

Appendix E

Draft groundwater monitoring program

Appendix E Draft groundwater monitoring program

The groundwater and surface water quality monitoring program would be finalised in consultation with the Department of Industries (Water), and would build upon, where appropriate, the existing groundwater monitoring network as detailed in the Technical Working Paper: Groundwater. The program would monitor groundwater and surface water impacts during tunnel operations on groundwater quality and wetlands. The groundwater and surface water quality monitoring program will developed in consultation with the Environment Protection Authority, DPI (Fisheries), DPI (Water) and relevant councils.

A draft network has been depicted on the map series dated 11 November 2015, and is subject to further review and obtaining any relevant approvals.

The program would include (but would not be limited to) monitoring of:

- Groundwater levels
- Groundwater analytes: Total Hydrocarbons (TRH(C6-C40)), benzene, toluene, ethylbenzene and xylenes (BTEX), Polycyclic Aromatic Hydrocarbons PAHs), Phenols, Organochlorine Pesticides, Organophosphorus Pesticides, Polychlorinated Biphenyls, heavy metals.
- Water Quality parameters: temperature, dissolved oxygen, conductivity, pH, ORP (Redox) and turbidity.

The wells for water quality sampling will be selected at targeted locations following future review of environmental sensitivity to potential groundwater impacts. Monitoring of groundwater levels would be undertaken at up to around 31 locations which are to be confirmed upon finalisation of the monitoring program.

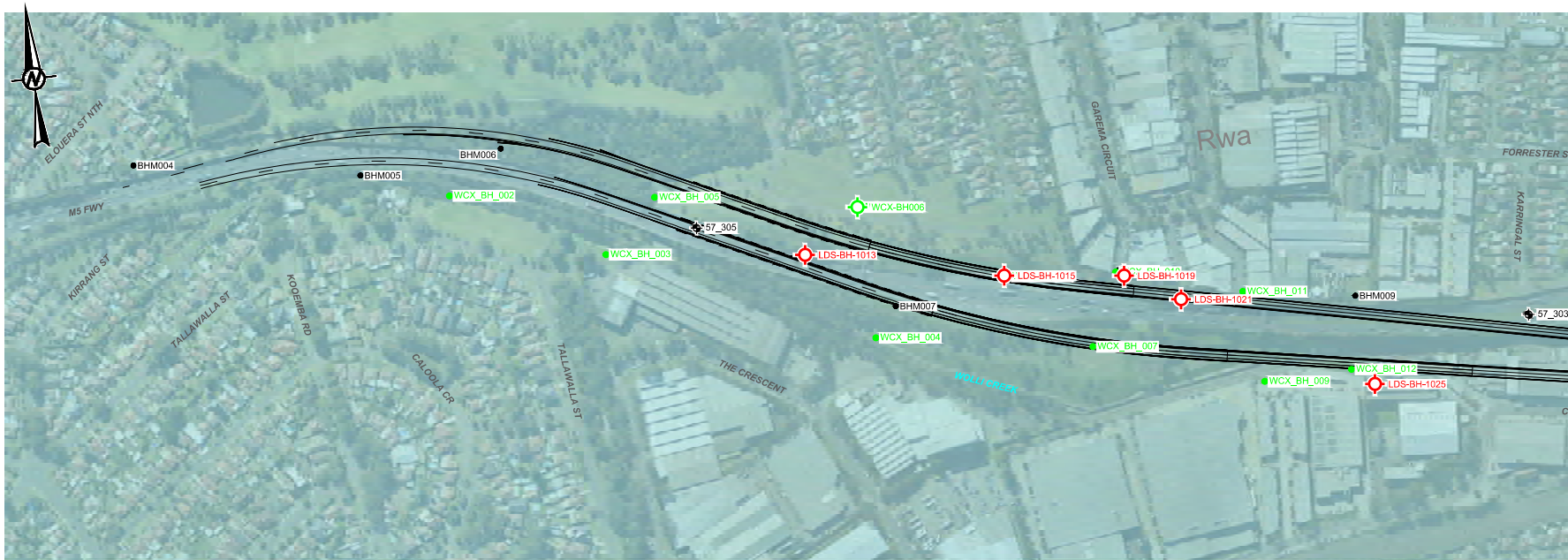
All well installations would consider the requirements of the NSW Aquifer Interference Policy.

