APPENDIX A

DEVELOPMENT APPLICATION ARCHITECTURAL DRAWINGS

REV. #	ISSUE DATE	ISSUE REASON
1	26/04/10	ISSUE FOR DEVELOPMENT APPROVAL

Team Design Australia

Drawing Schedule

Sheet Number	Sheet Name
DA001	Development Proposal
DA002	Existing Site
DA003	Existing Ex-Services Club Plans
DA004	Development Staging Analysis
DA005	Floor Area Analysis
DA101	Stage 1 - Site Layout Plan
DA102	Stage 1 - Level 1 Floor Plan
DA103	Stage 1 - Level 2 Floor Plan
DA104	Stage 1 - Levels 3 & 4 Floor Plans
DA105	Stage 1 - Elevations
DA106	Stage 1 - Sections & Perspective Views
DA201	Stage 2 - Site Layout Plan
DA202	Stage 2 - Level 1 Floor Plan
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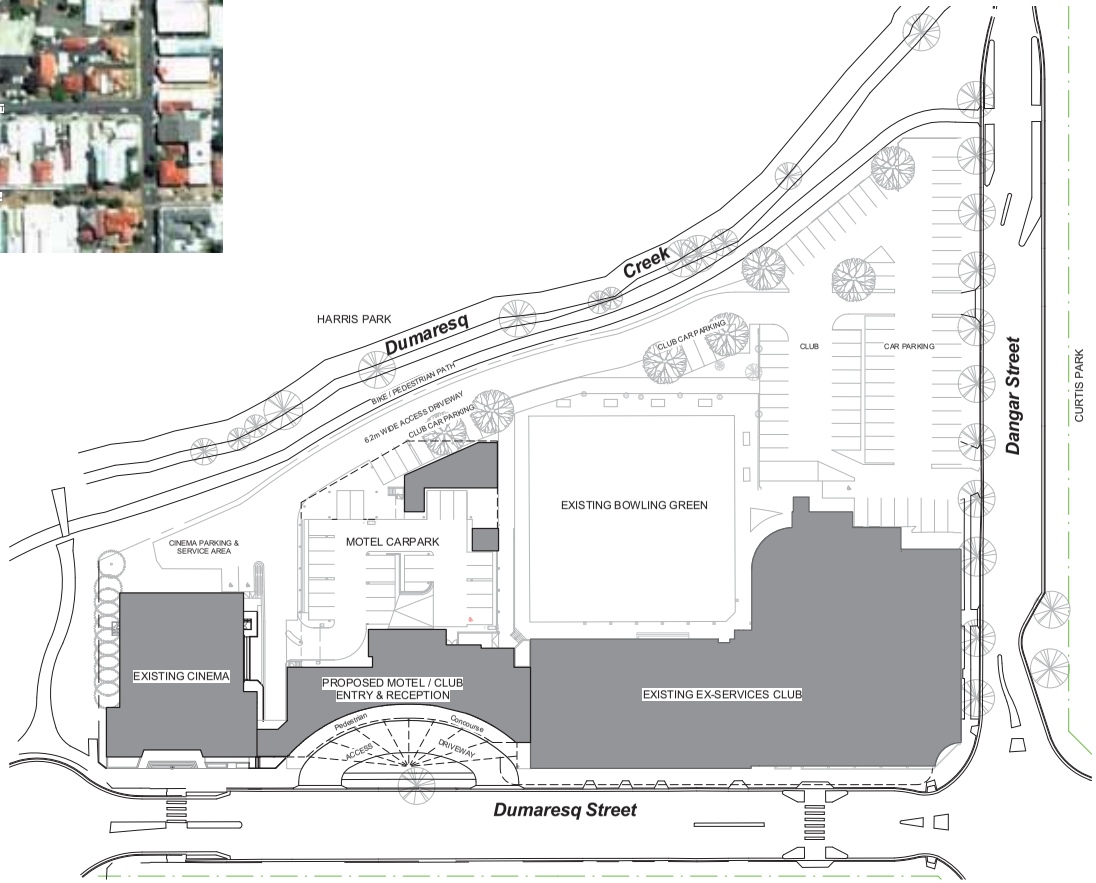
DA204	Stage 2 - Levels 3 & 4 Floor Plan
DA205	Stage 2 - Elevations
DA206	Stage 2 - Sections & Perspective Views
DA301	Stage 3 - Site Layout Plan
DA302	Stage 3 - Level 1 Floor Plan
DA303	Stage 3 - Level 2 Floor Plan
DA304	Stage 3 - Levels 3 & 4 Plans & Roof Plan
DA305	Stage 3 - Elevations
DA306	Stage 3 - Sections & Perspective Views

Location Map



Overall Development Proposal

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Development Proposal

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA001** / 1

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Revision Schedule		
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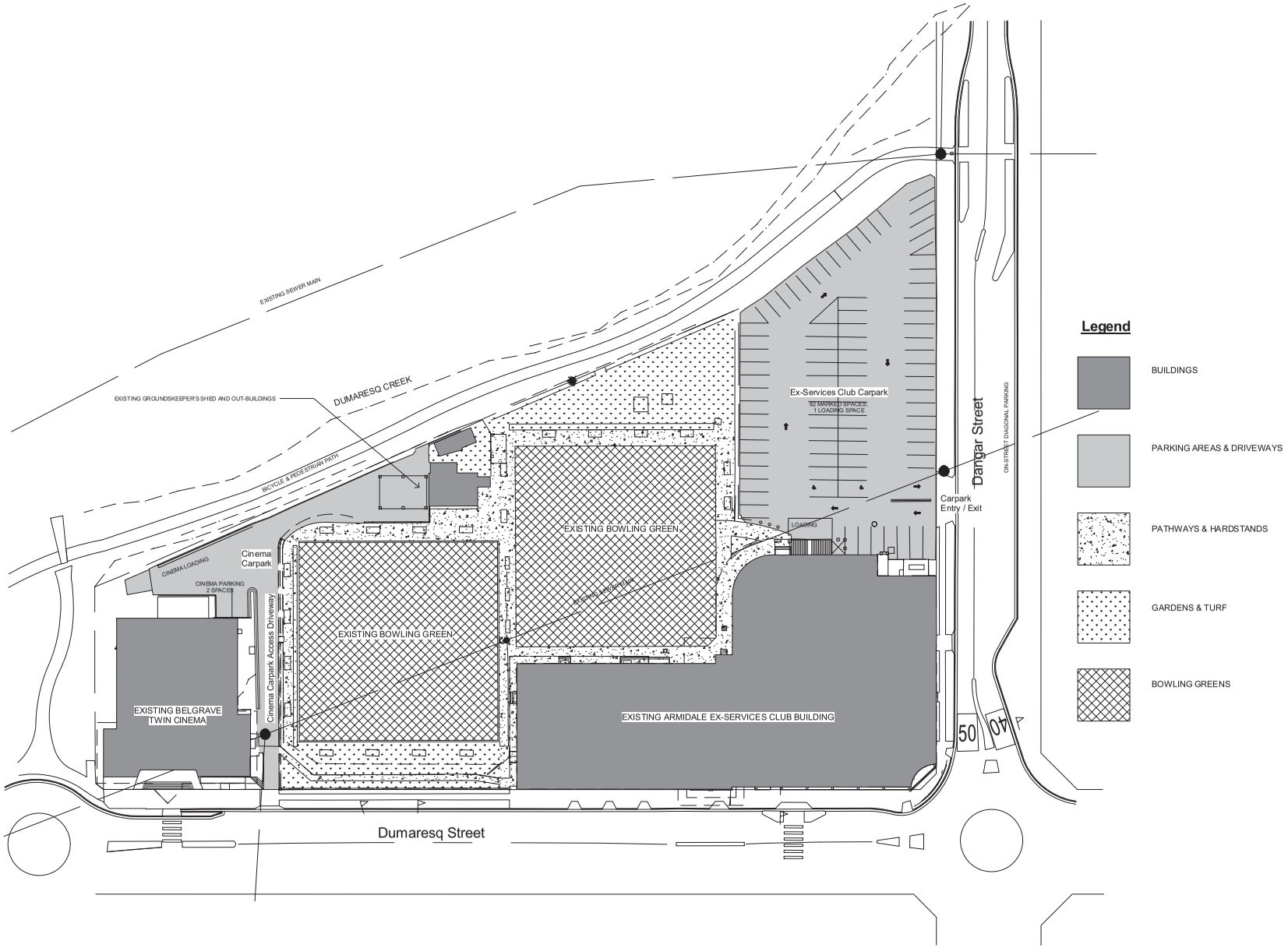

Legend

- BUILDINGS
- PARKING AREAS & DRIVEWAYS
- PATHWAYS & HARDSTANDS
- GARDENS & TURF
- BOWLING GREENS

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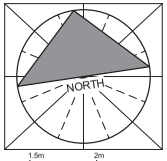
Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale

Existing Site

ORIENTATION



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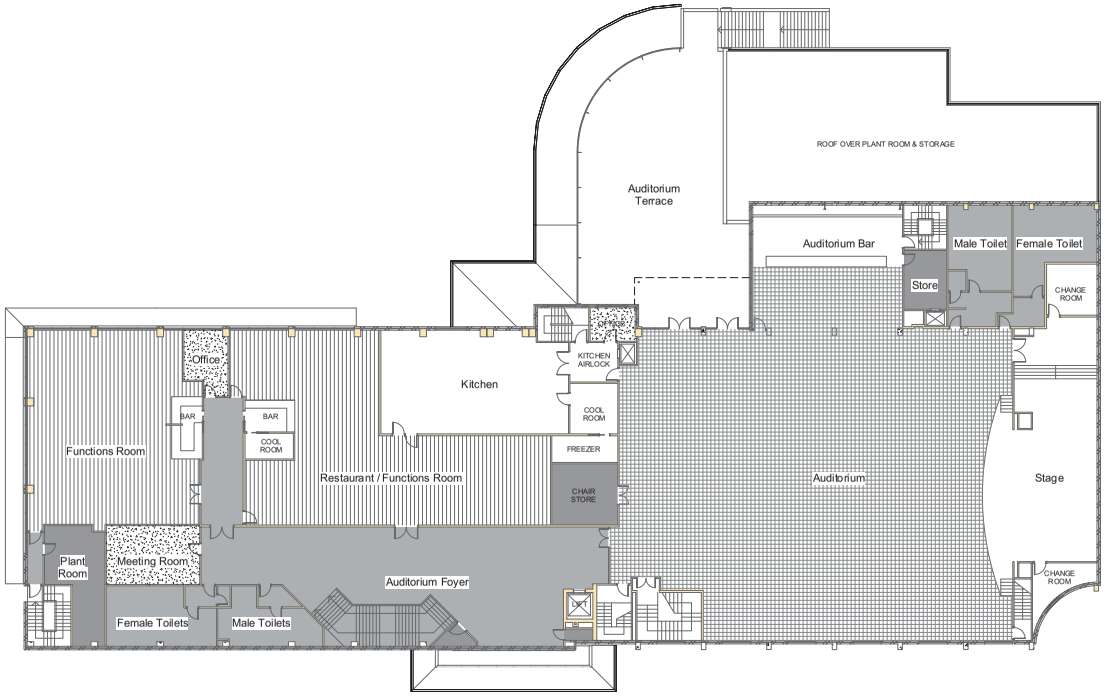
Revision Schedule		
Number	Date	Description
1	26/04/10	ISSUE FOR DEVELOPMENT APPROVAL

2 Existing Club Level 2 Floor Plan

DA10.5 1 : 200

Club Areas

- AMENITIES / CIRCULATION
- ADMINISTRATION
- STORAGE / PLANT
- AUDITORIUM
- RESTAURANT

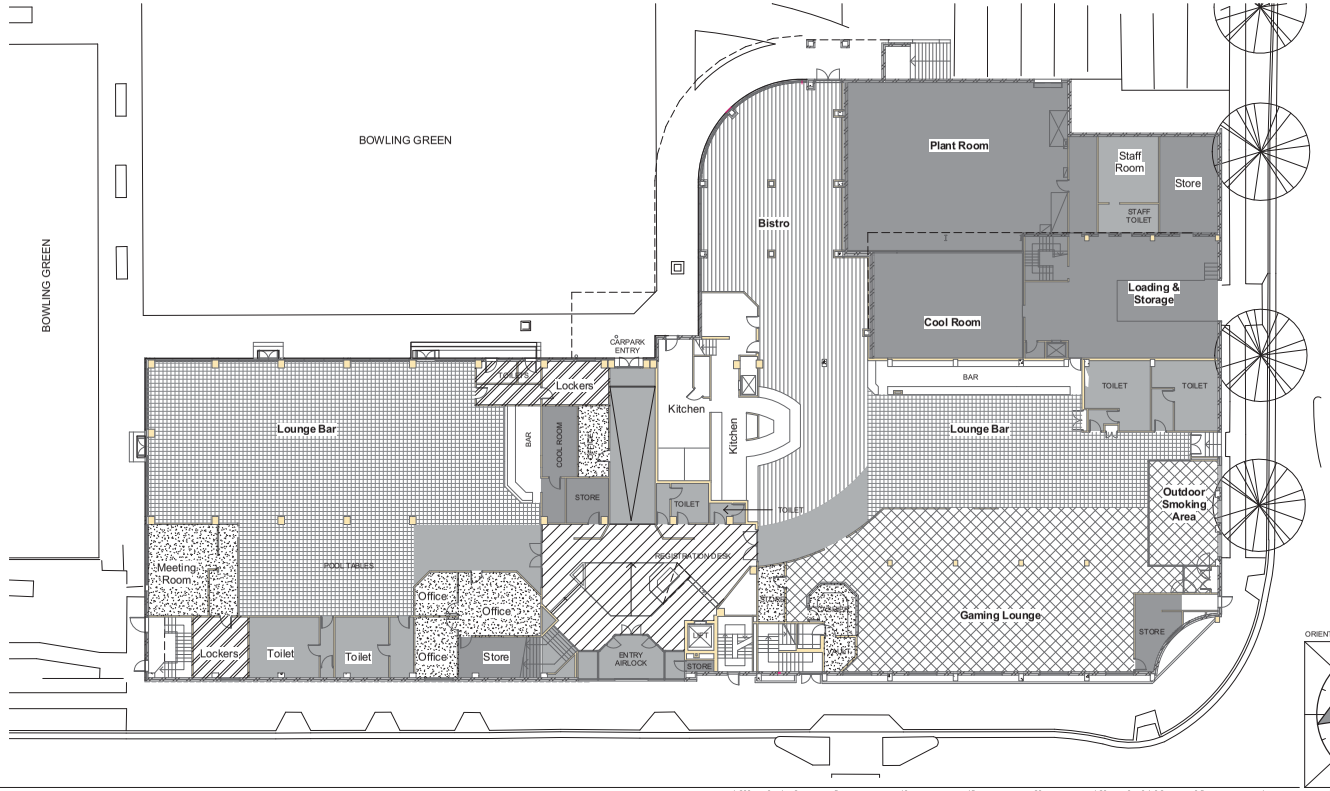


1 Existing Club Level 1 Floor Plan

DA10.5 1 : 200

Club Areas

- RECEPTION
- AMENITIES / CIRCULATION
- ADMINISTRATION
- STORAGE / PLANT
- BAR
- RESTAURANT
- GAMING
- BOWLER'S AMENITIES



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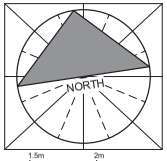

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Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale

Existing Ex-Services Club Plans

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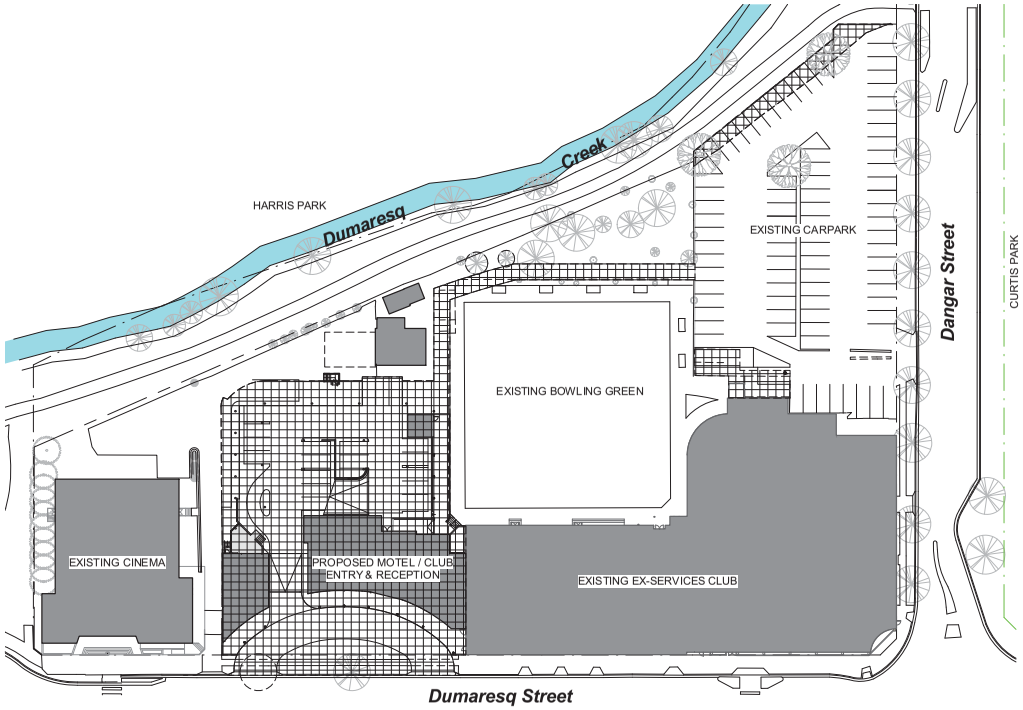
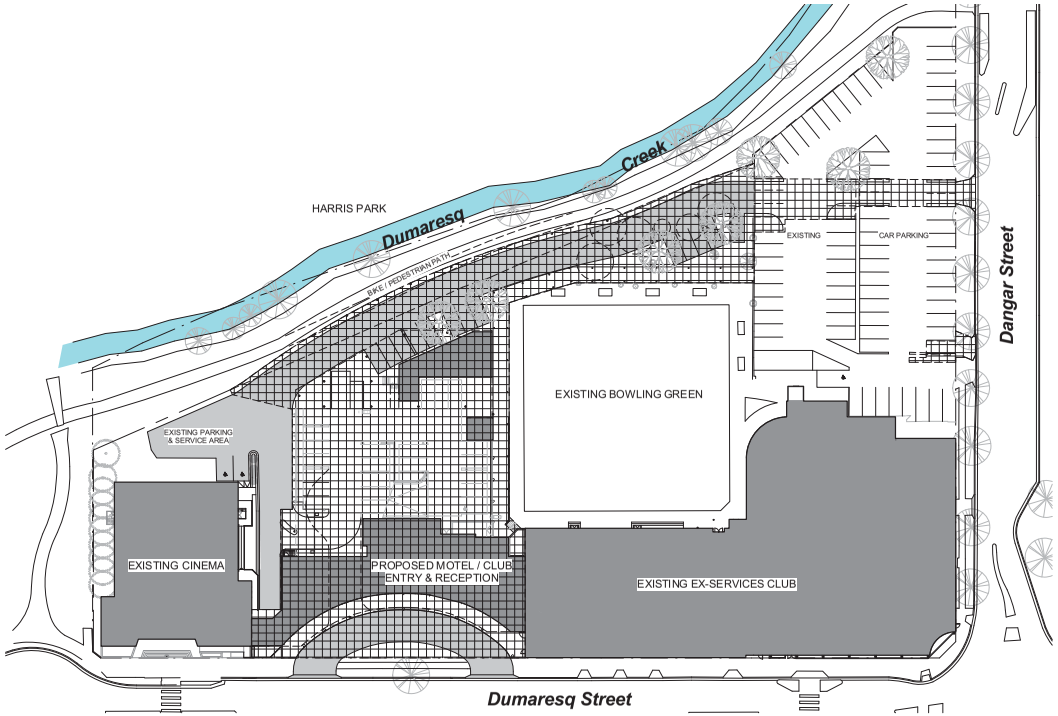
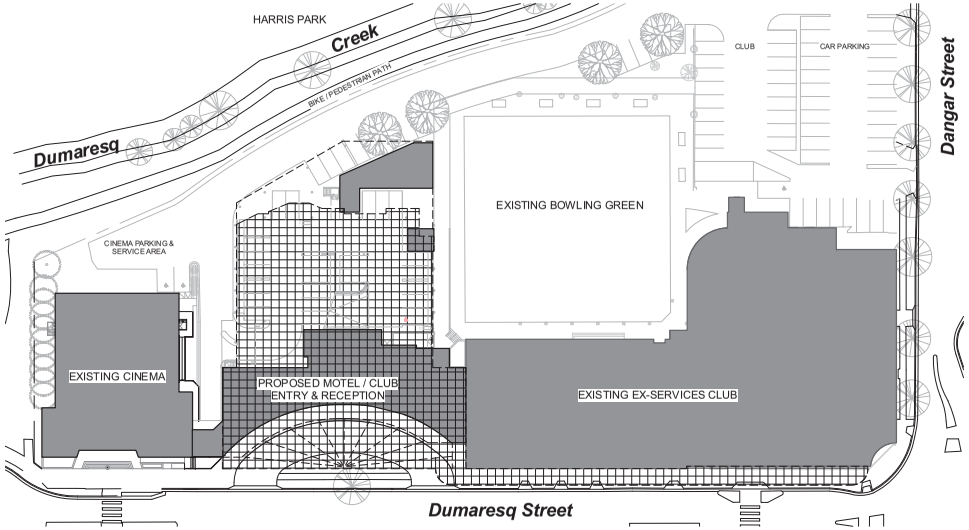


Stage 1 Development Area



Stage 2 Development Area



Stage 3 Development Area

Schedule of Staged Development Activity

STAGE 1

- Removal of the existing bowling green
- Construction of a multi-deck parking structure containing forty-four car parking spaces (including manager's parking and parking for up to ten staff), with direct access to the new Club / Motel Entry.
- Construction of the new Club Entry, incorporating Club access and Motel Reception.
- Construction of a Manager's Unit at ground floor level.
- Construction of twenty-three Motel units and two executive suites over two levels above the Club Entry and Car Park.
- Construction of an access path from the existing Club parking area to the new Club Entry.
- Construction of a new access driveway from Dumaresq Street for access to Motel Car Park and Pick-up / Drop Off to Club Entry.
- Removal of portions of the existing Club external walls to allow access to the Club Ground Floor from the new Club Entry.
- Construction of new steps and ramp for access from the new Club Entry to the existing Club Ground Floor.
- Modifications to existing Club carpark to comply with AS2890.1, including relocate loading space.
- Construction of new service lift at the rear of the Club building for access to Club Auditorium.
- Relocation of existing Club airconditioning plant to new plant deck at rear of Club building.

STAGE 2

- Re-alignment of the existing bicycle / footpath along Dumaresq Creek.
- Construction of a new access driveway to link the existing parking areas for the Club and Cinema.
- Demolition of the existing Greenkeeper's Shed.
- Construction of an awning over the access path from the existing Club parking area to the new Club Entry.
- Construction of six additional motel rooms, a Manager's Residence and an open atrium area at Level 3.
- Closure of the Stage 1 Motel Car Park access.
- Construction of an internal link between the Club Entry and the Cinema, relocation of the Motel Reception and incorporation of the Stage 1 Manager's Residence into the new works.
- Construction of an extension to the upper level of the Motel Car Park for the inclusion of eleven additional car spaces.
- Construction of a new Bowler's Amenities and Meeting facility at ground level under the Car Park extension.
- Provision of new Plant Deck above existing Main Plant Room and Relocation of the existing Club administration offices to previous Plant Room space.
- Relocation of the existing Club gaming area (excluding the cost of relocating gaming machines), including upgrading of the existing Sportsman's Bar bar and reducing the size of the existing cool room.
- Provision of suitable smoking facilities for patrons, adjacent to the relocated gaming area, to suit NSW anti-smoking legislation.
- Modifications to the area under the existing First Floor Access Stair to allow for a relocated Staff Room and to open the access path from the new Club Entry to the facilities at the eastern end of the Club ground floor.
- Relocation and upgrade of existing A/C plant at First Floor level to allow for access from the new Club Entry first floor level to the existing Restaurant and Function Rooms.
- Relocation of the existing Club boardroom to allow for access from the new Club Entry first floor level to the existing Restaurant and Function Rooms.

STAGE 3

- Construction of an additional Motel level containing twenty motel units / suites.
- Construction of a glazed Porte Cochere over the access driveway from Dumaresq Street.
- Construction of a new glazed footpath awning along the length of the Club's Dumaresq Street façade, and a portion of the Cinema façade, linking to the glazed Porte Cochere.
- Aesthetic treatments of the existing Club and Cinema facades to provide a coordinated street appearance to Dumaresq Street.

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Development Staging Analysis

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA004** / 1

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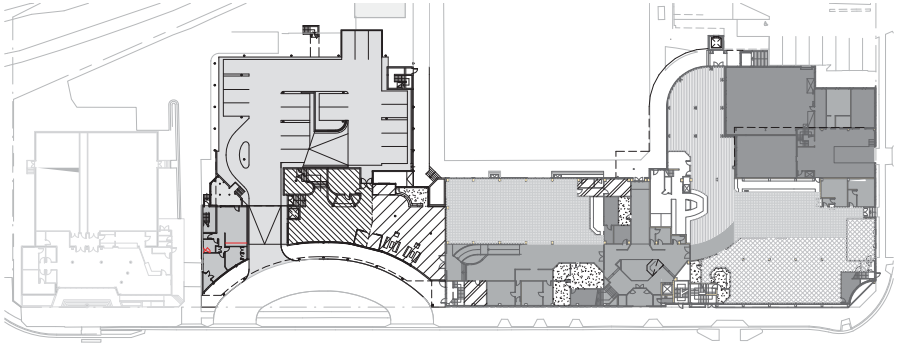


Stage 1 Level 1 Areas

Club Areas

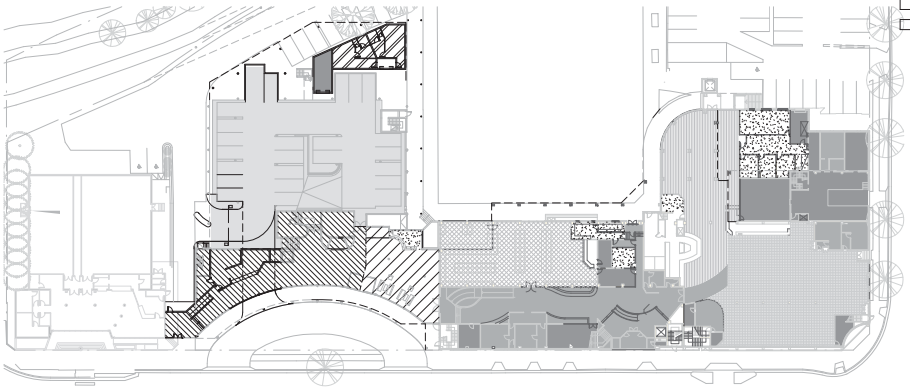
- RECEPTION
- BAR
- AMENITIES / CIRCULATION
- RESTAURANT
- ADMINISTRATION
- GAMING
- STORAGE / PLANT
- BOWLER'S AMENITIES

Motel Areas

- RECEPTION
- RESIDENTIAL / CIRCULATION

OtherAreas

- MOTEL CARPARK / CIRCULATION



Stage 2 Level 1 Areas

Club Areas

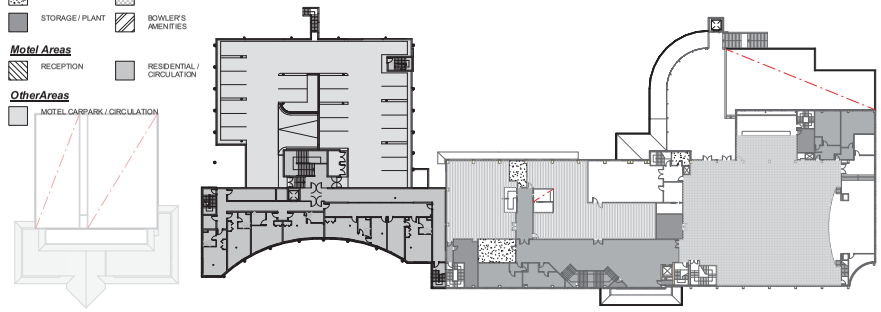
- RECEPTION
- BAR
- AMENITIES / CIRCULATION
- RESTAURANT
- ADMINISTRATION
- GAMING
- STORAGE / PLANT
- BOWLER'S AMENITIES

Motel Areas

- RECEPTION / CIRCULATION

OtherAreas

- MOTEL CARPARK / CIRCULATION



Stage 1 Level 2 Areas

Club Areas

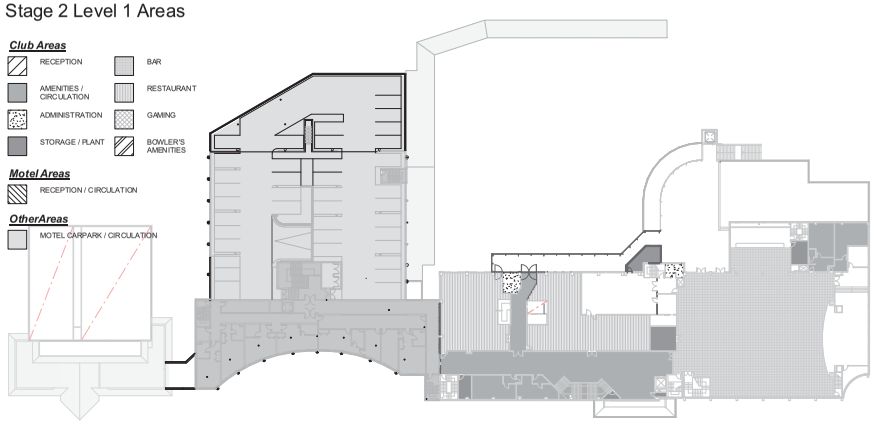
- AMENITIES / CIRCULATION
- AUDITORIUM
- ADMINISTRATION
- RESTAURANT
- STORAGE / PLANT

Motel Areas

- RESIDENTIAL / CIRCULATION

OtherAreas

- MOTEL CARPARK / CIRCULATION



Stage 2 Level 2 Areas

Club Areas

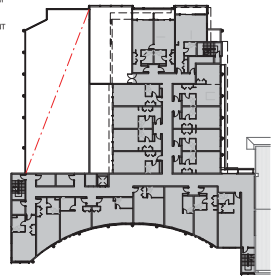
- AMENITIES / CIRCULATION
- RESTAURANT
- ADMINISTRATION
- AUDITORIUM
- STORAGE / PLANT

