



Implementation of Workflows using ArcGIS Server & Python

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LinkWater is responsible for the **management, operation and maintenance** of potable bulk water pipelines and related infrastructure throughout South East Queensland.



LinkWater is part of the South East Queensland Water Grid

- The largest urban drought response in Australia
- One of the most significant pieces of water infrastructure to be developed in the country since the Snowy Mountains Scheme.

LinkWater Assets and Projects

Current and future

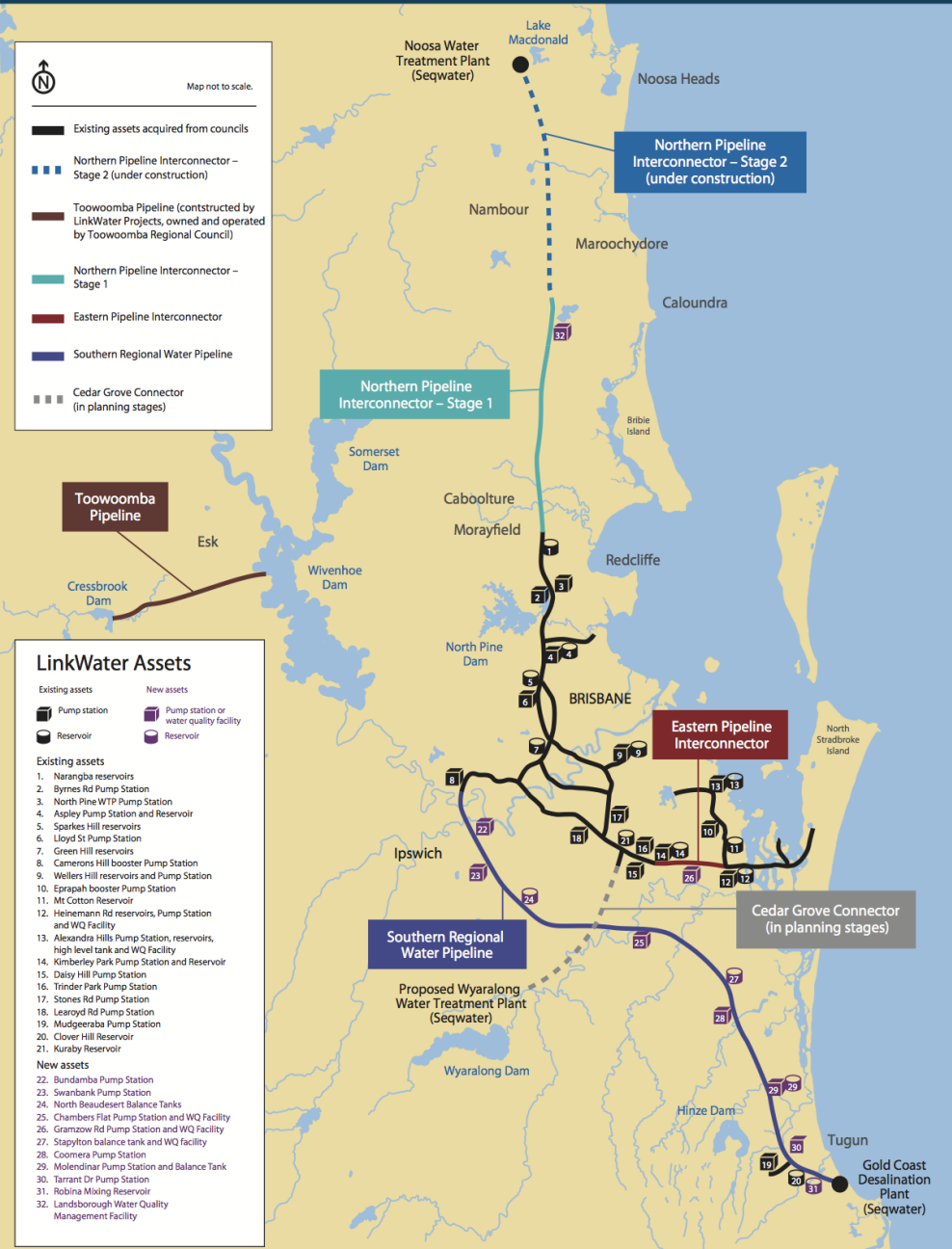


Current assets

- 535km of acquired and new potable bulk water pipelines
- 28 reservoirs/balance tanks
- 22 pump stations
- Four water quality facilities

