

Driving efficiencies across in-field and centralised operations using Collector for ArcGIS

NSW Department of Education



About Cardno



About Cardno



- > Cardno is a global provider of integrated professional services which enrich the physical and social environment for the communities in which we live and work.
- > Our team of multidisciplinary specialists around the world has more than 70 years' experience in designing, developing and delivering sustainable projects and community advancement programs.

Vision: *To be a trusted advisor providing value added quality environmental services to our clients*

About this project

- > **225 schools** across NSW assessed over 2 years and more to come
- > **7 rounds** of inspections to date
- > Increasing the safety of schools
- > Identification of buildings at risk
- > Recommendations
- > Efficient priorities for future spending



Alphitonia.

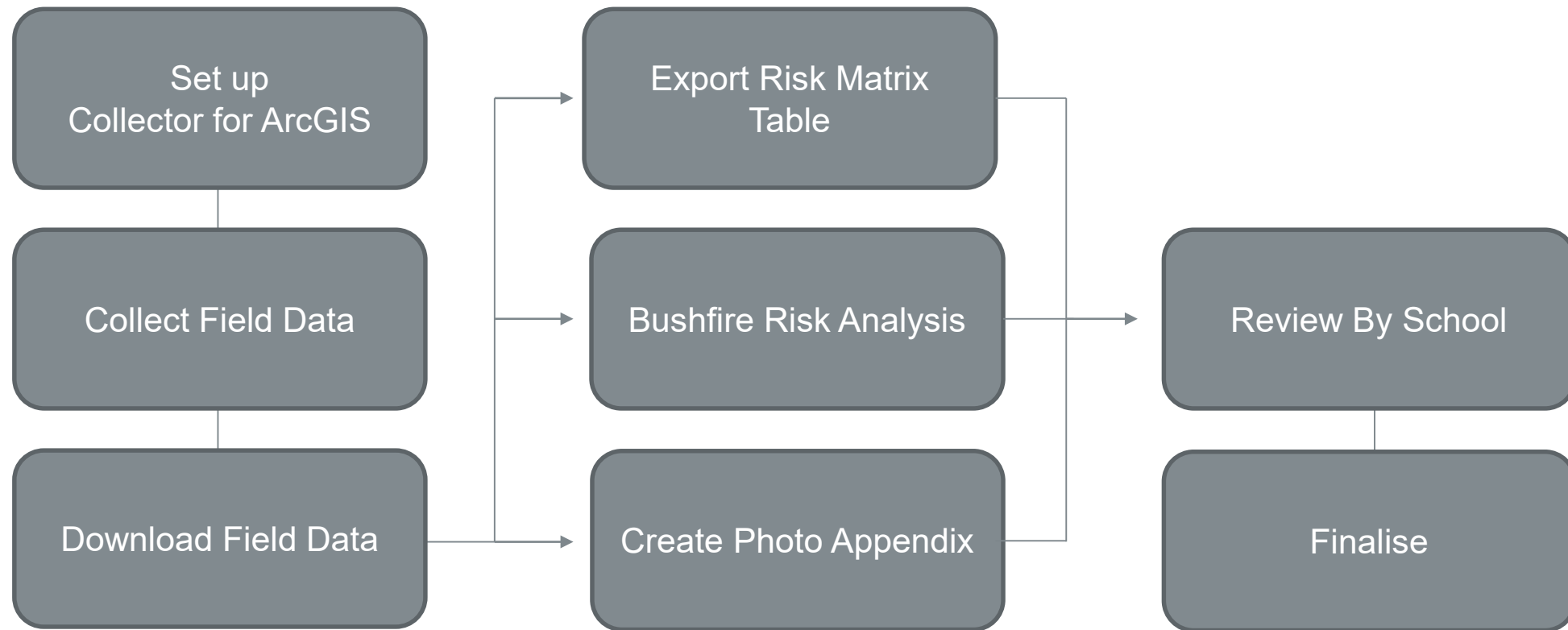


Education

**peterson
bushfire.**
expert consulting services



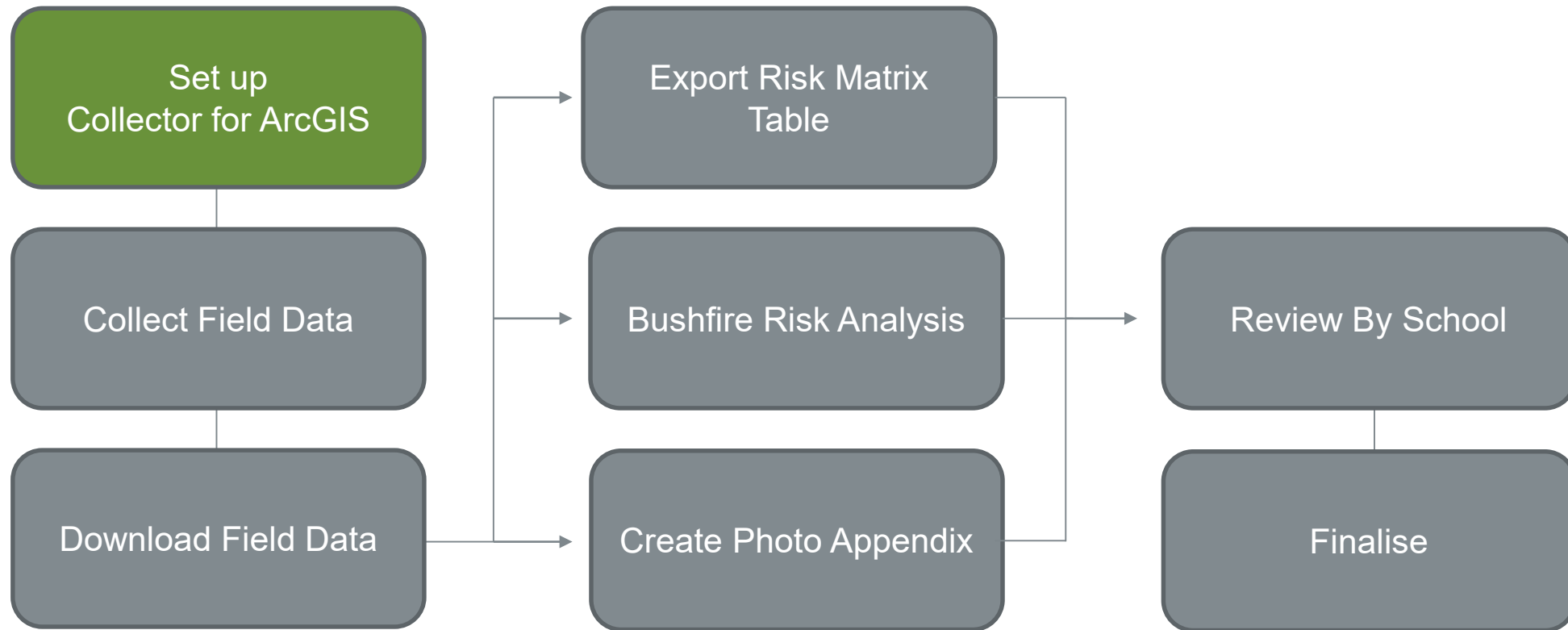
Methodology



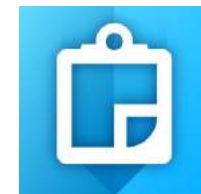
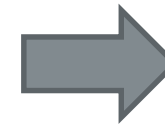
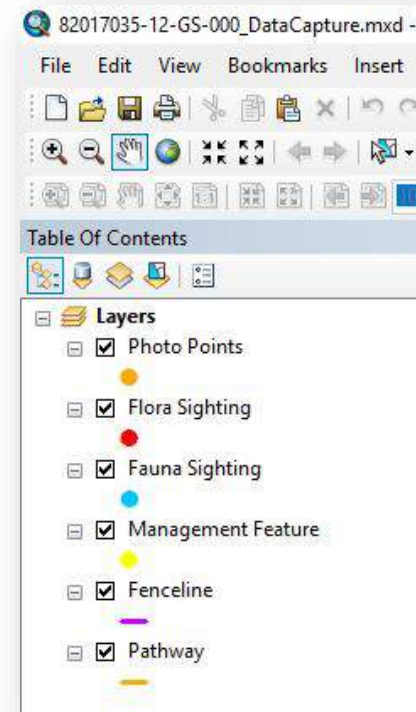
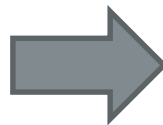
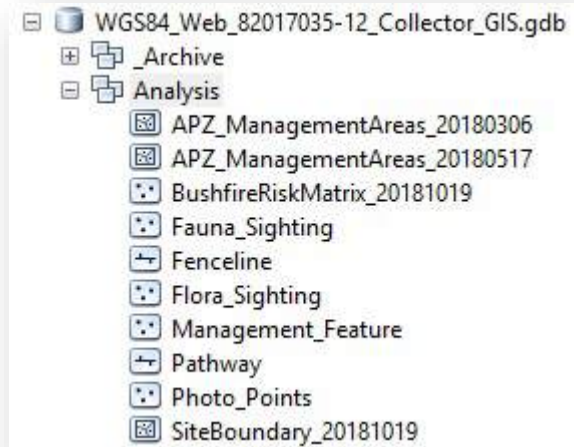
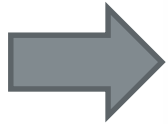
Base Plan



