Selwyn District Council

Darfield Water Treatment Facility

Notice of Requirement

August 2020

Form 20

NOTICE OF TERRITORIAL AUTHORITY'S REQUIREMENTS FOR DESIGNATION OR ALTERATION OF DESIGNATION

Section 168A Resource Management Act 1991

To: Selwyn District Council
2 Norman Kirk Drive
Rolleston 7643

Attention: The Chief Executive

Selwyn District Council (SDC) gives notice of its requirement for a designation for a public work.

The site to which the requirement applies is located at 160 Bangor Road in Selwyn District, and is legally described as Section 1 SO Plan 438579. A copy of the Certificate of Title is attached as **Appendix A**.

A description of the site and surrounds is contained in Section 3.

The nature of the proposed work is:

To designate land used as an existing water treatment facility. The designation will cover the existing water reservoir, pump station and control buildings as well as the proposed new water treatment plant building, and land for future expansion. The nature of the propose work is outlined further in Section 2.

The effects that the public work will have on the environment, and the ways in which any adverse effects will be mitigated, are described in Section 6.

Alternative sites, routes, and methods have been considered to the extent described in Section 5.

The public work and designation are reasonably necessary for achieving the objectives of the territorial authority for the reasons as set out in Section 4.

The following resource consents are likely to be required for the proposed activity.

Canterbury Land and Water Regional Plan 2017 (LWRP)

- A discharge permit to discharge operational stormwater and operational water to land, under Rules 5.97 and 5.100 of the LWRP; and
- A discharge permit to discharge construction-phase stormwater to land under Rule 5.94B of the LWRP.

Resource consent under the rules listed above (if required) will be submitted to Environment Canterbury before construction of the Water Treatment Plant commences.

SDC attaches all relevant information required to be included in this notice by the district plan, regional plan, or any regulations made under the Resource Management Act 1991 (RMA):

Amy Callaghan

Signed on behalf of Selwyn District Council | Name

Dated: 24/08/2020

ADDRESS FOR SERVICE of requiring authority during processing:

Selwyn District Council
C/- Sarah White
GHD Limited
PO Box 13-468
Christchurch 8141

Phone: (03) 363 0825
Email: Sarah.White@ghd.com

ADDRESS FOR SERVICE of requiring authority for compliance and monitoring:

Selwyn District Council
2 Norman Kirk Drive
Rolleston 7643

Attention: Julien Gutknecht

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1. Introduction

1.1 Context

SDC seeks to designate land required for a new water treatment plant and existing water reservoir, pump station and control buildings (which are currently not designated).

Part 8 of the RMA relates to designations and heritage orders. Sections 166 to 176A under Part 8 set out the provisions for preparing, assessing and confirming designations, and submitting an Outline Plan of Works (OPW).

Pursuant to Section 166 of the RMA, SDC is a requiring authority and has statutory and financial responsibility for the operation, maintenance and enhancement of the supply of freshwater to the Selwyn District.

Section 168 and 168A

Section 168(2) states that a requiring authority for the purposes approved under Section 167 of the RMA, may at any time give notice of its requirement for a designation. Section 168A applies if a territorial authority decides to issue a notice of requirement for a designation for a public work within its district and for which it has financial responsibility. This Notice of Requirement (NOR) is a new requirement by SDC under Section 168A of the RMA.

Section 168A(3) of the RMA prescribes what the territorial authority must have regard to when considering an NOR.

In accordance with this section, a territorial authority must, subject to Part 2 of the RMA, consider the effects on the environment of allowing the requirement. The effects on the environment allowing this requirement are considered in Section 6 of this report; Part 2 matters are considered in Section 9.

Section 168A(3)(a)-(d) sets out the particular matters that a territorial authority must have regard to when considering the effects on the environment of allowing the requirement:

a) An assessment of the proposal against the relevant planning provisions is provided in Section 8 of this report;

b) A consideration of alternatives is given in Section 5;

c) The necessity of the proposed works is discussed in Section 4; and

d) Other matters, including other planning and policy documents not listed in s168A(a), that are relevant to for the territorial authority to considered in making a decision on the requirement are addressed in Section 8.3.

These matters provide a comprehensive assessment of the proposal in terms of its necessity and effects on the environment, and in respect of statutory requirements and national, regional and district planning documents.

Having regard to these matters, the territorial authority may, under Section 168A(4), recommend to the requiring authority that it:

a) Confirm the requirement;

b) Modify the requirement;

c) Impose conditions; or

d) Withdrawal the requirement.

Section 176A

Section 176A(2) states that an OPW need not be submitted to a territorial authority if the details of the proposed public work, project or work, as referred to in subsection (3), are incorporated into the designation. This NOR incorporates the details required under subsection (3), and therefore a separate OPW is not required.

2. Site description

The site to be designated is located at 160 Bangor Road in Selwyn District, and is legally described as Section 1 SO Plan 438579 (Figure 1). The site is owned by SDC. The site is zoned Living 2A deferred under the Selwyn District Plan and is not subject to any overlays. The site is not listed on Environment Canterbury's Listed Land Use Register (LLUR) as being contaminated or potentially contaminated. There are no archaeological sites shown on ArchSite within close proximity to the subject site.

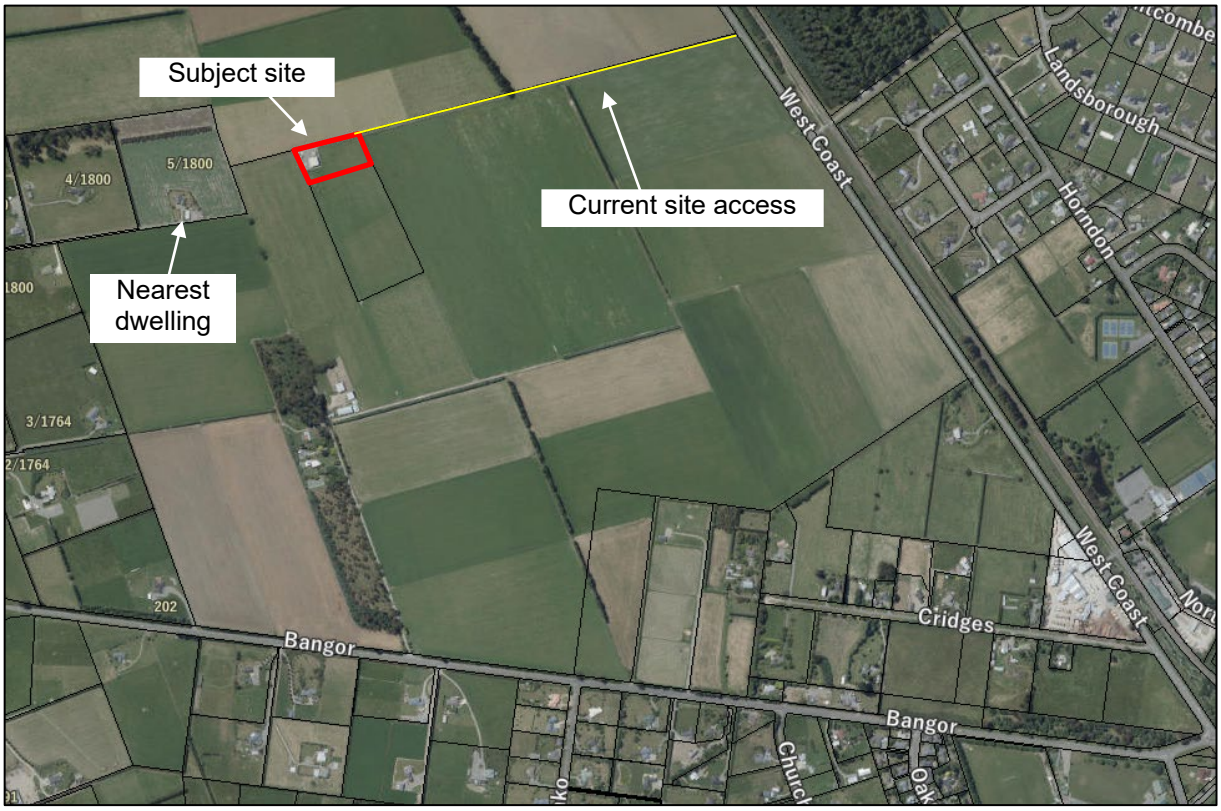


Figure 1. Location of the site to be designated at 160 Bangor Road

There is an existing water facility located in the north-western corner of the site which contains a reservoir, pump station, control building, generator and two water supply bores (Figure 2). The site is currently accessed of West Coast Road. The new designation will cover this existing infrastructure, as well as additional vacant land, which will be used for the construction of a water treatment plant and future expansion works. The extent of the proposed designation is shown in Figure 2. Photos of the site are included in **Appendix B**.

The surrounding environment consists of rural-residential land uses. The nearest dwelling is located approximately 225 m west of the site at 5/1800 Clintons Road and is screened from the site via a mature shelterbelt. There is a drain located approximately 130 m east of the site.

Figure 2. Proposed extent of the designation (shown in red) and existing infrastructure

3. Nature of proposed work

In 2011, a bore was commissioned on the subject site to provide drinking water to the Township of Darfield and surrounding rural areas. In 2014, a second bore, 1,000 m^3 reservoir and associated pumping station infrastructure were also commissioned on the site. Following changes to the Drinking-water Standards for New Zealand (DWSNZ), SDC passed a resolution to treat all drinking water supplies with UV treatment. The proposed treatment plant will sit directly adjacent to the reservoir, with connecting pipework to the two bores.

This NOR seeks to enable the construction of a new water treatment plant, and the ongoing operation and maintenance of all infrastructure on the site. Further details on the proposal are provided below.

3.1 Height, shape, bulk and location of the works

The location of each piece of infrastructure on the site is shown in Figure 2. The as-built plans for the existing infrastructure and proposed plans for the new water treatment plant are included in **Appendix C**. The height and bulk of this infrastructure is as follows:

- *Reservoir:* There is an existing aboveground covered reservoir located on site. The reservoir has a capacity of 1 ML, an area of 16.5 m x 16.5 m, and is 5 m in height.
- *Pump house:* The pump house contains the reticulation pumps and associated equipment. The pump house has an area of approximately 5 m x 6.25 m and is 4.45 m in height.
- *Control building:* The control building has an area of approximately 3.5 m x 4 m and is approximately 2.5 m in height.
- *Generator*: The generator is located next to the control building and is present on site for emergencies only. The generator has an area of approximately 3.8 m x 1.4 m, and is approximately 1.5 m in height.
- *Bores*: There are two aboveground bore wellheads located on site, one directly to the east of the generator, and one to the west of the reservoir.
- *Water treatment plant*: The location of the proposed water treatment plant on site is shown in Figure 2. The proposed building will have a minimum internal height of 2.4 m and an area of approximately 15 m x 6 m.

3.2 Vehicular access, circulation and parking

The site is currently accessed via an 835 m long gravel driveway off West Coast Road. There is a locked gate located at the end of the driveway at the entry to the site. There is sufficient room at the front of the site to allow for parking and safe manoeuvring on site. No changes are proposed to the existing access, parking or onsite circulation as part of the construction of the new water treatment facility.

3.3 Landscaping

Planting will be provided around the boundary of the designated site as shown in the planting plan attached as **Appendix D**. Two stages of planting are proposed; the first is planting around the existing infrastructure and proposed water treatments plant, which will later be extended around the whole designated site in a second stage of planting if more development occurs on site.

Careful consideration has been given to the species selected to ensure that they are suitable for this specific location.

3.4 Finished contour

The site has a generally flat contour and is relatively level. No changes are proposed to existing ground levels as part of the construction of the water treatment plant.

3.5 Physical works

As the majority of the infrastructure is already present on site, the only physical works required are those to construct the new water treatment plant.

3.5.1 Earthworks

Minor earthworks will be required to construct the water treatment plant, namely for the building foundations, buried pipe and cable services and a soak pit. Approximately 280m^3 of earthworks will be required to a maximum depth of 1.5m.

The site is located over an unconfined or semiconfined aquifer, and within two Community Drinking Water Protection Zones (Figure 3).

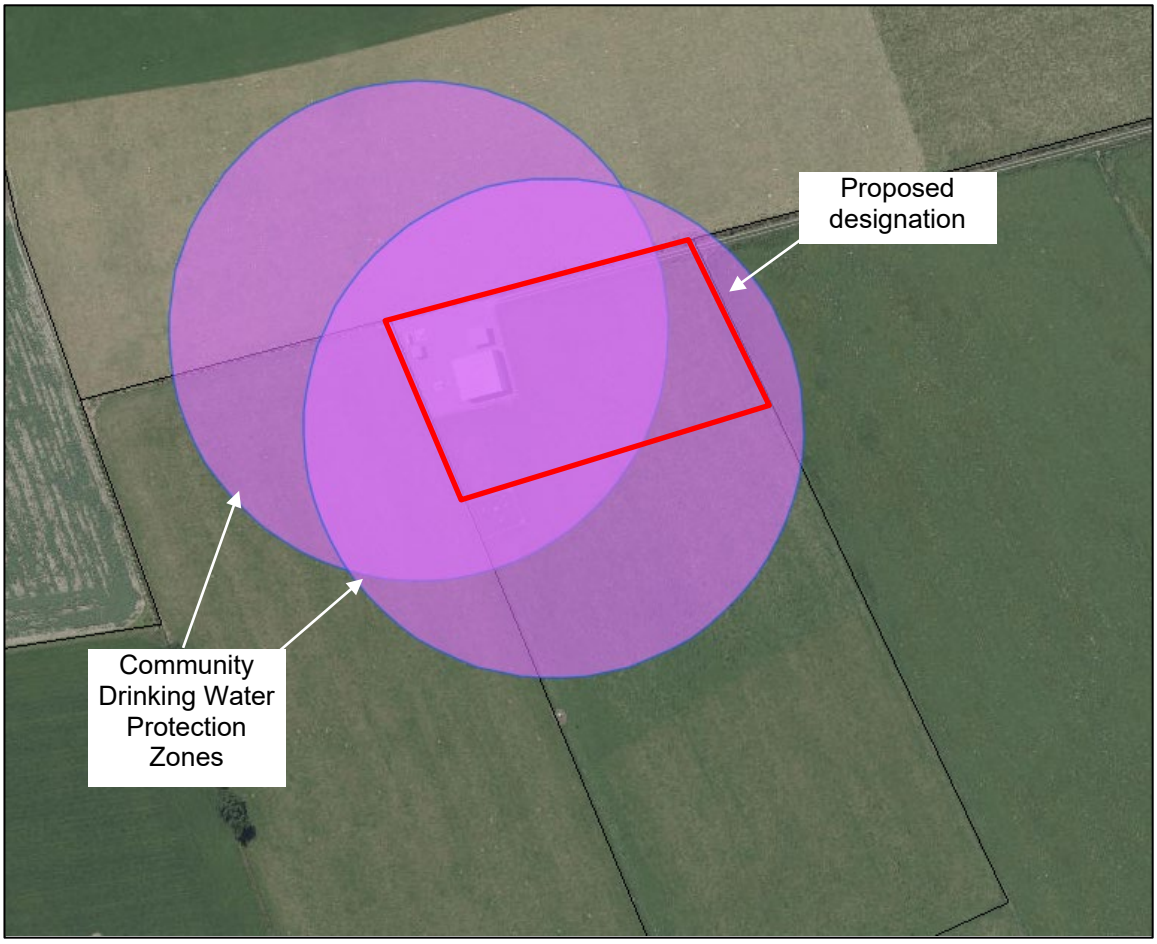


Figure 3. Community Drinking Water Protection Zone Overlays (Source: Canterbury Maps)

The necessary resource consents will be obtained from Environment Canterbury for the earthworks required over an unconfined or semiconfined aquifer, and within a Community Drinking Water Protection Zone. Full details on the construction works will be provided in the resource consent application to Environment Canterbury.

3.5.2 Construction programme

Construction of the new water treatment plant is expected to commence as soon as the NOR is approved and will take approximately 3-4 months to complete.

4. Necessity of works and designation

Section 168A(3)(c) states that the territorial authority must have regard to whether the work and designation are reasonable necessary for achieving the objectives of the requiring authority for which the designation is sought.

As outlined in Section 3 of this report, the proposed water treatment plant and other existing infrastructure is required to provide drinking water to the Township of Darfield and surrounding rural areas. Following changes to the Drinking-water Standards for New Zealand (DWSNZ), SDC passed a resolution to treat all drinking water supplies with UV treatment, and therefore the new water treatment plant is required to action this resolution, and provide safe drinking water.

As such, SDC seeks to designate land under this NOR to enable the construction of a new water treatment plant, and the ongoing operation and maintenance of all infrastructure on the site.

5. Consideration of alternatives

Section 168A(3)(b) of the RMA states that the territorial authority must have regard to whether adequate consideration has been given to alternative sites, routes, or methods of undertaking the work if:

i. the requiring authority does not have an interest in the land sufficient for undertaking the work; or

ii. if it is likely that the work will have significant adverse effect on the environment.

As provided by the assessment of effects (Section 6 of this report), the proposal will not have any significant adverse effects on the environment. In addition, SDC, as requiring authority, has full interest in all of the land required for undertaking the work.

Due to the location of the existing infrastructure on this site, the construction of the new water treatment plant on the same site is the most cost efficient option, and consideration of alternative sites was not deemed necessary.

6. Assessment of environmental effects

This section provides and assessment of the actual and potential effects of the proposed works on the environment, and identifies the ways in which these effects can be avoided, remedied or mitigated.

6.1 Positive effects

The designation will provide long-term certainty for SDC and the community in the protection of a drinking water supply to the Darfield Township. The treatment facility will enable the water supply to meet the water quality standards required under the DWSNZ, allowing the community to provide for their social, economic and cultural wellbeing, and health and safety.

6.2 Construction effects

6.2.1 Dust

The Contractor will be required to have in place suitable dust controls during construction, so that there is no discharge of dust beyond the site. Controls may include wetting down exposed soils, covering stockpiled soils, removing excavated soil from the site if it is not to be reused, and staging earthworks so that the area of soil exposed is minimised. Using controls during excavation will manage dust from excavations, so that the effects from dust on the surrounding environment are less than minor.

6.2.2 Sedimentation

The Contractor will be required to have in place erosion and sediment controls throughout construction. An Erosion and Sediment Control Plan (ESCP) will be produced in accordance with Environment Canterbury's Erosion and Sediment Control Toolbox. As the site is flat, the site (or adjacent sites) will not be susceptible to erosion, and suitable controls will be implemented so that no that sediment-laden water is discharged beyond the boundary of the site, and the effects on the surrounding environment are less than minor.

6.2.3 Construction traffic

Traffic associated with the construction of the water treatment plant will be temporary in duration. All construction traffic will access the site using the existing access of West Coast Road (SH73). Construction of the water treatment plant is scheduled to take approximately 3-4 months to complete and construction traffic will be limited to the hours of 7am and 6pm Monday-Saturday. It is expected that there will be approximately 10-20 vehicle movements to and from the site per day. Due to the location of the site off a State Highway, which has an existing high traffic volume, and temporary duration, the effects of the additional traffic movements to and from the site during the construction works will be less than minor.

6.2.4 Construction noise

All construction noise will comply with the relevant standards set out in NZS 6803:1999.

6.3 Operational effects

6.3.1 Visual amenity

The site is located within a rural residential environment and well setback from all adjoining public roads. The nearest dwelling is located approximately 225 m west of the site at 5/1800 Clintons Road and is screened from the site via a mature shelterbelt.

There is existing infrastructure already on site in the form of a reservoir, pump house, control building, generator and two bores; therefore, the construction of the additional water treatment plant building will not add significantly to the overall bulk of built form on site.

Landscaping is proposed along the boundaries of the site, which will further screen the buildings from surrounding properties and West Coast Road.

Overall, given the rural location of the site and proximity to surrounding dwelling and roads, and the landscaping proposed, it is considered that the effects of the proposal on visual amenity will be less than minor.

6.3.2 Noise

The main sources of operational noise at the site are the existing 250 kVA generator and pumping equipment. The generator is used as a backup during emergencies and therefore its use is infrequent and only for short durations. All of the existing pumping equipment is located inside a pump house building.

The nearest dwelling is located approximately 225 m west of the site at 5/1800 Clintons Road and is screened from the site via a mature shelterbelt. Additionally, the site is setback approximately 835 m from West Coast Road.