Groundwater monitoring would commence prior to the commencement of construction (baseline monitoring) and would continue during construction. Monitoring would continue post the completion of construction. Six monthly groundwater monitoring should occur for three years after the tunnel becomes operational after which the requirement for on-going monitoring will be assessed.

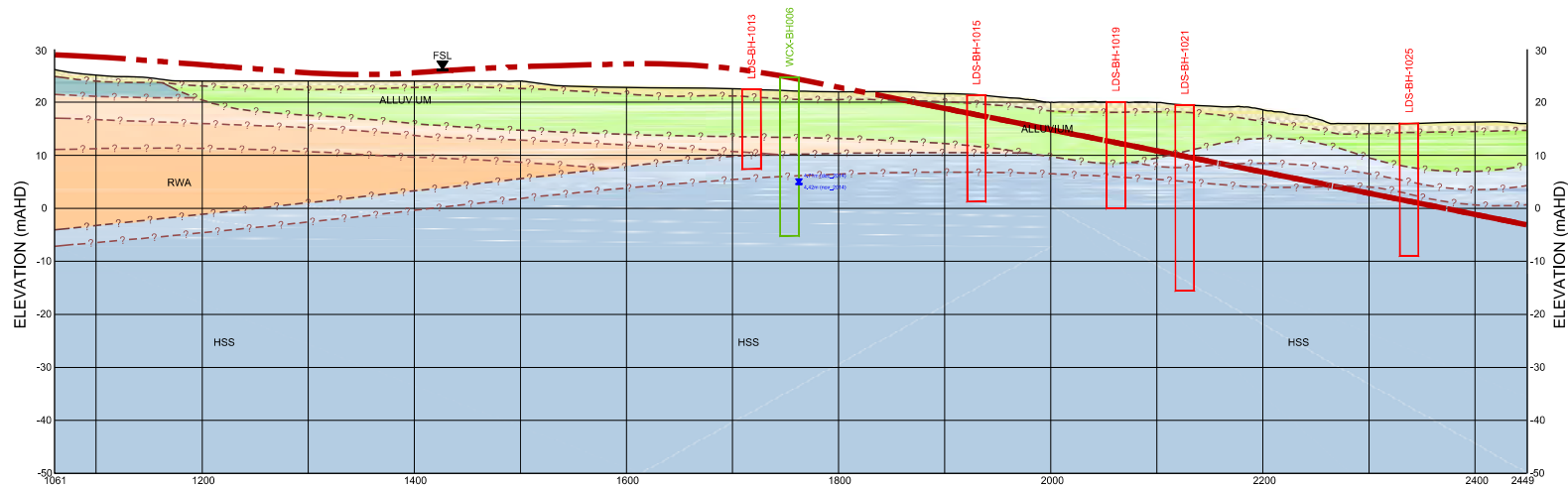
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LOCATION: B:\Region\WestConnex_Stages\202_Production\NSW\M5N-GOL-DWG-100-230-EV-0001 HYDROGEOLOGICAL MODEL.dwg