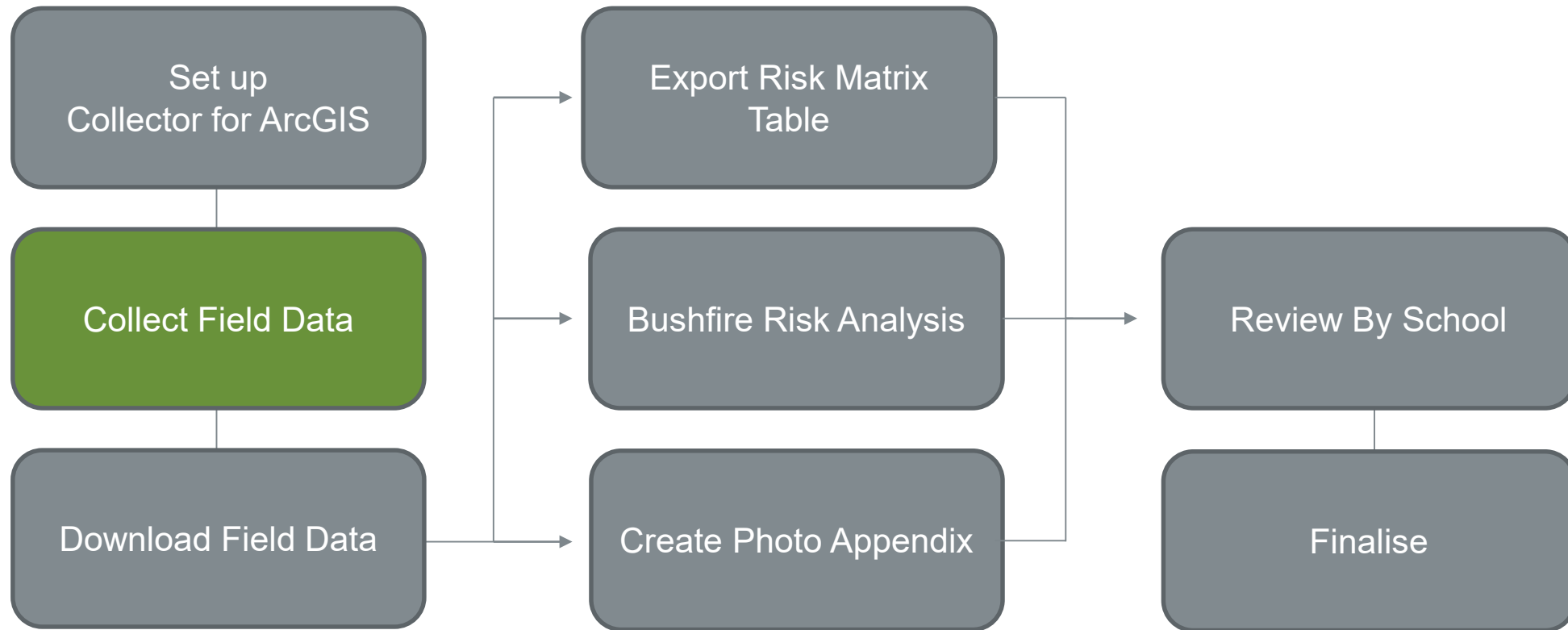
Methodology



Methodology

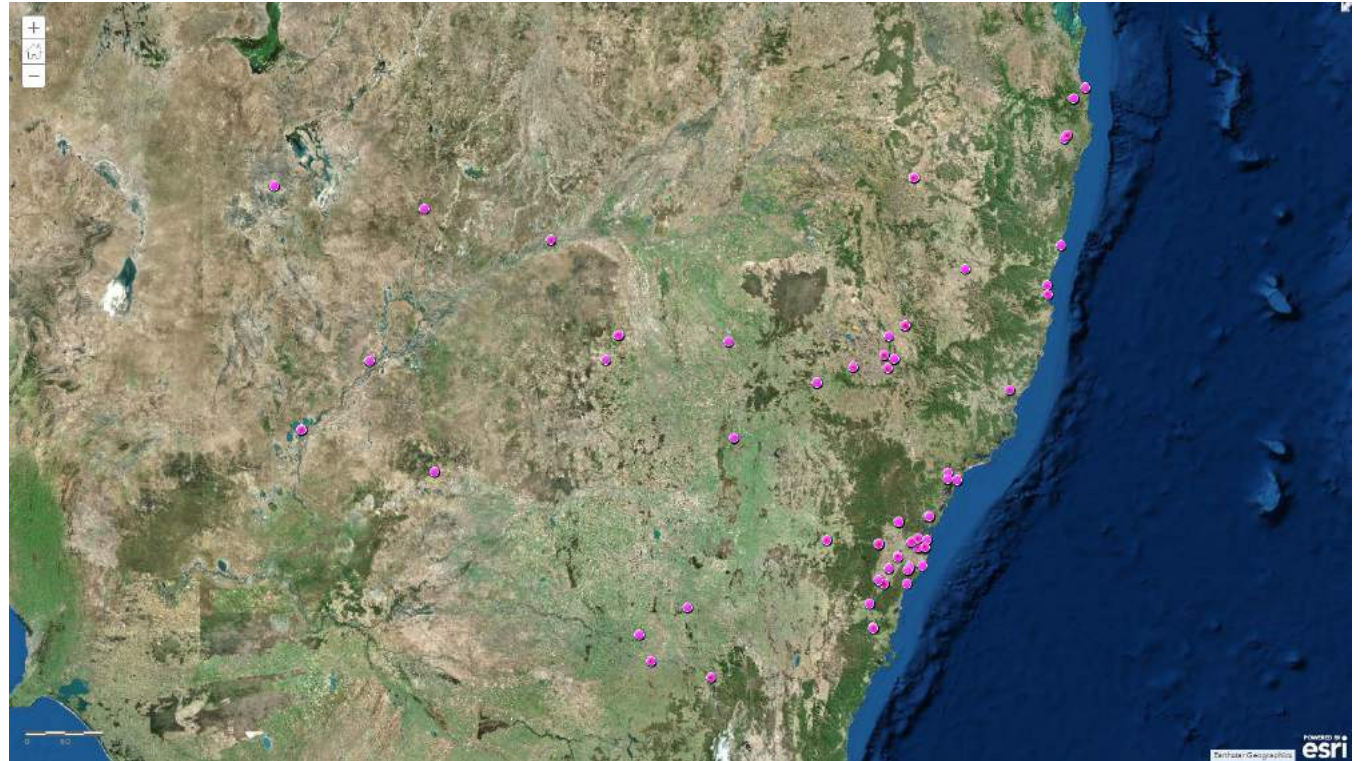


Methodology

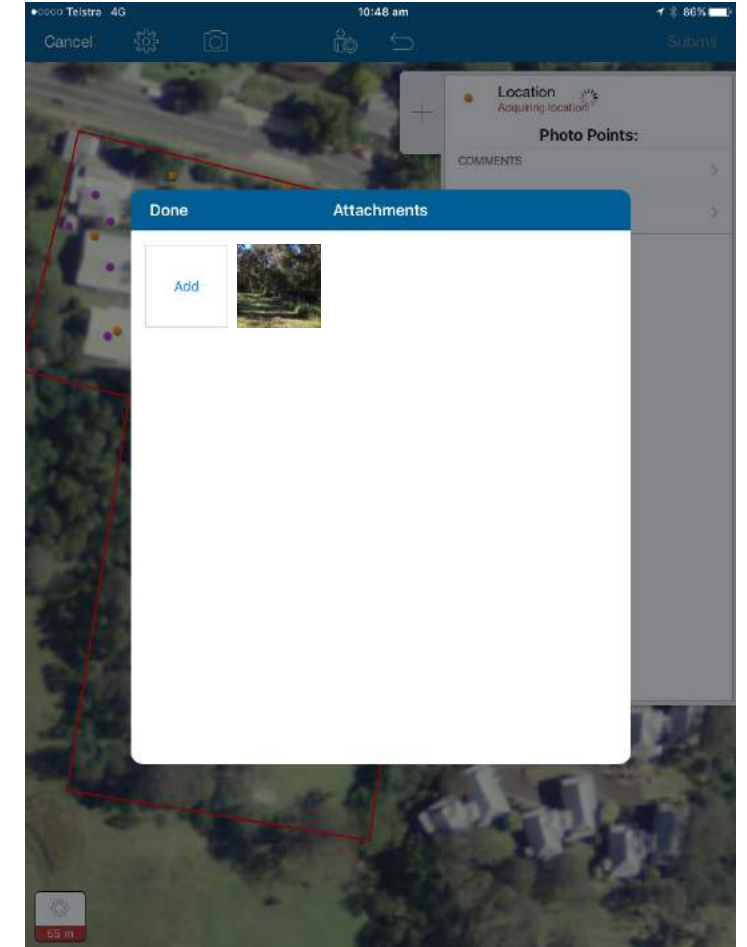
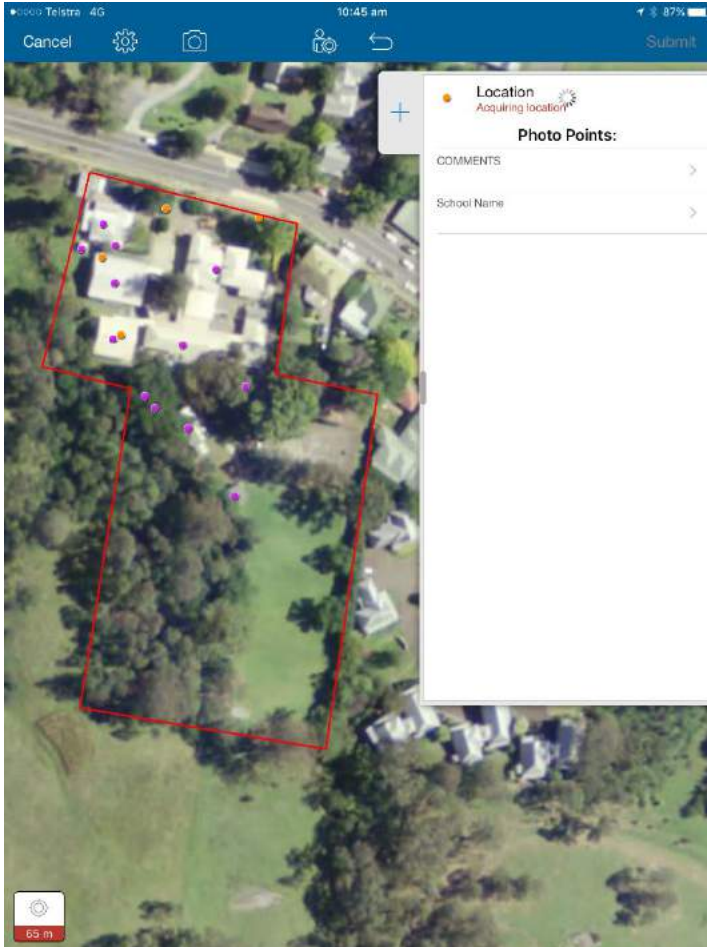


Collect field data

- > Solution needed to be offline capable
- > Pre loaded context data and building centroids