Therefore, due to the location of the site away from dwellings and road it is considered any noise effects will be less than minor.

6.3.3 Effects on the surrounding traffic network

Access to the site is provided via a single vehicle entry/exit point from West Coast Road. There is currently sufficient space for construction and maintenance vehicles to manoeuvre on site, and exit the site forward facing onto West Coast Road. Once construction of the water treatment plant is complete and the site is operational, there will be no changes to the existing volume of vehicle movements to and from the site each week for routine maintenance inspections. As a result, the effects on the existing transport network from the ongoing operation of the pump station will be negligible.

6.4 Summary of effects

In summary, the designation will provide long-term certainty for SDC and the community in the protection of a drinking water supply to the Darfield Township. This will allow the community to provide for their social, economic and cultural wellbeing, and health and safety, by providing a secure drinking water supply.

Construction effects will be managed through the implementation of an ESCP and through compliance with the relevant construction noise standards. The rural location and proposed landscaping will help mitigate the visual effects of the proposal, whilst also noting that the majority of the overall bulk of built form is already existing on site. Due to the location of the site away from residential dwellings and public roads, the effects of noise created from the facility can be adequately managed to an extent that they will be less than minor. The additional water treatment plant will not result in any changes to the existing volume of vehicle movements to and from the site each week for routine maintenance inspections. Overall, the effects of the proposal are considered to be less than minor.

7. Relevant plan provisions

Section 168A(3)(a) state that the territorial authority must have regard to the relevant provisions of any national or coastal policy statement, regional policy statement or plan, and district plan.

Section 168A(3)(d) states that the territorial authority must have regard to any other matters reasonably necessary in order to make a decision; this includes other planning documents not considered in subsection (a).

This section of the report provides and assessment of the proposed work against the relevant planning documents.

7.1 Canterbury Regional Policy Statement

This NOR is consistent with the purpose of the Canterbury Regional Policy Statement (RPS). In particular, the NOR is consistent with the following objectives and policies:

e) Objective 5.2.1: Location, design and function of development (Entire Region);

f) Objective 5.2.2: Integration of land-use and regionally significant infrastructure;

g) Policy 5.3.2: Development conditions (Wider Region);

h) Policy 5.3.5: Servicing development for potable water, and sewage and stormwater disposal (Wider Region);

i) Policy 5.3.6: Sewerage, stormwater and potable water infrastructure (Wide Region); and

j) Policy 5.3.9: Regionally significant infrastructure (Wider Region).

The objectives and policies from the RPS are set out in full in **Appendix E** of this NOR. Of most relevance to this NOR to designate the water treatment facility is Objective 5.2.2 and Policies 5.2.2 and 5.3.6.

Objective 5.2.2 and Policy 5.3.2 recognise the importance of providing for infrastructure that is regionally significant, and the importance of avoiding, remedying or mitigating adverse effects from the development and operation of regionally significant infrastructure. As discussed in Section 6, the adverse effects from the water treatment facility will be managed to provide for the social, economic and cultural well-being and health and safety of people and communities. Regionally significant infrastructure includes “community potable water systems”.

Policy 5.3.6 seeks to enable the development of infrastructure required to manage sewerage, stormwater and potable water, provided that any adverse effects are avoided, mitigated or appropriately controlled. Section 6 has illustrated that the effects of the proposal will be less than minor, noting that the majority of the required infrastructure is already on site, and therefore minimal construction work is required.

7.2 Selwyn District Plan

The NOR is consistent with the objectives and policies of the Selwyn District Plan (the District Plan), in particular, those which are related to the provision of utilities, including water supply. Table 1 provides an assessment against the relevant objectives and policies of the District Plan.

Table 1. Assessment against the relevant objectives and policies of the Selwyn District Plan

Objective	Policy	Assessment against the Notice of Requirement
Objective B2.2.1 Utilities are recognised as essential tools for people's economic and social well-being, and to mitigate effects of other activities, on the environment.	**Policy B2.2.2** Ensure provision is made for the ongoing maintenance and repair of utilities which are not vested in the Council, and that the users of these utilities are informed of any responsibility they have for ongoing maintenance or repair.	The proposal will allow the community to provide for their social, economic and cultural wellbeing, and health and safety, by providing a secure drinking water supply. As outlined in Section 3, the majority of the required infrastructure already exists on site, and therefore the new water treatment facility will not contribute significantly to the overall bulk of built form on the site. Additionally, due to the location of the existing infrastructure on the site, the construction of the new water treatment plant on the same site is the most cost efficient and appropriate option to meet operational requirements. As outlined in Section 6 the effects of the proposal will be less than minor. SDC will continue to be responsible for the ongoing maintenance and repair of the infrastructure.
Objective B2.2.2 The provision of utilities where any adverse effects on the environment and on people's health, safety and wellbeing is managed having regard to the scale, appearance, location and operational requirements of utilities.		

8. Part 2 RMA – Purpose and Principles

Part 2 of the RMA sets out the purpose and principles of the Act. The purpose of the Act in accordance with Section 5, is to promote the sustainable management of natural and physical resources. The designation will provide long-term certainty for SDC and the community in the protection of a drinking water supply to the Darfield Township. The treatment facility will enable the water supply to meet the water quality standards required under the DWSNZ, allowing the community to provide for their social, economic and cultural wellbeing, and health and safety, whilst providing a safe and reliable drinking water supply. Adverse effects on the environment will be avoided, remedied or mitigated to an extent that they will be less than minor.

Section 6 of the RMA sets out matters of national importance to be recognised and provided for. There are no Section 6 matter relevant to this proposal.

Other matters to have particular regard to are set out in Section 7 of the Act. Of relevance to this proposal is 7(b) *'the efficient use and development of natural and physical resources'.* The proposal is considered an efficient use of a physical resource as it builds on the existing infrastructure that already exists on site. The designation will provide long-term security for this infrastructure, allowing the community to provide for their social, economic and cultural wellbeing.

Section 8 of the RMA requires all persons exercising functions and powers under the RMA to taken into account the principles of the Treaty of Waitangi. It is considered that the proposal will have no known resource management issues of relevance to tangata whenua. The proposal is not affected by any objectives of Maori in RMA plans; the proposal does not affect s.6(e) matters; the effects of the proposal are less than minor; there are no issues regarding the exercise of kaitiakitanga; and there are no effects on matters of cultural, spiritual or historical importance.

Overall, the proposal is considered to be consistent with the purpose and principles of the RMA.

9. Conclusion

SDC is seeking to designate land required for the construction of a new water treatment plant, and the ongoing operation and maintenance of all infrastructure on the site at 160 Bangor Road in the Selwyn District, through a NOR under Section 168A of the RMA.

Section 168A(3) of the RMA prescribes what a territorial authority must consider when looking at a NOR.

The Assessment of Effects in Section 6 above has considered the potential for adverse effects on the environment including:

- Construction effects;
- Visual amenity;
- Noise; and
- Effects on the transport network.

It is considered that the proposal is consistent with Part 2 of the RMA.

There are four other particular matters that a territorial authority must have regard to when considering the effects on the environment of allowing the requirement.

SDC own the land for which the designation is sought and consideration has been given to alternative sites.

Designation is the most appropriate planning method available to SDC because the designation becomes embodied in the District Plan, thereby providing long-term certainty for SDC and the community.

It is considered that the works and designation are necessary for achieving the objectives of the Requiring Authority.

This NOR meets the requirements of the RMA and all relevant planning documents. Any environmental effects arising from the public works undertaken in accordance with the NOR will be suitably managed.

It is therefore appropriate that the Requirement be confirmed. Additionally, sufficient information has been provided to satisfy the requirements for an OPW under section 176A of the Act and as such, an OPW approval can be granted concurrently.

Appendices

Appendix A – Certificate of title

Terranet document ordering service

Certificate of Title with diagram: 548759

Billing Code: 12522757 - SDC NORS

CoreLogic Reference: 2870440/1

Processed: 24 August 2020

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

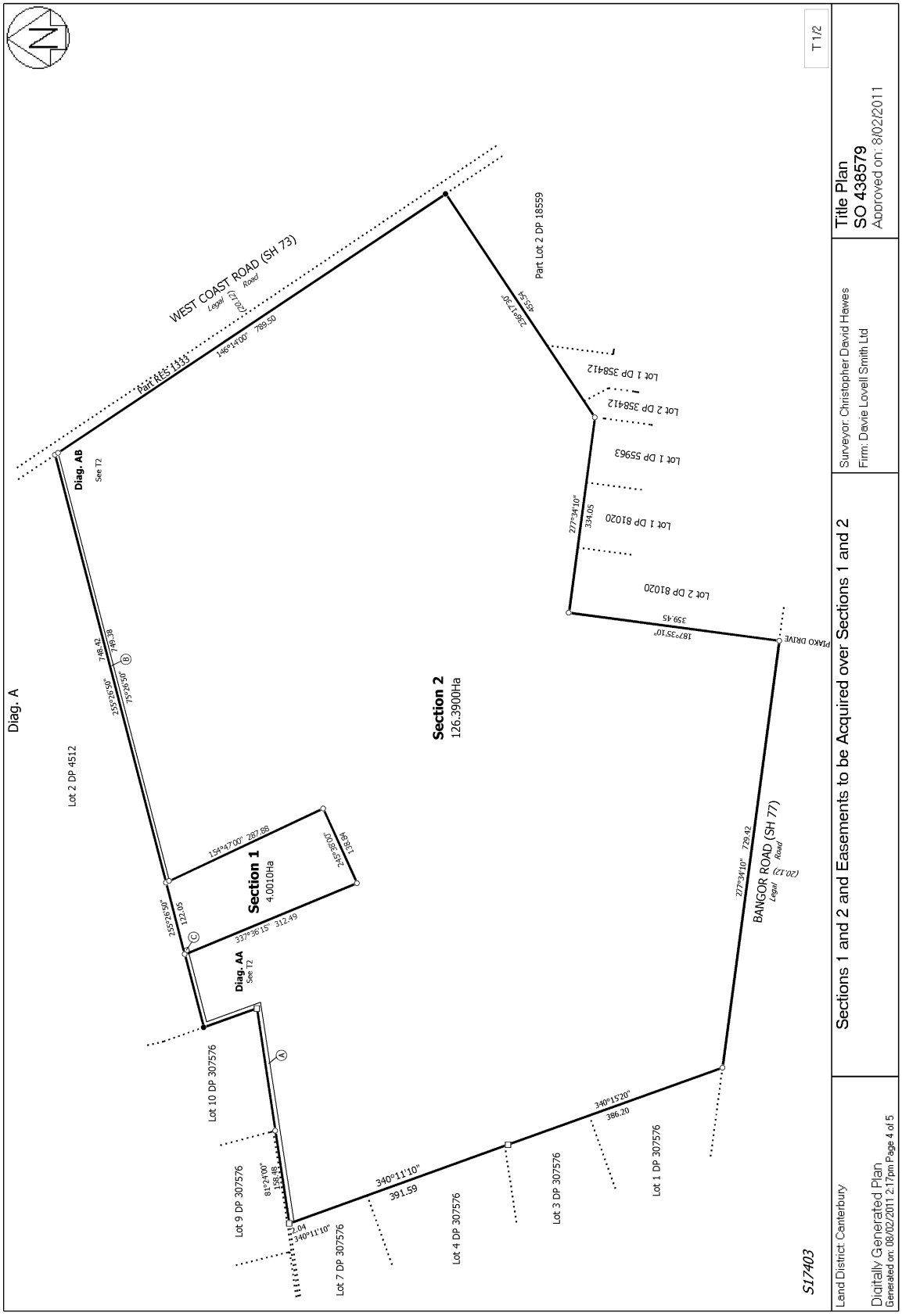
Identifier **548759**
Land Registration District **Canterbury**
Date Issued 07 June 2011

Prior References
CB47A/154

Estate Fee Simple
Area 4.0010 hectares more or less
Legal Description Section 1 Survey Office Plan 438579
Purpose Water supply
Registered Owners
Selwyn District Council

Interests

Subject to a right (in gross) to convey electricity over part marked C on SO 438579 in favour of Orion New Zealand Limited created by Easement Instrument 8781543.7 - 7.6.2011 at 2:37 pm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SO 438579
Approved on: 8/02/2011
Surveyor: Christopher David Hawes
Firm: Davie Lovell Smith Ltd
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Land District: Canterbury
Digitally Generated Plan
Generated on: 08/02/2011 2:17pm Page 4 of 5
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Diag. AB
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Part Lot 2 DP 18559
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Lot 2 DP 358412
Lot 1 DP 55963
Lot 1 DP 81020
Lot 2 DP 81020
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359.45
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Lot 9 DP 307576
Lot 10 DP 307576
Lot 2 DP 4512
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Diag. AA
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B
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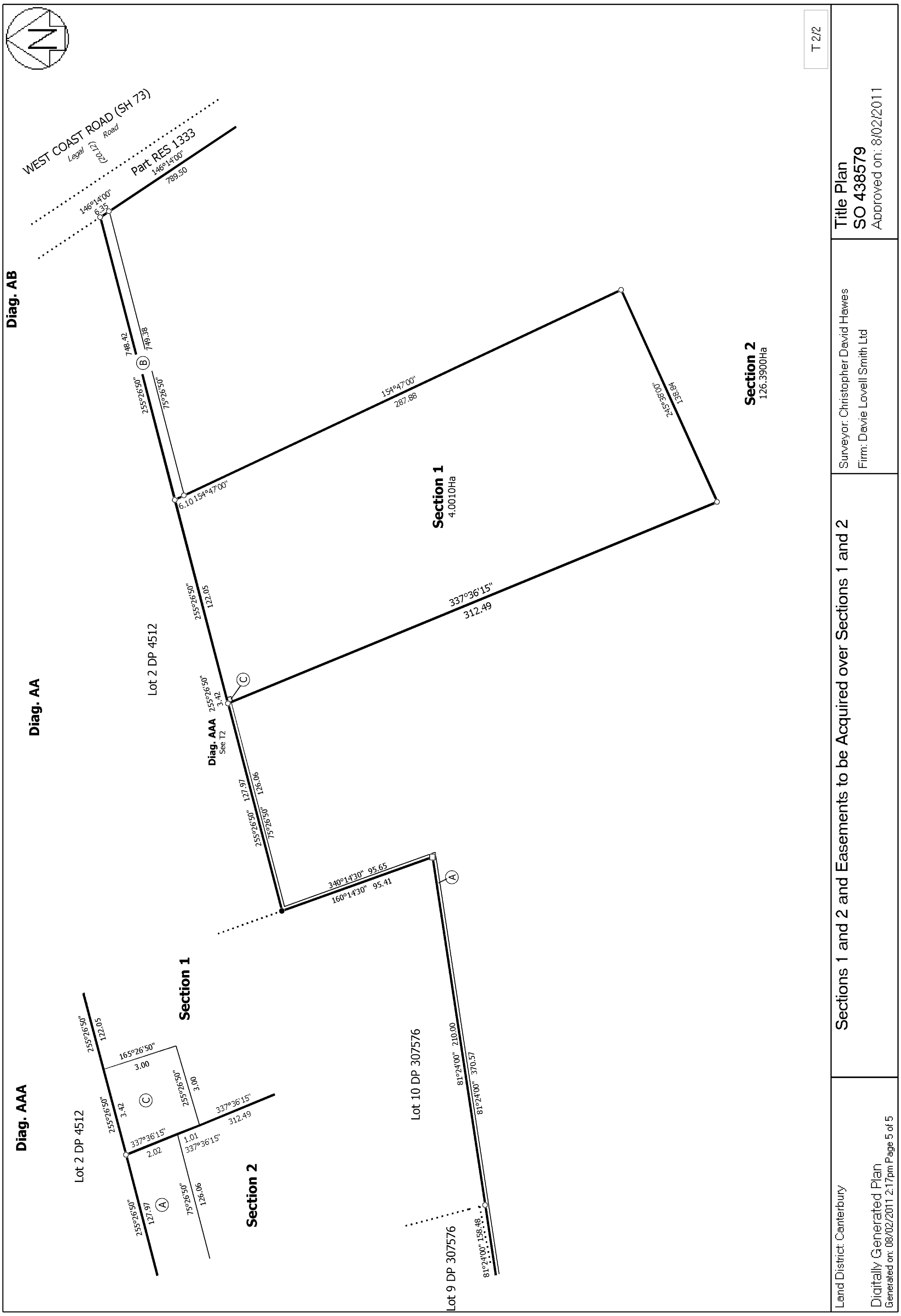
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SO 438579
Approved on: 8/02/2011
Sections 1 and 2 and Easements to be Acquired over Sections 1 and 2
Surveyor: Christopher David Hawes
Firm: Davie Lovell Smith Ltd
Land District: Canterbury
Digitally Generated Plan
Generated on: 08/02/2011 2:17pm Page 5 of 5
T 2/2
WEST COAST ROAD (SH 73)
Part RES 1333
Section 1
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Section 2
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Lot 10 DP 307576
Lot 9 DP 307576
Diag. AB
Diag. AA
Diag. AAA
337°36'15"
312.49
154°47'00"
287.88

Appendix B – Site photos

Looking west from the site entrance – pump house in the foreground and generator in the background. Behind the site, the existing shelterbelt which runs along the property boundary of 5/1800 Clintons Road.

Looking south west from the site entrance – existing reservoir and pump house.

Appendix C – As built plans of existing infrastructure

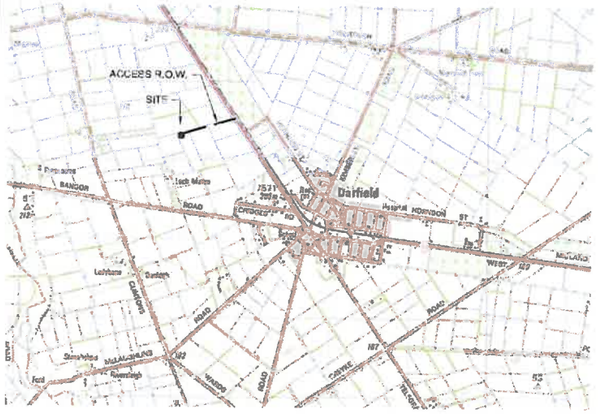
AS BUILT
CERTIFIED BY
DESIGNATION Senior Utilities Consultant
DATE 2/7/2014

