

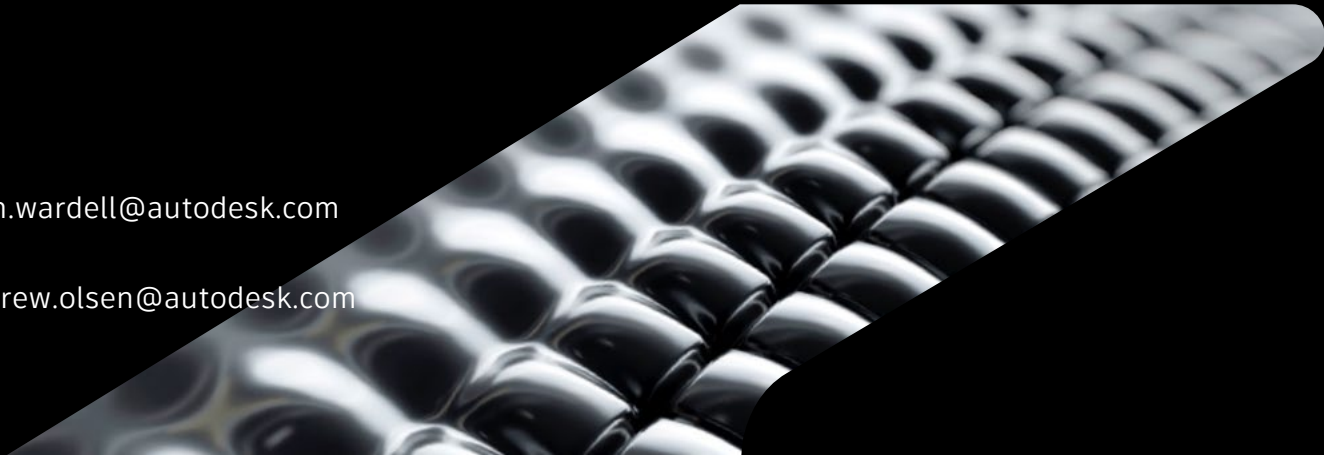


Project Delivery

Using the Autodesk AEC Collection &
the Autodesk Construction Cloud

Ben Wardell, P.E.
Technical Marketing Manager | ben.wardell@autodesk.com

Drew Olsen, P.E.
Infrastructure Owner Specialist | drew.olsen@autodesk.com



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The forward-looking statements made in these presentations are being made as of the time and date of their live presentation. If these presentations are reviewed after the time and date of their live presentation, even if subsequently made available by us, on our website or otherwise, these presentations may not contain current or accurate information. We disclaim any obligation to update or revise any forward-looking statements.

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Project Delivery Class Agenda

- The Autodesk AEC Collection
- The Autodesk Construction Cloud
- A Connected Platform
- Project Timeline
- Project Milestones
- Q/A



The Autodesk AEC Collection

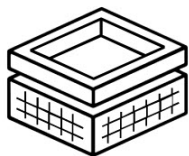


AUTODESK **ARCHITECTURE, ENGINEERING & CONSTRUCTION** COLLECTION

Powerful BIM and CAD platforms to create and build with confidence



Expanded Industry Workflows



Building design



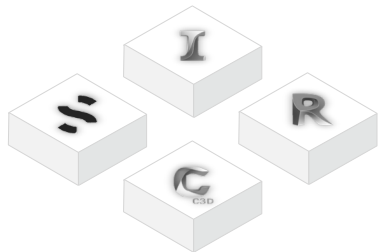
Infrastructure design



Construction

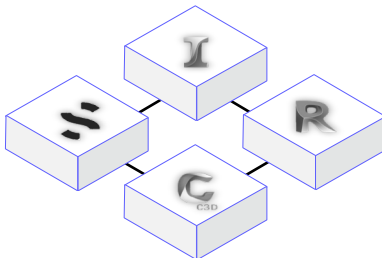


Autodesk Product Strategy



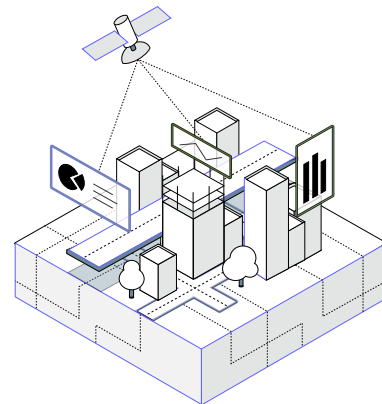
Continued Investment

expand portfolio's reach and capabilities that are critical to the success of users



Common Data Experience

create meaningful data integrations for end-to-end workflows across AEC products



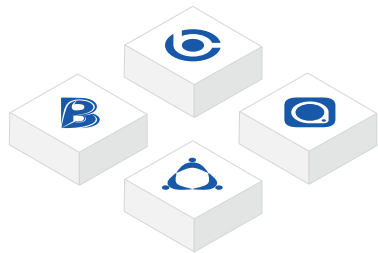
Experience Convergence

unify products and workflows on undivided platform where all features come together



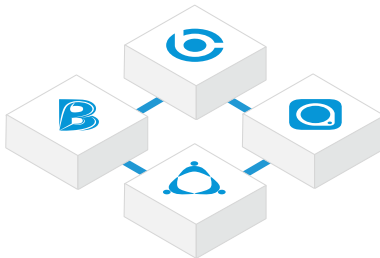
The Autodesk Construction Cloud

The **Autodesk Construction Cloud** Evolution



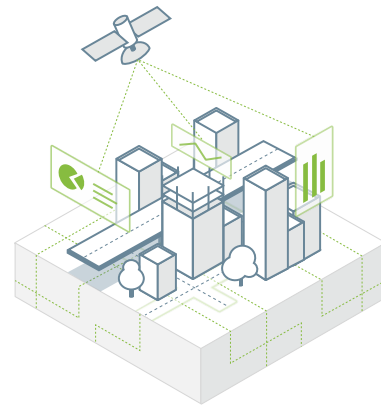
Continued Investment

continue building and enhancing the champion features across all our core products



Meaningful Integrations

create integrations between these products so that they may more effectively be used together



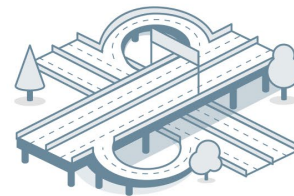
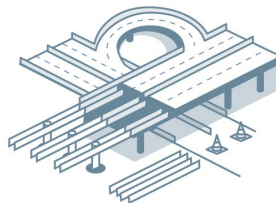
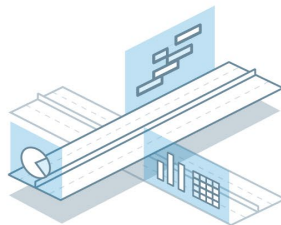
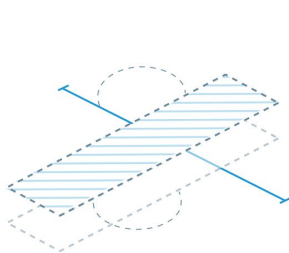
Unification

build a unified platform where all champion features come together under a single log-in for seamless adoption of features across the full digital building lifecycle





AUTODESK CONSTRUCTION CLOUD™



	PLAN	DESIGN	BUILD	OPERATE
Capabilities	<ul style="list-style-type: none">• Design Authoring• Design Collaboration	<ul style="list-style-type: none">• Coordination• Clash/ 4D/ 5D• Model Conditioning• Quantification• Bid Management	<ul style="list-style-type: none">• Project Management• Cost Management• Quality• Safety• Project Closeout	<ul style="list-style-type: none">• Facilities Maintenance• Asset Lifecycle
Shared Data	Models · Drawings · Issues · Specifications · RFIs · Cost · Assets · As-Built · Photos · Video			
Insight	Dashboards · Reports · Construction IQ · Data Connector			
Network	Builders Network			





AUTODESK CONSTRUCTION CLOUD™

AUTODESK BIM COLLABORATE PRO

AUTODESK TAKEOFF

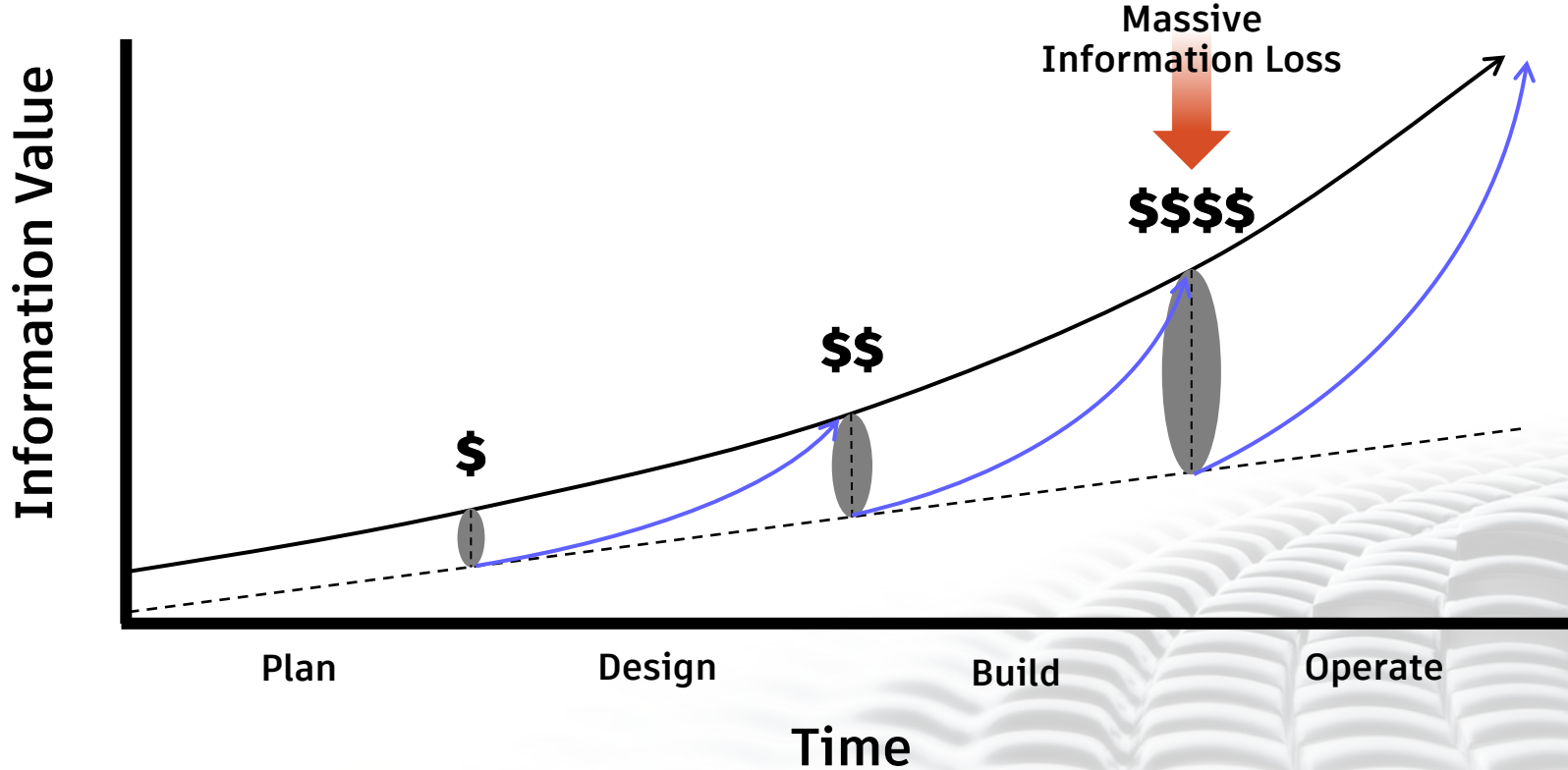
AUTODESK BUILD

Capabilities	Design Collaboration	Coordination	Quantification	Project Management	Cost Management	Quality	Safety	Project Closeout
Workflows	<ul style="list-style-type: none">• Constructability Review• Change Visualization• Revit Cloud Worksharing• Collaboration for Civil 3D / Plant 3D	<ul style="list-style-type: none">• Model Coordination• Constructability Review• Clash/ 4D/ 5D	<ul style="list-style-type: none">• Scope Analysis• 2D/3D Takeoff	<ul style="list-style-type: none">• RFIs• Submittals• Meeting Minutes• Daily Reports	<ul style="list-style-type: none">• Contract Creation / Administration• Change Orders• Payment Applications• Forecasting	<ul style="list-style-type: none">• Quality Planning• Quality Checking• Punchlists• Issue Management	<ul style="list-style-type: none">• Safety Planning• Safety Training• Safety Observations• Safety Inspections	<ul style="list-style-type: none">• Commissioning• Turnover Documentation• Final Completion• As-Built Survey
	Document Management							Document Control · Document Versioning · Document Approvals
Unified Data		Models · Drawings · Documents · Cost Items · Assets · As-Built's · Photos · Videos						AUTODESK DOCS
Insight		Dashboards · Reports · Construction IQ · Data Connector						
Admin		Admin Console · Permissions · Project Setup · Templates · Notifications						



A Connected Platform

The High Cost of Data Loss



Autodesk Journey | A Connected Data Platform

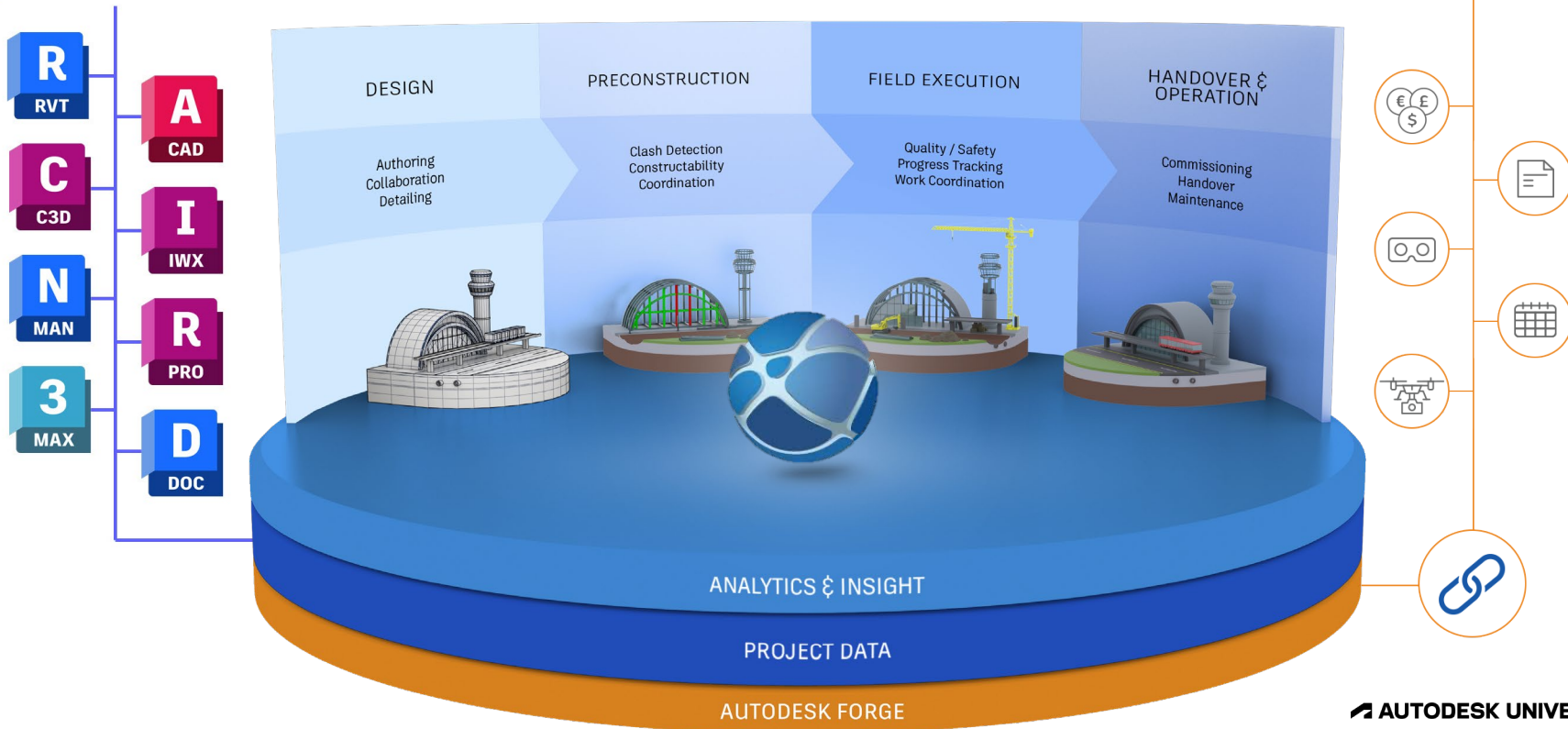


AUTODESK® ARCHITECTURE,
ENGINEERING & CONSTRUCTION
COLLECTION



AUTODESK CONSTRUCTION CLOUD™

3RD PARTY
APPLICATIONS



AUTODESK Construction Cloud

ARCHITECTURE, ENGINEERING & CONSTRUCTION COLLECTION

- R** **Revit**
Plan, design, construct and manage buildings with multi-disciplinary BIM software.
- A** **AutoCAD**
Software for 2D and 3D CAD. Includes AutoCAD, specialised toolsets and apps.
- N** **Navisworks Manage**
Clash detection and advanced co-ordination, 5D analysis and simulation software.
- R** **ReCap Pro**
Reality capture and 3D scanning software and services.
- C** **Civil 3D**
Civil engineering design and construction documentation software.
- I** **InfraWorks**
Civil infrastructure conceptual design and analysis software.
- D** **Autodesk Docs**
Manage project information in a cloud-based, common data environment.