- > ArcGIS Online web map for review
- > Aerial imagery (Esri basemaps)
- > GeoPDFs loaded on iPad as backup



Collect field data



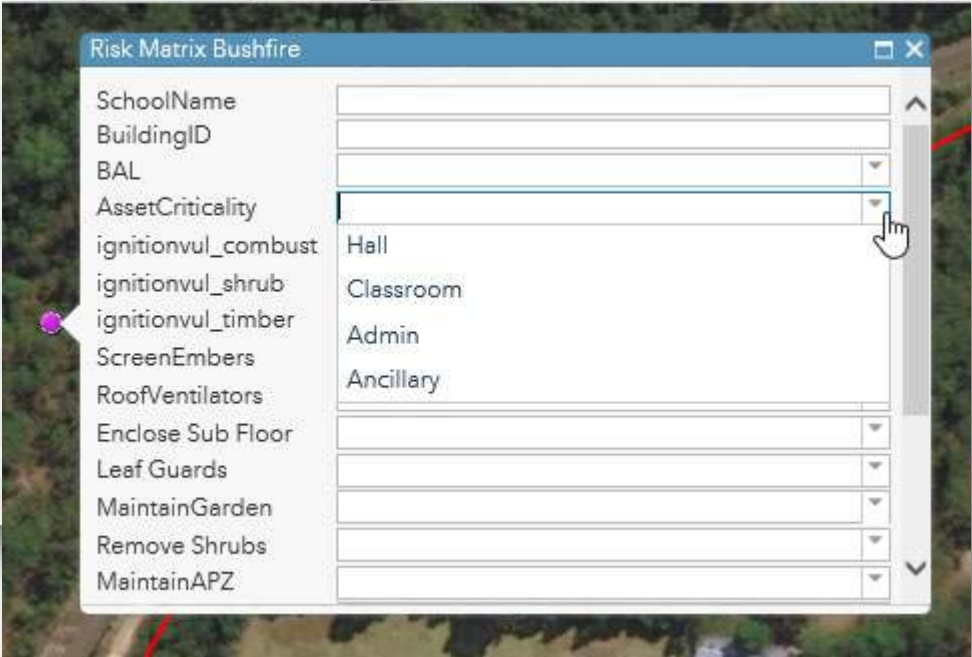
Geotagged photo locations with comments

Collect field data



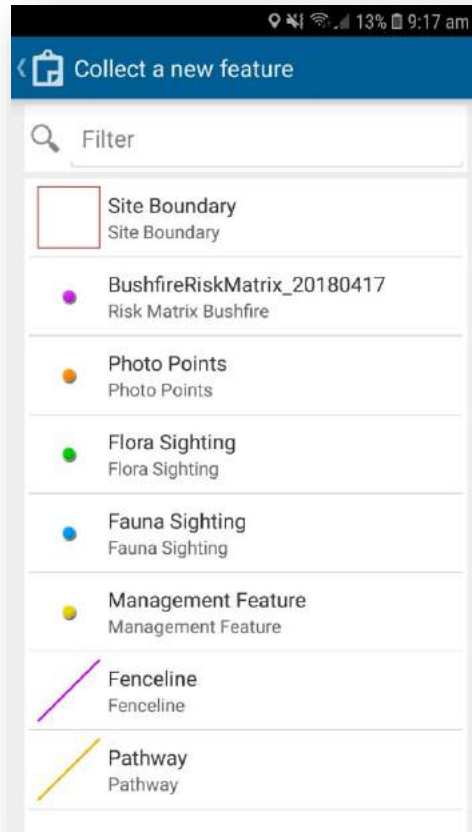
Risk Matrix (Features: 675, Selected: 0)