Motel Areas

- RESIDENTIAL / CIRCULATION

OtherAreas

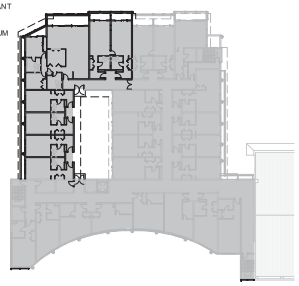
- MOTEL CARPARK / CIRCULATION



Stage 1 Level 3 Areas

Motel Areas

- RESIDENTIAL / CIRCULATION



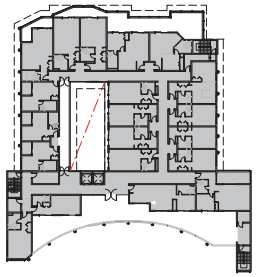
Stage 2 Level 3 Areas

Motel Areas

- RESIDENTIAL / CIRCULATION

Area Schedule

Function	Area			
	Existing	Stage 1	Stage 2	Stage 3
Club Level 1				
RESTAURANT	269.5m²	269.5.5m²	338.5m²	
BARS	580.0m²	490.0m²	496.7m²	
GAMING AREA	330.2m²	330.2m²	324.6m²	
RECEPTION	122.2m²	174.3m²	174.3m²	
AMENITIES / CIRCULATION	308.7m²	56.8.0m²	613.0m²	
STORAGE / PLANT	546.3m²	546.3m²	432.6m²	
ADMINISTRATION	139.0m²	111.0m²	197.0m²	
BOWLER'S AMENITIES	52.5m²	52.5m²	78.7m²	
Motel Level 1				
RECEPTION		213.0m²	407.7m²	
RESIDENTIAL / CIRCULATION		102.5m²		
Club Level 2				
RESTAURANT / FUNCTION ROOMS	393.5m²	393.5m²	381.5m²	
AUDITORIUM	684.7m²	684.7m²	894.7m²	
AMENITIES / CIRCULATION	401.6m²	401.6m²	469.0m²	
STORAGE	72.6m²	72.6m²	70.2m²	
ADMINISTRATION	53.5m²	53.5m²	20.3m²	
Motel Level 2				
RESIDENTIAL / CIRCULATION		612.5m²	612.5m²	
Motel Level 3				
RESIDENTIAL / CIRCULATION		1071.4m²	1459.3m²	
Motel Level 4				
RESIDENTIAL / CIRCULATION				1169.6m²



Stage 3 Level 4 Areas

Motel Areas

- RESIDENTIAL / CIRCULATION

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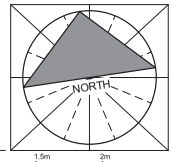
Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale

Floor Area Analysis

ORIENTATION



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2	22/01/10	ISSUED FOR CONSULTANT COORDINATION
3	26/04/10	ISSUE FOR DEVELOPMENT APPROVAL

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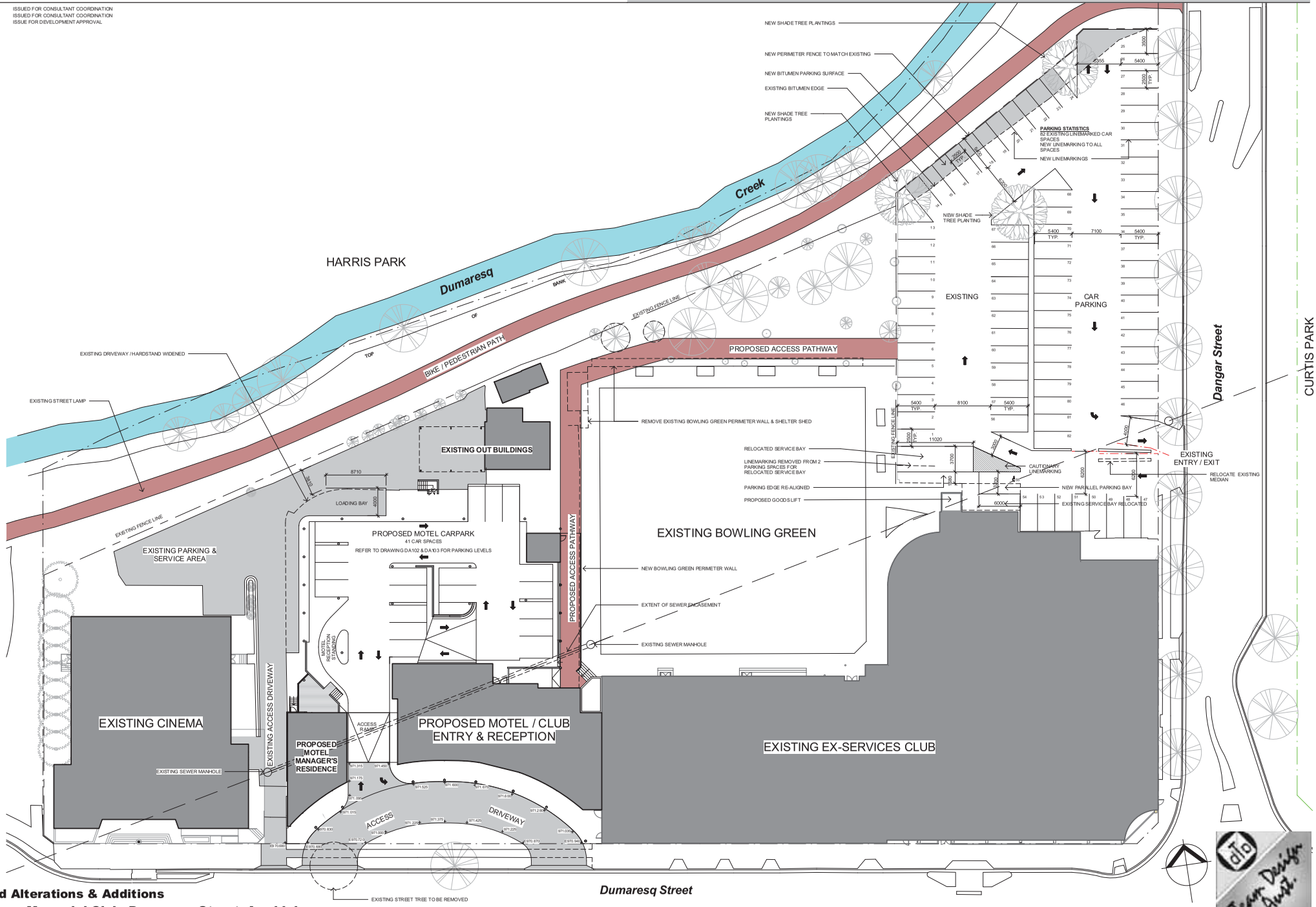

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 1 - Site Layout Plan

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA101** / 3

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LEGEND

C CHANGE ROOM
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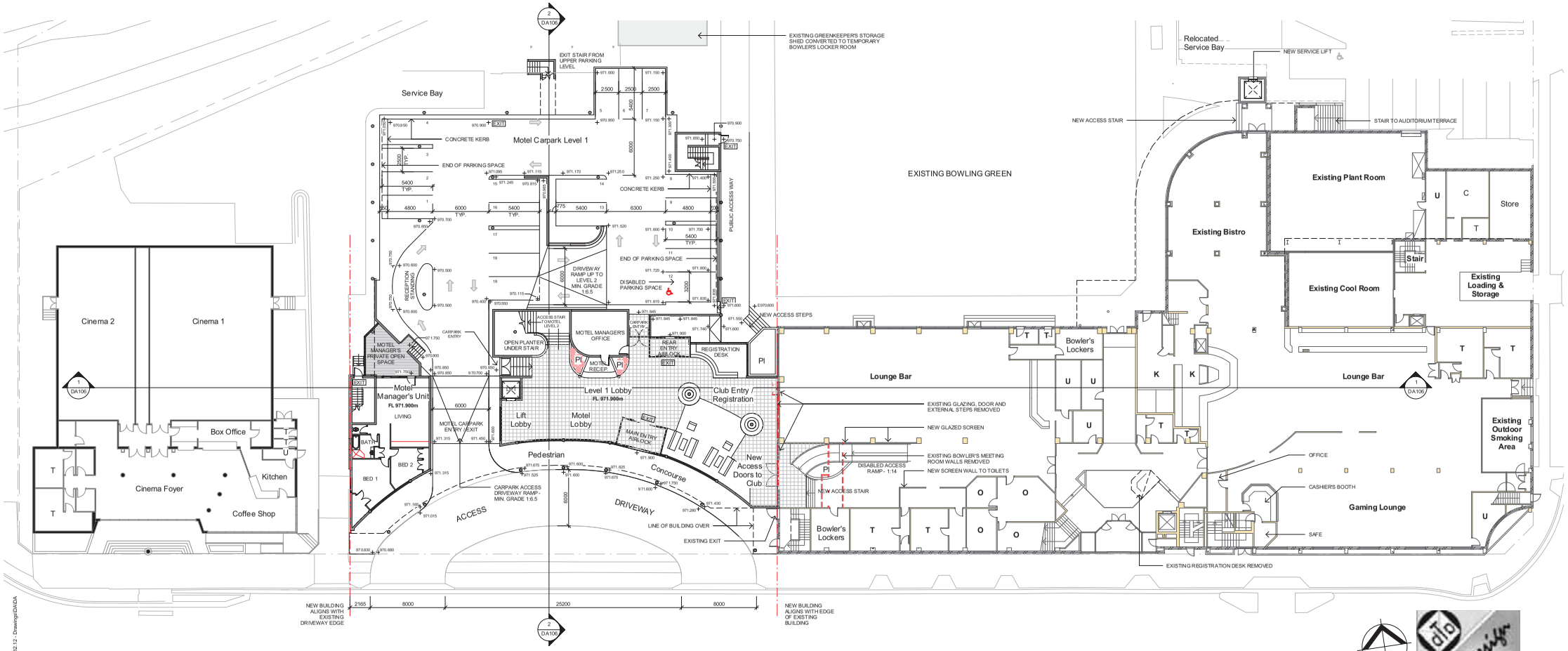

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 1 - Level 1 Floor Plan

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA102** /3

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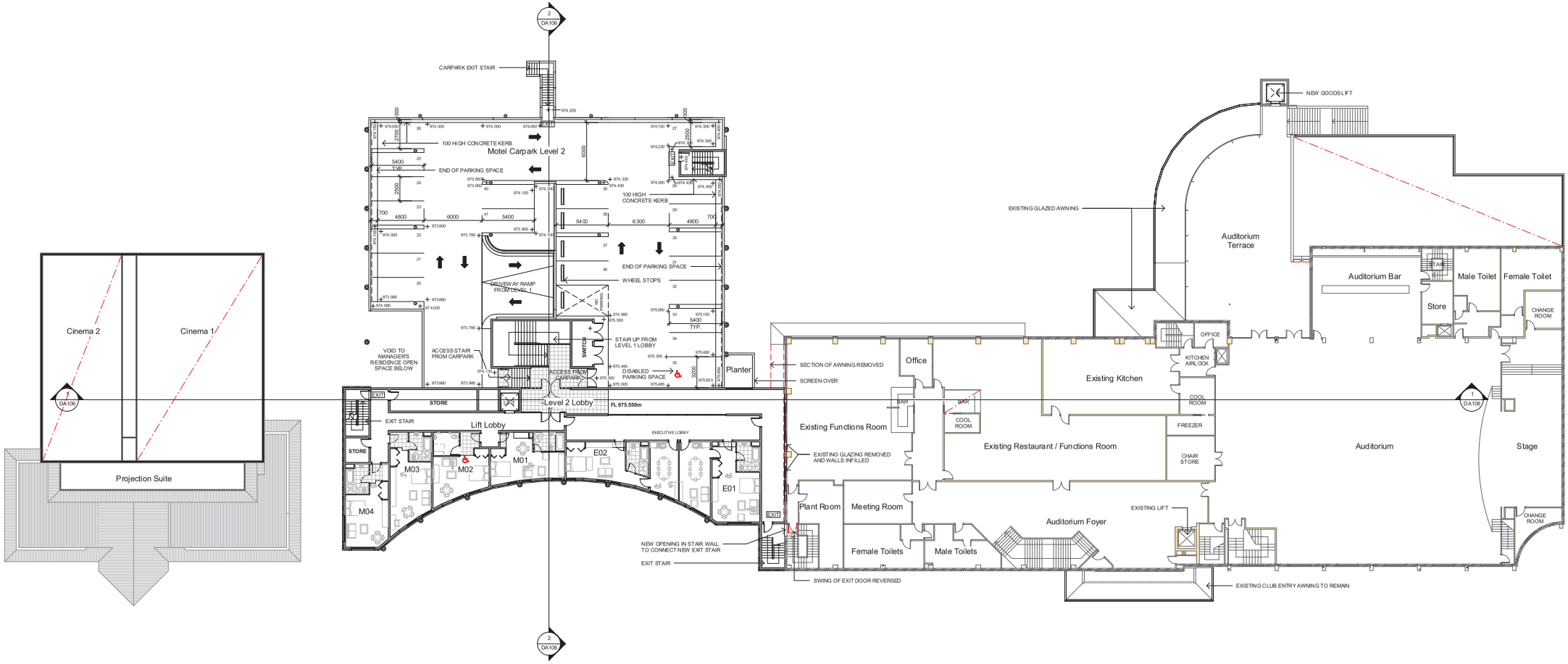

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 1 - Level 2 Floor Plan

PROJECT DATE : November 2009
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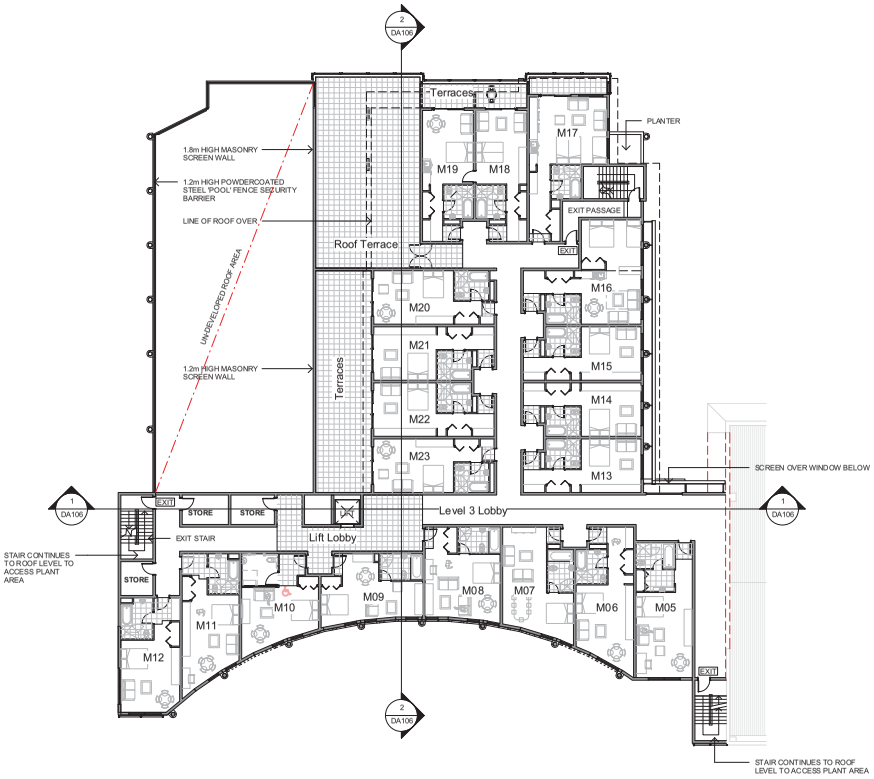
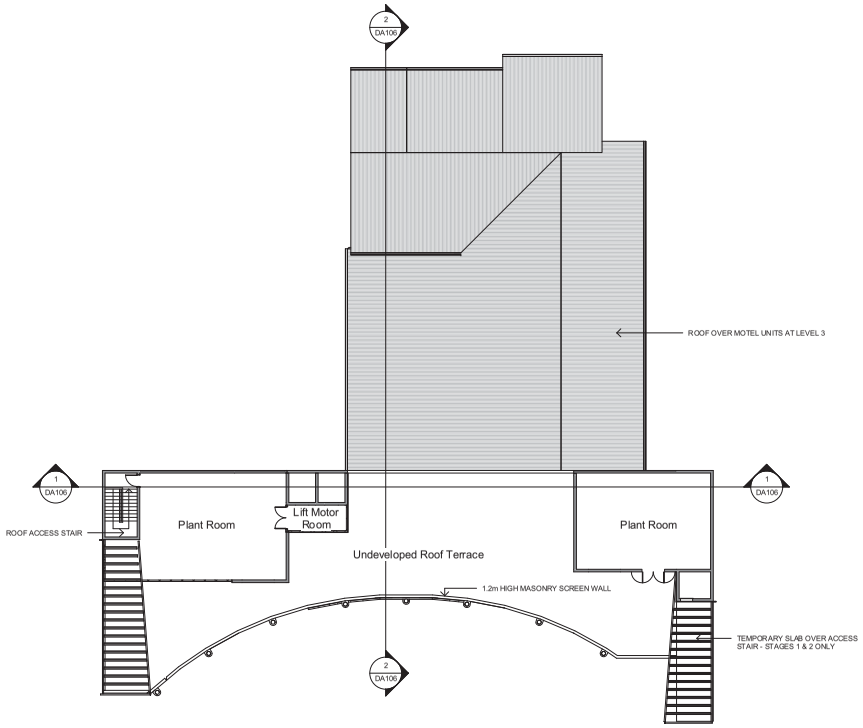


1 DA105 Level 3 Floor Plan
1 : 200



2 DA105 Level 4 / Roof Plan
1 : 200

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 1 - Levels 3 & 4 Floor Plans

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA104** / 1

SCALE @ A1 - 1 : 200
WHEN PLOTTED TO A3, SCALE DOUBLES

TEAM DESIGN AUSTRALIA BUILDING DESIGN CONSULTANTS Suite 14 Hannas Arcade Beardy Street PO Box 1471 ARMIDALE NSW 2350 PH (02) 6771 4977 FAX (02) 6772 2193 tdamail@teamdesignaust.com www.teamdesignaust.com

1:200 0 1 2 5 10m 15m 20m
1:100 0 0.5 1 2 5m 10m
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I:\090802 - Service Alts & Adds\02 - Architect\2.12 - Drawings\DA\DA - Development Proposal.rvt
23/04/2010 9:46:23 AM

REV. #	ISSUE DATE	ISSUE REASON
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2	26/04/10	ISSUE FOR DEVELOPMENT APPROVAL

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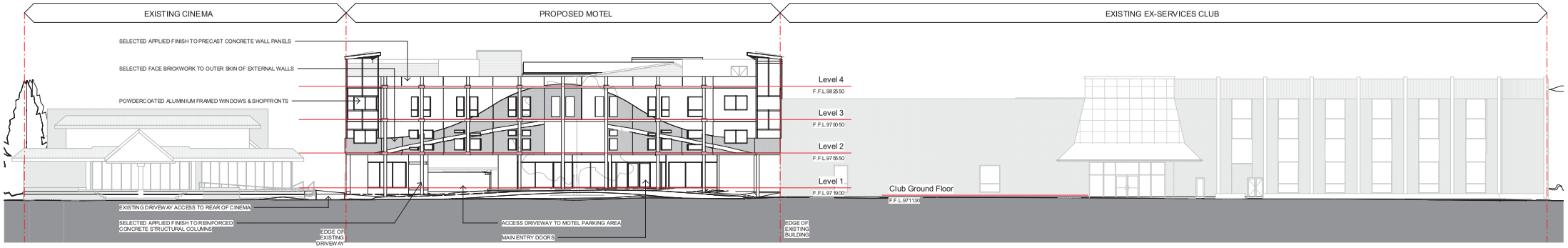
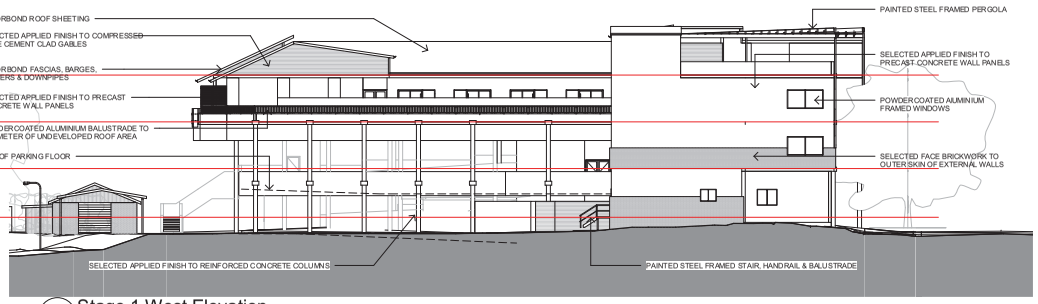
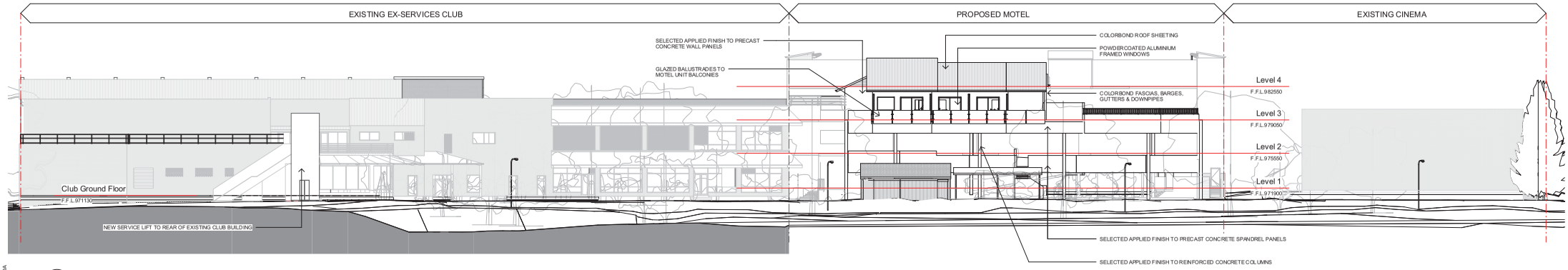


1 Stage 1 South Elevation
1 : 200

2 Stage 1 East Elevation
1 : 200



3 Stage 1 West Elevation
1 : 200



4 Stage 1 North Elevation
1 : 200

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 1 - Elevations

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA105** /2

SCALE @ A1 - 1 : 200
WHEN PLOTTED TO A3, SCALE DOUBLES

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REV. #	ISSUE DATE	ISSUE REASON
1	26/04/10	ISSUE FOR DEVELOPMENT APPROVAL

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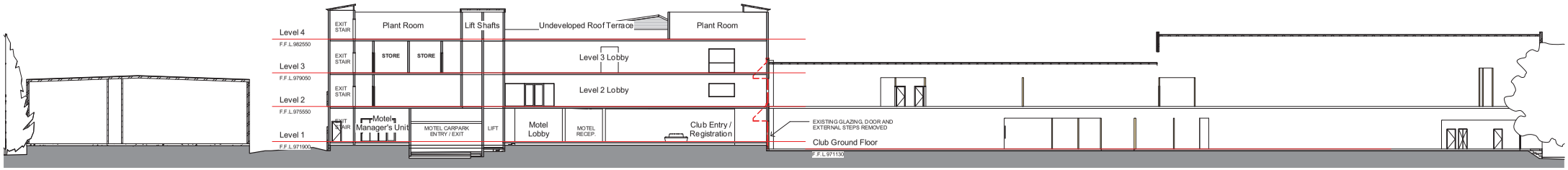
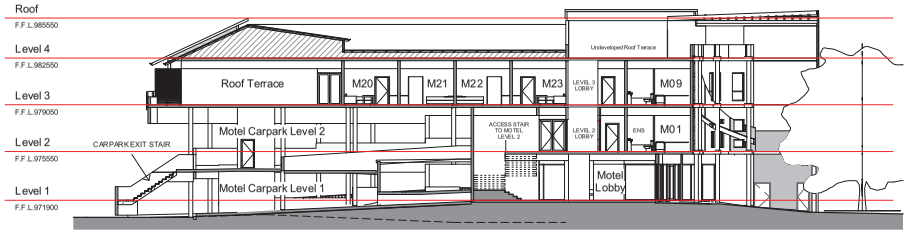
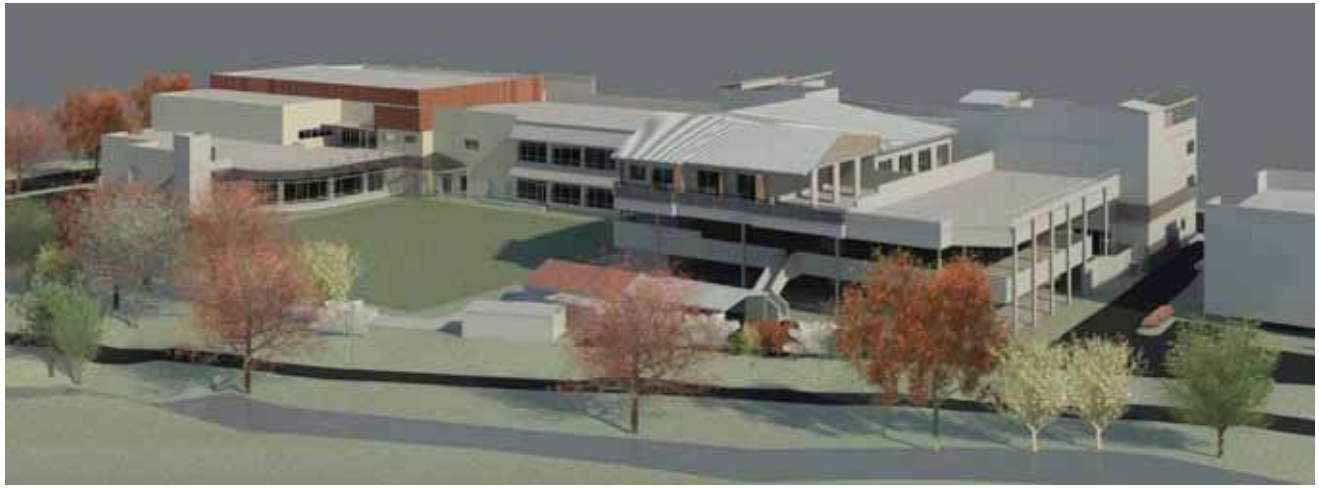


1 DA102 Stage 1 - Section B
1 : 200



2 DA102 Stage 1 - Section A
1 : 200

3 Stage 1 - View of Entry
1 : 1



4 Stage 1 - View Across Dumaresq Creek
1 : 1

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 1 - Sections & Perspective Views

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA106** / 1

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SCALE @ A1 - As indicated
WHEN PLOTTED TO A3, SCALE DOUBLES

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REV. #	ISSUE DATE	ISSUE REASON
1	04/01/10	ISSUED FOR CONSULTANT COORDINATION
2	22/01/10	ISSUED FOR CONSULTANT COORDINATION
3	26/04/10	ISSUE FOR DEVELOPMENT APPROVAL

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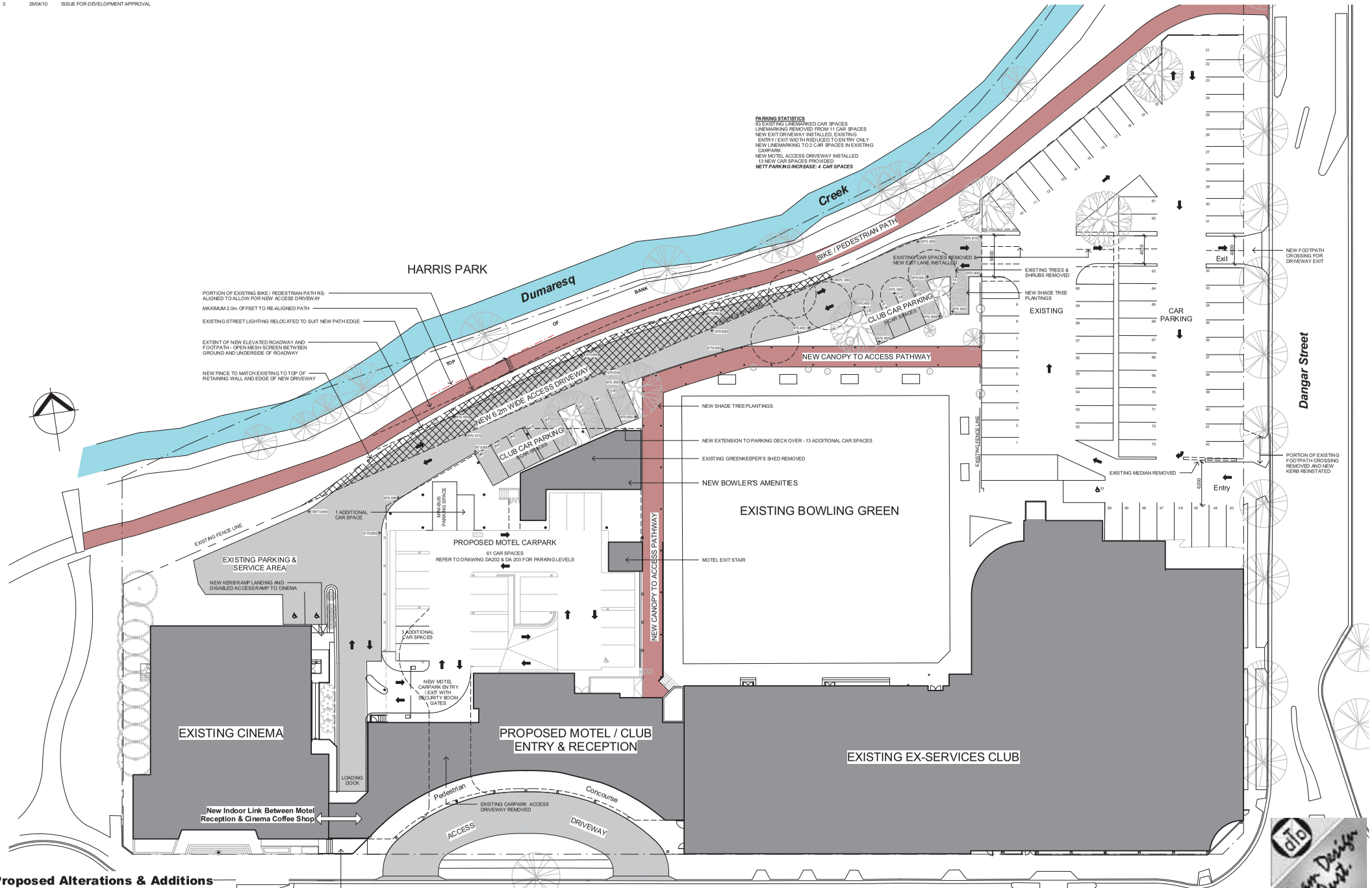