C AUTODESK® BIM COLLABORATE & BC Pro

Empower BIM experts to improve constructability of models, increase transparency in managing risk, and facilitate more efficient design collaboration

- Design Collaboration
- Automated Clash Detection
- Aggregated Model Coordination
- Issues Management

T AUTODESK® TAKEOFF

Enable estimators to perform more accurate 2D take-offs and generate automated quantities from 3D models

- 2D Takeoff
- 3D Takeoff
- Scope Analysis

B AUTODESK® BUILD

Empower builders with a field execution and project management solution to seamlessly collaborate and deliver construction projects on time, on budget

- Project Management
- Cost Management
- Quality Management
- Project Closeout
- Safety Management
- PlanGrid Build Mobile App

T AUTODESK TANDEM™

Digital Twin

D AUTODESK® DOCS

Organize, distribute, and share files on a single, connected document management platform, ensuring all team members have access to the information they need

- Document Control
- Document Versioning
- Document Approvals

INSIGHTS

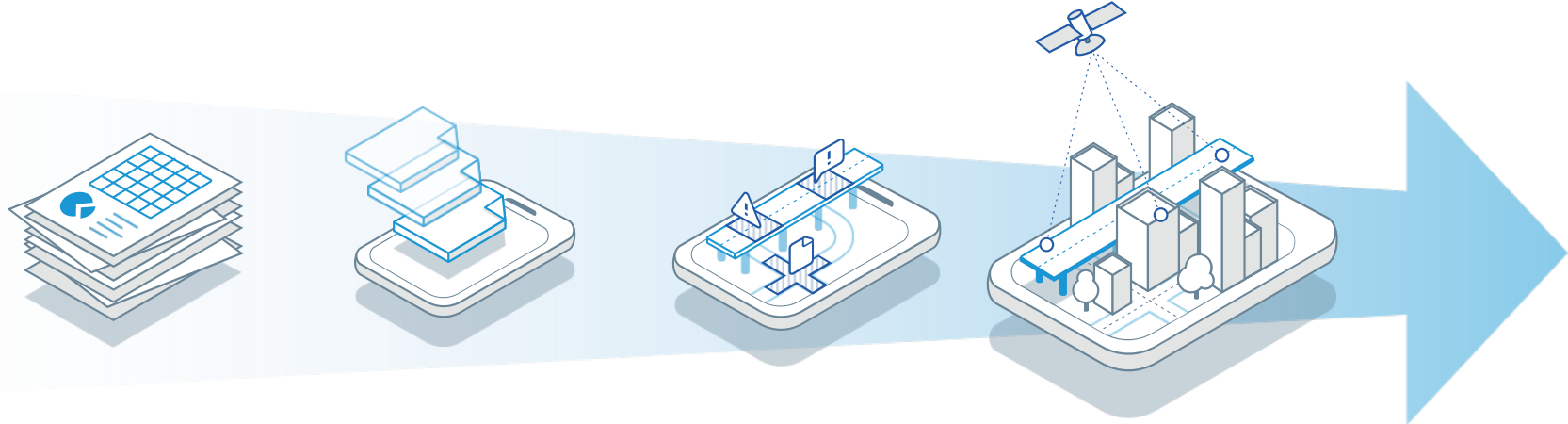
Get up to speed with what's going on in a project, assess trends and patterns in project data, identify any gaps and problems, and use predictive risk data to improve project efficiency

- Dashboards
- Reporting
- Construction IQ
- Data Connector



Begin with the end in mind

Asset Lifecycle: Digital As-Built for O&M Handover



Today
Paper/Redlines



Collect
Digitalize/Integrate



Update
CAD/ Model Updates



Connect
Metadata & Attributes



**Data Rich Asset
Information**





- Organize, distribute, and share files on a single, connected document management platform, ensuring all team members have access to the information they need



Document Control /
Permissions



Document Versioning



Document Approvals

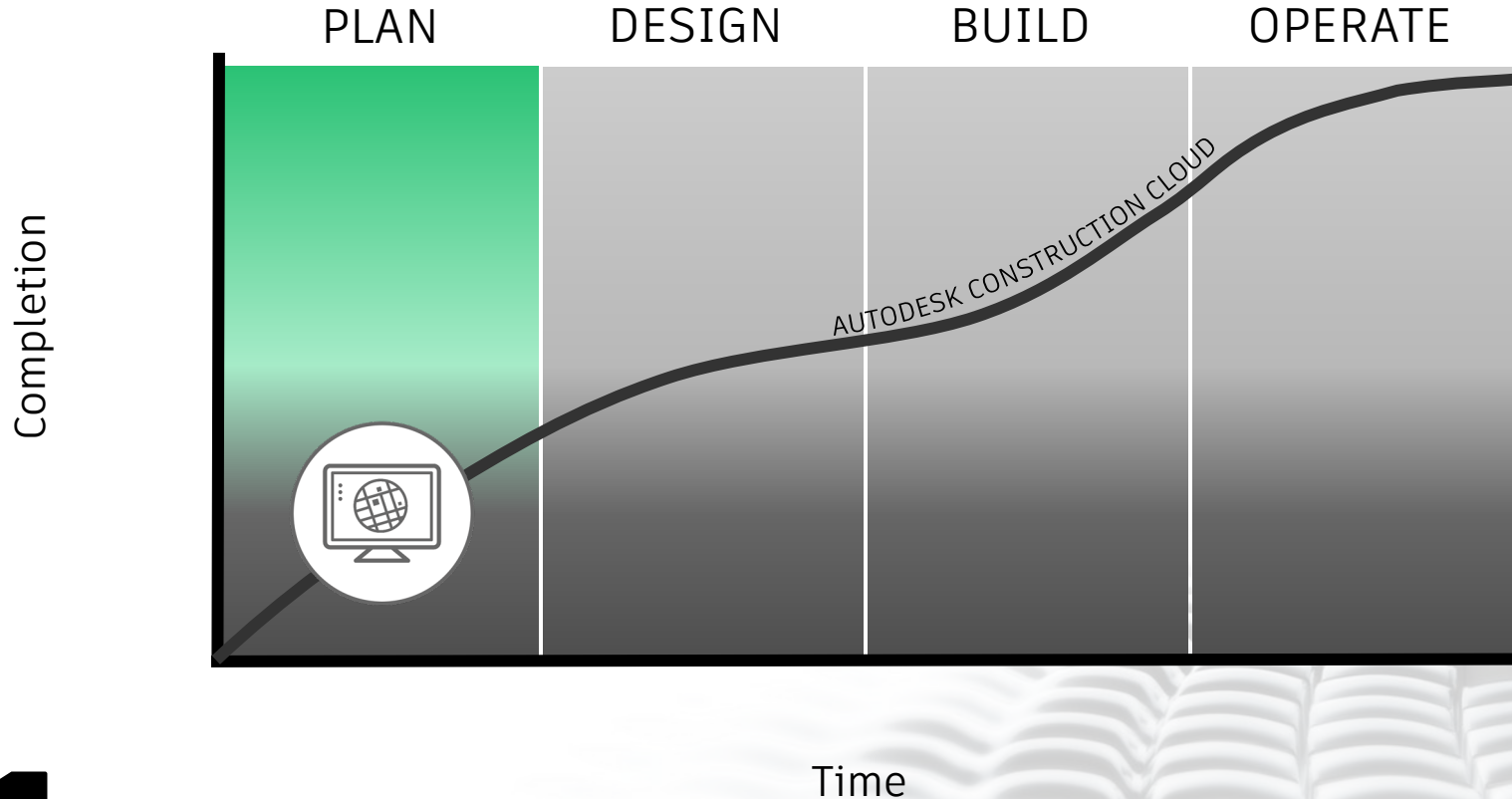
The screenshot displays the Autodesk Docs interface. At the top, a 'Reviews' section shows an 'OPEN #5 - Initial Review' with a due date of 'Sep 18'. Below this, a table lists documents under review:

Name ^	Comments	Description	Version	Markup
100%_RidgeGate_P&P_Sheets.pdf	No comments yet. Add	--	V1	0
RidgeGate_01_MASTER.dwg	No comments yet. Add	--	V7	0

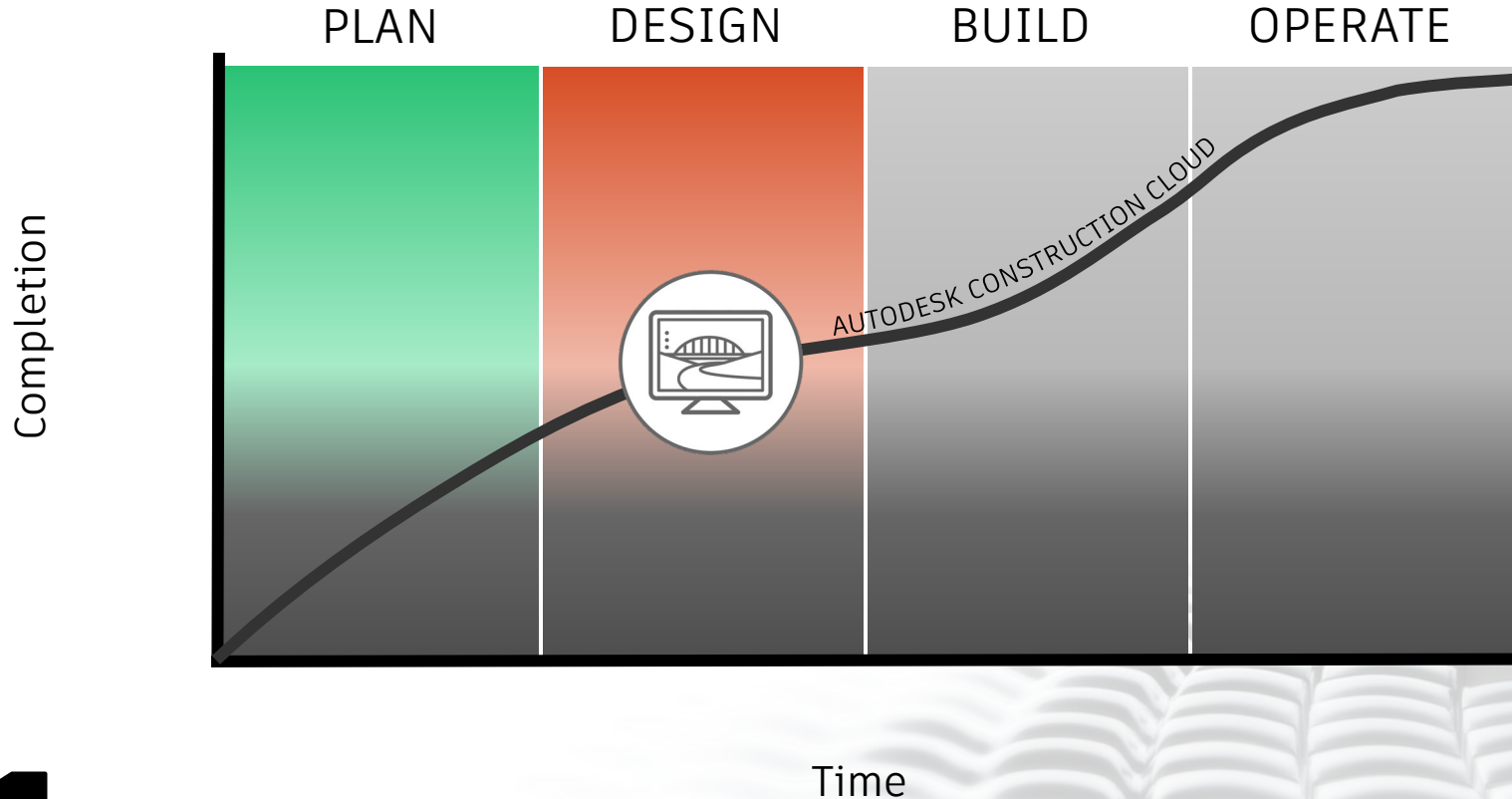
Below the table, a 3D model view of a bridge structure is shown. On the left, a 'Model' panel lists various components like 'Blocks (58)', '3D Solids (292)', 'Polylines (3) (2)', '3D Polylines (27)', 'Other Entities (227)', 'Civil 3D Entities (8) (2)', 'Surfaces (1)', 'RIS_Bridges.rvt - (30)', 'Level 0', 'Level 1', 'Bridge Decks', 'Abutments', 'Bearings', 'Girders', 'Piers', 'Pier Foundations', 'Cross Bracing', 'Alignments', 'Generic Models', and 'RidgeGate_Corridor.dwg'. On the right, a 'Folders' panel shows a hierarchy: 'For the Field' (containing 3D Model Files, As-Built, Consultants, Handover Documents, Look Ahead Schedules, Quantify Models, Specifications, Submittal Documents, and Transmittals) and 'Project Files' (containing Bids, Contracts, Coordination, Correspondence, Drawings, Handover Docs, Quantify Models, Submittal Documents, and Toolbox Talks).