PLAN VIEW - WESTERN PORTAL OFF RAMP M120 WESTBOUND CHAINAGE 1061 - 2449
SCALE 1:5000



LONGITUDINAL SECTION - WESTERN PORTAL OFF RAMP M120 WESTBOUND CHAINAGE 1061 - 2449
HORZ. SCALE 1:5000
VERT. SCALE 1:1000

LEGEND

LDS-BH- PROPOSED WELL

WCX-BH- EXISTING WELL

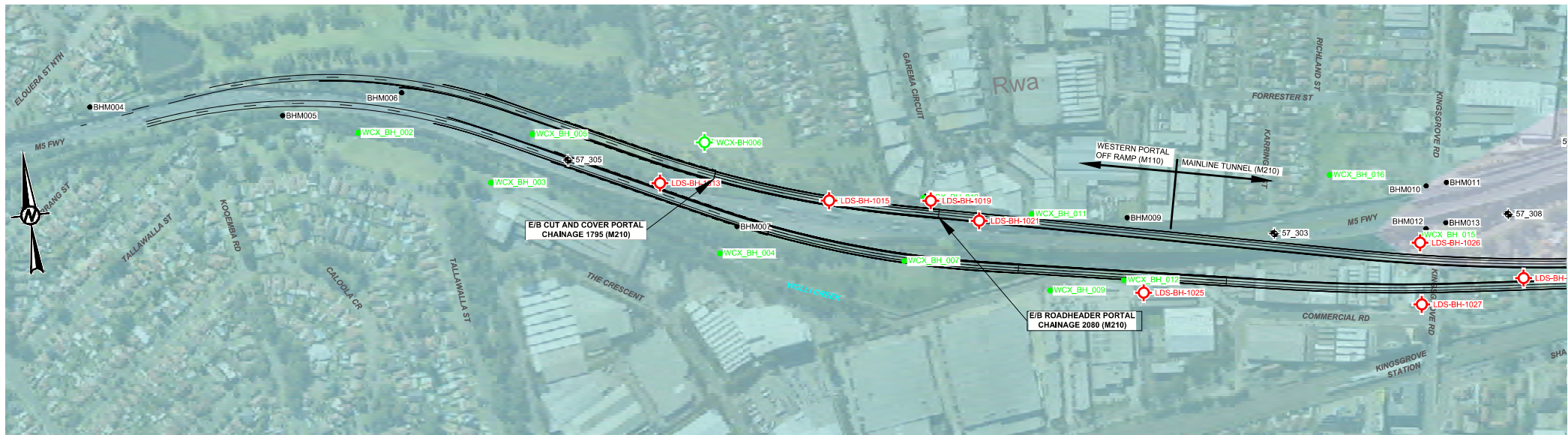
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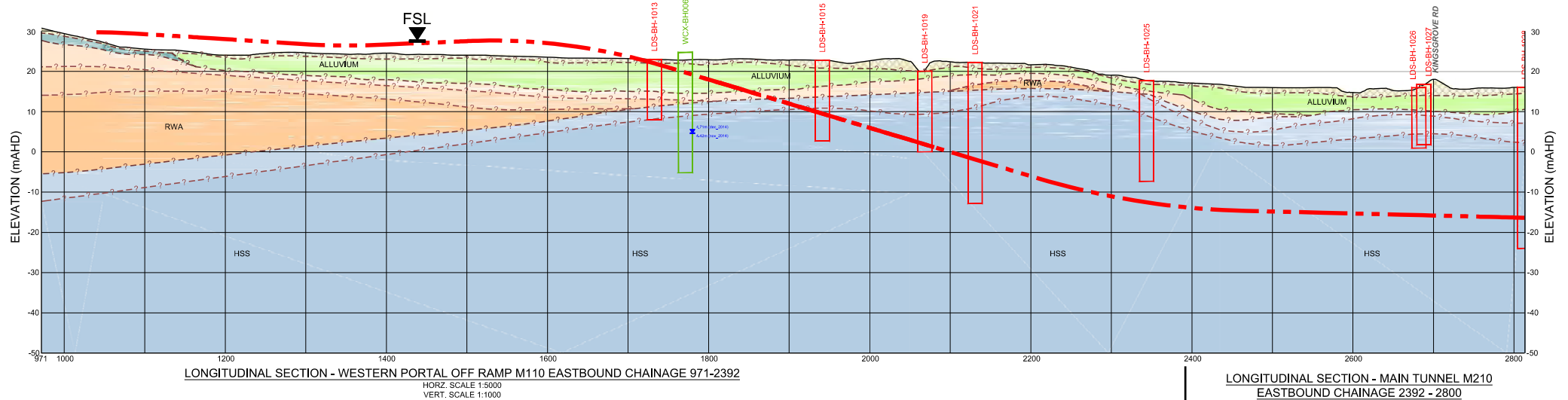
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NEW M5 MAIN WORKS DESIGN & CONSTRUCT
TITLE: WESTERN SURFACE WORKS
HYDROGEOLOGICAL MODEL
WESTERN PORTAL OFF RAMP M120 WESTBOUND
CHAINAGE 1061 - 2449

ALIGNMENT BASED ON DATA PROVIDED IN TAN19 RECEIVED 13 FEBRUARY 2015 (M120) REV G	STATUS: CONCEPT DESIGN NOT FOR CONSTRUCTION
RTT APP. 2 - TENDER INFORMATION REQUIREMENTS VOLUME	VOLUME 2D GEOTECHNICAL DESIGN
DRAWING NUMBER: M5N-GOL-DWG-100-230-EV-0001	REV: C