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Dumaresq Street
Stage 2 - Site Layout Plan

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA201** / 3

SCALE @ A1 - 1 : 250
WHEN PLOTTED TO A3, SCALE DOUBLES

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BUILDING DESIGN CONSULTANTS Suite 14 Hannas Arcade Beardy Street PO Box 1471 ARMIDALE NSW 2350 PH (02) 6771 4977 FAX (02) 6772 2193 tdamail@teamdesignaust.com www.teamdesignaust.com

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REV. #	ISSUE DATE	ISSUE REASON
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2	22/01/10	ISSUED FOR CONSULTANT COORDINATION
3	26/04/10	ISSUE FOR DEVELOPMENT APPROVAL

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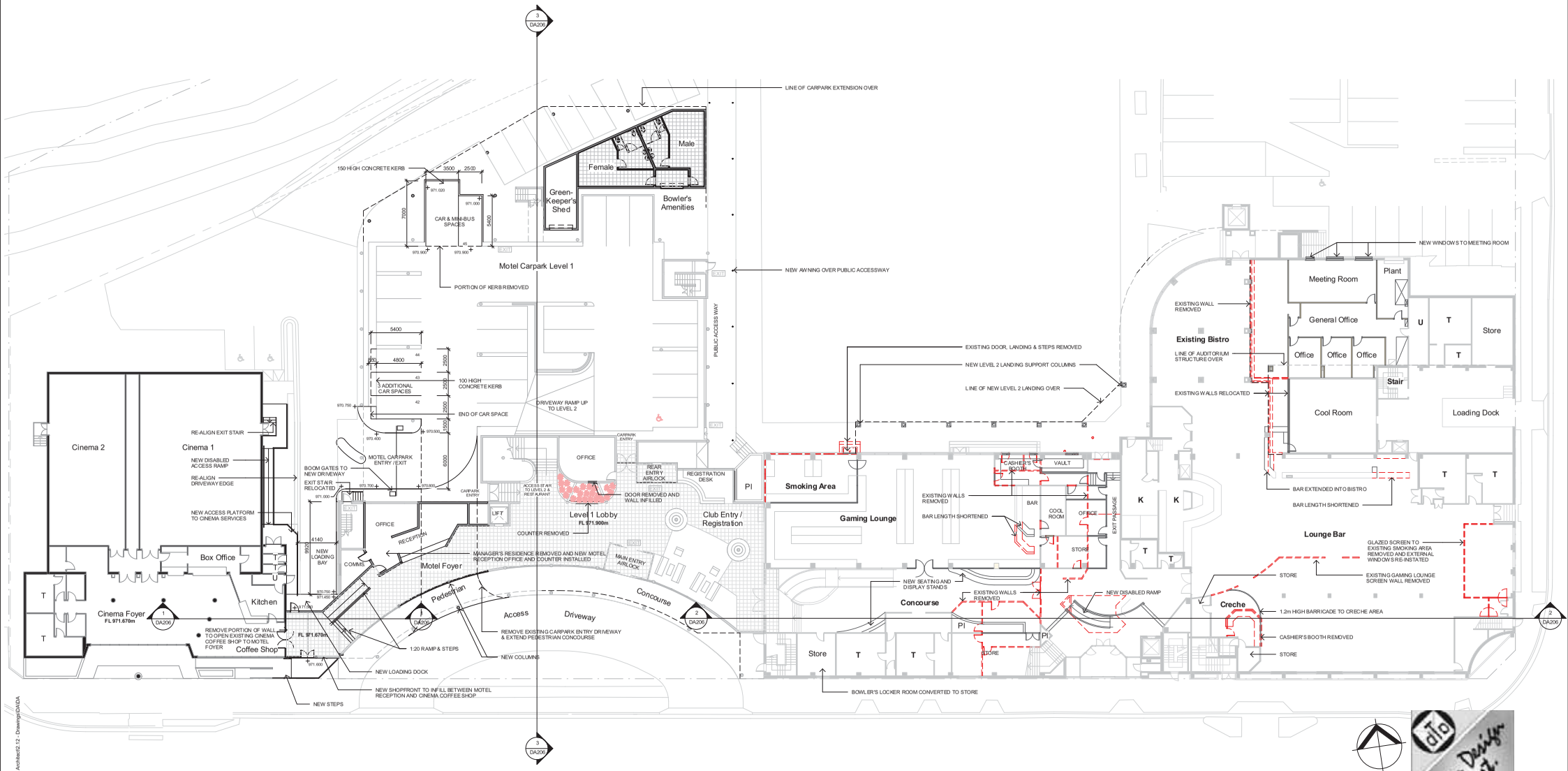

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 2 - Level 1 Floor Plan

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA202** /3

SCALE @ A1 - 1 : 200
WHEN PLOTTED TO A3, SCALE DOUBLES

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REV. #	ISSUE DATE	ISSUE REASON
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2	26/04/10	ISSUE FOR DEVELOPMENT APPROVAL

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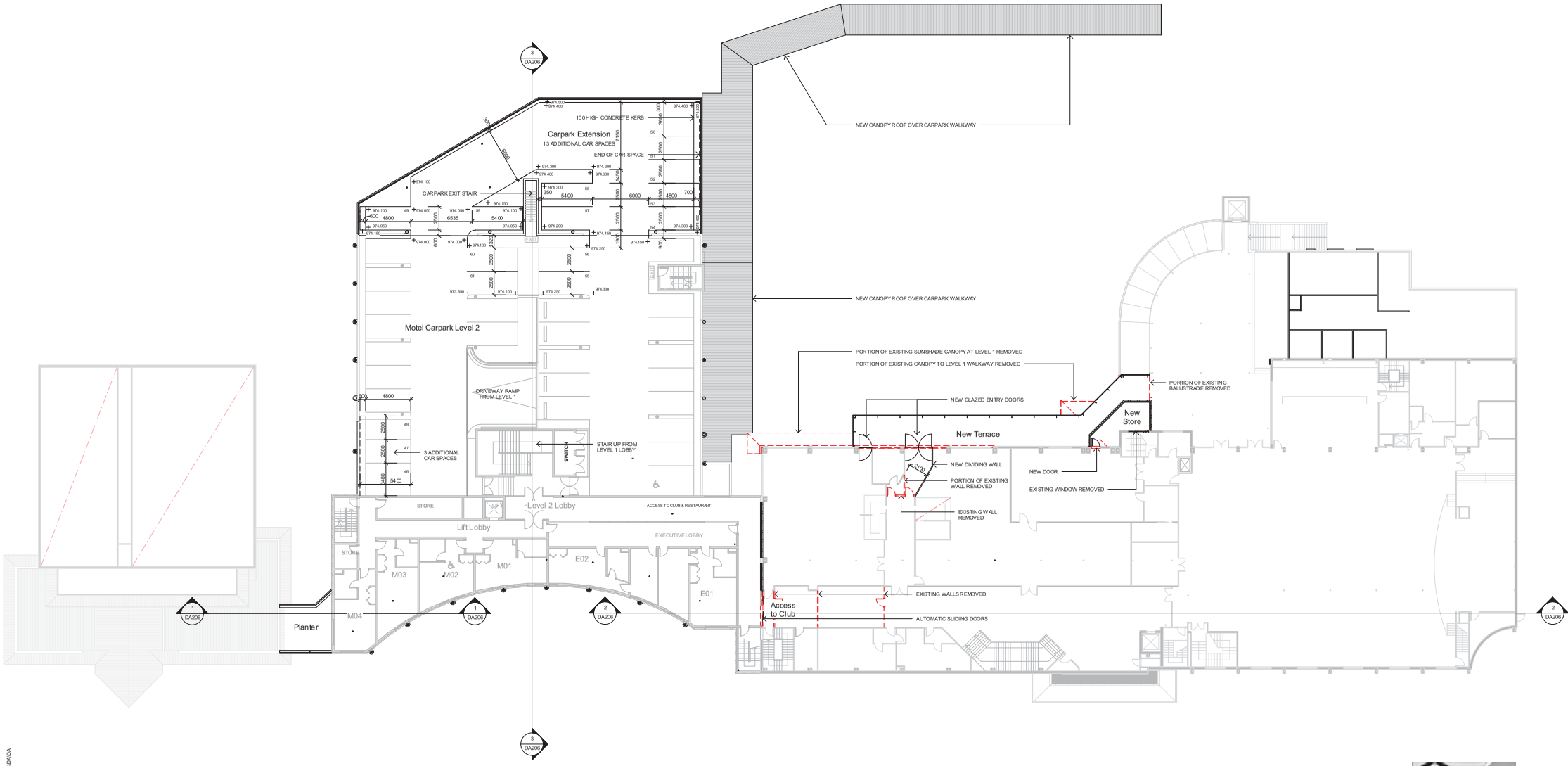

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 2 - Level 2 Floor Plan

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA203** /2

SCALE @ A1 - 1 : 200
WHEN PLOTTED TO A3, SCALE DOUBLES

TEAM DESIGN AUSTRALIA BUILDING DESIGN CONSULTANTS Suite 14 Hannas Arcade Beardy Street PO Box 1471 ARMIDALE NSW 2350 PH (02) 6771 4977 FAX (02) 6772 2193 tdamail@teamdesignaust.com www.teamdesignaust.com

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REV. #	ISSUE DATE	ISSUE REASON
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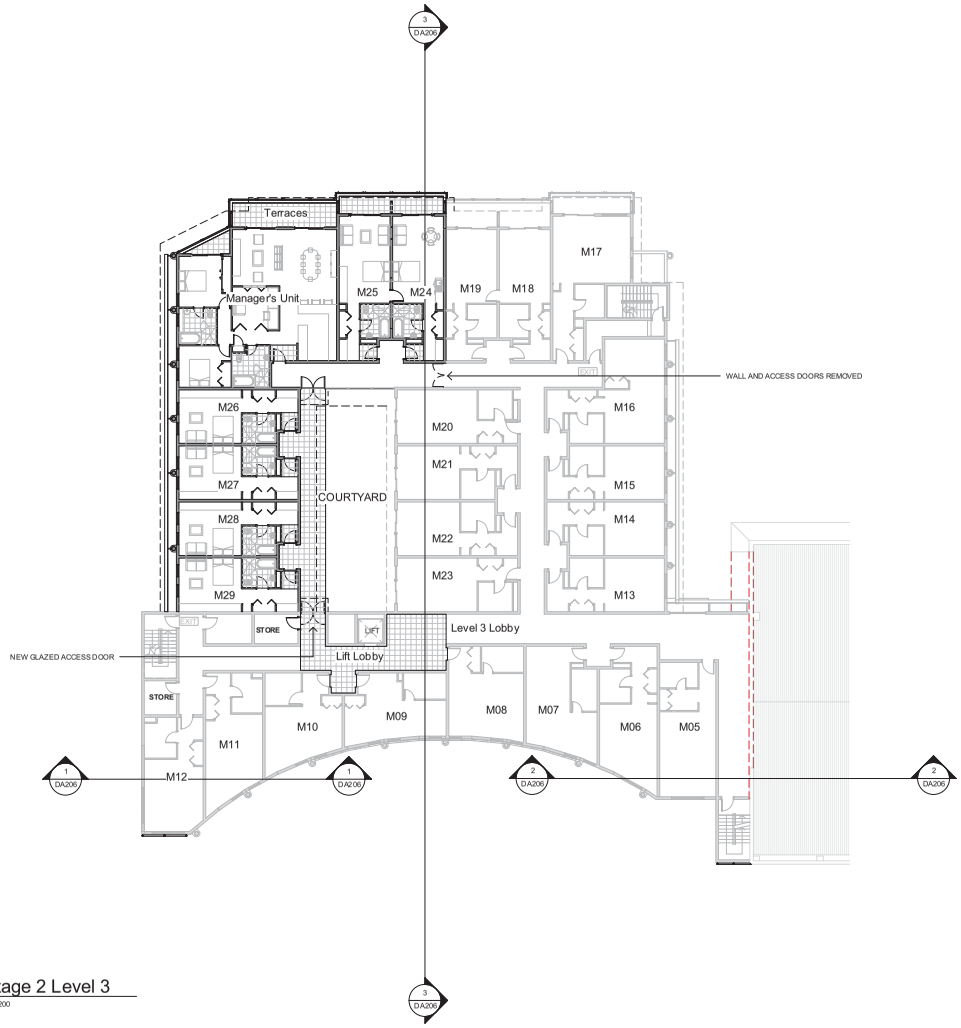
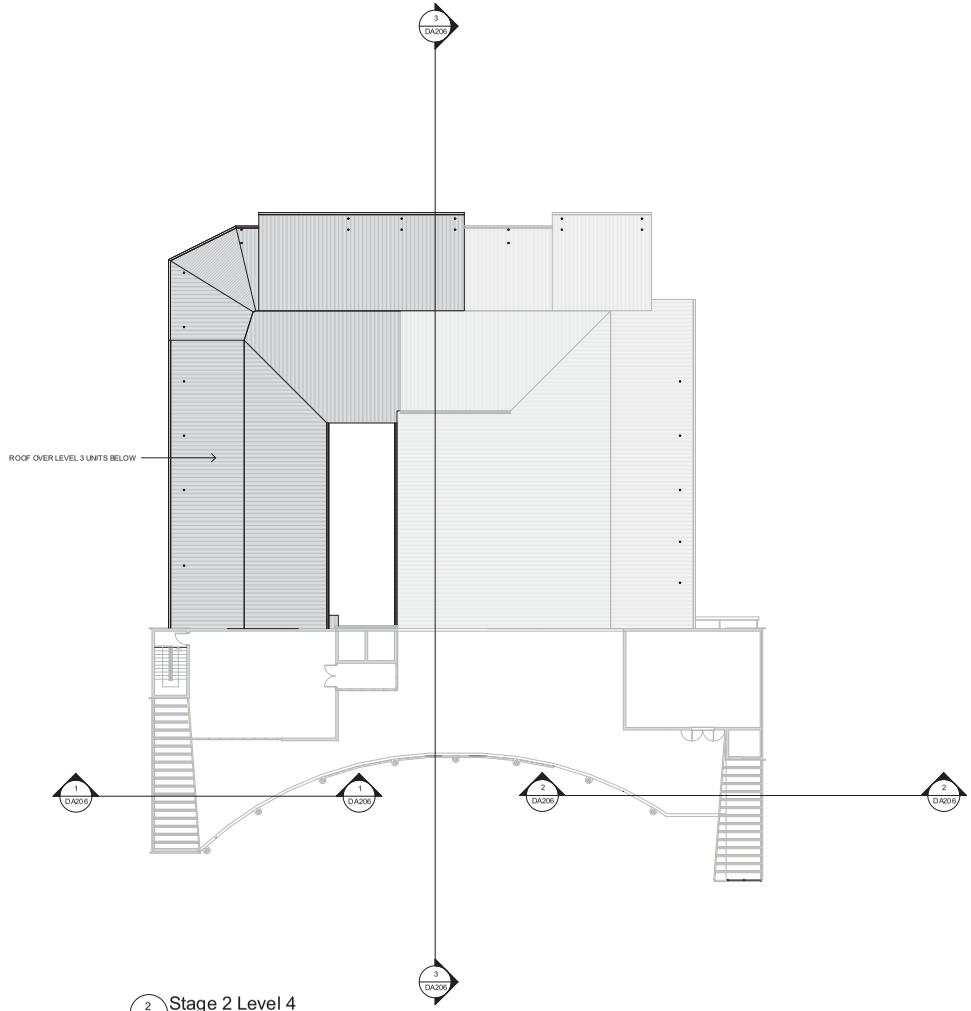


1 DA105 Stage 2 Level 3
1 : 200



2 DA105 Stage 2 Level 4
1 : 200

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 2 - Levels 3 & 4 Floor Plan

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA204** / 1

SCALE @ A1 - 1 : 200
WHEN PLOTTED TO A3, SCALE DOUBLES

TEAM DESIGN AUSTRALIA BUILDING DESIGN CONSULTANTS Suite 14 Hannas Arcade Beardy Street PO Box 1471 ARMIDALE NSW 2350 PH (02) 6771 4977 FAX (02) 6772 2193 tdamail@teamdesignaust.com www.teamdesignaust.com

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REV. #	ISSUE DATE	ISSUE REASON
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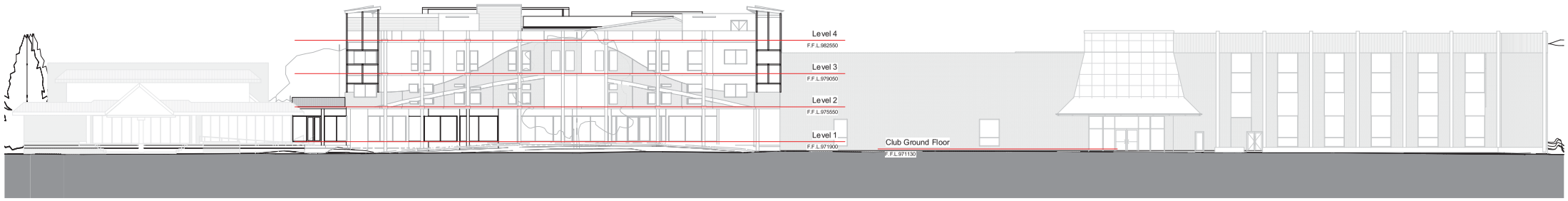
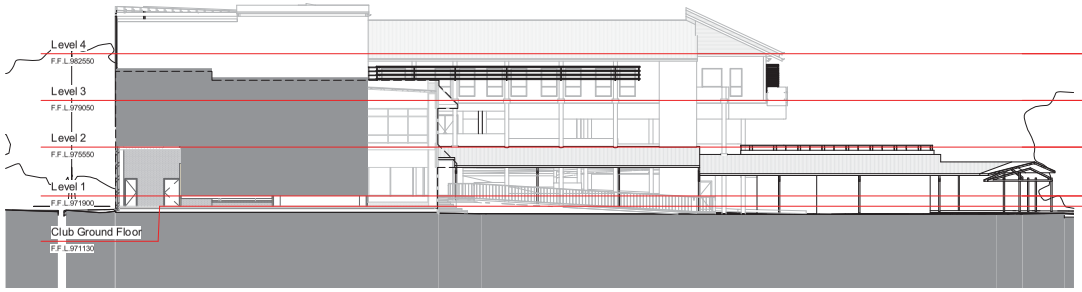
2	26/04/10	ISSUE FOR DEVELOPMENT APPROVAL

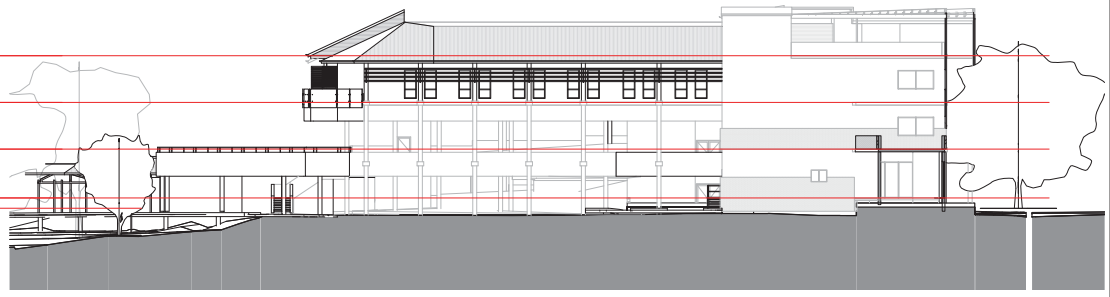
Team Design Australia



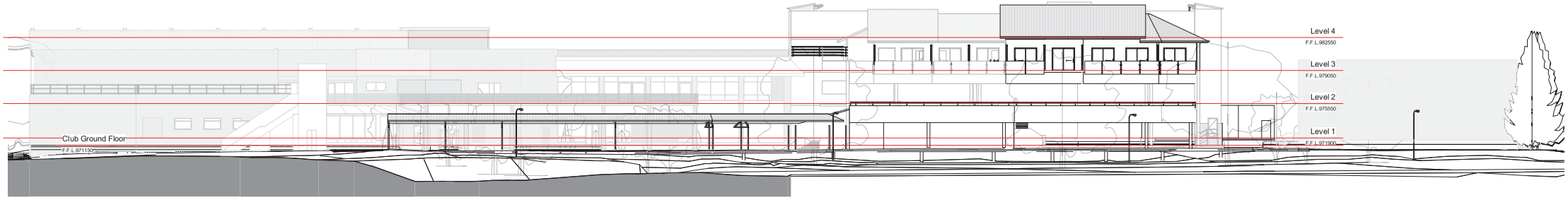
1 Stage 2 South Elevation
1 : 200



2 Stage 2 East Elevation
1 : 200



3 Stage 2 West Elevation
1 : 200



4 Stage 2 North Elevation
1 : 200

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 2 - Elevations

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA205** /2

SCALE @ A1 - 1 : 200
WHEN PLOTTED TO A3, SCALE DOUBLES

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1:1000 0 5 10 20 50m 100m
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REV. #	ISSUE DATE	ISSUE REASON
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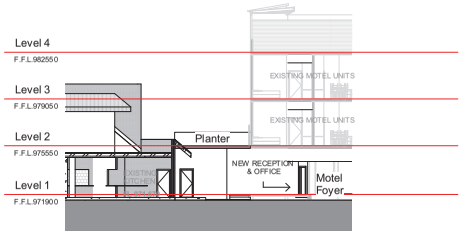
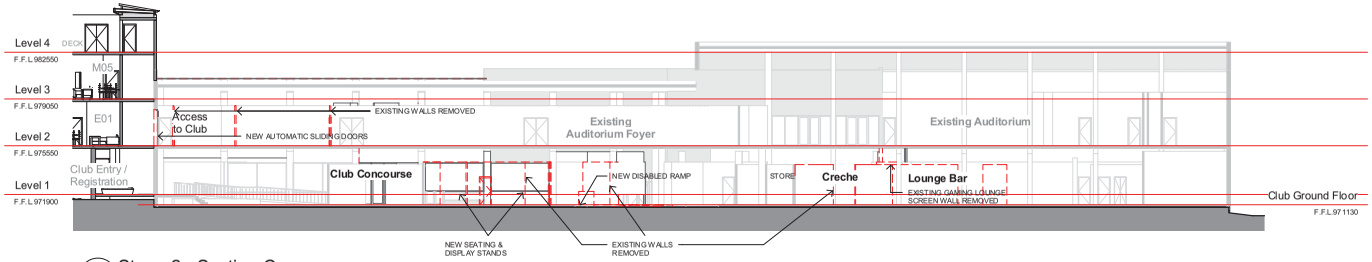
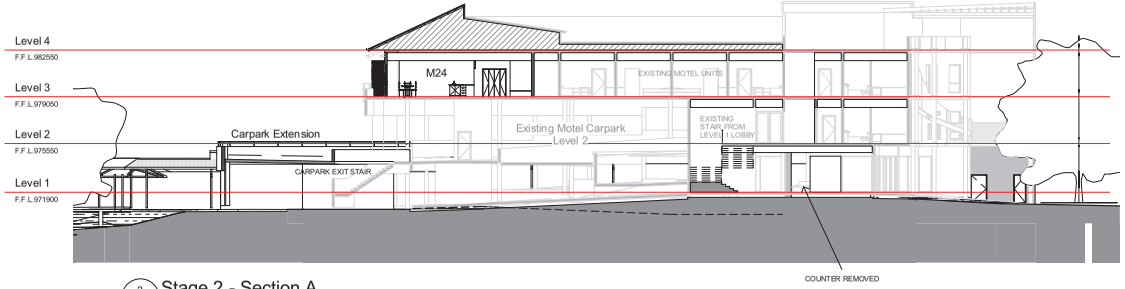


1 DA202 Stage 2 - Section B
1 : 200



2 DA202 Stage 2 - Section C
1 : 200



3 DA202 Stage 2 - Section A
1 : 200

4 Stage 2 - View of Entry
1 : 1

5 Stage 2 - View Across Dumaresq Creek
1 : 1

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 2 - Sections & Perspective Views

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA206** / 1

SCALE @ A1 - As indicated
WHEN PLOTTED TO A3, SCALE DOUBLES

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REV. #	ISSUE DATE	ISSUE REASON
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2	26/04/10	ISSUE FOR DEVELOPMENT APPROVAL

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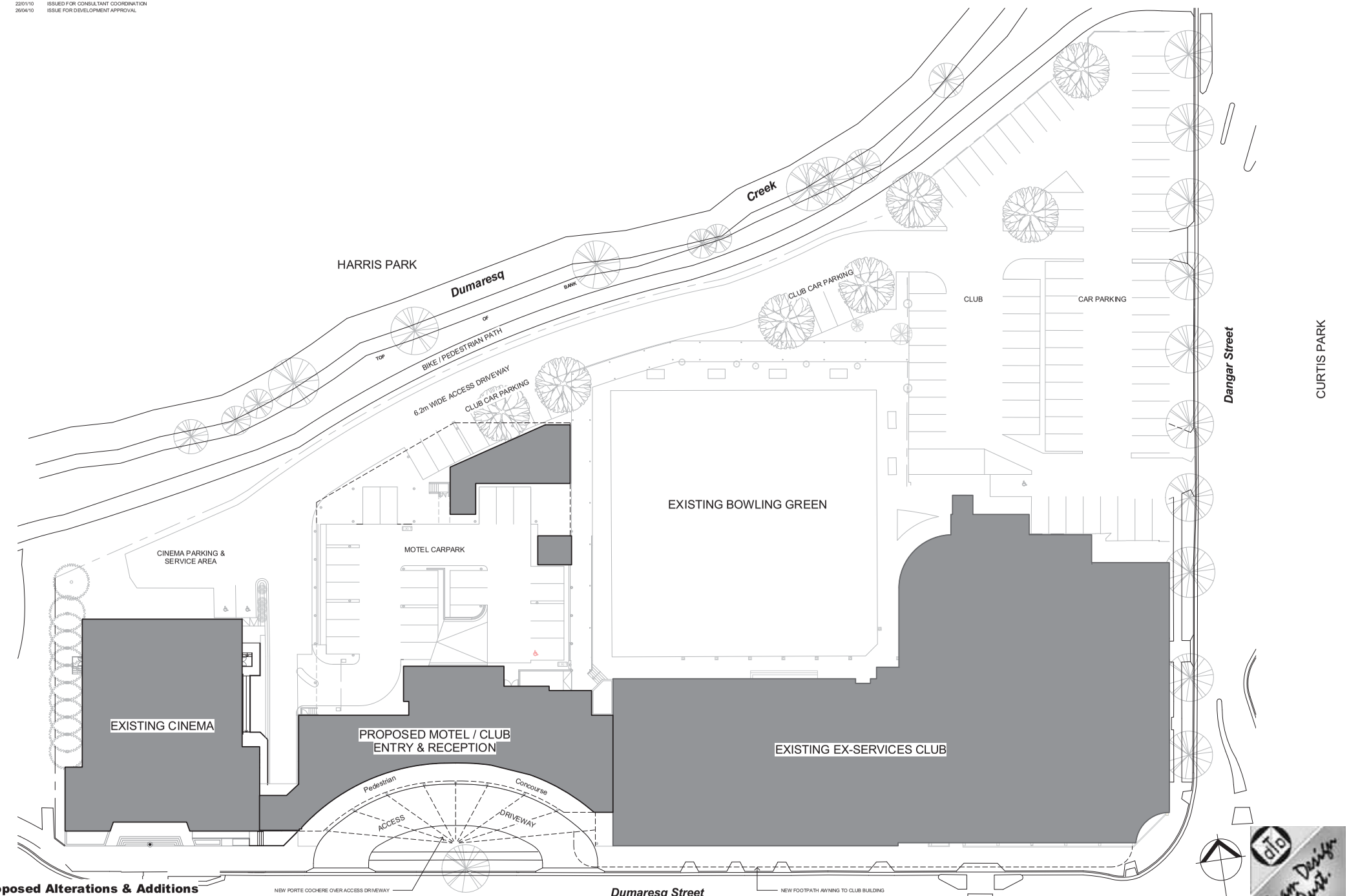

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 3 - Site Layout Plan

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA301** /2

SCALE @ A1 - 1 : 250
WHEN PLOTTED TO A3, SCALE DOUBLES

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REV. #	ISSUE DATE	ISSUE REASON
1	26/04/10	ISSUE FOR DEVELOPMENT APPROVAL

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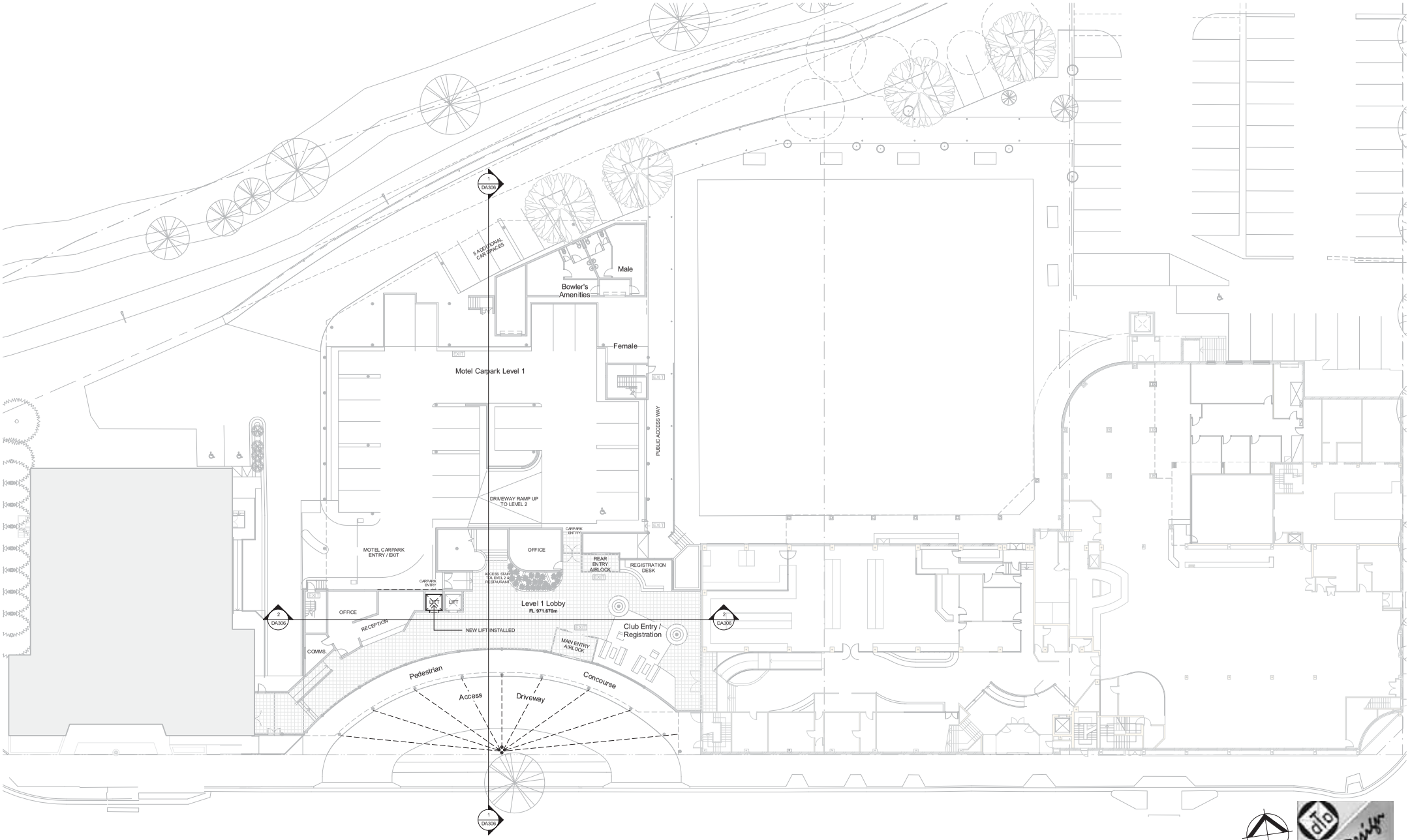