Project Lifecycle

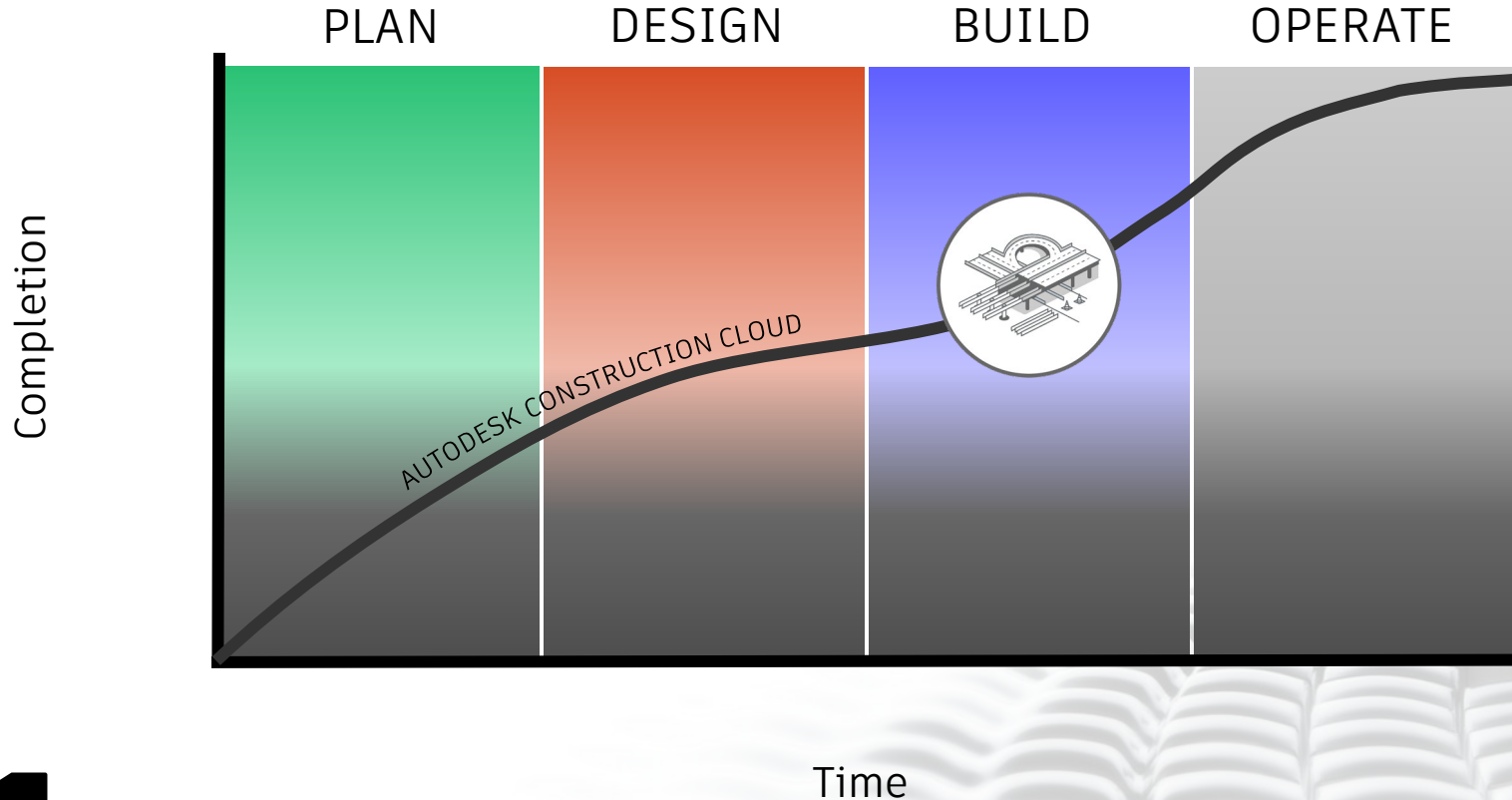
Project Lifecycle



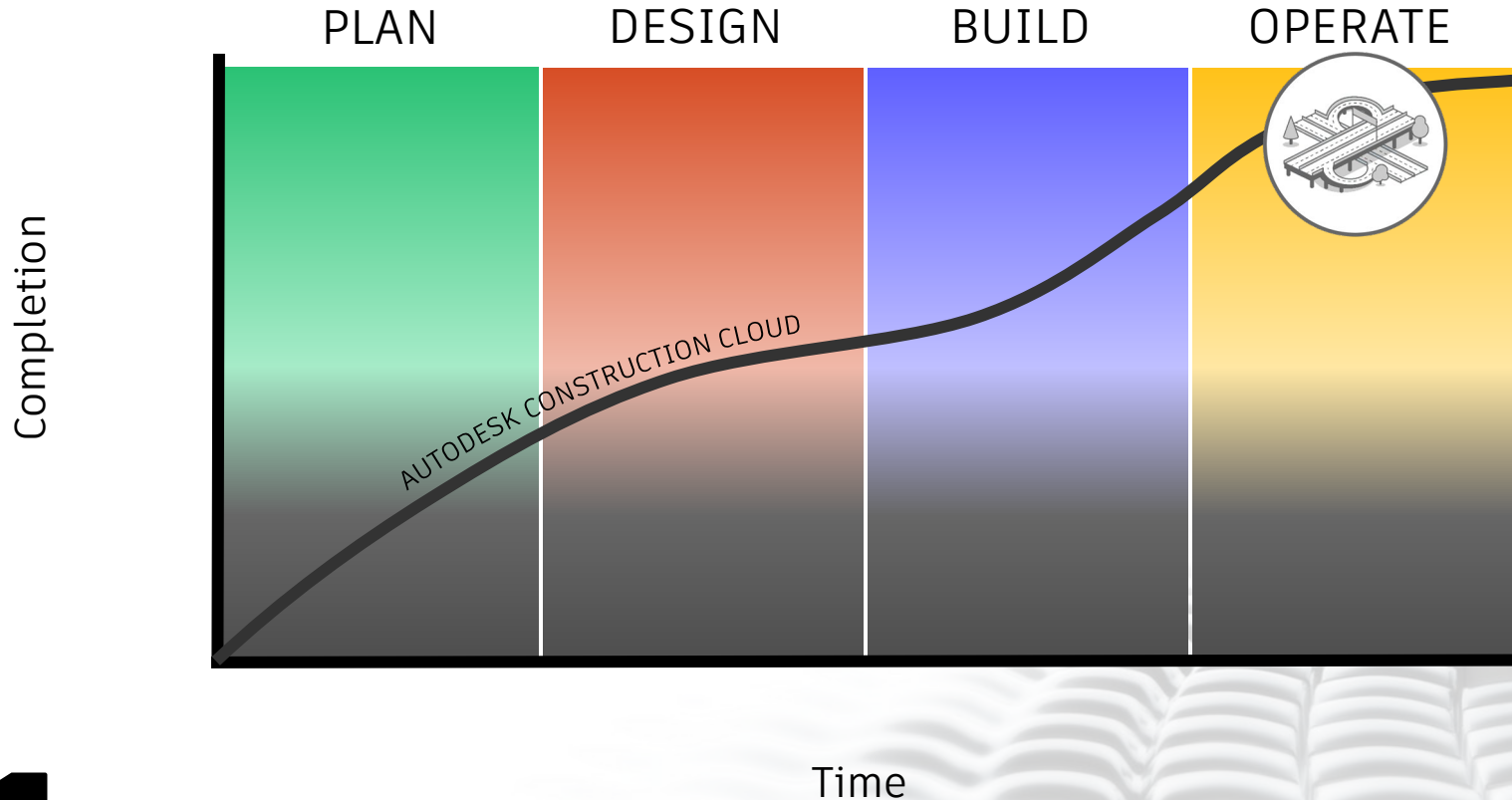
Project Lifecycle



Project Lifecycle

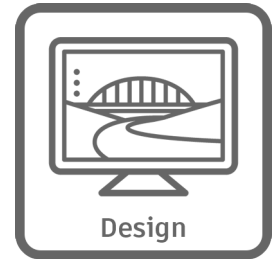
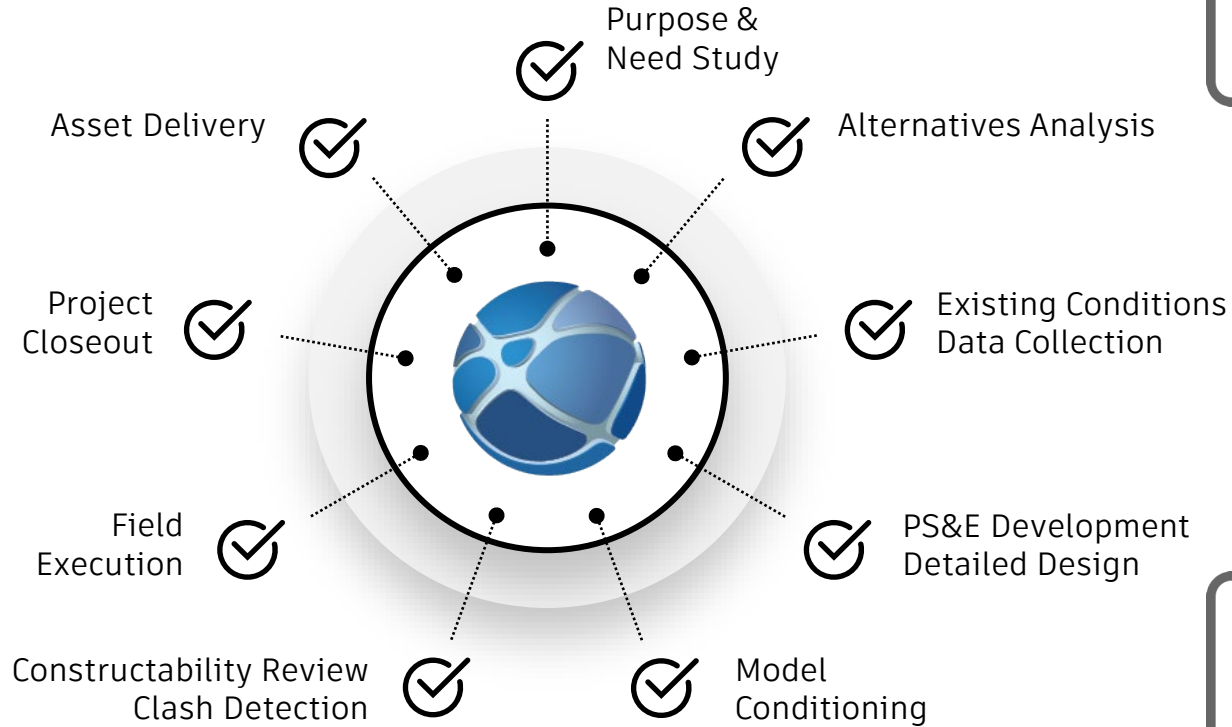


Project Lifecycle



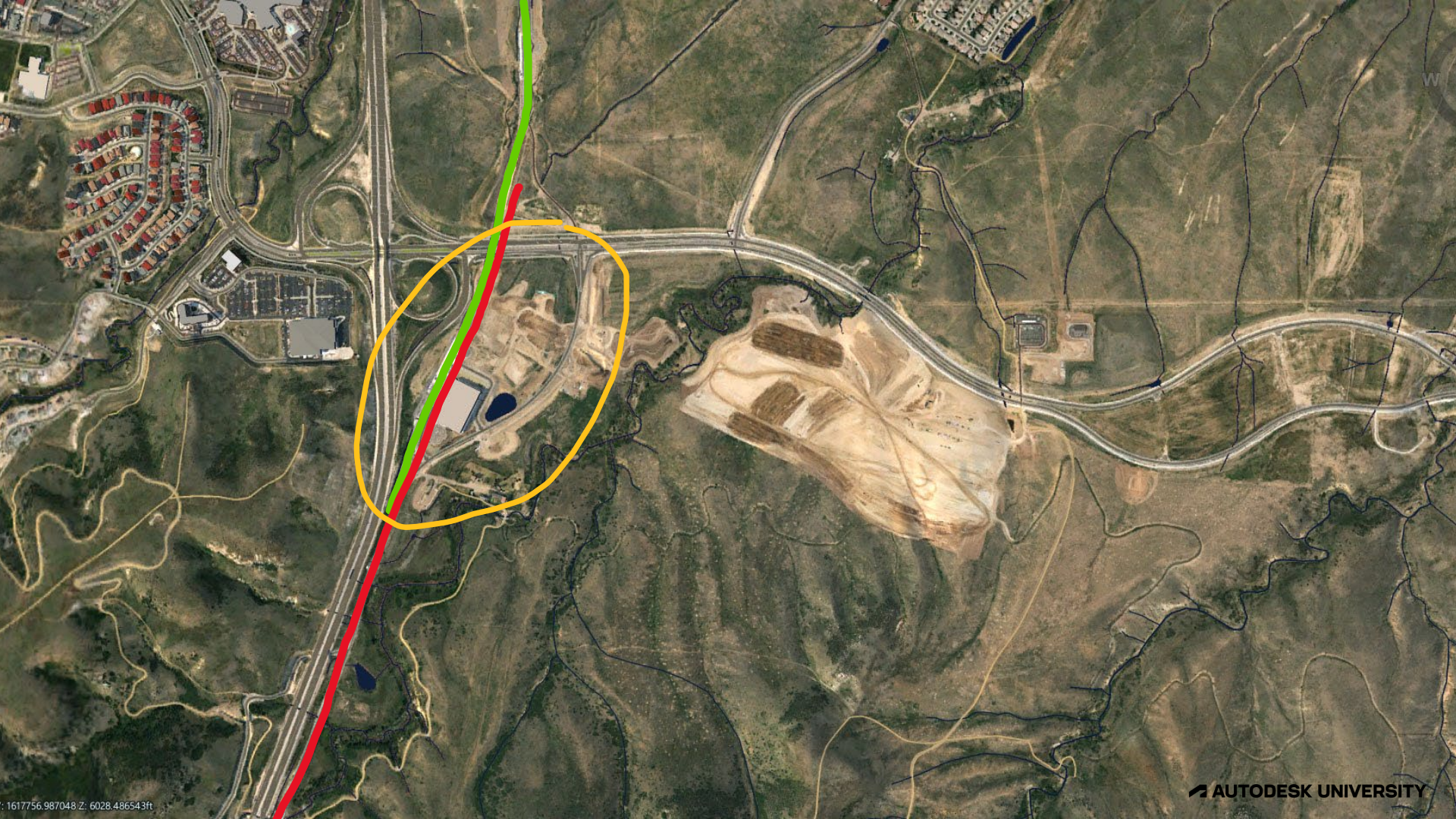
Project Milestones

Project Milestones

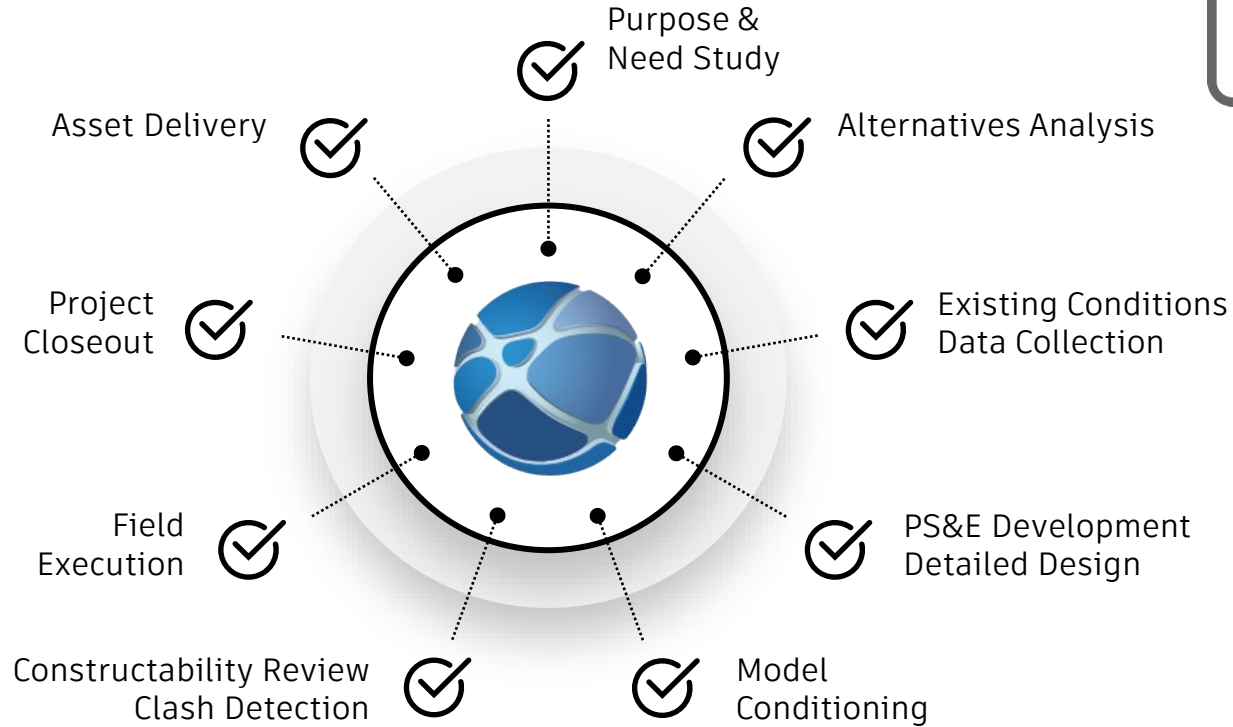
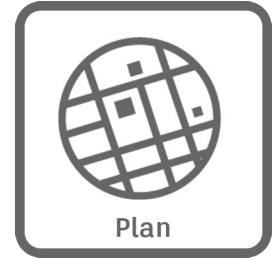