PLAN VIEW - WESTERN PORTAL OFF RAMP M110 EASTBOUND CHAINAGE 971-2392
SCALE 1:5000

PLAN VIEW - MAIN TUNNEL M210 EASTBOUND CHAINAGE 2392 - 2800
SCALE 1:5000



LONGITUDINAL SECTION - WESTERN PORTAL OFF RAMP M110 EASTBOUND CHAINAGE 971-2392
HORZ. SCALE 1:5000
VERT. SCALE 1:1000

LONGITUDINAL SECTION - MAIN TUNNEL M210
EASTBOUND CHAINAGE 2392 - 2800
HORZ. SCALE 1:5000
VERT. SCALE 1:1000

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WCX-BH- EXISTING WELL

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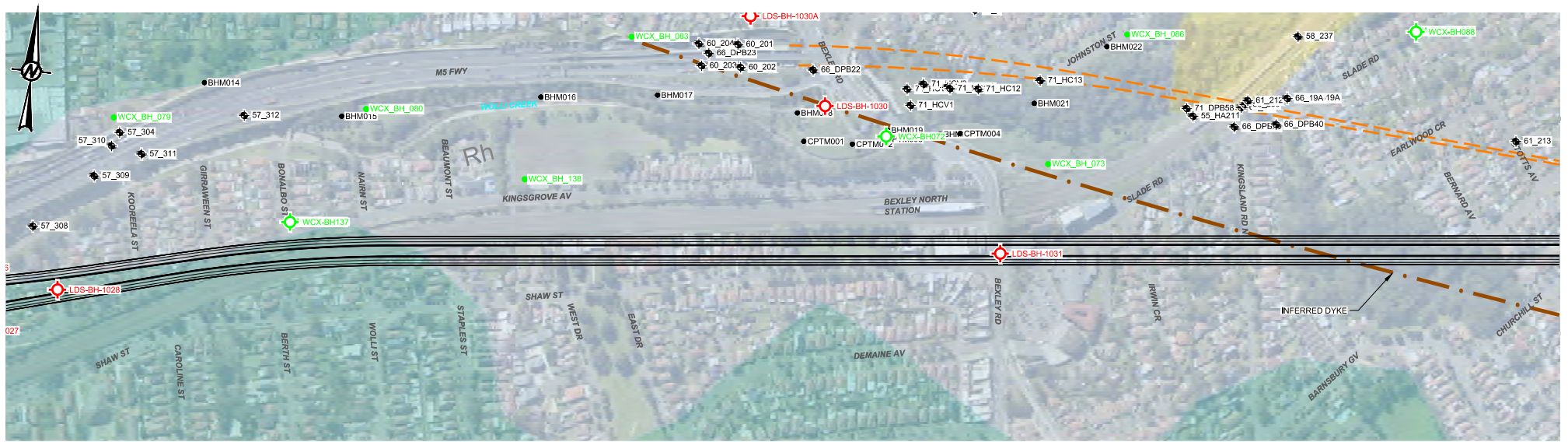
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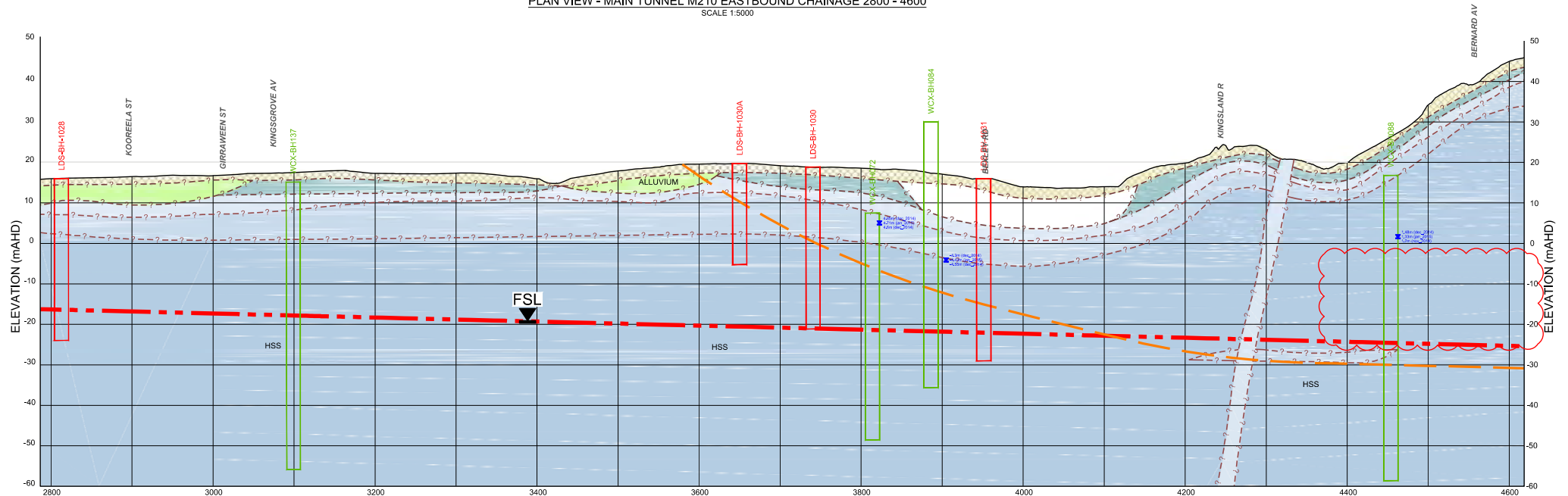
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PLAN VIEW - MAIN TUNNEL M210 EASTBOUND CHAINAGE 2800 - 4600
SCALE 1:5000