SchoolName	BuildingID	BAL	AssetCriticality
Ashford Central School	L		
Ashford Central School	D		
Ashford Central School	E		
Ashford Central School	H		
Blackville Public School	NS 020		
Blackville Public School	A		
Blackville Public School	C		
Blackville Public School	B		
Blackville Public School	D		
Bourke High School	DM1		
Bourke High School	DM2		
Bourke High School	M		
Bourke High School	D		
Bourke High School	L		
Bourke High School	K		
Bourke High School	I		
Bourke High School	N1		
Bourke High School	B		
Bourke High School	A		
Bourke High School	F		
Bourke High School	J		
Bourke High School	G		



Building centroids for risk matrix
Pre-populated drop downs for ease of reporting

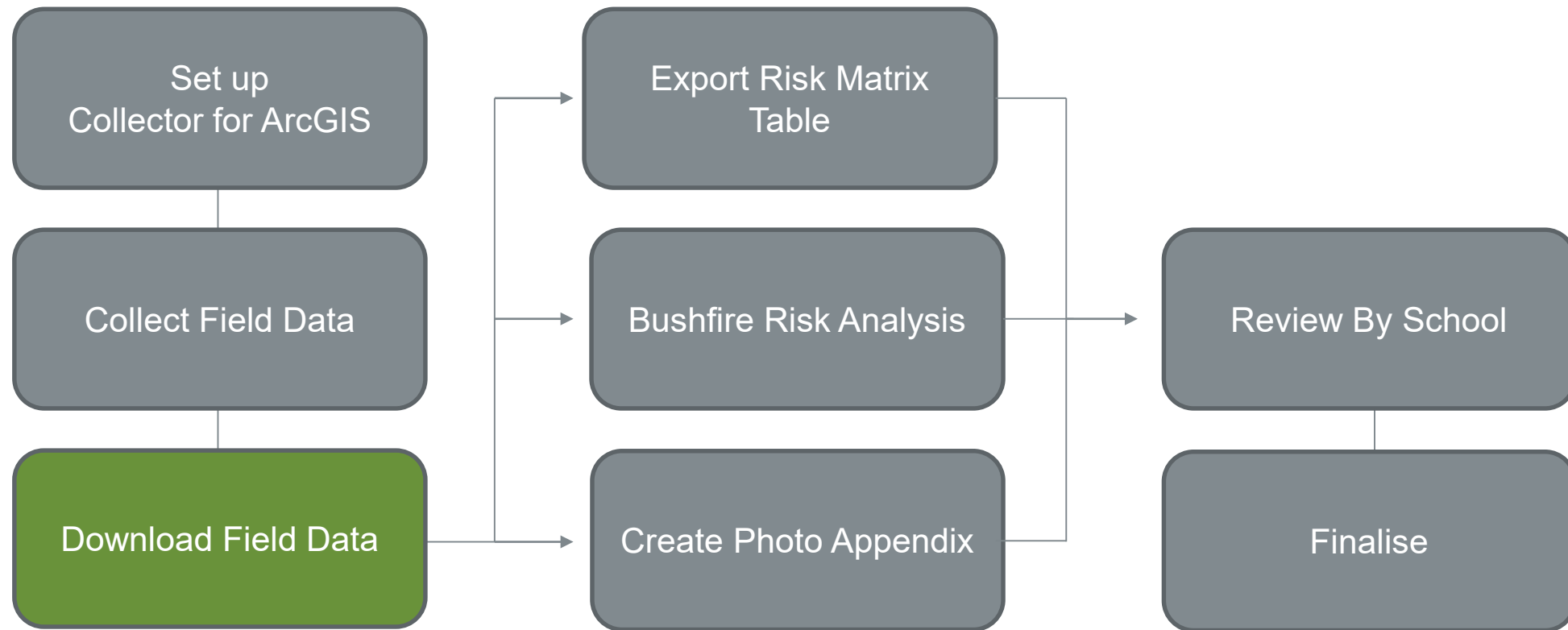
Collect field data



Management features

- > Tree removal
- > Tree pruning

Methodology



Download field data

- > Download File Geodatabase (with photo attachments)
- > Data management
- > Quality assurance
- > Photo management

- Ashford Central School
- Bourke High School
- Currabubula Public School
- Girilambone Public School
- Ivanhoe Central School
- Menindee Central School
- Quirindi Public School
- Tangara School
- Tumut High School
- Wambalangang EEC
- Wilton Public School