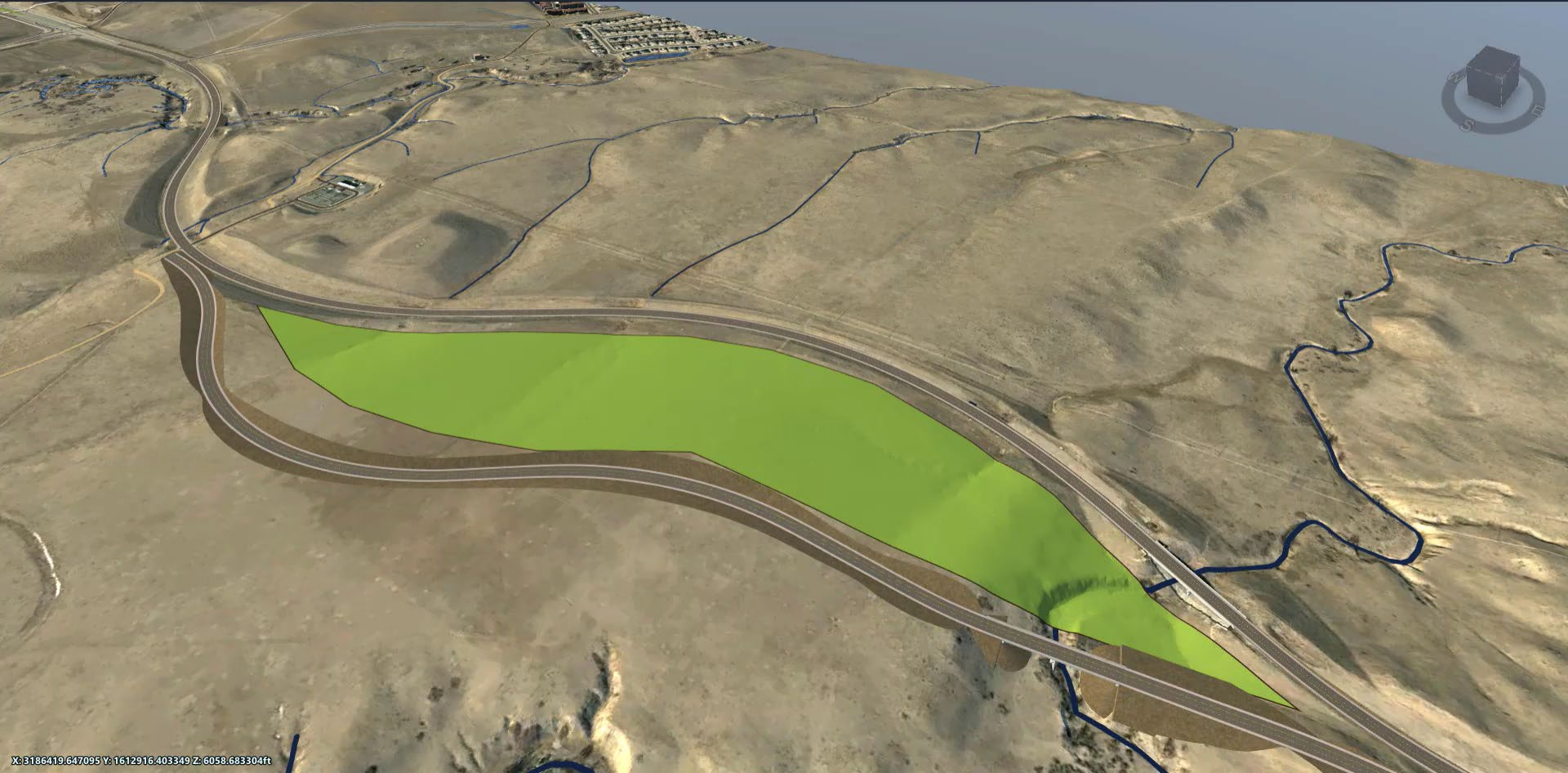
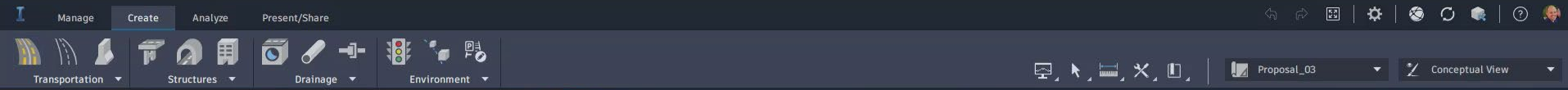
Example Project



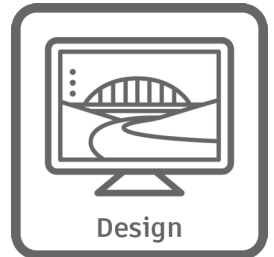
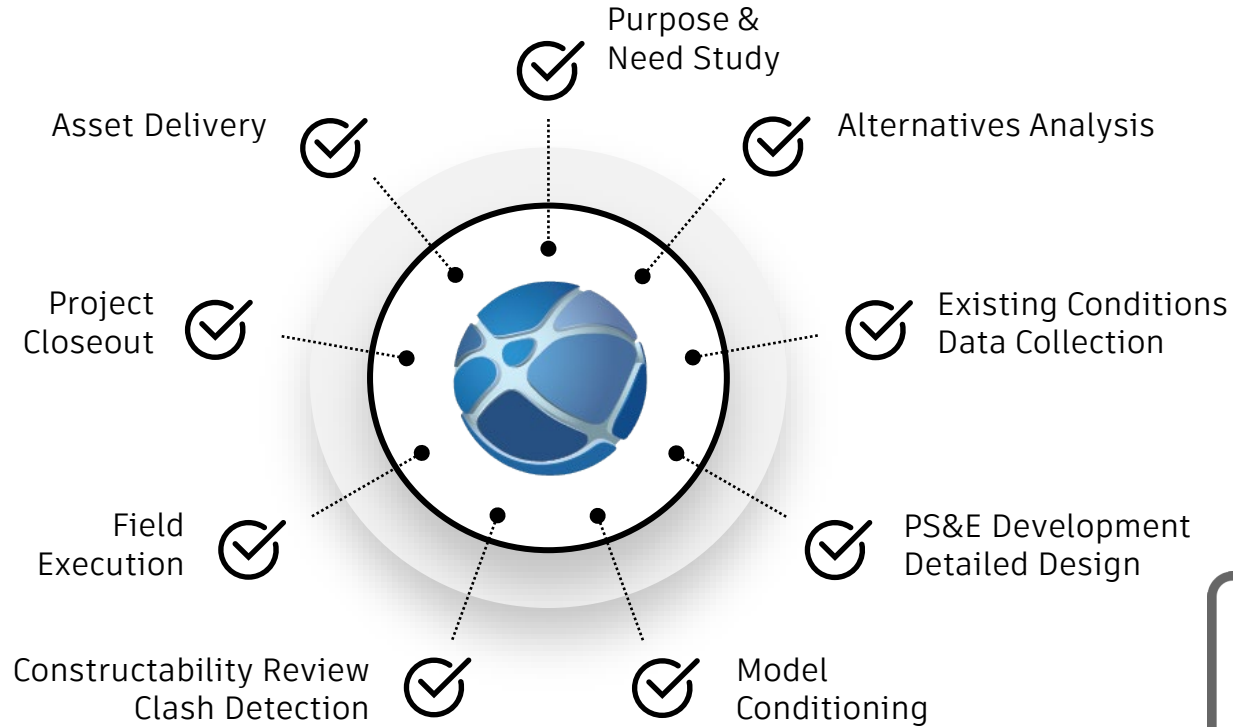


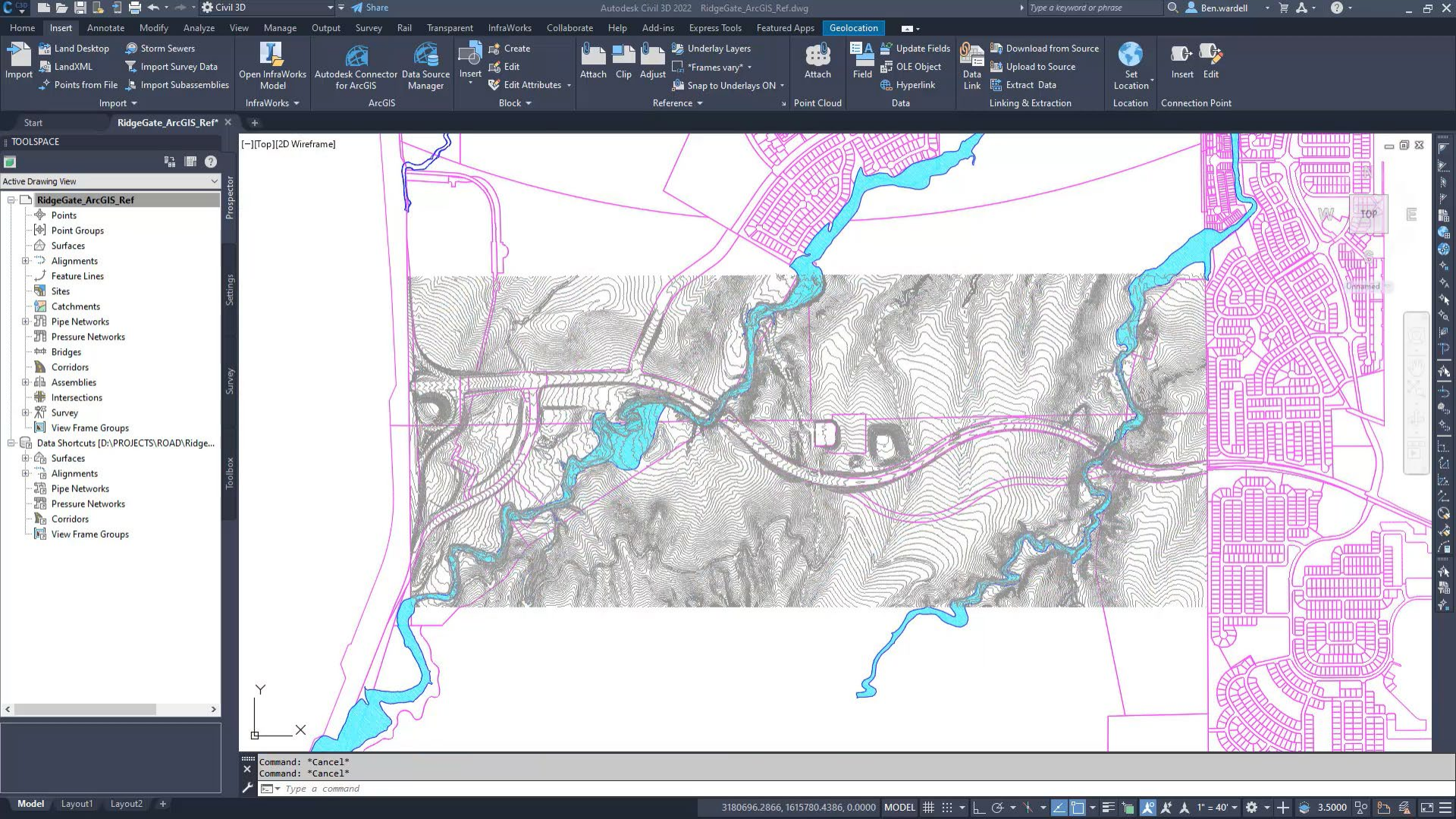
Planning & Concept



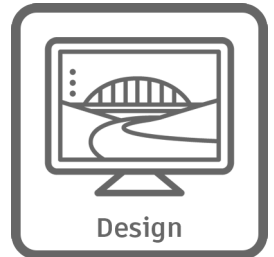
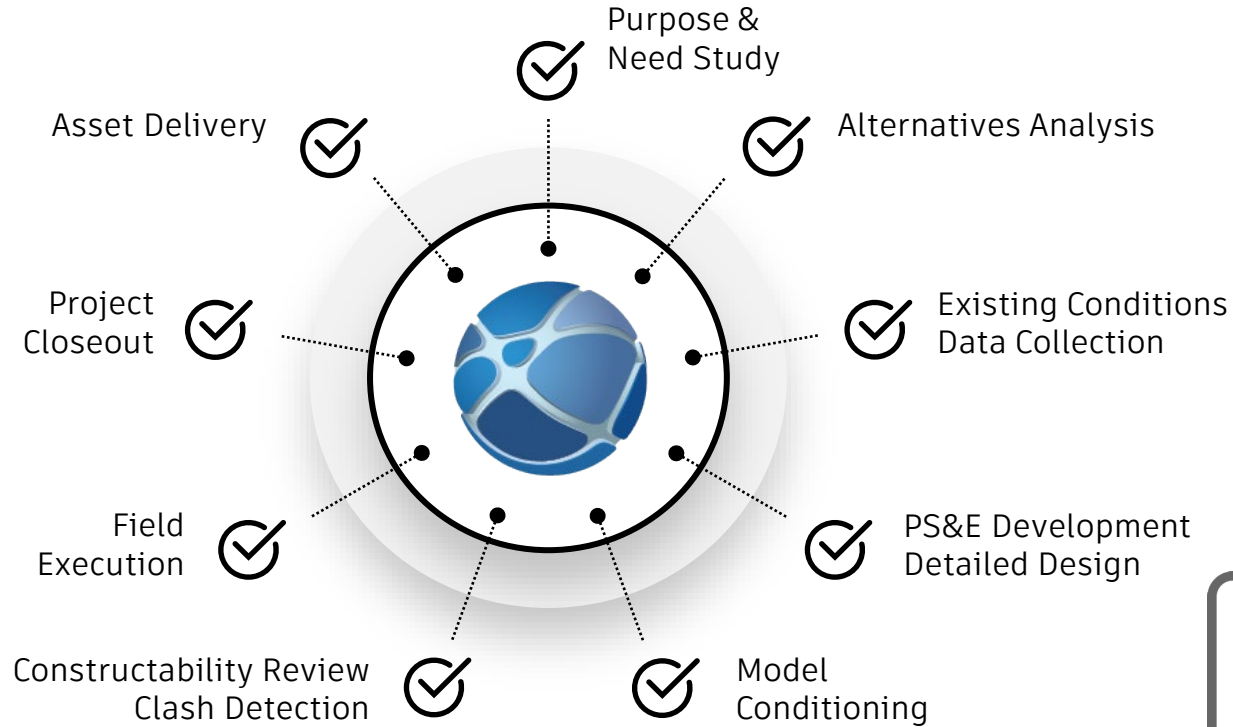