LONGITUDINAL SECTION - MAIN TUNNEL M210 EASTBOUND CHAINAGE 2800 - 4600
HORZ. SCALE 1:5000
VERT. SCALE 1:1000

LEGEND

LDS-BH- PROPOSED WELL WCX-BH- EXISTING WELL

ALIGNMENT BASED ON DATA PROVIDED IN TAN44 RECEIVED
11 FEBRUARY 2015 (M210) REV D

INFORMATION SHOWN ON THIS DRAWING IS PRELIMINARY ONLY
AND SUBJECT TO ADJUSTMENT DURING DETAILED DESIGN STAGE.
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NOT FOR CONSTRUCTION**

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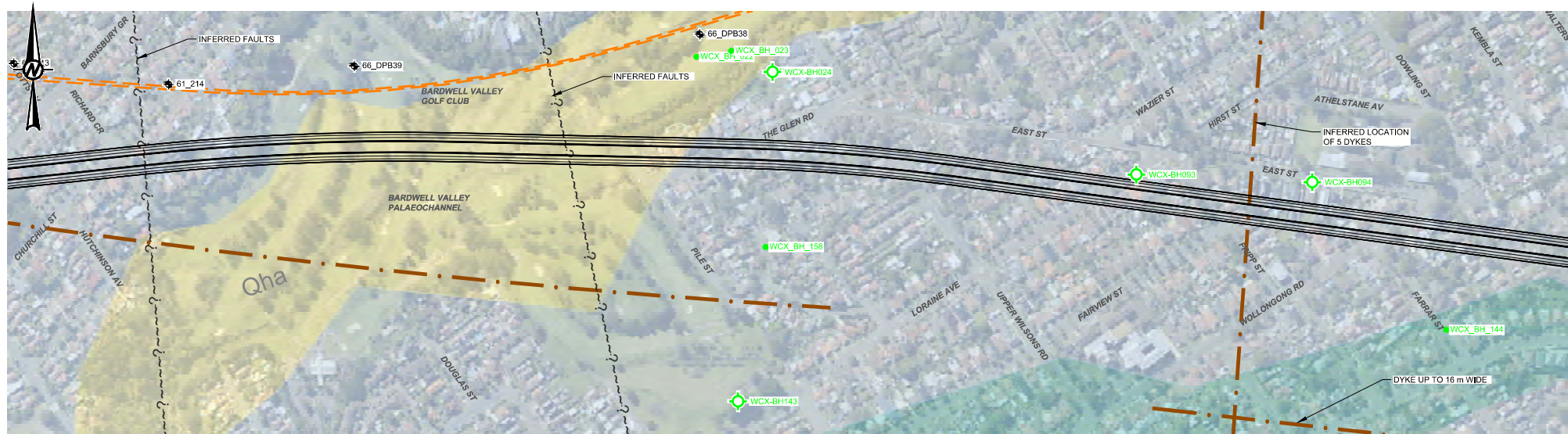
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DESIGN CHECK	SK	17.11.2015
DESIGN MANAGER		
PROJECT DIRECTOR		

