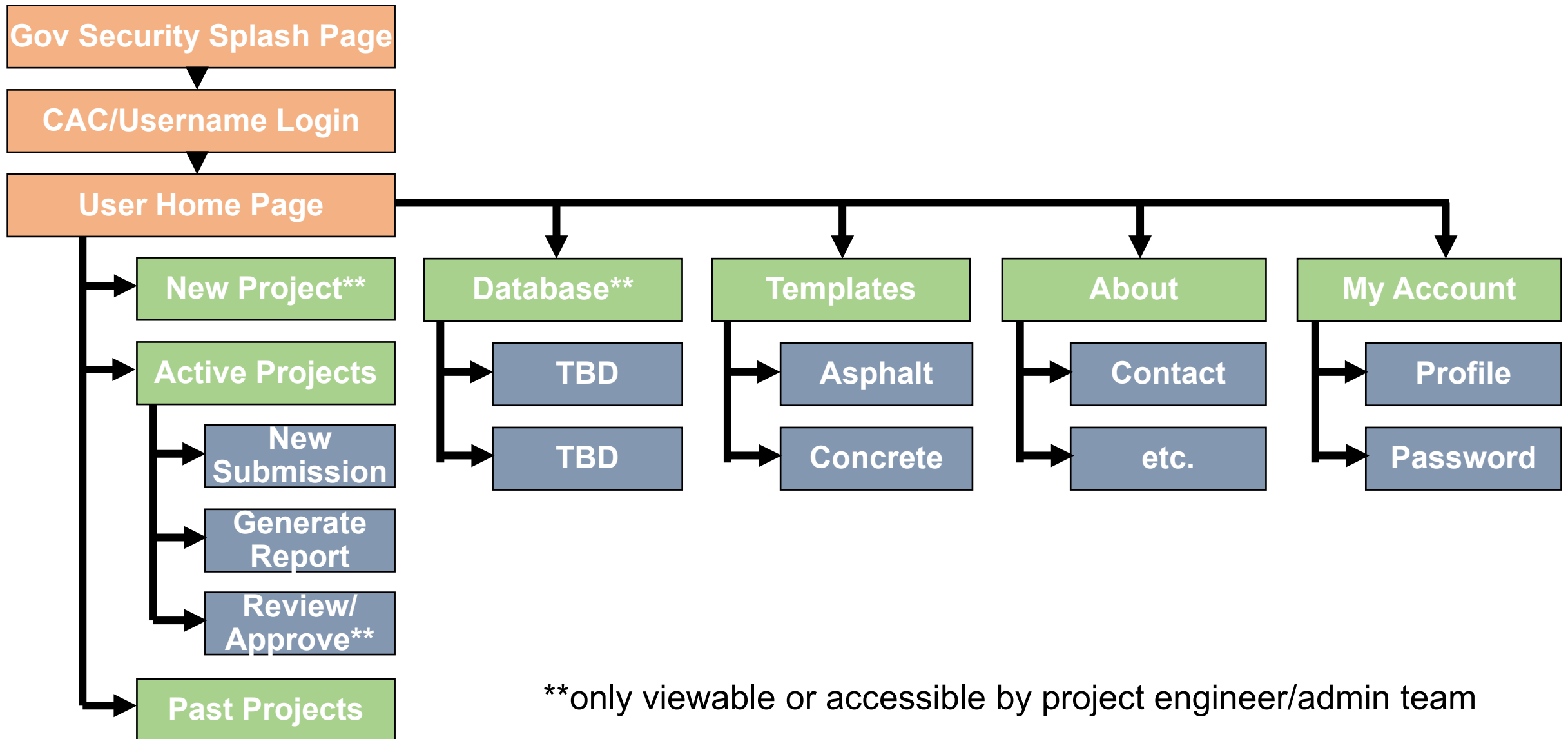
RAP %	0.0	RAP Pb %	0.0
Total Pb %	6.6	Virgin Pb %	6.6

Mix Mechanical Properties at Design Pb				
	KTR	ERDC	Spec	Diff.
D6927 Stability, lb	---	---	---	---
D6927 Flow, 0.01 in.	---	---	---	---
D4867 TSR	80.6	70.6	75 min	10.0
D4867 St, Dry, psi	245.8	118.9	---	126.9
D4867 St, Wet, psi	198.0	83.9	60 min	114.1