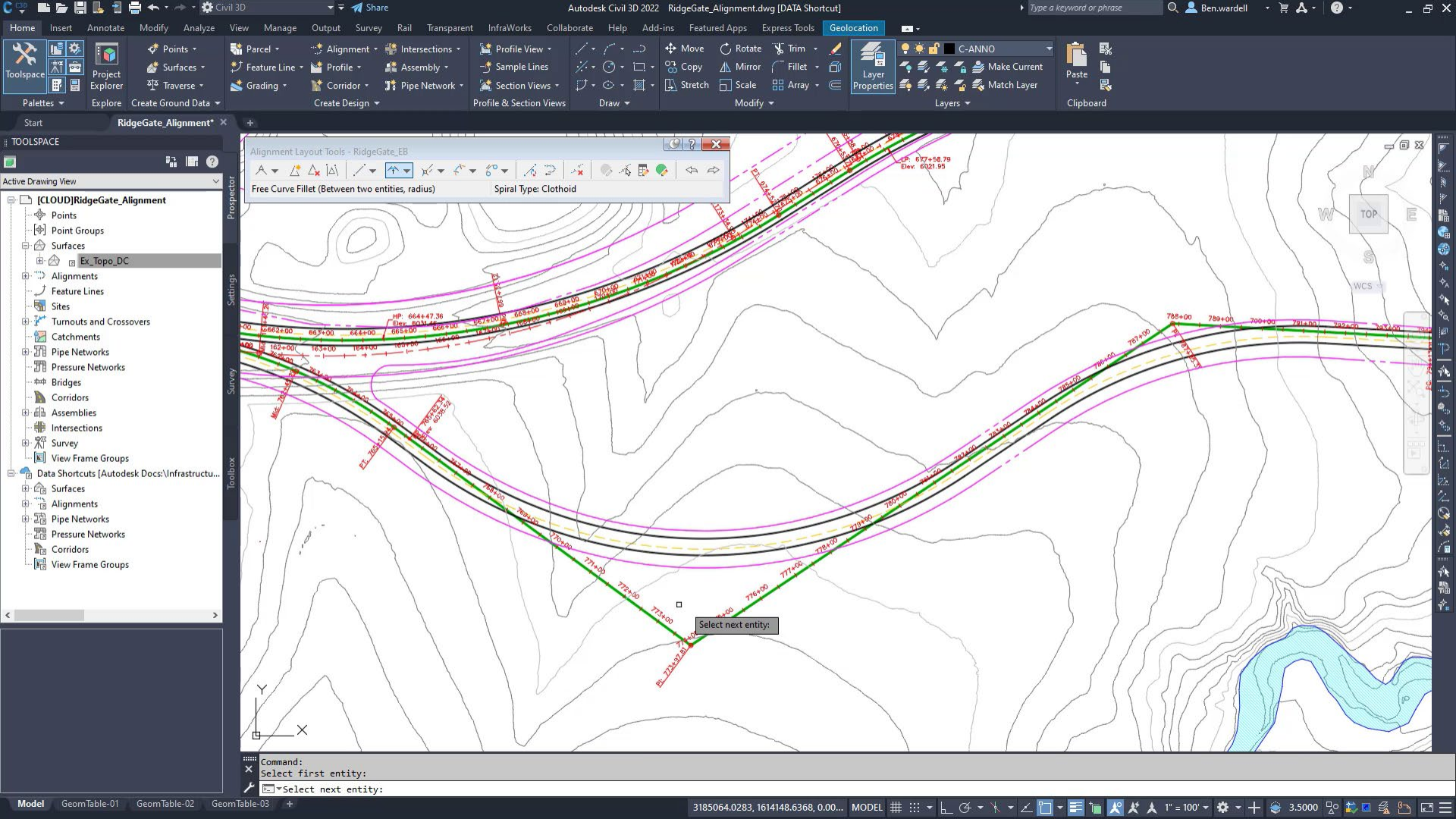
Data Collection





Detailed Design





Design Review

Reviews - Autodesk Docs

acc.autodesk.com/docs/reviews/projects/9179f610-1e9f-42bc-a01c-4c61fd49d35c/dbfa2aa7-fc35-43c0-8ce9-951936c9f08a?pageIndex=1&sort=-sequenceId&filter%5Bstatus%5D=open%2Cclosed%2Cinitiating%2Cfailed%2Cclosing%2Cprocessing

AUTODESK CONSTRUCTION CLOUD

Docs

Files

Reviews

Transmittals

Issues

Reports

Members

Settings

20210610 - Ridgeway Pkwy

Reviews

OPEN #4 - Initial Review

Time left: 3 days

90% Roadway Submittal

Submit review

Release task

Void entire review

Export report

0 of 2 reviews submitted.

Name ^	Comments	Description	Version	Markup
RG_Plan-Profile_Sheets 01.pdf	No comments yet. Add	--	V1	0
RG_Plan-Profile_Sheets 02.pdf	No comments yet. Add	--	V1	0
RG_Plan-Profile_Sheets 03.pdf	No comments yet. Add	--	V1	0
RG_Plan-Profile_Sheets 04.pdf	No comments yet. Add	--	V1	0
RG_Plan-Profile_Sheets 05.pdf	No comments yet. Add	--	V1	0
RG_Plan-Profile_Sheets 06.pdf	No comments yet. Add	--	V1	0
RG_Plan-Profile_Sheets 07.pdf	No comments yet. Add	--	V1	0
RG_Plan-Profile_Sheets 08.pdf	No comments yet. Add	--	V1	0
RG_Plan-Profile_Sheets 09.pdf	No comments yet. Add	--	V1	0
RG_Plan-Profile_Sheets 10.pdf	No comments yet. Add	--	V1	0
RG_Plan-Profile_Sheets 11.pdf	No comments yet. Add	--	V1	0
RG_Plan-Profile_Sheets 12.pdf	No comments yet. Add	--	V1	0
RG_Plan-Profile_Sheets 13.pdf	No comments yet. Add	--	V1	0
RG_Plan-Profile_Sheets 14.pdf	No comments yet. Add	--	V1	0
RG_Plan-Profile_Sheets 15.pdf	No comments yet. Add	--	V1	0

PROGRESS

Initiator

Initial Review

Ben Wardell Sep 9, 10:05 AM
<ben.wardell@autodesk.com>
Submitted to Reviewer

Reviewer

Initial Revi... (0/2 submitted)

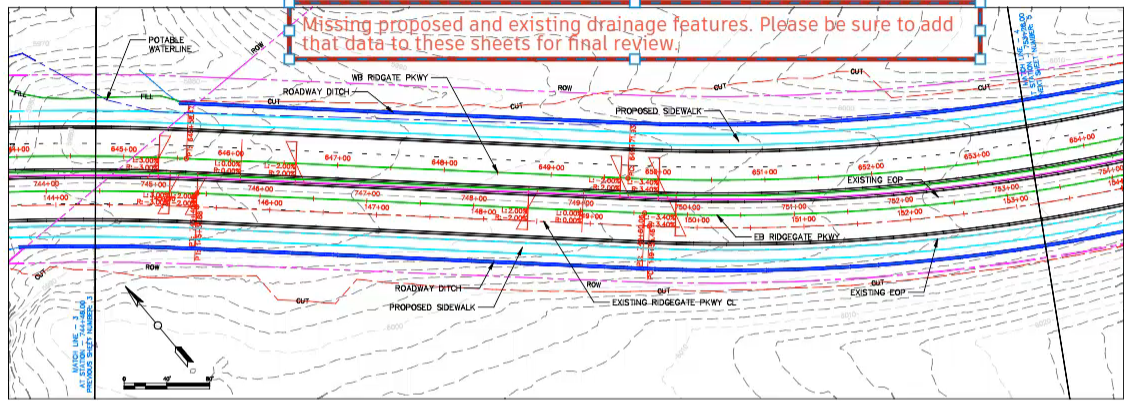
Drew Olsen, John Sa... [Send email notification](#)

Ben Wardell
<ben.wardell@autodesk.com>

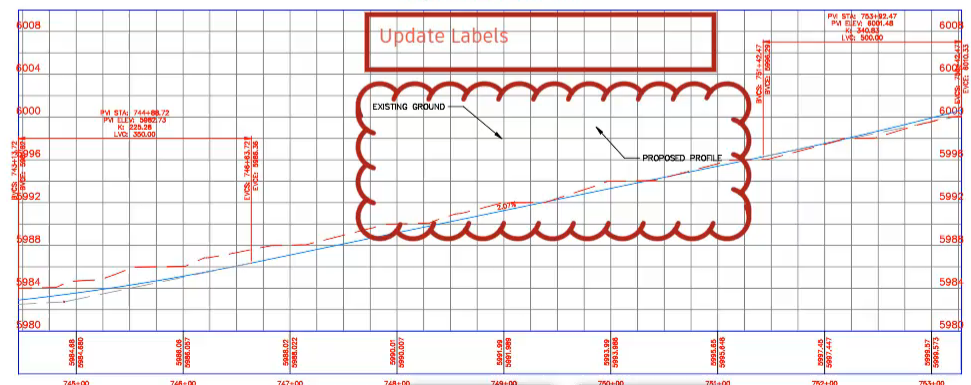


RidgeGate_Corridor.dwg
7/9/2021

Edit Duplicate Unpublish Delete



RidgeGate_EB PROFILE



REV	REVISED BY	REVISED DATE	BY	DATE
1	JFC	100%	ABC	07/10/21

www.autodesk.com

RIDGEGATE PARKWAY

ROADWAY PLAN & PROFILE

ST-DOT

PROJECT: ABC
DRAWING: ZYX
DATE: 07/10/21
SCALE: 1"=40'
SHEET: 20210710-RG
PP-06

Text X

Details Links

Unpublish Delete

Text

Text

Missing proposed and existing drainage features. Please be sure to add that data to these sheets for final review.

Text Color

Red

Font Size (16)

A A A A A

Border

Border Color

Red

Border Opacity (100%)

Border Thickness (4)

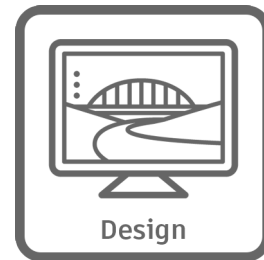
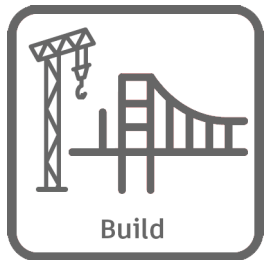
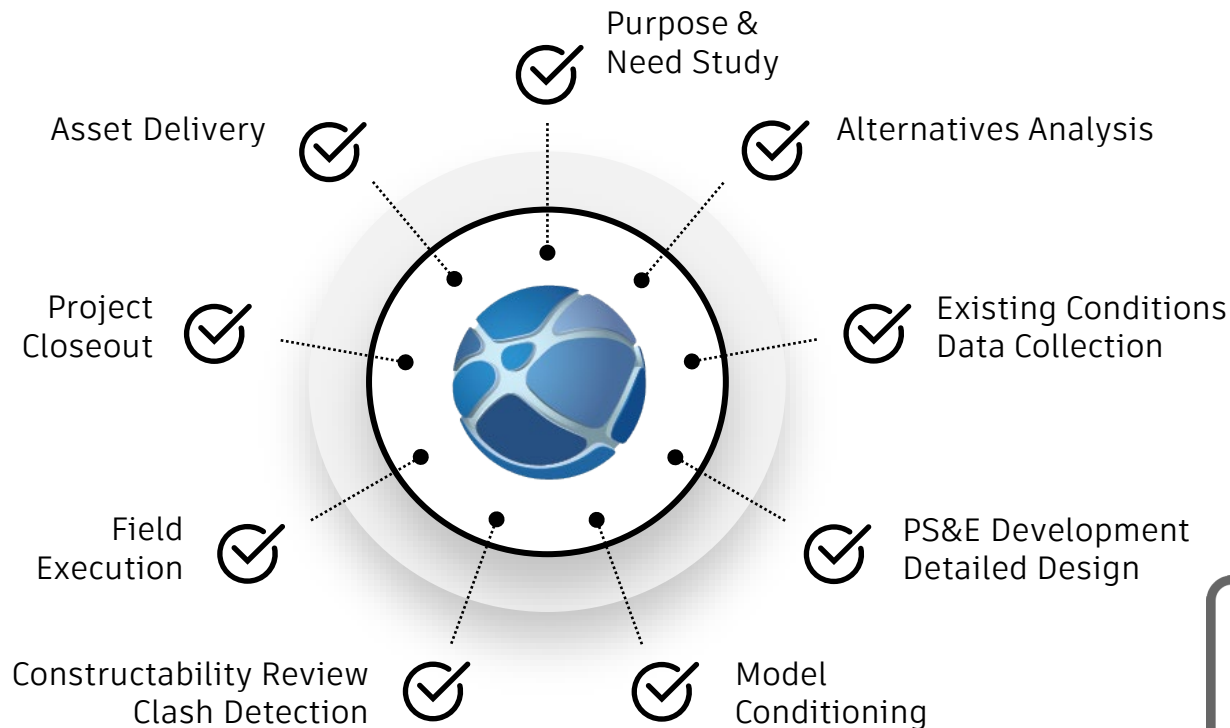
Fill