AS BUILT
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

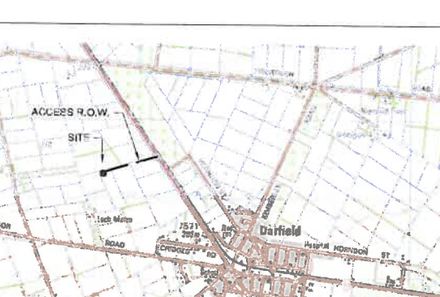
AS BUILTS

Drawing No: 6/1515/19
Project No: 3C1004.51

Date: JUNE 2014



LOCATION PLAN
NTS



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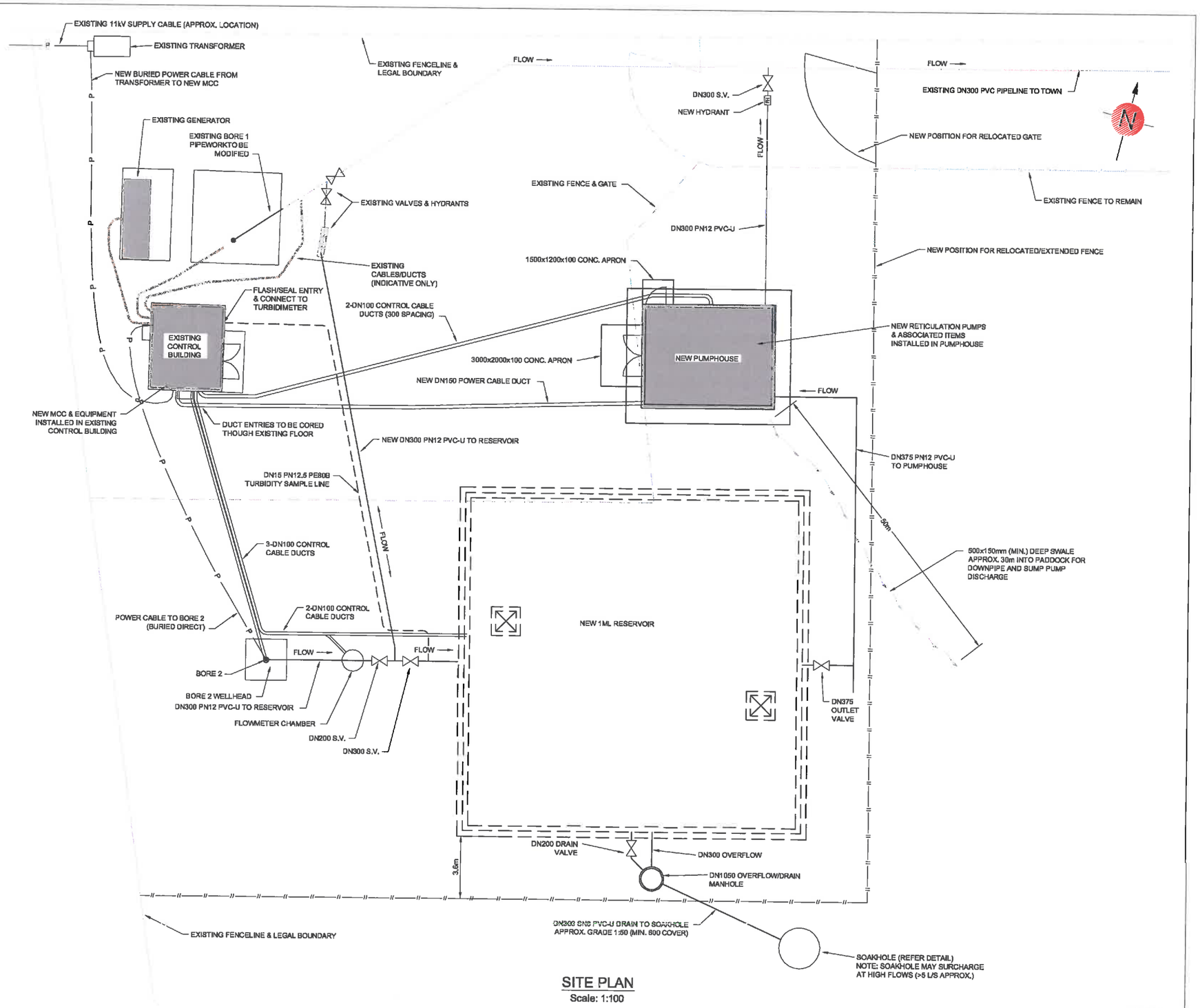


SITE PLAN
Scale: 1:100

AS BUILT

CERTIFIED BY .....
DESIGNATION Senior Utilities Consultant
DATE 21/7/2014

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	MAY 14

Selwyn DISTRICT COUNCIL

OPUS
Christchurch Environmental
+64 3 363 5400
PO Box 1482
Christchurch 8140
New Zealand

Drawn	Designed	Approved	Revision Date
GB	GB		MAY 2014

Project No. 3C1004.51 | Scale: AS SHOWN (A1) | Drawing No. 6/1515/19/7605 | Sheet No. 1 | Revision RAB

Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: SITE GENERAL LAYOUT

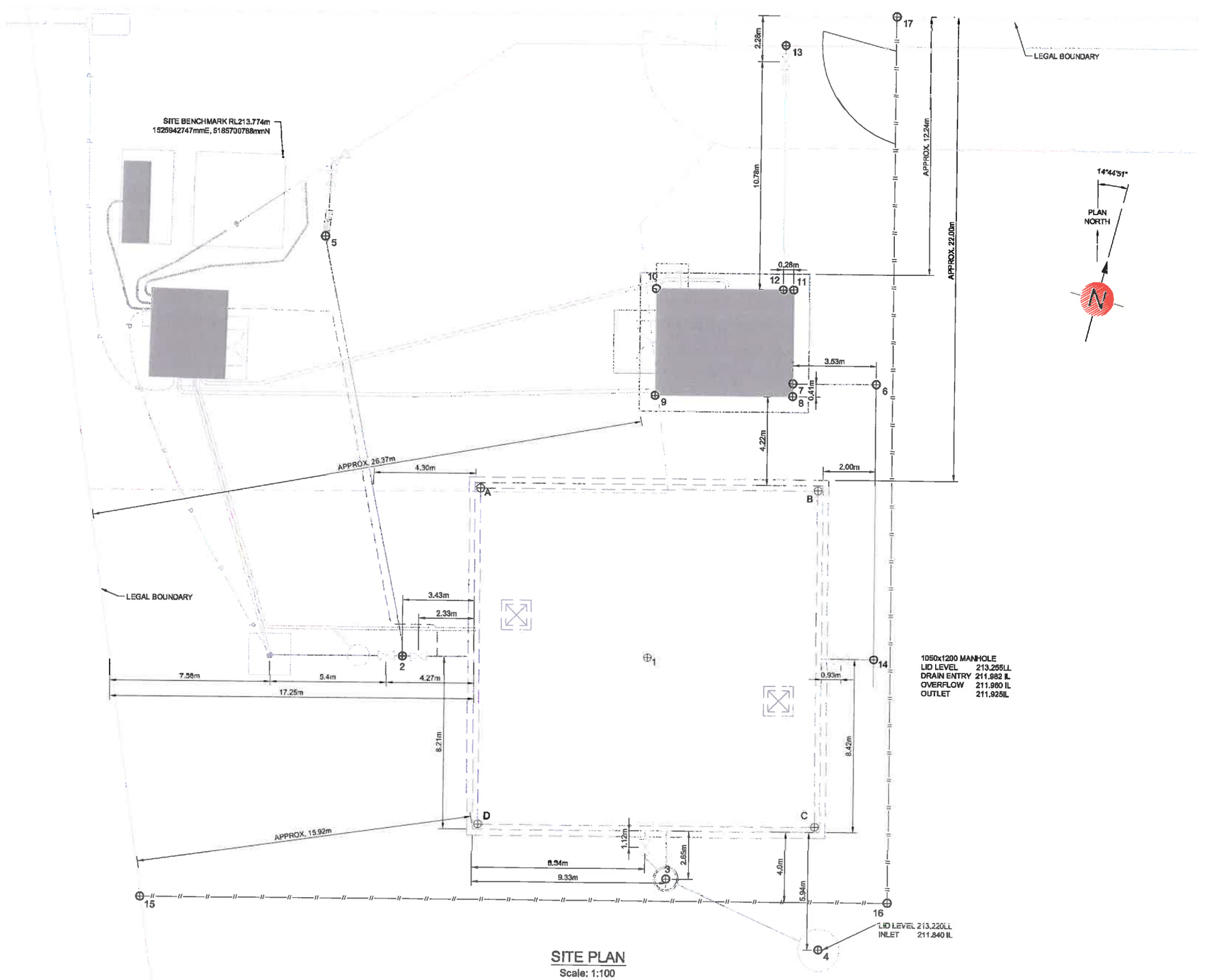
AS BUILT

Original Sheet Size A1 (841x594) Plot Date 16 Jun 2014 @ 8:58 a.m. Path O:\envita_southisselwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\SH73 Headworks AS-BUILT.dwg 1

SET OUT POINTS	
POINT	mmE, mmN
1	1526966712, 5185682421
2	1525964460, 5185679459
3	1525969358, 5185672497
4	1525977214, 5185671135
5 (APPROX.)	1525946694, 5185697705
6	1525972779, 5185697805
7	1525968911, 5185696787
8	1525969063, 5185696208
9	1525962777, 5185694552
10	1525961492, 5185699435
11	1525967778, 5185701090
12	1525967294, 5185700963
13 (APPROX.)	1525964343, 5185712162
14	1525976108, 5185685157
15	1525945477, 5185685125
16	1525979618, 5185674165
17	1525969101, 5185714876
A	1525955939, 5185688121
B	1525971412, 5185692194
C	1525975485, 5185676721
D	1525960012, 5185672648

NOTES:

1. CO-ORDINATE SYSTEM = NZTM
2. LEVEL DATUM = LYTTELTON MSL 1937 (POST-QUAKE)
3. RESERVOIR SETOUTS A-D ARE INSIDE CORNERS OF WALLS FOR 16x16m INTERNAL DIMENSION



SITE PLAN
Scale: 1:100

AS BUILT
CERTIFIED BY
DESIGNATION Senior Civil Engineering Consultant
DATE 24/7/2014

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	05/14

Selwyn DISTRICT COUNCIL

OPUS
Christchurch Environmental
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New Zealand

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GB	GB		MAY 2014

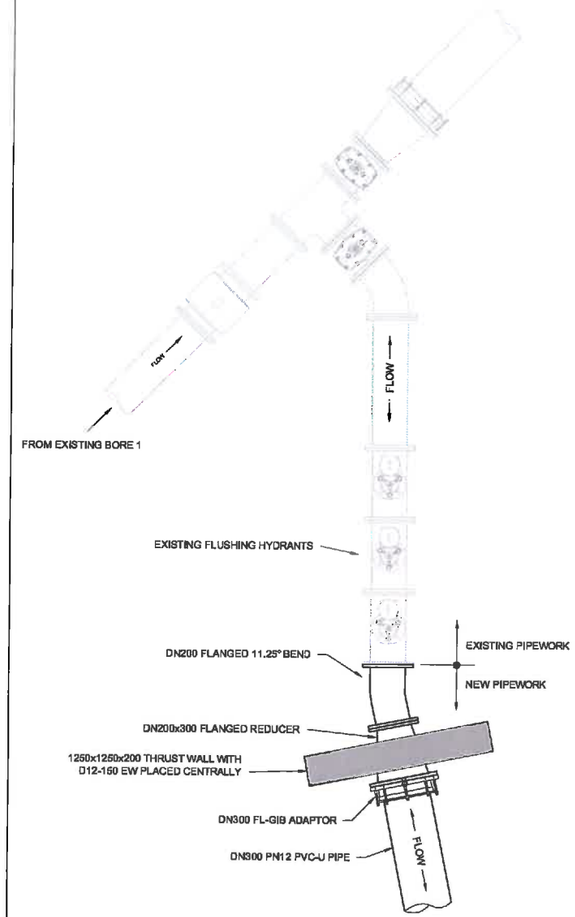
Project No. 3C1004.51
Scale AS SHOWN (A1)

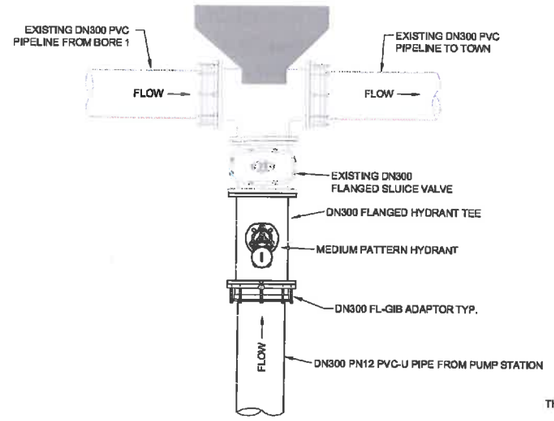
AS BUILT

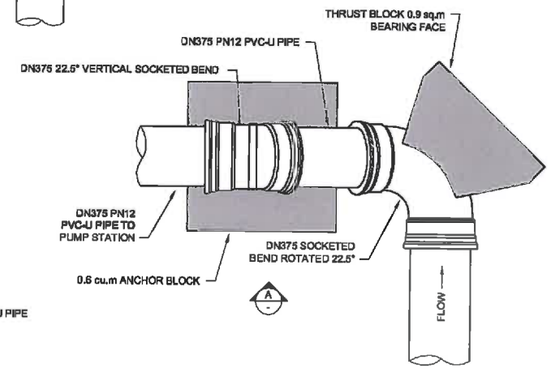
Project
SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

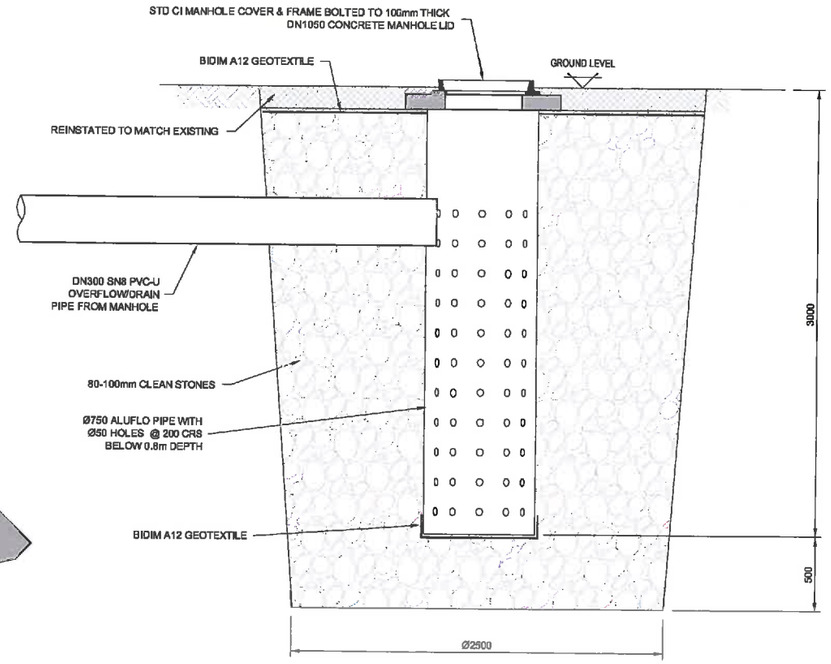
Sheet
SITE
SETTING OUT INFORMATION

Drawing No. 6/1515/19/7605
Sheet No. 2
Revision RAB









SOAKHOLE ELEVATION
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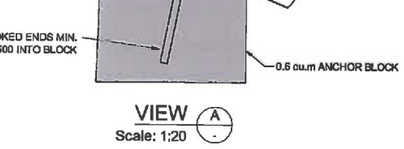
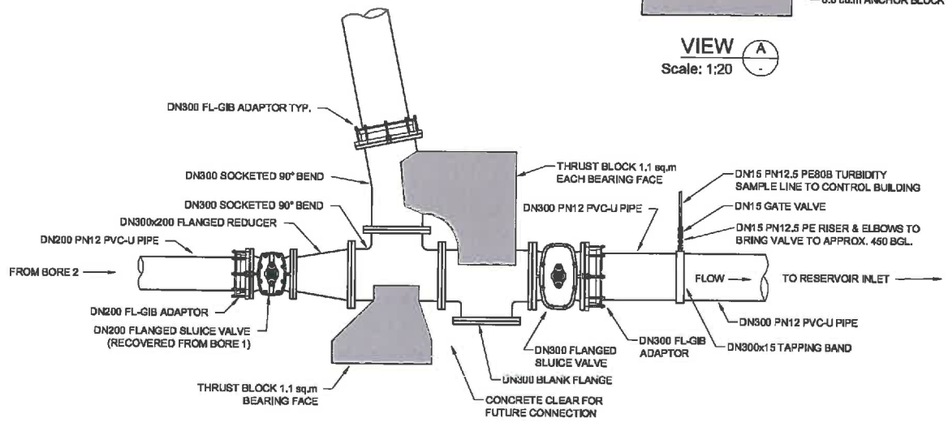
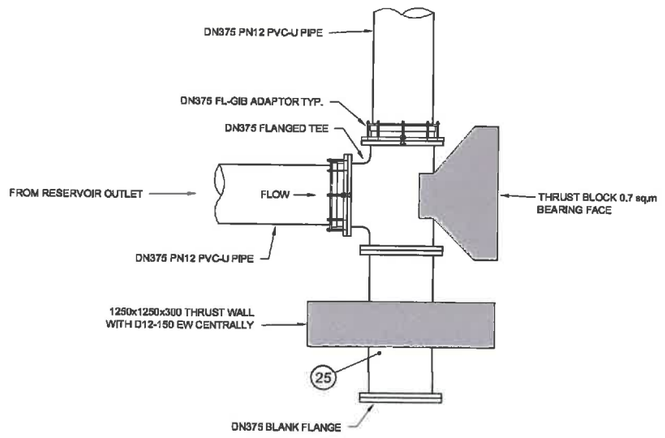


VIEW A
Scale: 1:20





NOTE: NUMBERED ITEMS REFER TO PIPE SPECIALS

AS BUILT
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DESIGNATION Senior Utilities Consultant
DATE 2/7/2014

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB		05/14

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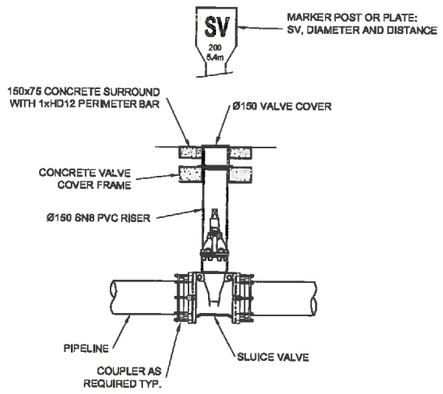
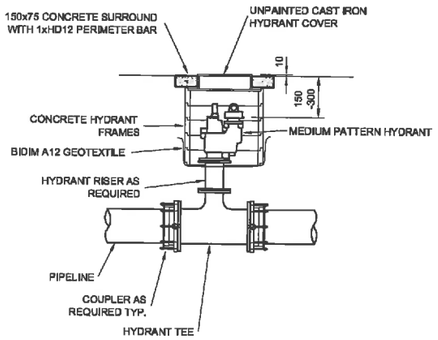
Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	1:20 (A1)	6/1515/19/7605	10	RAB

Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: SITE PIPELINES
CONNECTION DETAILS



TYPICAL SLUICE VALVE INSTALLATION
NTS



TYPICAL HYDRANT INSTALLATION
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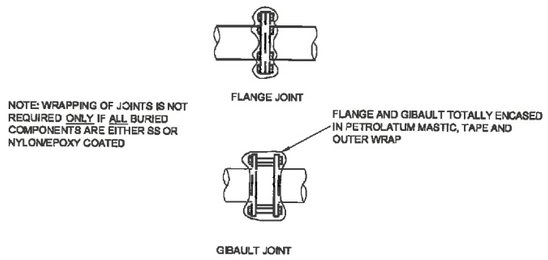
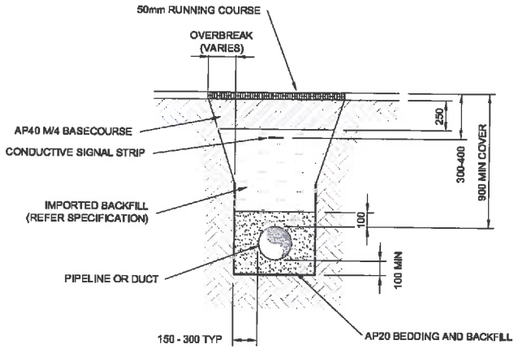
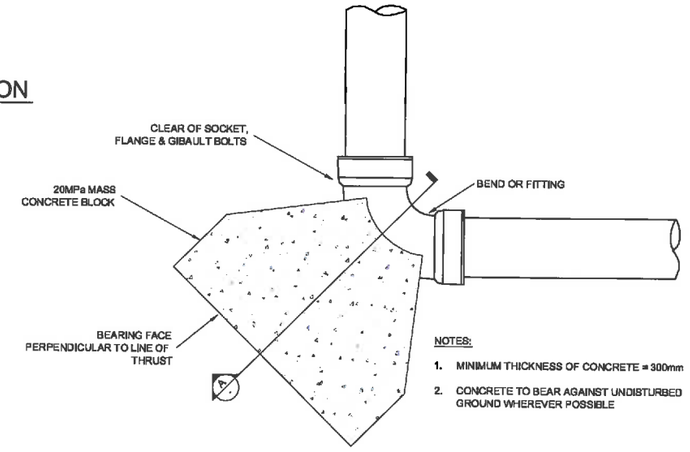