Assets under construction and in planning stages

- NPI Stage – 2
- Cedar Grove Connector
- Five new pump stations
- One new reservoir
- Two water quality facilities



Importance of GIS for utilities and linear asset management

- To manage infrastructure and assets
- To improve planning, customer care, administrative processes
- To meet operational challenges

Enterprise GIS solution

- Common platform for accessing all business data
- Improve planning for proactive maintenance
- Updating network information
- Promote an open flow of information between field workers and the office
- Operate with comprehensive and up-to-date information of asset status

GIS in LinkWater

- LinkWater has adopted the ESRI solution early in 2009
- Licenses: 2 ArcEditor, 5 ArcView, 1 Standard ArcGIS Server and 1 Standard Dekho
- Dekho is the standard GIS web application in LinkWater
- GIS customisation is a major item within LinkWater's GIS strategy

Fact

- Physical work required to install new assets and maintain existing ones
- Comprehensive information is required to approve permit to work/access
- Approval needs to be made in head office
- Information is required for current work permit management and future reference
- Regular updates are important and occur frequently

Issues with current procedure

- Individual pieces of paper that can be easily misplaced
- Time consumption of paper workflow
- Difficult to present geographic extent for individual permit
- Difficult to determine overlapping permits
- No visual access to real-time and up-to-date permit status

Solution

- Python Script, SQL and email facilities
- Starting point of data input to be in Dekho and ArcGIS Spatial Data Engine

Contents of the Work Permit Application

- Spatial extent of work
- Applicant name, phone and email details
- Description of work to be performed
- Permit coordinator
- Site supervisor

Contents of the Work Permit Application

- Start and finish times
- Job status
- Approval / rejection decision and date
- Time extension request, details, approval / rejection date