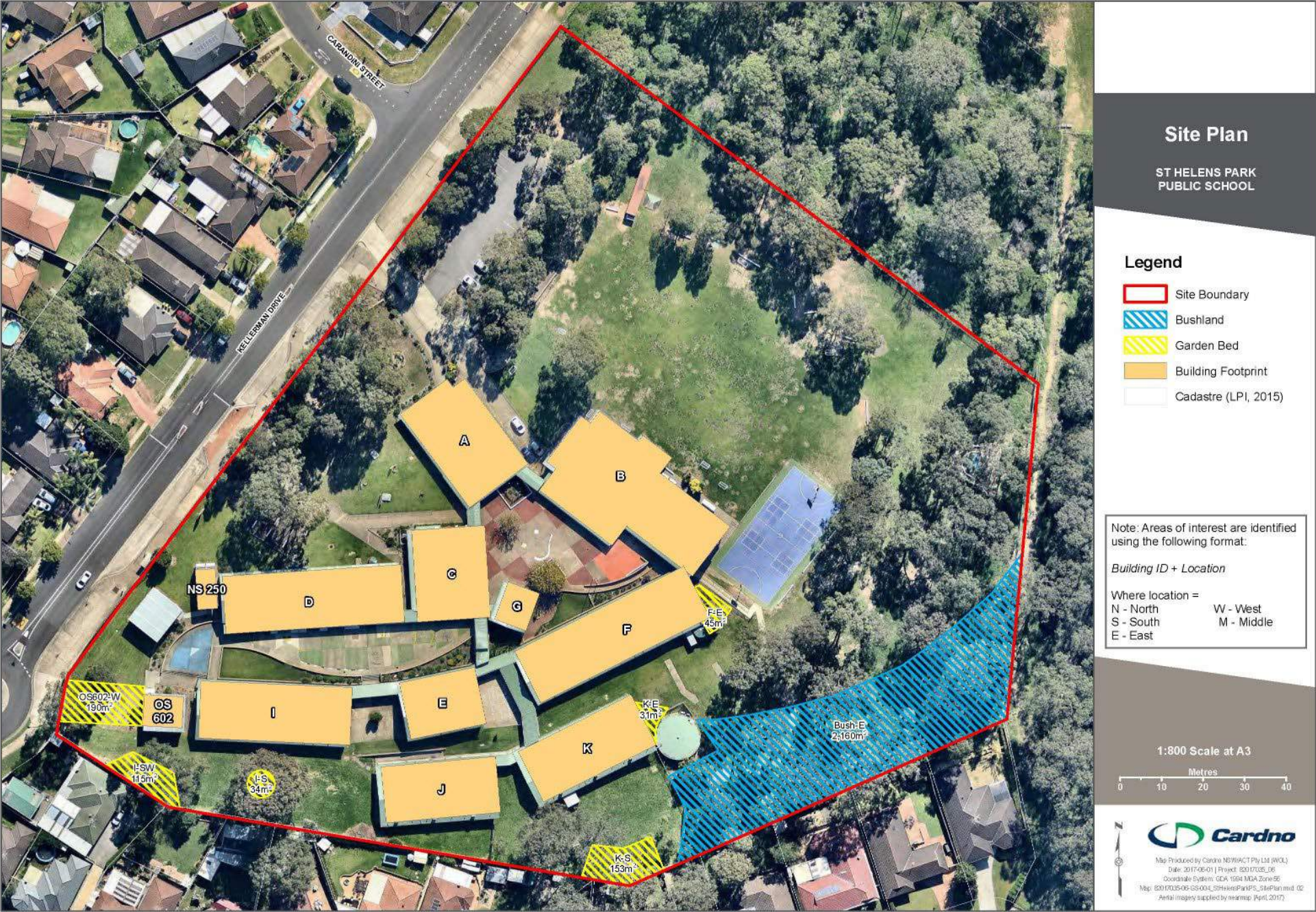
- Awabakal EEC
- Brewongle EEC
- Elanora Heights Public School
- Gosford Public School
- Kangaroo Valley Public School
- Narellan Public School
- Richmond River High School
- Taree High School
- Tweed River High School
- Wanaaring Public School
- Wollumbin High School

- Blackville Public School
- Caniaba Public School
- Engadine High School
- Green Valley Public School
- Kariong Mountains High School
- Oberon High School
- Sandy Beach Public School
- Thalgarrah EEC
- UTS Ku-ring-gai
- West Wallsend Public School
- Woronora River Public School

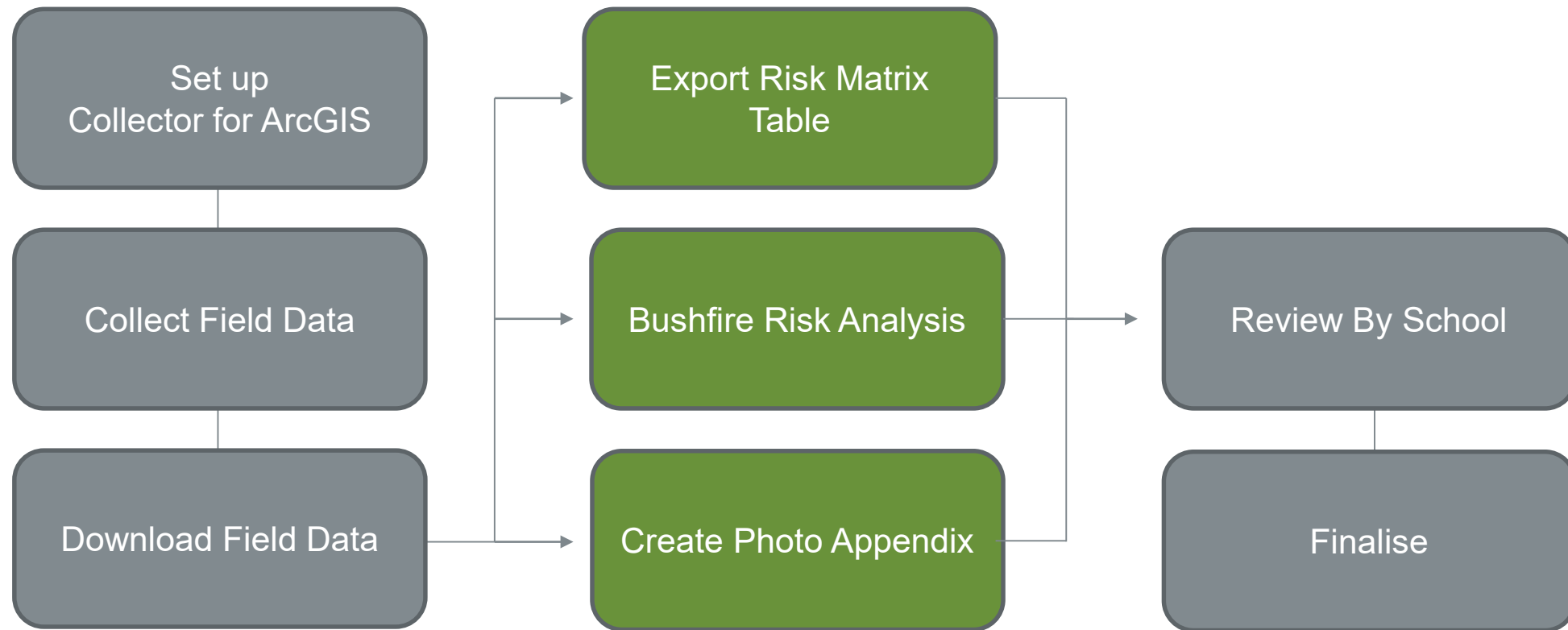
- Blaxland High School
- Coolah Central School
- Farrer Memorial Agricultural High School
- Gulargambone Central School
- Ku-ring-gai High School
- Otford Public School
- Scotts Head Public School
- Thornleigh West Public School
- Wagga Wagga High School
- Wilcannia Central School