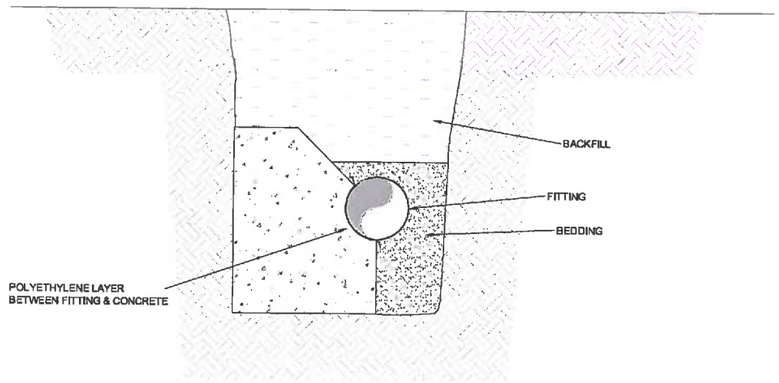
JOINT WRAPPING DETAILS
NTS



TRENCH DETAILS - METAL AREAS
NTS



TYPICAL THRUST BLOCK DETAIL
NTS



A SECTION
Scale: 1:20

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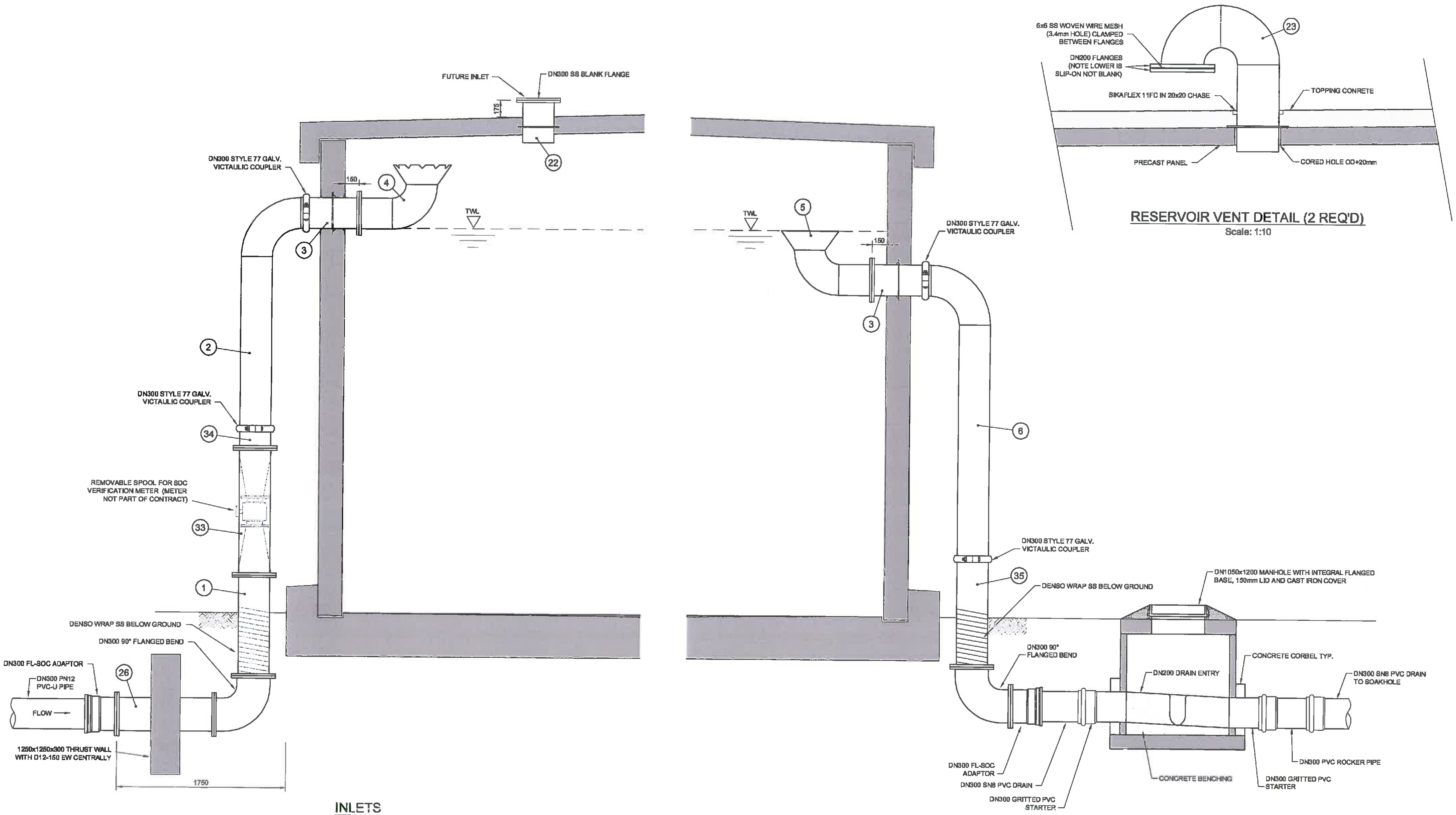
Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: SITE PIPELINES
STANDARD DETAILS

Drawing No. 6/1515/19/7605
Sheet No. 11
Revision RAB

AS BUILT



RESERVOIR VENT DETAIL (2 REQ'D)
Scale: 1:10

INLETS
Scale: 1:20

OVERFLOW
Scale: 1:20

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Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: RESERVOIR
PIPE CONNECTION DETAILS 1

Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	AS SHOWN (A1)	6/1515/19/7605	12	RAB

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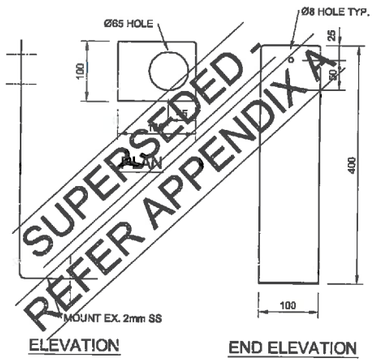
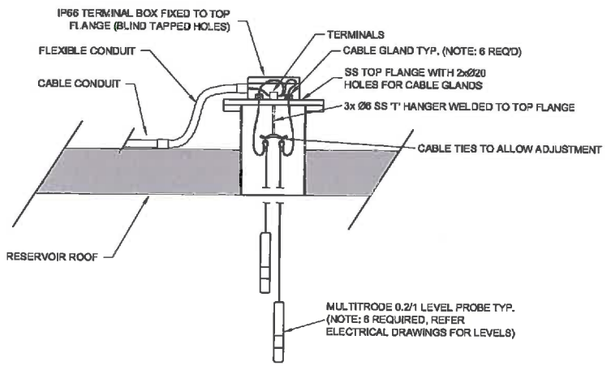
DESIGNATION Senior Utilities Consultant
DATE 2/7/2014

Original Sheet Size A1 [841x594] Plot Date 16 Jun 2014 @ 8:58 a.m. Path O:\anville_southlselwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\SH73 Headworks AS-BUILT.dwg 12



SUPERSEDED - REFER APPENDIX A

LEVEL SENSOR MOUNT
Scale: 1:5



LEVEL PROBES INSTALLATION
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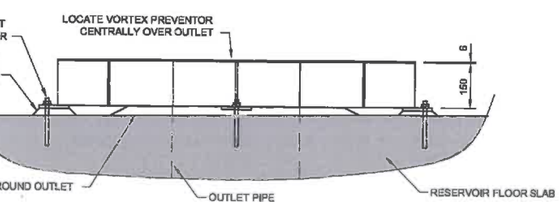
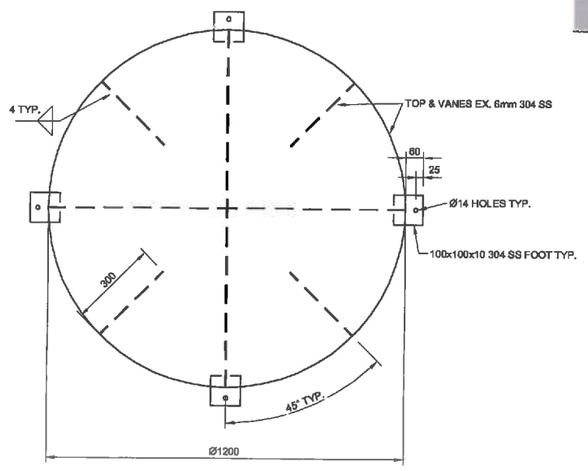


VORTEX PREVENTOR - SIDE ELEVATION
Scale: 1:10



VORTEX PREVENTOR - PLAN
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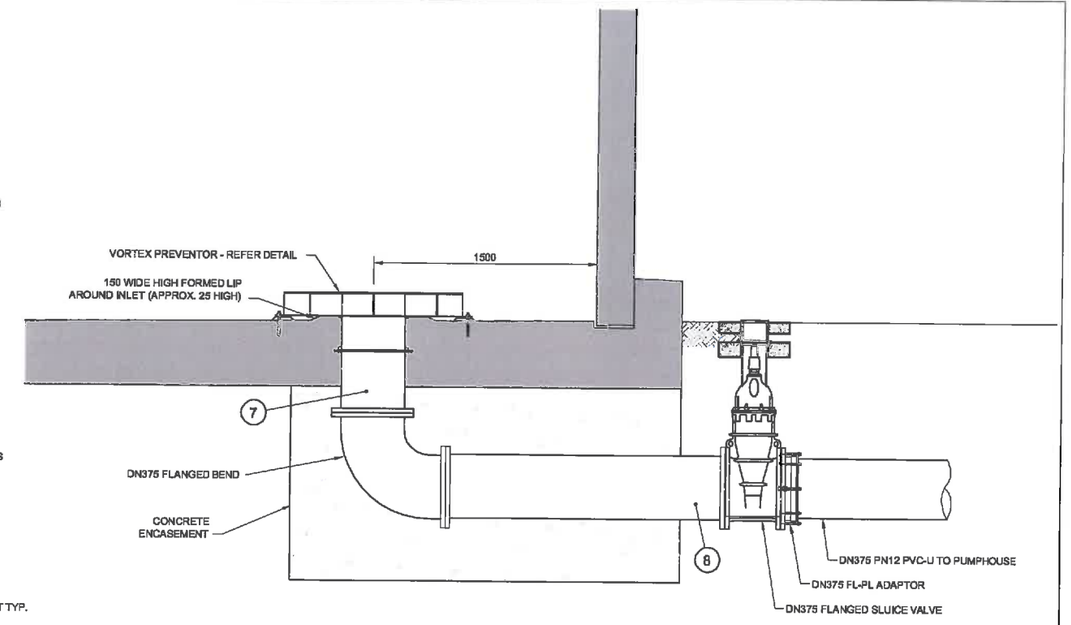
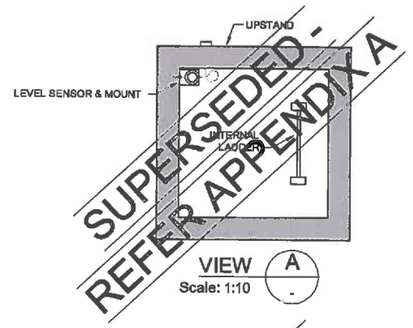


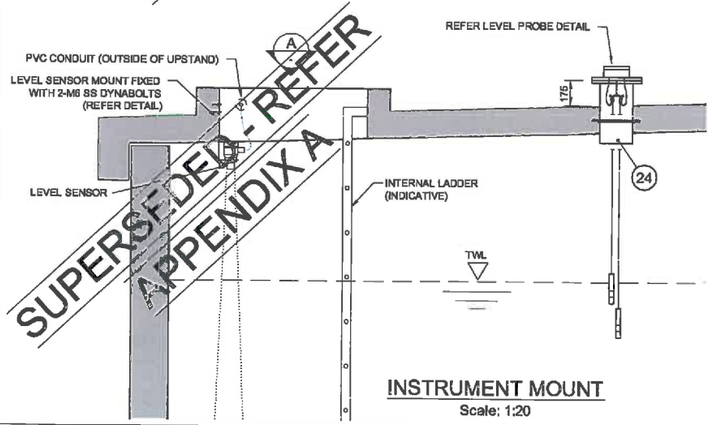
OUTLET
Scale: 1:20

SUPERSEDED - REFER APPENDIX A



VIEW A
Scale: 1:10

SUPERSEDED - REFER APPENDIX A



INSTRUMENT MOUNT
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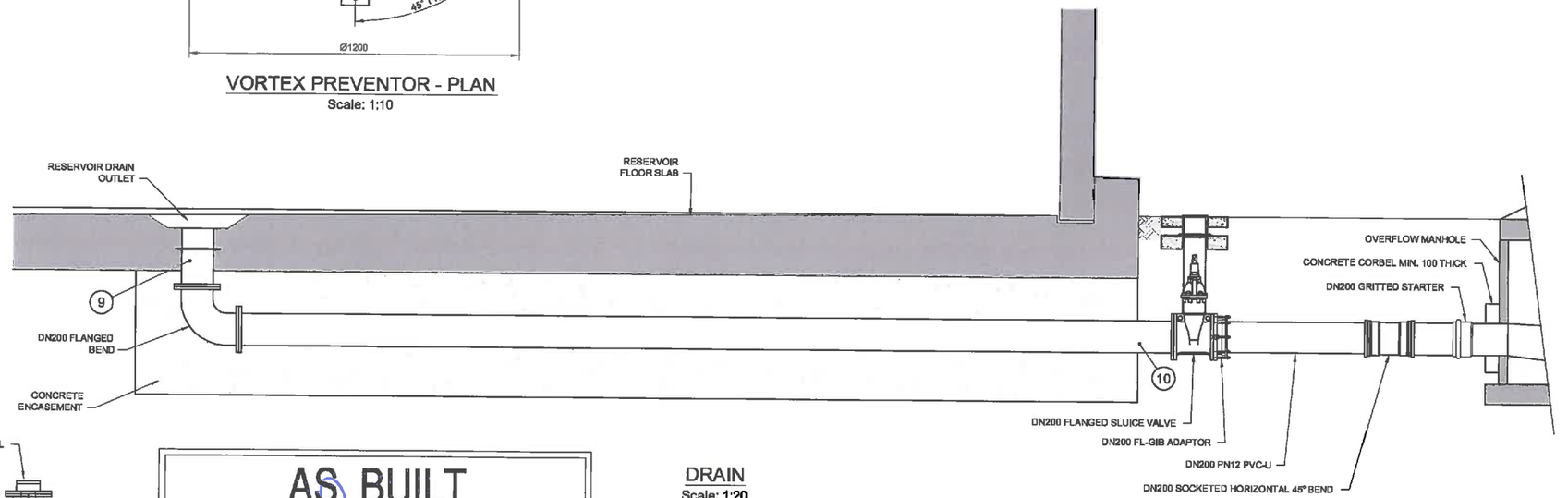

DRAIN
Scale: 1:20

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Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB		05/14

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Project No. 3C1004.51
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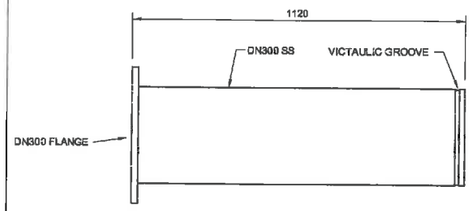
Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: RESERVOIR
PIPE CONNECTION DETAILS 2

Drawing No. 6/1515/19/7605
Sheet No. 13
Revision RAB

AS BUILT



PIPE SPECIAL 35
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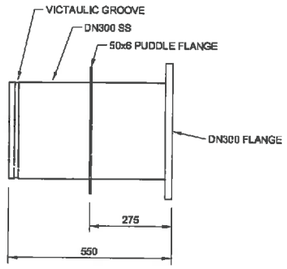

PIPE SPECIAL 3 (2 REQ'D)
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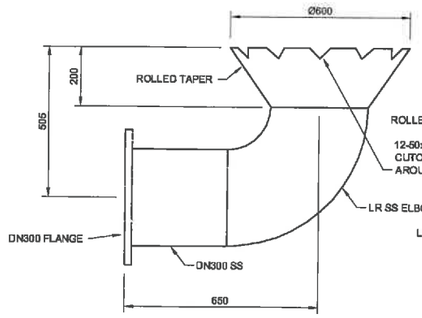

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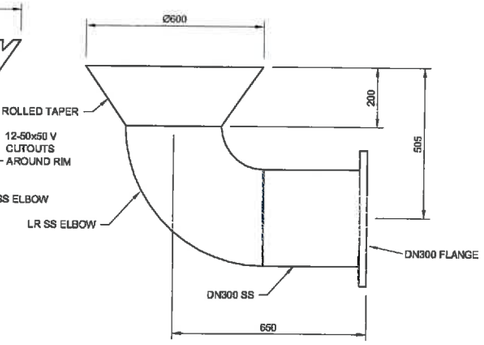

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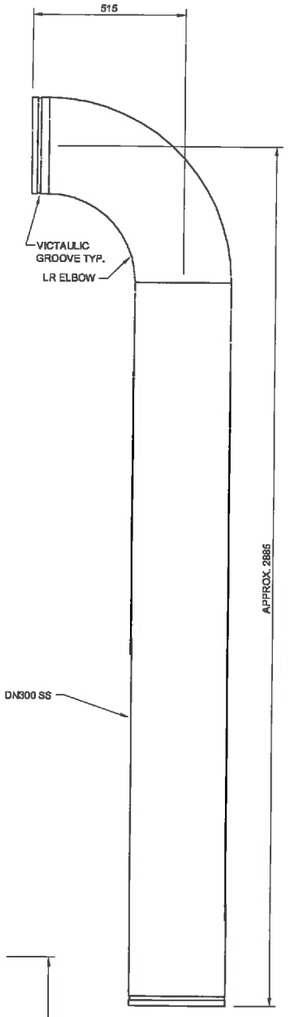

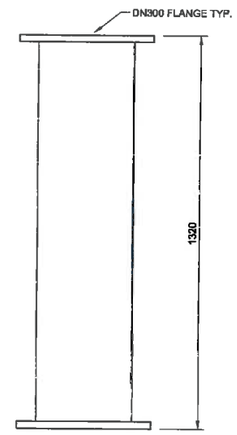

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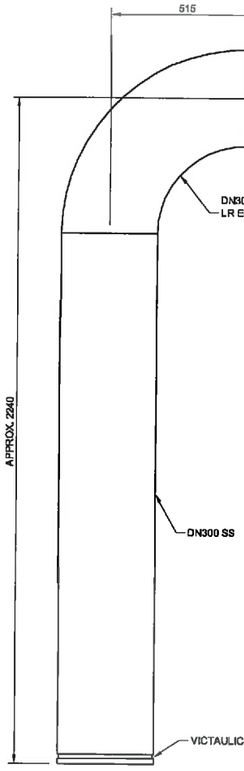

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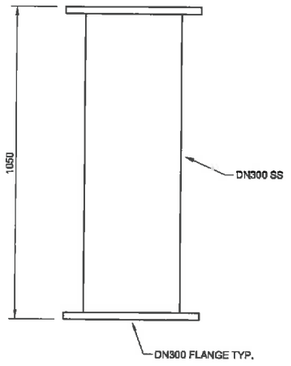

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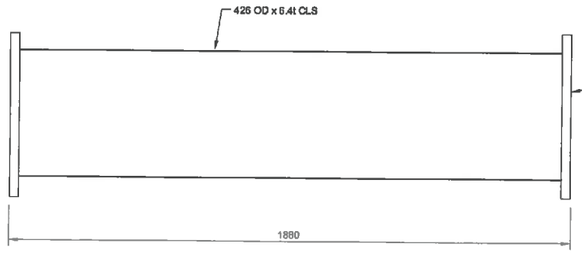

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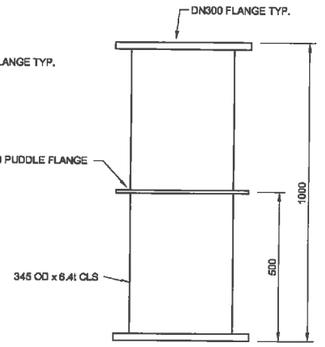

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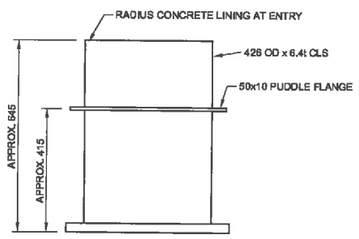

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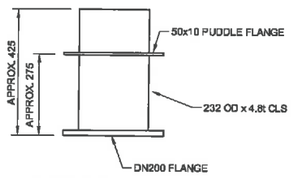

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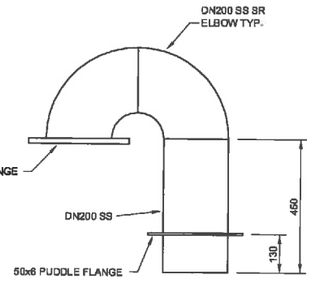

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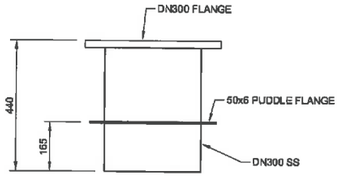