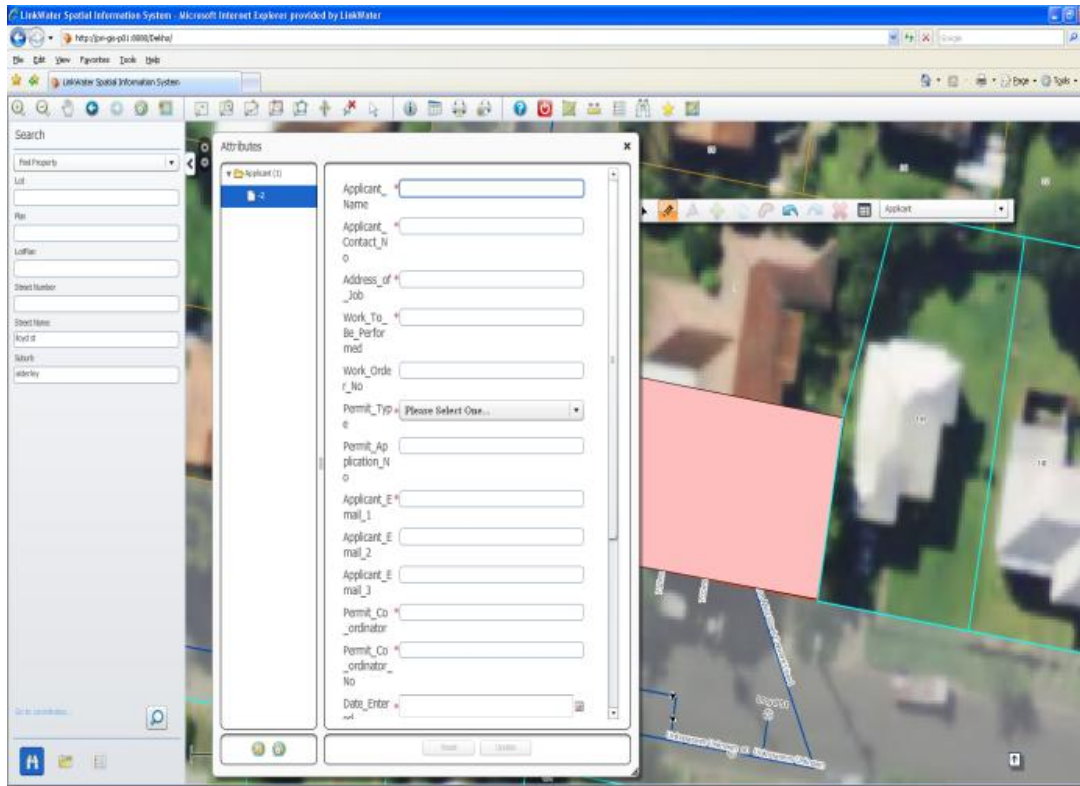
How it works

1. Three different editable layers were added in three separate Dekho map projects (Applicant, Approver and Controller)
2. Applicant logs into Dekho, creates a new application with all required information, and submits it
3. Applicant receives an email that the application has been received
4. Approver responds with 'approved in principle' and the system automatically emails applicant and controller

How it works

5. Approver updates with a “final approval” and the system automatically emails applicant and controller
6. If required, approver enters an extension request and system automatically emails applicant and controller
7. When required, approver approves the extension request and system automatically emails applicant and controller
8. Controller is informed that work is completed and enters completion details

How it works



Applicant Information

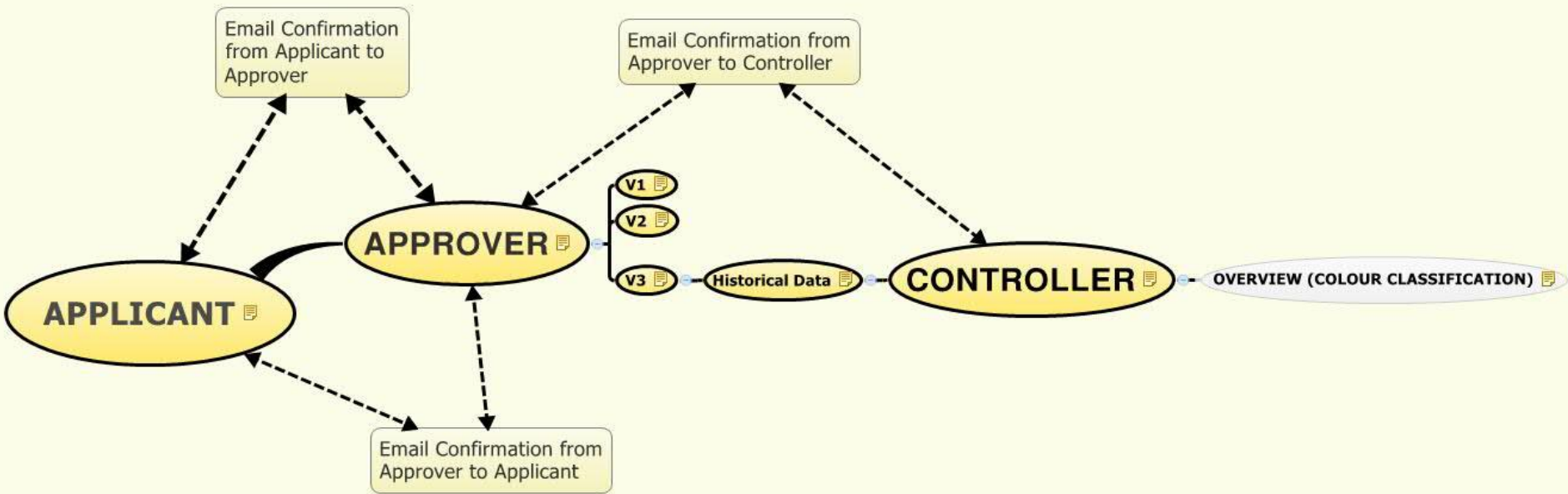
Field
Applicant_Name
Applicant_Contact_No
Address_of_Job
Work_To_Be_Performed
Work_Order_No
Permit_Type
Permit_Application_No
Applicant_Email_1
Applicant_Email_2
Applicant_Email_3
Permit_Co_ordinator
Permit_Co_ordinator_No
Date_Entered
Site_Supervisor
Site_Supervisor_No
Proposed_Job_Start
Proposed_Job_Finish
Work_Duration
Job_Status