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 3 - Level 1 Floor Plan

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA302** / 1

SCALE @ A1 - 1 : 200
WHEN PLOTTED TO A3, SCALE DOUBLES

TEAM DESIGN AUSTRALIA BUILDING DESIGN CONSULTANTS Suite 14 Hannas Arcade Beardy Street PO Box 1471 ARMIDALE NSW 2350 PH (02) 6771 4977 FAX (02) 6772 2193 tdamail@teamdesignaust.com www.teamdesignaust.com

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REV. #	ISSUE DATE	ISSUE REASON
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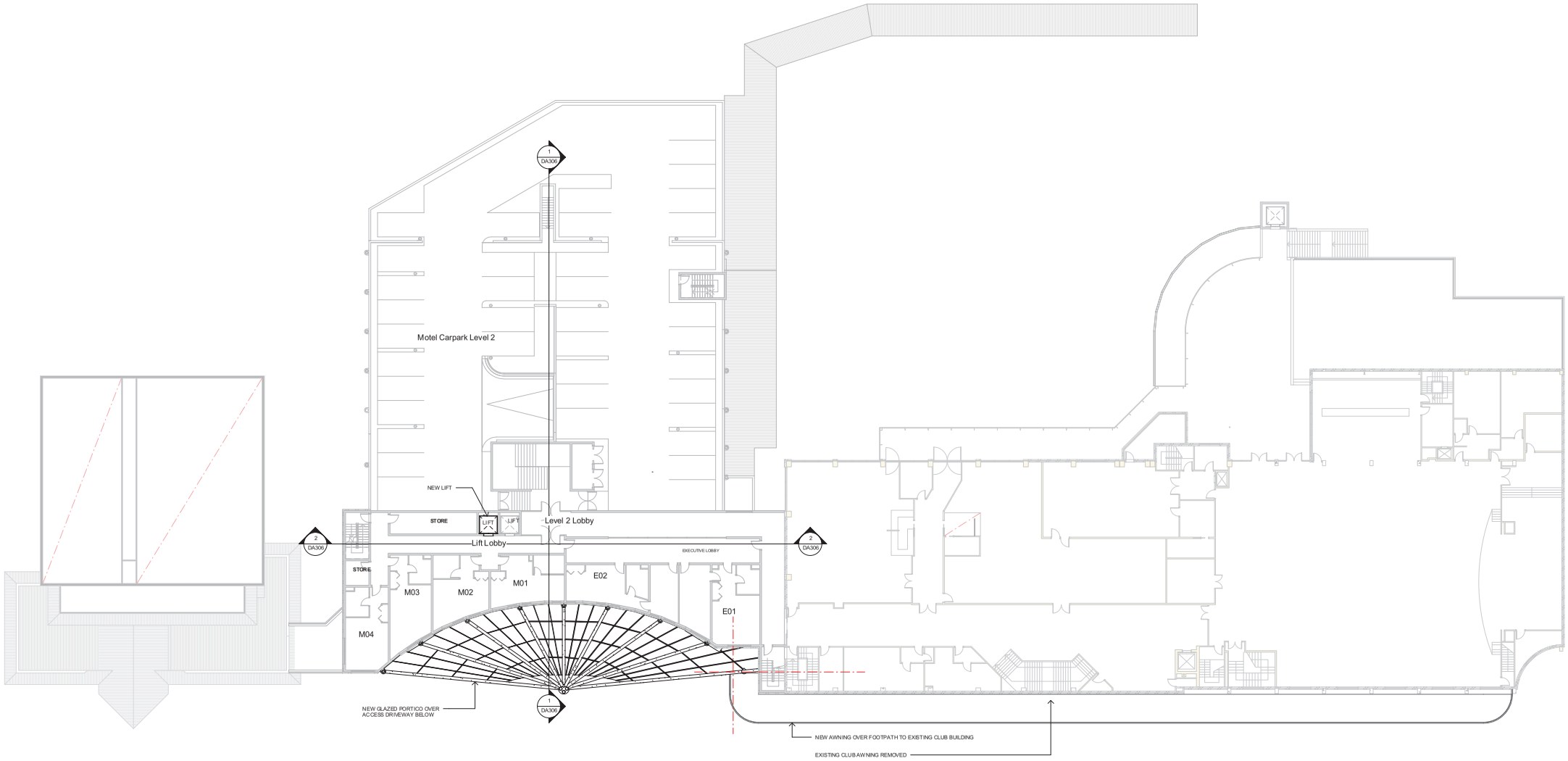

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 3 - Level 2 Floor Plan

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA303** / 1

SCALE @ A1 - 1 : 200
WHEN PLOTTED TO A3, SCALE DOUBLES

TEAM DESIGN AUSTRALIA BUILDING DESIGN CONSULTANTS Suite 14 Hannas Arcade Beardy Street PO Box 1471 ARMIDALE NSW 2350 PH (02) 6771 4977 FAX (02) 6772 2193 tdamail@teamdesignaust.com www.teamdesignaust.com

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REV. #	ISSUE DATE	ISSUE REASON
1	26/04/10	ISSUE FOR DEVELOPMENT APPROVAL

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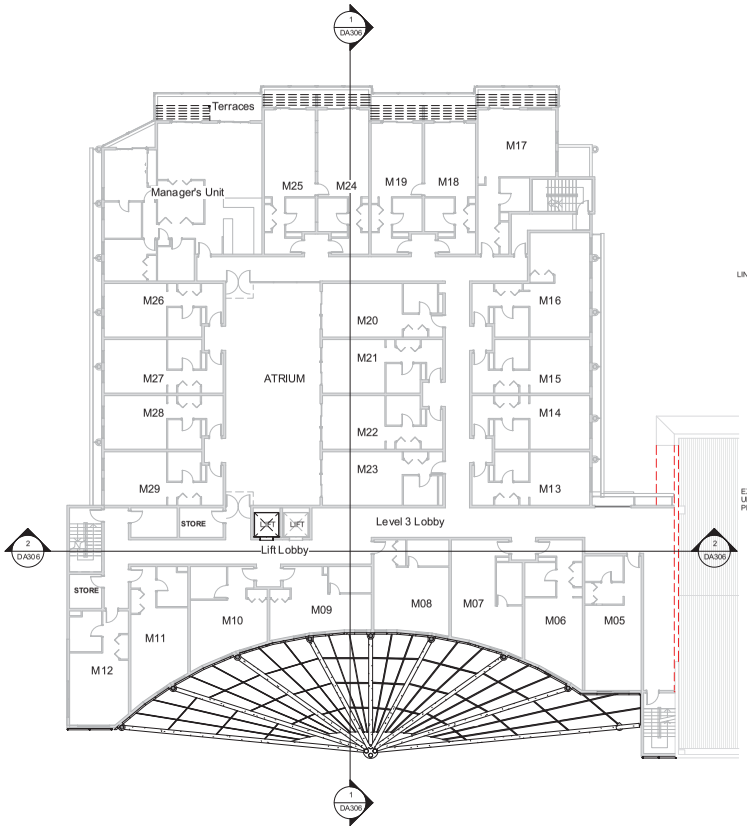
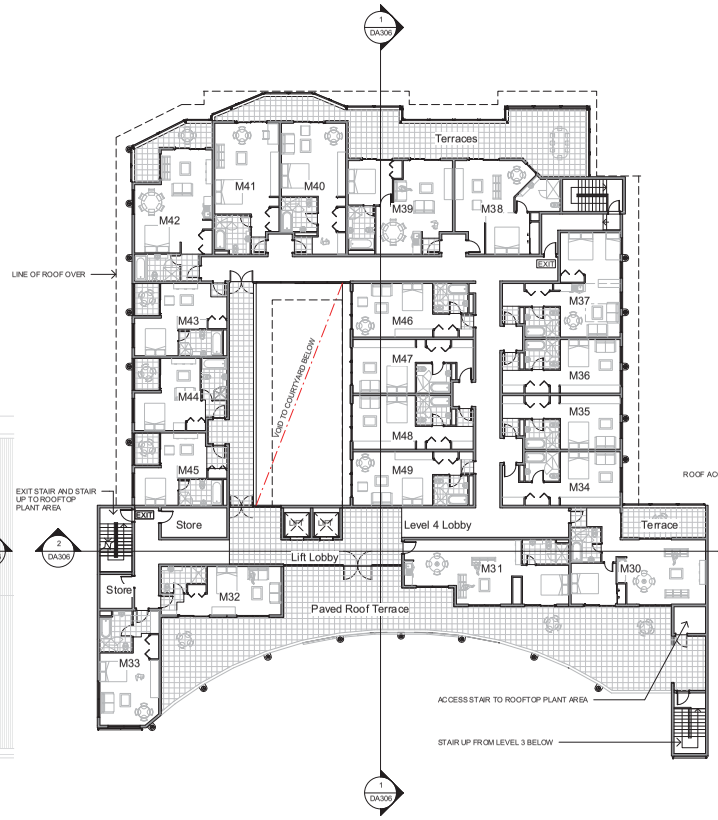
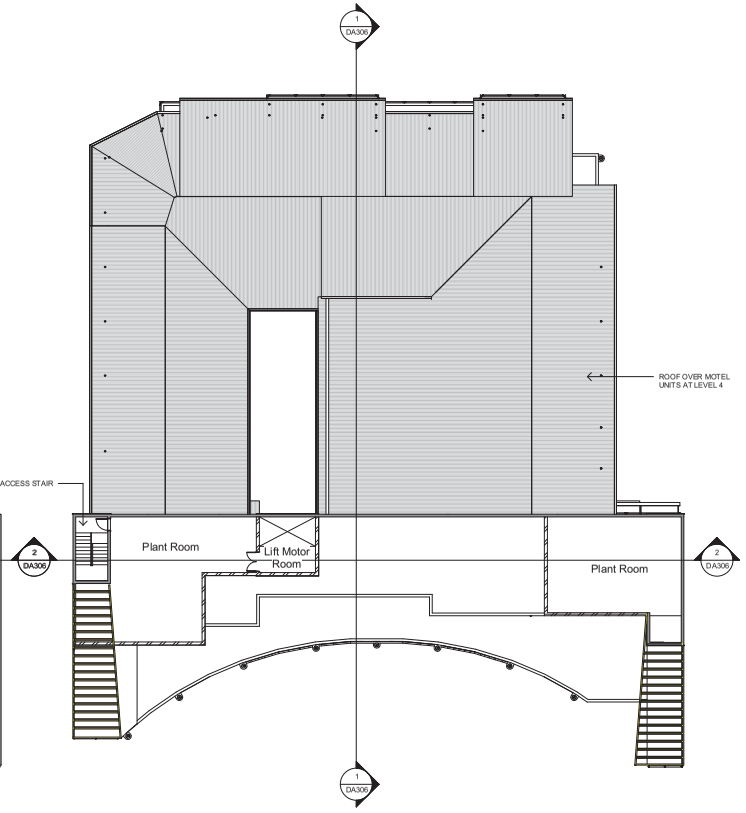


1 DA105 Stage 3 Level 3
1 : 200



2 DA105 Stage 3 Level 4
1 : 200



3 DA106 Stage 3 Roof Plan
1 : 200

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 3 - Levels 3 & 4 Plans & Roof Plan

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA304** / 1

SCALE @ A1 - 1 : 200
WHEN PLOTTED TO A3, SCALE DOUBLES

TEAM DESIGN AUSTRALIA BUILDING DESIGN CONSULTANTS Suite 14 Hannas Arcade Beardy Street PO Box 1471 ARMIDALE NSW 2350 PH (02) 6771 4977 FAX (02) 6772 2193 tdamail@teamdesignaust.com www.teamdesignaust.com

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REV. #	ISSUE DATE	ISSUE REASON
1	04/01/10	ISSUED FOR CONSULTANT COORDINATION
2	26/04/10	ISSUE FOR DEVELOPMENT APPROVAL

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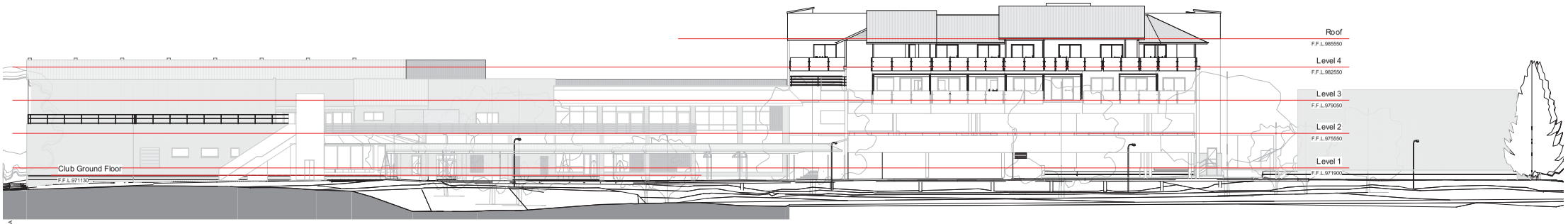
1 Stage 3 South Elevation
1 : 200

2 Stage 3 East Elevation
1 : 200

3 Stage 3 West Elevation
1 : 200



4 Stage 3 North Elevation
1 : 200

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 3 - Elevations

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA305** /2

SCALE @ A1 - 1 : 200
WHEN PLOTTED TO A3, SCALE DOUBLES

TEAM DESIGN AUSTRALIA BUILDING DESIGN CONSULTANTS Suite 14 Hannas Arcade Beardy Street PO Box 1471 ARMIDALE NSW 2350 PH (02) 6771 4977 FAX (02) 6772 2193 tdamail@teamdesignaust.com www.teamdesignaust.com

1:200 0 1 2 5 10m 15m 20m
1:100 0 0.5 1 2 5m 10m
1:1000 0 5 10 20 50m 100m
1:500 0 5 10 20 50m

I:\090802 - Service Alts & Adds\02 - Architect\2.12 - Drawings\DA\DA - Development Proposal.rvt
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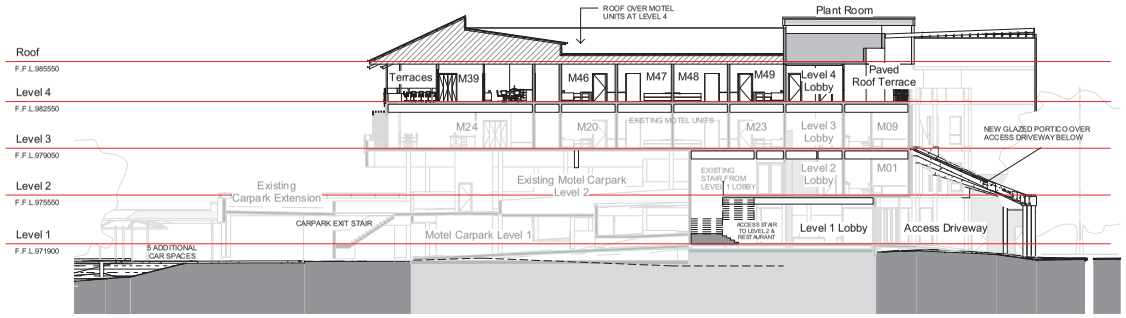
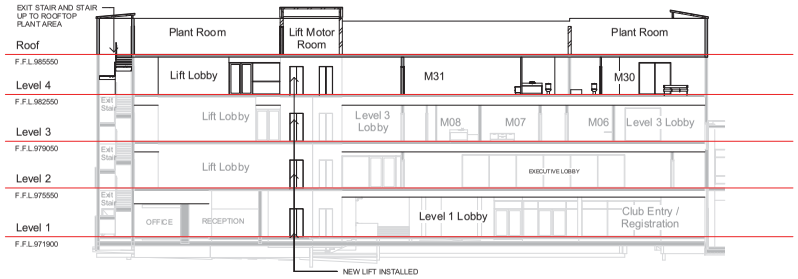
REV. #	ISSUE DATE	ISSUE REASON
1	26/04/10	ISSUE FOR DEVELOPMENT APPROVAL

Team Design Australia



1 DA302 Stage 3 - Section A
1 : 200



2 DA302 Stage 3 - Section B
1 : 200

4 Stage 3 - View of Entry
1 : 1

3 Stage 3 - View Across Dumaresq Creek
1 : 1

Proposed Alterations & Additions
Ex-Services Memorial Club, Dumaresq Street, Armidale
for Armidale Ex-Services Memorial Club

Stage 3 - Sections & Perspective Views

PROJECT DATE : November 2009
PROJECT NUMBER 090802
SHEET NUMBER **DA306** / 1

SCALE @ A1 - As indicated
WHEN PLOTTED TO A3, SCALE DOUBLES

TEAM DESIGN AUSTRALIA BUILDING DESIGN CONSULTANTS Suite 14 Hannas Arcade Beardy Street PO Box 1471 ARMIDALE NSW 2350 PH (02) 6771 4977 FAX (02) 6772 2193 tdamail@teamdesignaust.com www.teamdesignaust.com

1:200 0 1 2 5 10m 15m 20m
1:100 0 0.5 1 2 5m 10m
1:1000 0 5 10 20 50m 100m
1:500 0 5 10 20 50m

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- Development Proposal.rvt
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APPENDIX B

SITE SURVEY PLAN

Legend

- Floor Level / Benchmark
- Stormwater Pit
- Water Meter
- Water Tap
- Hydrant
- Stop Valve
- Power Pole
- Telecommunications Pit
- Sewer Inspection Point
- Sewer Manhole
- Security Camera
- Security Lighting (attached)
- Inground lighting
- Street Lighting
- Electricity Pit
- Gas Valve
- Fuel Filling Point
- Traffic Bollard
- Flag Pole
- Survey Mark
- Bitumen Surface
- Concrete Surface
- Building
- Paved Area
- Garden
- Streetscape
- Property Boundary
- Drainage
- Fence
- Sewer
- Telecommunications Cable
- Underground Electricity
- Bank
- Edge of Vegetation
- Building Awning
- Building Parapet
- Signage
- Shrub
- Deciduous Tree
- Tree
- Pine Tree
- Gum Tree

CONTOUR INTERVAL 0.2m

0 3 6 9 12 15

SCALE OF METRES 1:300

Notes

* All dimensions are in metres.
* Levels are in metres.
* Do not scale off this drawing
* Use figured dimensions only.
* Check dimensions on site.
* Report discrepancies immediately.
* Entity Properties (such as point or contour elevations) can be determined from 'MODEL' space data.

Disclaimer

All utility and service requirements must be confirmed by relevant statutory authorities prior to to final design.
This plan should not be relied upon for sole design information.

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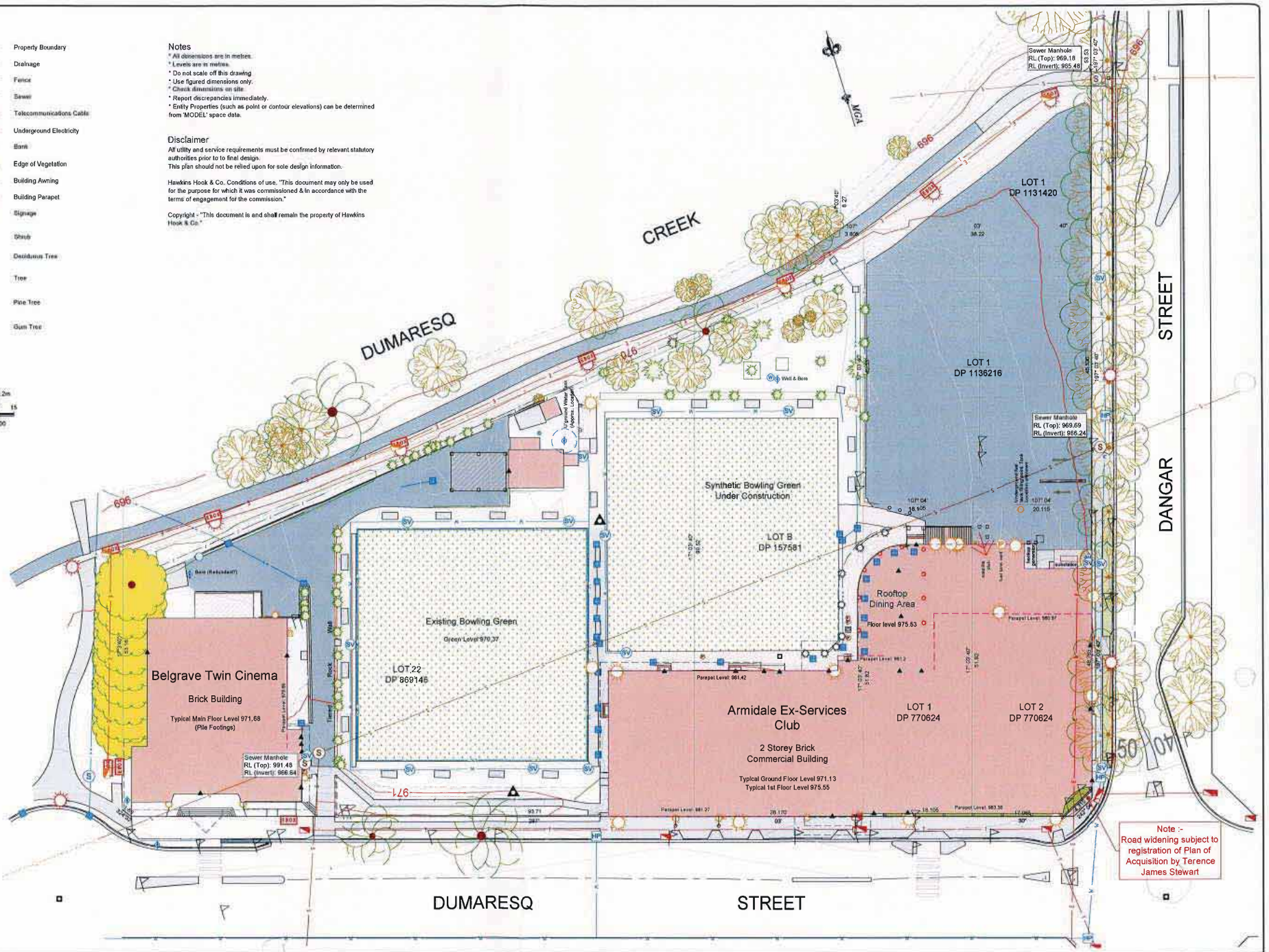

NOTE :-

Road widening at Dangar / Dumaresq Street intersection is subject to Registration of a Plan of Acquisition by Terence James Stewart.

Revision	Date	Description
B	18/11/09	Issued to Team Design for Planning & Design Purposes
A	12/11/09	Issued to Team Design Australia - preliminary data

THIS DETAIL SURVEY IS NOT A "SURVEY" AS DEFINED BY THE SURVEYORS ACT 2002. IF ANY CONSTRUCTION IS PLANNED IT WOULD BE ADVISABLE TO CARRY OUT FURTHER SURVEY WORK TO DETERMINE THE BOUNDARY DIMENSIONS.

ELECTRONIC DATA NOTE:

THE HARD COPIES OF THESE PLANS ARE THOSE TO WHICH WE CERTIFY TO BE CORRECT. THE ADDITIONAL ELECTRONIC DATA SUPPLIED IS SUPPLIED ON A "USER BEWARE" BASIS. HAWKINS HOOK & Co. HOLDS ORIGINAL DATA FOR VERIFICATION.

Project
Armidale Ex-Services Club Alterations
137 Dumaresq Street
Armidale, NSW 2350

Drawing Title
Detail and Contour Survey

Armidale Ex-Services Memorial Club
137 Dumaresq Street
Armidale NSW 2350

Hawkins Hook & Co.
Consulting Surveyors & Planners
"Surveying the New England & Planning for our Future"
27 Marsh Street Armidale NSW, 2350
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e-mail: info@hawkinshookcom.au

Scale: 1:300	Date: 12/11/09
Cad Scale Factor: x 3.33	
Backup Disk No: Server	Drawn: JW / RD
Job Number: 20091010	
Datum: AHD PM 58473 (RL 970.55)	Surveyed: JW / RH
Surveyors Reference: A/175	Sheet 1 of 1 Revision B

A1

APPENDIX C

FLOOD INUNDATION MAP SUPPLIED BY DUMARESQ COUNCIL

DUMARESQ ST
DUMARESQ ST
JESSIE ST
4+880
4+860
4+840
4+800
4+780
4+740
4+680
4+640
4+600
0
137
137
142
140
972
98
100
102
104
106
108
231
229
227
225
223
197

APPENDIX D

HEC-RAS MODEL SUMMARY

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4720.000 Profile: 1% AEP

E.G. Elev (m)	971.51	Element	Left OB	Channel	Right OB
Vel Head (m)	0.08	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.43	Reach Len. (m)	19.92	19.87	19.76
Crit W.S. (m)		Flow Area (m2)	196.56	36.53	77.10
E.G. Slope (m/m)	0.001129	Area (m2)	196.56	36.53	77.10
Q Total (m3/s)	382.00	Flow (m3/s)	219.81	46.33	115.86
Top Width (m)	228.99	Top Width (m)	127.71	10.40	90.88
Vel Total (m/s)	1.23	Avg. Vel. (m/s)	1.12	1.27	1.50
Max Chl Dpth (m)	3.78	Hydr. Depth (m)	1.54	3.51	0.85
Conv. Total (m3/s)	11366.5	Conv. (m3/s)	6540.5	1378.7	3447.4
Length Wtd. (m)	19.86	Wetted Per. (m)	128.01	10.72	91.17
Min Ch El (m)	967.66	Shear (N/m2)	17.01	37.74	9.37
Alpha	1.05	Stream Power (N/m s)	19.02	47.86	14.08
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	1167.88	558.06	1812.34
C & E Loss (m)	0.00	Cum SA (1000 m2)	783.55	173.74	1351.13

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4720.000 Profile: 2% AEP

E.G. Elev (m)	971.30	Element	Left OB	Channel	Right OB
Vel Head (m)	0.08	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.22	Reach Len. (m)	19.92	19.87	19.76
Crit W.S. (m)		Flow Area (m2)	170.09	34.36	58.81
E.G. Slope (m/m)	0.001333	Area (m2)	170.09	34.36	58.81
Q Total (m3/s)	319.00	Flow (m3/s)	189.28	45.45	84.27
Top Width (m)	220.75	Top Width (m)	126.06	10.40	84.29
Vel Total (m/s)	1.21	Avg. Vel. (m/s)	1.11	1.32	1.43
Max Chl Dpth (m)	3.57	Hydr. Depth (m)	1.35	3.30	0.70
Conv. Total (m3/s)	8737.2	Conv. (m3/s)	5184.3	1244.9	2308.0
Length Wtd. (m)	19.87	Wetted Per. (m)	126.34	10.72	84.57
Min Ch El (m)	967.66	Shear (N/m2)	17.60	41.89	9.09
Alpha	1.04	Stream Power (N/m s)	19.58	55.41	13.02
Frctn Loss (m)	0.03	Cum Volume (1000 m3)	1015.44	523.38	1553.37
C & E Loss (m)	0.00	Cum SA (1000 m2)	742.86	173.37	1270.55

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4720.000 Profile: 5% AEP

E.G. Elev (m)	971.03	Element	Left OB	Channel	Right OB
Vel Head (m)	0.07	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.96	Reach Len. (m)	19.92	19.87	19.76
Crit W.S. (m)		Flow Area (m2)	137.18	31.63	38.06
E.G. Slope (m/m)	0.001576	Area (m2)	137.18	31.63	38.06
Q Total (m3/s)	237.00	Flow (m3/s)	145.33	43.04	48.63
Top Width (m)	207.94	Top Width (m)	124.12	10.40	73.41
Vel Total (m/s)	1.15	Avg. Vel. (m/s)	1.06	1.36	1.28
Max Chl Dpth (m)	3.30	Hydr. Depth (m)	1.11	3.04	0.52
Conv. Total (m3/s)	5969.9	Conv. (m3/s)	3660.8	1084.1	1225.1
Length Wtd. (m)	19.88	Wetted Per. (m)	124.39	10.72	73.69
Min Ch El (m)	967.66	Shear (N/m2)	17.04	45.58	7.98
Alpha	1.04	Stream Power (N/m s)	18.06	62.03	10.20
Frctn Loss (m)	0.04	Cum Volume (1000 m3)	813.24	474.61	1217.01
C & E Loss (m)	0.00	Cum SA (1000 m2)	686.22	172.95	1169.58

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4720.000 Profile: PMF

E.G. Elev (m)	974.00	Element	Left OB	Channel	Right OB
Vel Head (m)	0.33	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	973.67	Reach Len. (m)	19.92	19.87	19.76
Crit W.S. (m)		Flow Area (m2)	520.87	59.85	304.05
E.G. Slope (m/m)	0.000975	Area (m2)	520.87	59.85	304.05
Q Total (m3/s)	1910.00	Flow (m3/s)	845.07	97.99	966.95

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4720.000 Profile: PMF (Continued)