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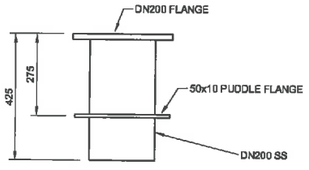

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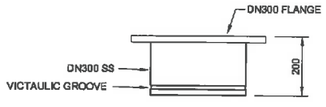

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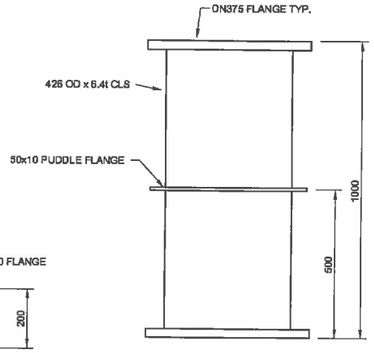

PIPE SPECIAL 25
Scale: 1:10

PIPE SPECIAL 10
Scale: 1:10

PIPE SPECIAL 6
Scale: 1:10

NOTES:

1. ALL QUANTITIES 1 UNLESS OTHERWISE STATED
2. ALL CLS (CONCRETE LINED STEEL) PIPE TO NZS 4442
3. CLS PIPE TO BE TAPE WRAPPED UNLESS OTHERWISE STATED
4. ALL 'SS' PIPE TO BE SCH10S 304 STAINLESS STEEL TO ASTM A312 UNLESS OTHERWISE STATED
5. ALL FLANGES TO AS4087 MINIMUM RATING PN16
6. ALL FLANGES TO BE SEAL WELDED
7. MINIMUM WELD ROOT THICKNESS 4mm OR PIPE WALL THICKNESS
8. SS WELDS TO BE MADE WITH PIPES PURGED AND FILLED WITH INERT GAS, AND IMMEDIATELY REPASSIVATED AND POLISHED (REFER SPECIFICATION)

AS BUILT
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DATE 21/7/2014

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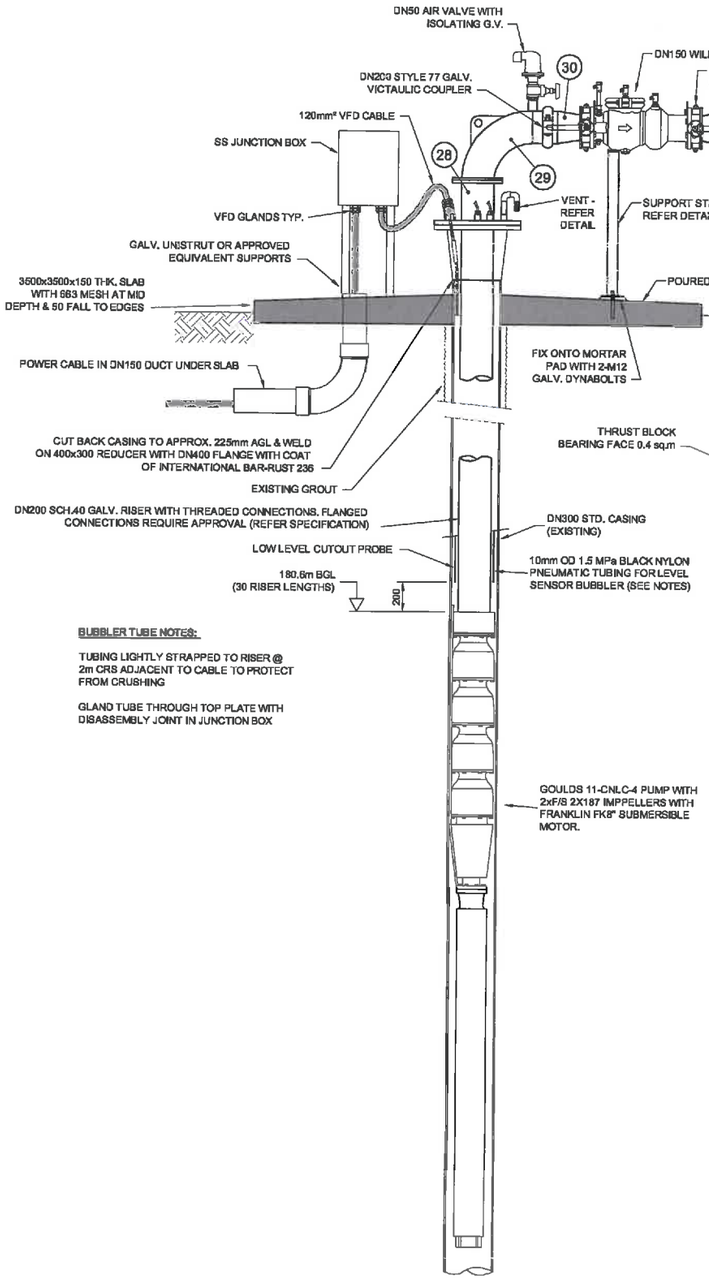
Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

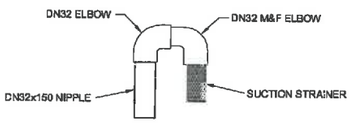
Sheet: RESERVOIR
PIPE SPECIALS

Drawing No. 6/1515/19/7605
Sheet No. 14
Revision RAB

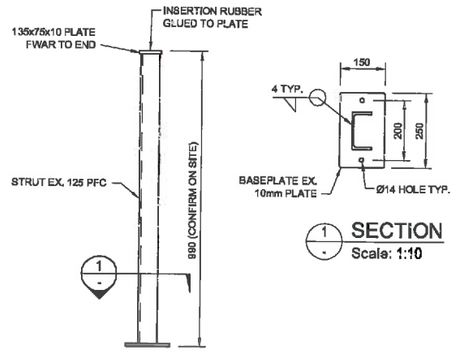
AS BUILT



BORE 2 WELLHEAD DETAILS
Scale: 1:20

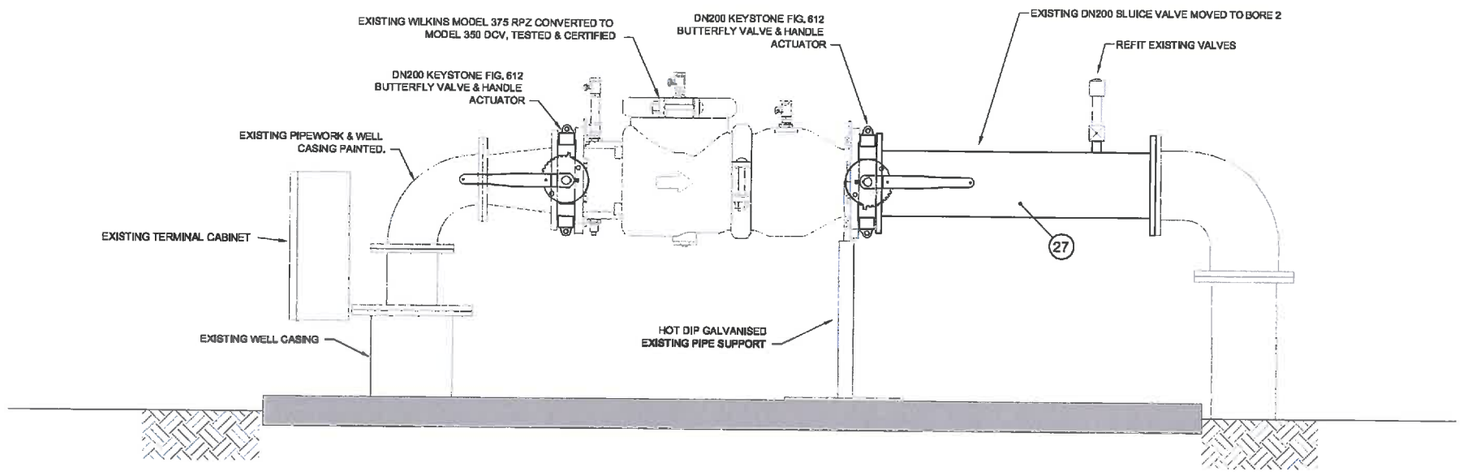


VENT DETAIL
Scale: 1:5



BORE 2 SUPPORT STRUT DETAILS
Scale: 1:10

1 SECTION
Scale: 1:10



BORE 1 WELLHEAD MODIFICATIONS
Scale: 1:10

AS BUILT

CERTIFIED BY .....
DESIGNATION Senior Utilities Consultant
DATE 2/7/2014

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	05/14

Selwyn DISTRICT COUNCIL

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Drawn	Designed	Approved	Revision Date
GB	GB		MAY 2014

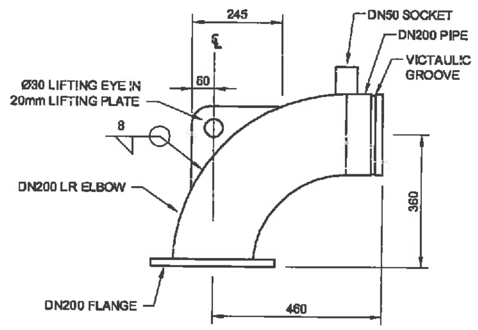
Project No. 3C1004.51
Scale: AS SHOWN (A1)

AS BUILT

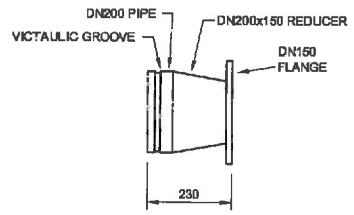
Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: BOREHEAD DETAILS

Drawing No.: 6/1515/19/7605
Sheet No.: 20
Revision: RAB



PIPE SPECIAL 29
Scale: 1:10



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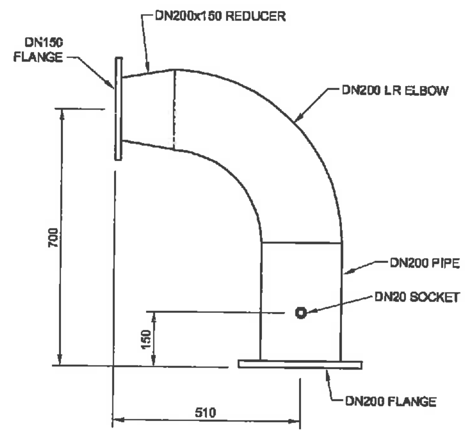
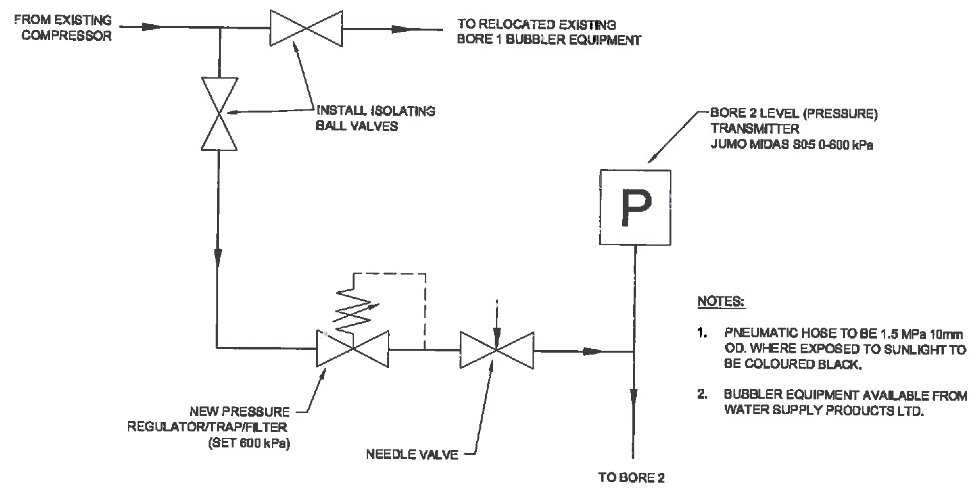
Scale: 1:10



PIPE SPECIAL 31
Scale: 1:10

NOTES:

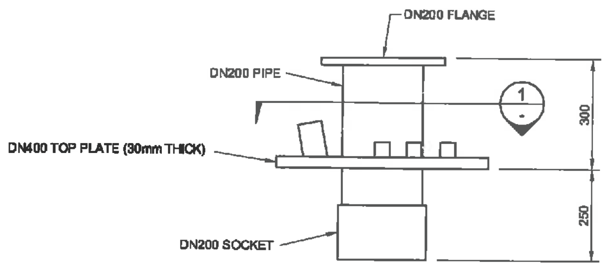
1. ALL QUANTITIES 1 UNLESS OTHERWISE STATED
2. ALL PIPE TO BE SCH40 CARBON STEEL LINEPIPE UNLESS OTHERWISE STATED
3. ALL FLANGES TO AS4087 MINIMUM RATING PN16
4. ALL FLANGES TO BE SEAL WELDED
5. MINIMUM WELD ROOT THICKNESS 4mm OR PIPE WALL THICKNESS UNLESS NOTED OTHERWISE
6. ALL PIPE SPECIALS TO BE HOT DIP GALVANISED FOLLOWING FABRICATION



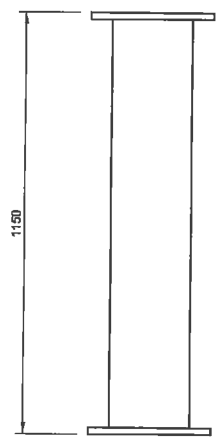
NOTES:

1. PNEUMATIC HOSE TO BE 1.5 MPa 10mm OD. WHERE EXPOSED TO SUNLIGHT TO BE COLOURED BLACK.
2. BUBBLER EQUIPMENT AVAILABLE FROM WATER SUPPLY PRODUCTS LTD.

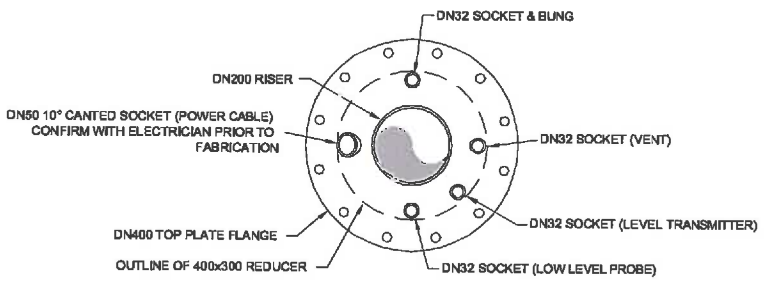
BUBBLER SYSTEM SCHEMATIC
NTS



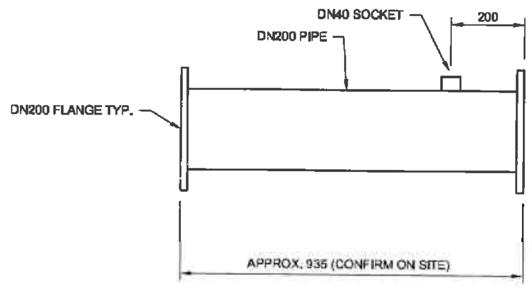
PIPE SPECIAL 28
Scale: 1:10



PIPE SPECIAL 32
Scale: 1:10



A SECTION
Scale: 1:10



PIPE SPECIAL 27
Scale: 1:10

AS BUILT
CERTIFIED BY: [signature]
DESIGNATION: Senior Utilities Consultant
DATE: 2/7/2014

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB		05/14

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AS BUILT

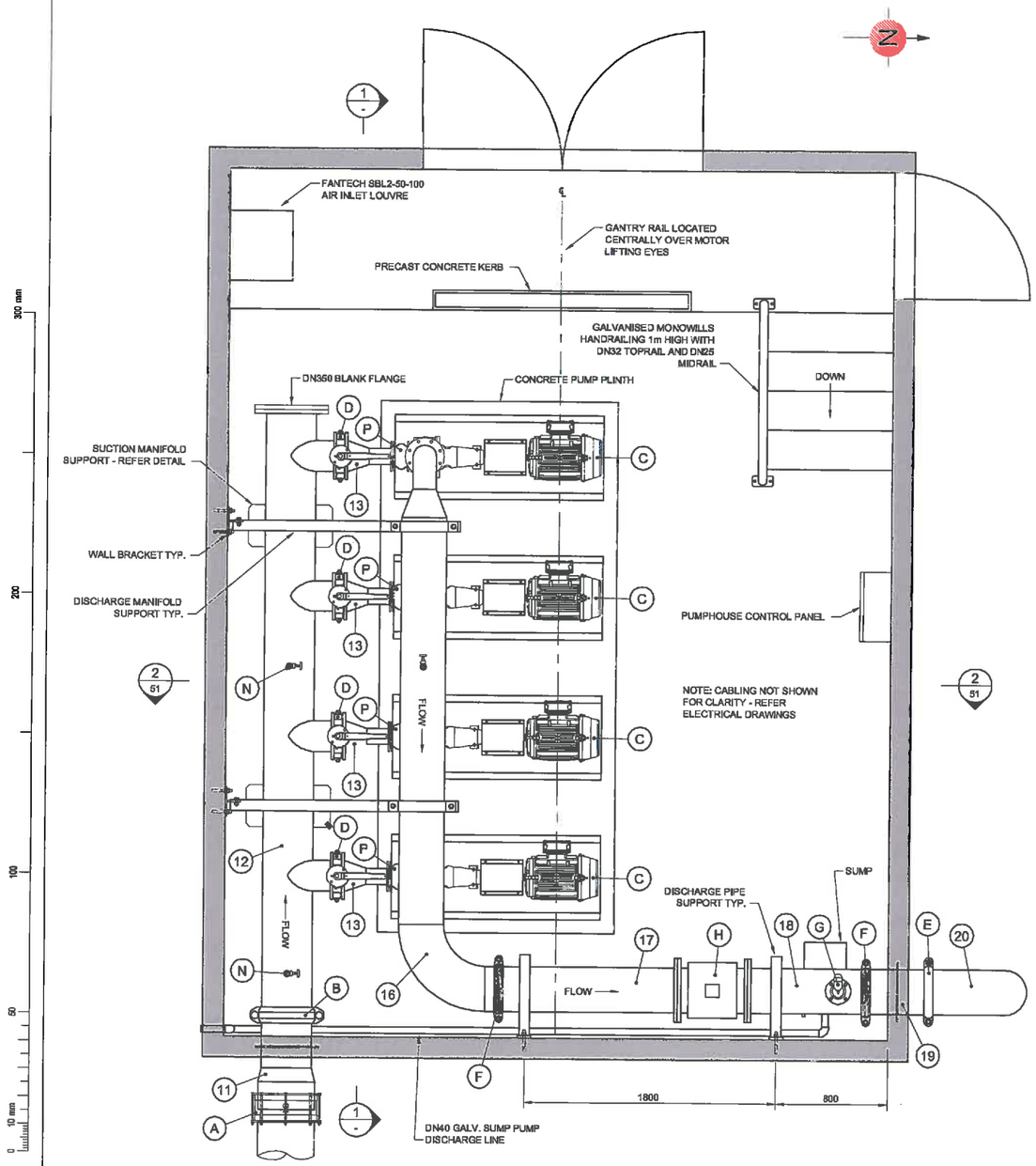
Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: BOREHEAD
PIPE SPECIALS