Mix Properties at Design Pb and Ndes				
	KTR	ERDC	Spec.	Diff.
Design Pb	6.6	6.6	---	---
Gb	1.029	1.029	---	---
Gsb	2.624	2.639	---	-0.015
Gmm	2.472	2.472	---	0.000
Gse	2.744	2.744	---	0.000
Gmb	2.373	2.379	---	-0.006
Va	4.00	3.76	4% Design	0.24
VMA	15.5	15.8	≥ 15.0	-0.3
VFA	74.2	76.2	---	-2.0
Pba,mix	1.60	1.39	---	0.21
Pbe	5.00	5.21	---	-0.21
D/Pbe	1.07	1.23	0.8 - 1.2	-0.15



# General Site Map Overview



\*\*only viewable or accessible by project engineer/admin team



# Government Security Splash Page

## DoD Consent

### DoD Consent Notice: Entry into this application is considered consent to the DOD Notice displayed below.

You are accessing a U.S. Government (USG) Information System (IS) that is provided for USG-authorized use only.

By using this IS (which includes any device attached to this IS), you consent to the following conditions:

- The USG routinely intercepts and monitors communications on this IS for purposes including, but not limited to: penetration testing, COMSEC monitoring, network operations and defense, personnel misconduct (PM), law enforcement (LE), and counterintelligence (CI) investigations.
- At any time, the USG may inspect and seize data stored on this IS.
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## Privacy Act Statement

### PRIVACY ACT INFORMATION - THE INFORMATION ACCESSED THROUGH THIS SYSTEM IS CONTROLLED UNCLASSIFIED INFORMATION AND MUST BE PROTECTED IN ACCORDANCE WITH THE PRIVACY ACT OF 1974.

- The information you provide to the DFAS myPay system is covered by the Privacy Act of 1974. To receive a copy of the Privacy Act Statement for the actions you enter into the system, please see your Local Finance Office or your Customer Service Representative.
- **AUTHORITY:** Title 5 U.S.C. Chapters 53, 55, 81; Title 10 U.S.C. Chapters 11, 61-73; Title 37 U.S.C.; GAO Manual for Guidance of Federal Agencies, Title 6, Chapter 4, para. 4.2.B.2; and E.O. 9397
- **PRINCIPAL PURPOSES:** The DFAS myPay system collects information from Army, Navy, and Air Force active and reserve military service members paid by the Defense Joint Military Pay System (DJMS); Marine Corps active and reserve service members paid by the Marine Corps Total Force System (MCTFS); DOD and non-DOD civilians paid by the Defense Civilian Pay System (DCPS); and military retirees/annuitants paid by the Defense Retiree/Annuitant Pay System (DRAS) to validate the identity of the system user in the event he/she needs to reestablish an account password and to execute changes to certain payroll information.
- **ROUTINE USES:** Payroll data will be disclosed to financial institutions or other entities as designated by the employee to receive such information.
- **DISCLOSURE:** Disclosure is voluntary; however, if the employee fails to provide the information requested, DFAS will not be able to process the request.

## Section 508 of the Rehabilitation Act of 1973

In 1998, Congress amended the Rehabilitation Act of 1973 to require Federal agencies to make their electronic and information technology (EIT) accessible to people with disabilities. The law (29 U.S.C § 794 (d)) applies to all Federal agencies when they develop, procure, maintain, or use electronic and information technology. Under Section 508, agencies must give disabled employees and members of the public access to information comparable to the access available to others.

For more information about Section 508, please visit the DoD Chief Information Officer (CIO) Section 508 Website available at <https://dodcio.defense.gov/DoDSection508.aspx>.

DFAS is committed to ensuring that myPay functionality and content is accessible to all myPay customers using assistive technologies in accordance with section 508 standards.