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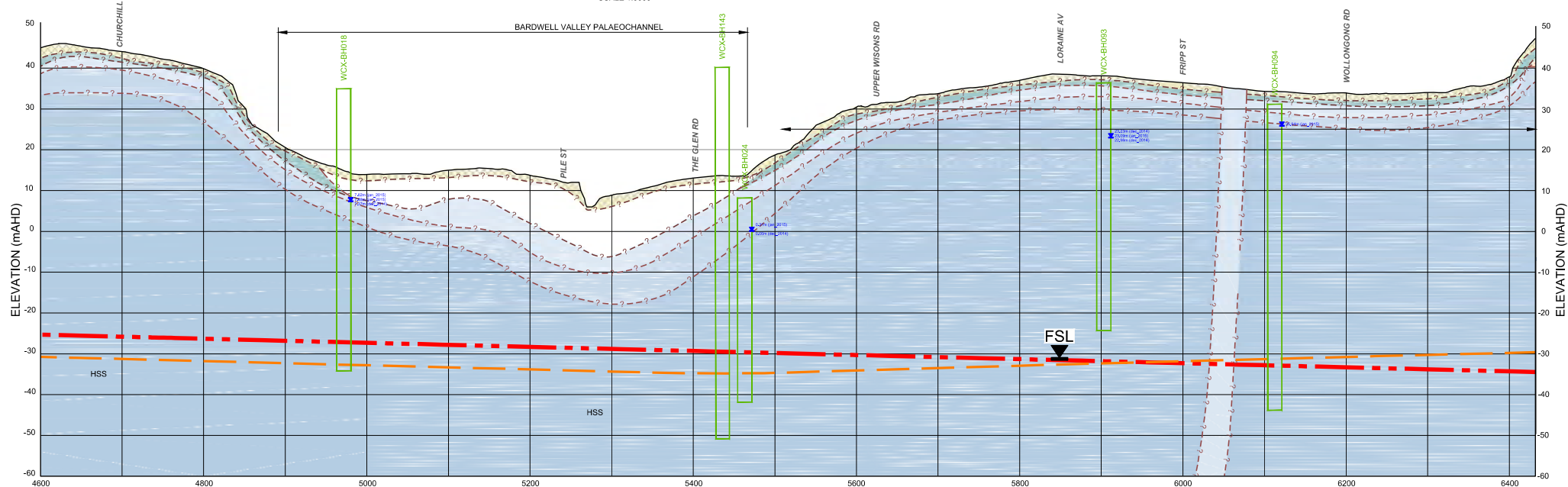
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TITLE
WESTERN SURFACE WORKS
HYDROGEOLOGICAL MODEL
MAIN TUNNEL M210 EASTBOUND
CHAINAGE 2800 - 4600

SHEET
3 OF 9



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SCALE 1:5000



LONGITUDINAL SECTION - MAIN TUNNEL M210 EASTBOUND CHAINAGE 4600 - 6400

HORIZ. SCALE 1:5000
VERT. SCALE 1:1000

LEGEND



PROPOSED WELL



EXISTING WELL

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C	17.11.2015	FOR INCLUSION IN EIS APPENDIX