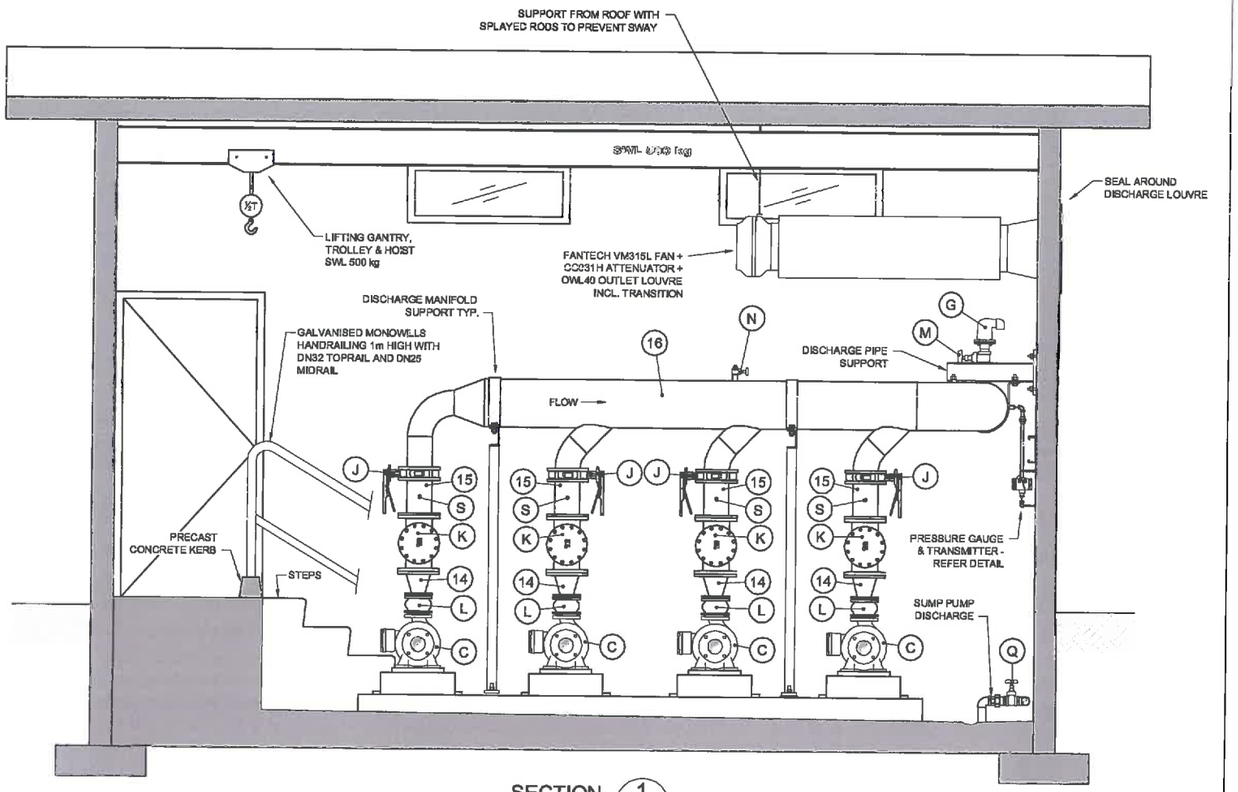
Drawn	Designed	Approved	Revision Date
GB	GB		MAY 2014

Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	AS SHOWN (A1)	6/1515/19/7605	21	RAB

Original Sheet Size A1 [841x594] Plot Date 16 Jun 2014 @ 8:59 a.m. Path O:\enviro_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\SH73 Headworks AS-BUILT.dwg 21



PUMPHOUSE PLAN
Scale: 1:20



SECTION 1/-
Scale: 1:20

RETIC PUMPS' PIPE & FITTINGS SCHEDULE			
ITEM	DESCRIPTION	MATERIAL	QTY.
A	DN375 MULTIFIT GIBAULT	SS/COATED STEEL	1
B	DN350 STYLE W77 VICTAULIC COUPLER	GALV.	1
C	100x80-160 RETICULATION PUMP WITH 18.5 kW WEG W22 MOTOR	N/A	4
D	DN200 KEYSTONE FIG. 612 BFV & LEVER ACTUATOR	DI/SS/EPDM	4
E	DN300 STYLE 77 VICTAULIC COUPLER	DI/SS/EPDM	2
F	DN300 STYLE 07 (RIGID) COOUPLER	DI/SS/EPDM	2
G	DN50 ARI D-040-C AIR VALVE	CI/EPOXY	1
H	DN300 KROHNE OPTIFLUX 2000 FLOWMETER	N/A	1
J	DN150 KEYSTONE FIG. 612 BFV WITH LEVER ACTUATOR	DI/SS/EPDM	4
K	DN150 VALMATIC SURGEBUSTER CHECK VALVE WITH INDICATOR & LIMIT SWITCH	CI/EPOXY	4
L	DN80 TYCO FSF BELLOWS	EPDM/GALV.	4
M	DN50 GATE VALVE	BRZ./DR BRASS	1
N	DN25 GATE VALVE & PLUG	BRZ./DR BRASS	4
P	DN100 TYCO FSF BELLOWS	EPDM/GALV.	4
Q	DN40 GATE VALVE	BRZ./DR BRASS	1
R	DN80 FLANGE DRILLED DN50 BSP & NIPPLE	SS	1
S	DN15 M&F BALL VALVE	SS	4
T	LOWARA DOC7 SUMP PUMP WITH FLOAT	SS	1
U	DN32x40 REDUCER & DN40 CHECK VALVE	BRZ./DR BRASS	1

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CERTIFIED BY: [signature]
DESIGNATION: Senior Utilities Consultant
DATE: 3/7/2014

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	09/14

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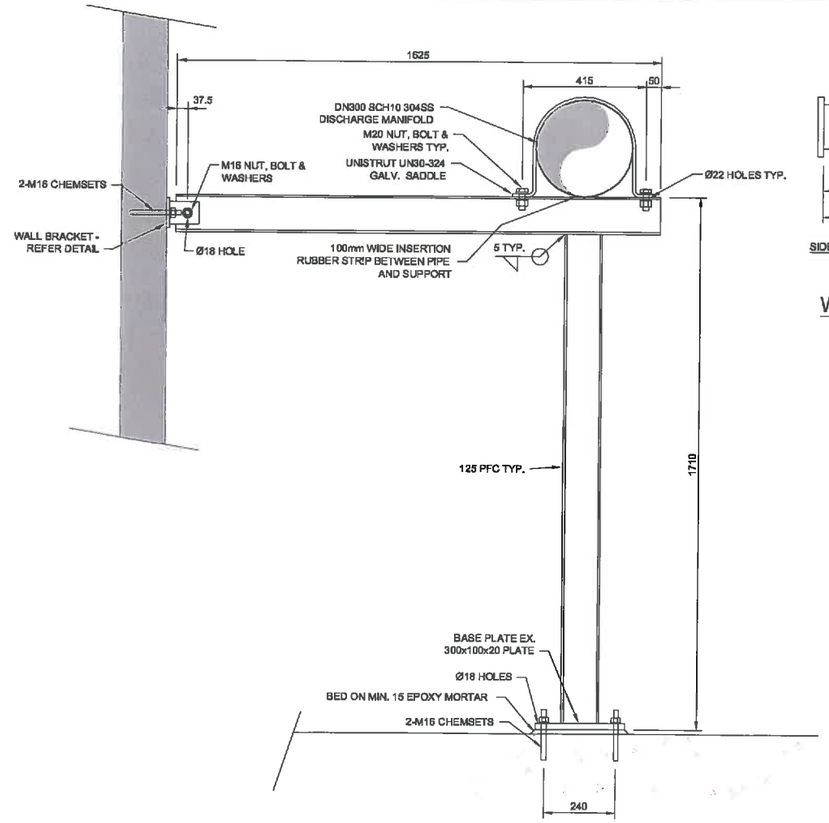
Drawn	Designed	Approved	Revision Date
GB	GB		MAY 2014

Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	AS SHOWN (A1)	6/1515/19/7605	50	RAB

Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: PUMPHOUSE
MECHANICAL DETAILS 1

Original Sheet Size A1 [841x594] Plot Date 16 Jun 2014 @ 8:59 a.m. Path O:\envlib_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\SH73 Headworks AS-BUILT.dwg 50

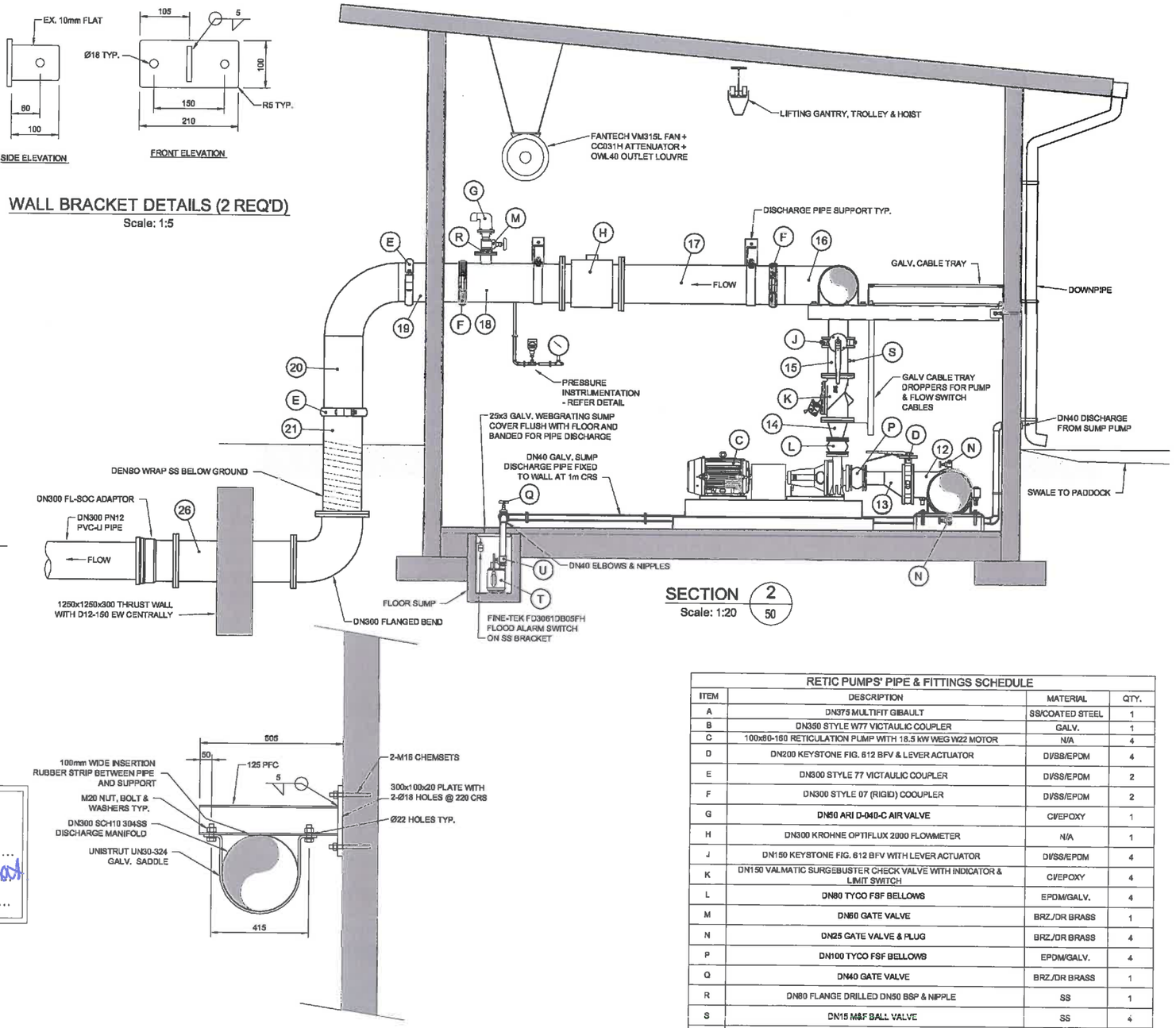


DISCHARGE MANIFOLD SUPPORT DETAIL (2 REQ'D)

Scale: 1:10

WALL BRACKET DETAILS (2 REQ'D)

Scale: 1:5



SECTION 2/50

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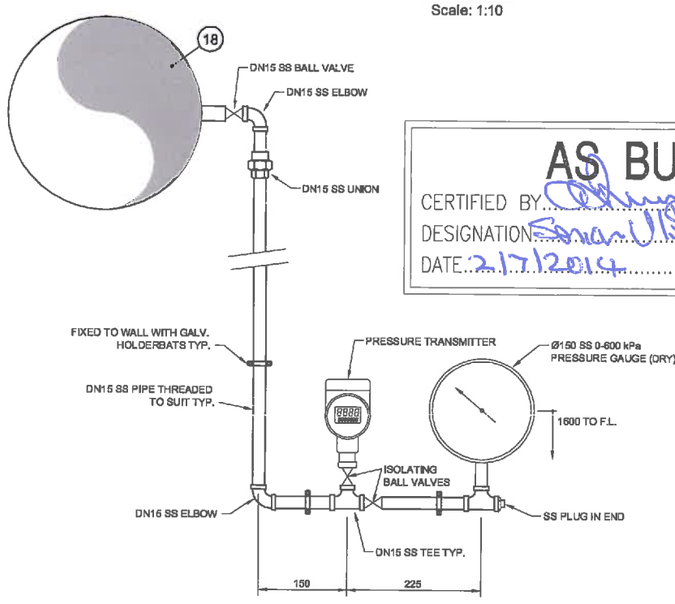

PRESSURE INSTRUMENTATION DETAIL

Scale: 1:5

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DESIGNATION Senior Office Consultant

DATE 2/7/2014

DISCHARGE PIPE SUPPORT DETAIL (2 REQ'D)

Scale: 1:10

RETIC PUMPS' PIPE & FITTINGS SCHEDULE

ITEM	DESCRIPTION	MATERIAL	QTY.
A	DN375 MULTIFIT GIBAULT	SS/COATED STEEL	1
B	DN350 STYLE W77 VICTAULIC COUPLER	GALV.	1
C	100x80-160 RETICULATION PUMP WITH 18.5 kW WEG W22 MOTOR	N/A	4
D	DN200 KEYSTONE FIG. 612 BFV & LEVER ACTUATOR	DI/SS/EPDM	4
E	DN300 STYLE 77 VICTAULIC COUPLER	DI/SS/EPDM	2
F	DN300 STYLE 07 (RIGID) COUPLER	DI/SS/EPDM	2
G	DN50 ARI D-040-C AIR VALVE	CI/EPOXY	1
H	DN300 KROHNE OPTIFLUX 2000 FLOWMETER	N/A	1
J	DN150 KEYSTONE FIG. 612 BFV WITH LEVER ACTUATOR	DI/SS/EPDM	4
K	DN150 VALMATIC SURGEBUSTER CHECK VALVE WITH INDICATOR & LIMIT SWITCH	CI/EPOXY	4
L	DN80 TYCO FSF BELLOWS	EPDM/GALV.	4
M	DN50 GATE VALVE	BRZ./DR BRASS	1
N	DN25 GATE VALVE & PLUG	BRZ./DR BRASS	4
P	DN100 TYCO FSF BELLOWS	EPDM/GALV.	4
Q	DN40 GATE VALVE	BRZ./DR BRASS	1
R	DN80 FLANGE DRILLED DN50 BSP & NIPPLE	SS	1
S	DN15 M&F BALL VALVE	SS	4
T	LOWARA DOC7 SUMP PUMP WITH FLOAT	SS	1
U	DN32x40 REDUCER & DN40 CHECK VALVE	BRZ./DR BRASS	1

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB		05/14

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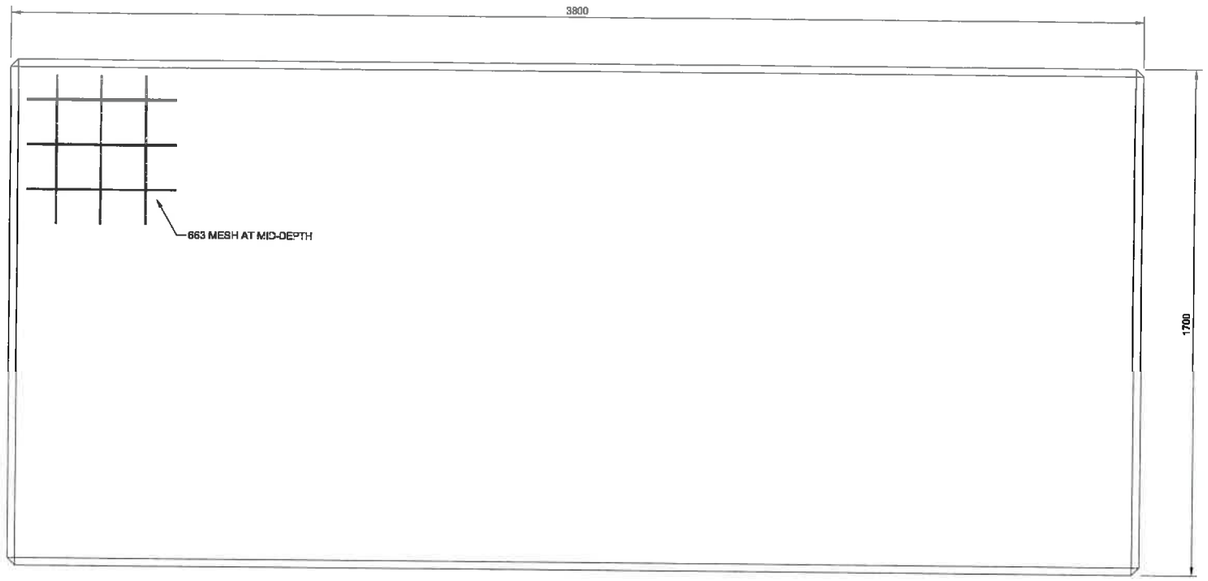
Selwyn DISTRICT COUNCIL

Drawn	Designed	Approved	Revision Date
GB	GB		MAY 2014

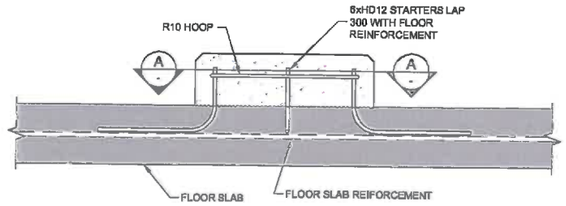
Project: SELWYN DISTRICT COUNCIL DARFIELD WATER SUPPLY UPGRADE CONTRACT 1133

Sheet: PUMPHOUSE MECHANICAL DETAILS 2

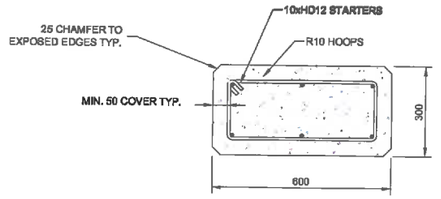
Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	AS SHOWN (A1)	6/1515/19/7605	51	RAB



PUMP PLINTH PLAN
Scale: 1:10



SUCTION PIPE PLINTH REINFORCING
Scale: 1:10



A SECTION
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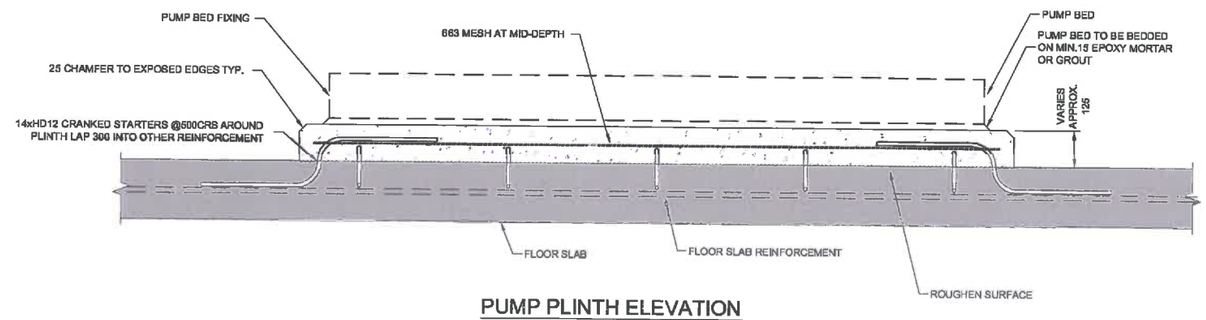
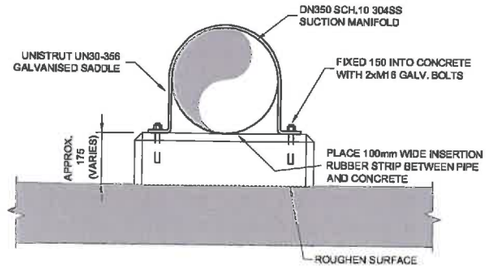
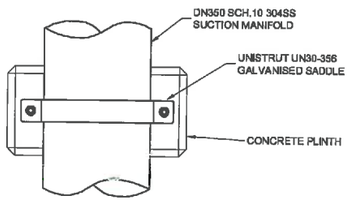


PUMP PLINTH ELEVATION
Scale: 1:10



SUCTION PIPE PLINTH
FRONT ELEVATION



SUCTION PIPE PLINTH PLAN
Scale: 1:10

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CERTIFIED BY.....
DESIGNATION Senior Civil Engineering Consultant
DATE 2/12/2014