Top Width (m)	285.89	Top Width (m)	173.20	10.40	102.28
Vel Total (m/s)	2.16	Avg. Vel. (m/s)	1.62	1.64	3.18
Max Chl Dpth (m)	6.02	Hydr. Depth (m)	3.01	5.75	2.97
Conv. Total (m3/s)	61183.7	Conv. (m3/s)	27070.3	3138.9	30974.5
Length Wtd. (m)	19.84	Wetted Per. (m)	173.77	10.72	104.55
Min Ch El (m)	967.66	Shear (N/m2)	28.65	53.34	27.79
Alpha	1.38	Stream Power (N/m s)	46.47	87.33	88.39
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	3862.20	1022.50	6357.00
C & E Loss (m)	0.00	Cum SA (1000 m2)	1289.04	174.19	2031.13

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4720.000 Profile: 10% AEP

E.G. Elev (m)	970.89	Element	Left OB	Channel	Right OB
Vel Head (m)	0.07	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.82	Reach Len. (m)	19.92	19.87	19.76
Crit W.S. (m)		Flow Area (m2)	120.18	30.20	28.36
E.G. Slope (m/m)	0.001845	Area (m2)	120.18	30.20	28.36
Q Total (m3/s)	207.00	Flow (m3/s)	126.77	43.10	37.13
Top Width (m)	200.44	Top Width (m)	123.16	10.40	66.88
Vel Total (m/s)	1.16	Avg. Vel. (m/s)	1.05	1.43	1.31
Max Chl Dpth (m)	3.17	Hydr. Depth (m)	0.98	2.90	0.42
Conv. Total (m3/s)	4819.8	Conv. (m3/s)	2951.6	1003.6	864.6
Length Wtd. (m)	19.88	Wetted Per. (m)	123.42	10.72	67.12
Min Ch El (m)	967.66	Shear (N/m2)	17.61	50.94	7.64
Alpha	1.05	Stream Power (N/m s)	18.58	72.71	10.01
Frctn Loss (m)	0.05	Cum Volume (1000 m3)	720.74	451.31	1062.23
C & E Loss (m)	0.00	Cum SA (1000 m2)	659.44	172.61	1116.62

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4720.000 Profile: 20% AEP

E.G. Elev (m)	970.71	Element	Left OB	Channel	Right OB
Vel Head (m)	0.07	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.64	Reach Len. (m)	19.92	19.87	19.76
Crit W.S. (m)		Flow Area (m2)	97.48	28.27	17.86
E.G. Slope (m/m)	0.002143	Area (m2)	97.48	28.27	17.86
Q Total (m3/s)	161.00	Flow (m3/s)	97.09	41.63	22.29
Top Width (m)	178.36	Top Width (m)	121.87	10.40	46.09
Vel Total (m/s)	1.12	Avg. Vel. (m/s)	1.00	1.47	1.25
Max Chl Dpth (m)	2.98	Hydr. Depth (m)	0.80	2.72	0.39
Conv. Total (m3/s)	3477.5	Conv. (m3/s)	2097.0	899.1	481.3
Length Wtd. (m)	19.88	Wetted Per. (m)	122.12	10.72	46.22
Min Ch El (m)	967.66	Shear (N/m2)	16.78	55.42	8.12
Alpha	1.09	Stream Power (N/m s)	16.71	81.60	10.14
Frctn Loss (m)	0.06	Cum Volume (1000 m3)	581.53	414.91	840.64
C & E Loss (m)	0.01	Cum SA (1000 m2)	612.52	172.15	1012.01

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4700.000 Profile: 1% AEP

E.G. Elev (m)	971.49	Element	Left OB	Channel	Right OB
Vel Head (m)	0.09	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.40	Reach Len. (m)	20.09	19.97	19.95
Crit W.S. (m)		Flow Area (m2)	185.68	36.22	81.02
E.G. Slope (m/m)	0.001254	Area (m2)	185.68	36.22	81.02
Q Total (m3/s)	382.00	Flow (m3/s)	211.37	47.39	123.24
Top Width (m)	238.87	Top Width (m)	127.02	10.55	101.30
Vel Total (m/s)	1.26	Avg. Vel. (m/s)	1.14	1.31	1.52
Max Chl Dpth (m)	3.76	Hydr. Depth (m)	1.46	3.43	0.80
Conv. Total (m3/s)	10785.4	Conv. (m3/s)	5967.8	1338.1	3479.4
Length Wtd. (m)	20.04	Wetted Per. (m)	127.38	10.97	101.78
Min Ch El (m)	967.65	Shear (N/m2)	17.93	40.60	9.79

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4700.000 Profile: 1% AEP (Continued)

Alpha	1.05	Stream Power (N/m s)	20.41	53.13	14.89
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	1164.07	557.33	1810.78
C & E Loss (m)	0.00	Cum SA (1000 m2)	781.01	173.53	1349.23

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4700.000 Profile: 2% AEP

E.G. Elev (m)	971.27	Element	Left OB	Channel	Right OB
Vel Head (m)	0.09	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.19	Reach Len. (m)	20.09	19.97	19.95
Crit W.S. (m)		Flow Area (m2)	158.37	33.93	59.12
E.G. Slope (m/m)	0.001570	Area (m2)	158.37	33.93	59.12
Q Total (m3/s)	319.00	Flow (m3/s)	183.82	47.54	87.64
Top Width (m)	232.53	Top Width (m)	124.51	10.55	97.47
Vel Total (m/s)	1.27	Avg. Vel. (m/s)	1.16	1.40	1.48
Max Chl Dpth (m)	3.54	Hydr. Depth (m)	1.27	3.22	0.61
Conv. Total (m3/s)	8050.9	Conv. (m3/s)	4639.3	1199.9	2211.8
Length Wtd. (m)	20.04	Wetted Per. (m)	124.86	10.97	97.74
Min Ch El (m)	967.65	Shear (N/m2)	19.53	47.59	9.31
Alpha	1.04	Stream Power (N/m s)	22.67	66.69	13.81
Frctn Loss (m)	0.03	Cum Volume (1000 m3)	1012.17	522.70	1552.20
C & E Loss (m)	0.00	Cum SA (1000 m2)	740.37	173.16	1268.75

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4700.000 Profile: 5% AEP

E.G. Elev (m)	970.99	Element	Left OB	Channel	Right OB
Vel Head (m)	0.08	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.91	Reach Len. (m)	20.09	19.97	19.95
Crit W.S. (m)		Flow Area (m2)	124.29	31.01	35.19
E.G. Slope (m/m)	0.002088	Area (m2)	124.29	31.01	35.19
Q Total (m3/s)	237.00	Flow (m3/s)	143.40	47.20	46.39
Top Width (m)	212.70	Top Width (m)	122.12	10.55	80.03
Vel Total (m/s)	1.24	Avg. Vel. (m/s)	1.15	1.52	1.32
Max Chl Dpth (m)	3.26	Hydr. Depth (m)	1.02	2.94	0.44
Conv. Total (m3/s)	5186.6	Conv. (m3/s)	3138.3	1033.0	1015.3
Length Wtd. (m)	20.05	Wetted Per. (m)	122.46	10.97	80.28
Min Ch El (m)	967.65	Shear (N/m2)	20.78	57.86	8.98
Alpha	1.04	Stream Power (N/m s)	23.98	88.07	11.83
Frctn Loss (m)	0.04	Cum Volume (1000 m3)	810.64	473.99	1216.29
C & E Loss (m)	0.00	Cum SA (1000 m2)	683.77	172.74	1168.06

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4700.000 Profile: PMF

E.G. Elev (m)	973.98	Element	Left OB	Channel	Right OB
Vel Head (m)	0.31	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	973.66	Reach Len. (m)	20.09	19.97	19.95
Crit W.S. (m)		Flow Area (m2)	522.08	60.06	309.92
E.G. Slope (m/m)	0.000900	Area (m2)	522.08	60.06	309.92
Q Total (m3/s)	1910.00	Flow (m3/s)	854.26	93.26	962.48
Top Width (m)	273.18	Top Width (m)	161.33	10.55	101.30
Vel Total (m/s)	2.14	Avg. Vel. (m/s)	1.64	1.55	3.11
Max Chl Dpth (m)	6.02	Hydr. Depth (m)	3.24	5.69	3.06
Conv. Total (m3/s)	63663.6	Conv. (m3/s)	28474.1	3108.4	32081.2
Length Wtd. (m)	20.02	Wetted Per. (m)	162.03	10.97	104.04
Min Ch El (m)	967.65	Shear (N/m2)	28.44	48.30	26.29
Alpha	1.35	Stream Power (N/m s)	46.54	75.00	81.65
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	3851.81	1021.31	6350.94
C & E Loss (m)	0.02	Cum SA (1000 m2)	1285.70	173.98	2029.12

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4700.000 Profile: 10% AEP

E.G. Elev (m)	970.85	Element	Left OB	Channel	Right OB
Vel Head (m)	0.09	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.75	Reach Len. (m)	20.09	19.97	19.95
Crit W.S. (m)		Flow Area (m2)	105.12	29.34	22.94
E.G. Slope (m/m)	0.002898	Area (m2)	105.12	29.34	22.94
Q Total (m3/s)	207.00	Flow (m3/s)	128.79	50.71	27.49
Top Width (m)	208.24	Top Width (m)	120.66	10.55	77.03
Vel Total (m/s)	1.32	Avg. Vel. (m/s)	1.23	1.73	1.20
Max Chl Dpth (m)	3.10	Hydr. Depth (m)	0.87	2.78	0.30
Conv. Total (m3/s)	3845.5	Conv. (m3/s)	2392.6	942.2	510.8
Length Wtd. (m)	20.05	Wetted Per. (m)	120.99	10.97	77.21
Min Ch El (m)	967.65	Shear (N/m2)	24.69	75.98	8.44
Alpha	1.07	Stream Power (N/m s)	30.25	131.31	10.12
Frctn Loss (m)	0.05	Cum Volume (1000 m3)	718.49	450.72	1061.73
C & E Loss (m)	0.01	Cum SA (1000 m2)	657.01	172.40	1115.20

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4700.000 Profile: 20% AEP

E.G. Elev (m)	970.64	Element	Left OB	Channel	Right OB
Vel Head (m)	0.18	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.46	Reach Len. (m)	20.09	19.97	19.95
Crit W.S. (m)		Flow Area (m2)	70.29	26.27	8.82
E.G. Slope (m/m)	0.004424	Area (m2)	70.29	26.27	8.82
Q Total (m3/s)	161.00	Flow (m3/s)	82.38	52.11	26.51
Top Width (m)	139.18	Top Width (m)	118.49	10.55	10.15
Vel Total (m/s)	1.53	Avg. Vel. (m/s)	1.17	1.98	3.01
Max Chl Dpth (m)	2.81	Hydr. Depth (m)	0.59	2.49	0.87
Conv. Total (m3/s)	2420.4	Conv. (m3/s)	1238.5	783.4	398.5
Length Wtd. (m)	20.04	Wetted Per. (m)	118.80	10.97	10.28
Min Ch El (m)	967.65	Shear (N/m2)	25.67	103.85	37.22
Alpha	1.48	Stream Power (N/m s)	30.09	206.01	111.86
Frctn Loss (m)	0.06	Cum Volume (1000 m3)	579.86	414.36	840.38
C & E Loss (m)	0.03	Cum SA (1000 m2)	610.12	171.95	1011.45

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4680.000 Profile: 1% AEP

E.G. Elev (m)	971.46	Element	Left OB	Channel	Right OB
Vel Head (m)	0.07	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.39	Reach Len. (m)	20.26	20.23	20.35
Crit W.S. (m)		Flow Area (m2)	228.43	32.41	60.72
E.G. Slope (m/m)	0.001084	Area (m2)	228.43	32.41	60.72
Q Total (m3/s)	382.00	Flow (m3/s)	264.58	39.05	78.37
Top Width (m)	241.92	Top Width (m)	136.70	9.39	95.83
Vel Total (m/s)	1.19	Avg. Vel. (m/s)	1.16	1.20	1.29
Max Chl Dpth (m)	3.73	Hydr. Depth (m)	1.67	3.45	0.63
Conv. Total (m3/s)	11603.0	Conv. (m3/s)	8036.6	1186.1	2380.3
Length Wtd. (m)	20.28	Wetted Per. (m)	136.84	9.96	97.31
Min Ch El (m)	967.66	Shear (N/m2)	17.74	34.58	6.63
Alpha	1.01	Stream Power (N/m s)	20.55	41.66	8.56
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	1159.91	556.65	1809.36
C & E Loss (m)	0.00	Cum SA (1000 m2)	778.36	173.33	1347.27

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4680.000 Profile: 2% AEP

E.G. Elev (m)	971.24	Element	Left OB	Channel	Right OB
Vel Head (m)	0.07	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.17	Reach Len. (m)	20.26	20.23	20.35
Crit W.S. (m)		Flow Area (m2)	198.13	30.32	40.61
E.G. Slope (m/m)	0.001321	Area (m2)	198.13	30.32	40.61
Q Total (m3/s)	319.00	Flow (m3/s)	232.06	38.57	48.37

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4680.000 Profile: 2% AEP (Continued)

Top Width (m)	227.46	Top Width (m)	135.23	9.39	82.84
Vel Total (m/s)	1.19	Avg. Vel. (m/s)	1.17	1.27	1.19
Max Chl Dpth (m)	3.51	Hydr. Depth (m)	1.47	3.23	0.49
Conv. Total (m3/s)	8778.1	Conv. (m3/s)	6385.8	1061.3	1331.0
Length Wtd. (m)	20.27	Wetted Per. (m)	135.35	9.96	83.85
Min Ch El (m)	967.66	Shear (N/m2)	18.96	39.41	6.27
Alpha	1.00	Stream Power (N/m s)	22.20	50.13	7.47
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	1008.59	522.06	1551.21
C & E Loss (m)	0.00	Cum SA (1000 m2)	737.76	172.96	1266.95

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4680.000 Profile: 5% AEP

E.G. Elev (m)	970.95	Element	Left OB	Channel	Right OB
Vel Head (m)	0.07	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.89	Reach Len. (m)	20.26	20.23	20.35
Crit W.S. (m)		Flow Area (m2)	160.38	27.68	20.92
E.G. Slope (m/m)	0.001526	Area (m2)	160.38	27.68	20.92
Q Total (m3/s)	237.00	Flow (m3/s)	177.44	35.61	23.95
Top Width (m)	197.06	Top Width (m)	132.93	9.39	54.74
Vel Total (m/s)	1.13	Avg. Vel. (m/s)	1.11	1.29	1.14
Max Chl Dpth (m)	3.23	Hydr. Depth (m)	1.21	2.95	0.38
Conv. Total (m3/s)	6066.4	Conv. (m3/s)	4541.8	911.6	613.1
Length Wtd. (m)	20.26	Wetted Per. (m)	133.04	9.96	55.24
Min Ch El (m)	967.66	Shear (N/m2)	18.04	41.58	5.67
Alpha	1.01	Stream Power (N/m s)	19.96	53.49	6.49
Frctn Loss (m)	0.03	Cum Volume (1000 m3)	807.78	473.40	1215.73
C & E Loss (m)	0.00	Cum SA (1000 m2)	681.21	172.54	1166.72

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4680.000 Profile: PMF

E.G. Elev (m)	973.94	Element	Left OB	Channel	Right OB
Vel Head (m)	0.25	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	973.69	Reach Len. (m)	20.26	20.23	20.35
Crit W.S. (m)		Flow Area (m2)	581.03	54.06	317.43
E.G. Slope (m/m)	0.000845	Area (m2)	581.03	54.06	317.43
Q Total (m3/s)	1910.00	Flow (m3/s)	967.29	80.88	861.83
Top Width (m)	296.12	Top Width (m)	167.23	9.39	119.50
Vel Total (m/s)	2.01	Avg. Vel. (m/s)	1.66	1.50	2.71
Max Chl Dpth (m)	6.04	Hydr. Depth (m)	3.47	5.76	2.66
Conv. Total (m3/s)	65701.3	Conv. (m3/s)	33273.4	2782.2	29645.7
Length Wtd. (m)	20.30	Wetted Per. (m)	167.59	9.96	126.53
Min Ch El (m)	967.66	Shear (N/m2)	28.73	44.97	20.79
Alpha	1.20	Stream Power (N/m s)	47.83	67.27	56.45
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	3840.73	1020.17	6344.68
C & E Loss (m)	0.01	Cum SA (1000 m2)	1282.40	173.78	2026.92

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4680.000 Profile: 10% AEP

E.G. Elev (m)	970.79	Element	Left OB	Channel	Right OB
Vel Head (m)	0.07	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.72	Reach Len. (m)	20.26	20.23	20.35
Crit W.S. (m)		Flow Area (m2)	138.79	26.14	12.92
E.G. Slope (m/m)	0.001913	Area (m2)	138.79	26.14	12.92
Q Total (m3/s)	207.00	Flow (m3/s)	157.14	36.25	13.60
Top Width (m)	184.78	Top Width (m)	131.61	9.39	43.78
Vel Total (m/s)	1.16	Avg. Vel. (m/s)	1.13	1.39	1.05
Max Chl Dpth (m)	3.07	Hydr. Depth (m)	1.05	2.78	0.30
Conv. Total (m3/s)	4733.2	Conv. (m3/s)	3593.1	829.0	311.1
Length Wtd. (m)	20.26	Wetted Per. (m)	131.70	9.96	44.02
Min Ch El (m)	967.66	Shear (N/m2)	19.77	49.22	5.50

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4680.000 Profile: 10% AEP (Continued)

Alpha	1.02	Stream Power (N/m s)	22.38	68.24	5.80
Frctn Loss (m)	0.03	Cum Volume (1000 m3)	716.04	450.17	1061.37
C & E Loss (m)	0.00	Cum SA (1000 m2)	654.48	172.20	1113.99

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4680.000 Profile: 20% AEP

E.G. Elev (m)	970.55	Element	Left OB	Channel	Right OB
Vel Head (m)	0.08	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.46	Reach Len. (m)	20.26	20.23	20.35
Crit W.S. (m)		Flow Area (m2)	104.69	23.69	7.06
E.G. Slope (m/m)	0.002415	Area (m2)	104.69	23.69	7.06
Q Total (m3/s)	161.00	Flow (m3/s)	111.52	34.57	14.91
Top Width (m)	147.72	Top Width (m)	129.59	9.39	8.74
Vel Total (m/s)	1.19	Avg. Vel. (m/s)	1.07	1.46	2.11
Max Chl Dpth (m)	2.81	Hydr. Depth (m)	0.81	2.52	0.81
Conv. Total (m3/s)	3276.0	Conv. (m3/s)	2269.2	703.5	303.4
Length Wtd. (m)	20.26	Wetted Per. (m)	129.67	9.96	8.86
Min Ch El (m)	967.66	Shear (N/m2)	19.12	56.32	18.87
Alpha	1.17	Stream Power (N/m s)	20.37	82.17	39.84
Frctn Loss (m)	0.04	Cum Volume (1000 m3)	578.10	413.87	840.22
C & E Loss (m)	0.00	Cum SA (1000 m2)	607.63	171.75	1011.26

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4660.000 Profile: 1% AEP

E.G. Elev (m)	971.44	Element	Left OB	Channel	Right OB
Vel Head (m)	0.07	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.37	Reach Len. (m)	20.18	20.15	19.90
Crit W.S. (m)		Flow Area (m2)	239.35	29.88	58.73
E.G. Slope (m/m)	0.000964	Area (m2)	239.35	29.88	58.73
Q Total (m3/s)	382.00	Flow (m3/s)	274.71	34.13	73.16
Top Width (m)	236.76	Top Width (m)	132.88	8.54	95.34
Vel Total (m/s)	1.16	Avg. Vel. (m/s)	1.15	1.14	1.25
Max Chl Dpth (m)	3.81	Hydr. Depth (m)	1.80	3.50	0.62
Conv. Total (m3/s)	12304.0	Conv. (m3/s)	8848.3	1099.3	2356.4
Length Wtd. (m)	20.13	Wetted Per. (m)	133.11	9.11	97.71
Min Ch El (m)	967.57	Shear (N/m2)	17.00	31.00	5.68
Alpha	1.00	Stream Power (N/m s)	19.51	35.42	7.08
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	1155.18	556.02	1808.15
C & E Loss (m)	0.00	Cum SA (1000 m2)	775.63	173.15	1345.32

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4660.000 Profile: 2% AEP

E.G. Elev (m)	971.21	Element	Left OB	Channel	Right OB
Vel Head (m)	0.07	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.15	Reach Len. (m)	20.18	20.15	19.90
Crit W.S. (m)		Flow Area (m2)	209.49	27.95	39.67
E.G. Slope (m/m)	0.001127	Area (m2)	209.49	27.95	39.67
Q Total (m3/s)	319.00	Flow (m3/s)	239.52	33.02	46.45
Top Width (m)	215.68	Top Width (m)	131.55	8.54	75.60
Vel Total (m/s)	1.15	Avg. Vel. (m/s)	1.14	1.18	1.17
Max Chl Dpth (m)	3.58	Hydr. Depth (m)	1.59	3.27	0.52
Conv. Total (m3/s)	9502.1	Conv. (m3/s)	7134.7	983.6	1383.7
Length Wtd. (m)	20.14	Wetted Per. (m)	131.76	9.11	77.39
Min Ch El (m)	967.57	Shear (N/m2)	17.57	33.91	5.67
Alpha	1.00	Stream Power (N/m s)	20.09	40.07	6.63
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	1004.46	521.47	1550.39
C & E Loss (m)	0.00	Cum SA (1000 m2)	735.06	172.78	1265.34

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4660.000 Profile: 5% AEP

E.G. Elev (m)	970.92	Element	Left OB	Channel	Right OB
Vel Head (m)	0.06	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.86	Reach Len. (m)	20.18	20.15	19.90
Crit W.S. (m)		Flow Area (m2)	172.48	25.53	21.24
E.G. Slope (m/m)	0.001243	Area (m2)	172.48	25.53	21.24
Q Total (m3/s)	237.00	Flow (m3/s)	183.55	29.83	23.62
Top Width (m)	189.98	Top Width (m)	129.87	8.54	51.57
Vel Total (m/s)	1.08	Avg. Vel. (m/s)	1.06	1.17	1.11
Max Chl Dpth (m)	3.30	Hydr. Depth (m)	1.33	2.99	0.41
Conv. Total (m3/s)	6720.9	Conv. (m3/s)	5205.1	846.0	669.9
Length Wtd. (m)	20.16	Wetted Per. (m)	130.06	9.11	52.87
Min Ch El (m)	967.57	Shear (N/m2)	16.17	34.18	4.90
Alpha	1.00	Stream Power (N/m s)	17.21	39.94	5.45
Frctn Loss (m)	0.03	Cum Volume (1000 m3)	804.41	472.87	1215.30
C & E Loss (m)	0.00	Cum SA (1000 m2)	678.55	172.36	1165.63

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4660.000 Profile: PMF

E.G. Elev (m)	973.91	Element	Left OB	Channel	Right OB
Vel Head (m)	0.21	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	973.70	Reach Len. (m)	20.18	20.15	19.90
Crit W.S. (m)		Flow Area (m2)	588.65	49.75	349.67
E.G. Slope (m/m)	0.000795	Area (m2)	588.65	49.75	349.67
Q Total (m3/s)	1910.00	Flow (m3/s)	976.90	72.52	860.58
Top Width (m)	323.56	Top Width (m)	162.49	8.54	152.53
Vel Total (m/s)	1.93	Avg. Vel. (m/s)	1.66	1.46	2.46
Max Chl Dpth (m)	6.13	Hydr. Depth (m)	3.62	5.83	2.29
Conv. Total (m3/s)	67727.6	Conv. (m3/s)	34640.4	2571.5	30515.8
Length Wtd. (m)	20.07	Wetted Per. (m)	163.00	9.11	159.72
Min Ch El (m)	967.57	Shear (N/m2)	28.17	42.60	17.07
Alpha	1.13	Stream Power (N/m s)	46.74	62.09	42.02
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	3828.88	1019.12	6337.89
C & E Loss (m)	0.01	Cum SA (1000 m2)	1279.06	173.60	2024.15

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4660.000 Profile: 10% AEP

E.G. Elev (m)	970.76	Element	Left OB	Channel	Right OB
Vel Head (m)	0.06	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.69	Reach Len. (m)	20.18	20.15	19.90
Crit W.S. (m)		Flow Area (m2)	150.72	24.10	14.14
E.G. Slope (m/m)	0.001523	Area (m2)	150.72	24.10	14.14
Q Total (m3/s)	207.00	Flow (m3/s)	163.06	29.98	13.96
Top Width (m)	175.49	Top Width (m)	128.88	8.54	38.08
Vel Total (m/s)	1.10	Avg. Vel. (m/s)	1.08	1.24	0.99
Max Chl Dpth (m)	3.13	Hydr. Depth (m)	1.17	2.82	0.37
Conv. Total (m3/s)	5304.6	Conv. (m3/s)	4178.6	768.2	357.8
Length Wtd. (m)	20.16	Wetted Per. (m)	129.05	9.11	39.24
Min Ch El (m)	967.57	Shear (N/m2)	17.44	39.50	5.38
Alpha	1.01	Stream Power (N/m s)	18.87	49.14	5.31
Frctn Loss (m)	0.03	Cum Volume (1000 m3)	713.11	449.66	1061.09
C & E Loss (m)	0.00	Cum SA (1000 m2)	651.84	172.02	1113.16

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4660.000 Profile: 20% AEP

E.G. Elev (m)	970.50	Element	Left OB	Channel	Right OB
Vel Head (m)	0.08	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.42	Reach Len. (m)	20.18	20.15	19.90
Crit W.S. (m)		Flow Area (m2)	116.10	21.79	8.71
E.G. Slope (m/m)	0.001760	Area (m2)	116.10	21.79	8.71
Q Total (m3/s)	161.00	Flow (m3/s)	114.44	27.25	19.31

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4660.000 Profile: 20% AEP (Continued)

Top Width (m)	142.77	Top Width (m)	127.28	8.54	6.95
Vel Total (m/s)	1.10	Avg. Vel. (m/s)	0.99	1.25	2.22
Max Chl Dpth (m)	2.86	Hydr. Depth (m)	0.91	2.55	1.25
Conv. Total (m3/s)	3837.5	Conv. (m3/s)	2727.8	649.6	460.2
Length Wtd. (m)	20.15	Wetted Per. (m)	127.43	9.11	8.02
Min Ch El (m)	967.57	Shear (N/m2)	15.73	41.29	18.75
Alpha	1.28	Stream Power (N/m s)	15.50	51.64	41.58
Frctn Loss (m)	0.04	Cum Volume (1000 m3)	575.86	413.41	840.06
C & E Loss (m)	0.00	Cum SA (1000 m2)	605.03	171.57	1011.10

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4640.000 Profile: 1% AEP

E.G. Elev (m)	971.42	Element	Left OB	Channel	Right OB
Vel Head (m)	0.08	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.34	Reach Len. (m)	19.99	20.05	19.88
Crit W.S. (m)		Flow Area (m2)	239.93	29.19	38.42
E.G. Slope (m/m)	0.001139	Area (m2)	239.93	29.19	38.42
Q Total (m3/s)	382.00	Flow (m3/s)	300.21	32.56	49.23
Top Width (m)	201.96	Top Width (m)	132.84	10.02	59.10
Vel Total (m/s)	1.24	Avg. Vel. (m/s)	1.25	1.12	1.28
Max Chl Dpth (m)	3.78	Hydr. Depth (m)	1.81	2.91	0.65
Conv. Total (m3/s)	11320.4	Conv. (m3/s)	8896.6	965.0	1458.8
Length Wtd. (m)	19.97	Wetted Per. (m)	133.00	10.45	62.88
Min Ch El (m)	967.56	Shear (N/m2)	20.14	31.20	6.82
Alpha	1.00	Stream Power (N/m s)	25.20	34.81	8.74
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	1150.34	555.42	1807.18
C & E Loss (m)	0.01	Cum SA (1000 m2)	772.95	172.96	1343.78

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4640.000 Profile: 2% AEP

E.G. Elev (m)	971.19	Element	Left OB	Channel	Right OB
Vel Head (m)	0.08	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.11	Reach Len. (m)	19.99	20.05	19.88
Crit W.S. (m)		Flow Area (m2)	209.84	26.90	24.94
E.G. Slope (m/m)	0.001318	Area (m2)	209.84	26.90	24.94
Q Total (m3/s)	319.00	Flow (m3/s)	260.47	30.58	27.95
Top Width (m)	200.17	Top Width (m)	131.05	10.02	59.10
Vel Total (m/s)	1.22	Avg. Vel. (m/s)	1.24	1.14	1.12
Max Chl Dpth (m)	3.55	Hydr. Depth (m)	1.60	2.68	0.42
Conv. Total (m3/s)	8787.3	Conv. (m3/s)	7175.1	842.3	769.9
Length Wtd. (m)	19.98	Wetted Per. (m)	131.19	10.45	61.74
Min Ch El (m)	967.56	Shear (N/m2)	20.67	33.28	5.22
Alpha	1.00	Stream Power (N/m s)	25.66	37.83	5.85
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	1000.22	520.92	1549.75
C & E Loss (m)	0.01	Cum SA (1000 m2)	732.41	172.59	1264.00

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4640.000 Profile: 5% AEP

E.G. Elev (m)	970.89	Element	Left OB	Channel	Right OB
Vel Head (m)	0.07	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.83	Reach Len. (m)	19.99	20.05	19.88
Crit W.S. (m)		Flow Area (m2)	172.82	24.05	9.69
E.G. Slope (m/m)	0.001462	Area (m2)	172.82	24.05	9.69
Q Total (m3/s)	237.00	Flow (m3/s)	200.59	26.72	9.70
Top Width (m)	174.60	Top Width (m)	129.03	10.02	35.55
Vel Total (m/s)	1.15	Avg. Vel. (m/s)	1.16	1.11	1.00
Max Chl Dpth (m)	3.26	Hydr. Depth (m)	1.34	2.40	0.27
Conv. Total (m3/s)	6198.7	Conv. (m3/s)	5246.3	698.7	253.7
Length Wtd. (m)	19.99	Wetted Per. (m)	129.16	10.45	36.95
Min Ch El (m)	967.56	Shear (N/m2)	19.18	33.00	3.76

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4640.000 Profile: 5% AEP (Continued)

Alpha	1.00	Stream Power (N/m s)	22.26	36.66	3.76
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	800.92	472.37	1214.99
C & E Loss (m)	0.01	Cum SA (1000 m2)	675.93	172.17	1164.77