- Botany Bay EEC
- Coolamon Central School
- Frank Partridge VC Public School
- Hermidale Public School
- Manly Vale Public School
- Picton Public School
- Stockinbingal Public School
- Tibooburra Outback School of the Air
- Wallabadah Public School
- Willow Tree Public School

Site Plan



Methodology



Risk Matrix



Risk Matrix

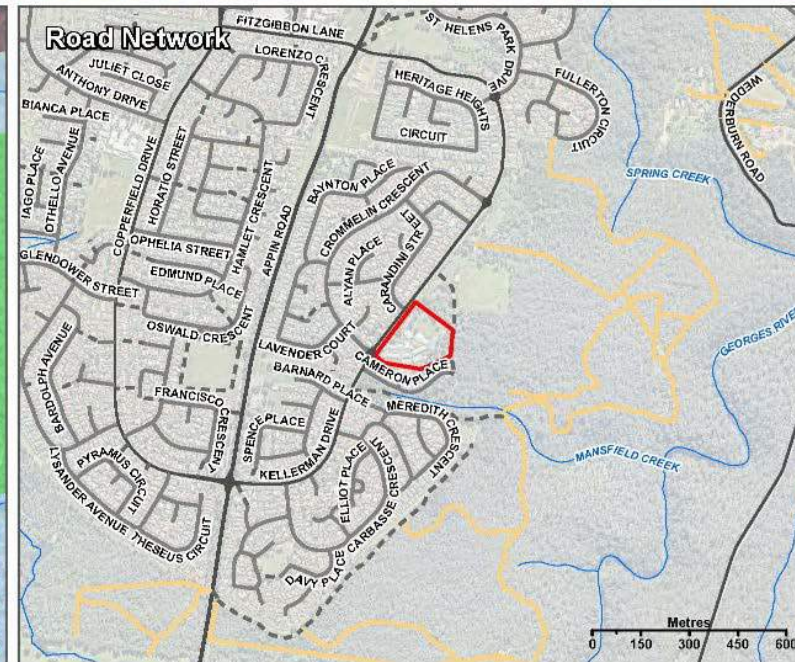
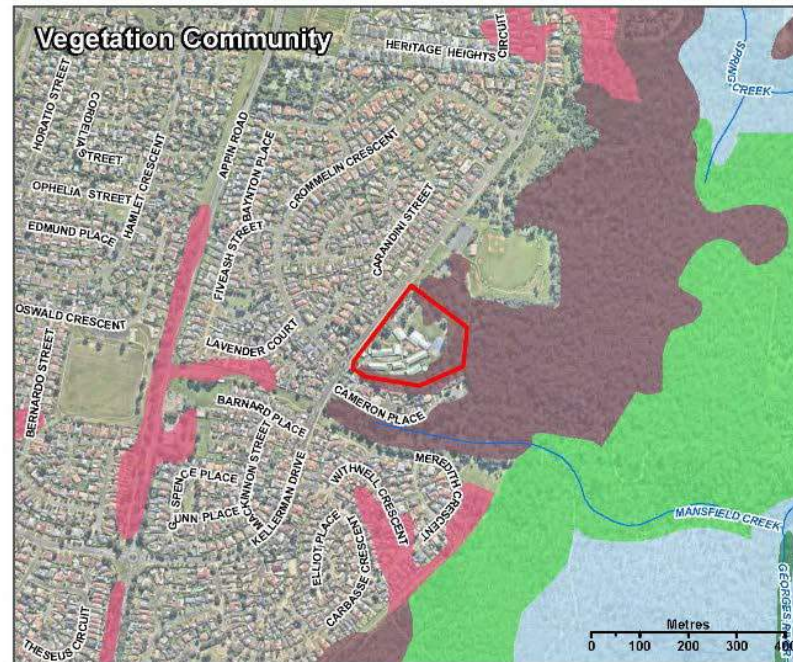
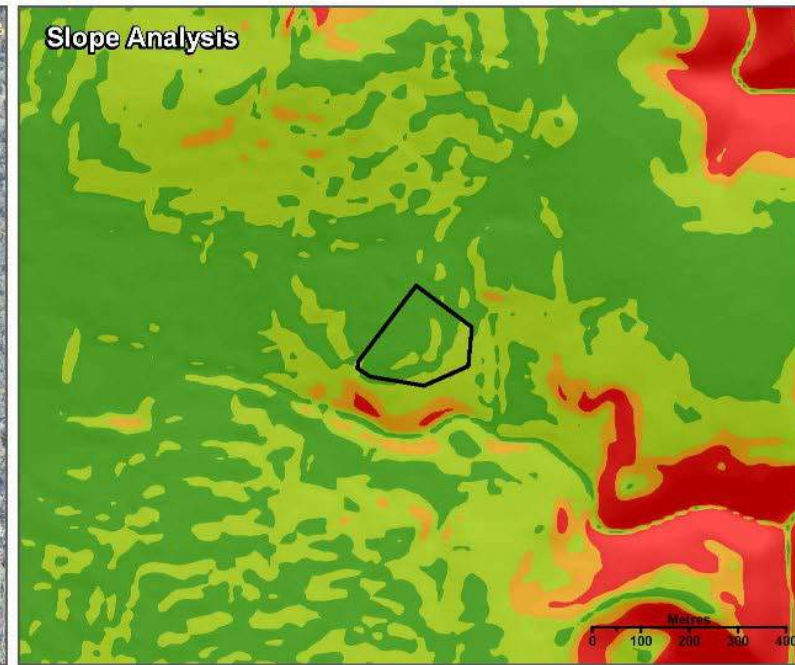