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB		05/14

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Drawn	Designed	Approved	Revision Date
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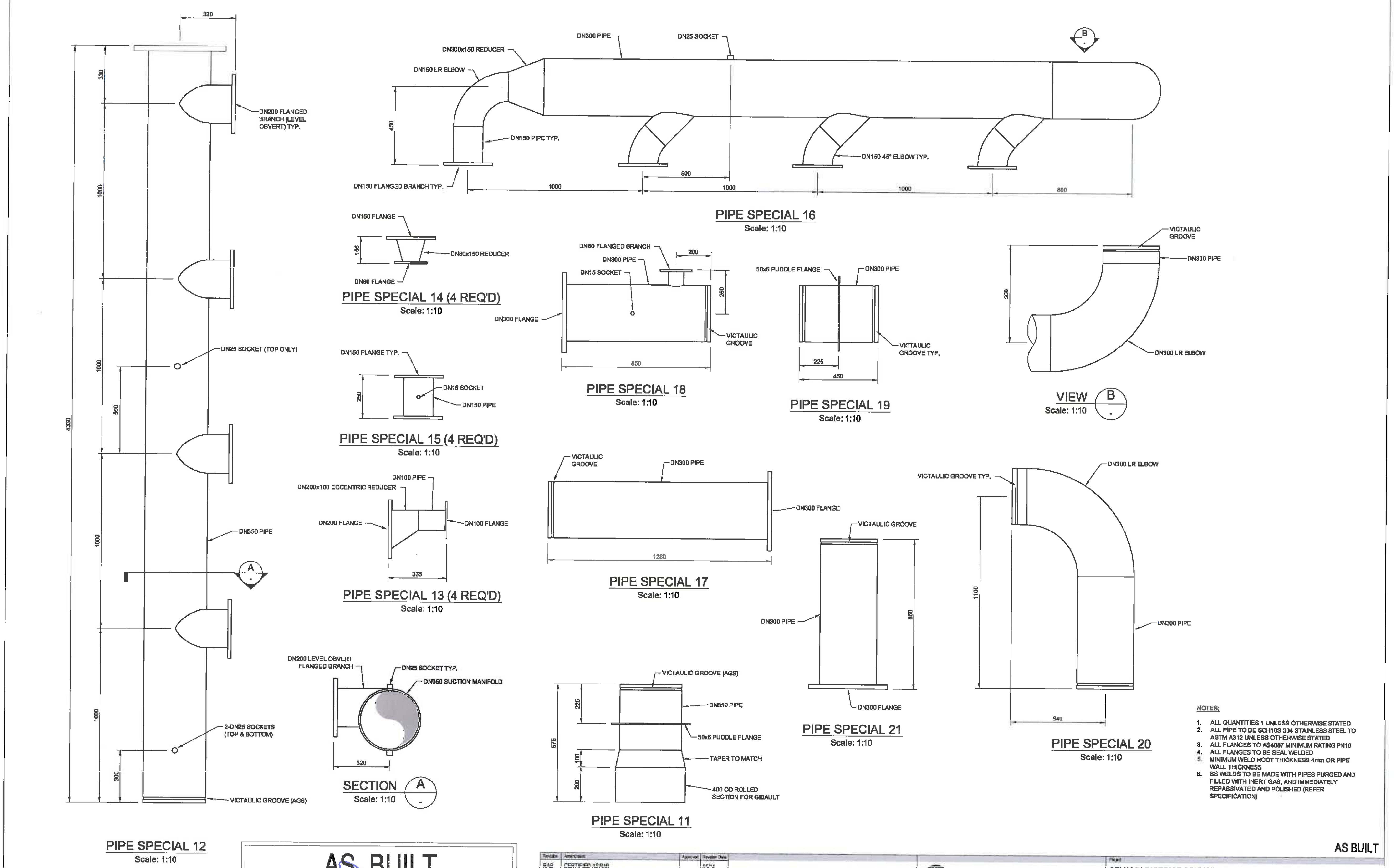
Project No. 3C1004.51
Scale AS SHOWN (A1)

Project
SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet
PUMPHOUSE
PLINTH DETAILS

Drawing No. 6/1515/19/7605
Sheet No. 52
Revision RAB



NOTES:

1. ALL QUANTITIES 1 UNLESS OTHERWISE STATED
2. ALL PIPE TO BE SCH10S 304 STAINLESS STEEL TO ASTM A312 UNLESS OTHERWISE STATED
3. ALL FLANGES TO AS4087 MINIMUM RATING PN16
4. ALL FLANGES TO BE SEAL WELDED
5. MINIMUM WELD ROOT THICKNESS 4mm OR PIPE WALL THICKNESS
6. SS WELDS TO BE MADE WITH PIPES PURGED AND FILLED WITH INERT GAS, AND IMMEDIATELY REPASSIVATED AND POLISHED (REFER SPECIFICATION)

AS BUILT

AS BUILT

CERTIFIED BY [signature]

DESIGNATION Senior Utilities Consultant

DATE 21/7/2014

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB		05/14

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Drawn	Designed	Approved	Revision Date
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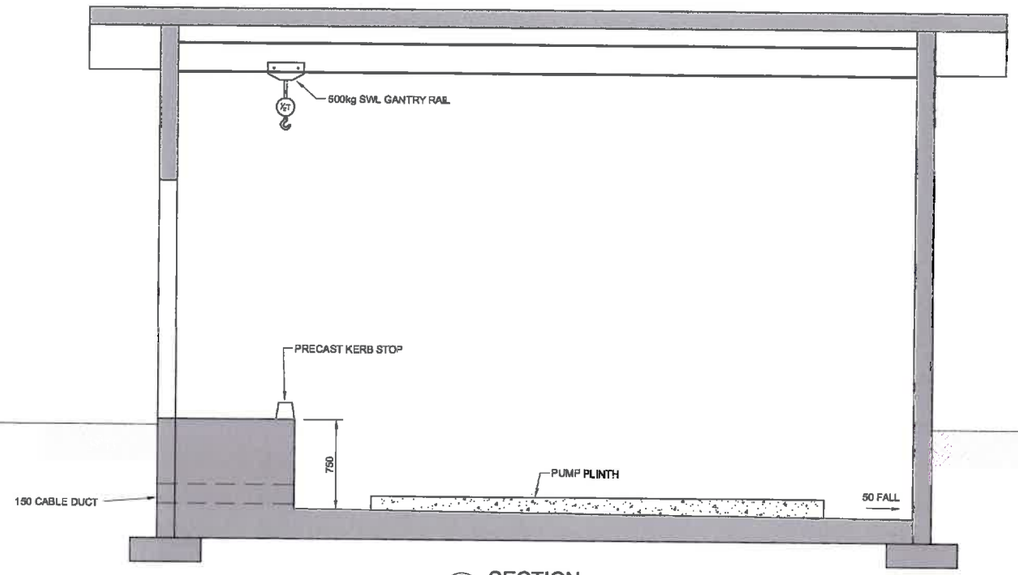
Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: PUMP STATION
PIPE SPECIALS

Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	AS SHOWN (A1)	6/1515/19/7605	53	RAB



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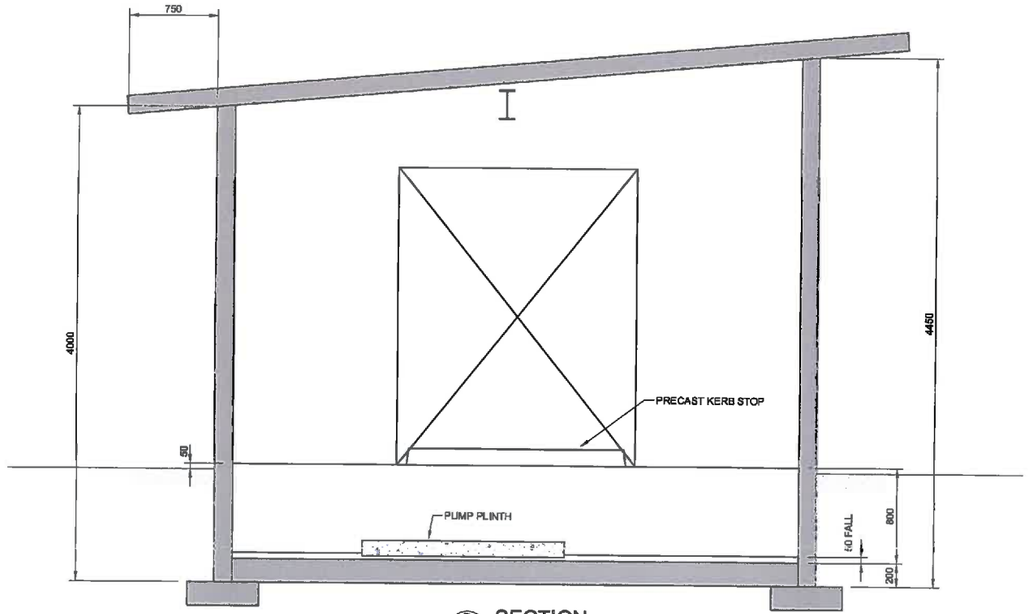

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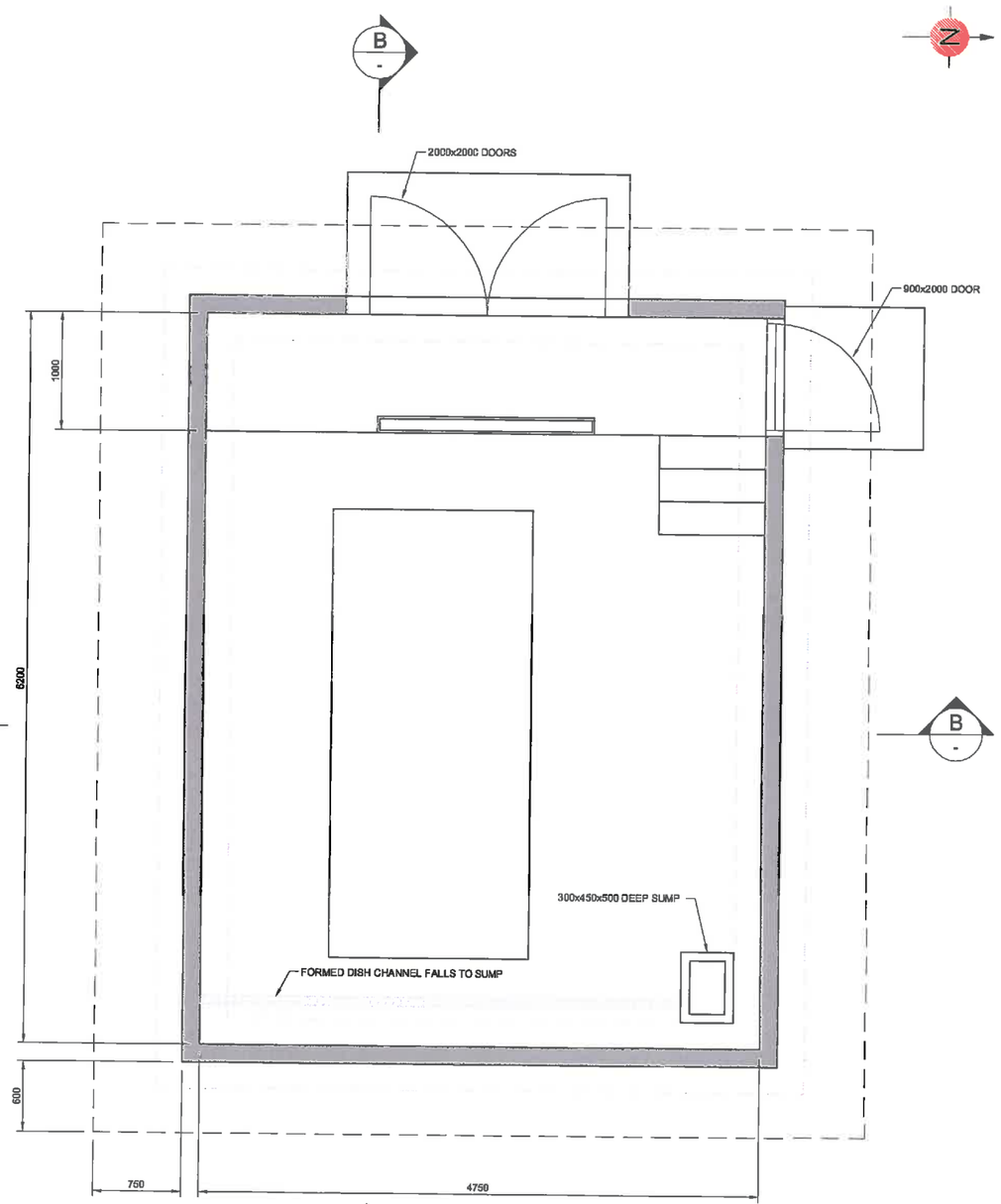

B PLAN
Scale: 1:25

AS BUILT
CERTIFIED BY
DESIGNATION Senior Civil Engineer
DATE 21/7/2014

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB		05/14

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Drawn	Designed	Approved	Revision Date
GB	GB		MAY 2014

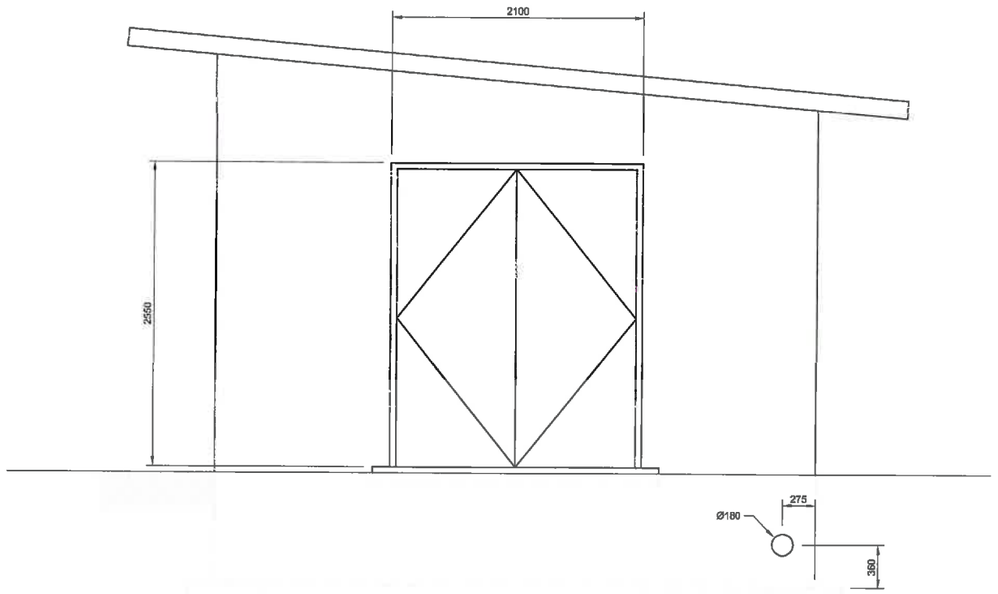
Project
SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet
PUMPHOUSE
INDICATIVE LAYOUT

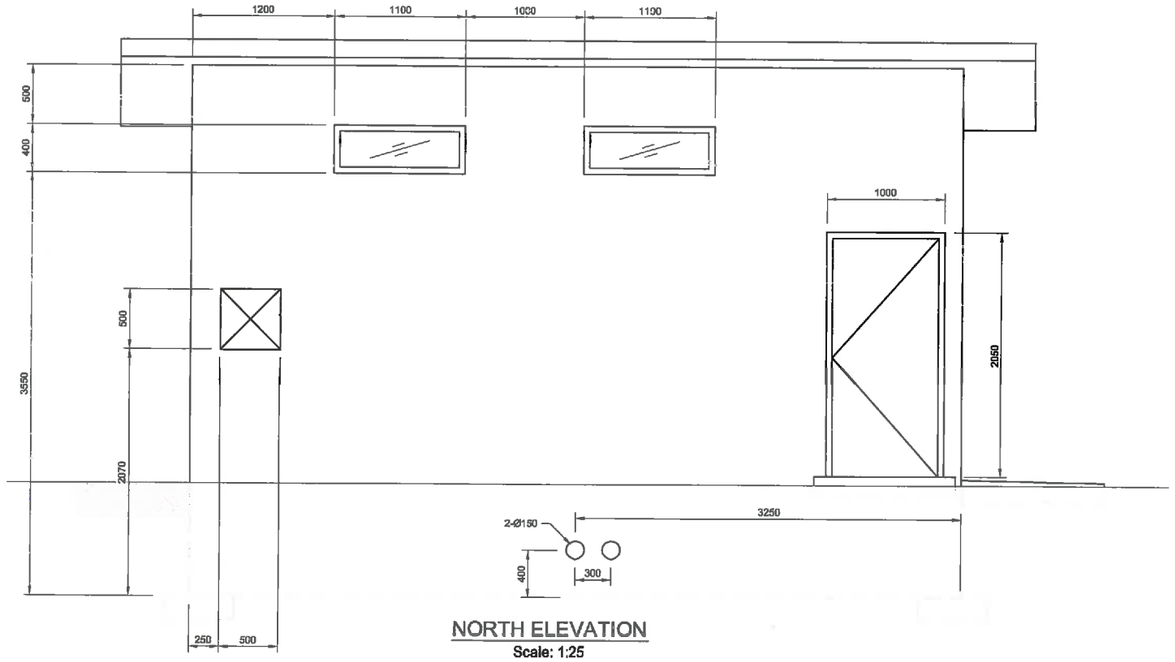
Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	AS SHOWN (A1)	6/1515/19/7605	101	RAB

AS BUILT

Original Sheet Size A1 [841x594] Plot Date 16 Jun 2014 @ 8:59 a.m. Path O:\envWa_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\SH73 Headworks AS-BUILT.dwg 101



WEST ELEVATION
Scale: 1:25



NORTH ELEVATION
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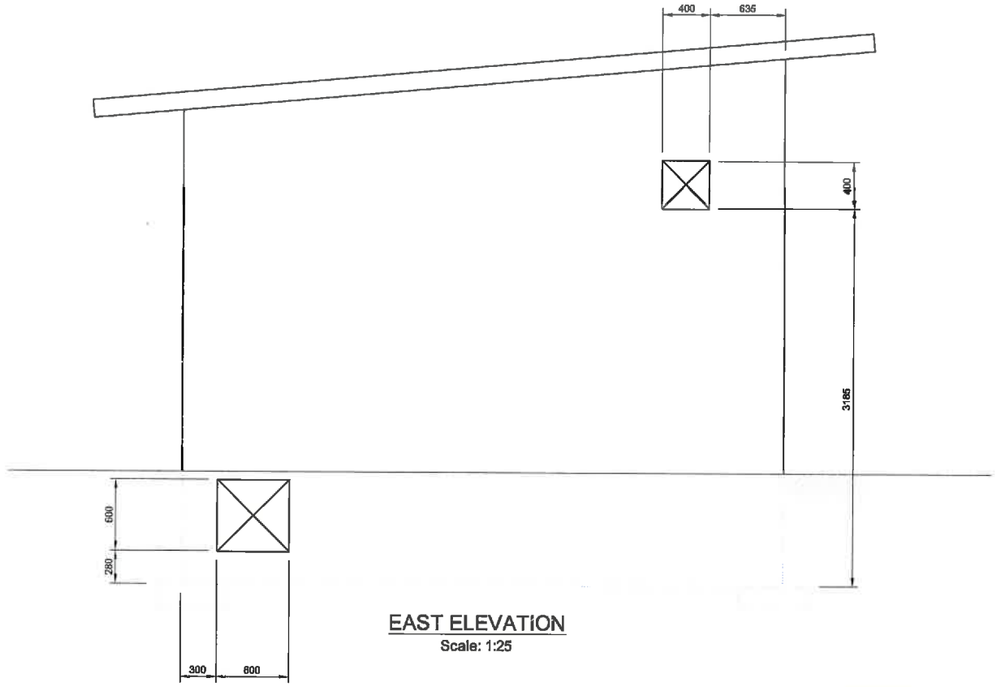

EAST ELEVATION
Scale: 1:25

SOUTH ELEVATION
Scale: 1:25

AS BUILT

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CERTIFIED BY
DESIGNATION Senior Utilities Coordinator
DATE 2/12/2014

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB		05/14

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Drawn	Designed	Approved	Revision Date
GB	GB		MAY 2014