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DESIGN CHECK	SK	17.11.2015
DESIGN MANAGER		
PROJECT DIRECTOR		

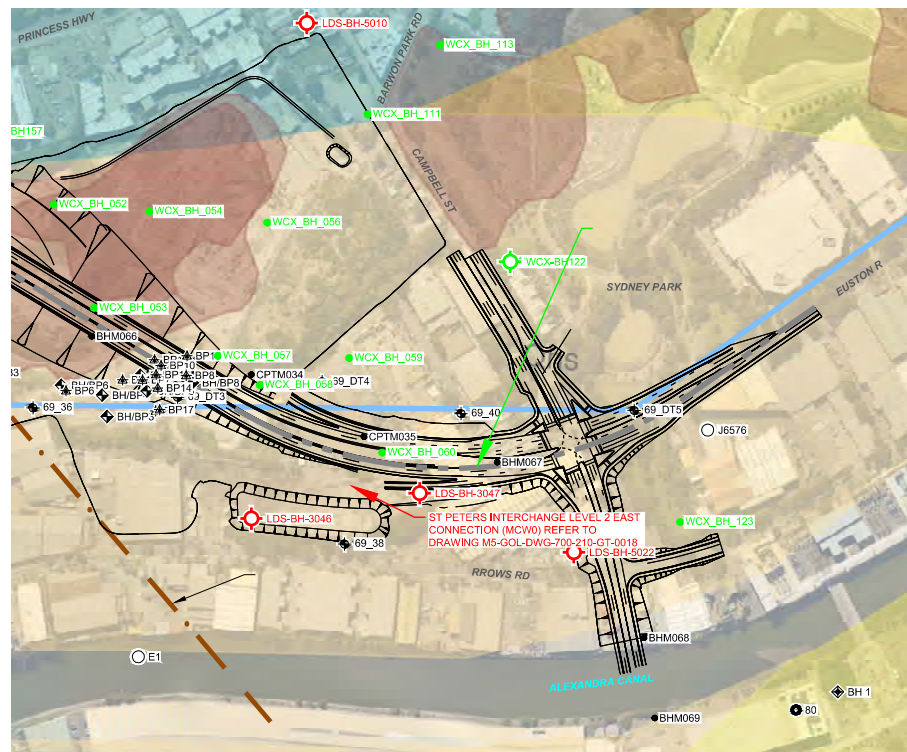
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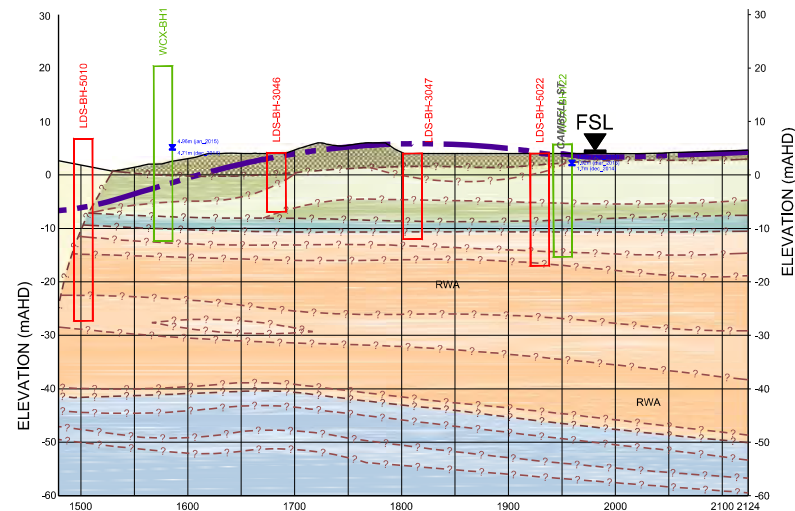
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NEW M5 MAIN WORKS DESIGN & CONSTRUCT**
TITLE
**WESTERN SURFACE WORKS
HYDROGEOLOGICAL MODEL
MAIN TUNNEL M210 EASTBOUND
CHAINAGE 4600 - 6400**

ALIGNMENT BASED ON DATA PROVIDED IN TAN44 RECEIVED
11 FEBRUARY 2015 (M210) REV D

STATUS	CONCEPT DESIGN NOT FOR CONSTRUCTION
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SCALE 1:5000



HORZ. SCALE 1:5000
VERT. SCALE 1:1000

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PROJECT	WESTCONNEX STAGE 2 NEW M5 MAIN WORKS DESIGN & CONSTRUCT	
TITLE	NORTHERN RAMPS AND STAGE 3 STUBS HYDROGEOLOGICAL MODEL ST PETERS LEVEL 1 NORTH RAMP (MCA0) CHAINAGE 1500 - 2124	SHEET 9 OF 9

ALIGNMENTS BASED ON DATA PROVIDED IN TAN16 RECEIVED
13 FEBRUARY 2015 REV G

INFORMATION SHOWN ON THIS DRAWING IS PRELIMINARY ONLY
AND SUBJECT TO ADJUSTMENT DURING DETAILED DESIGN STAGE.

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