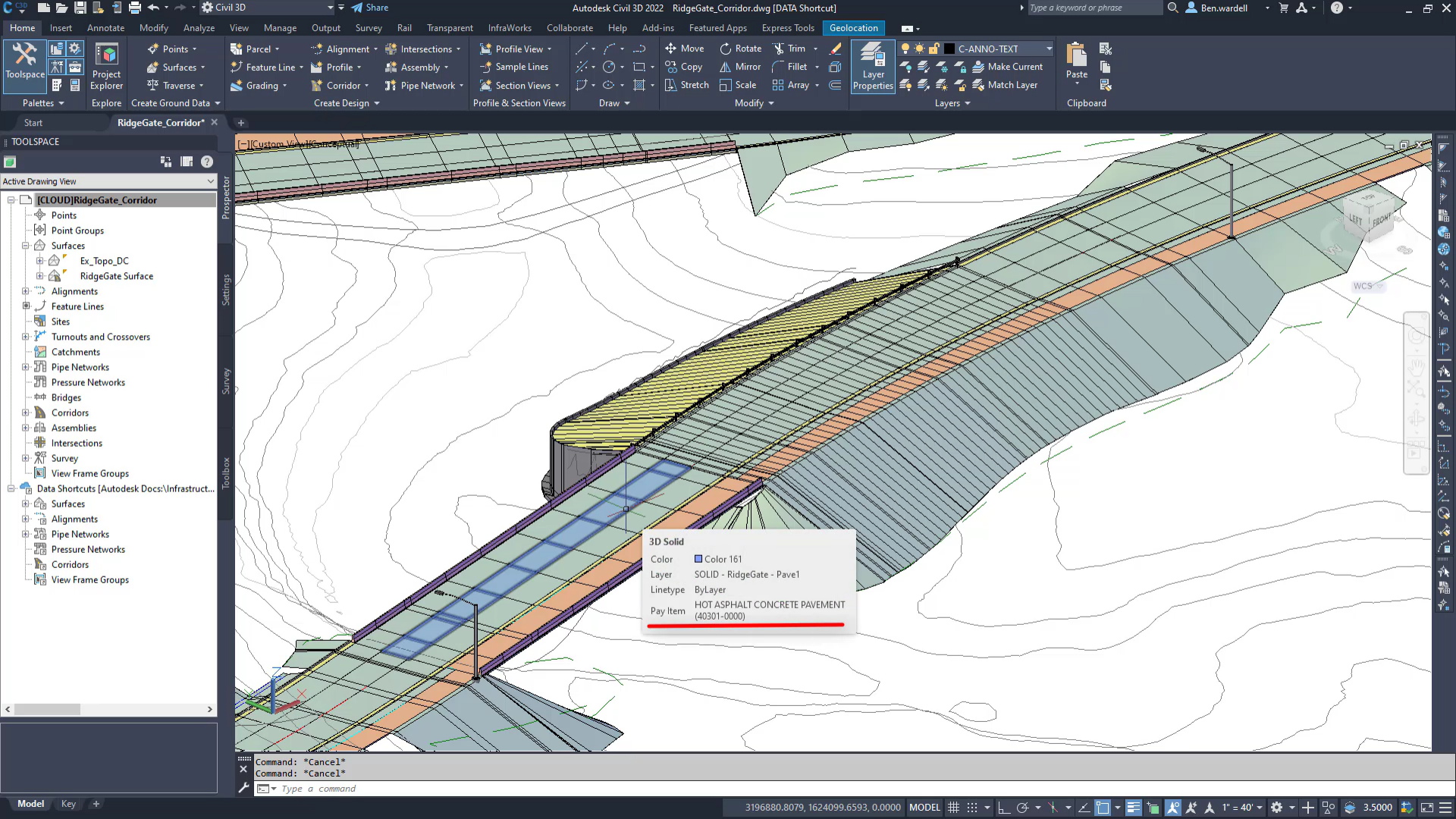
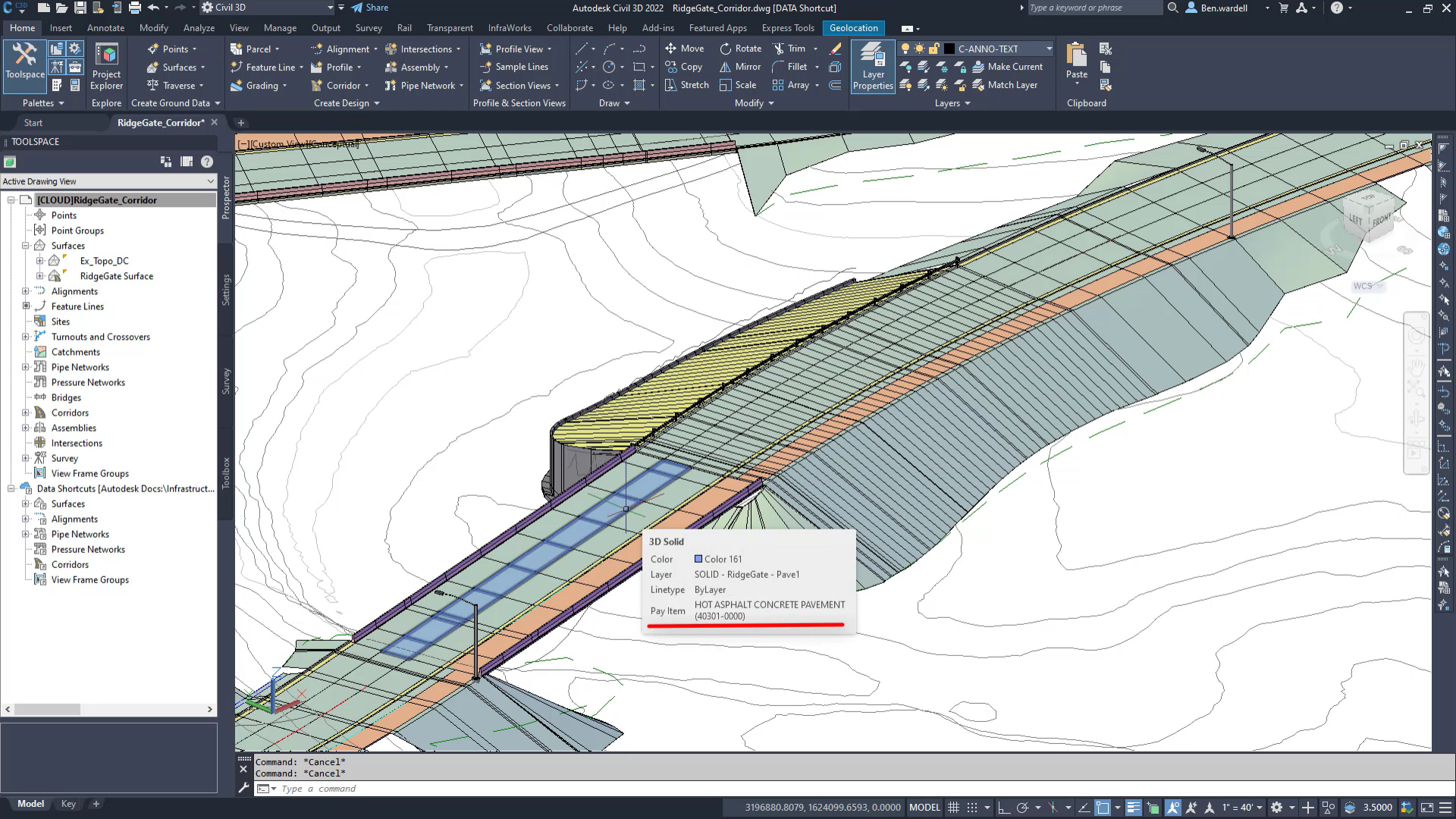
Fill Color

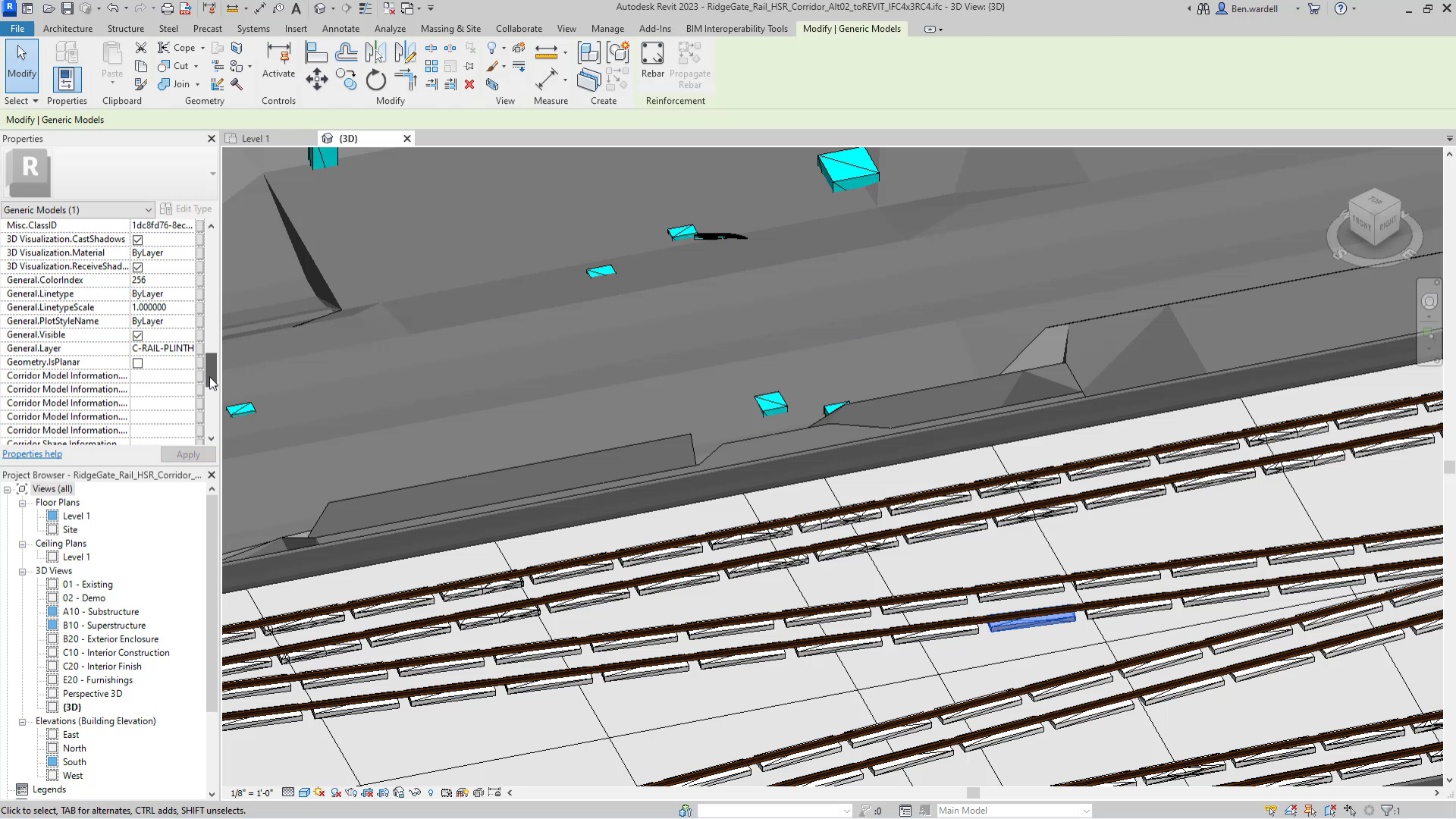
Transparent

Fill Opacity (0%)

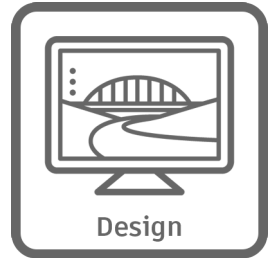
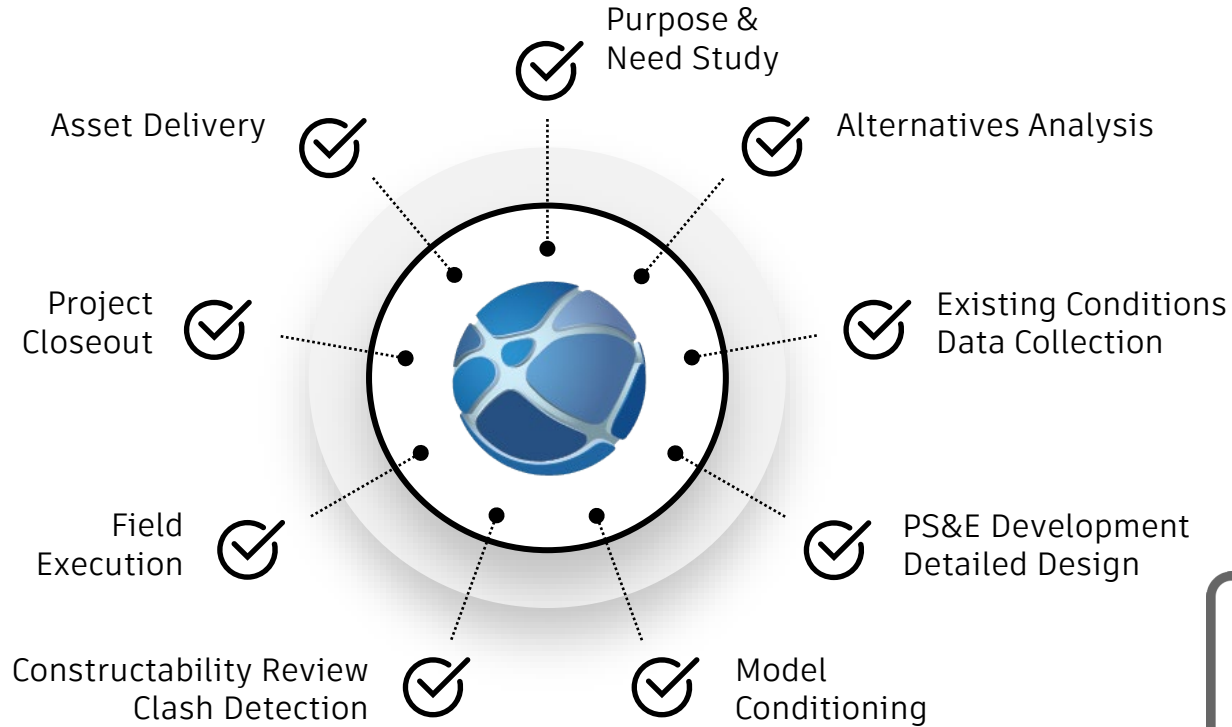
Model Conditioning







Constructability Review



Viewing 2 models (Unsaved View)

Clashes

Filter and group

Primary model

RidgeGate_Rail_HSR_OCS.dwg

Clash with

RidgeGate_Rail_HSR_Corr-Solids_Alt02.dwg

Group by

Object

Show clashes above (inches)

0

485 clashes (3 selected)

HS_OCS_L_TENS

2 clashes with 1 other model

HS_OCS_L_TENS

1 clash with 1 other model

HS_OCS_L_TENS

1 clash with 1 other model

HS_OCS_L_TENS

1 clash with 1 other model

HS_OCS_L_TENS

1 clash with 1 other model

HS_OCS_L_TENS

1 clash with 1 other model

HS_OCS_L_TENS

1 clash with 1 other model

Issue #30

Details

Activity log

Unpublish

Delete

May 20, 2022

Start date

May 16, 2022

Root cause

Unspecified

References

Add references

Photos

screenshot_2022-05-...