Building ID	Bushfire Risk Parameters				Comments
	Bushfire Threat Score	Ignition Vulnerability Score	Asset Criticality Score	Overall Risk Score	
	(1 – 6)	(0 – 3)	(1 – 4)		
A	2	0	0	2	Install leaf guards in gutters.
B	2	0	0	2	
C	1	0	0	1	
D	1	0	0	1	
DM1	1	0	3	4	
E	1	0	0	1	
F	2	0	0	2	
G	1	0	0	1	
I	1	0	0	1	
J	1	0	0	1	Ber classroom
K	1	0	0	1	Ber classroom
NS 250	1	0	0	1	
OS 602	1	0	0	1	

Overall Risk Score

Quantitative to assist with:

- prioritising resources
- scheduling of works



Additional Bushfire Risk Analysis

ST HELENS PARK
PUBLIC SCHOOL

Legend

- Site Boundary
- Watercourses (LPI)
- 2m Contours (LPI LIDAR, 2011)

Roads (LPI)

- Path
- Local Road
- Arterial Road
- Vehicular Track
- Distributor Road

Slope % (derived from 1m Contour LPI LIDAR Data)

- 0 - 5 %
- 5 - 10 %
- 10 - 15 %
- > 15 %

Georges River Vegetation Community E VMap 4166 (OEH, 2000)

- Riparian Scrub
- Shale/Sandstone Transition Forest (High Sandstone In TXU)
- Shale/Sandstone Transition Forest (Low Sandstone Inf TXU)
- Upper Georges River Sandstone Woodland
- Western Gully Forest

Photo appendices

Bushfire Risk Assessment
St Helens Park Public School (4603), Kellerman Dr, St Helens Park



Plate 1 Bushland to the east of the site.



Plate 2 Non compliant vegetation levels in the APZ area.



Plate 3 Current site conditions with minimal landscaping around buildings.



Plate 4 Current site conditions with minimal landscaping around buildings.



Plate 5 Current site conditions with minimal landscaping around buildings and non compliant vegetation in APZ area.



Plate 6 Current site conditions with minimal landscaping around buildings.

Photos by Column Relinked

Page Header: Bushfire Risk Assessment
St Helens Park Public School, Kellerman Dr, St Helens Park (4603)

Detail

Page Footer: Alphitonia

Assessment Photos

ID	PlateNumbr	PhotoName	COMMENTS	SchoolName	PhotoFilePa	Click to Add
1	41	Photo1.jpg	Bushland to th	St Helens Park	U:\FY17\035-0	
2	42	Photo1.jpg	Non compliant	St Helens Park	U:\FY17\035-0	
3	43	Photo1.jpg	Current site co	St Helens Park	U:\FY17\035-0	
4	44	Photo1.jpg	Current site co	St Helens Park	U:\FY17\035-0	
5	45	Photo1.jpg	Current site co	St Helens Park	U:\FY17\035-0	
6	46	Photo1.jpg	Current site co	St Helens Park	U:\FY17\035-0	
*	(New)					

Photos by Column Relinked

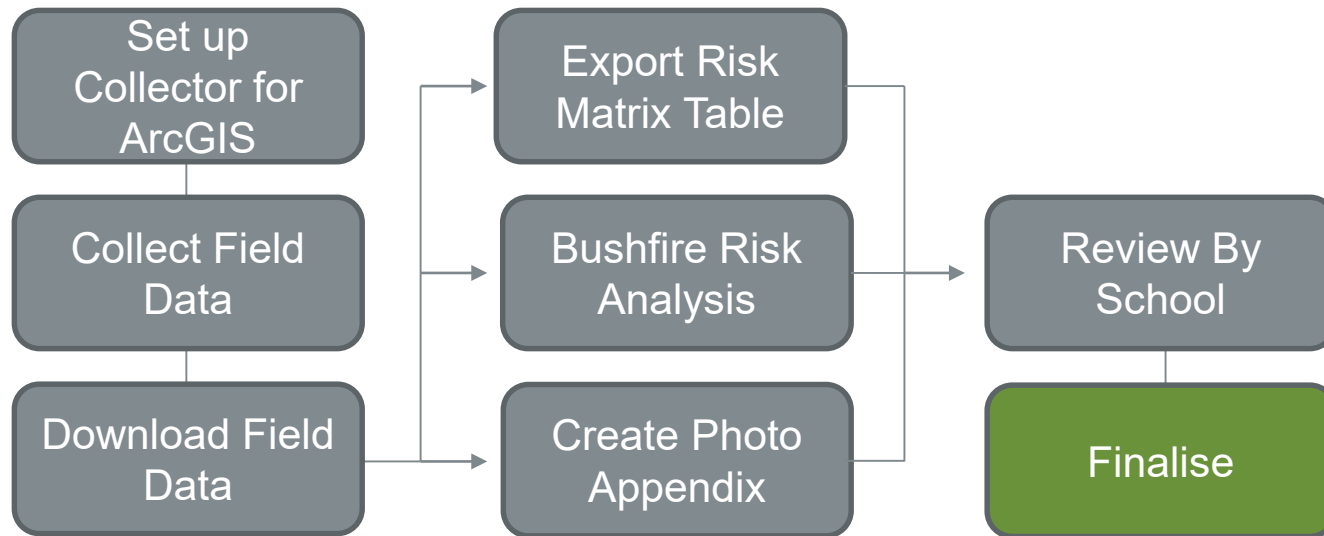
Plate 1 Bushland to the east of the site

Plate 2 Non compliant vegetation levels in the APZ area



Methodology

- > Initial site mapping including building footprints and existing vegetation
- > On site hazard area mapping using Collector for ArcGIS
- > Assessment of bushfire risk parameters to determine the overall risk score per building
- > Automated photo reporting



Challenges

- > Recent imagery
- > Careful updates to Collector while field teams were on site without losing data
- > Time! Download and process incoming data to ensure reports were delivered on time
- > Data management for 225 schools
- > Management of deliverables. Did we mention 225 schools?



Thank you

For more information

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