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4640.000 Profile: PMF

E.G. Elev (m)	973.89	Element	Left OB	Channel	Right OB
Vel Head (m)	0.27	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	973.62	Reach Len. (m)	19.99	20.05	19.88
Crit W.S. (m)		Flow Area (m2)	585.39	52.03	222.84
E.G. Slope (m/m)	0.001216	Area (m2)	585.39	52.03	222.84
Q Total (m3/s)	1910.00	Flow (m3/s)	1202.23	88.22	619.56
Top Width (m)	278.56	Top Width (m)	161.50	10.02	107.04
Vel Total (m/s)	2.22	Avg. Vel. (m/s)	2.05	1.70	2.78
Max Chl Dpth (m)	6.06	Hydr. Depth (m)	3.62	5.19	2.08
Conv. Total (m3/s)	54762.4	Conv. (m3/s)	34469.5	2529.3	17763.7
Length Wtd. (m)	19.95	Wetted Per. (m)	161.94	10.45	124.84
Min Ch El (m)	967.56	Shear (N/m2)	43.12	59.42	21.29
Alpha	1.07	Stream Power (N/m s)	88.56	100.75	59.20
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	3817.04	1018.09	6332.20
C & E Loss (m)	0.01	Cum SA (1000 m2)	1275.79	173.41	2021.57

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4640.000 Profile: 10% AEP

E.G. Elev (m)	970.72	Element	Left OB	Channel	Right OB
Vel Head (m)	0.07	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.65	Reach Len. (m)	19.99	20.05	19.88
Crit W.S. (m)		Flow Area (m2)	150.47	22.30	5.28
E.G. Slope (m/m)	0.001770	Area (m2)	150.47	22.30	5.28
Q Total (m3/s)	207.00	Flow (m3/s)	176.40	25.93	4.68
Top Width (m)	157.04	Top Width (m)	127.74	10.02	19.28
Vel Total (m/s)	1.16	Avg. Vel. (m/s)	1.17	1.16	0.89
Max Chl Dpth (m)	3.09	Hydr. Depth (m)	1.18	2.23	0.27
Conv. Total (m3/s)	4920.8	Conv. (m3/s)	4193.4	616.3	111.2
Length Wtd. (m)	19.99	Wetted Per. (m)	127.85	10.45	20.28
Min Ch El (m)	967.56	Shear (N/m2)	20.42	37.05	4.51
Alpha	1.00	Stream Power (N/m s)	23.94	43.07	4.00
Frctn Loss (m)	0.03	Cum Volume (1000 m3)	710.07	449.19	1060.90
C & E Loss (m)	0.01	Cum SA (1000 m2)	649.25	171.83	1112.59

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4640.000 Profile: 20% AEP

E.G. Elev (m)	970.46	Element	Left OB	Channel	Right OB
Vel Head (m)	0.07	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.39	Reach Len. (m)	19.99	20.05	19.88
Crit W.S. (m)		Flow Area (m2)	117.06	19.66	2.65
E.G. Slope (m/m)	0.002240	Area (m2)	117.06	19.66	2.65
Q Total (m3/s)	161.00	Flow (m3/s)	131.97	23.64	5.39
Top Width (m)	138.35	Top Width (m)	125.77	10.02	2.55
Vel Total (m/s)	1.16	Avg. Vel. (m/s)	1.13	1.20	2.03
Max Chl Dpth (m)	2.83	Hydr. Depth (m)	0.93	1.96	1.04
Conv. Total (m3/s)	3401.7	Conv. (m3/s)	2788.4	499.6	113.8
Length Wtd. (m)	19.99	Wetted Per. (m)	125.87	10.45	3.32
Min Ch El (m)	967.56	Shear (N/m2)	20.43	41.35	17.50
Alpha	1.04	Stream Power (N/m s)	23.03	49.72	35.59
Frctn Loss (m)	0.04	Cum Volume (1000 m3)	573.51	412.99	839.95
C & E Loss (m)	0.00	Cum SA (1000 m2)	602.48	171.38	1011.01

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4620.000 Profile: 1% AEP

E.G. Elev (m)	971.39	Element	Left OB	Channel	Right OB
Vel Head (m)	0.06	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.34	Reach Len. (m)	10.60	10.10	10.17
Crit W.S. (m)		Flow Area (m2)	262.11	24.27	72.29
E.G. Slope (m/m)	0.000725	Area (m2)	262.11	24.27	72.29
Q Total (m3/s)	382.00	Flow (m3/s)	267.17	23.59	91.23
Top Width (m)	231.39	Top Width (m)	140.23	6.65	84.50
Vel Total (m/s)	1.07	Avg. Vel. (m/s)	1.02	0.97	1.26
Max Chl Dpth (m)	3.93	Hydr. Depth (m)	1.87	3.65	0.86
Conv. Total (m3/s)	14187.7	Conv. (m3/s)	9922.9	876.3	3388.4
Length Wtd. (m)	10.46	Wetted Per. (m)	140.66	7.61	85.81
Min Ch El (m)	967.40	Shear (N/m2)	13.25	22.67	5.99
Alpha	1.03	Stream Power (N/m s)	13.50	22.04	7.56
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	1145.32	554.89	1806.08
C & E Loss (m)	0.00	Cum SA (1000 m2)	770.22	172.79	1342.36

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4620.000 Profile: 2% AEP

E.G. Elev (m)	971.16	Element	Left OB	Channel	Right OB
Vel Head (m)	0.06	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.10	Reach Len. (m)	10.60	10.10	10.17
Crit W.S. (m)		Flow Area (m2)	230.52	22.74	52.85
E.G. Slope (m/m)	0.000822	Area (m2)	230.52	22.74	52.85
Q Total (m3/s)	319.00	Flow (m3/s)	236.24	22.54	60.22
Top Width (m)	225.71	Top Width (m)	134.55	6.65	84.50
Vel Total (m/s)	1.04	Avg. Vel. (m/s)	1.02	0.99	1.14
Max Chl Dpth (m)	3.70	Hydr. Depth (m)	1.71	3.42	0.63
Conv. Total (m3/s)	11125.1	Conv. (m3/s)	8238.8	786.1	2100.1
Length Wtd. (m)	10.48	Wetted Per. (m)	134.87	7.61	85.12
Min Ch El (m)	967.40	Shear (N/m2)	13.78	24.09	5.01
Alpha	1.01	Stream Power (N/m s)	14.12	23.88	5.70
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	995.82	520.42	1548.98
C & E Loss (m)	0.00	Cum SA (1000 m2)	729.75	172.43	1262.57

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4620.000 Profile: 5% AEP

E.G. Elev (m)	970.86	Element	Left OB	Channel	Right OB
Vel Head (m)	0.05	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.82	Reach Len. (m)	10.60	10.10	10.17
Crit W.S. (m)		Flow Area (m2)	191.87	20.82	30.42
E.G. Slope (m/m)	0.000942	Area (m2)	191.87	20.82	30.42
Q Total (m3/s)	237.00	Flow (m3/s)	187.29	20.83	28.88
Top Width (m)	206.10	Top Width (m)	133.48	6.65	65.97
Vel Total (m/s)	0.97	Avg. Vel. (m/s)	0.98	1.00	0.95
Max Chl Dpth (m)	3.42	Hydr. Depth (m)	1.44	3.13	0.46
Conv. Total (m3/s)	7720.8	Conv. (m3/s)	6101.4	678.7	940.7
Length Wtd. (m)	10.50	Wetted Per. (m)	133.75	7.61	66.10
Min Ch El (m)	967.40	Shear (N/m2)	13.26	25.28	4.25
Alpha	1.00	Stream Power (N/m s)	12.94	25.29	4.04
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	797.28	471.92	1214.59
C & E Loss (m)	0.00	Cum SA (1000 m2)	673.31	172.01	1163.76

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4620.000 Profile: PMF

E.G. Elev (m)	973.86	Element	Left OB	Channel	Right OB
Vel Head (m)	0.23	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	973.63	Reach Len. (m)	10.60	10.10	10.17
Crit W.S. (m)		Flow Area (m2)	618.16	39.52	312.22
E.G. Slope (m/m)	0.000772	Area (m2)	618.16	39.52	312.22
Q Total (m3/s)	1910.00	Flow (m3/s)	1037.78	54.90	817.32

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4620.000 Profile: PMF (Continued)

Top Width (m)	302.70	Top Width (m)	163.93	6.65	132.12
Vel Total (m/s)	1.97	Avg. Vel. (m/s)	1.68	1.39	2.62
Max Chl Dpth (m)	6.23	Hydr. Depth (m)	3.77	5.94	2.36
Conv. Total (m3/s)	68728.0	Conv. (m3/s)	37342.8	1975.4	29409.8
Length Wtd. (m)	10.40	Wetted Per. (m)	164.57	7.61	142.58
Min Ch El (m)	967.40	Shear (N/m2)	28.45	39.33	16.58
Alpha	1.17	Stream Power (N/m s)	47.76	54.63	43.42
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	3805.01	1017.17	6326.88
C & E Loss (m)	0.00	Cum SA (1000 m2)	1272.54	173.24	2019.19

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4620.000 Profile: 10% AEP

E.G. Elev (m)	970.69	Element	Left OB	Channel	Right OB
Vel Head (m)	0.05	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.64	Reach Len. (m)	10.60	10.10	10.17
Crit W.S. (m)		Flow Area (m2)	167.79	19.62	19.21
E.G. Slope (m/m)	0.001208	Area (m2)	167.79	19.62	19.21
Q Total (m3/s)	207.00	Flow (m3/s)	170.03	21.36	15.61
Top Width (m)	199.64	Top Width (m)	132.98	6.65	60.01
Vel Total (m/s)	1.00	Avg. Vel. (m/s)	1.01	1.09	0.81
Max Chl Dpth (m)	3.24	Hydr. Depth (m)	1.26	2.95	0.32
Conv. Total (m3/s)	5956.0	Conv. (m3/s)	4892.2	614.6	449.1
Length Wtd. (m)	10.51	Wetted Per. (m)	133.22	7.61	60.08
Min Ch El (m)	967.40	Shear (N/m2)	14.92	30.53	3.79
Alpha	1.01	Stream Power (N/m s)	15.12	33.25	3.08
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	706.89	448.77	1060.66
C & E Loss (m)	0.00	Cum SA (1000 m2)	646.65	171.66	1111.80

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4620.000 Profile: 20% AEP

E.G. Elev (m)	970.42	Element	Left OB	Channel	Right OB
Vel Head (m)	0.05	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.36	Reach Len. (m)	10.60	10.10	10.17
Crit W.S. (m)		Flow Area (m2)	131.81	17.81	10.04
E.G. Slope (m/m)	0.001478	Area (m2)	131.81	17.81	10.04
Q Total (m3/s)	161.00	Flow (m3/s)	126.26	20.12	14.62
Top Width (m)	154.10	Top Width (m)	132.29	6.65	15.16
Vel Total (m/s)	1.01	Avg. Vel. (m/s)	0.96	1.13	1.46
Max Chl Dpth (m)	2.96	Hydr. Depth (m)	1.00	2.68	0.66
Conv. Total (m3/s)	4187.7	Conv. (m3/s)	3284.0	523.3	380.3
Length Wtd. (m)	10.49	Wetted Per. (m)	132.47	7.61	15.22
Min Ch El (m)	967.40	Shear (N/m2)	14.42	33.92	9.56
Alpha	1.05	Stream Power (N/m s)	13.82	38.32	13.92
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	571.02	412.61	839.82
C & E Loss (m)	0.00	Cum SA (1000 m2)	599.90	171.21	1010.83

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4609.952 Profile: 1% AEP

E.G. Elev (m)	971.39	Element	Left OB	Channel	Right OB
Vel Head (m)	0.05	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.33	Reach Len. (m)	11.10	10.02	10.18
Crit W.S. (m)		Flow Area (m2)	261.64	39.08	69.49
E.G. Slope (m/m)	0.000720	Area (m2)	261.64	39.08	69.49
Q Total (m3/s)	382.00	Flow (m3/s)	261.38	39.43	81.18
Top Width (m)	240.96	Top Width (m)	143.59	10.76	86.61
Vel Total (m/s)	1.03	Avg. Vel. (m/s)	1.00	1.01	1.17
Max Chl Dpth (m)	3.86	Hydr. Depth (m)	1.82	3.63	0.80
Conv. Total (m3/s)	14234.6	Conv. (m3/s)	9739.9	1469.5	3025.2
Length Wtd. (m)	10.78	Wetted Per. (m)	143.99	11.54	88.16
Min Ch El (m)	967.47	Shear (N/m2)	12.83	23.93	5.57

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4609.952 Profile: 1% AEP (Continued)

Alpha	1.01	Stream Power (N/m s)	12.82	24.14	6.50
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	1142.55	554.57	1805.36
C & E Loss (m)	0.00	Cum SA (1000 m2)	768.72	172.71	1341.49

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4609.952 Profile: 2% AEP

E.G. Elev (m)	971.15	Element	Left OB	Channel	Right OB
Vel Head (m)	0.05	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.10	Reach Len. (m)	11.10	10.02	10.18
Crit W.S. (m)		Flow Area (m2)	229.20	36.59	49.41
E.G. Slope (m/m)	0.000797	Area (m2)	229.20	36.59	49.41
Q Total (m3/s)	319.00	Flow (m3/s)	232.42	37.16	49.42
Top Width (m)	232.51	Top Width (m)	135.13	10.76	86.61
Vel Total (m/s)	1.01	Avg. Vel. (m/s)	1.01	1.02	1.00
Max Chl Dpth (m)	3.63	Hydr. Depth (m)	1.70	3.40	0.57
Conv. Total (m3/s)	11300.8	Conv. (m3/s)	8233.6	1316.5	1750.7
Length Wtd. (m)	10.81	Wetted Per. (m)	135.44	11.54	87.47
Min Ch El (m)	967.47	Shear (N/m2)	13.22	24.78	4.41
Alpha	1.00	Stream Power (N/m s)	13.41	25.17	4.41
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	993.39	520.12	1548.46
C & E Loss (m)	0.00	Cum SA (1000 m2)	728.32	172.34	1261.70

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4609.952 Profile: 5% AEP

E.G. Elev (m)	970.85	Element	Left OB	Channel	Right OB
Vel Head (m)	0.05	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.81	Reach Len. (m)	11.10	10.02	10.18
Crit W.S. (m)		Flow Area (m2)	190.94	33.46	24.97
E.G. Slope (m/m)	0.000896	Area (m2)	190.94	33.46	24.97
Q Total (m3/s)	237.00	Flow (m3/s)	184.47	33.96	18.58
Top Width (m)	217.74	Top Width (m)	129.98	10.76	77.00
Vel Total (m/s)	0.95	Avg. Vel. (m/s)	0.97	1.01	0.74
Max Chl Dpth (m)	3.34	Hydr. Depth (m)	1.47	3.11	0.32
Conv. Total (m3/s)	7916.8	Conv. (m3/s)	6161.9	1134.3	620.6
Length Wtd. (m)	10.85	Wetted Per. (m)	130.19	11.54	77.26
Min Ch El (m)	967.47	Shear (N/m2)	12.89	25.49	2.84
Alpha	1.02	Stream Power (N/m s)	12.45	25.87	2.11
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	795.25	471.64	1214.31
C & E Loss (m)	0.00	Cum SA (1000 m2)	671.91	171.92	1163.03

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4609.952 Profile: PMF

E.G. Elev (m)	973.85	Element	Left OB	Channel	Right OB
Vel Head (m)	0.22	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	973.62	Reach Len. (m)	11.10	10.02	10.18
Crit W.S. (m)		Flow Area (m2)	608.98	63.76	305.84
E.G. Slope (m/m)	0.000768	Area (m2)	608.98	63.76	305.84
Q Total (m3/s)	1910.00	Flow (m3/s)	1025.64	92.04	792.32
Top Width (m)	304.20	Top Width (m)	160.05	10.76	133.39
Vel Total (m/s)	1.95	Avg. Vel. (m/s)	1.68	1.44	2.59
Max Chl Dpth (m)	6.15	Hydr. Depth (m)	3.80	5.93	2.29
Conv. Total (m3/s)	68939.0	Conv. (m3/s)	37019.2	3322.1	28597.7
Length Wtd. (m)	10.66	Wetted Per. (m)	160.61	11.54	143.92
Min Ch El (m)	967.47	Shear (N/m2)	28.54	41.61	16.00
Alpha	1.16	Stream Power (N/m s)	48.07	60.06	41.44
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	3798.50	1016.65	6323.73
C & E Loss (m)	0.00	Cum SA (1000 m2)	1270.82	173.16	2017.84

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4609.952 Profile: 10% AEP

E.G. Elev (m)	970.68	Element	Left OB	Channel	Right OB
Vel Head (m)	0.05	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.62	Reach Len. (m)	11.10	10.02	10.18
Crit W.S. (m)		Flow Area (m2)	167.13	31.48	12.06
E.G. Slope (m/m)	0.001122	Area (m2)	167.13	31.48	12.06
Q Total (m3/s)	207.00	Flow (m3/s)	166.10	34.32	6.58
Top Width (m)	205.53	Top Width (m)	129.04	10.76	65.73
Vel Total (m/s)	0.98	Avg. Vel. (m/s)	0.99	1.09	0.55
Max Chl Dpth (m)	3.15	Hydr. Depth (m)	1.30	2.93	0.18
Conv. Total (m3/s)	6180.7	Conv. (m3/s)	4959.5	1024.7	196.5
Length Wtd. (m)	10.87	Wetted Per. (m)	129.23	11.54	65.94
Min Ch El (m)	967.47	Shear (N/m2)	14.23	30.02	2.01
Alpha	1.03	Stream Power (N/m s)	14.14	32.72	1.10
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	705.11	448.51	1060.50
C & E Loss (m)	0.00	Cum SA (1000 m2)	645.26	171.57	1111.16

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4609.952 Profile: 20% AEP

E.G. Elev (m)	970.40	Element	Left OB	Channel	Right OB
Vel Head (m)	0.05	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.35	Reach Len. (m)	11.10	10.02	10.18
Crit W.S. (m)		Flow Area (m2)	132.36	28.57	4.55
E.G. Slope (m/m)	0.001326	Area (m2)	132.36	28.57	4.55
Q Total (m3/s)	161.00	Flow (m3/s)	123.34	31.74	5.92
Top Width (m)	145.82	Top Width (m)	127.67	10.76	7.39
Vel Total (m/s)	0.97	Avg. Vel. (m/s)	0.93	1.11	1.30
Max Chl Dpth (m)	2.88	Hydr. Depth (m)	1.04	2.65	0.62
Conv. Total (m3/s)	4420.6	Conv. (m3/s)	3386.5	871.5	162.5
Length Wtd. (m)	10.83	Wetted Per. (m)	127.84	11.54	7.52
Min Ch El (m)	967.47	Shear (N/m2)	13.47	32.21	7.86
Alpha	1.03	Stream Power (N/m s)	12.55	35.79	10.23
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	569.62	412.38	839.75
C & E Loss (m)	0.00	Cum SA (1000 m2)	598.52	171.12	1010.72

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4600.000 Profile: 1% AEP

E.G. Elev (m)	971.38	Element	Left OB	Channel	Right OB
Vel Head (m)	0.05	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.32	Reach Len. (m)	101.00	100.80	101.20
Crit W.S. (m)		Flow Area (m2)	254.22	49.65	67.92
E.G. Slope (m/m)	0.000711	Area (m2)	254.22	49.65	67.92
Q Total (m3/s)	382.00	Flow (m3/s)	252.46	51.06	78.48
Top Width (m)	237.32	Top Width (m)	139.37	12.95	85.00
Vel Total (m/s)	1.03	Avg. Vel. (m/s)	0.99	1.03	1.16
Max Chl Dpth (m)	4.12	Hydr. Depth (m)	1.82	3.83	0.80
Conv. Total (m3/s)	14330.2	Conv. (m3/s)	9470.6	1915.5	2944.1
Length Wtd. (m)	101.08	Wetted Per. (m)	139.76	14.10	86.86
Min Ch El (m)	967.20	Shear (N/m2)	12.68	24.54	5.45
Alpha	1.01	Stream Power (N/m s)	12.59	25.24	6.30
Frctn Loss (m)	0.04	Cum Volume (1000 m3)	1139.68	554.12	1804.66
C & E Loss (m)	0.00	Cum SA (1000 m2)	767.15	172.59	1340.61

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4600.000 Profile: 2% AEP

E.G. Elev (m)	971.14	Element	Left OB	Channel	Right OB
Vel Head (m)	0.05	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.09	Reach Len. (m)	101.00	100.80	101.20
Crit W.S. (m)		Flow Area (m2)	222.29	46.63	48.14
E.G. Slope (m/m)	0.000802	Area (m2)	222.29	46.63	48.14
Q Total (m3/s)	319.00	Flow (m3/s)	222.08	48.88	48.05

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4600.000 Profile: 2% AEP (Continued)

Top Width (m)	230.29	Top Width (m)	132.33	12.95	85.00
Vel Total (m/s)	1.01	Avg. Vel. (m/s)	1.00	1.05	1.00
Max Chl Dpth (m)	3.89	Hydr. Depth (m)	1.68	3.60	0.57
Conv. Total (m3/s)	11262.3	Conv. (m3/s)	7840.5	1725.6	1696.3
Length Wtd. (m)	101.07	Wetted Per. (m)	132.64	14.10	86.16
Min Ch El (m)	967.20	Shear (N/m2)	13.18	26.03	4.40
Alpha	1.00	Stream Power (N/m s)	13.17	27.28	4.39
Frctn Loss (m)	0.04	Cum Volume (1000 m3)	990.88	519.71	1547.96
C & E Loss (m)	0.00	Cum SA (1000 m2)	726.84	172.22	1260.83

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4600.000 Profile: 5% AEP

E.G. Elev (m)	970.84	Element	Left OB	Channel	Right OB
Vel Head (m)	0.05	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.80	Reach Len. (m)	101.00	100.80	101.20
Crit W.S. (m)		Flow Area (m2)	184.67	42.86	24.11
E.G. Slope (m/m)	0.000867	Area (m2)	184.67	42.86	24.11
Q Total (m3/s)	237.00	Flow (m3/s)	175.54	44.13	17.33
Top Width (m)	213.69	Top Width (m)	125.63	12.95	75.10
Vel Total (m/s)	0.94	Avg. Vel. (m/s)	0.95	1.03	0.72
Max Chl Dpth (m)	3.60	Hydr. Depth (m)	1.47	3.31	0.32
Conv. Total (m3/s)	8049.5	Conv. (m3/s)	5962.0	1499.0	588.6
Length Wtd. (m)	101.05	Wetted Per. (m)	125.84	14.10	75.50
Min Ch El (m)	967.20	Shear (N/m2)	12.47	25.84	2.71
Alpha	1.02	Stream Power (N/m s)	11.86	26.62	1.95
Frctn Loss (m)	0.05	Cum Volume (1000 m3)	793.17	471.26	1214.06
C & E Loss (m)	0.00	Cum SA (1000 m2)	670.49	171.80	1162.26

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4600.000 Profile: PMF

E.G. Elev (m)	973.84	Element	Left OB	Channel	Right OB
Vel Head (m)	0.22	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	973.62	Reach Len. (m)	101.00	100.80	101.20
Crit W.S. (m)		Flow Area (m2)	587.18	79.38	315.37
E.G. Slope (m/m)	0.000762	Area (m2)	587.18	79.38	315.37
Q Total (m3/s)	1910.00	Flow (m3/s)	991.81	115.59	802.60
Top Width (m)	302.66	Top Width (m)	152.72	12.95	136.99
Vel Total (m/s)	1.95	Avg. Vel. (m/s)	1.69	1.46	2.54
Max Chl Dpth (m)	6.42	Hydr. Depth (m)	3.84	6.13	2.30
Conv. Total (m3/s)	69195.7	Conv. (m3/s)	35931.3	4187.5	29076.8
Length Wtd. (m)	101.11	Wetted Per. (m)	153.33	14.10	148.08
Min Ch El (m)	967.20	Shear (N/m2)	28.61	42.07	15.91
Alpha	1.14	Stream Power (N/m s)	48.33	61.27	40.50
Frctn Loss (m)	0.05	Cum Volume (1000 m3)	3791.87	1015.93	6320.57
C & E Loss (m)	0.01	Cum SA (1000 m2)	1269.09	173.04	2016.46

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4600.000 Profile: 10% AEP

E.G. Elev (m)	970.66	Element	Left OB	Channel	Right OB
Vel Head (m)	0.05	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.61	Reach Len. (m)	101.00	100.80	101.20
Crit W.S. (m)		Flow Area (m2)	161.51	40.45	11.03
E.G. Slope (m/m)	0.001063	Area (m2)	161.51	40.45	11.03
Q Total (m3/s)	207.00	Flow (m3/s)	157.13	44.38	5.49
Top Width (m)	202.84	Top Width (m)	123.67	12.95	66.22
Vel Total (m/s)	0.97	Avg. Vel. (m/s)	0.97	1.10	0.50
Max Chl Dpth (m)	3.41	Hydr. Depth (m)	1.31	3.12	0.17
Conv. Total (m3/s)	6348.8	Conv. (m3/s)	4819.2	1361.1	168.5
Length Wtd. (m)	101.04	Wetted Per. (m)	123.87	14.10	66.35
Min Ch El (m)	967.20	Shear (N/m2)	13.59	29.91	1.73

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4600.000 Profile: 10% AEP (Continued)

Alpha	1.04	Stream Power (N/m s)	13.22	32.82	0.86
Frctn Loss (m)	0.06	Cum Volume (1000 m3)	703.29	448.15	1060.38
C & E Loss (m)	0.00	Cum SA (1000 m2)	643.85	171.46	1110.49

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4600.000 Profile: 20% AEP

E.G. Elev (m)	970.39	Element	Left OB	Channel	Right OB
Vel Head (m)	0.05	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.34	Reach Len. (m)	101.00	100.80	101.20
Crit W.S. (m)		Flow Area (m2)	128.10	36.92	3.66
E.G. Slope (m/m)	0.001232	Area (m2)	128.10	36.92	3.66
Q Total (m3/s)	161.00	Flow (m3/s)	116.02	41.05	3.93
Top Width (m)	142.51	Top Width (m)	122.00	12.95	7.55
Vel Total (m/s)	0.95	Avg. Vel. (m/s)	0.91	1.11	1.08
Max Chl Dpth (m)	3.14	Hydr. Depth (m)	1.05	2.85	0.48
Conv. Total (m3/s)	4586.3	Conv. (m3/s)	3305.0	1169.2	112.1
Length Wtd. (m)	101.03	Wetted Per. (m)	122.17	14.10	7.63
Min Ch El (m)	967.20	Shear (N/m2)	12.67	31.65	5.80
Alpha	1.03	Stream Power (N/m s)	11.48	35.19	6.23
Frctn Loss (m)	0.08	Cum Volume (1000 m3)	568.18	412.05	839.71
C & E Loss (m)	0.00	Cum SA (1000 m2)	597.13	171.00	1010.64

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4513 Profile: 1% AEP

E.G. Elev (m)	971.33	Element	Left OB	Channel	Right OB
Vel Head (m)	0.04	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.29	Reach Len. (m)	6.00	6.00	6.00
Crit W.S. (m)	969.97	Flow Area (m2)	118.74	40.08	288.35
E.G. Slope (m/m)	0.000251	Area (m2)	118.74	40.08	288.35
Q Total (m3/s)	382.00	Flow (m3/s)	64.32	25.49	292.19
Top Width (m)	283.25	Top Width (m)	73.86	10.45	198.94
Vel Total (m/s)	0.85	Avg. Vel. (m/s)	0.54	0.64	1.01
Max Chl Dpth (m)	3.96	Hydr. Depth (m)	1.61	3.83	1.45
Conv. Total (m3/s)	24114.8	Conv. (m3/s)	4060.3	1609.2	18445.3
Length Wtd. (m)	6.00	Wetted Per. (m)	74.23	10.72	199.26
Min Ch El (m)	967.33	Shear (N/m2)	3.94	9.20	3.56
Alpha	1.18	Stream Power (N/m s)	2.13	5.85	3.61
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	1120.85	549.60	1786.63
C & E Loss (m)	0.00	Cum SA (1000 m2)	756.38	171.41	1326.25

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4513 Profile: 2% AEP

E.G. Elev (m)	971.09	Element	Left OB	Channel	Right OB
Vel Head (m)	0.04	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	971.05	Reach Len. (m)	6.00	6.00	6.00
Crit W.S. (m)	969.88	Flow Area (m2)	102.40	37.60	241.62
E.G. Slope (m/m)	0.000281	Area (m2)	102.40	37.60	241.62
Q Total (m3/s)	319.00	Flow (m3/s)	59.35	24.25	235.39
Top Width (m)	265.58	Top Width (m)	62.60	10.45	192.53
Vel Total (m/s)	0.84	Avg. Vel. (m/s)	0.58	0.65	0.97
Max Chl Dpth (m)	3.72	Hydr. Depth (m)	1.64	3.60	1.25
Conv. Total (m3/s)	19027.4	Conv. (m3/s)	3540.2	1446.7	14040.5
Length Wtd. (m)	6.00	Wetted Per. (m)	62.97	10.72	192.84
Min Ch El (m)	967.33	Shear (N/m2)	4.48	9.67	3.45
Alpha	1.14	Stream Power (N/m s)	2.60	6.24	3.36
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	974.48	515.46	1533.30
C & E Loss (m)	0.00	Cum SA (1000 m2)	716.99	171.04	1246.79

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4513 Profile: 5% AEP

E.G. Elev (m)	970.79	Element	Left OB	Channel	Right OB
Vel Head (m)	0.03	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.76	Reach Len. (m)	6.00	6.00	6.00
Crit W.S. (m)	969.70	Flow Area (m2)	84.95	34.54	188.92
E.G. Slope (m/m)	0.000287	Area (m2)	84.95	34.54	188.92
Q Total (m3/s)	237.00	Flow (m3/s)	46.37	21.28	169.34
Top Width (m)	241.58	Top Width (m)	57.74	10.45	173.39
Vel Total (m/s)	0.77	Avg. Vel. (m/s)	0.55	0.62	0.90
Max Chl Dpth (m)	3.43	Hydr. Depth (m)	1.47	3.30	1.09
Conv. Total (m3/s)	13983.1	Conv. (m3/s)	2736.1	1255.8	9991.2
Length Wtd. (m)	6.00	Wetted Per. (m)	58.09	10.72	173.68
Min Ch El (m)	967.33	Shear (N/m2)	4.12	9.08	3.06
Alpha	1.13	Stream Power (N/m s)	2.25	5.59	2.75
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	779.55	467.36	1203.28
C & E Loss (m)	0.00	Cum SA (1000 m2)	661.23	170.62	1149.68