May 14, 2022 12:29 PM

Comments

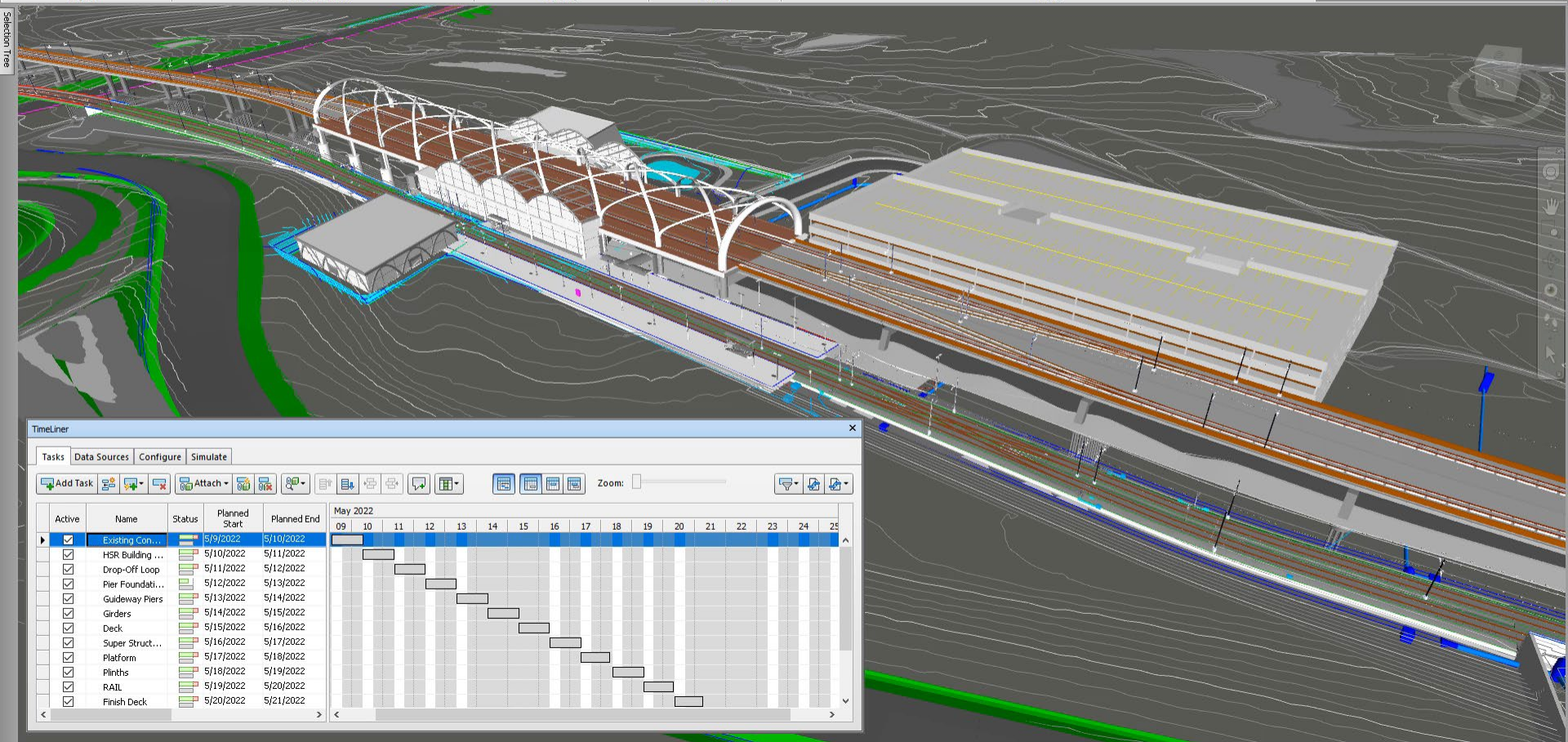
No comments

Revise OCS mount in tunnel. Pole will provide clearance required in tunnel

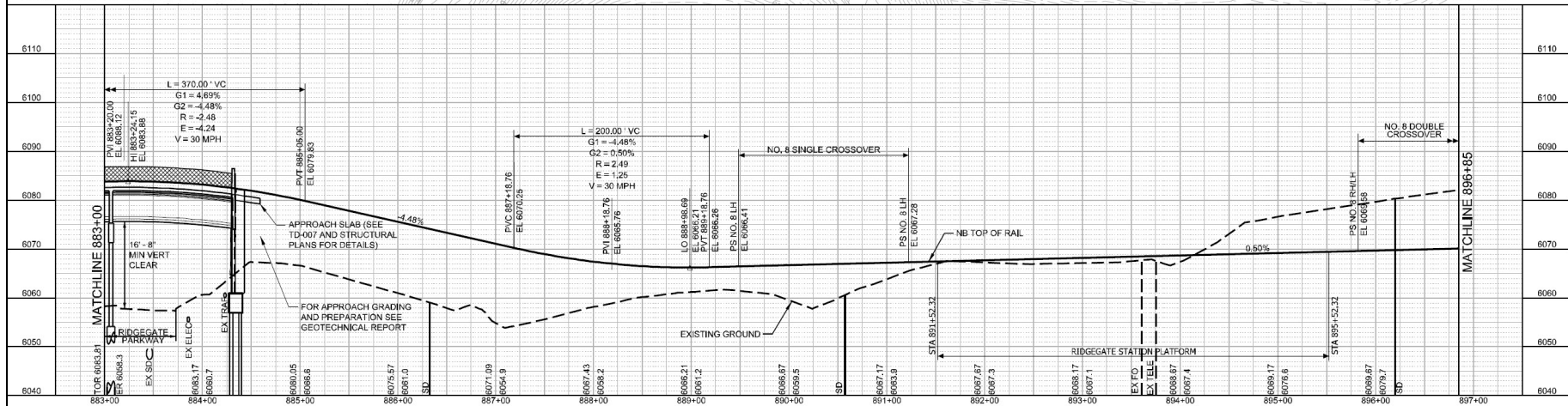
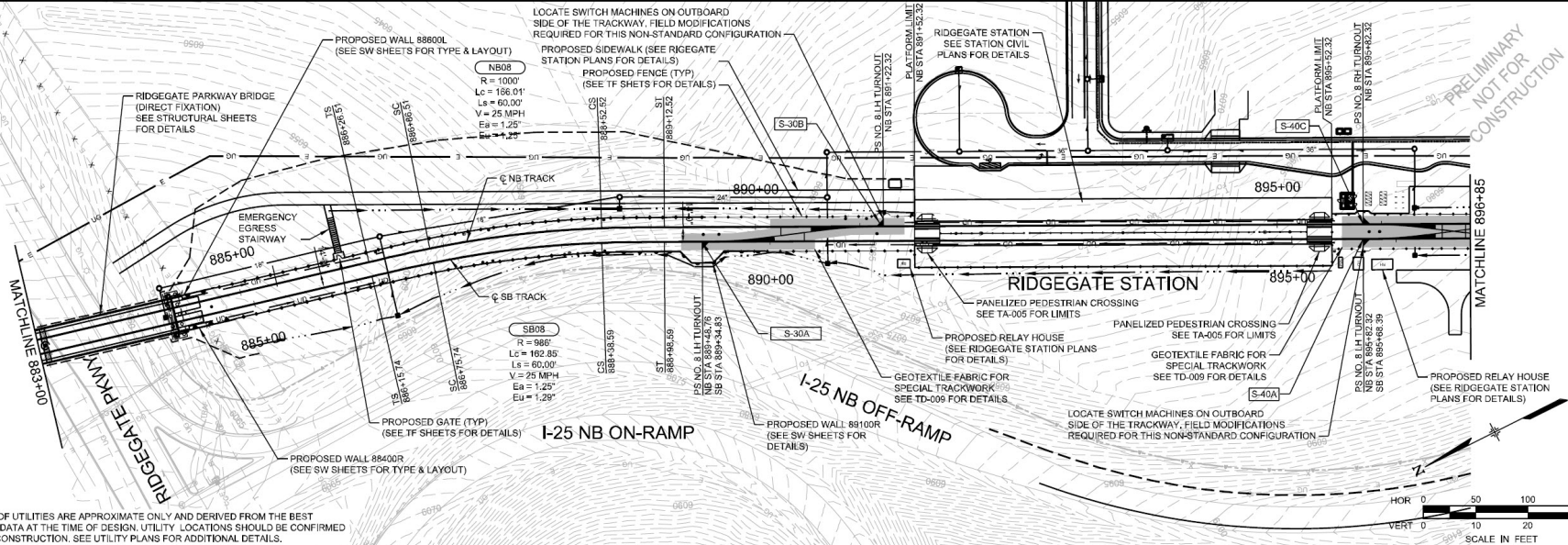
Cancel

Submit

Created by Ben Wardell on May 14, 2022



Case Study



Clashes

Filter and group

Primary model
RidgeGate_COMB_Ties-Plinths.dwg

Clash with
RidgeGate_COMB_Rail_Systems.dwg

Group by
Object

Show clashes above (inches) 0

15 clashes (1 selected)

☐ CONCTIE
1 clash with 1 other model

☐ CONCTIE
1 clash with 1 other model

☒ PS_LT
1 clash with 1 other model

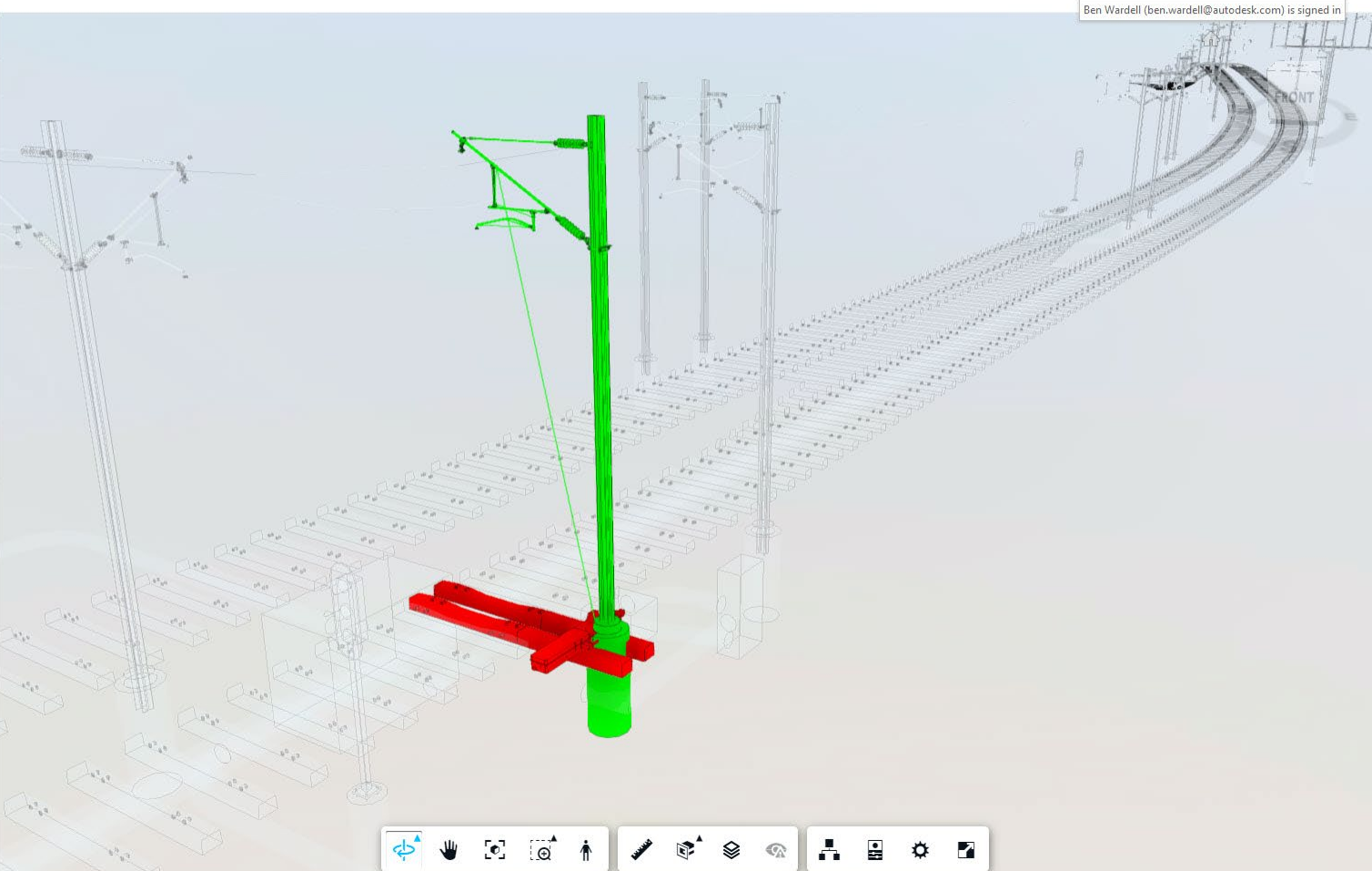
☐ Surface
2 clashes with 1 other model

☐ Surface
2 clashes with 1 other model

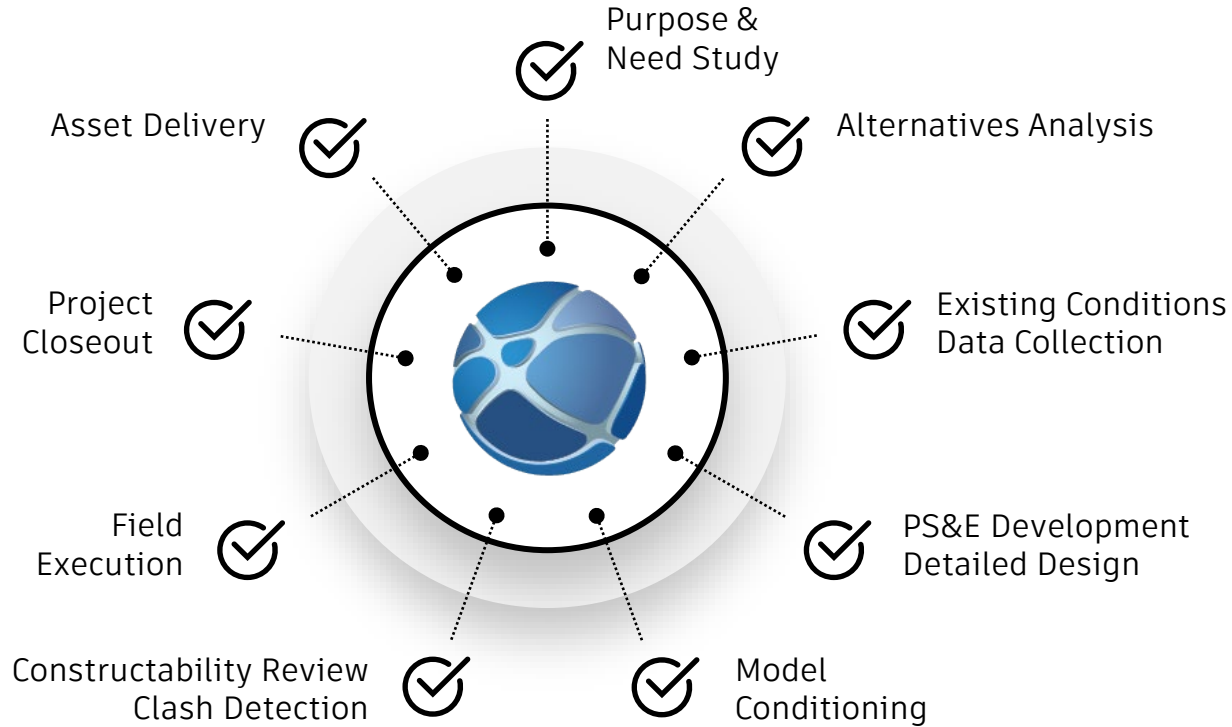
☐ Surface [260F0]
1 clash with 1 other model

Not an issue

+ Create Issue



Field Execution



Good morning, John

Here's what's happening on your project today.