I agree to the terms of the User Agreement







# CAC/Username Login Page

- Government employees with CACs would have CAC-enabled login ability
- Contractors and others without CACs would have username and password login

## Sign In

  
   
[Sign In](#)  
[Forgot your Login ID?](#)  
[Forgot or Need a Password?](#)




Smart Card Login  
CAC | PIV

Insert card then select [Authentication Certificate](#)



# User Home Page

- The user home page lists all projects assigned to a given responsible individual
- Starting a new project is limited to project engineer role
- This page provides quick overview of a user's projects



## DoD Pavement Construction Management Database

User Name  
Company  
Role

[Home](#)   [Database](#)   [Templates](#)   [About](#)   [Contact](#)   [Logout](#)

Start New Project

### Active Projects

Contract No.	CLIN	Project Name	Last Updated	POC
W912QR22R0020	001	<a href="#">FY22 Grissom ARB RW 05-23</a>	12/04/2023	D. Prescott
W912QR22R0020	002	<a href="#">FY22 Grissom ARB RW 05-23 Shoulders</a>	11/30/2023	D. Prescott
W912HZ23R0034	001	<a href="#">FY23 Tyndall AFB RW 14R-32L</a>	12/31/2023	P. Manning


### Completed Projects

Contract No.	CLIN	Project Name	Completed	POC
W912KL22R0012	001	<a href="#">FY22 Hunter AAF RW 10-28</a>	4/13/2023	B. Favre
W912KL22R0012	002	<a href="#">FY22 Hunter AAF Apron</a>	9/22/2023	B. Favre
W912ST20R0004	001	<a href="#">FY20 Redstone AAF RW 17-35</a>	3/19/2021	T. Brady



# Active Projects Page

- Opening a project moves to a project-level page that displays:
  1. All submittals with current status with expand/collapse feature
  2. Summary table of pay factors
  3. Control charts for production
  4. Out-of-compliance alerts
- View, replace, or delete individual files w/in a submittal
- Generate a report of an entire submittal (if incomplete, report will be marked incomplete)



## DoD Pavement Construction Management Database

User Name  
Company  
Role

Home
Database
Templates
About
Contact
Logout

Contract / CLIN: W912KL22R0012 / 001  
 Project Name: FY22 Hunter Army Airfield RW 10-28  
 Etc.

Initiate New Submittal

### Project Files

Status	Submittal	Last Updated	POC	Status	Reporting
--	MD1	10/15/2023	D. Prescott	Revise	<a href="#">Generate Report</a>
	↳ Narrative	10/04/2023	D. Prescott	Ok	<a href="#">View / Replace / Delete</a>
	↳ JMF Summary	10/15/2023	D. Prescott	Revise	<a href="#">View / Replace / Delete</a>
+	Lot 1	11/09/2023	Multiple	Ok	<a href="#">Generate Report</a>
+	Lot 2	11/12/2023	Multiple	Replaced	<a href="#">Generate Report</a>
+	Lot 2.1	11/16/2023	Multiple	Incomplete	<a href="#">Generate Report</a>





# Upload New File Page



- Required files are listed and indicate whether or not they are present
- Select file type and upload file
- Multiple formats supported, e.g., .doc, .xls, .pdf, .jpeg)
- Order of most files is pre-determined, but optional files can be arranged based on user preference

## DoD Pavement Construction Management Database

User Name  
Company  
Role

[Home](#)   [Database](#)   [Templates](#)   [About](#)   [Contact](#)   [Logout](#)

Contract / CLIN: W912KL22R0012 / 001  
 Project Name: FY22 Hunter Army Airfield RW 10-28  
 Mix Design Submittal Upload (MD1)

### Upload Files

Required
Select File Type ▾

- Title Page/Narrative ✓
- JMF Summary ✓
- TSR Results ✗
- Aggregate Properties ✓
- Asphalt Binder COA ✗
- etc. ✗

Browse

or

Drag & Drop Files Here

### Uploaded Files

Order	File Type	File Name	Size
1	Title Page/Narrative	HAAF Grad 2...	0.2 MB
2	JMF Summary	HAAF Grad 2 PG...	0.5 MB
3	Aggregate Properties	HAAF Agg Qualit...	0.3 MB
4	Height vs Gyration	HAAF Ht vs Gyr R..	0.1 MB
5	Miscellaneous	HAAF Historical A..	0.1 MB

Update File Order

← Back

Proceed →



# THANK YOU FOR YOUR TIME QUESTIONS?

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