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4513 Profile: PMF

E.G. Elev (m)	973.78	Element	Left OB	Channel	Right OB
Vel Head (m)	0.18	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	973.60	Reach Len. (m)	6.00	6.00	6.00
Crit W.S. (m)	971.47	Flow Area (m2)	323.39	64.21	757.47
E.G. Slope (m/m)	0.000296	Area (m2)	323.39	64.21	757.47
Q Total (m3/s)	1910.00	Flow (m3/s)	294.83	60.78	1554.39
Top Width (m)	318.39	Top Width (m)	104.45	10.45	203.49
Vel Total (m/s)	1.67	Avg. Vel. (m/s)	0.91	0.95	2.05
Max Chl Dpth (m)	6.27	Hydr. Depth (m)	3.10	6.14	3.72
Conv. Total (m3/s)	110933.2	Conv. (m3/s)	17123.8	3530.1	90279.3
Length Wtd. (m)	6.00	Wetted Per. (m)	104.91	10.72	205.82
Min Ch El (m)	967.33	Shear (N/m2)	8.96	17.42	10.70
Alpha	1.29	Stream Power (N/m s)	8.17	16.49	21.96
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	3745.88	1008.70	6266.29
C & E Loss (m)	0.00	Cum SA (1000 m2)	1256.10	171.86	1999.24

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4513 Profile: 10% AEP

E.G. Elev (m)	970.60	Element	Left OB	Channel	Right OB
Vel Head (m)	0.04	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.56	Reach Len. (m)	6.00	6.00	6.00
Crit W.S. (m)	969.63	Flow Area (m2)	73.72	32.48	155.55
E.G. Slope (m/m)	0.000366	Area (m2)	73.72	32.48	155.55
Q Total (m3/s)	207.00	Flow (m3/s)	41.92	21.69	143.39
Top Width (m)	231.15	Top Width (m)	56.54	10.45	164.16
Vel Total (m/s)	0.79	Avg. Vel. (m/s)	0.57	0.67	0.92
Max Chl Dpth (m)	3.23	Hydr. Depth (m)	1.30	3.11	0.95
Conv. Total (m3/s)	10820.8	Conv. (m3/s)	2191.1	1133.8	7495.8
Length Wtd. (m)	6.00	Wetted Per. (m)	56.88	10.72	164.39
Min Ch El (m)	967.33	Shear (N/m2)	4.65	10.88	3.40
Alpha	1.12	Stream Power (N/m s)	2.64	7.26	3.13
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	691.41	444.48	1051.95
C & E Loss (m)	0.01	Cum SA (1000 m2)	634.75	170.28	1098.83

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4513 Profile: 20% AEP

E.G. Elev (m)	970.31	Element	Left OB	Channel	Right OB
Vel Head (m)	0.04	Wt. n-Val.	0.040	0.060	0.020
W.S. Elev (m)	970.27	Reach Len. (m)	6.00	6.00	6.00
Crit W.S. (m)	969.53	Flow Area (m2)	57.63	29.43	110.10
E.G. Slope (m/m)	0.000504	Area (m2)	57.63	29.43	110.10
Q Total (m3/s)	161.00	Flow (m3/s)	34.39	21.58	105.02

Plan: Plan 10 HECDumaresqCreek Br-1 RS: 4513 Profile: 20% AEP (Continued)

Top Width (m)	203.34	Top Width (m)	52.21	10.45	140.67
Vel Total (m/s)	0.82	Avg. Vel. (m/s)	0.60	0.73	0.95
Max Chl Dpth (m)	2.94	Hydr. Depth (m)	1.10	2.82	0.78
Conv. Total (m3/s)	7174.0	Conv. (m3/s)	1532.5	961.8	4679.7
Length Wtd. (m)	6.00	Wetted Per. (m)	52.54	10.72	140.82
Min Ch El (m)	967.33	Shear (N/m2)	5.42	13.56	3.86
Alpha	1.11	Stream Power (N/m s)	3.23	9.95	3.68
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	558.80	408.71	833.95
C & E Loss (m)	0.01	Cum SA (1000 m2)	588.34	169.83	1003.14

APPENDIX E

CENTRO DEVELOPMENT FLOOD LEVEL SUMMARY

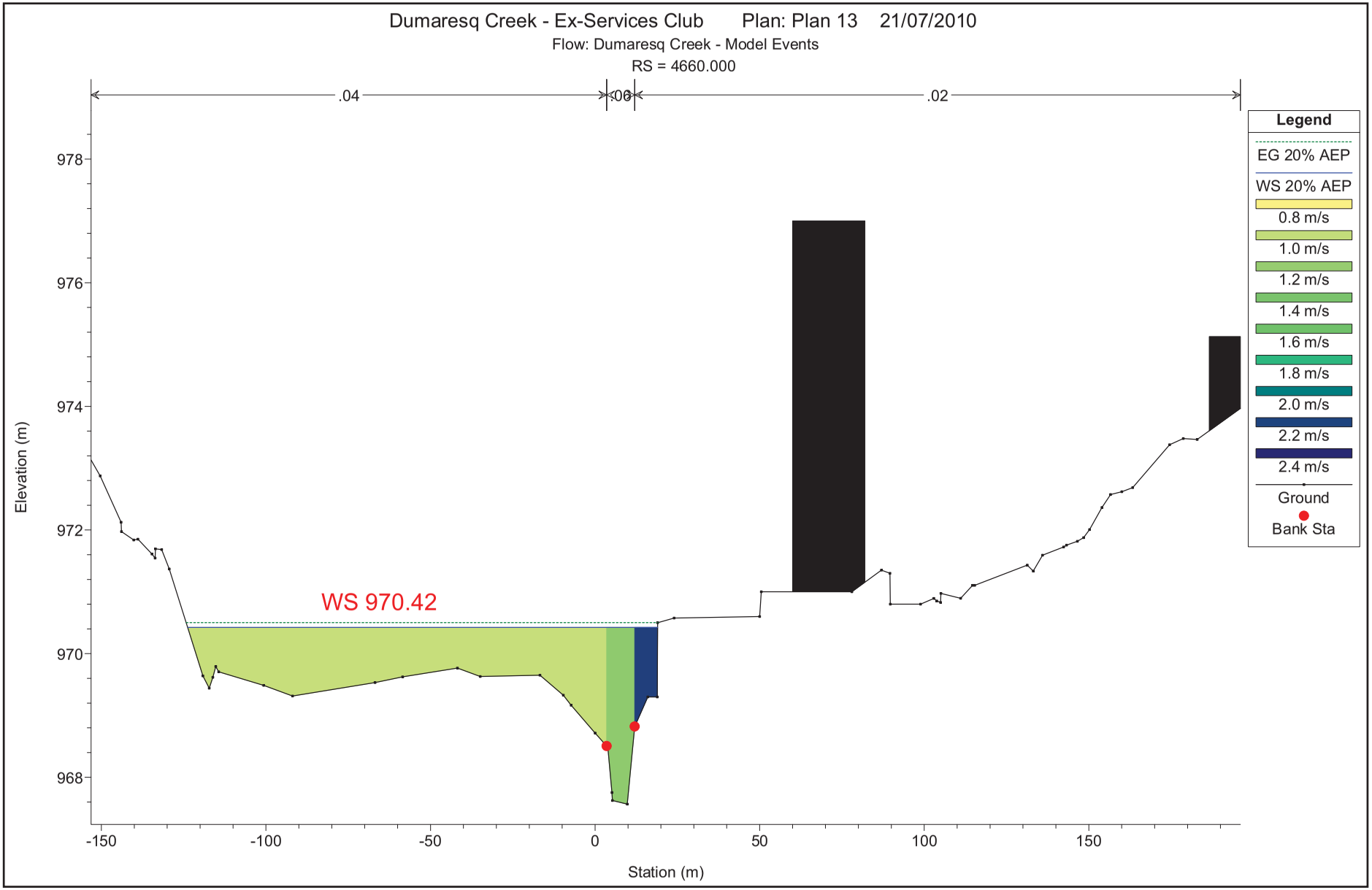
WEST END MARKETPLACE RETAIL DEVELOPMENT
1% AEP FLOOD ANALYSIS
RESULTS COMPARISON

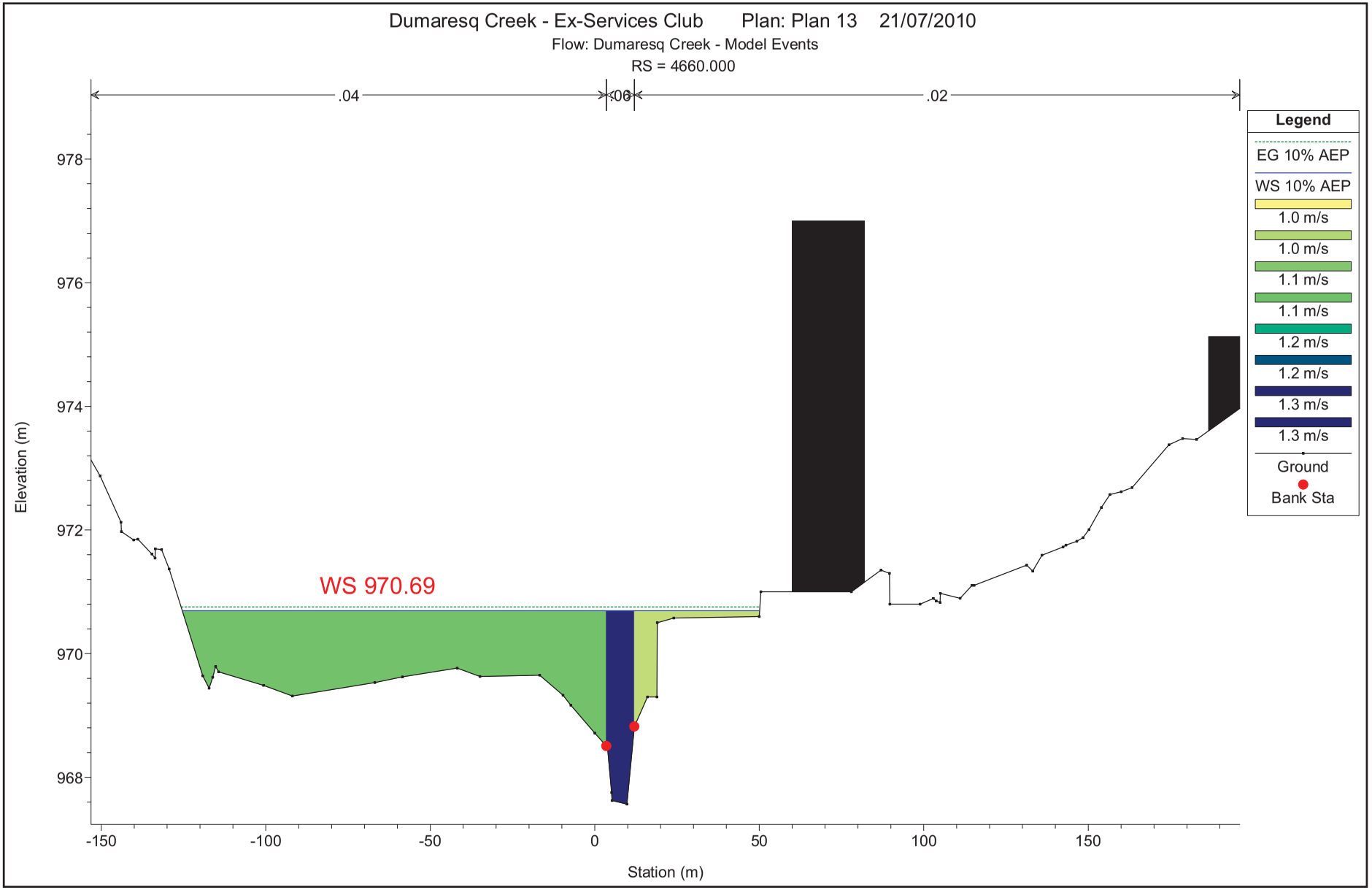
JOB:8150
18/12/2006

		Pre-development	Post-development	Diffrence	Post-development	Diffrence
			Current Design		Proposed Design	
River Sta	Profile	W.S. Elev	W.S. Elev		W.S. Elev	
		(m)	(m)	(m)	(m)	(m)
5150						
5120	1% AEP	972.39	972.39	nil	972.39	nil
5080	1% AEP	972.15	972.15	nil	972.15	nil
5060	1% AEP	972.09	972.09	nil	972.09	nil
5040	1% AEP	972.05	972.04	-0.01	972.04	-0.01
5020	1% AEP	972.02	972.00	-0.02	972.00	-0.02
5015.051	1% AEP	972.01	972.00	-0.01	972.00	-0.01
5000	1% AEP	971.97	971.96	-0.01	971.96	-0.01
4980	1% AEP	971.93	971.92	-0.01	971.92	-0.01
4960	1% AEP	971.90	971.89	-0.01	971.89	-0.01
4940	1% AEP	971.84	971.83	-0.01	971.83	-0.01
4924.438	1% AEP	971.78	971.75	-0.03	971.75	-0.03
4920	1% AEP	971.77	971.73	-0.04	971.73	-0.04
4900	1% AEP	971.73	971.72	-0.01	971.72	-0.01
4880	1% AEP	971.71	971.69	-0.02	971.69	-0.02
4860	1% AEP	971.65	971.62	-0.03	971.62	-0.03
4840	1% AEP	971.58	971.56	-0.02	971.56	-0.02
4820	1% AEP	971.53	971.53	nil	971.53	nil
4800	1% AEP	971.49	971.49	nil	971.49	nil
4782.034	1% AEP	971.49	971.49	nil	971.49	nil
4780	1% AEP	971.49	971.49	nil	971.49	nil
4760	1% AEP	971.49	971.49	nil	971.49	nil
4740	1% AEP	971.45	971.45	nil	971.45	nil
4720	1% AEP	971.43	971.43	nil	971.43	nil
4700	1% AEP	971.39	971.39	nil	971.39	nil
4680	1% AEP	971.39	971.39	nil	971.39	nil
4660	1% AEP	971.37	971.37	nil	971.37	nil
4640	1% AEP	971.35	971.35	nil	971.35	nil
4620	1% AEP	971.34	971.34	nil	971.34	nil
4609.952	1% AEP	971.33	971.33	nil	971.33	nil
4600	1% AEP	971.32	971.32	nil	971.32	nil
4513	1% AEP	971.29	971.29	nil	971.29	nil
4505				nil		nil

APPENDIX F

HEC-RAS CROSS-SECTIONS


Dumaresq Creek - Ex-Services Club Plan: Plan 13 21/07/2010
Flow: Dumaresq Creek - Model Events
RS = 4660.000
.04
.06
.02
WS 970.42
Elevation (m)
978
976
974
972
970
968
-150
-100
-50
0
50
100
150
Station (m)
Legend
EG 20% AEP
WS 20% AEP
0.8 m/s
1.0 m/s
1.2 m/s
1.4 m/s
1.6 m/s
1.8 m/s
2.0 m/s
2.2 m/s
2.4 m/s
Ground
Bank Sta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Flow: Dumaresq Creek - Model Events
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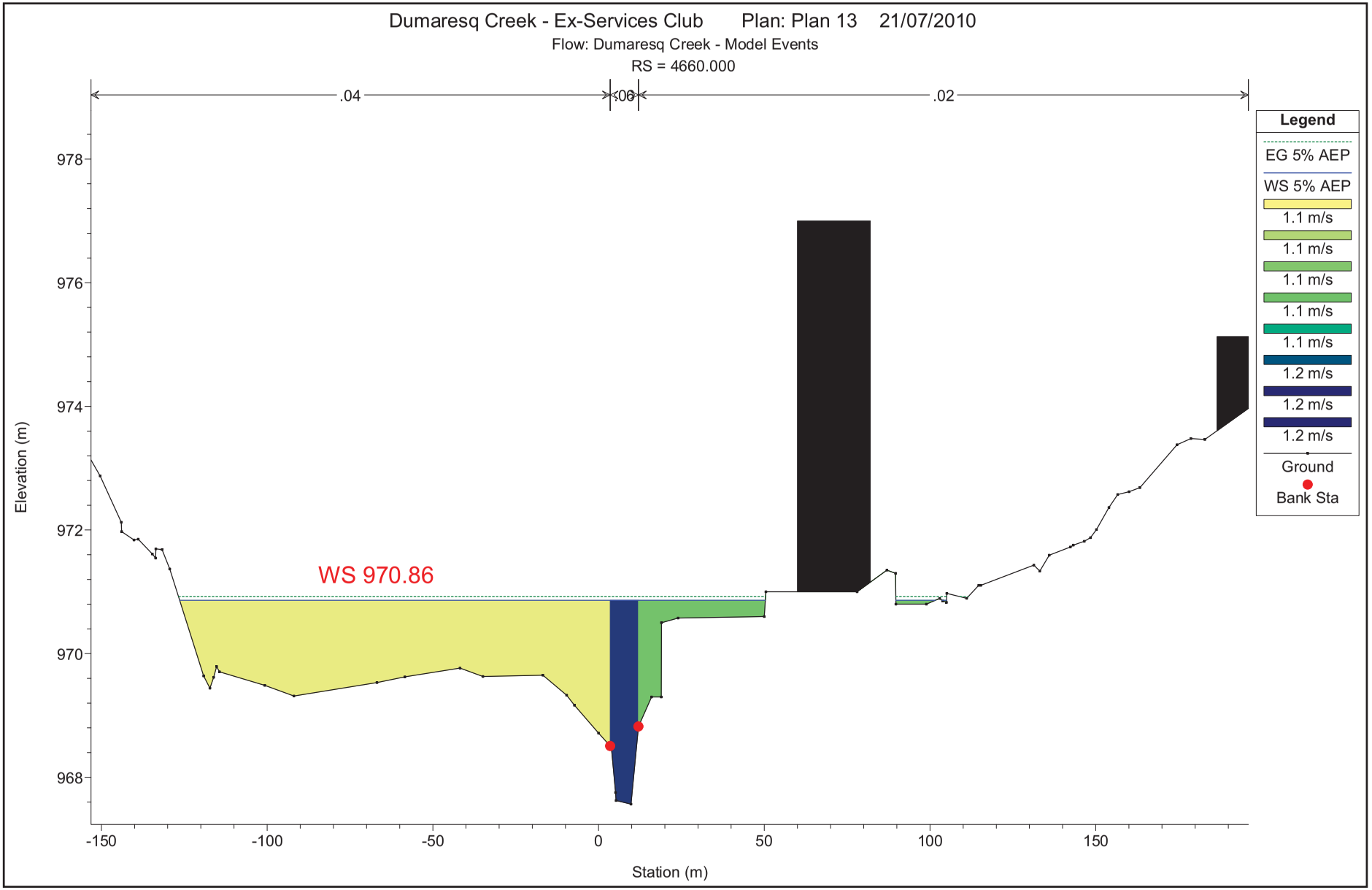
.04
.06
.02
WS 970.69
Elevation (m)
978
976
974
972
970
968
-150
-100
-50
0
50
100
150
Station (m)
Legend
EG 10% AEP
WS 10% AEP
1.0 m/s
1.0 m/s
1.1 m/s
1.1 m/s
1.2 m/s
1.2 m/s
1.3 m/s
1.3 m/s
Ground
Bank Sta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.00
.02
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Station (m)
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976
974
972
970
968
-150
-100
-50
0
50
100
150
Legend
EG 5% AEP
WS 5% AEP
1.1 m/s
1.1 m/s
1.1 m/s
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1.1 m/s
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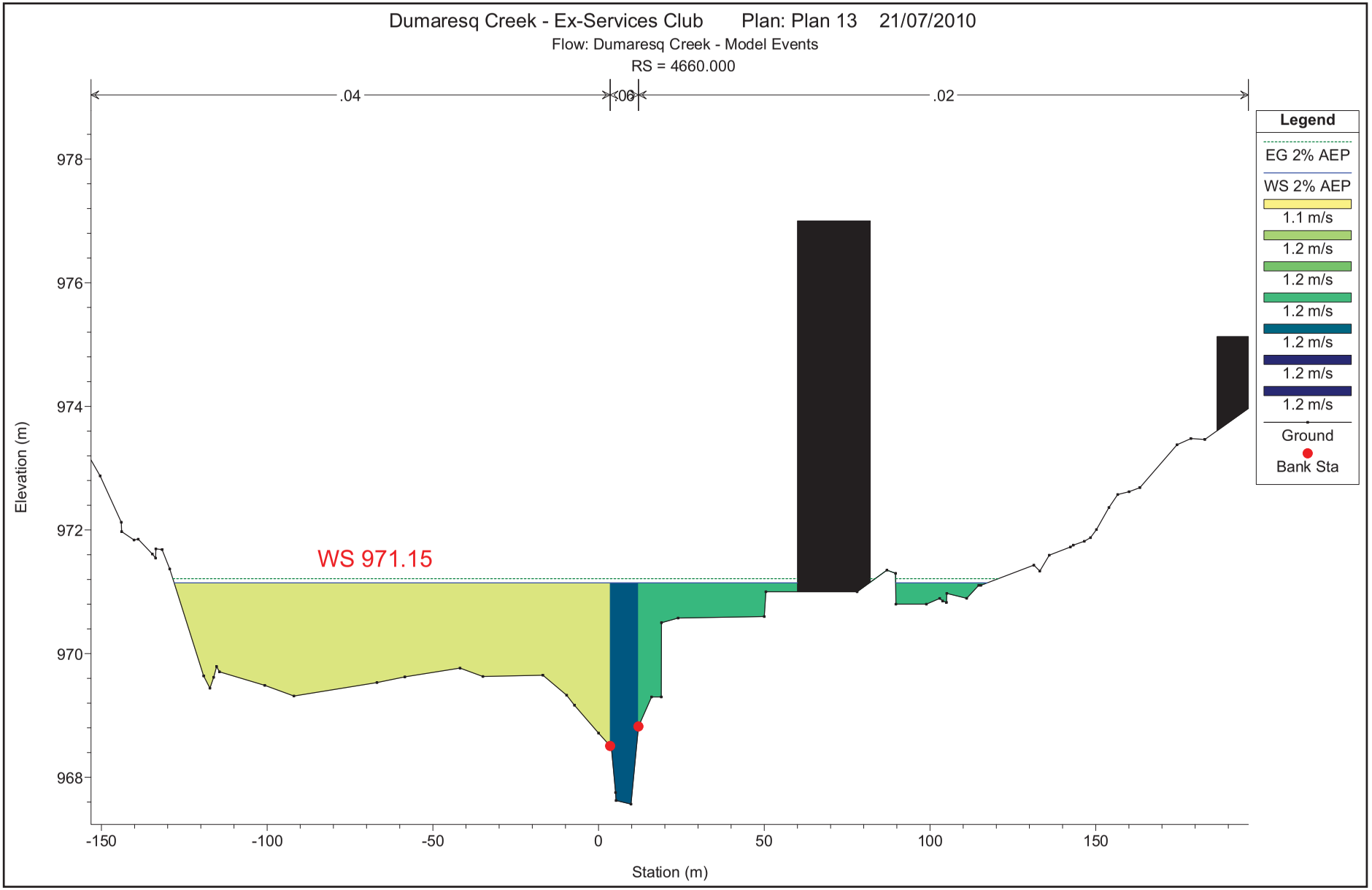
1.2 m/s
1.2 m/s
Ground
Bank Sta


Dumaresq Creek - Ex-Services Club Plan: Plan 13 21/07/2010
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.00
.02
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WS 2% AEP
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1.2 m/s
1.2 m/s
1.2 m/s
1.2 m/s
1.2 m/s
1.2 m/s
Ground
Bank Sta
WS 971.15
Elevation (m)
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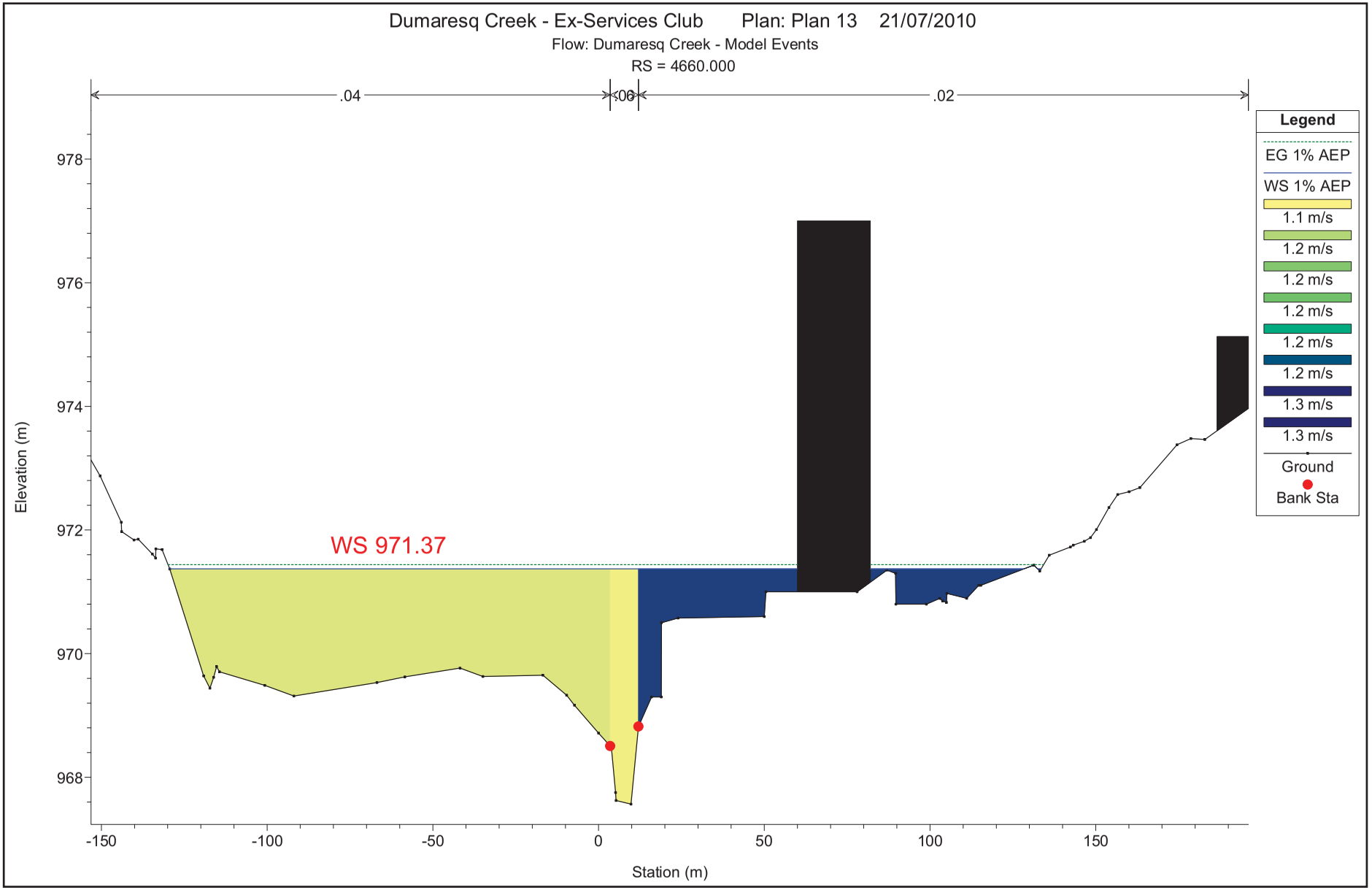
976
974
972
970
968
-150
-100
-50
0
50
100
150
Station (m)