Ridgeway Parkway
Parker, CO
80124 United States

Project progress

3 of 8 milestones complete
19 days left in this project

Target completion date

Oct 31, 2021

Debrief
Due in 3 days



Show milestones

Quick links

80

+ Sheets

12

+ Members

Work status

Project assigned work

5 overdue issues

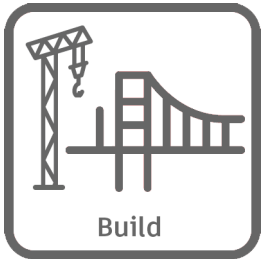
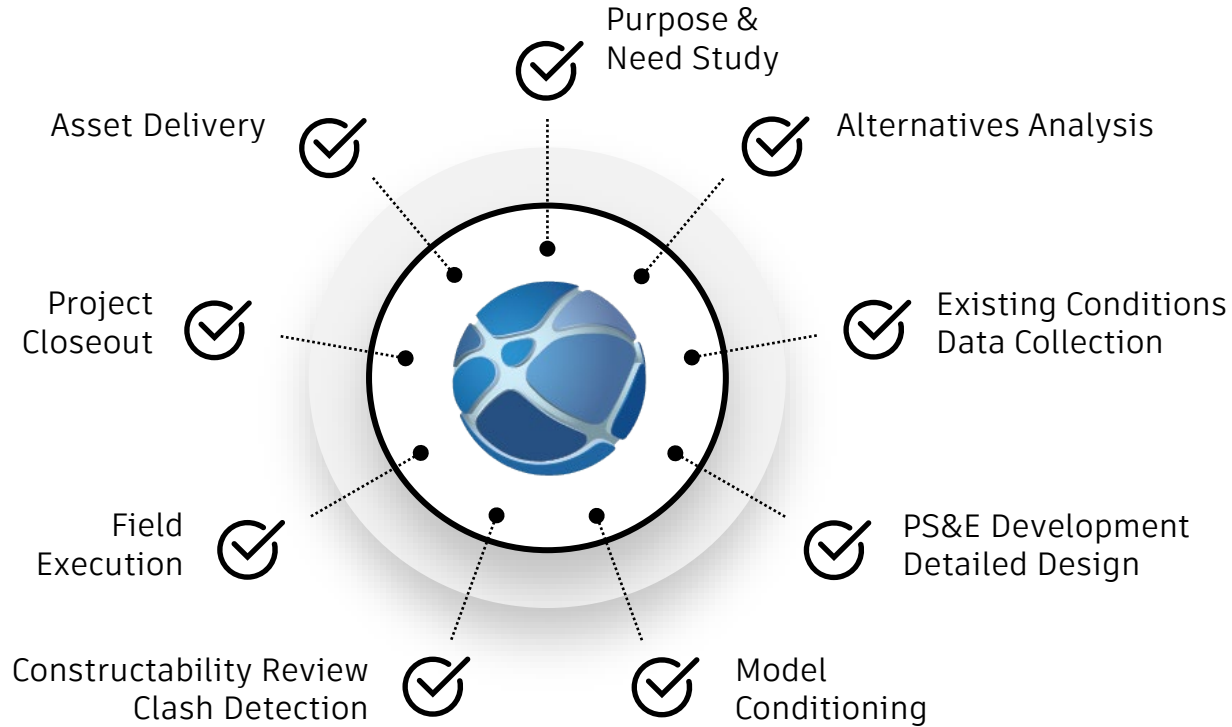
1 overdue RFI

Recent activity

View all

- An issue was closed
(#16) Field Evaluate Existing Culverts
Ben Wardell - yesterday at 5:38 PM
- A comment was added on an issue
(#16) Field Evaluate Existing Culverts
Ben Wardell - yesterday at 5:38 PM
- 12 photos were uploaded

Project Closeout





Build ▾



20210610 - Ridgeway Pkwy ▾



Drew Olsen ▾



Home



Sheets



Files



Issues



Forms



Photos



RFIs



Submittals



Meetings



Progress Tracking



Schedule



Assets



Reports

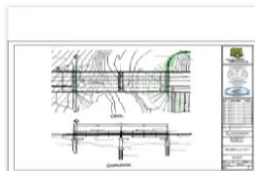


Members



Settings

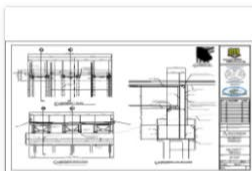
Sheets

[Deleted sheets](#) [Publish log](#) [Settings ▾](#)[+ Add sheets](#)[Export ▾](#)

BR-01

GENERAL LAYOUT

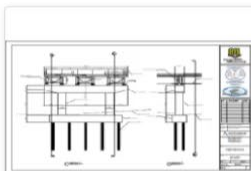
Manzy Bridge IFC



BR-02

ABUTMENT 1 DETAILS

Manzy Bridge IFC



BR-03

PIER DETAILS

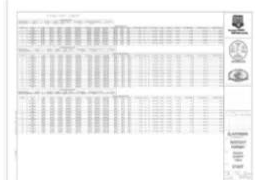
Manzy Bridge IFC



GT-01

Roadway Geometry

RidgeGate Parkway Road...



GT-02

Roadway Profile

RidgeGate Parkway Road...



GT-03

Roadway Superelevation

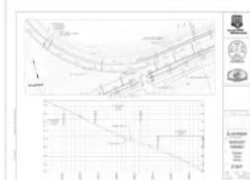
RidgeGate Parkway Road...



IN-01

INDEX SHEET

100% Index Sheet Update



PP-01

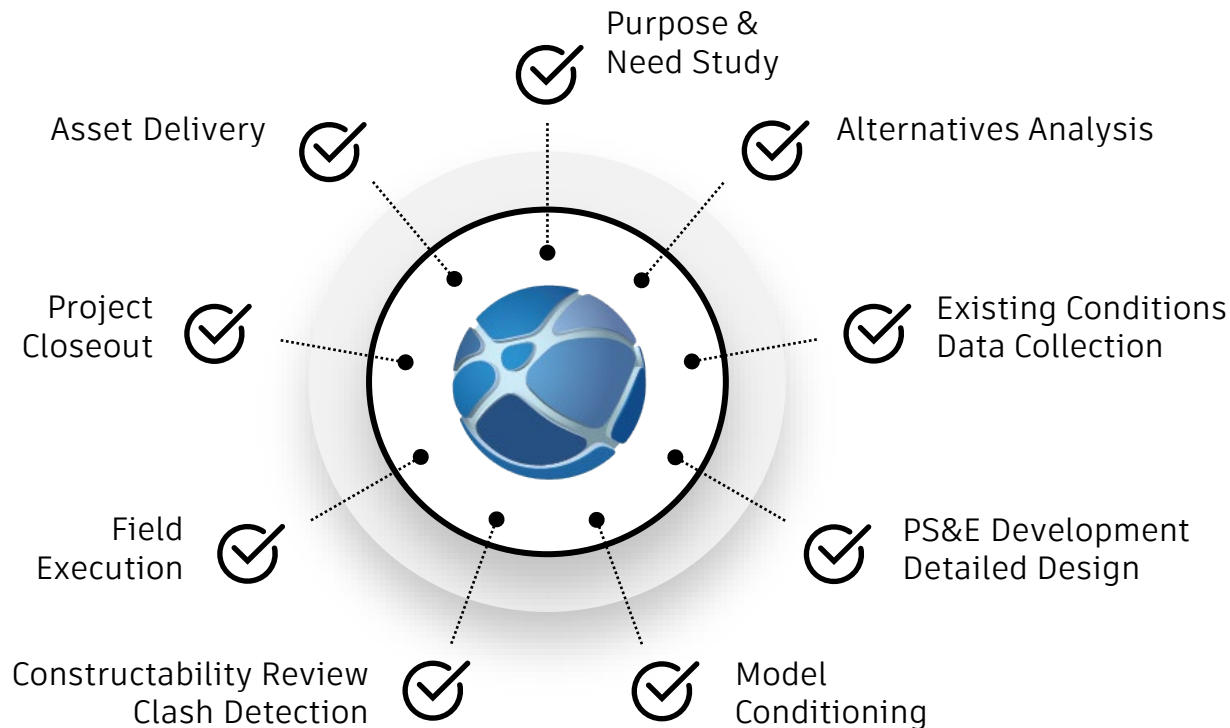
ROADWAY PLAN & PROFILE 01

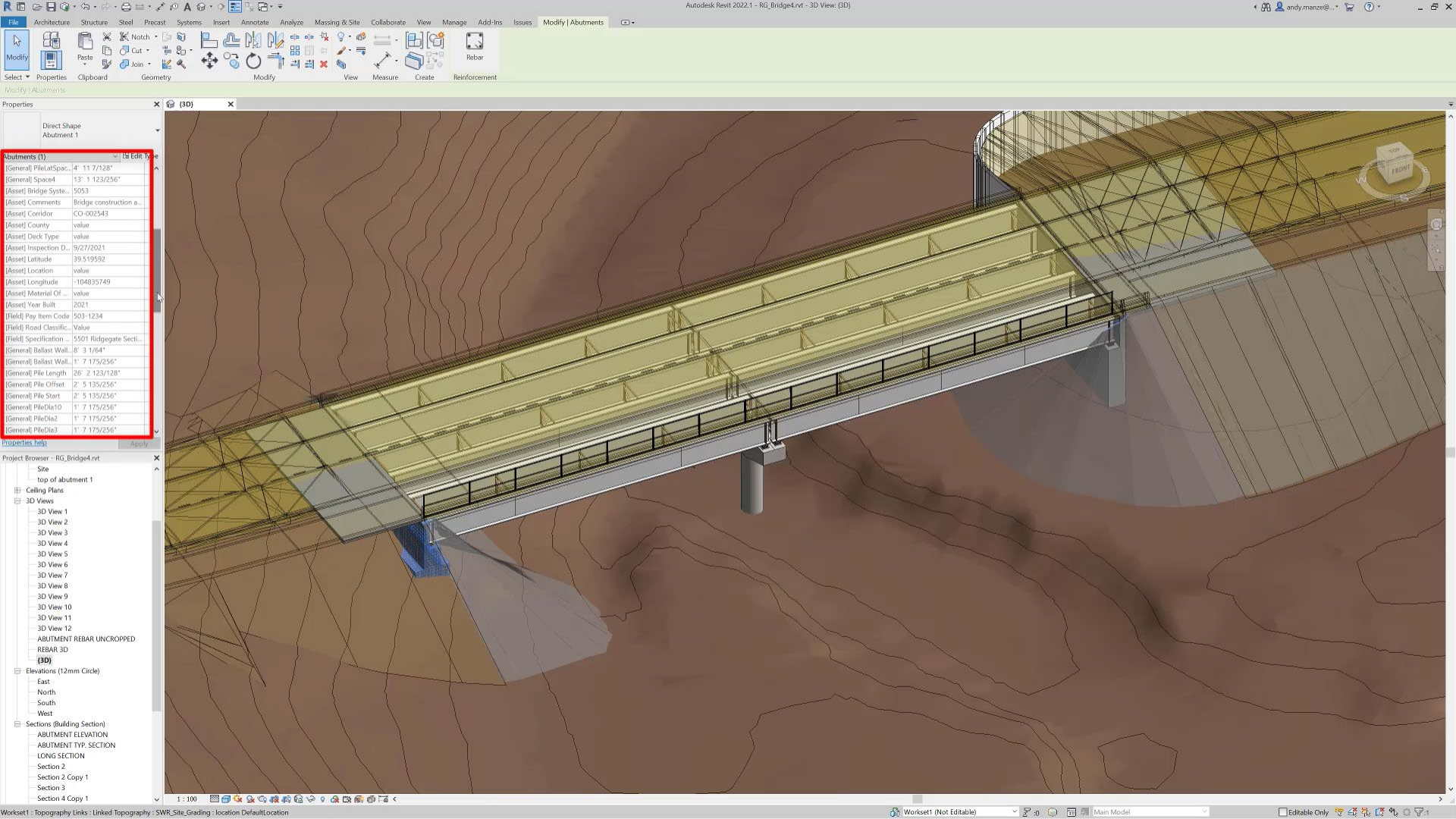
100% Roadway Plan She...

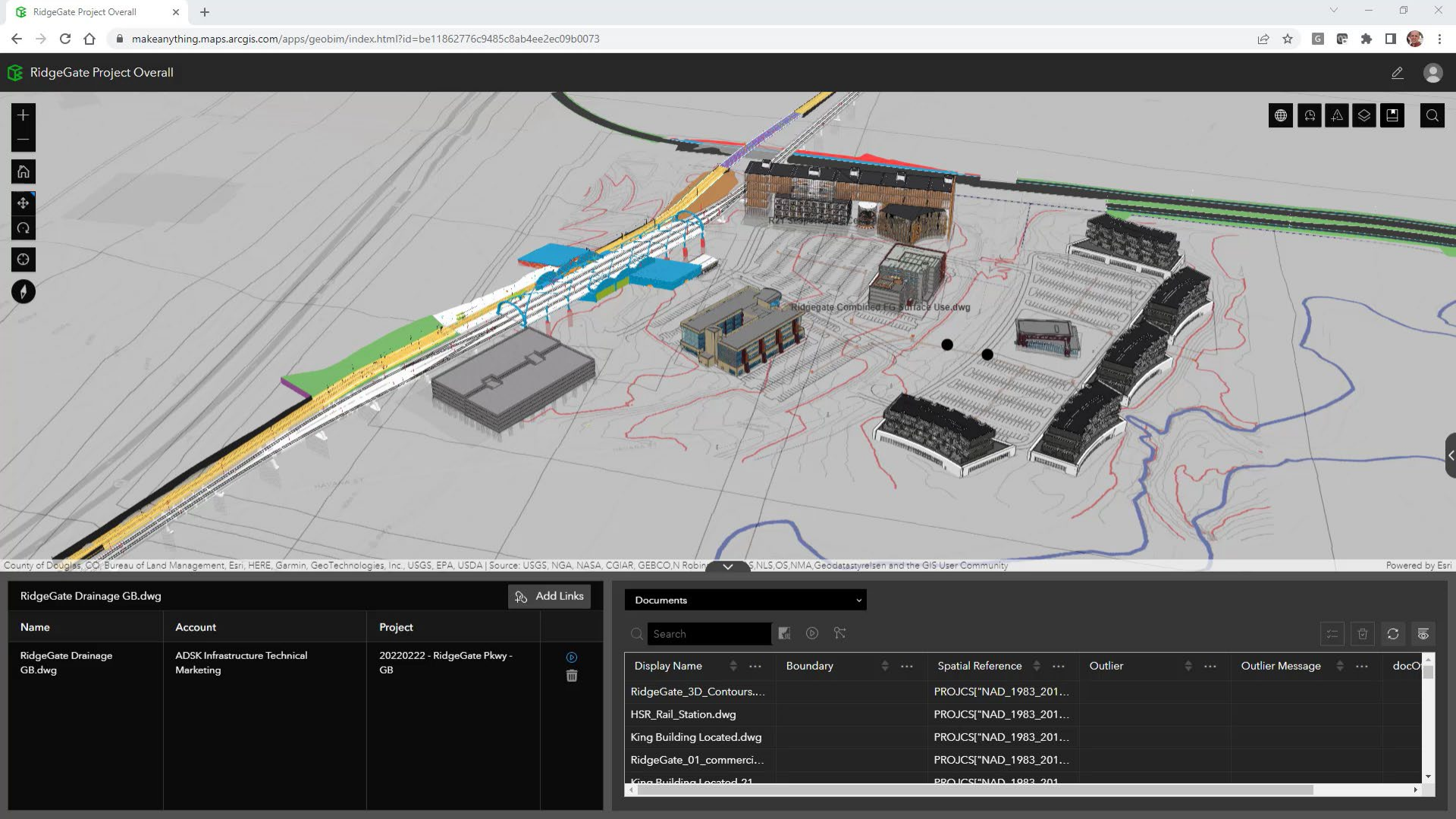




Asset Delivery







A low-angle photograph of a massive concrete bridge under construction. The bridge features large, hollow rectangular piers and wide, flat deck sections. Scaffolding and safety railings are visible along the top edges of the bridge sections. In the background, there are industrial buildings, a parking lot with several cars, and a clear blue sky with some clouds. The text 'Q&A' is prominently displayed in the center of the image.

Q&A