Approver Information

Approved_In_Principle
Approved_In_Principle_Date
Rejected
Rejected_Date
Approved_Final
Approved_Final_Date
Time_Extension_Requested
Time_Extension_Requested_Date
New_Extended_Finish_Date
Time_Extension_Approved
Time_Extension_Approved_Date
Time_Extension_Rejected
Time_Extension_Rejected_Date
Submission

How it works

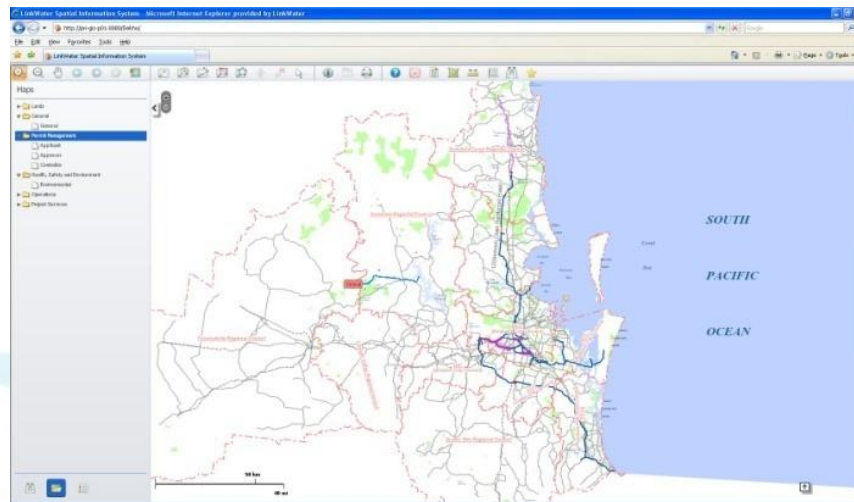
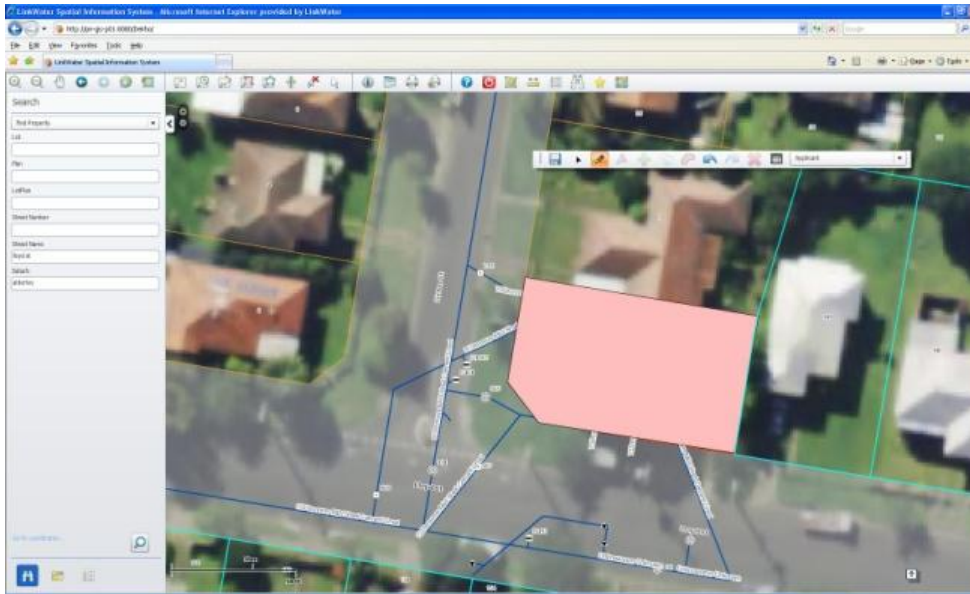
Permit Management System Data Capture



Benefits

- Visual background details with geographical extents of permit to work areas
- Higher security for database storage
- Easier to access and search
- Corporate access to current status and/or scheduled work to be performed
- Submission and update of application automatically generates notification emails that will be sent to appropriate people

Benefits



Benefits

- Authorisation restrictions
- Self monitoring and automatic generation of emails to the administrator on initial occurrence of an error
- Automatic generation of weekly report on status of all permits
- Instant update of changes to employees in the field
- Minimising job duplications and preventing interruptions to work already in progress

THANK YOU

Questions?