Dumaresq Creek - Ex-Services Club Plan: Plan 13 21/07/2010
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.02
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974
972
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968
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-100
-50
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100
150
Station (m)
Legend
EG 1% AEP
WS 1% AEP
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1.2 m/s
1.2 m/s
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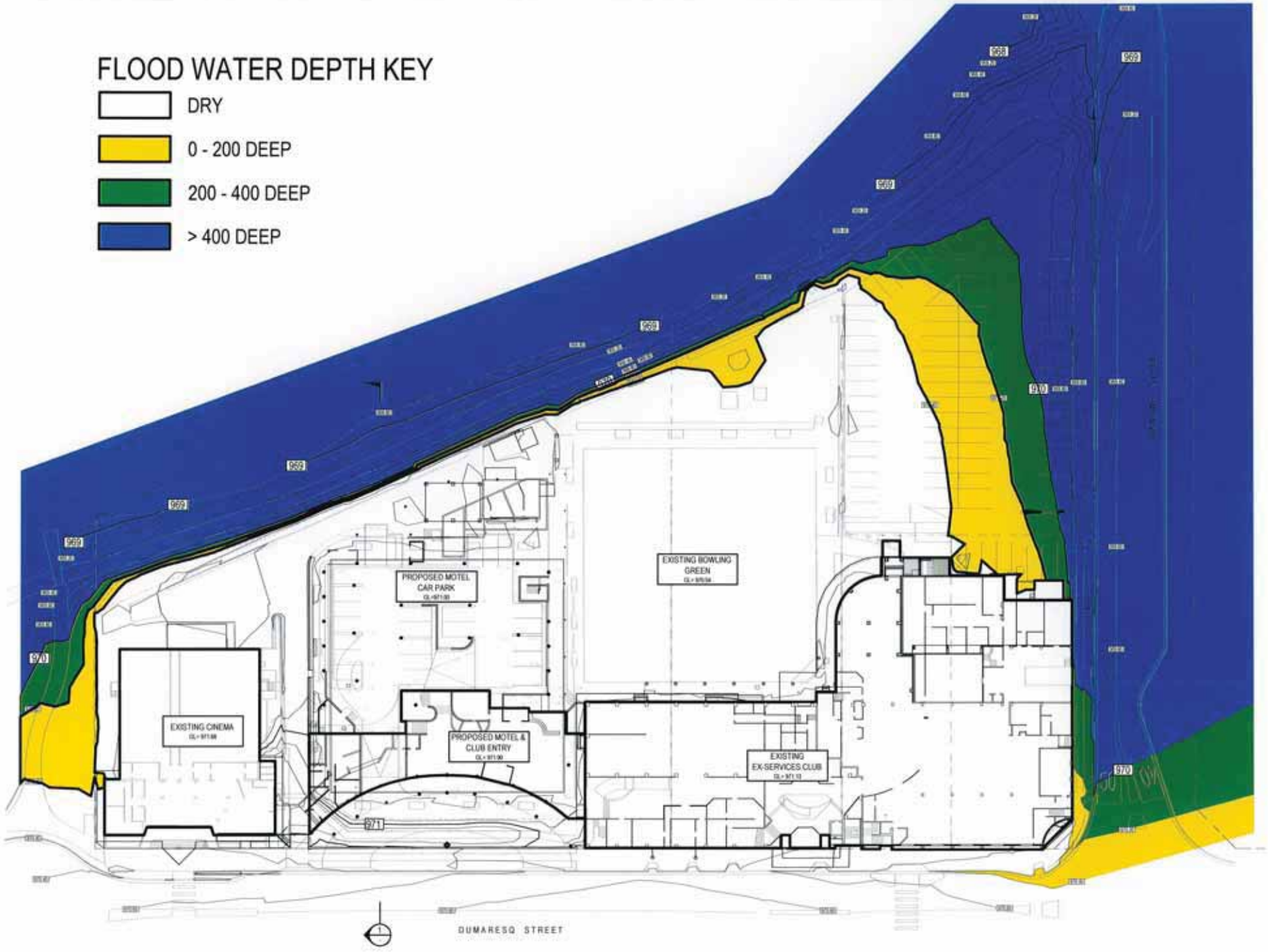
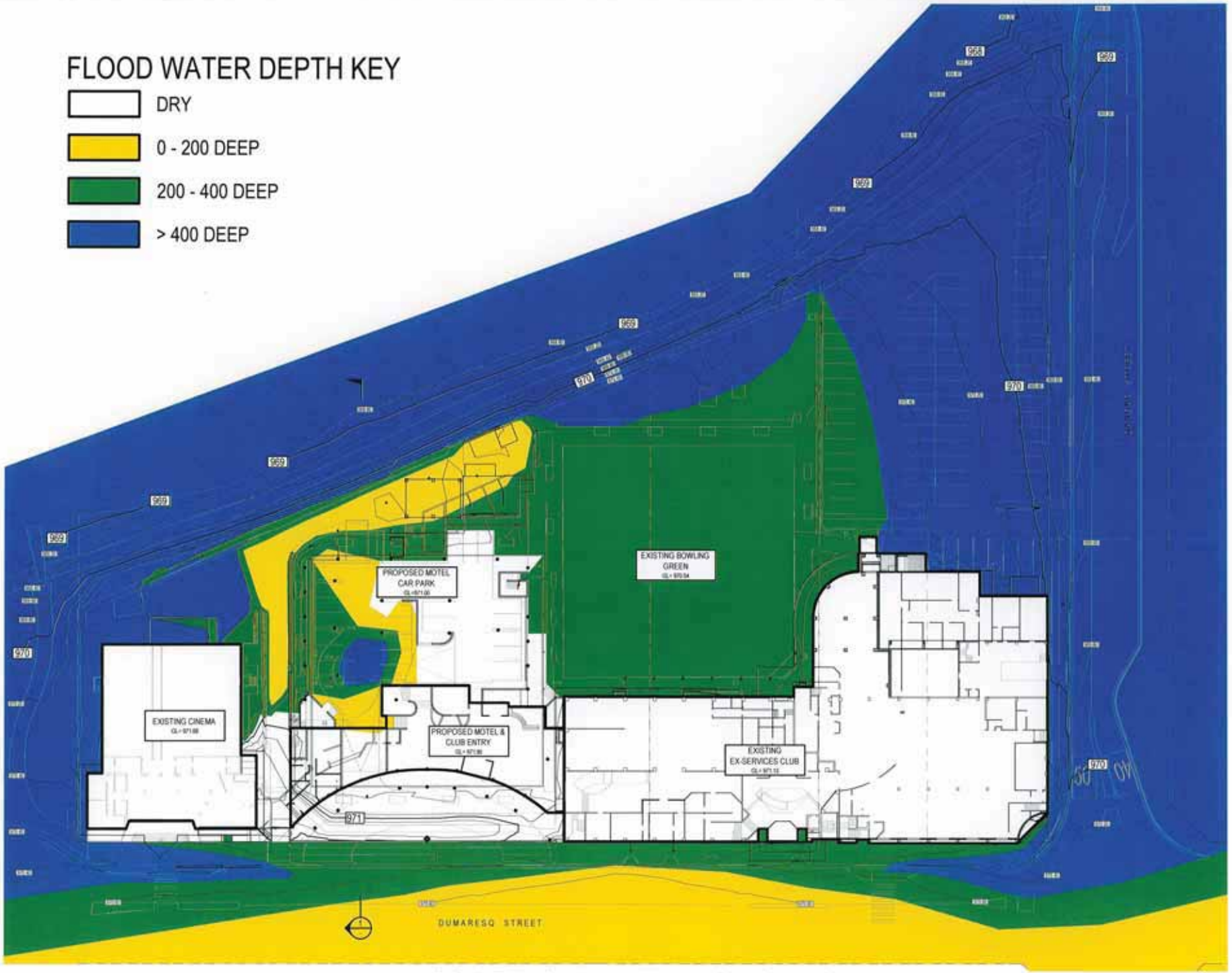
1.3 m/s
1.3 m/s
Ground
Bank Sta

APPENDIX G

FLOOD INUNDATION PLANS



20% AEP (1:5 YEAR STORM)



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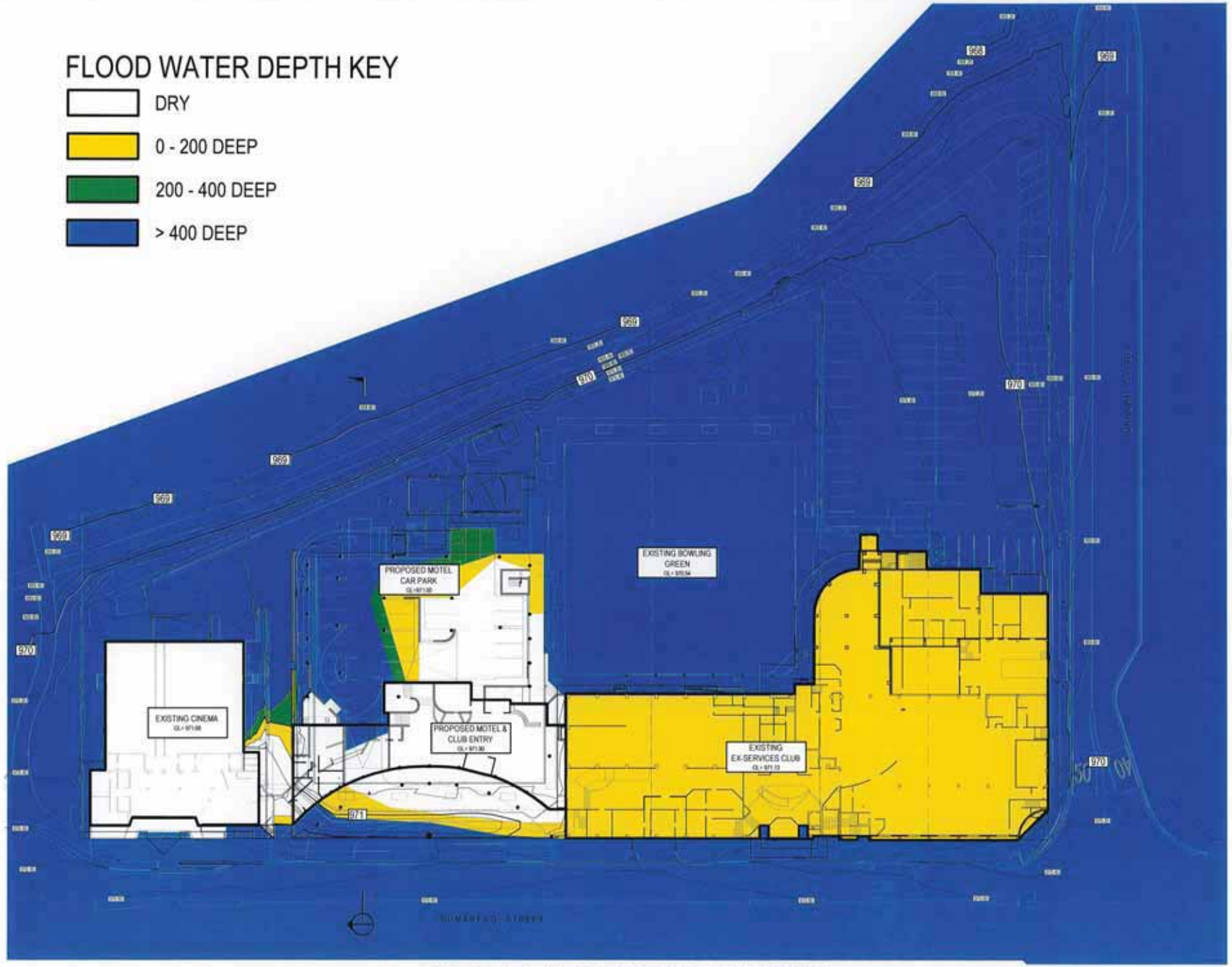
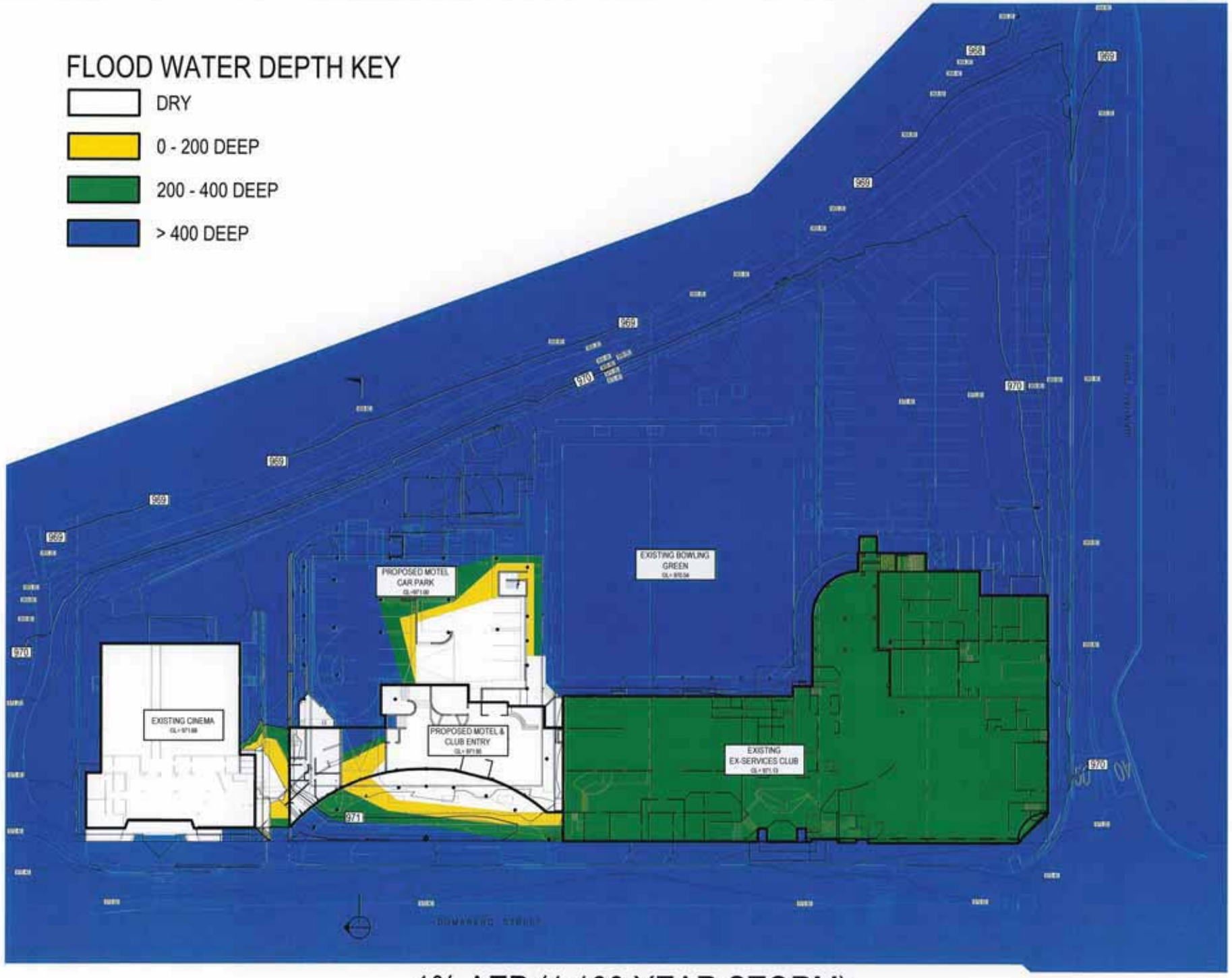


2% AEP (1:50 YEAR STORM)



1% AEP (1:100 YEAR STORM)

APPENDIX H

COUNCIL FLOOD WARNING SYSTEM

ARMIDALE DUMARESQ COUNCIL
FACSIMILE TRANSMISSION

ENGINEERING AND WORKS **Phone: (02) 6770 3894**
Fax: (02) 6772 9275

Attention:		**Date 9 -11-2007**
Company:		
From:	David Graf <>	**Pages: <>** (including cover sheet)
Fax Number:		

The information contained in this facsimile transmission is confidential and may also be the subject of legal professional privilege or public interest immunity. If you are not the intended recipient, any use, disclosure or copying of this document and/or its attachments is unauthorised. If you have received this document in error, please telephone (02) 6770 3556.

Message

DUMARESQ CREEK FLOOWING – WARNING SYSTEM LEVELS AND PHONE NUMBERS

Please find attached revised information on the recently updated telephone numbers and flood levels that are to be included in the automatic Dialling System for the above flooding. The plan appears to have worked since inception in 2001, although there have not been any large scale floods in the intervening period.

First Alert
When the water at **STEPHENS BRIDGE** reaches a gauge level of 0.7 metres, commence protection alert by phoning the Works Coordinator on 6771 4522 during normal working hours.

Any other time or if the Works Coordinator does not respond within five minutes, the phone will automatically ring the on call emergency number on 0448 060 572. If this number does not respond, the phone will call the Works Superintendent on 0411 045 185.

Second Alert
When the water at **STEPHENS BRIDGE** reaches a gauge level of 0.85 metres, activate temporary road closure alert. The roads are to be closed in the following order:

- Beardy Street West (Martins Gully)
- Taylor Street
- Faulkner Street
- Dangar Street
- Dumaresq Street near Cinema
- Cooks Road
- Marsh Street at Stephens Bridge

The Works Coordinator will be automatically phone on 67714522 during normal working hours. Any other time or if the Works Coordinator does not respond within five minutes, the phone will automatically phone the on call emergency number on 0448 060 572. This number does not respond, the phone will then ring the Works Superintendent on 0411 045 185.

When council staff starts closing the above roads, a member of council staff shall physically meet Cinema staff to make them aware of possible flooding. It is then upto Cinema staff to monitor the situation and institute any necessary evacuation.

At the same time, council staff shall advise Centro Management at the new Woolworth's complex in Beardy Street of the same situation as for the cinema.

A written record of the communication to the above two locations shall be made by affected council staff.

Third Alert
If the water continue to rise and reaches 2.7 metres at **STEPHENS BRIDGE**, the phone will ring **STATE EMERGENCY SERVICES (SES)** on 6771 1100 or 132500 to provide a protection alert for potential local flooding problems.

Fourth Alert
When the water at the **DOWNSTREAM DUMARESQ** gauging station reaches a gauge level of 1.85 metres, activate flooding alert by automatically calling the Local **STATE EMERGENCY SERVICES (SES)** on 6771 1100 or 132500.

From experience a level of 1.85 metres at this downstream gauging station will result in a level of approximately 2.9 metres at the Stephens Bridge two hours later and cause low level flooding in Beardy Street near the new Woolworths complex.

Since this plan was adopted, a new Telemetry installation has been provided at the dam wall and I shall be including it when the plan is again upgraded. I would appreciate any comments on the above Plan.

Regards

David Graf
Senior Engineer

APPENDIX I

FLOOD EMERGENCY PLAN

Armidale Ex-Services Memorial Club Motel

FLOOD EMERGENCY PLAN

August 2010

This plan sets out procedures for managing this site and building for flood events in Dumaresq Creek up to and including a “1 in 100 year flood” event. Floods up to & greater than this event are likely to require a wider coordinated response by State Emergency Services.

1. Responsible Persons

   There shall be a Site Flood Warden, referred to herein as “the Warden”. The Warden shall be the Motel Manager, or in their absence, the Reception Desk Manager, or any other suitably trained and approved person to assume this responsibility.

   The Warden, having become aware of a Flood Situation, shall take responsibility for implementing the requirements of this Flood Emergency Plan.

   The Motel Manager shall inform the Armidale Dumaresq Council Director of Engineering and Works in writing of the Names of the Motel Manager, the Reception Desk Manager and another responsible person who might assume the responsibility of the Warden.

   The Warden shall ensure that all members of the Motel Management staff and any permanent maintenance workers are trained in the meaning of the flood information in this Plan and in the action to be taken in a Flood Situation.

2. Telephone Numbers

   The Motel Manager shall inform the Armidale Dumaresq Council Director of Engineering and Works in writing from time to time of the following up-to-date telephone numbers:

   - The primary land line number of the Motel Manager’s Office
   - The mobile telephone number of the Motel Manager.
   - The mobile telephone number of the Reception Manager.
   - Another home or mobile telephone number that could be used to contact Motel Management staff outside office hours.

   The Motel Manager shall ensure that the contact information provided to Council is correct at all times.

3. Flood Situation

Armidale Dumaresq Council maintain a flood warning system based upon the continuous automatic monitoring of the depth and rate of rise of water in Dumaresq Creek measured at a number of strategic locations along the creek.

The Motel Management staff shall declare a Flood Situation and the Warden shall assume their responsibilities if any of the following occur:

- Advice is received from Armidale Dumaresq Council that their warning system has triggered a "Second Alert" and they are commencing the closing of roads at low level creek crossings.
- Any member of the Motel Management observes or is made aware of Council closing any creek crossings because of flooding.
- Any member of the Motel Management observes or is made aware of creek water flowing over the Dumaresq Street at Jessie Street, or any other evidence of water breaking the banks of Dumaresq Creek.

Any member of the Motel Management staff or maintenance crew who receives information of potential flooding as outlined above shall report this to the Motel Manager or another member of staff who would act as the Warden.

4. Actions

Based on the models and predictions used, the motel floor and some areas of the lower level car park will remain flood-free and safe during floods up to and including the "1 in 100 year flood". Parts of the car parking and driveways are predicted to be inundated as well as large areas of Dumaresq Street adjacent to the Motel. Some parts of the "Red Zone" defined below, near Dumaresq Creek to the rear of the Motel, are predicted to have flood waters of high hazard to both pedestrians and vehicles in a "1 in 100 year flood" event and should be treated with caution.

The plan Armidale Ex-Services Memorial Club Motel Flood Zones is attached to this document shows zones in and around this site at ground level colour coded as follows:

- Green: Flood free. Predicted to be dry in events up to a "1 in 100 year flood".
- Yellow: Shallow. Predicted to have no more than 400 mm deep water in carpark and roadway areas in a "1 in 100 year flood" event.
- Red: Deep. Predicted to have water more than 400 mm deep in a "1 in 100 year flood".

The Motel shall maintain fixed flood depth indicator signs at the locations shown on the Flood

Zones plan.

Upon the declaring of a Flood Situation, the Warden shall inspect the car parking area, including all parking spaces and driveways located in the Red zone and all the vehicle entrances and exits from the site. Depending on whether it is inside or outside trading hours, the Warden shall follow the procedures as set out below.

4.1 During the times of 10.00 pm to 6.00 am

If a flood warning or alert is received during the night then the Warden shall:

- Lock the boom gates to the carpark areas & install bollards to prevent vehicles entering the leaving the carpark & entering the Red and Yellow Zones.
- Ensure that any out of hours Motel staff on the site are advised of the flood situation and do not park in the Red or Yellow Zones.

4.2 During the times of 6.00 am to 10.00 pm

If when a Flood Situation arises during this time or there are vehicles parked in the Red Zone, then the Warden shall:

- assign at least one member of staff to remain in continuous attendance in the car park area for the duration of the Flood Situation, or, until all vehicles have been removed from the Red and Yellow Zones to higher levels within the carpark.
- co-operate with Council staff managing flood barriers in adjacent streets.
- vehicle owners shall be warned not to approach their vehicles if the water has risen above 400 mm and not to drive them in any area where the depth is more than 400 mm.
- assign staff to monitor the vehicle entrances for rising flood water..
- assign staff to prevent vehicles from entering the car park.
- notify all staff and the public not to attempt to enter or leave the site if flooded.
- identify the end of the Flood Situation by observing the receding of waters from the whole site and the removal of Council barricades at the creek crossing in Dumaresq Street, and take steps as appropriate to reopen entrances and parking areas.

5. Extreme Event

If flood water is observed to have reached depths greater than 400 mm in the Yellow Zone or to be inundating the Green Zone, the Warden shall notify the State Emergency Service that an event more extreme than a “1 in 100 year flood” appears to be occurring and take other appropriate actions to provide for the safety of the public in the Centre.

If extreme flooding is predicted or forecast it is likely that the SES or other emergency service may order an evacuation of the motel. In such circumstances the instructions of the SES personnel are to be followed. In the absence of other instructions the evacuation of personnel shall take place in accordance with the Evacuation Route diagram, with all evacuated guests & personnel assembly at the Moore Street carpark.

6. Information and Training

The posters “Armidale Ex-Services Memorial Club Motel Flood Zones”, “Evacuation Route” and “Flood Action Checklist” shall be displayed prominently in the Motel Manager’s office and at other locations where management or maintenance crews are based.

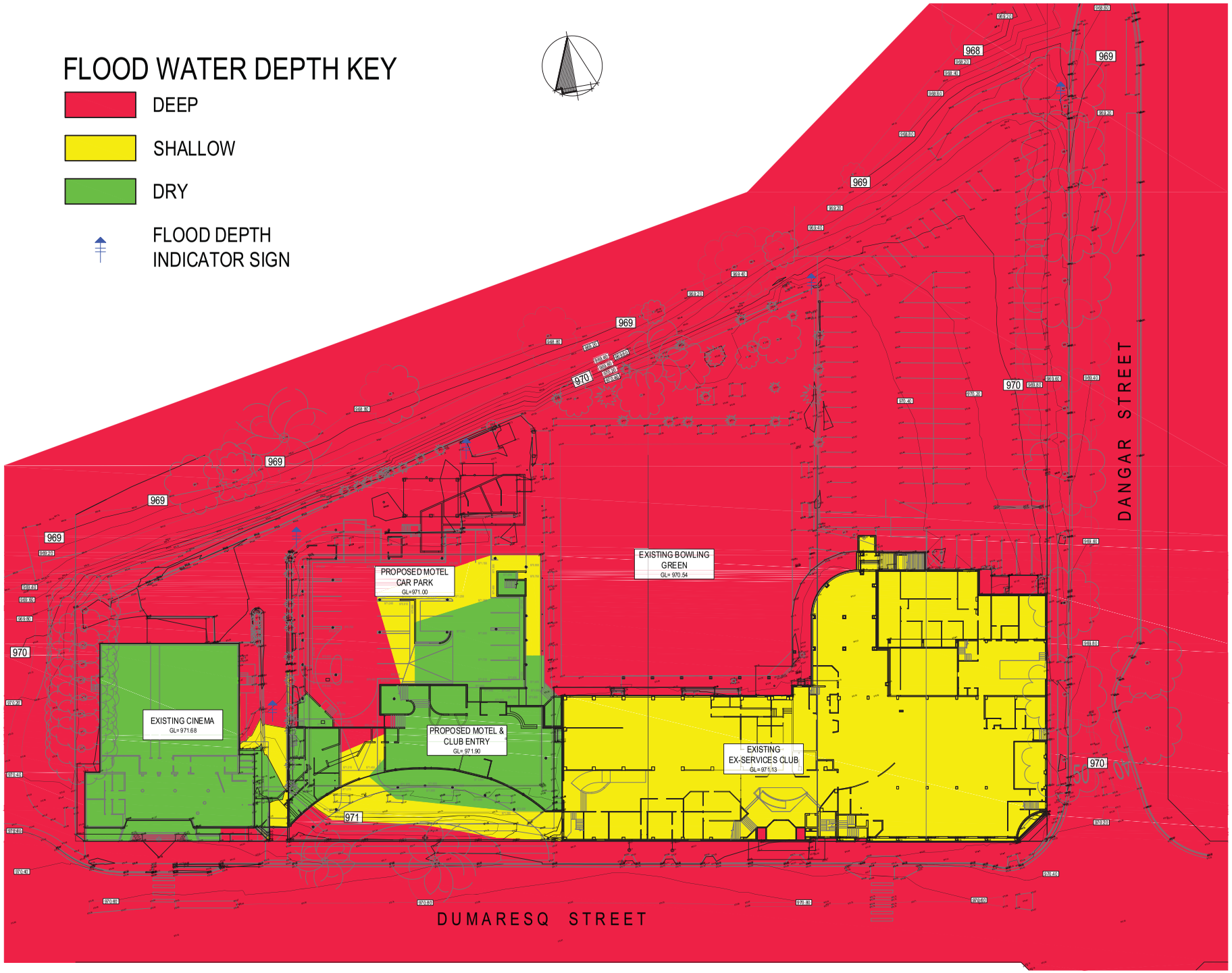
Samples of these posters are appended to this document.

All Motel Management staff and permanent maintenance workers shall be made familiar with the posters and with the requirements of this Flood Emergency Plan.

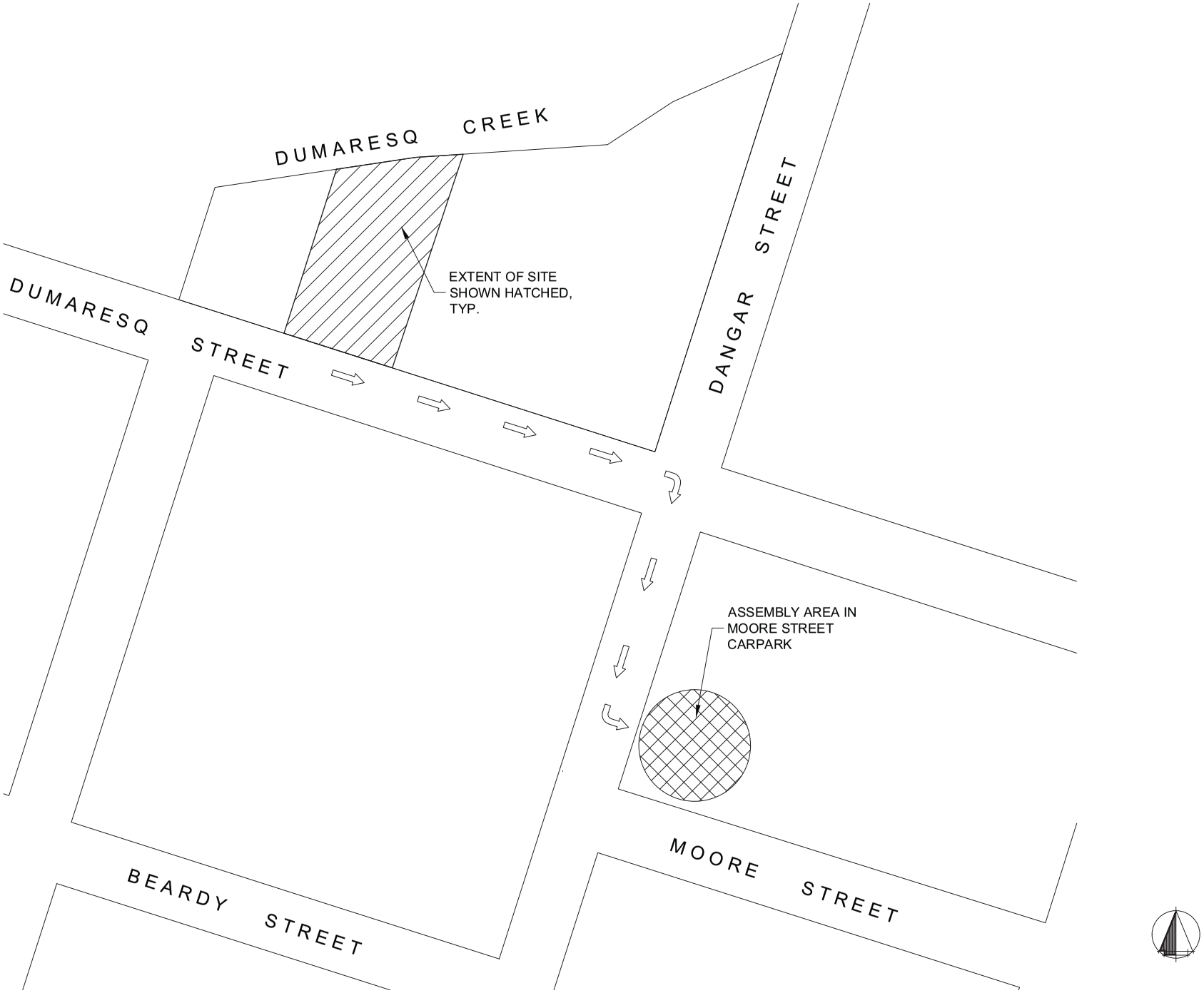
Armidale Ex-Services Memorial Club Motel

FLOOD ACTION CHECKLIST

1. Declare a Flood Situation if advised by Council or if the creek crossings are closed or if Dumaresq Creek breaks its banks.
2. Inspect the car park and all entrances and have someone in attendance throughout the Flood Situation.
3. Co-operate with Council staff managing road closures in adjacent streets.
4. Lock boom gates & install bollards to the car parking areas. Allow no vehicles to enter these zones until the Flood Situation ends.
5. Relocate cars in the lower level carpark to the higher level carpark.
6. Check for children or people asleep in vehicles. Take appropriate steps. If necessary notify the emergency services.
7. Warn owners not to approach vehicles in water more than 200 mm deep.
8. Monitor the vehicle entrances at Dangar Street. Close them as or before they are inundated.
9. Prevent vehicles from entering the car parking.
10. Make announcements notifying workers and the public not to leave or enter the site via the rear of the Motel if flooded.
11. If flood water in the Yellow Zone becomes more than 400 mm deep, notify the State Emergency Service.
12. Follow any instructions to evacuate the motel given by SES or other Emergency personnel.
13. Identify the end of the Flood Situation by observing the receding of flood water from the whole of the site or the removal of Council road closures.
14. After the end of the Flood Situation re-open entrances and parking areas as appropriate.
15. Inspect for any damage to car parking areas, etc.



ARMIDALE EX-SERVICES MEMORIAL CLUB & HOTEL - FLOOD ZONES



ARMIDALE EX-SERVICES MEMORIAL CLUB & HOTEL FLOOD EMERGENCY EVACUATION ROUTE

1:500

⇨ DENOTES FLOOD EVACUATION ROUTE