Project No: 3C1004.51
Scale: AS SHOWN (A1)

Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: PUMPHOUSE
INDICATIVE LAYOUT

Drawing No: 6/1515/19/7605
Sheet No.: 102
Revision: RAB

Original Sheet Size A1 [841x594] Plot Date 18 Jun 2014 @ 8:59 a.m. Path O:\envVis_southisselwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\SH73 Headworks AS-BUILT.dwg 102

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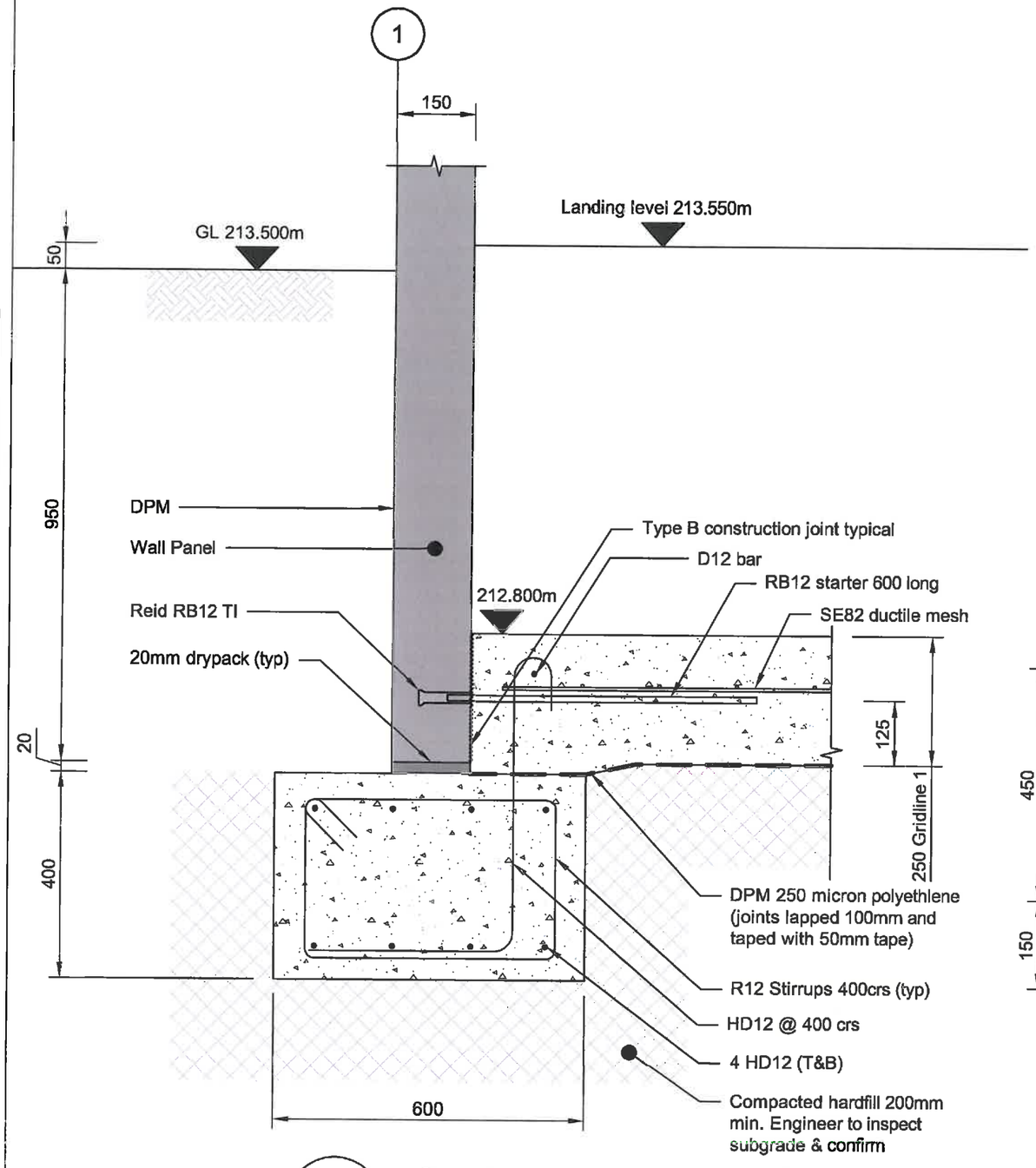
CERTIFIED BY
DESIGNATION Senior Office Consultant
DATE 2/12/2014



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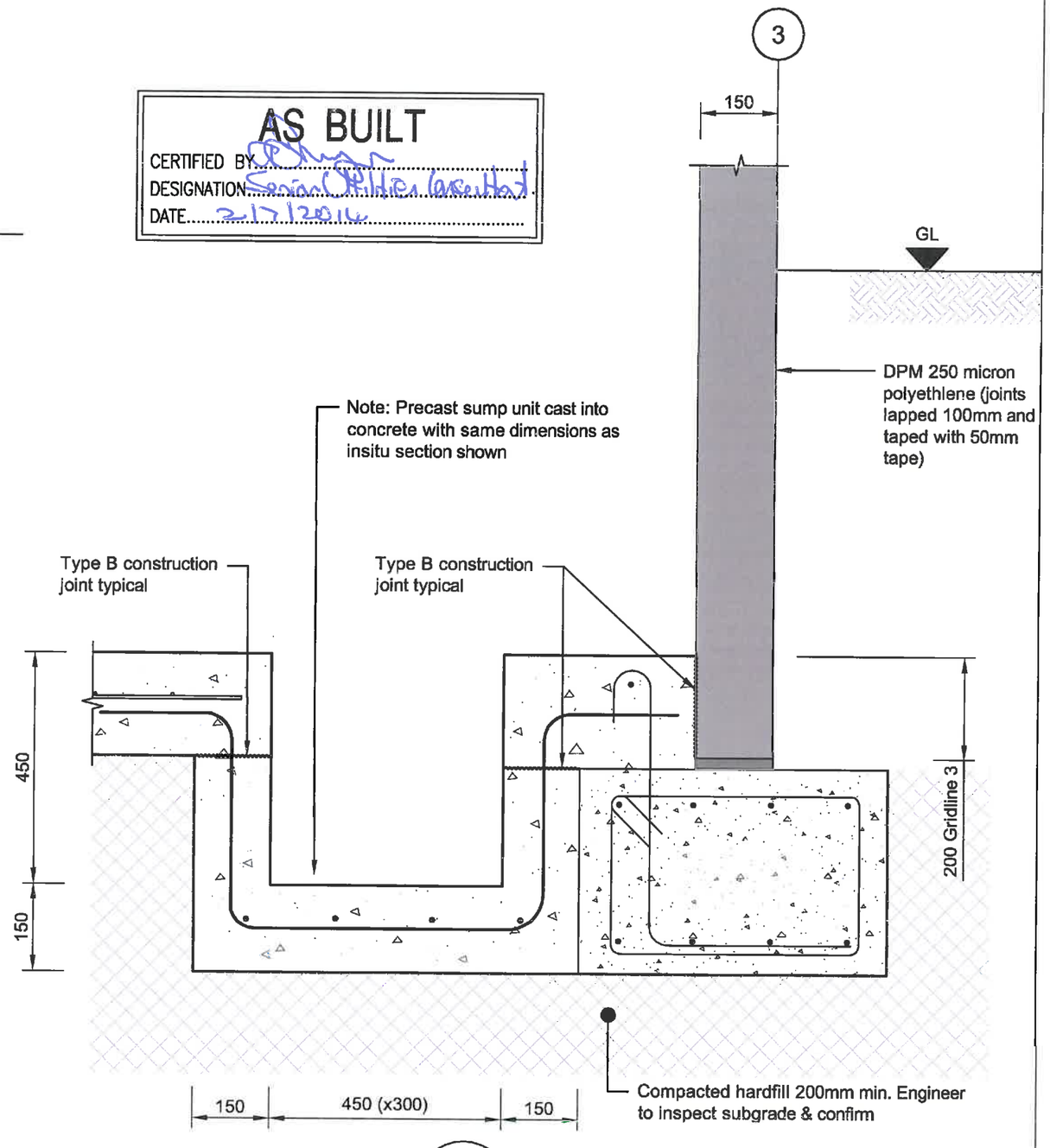

2/102 Section
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AS BUILT

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	09/14

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Drawn	Designed	Approved	Revision Date
DMF	MTM	M.T. Mitchell	24/09/2013

Project No. 3C1004.51
Scale As Shown @ A3

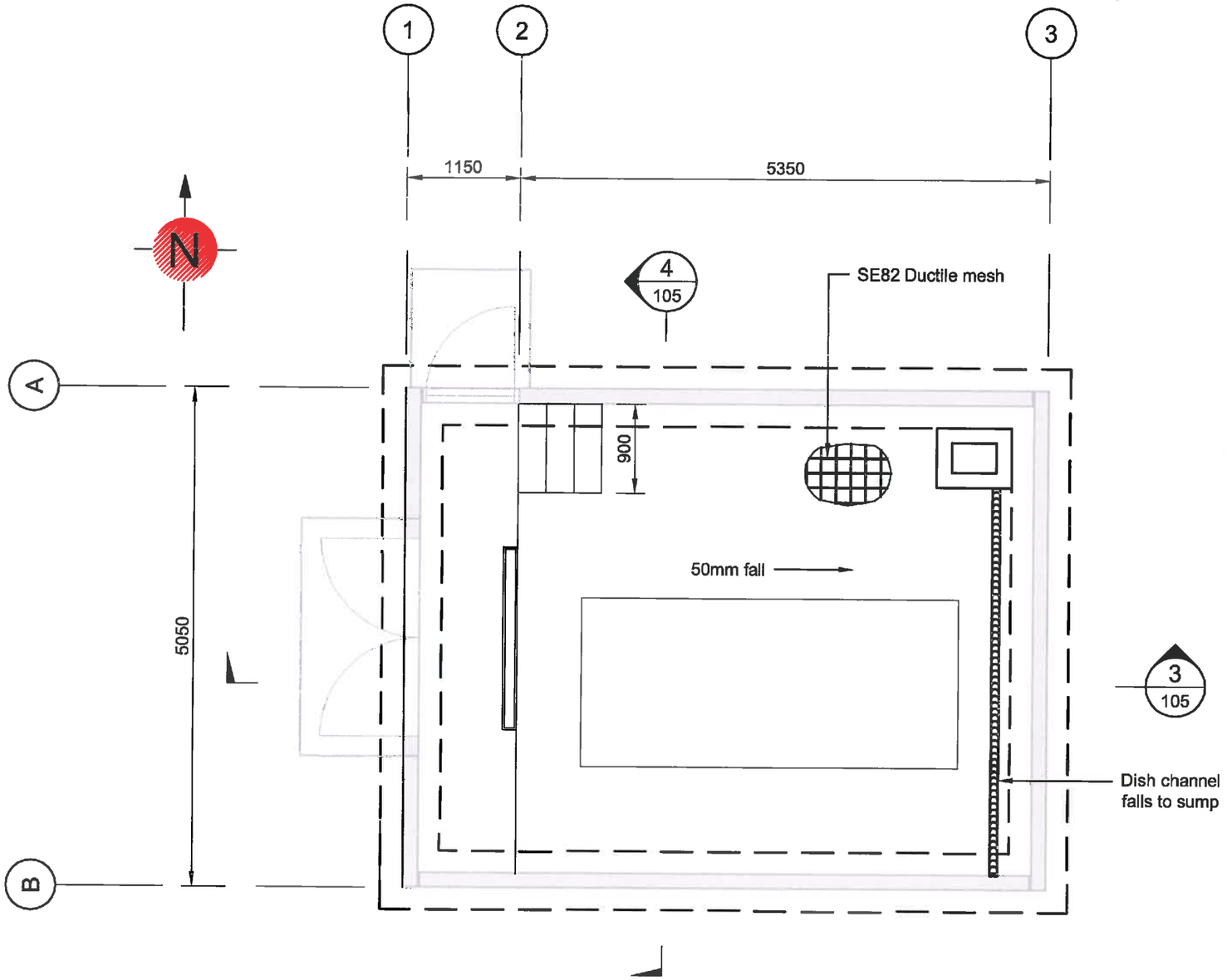
Project: Selwyn District Council
Darfield Water Supply
SH73 Headworks

Sheet: Pumphouse
Foundation Sections

Drawing No. 6/1515/19/7602
Sheet No. 103
Revision RAB

1:10 @ A3 0 100 200 300 400 mm

Original Sheet Size A3 [420x297] Plot Date 16.06.2014 @ 8:50 a.m. File Path O:\env\tle_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\Pump House (Structural) AS BUILT.dwg



Floor Slab Plan

Scale: 1:50

AS BUILT

CERTIFIED BY .....

DESIGNATION Senior Utilities Consultant

DATE 21/7/2014

1:50 @ A3 — 0 — 1 — m

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	06/14

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Drawn	Designed	Approved	Revision Date
DMF	MTM	M. T. Michel	24/09/2013

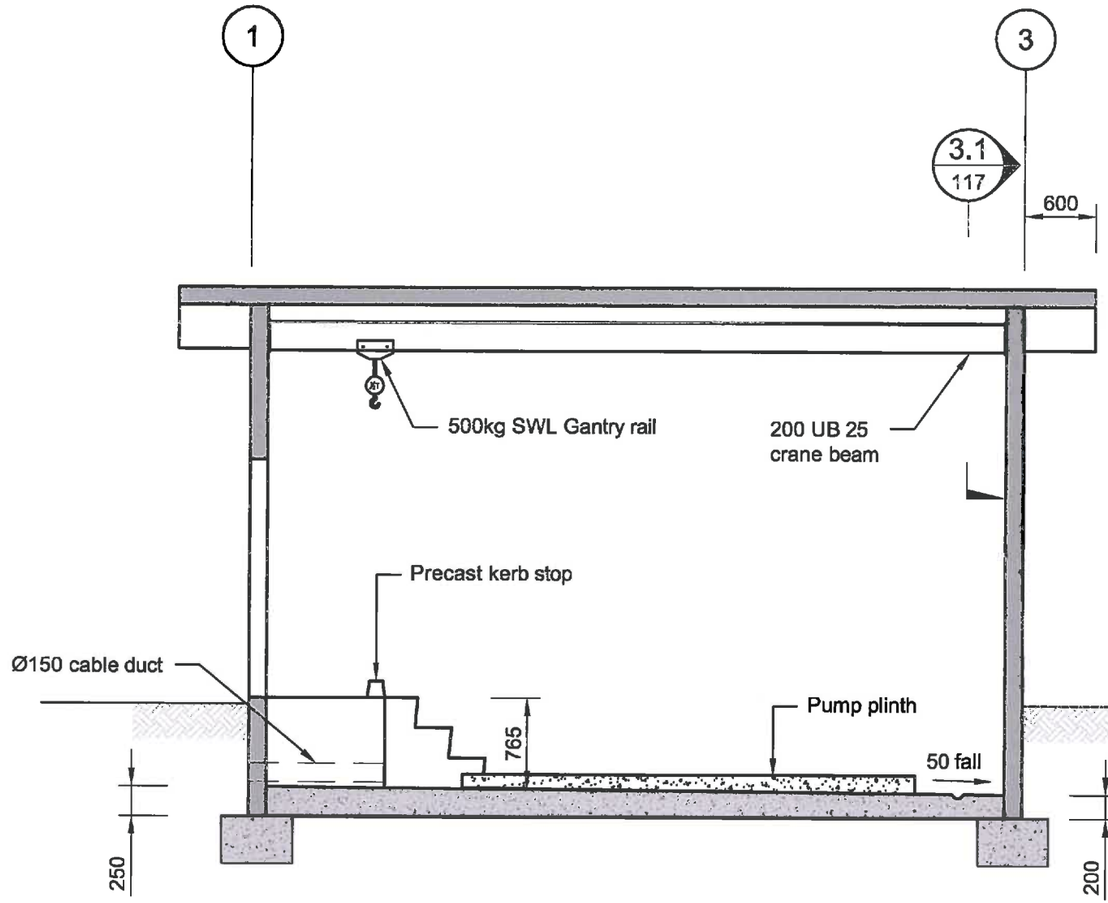
Project
Selwyn District Council
Darfield Water Supply
SH73 Headworks

Sheet
Pumphouse
Floor Slab Plan

Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	As Shown @ A3	6/1515/19/7602	104	RAB

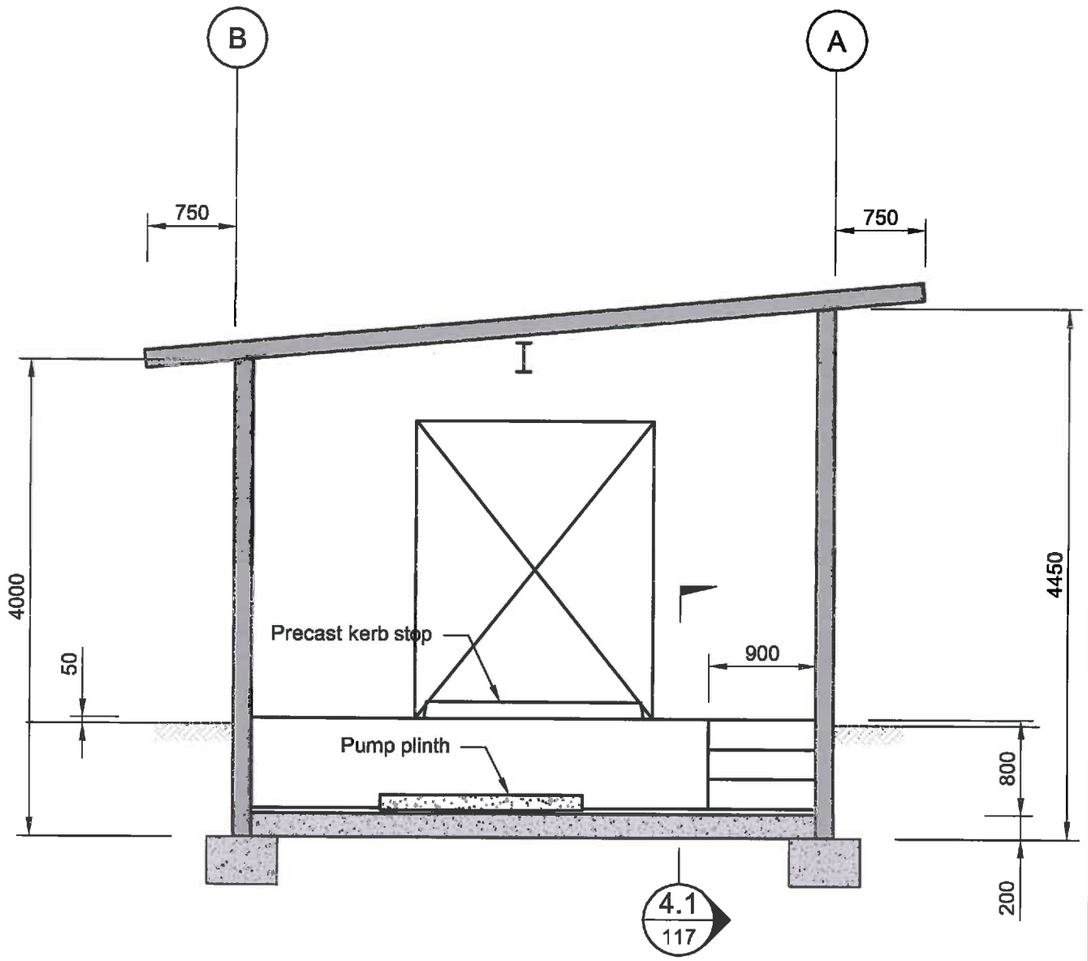
AS BUILT

Original Sheet Size A3 [420x297] Plot Date 16.09.2014 @ 8:50 a.m. File Path O:\env\lle_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\Pump House (Structural) AS BUILT.dwg



3 / 104 **Long Section**

Scale: 1:50



4 / 104 **Cross Section**

Scale: 1:50

AS BUILT

CERTIFIED BY.....

DESIGNATION.....Senior Utilities Consultant

DATE.....2/12/2014

1:50 @ A3 — 0 — 1 — m

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	05/14

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Drawn	Designed	Approved	Revision Date
DMF	MTM	M. T. Mitchell	24/09/2013

Project No: 3C1004.51

Scale: As Shown @ A3

Drawing No: 6/1515/19/7602

Sheet No: 105

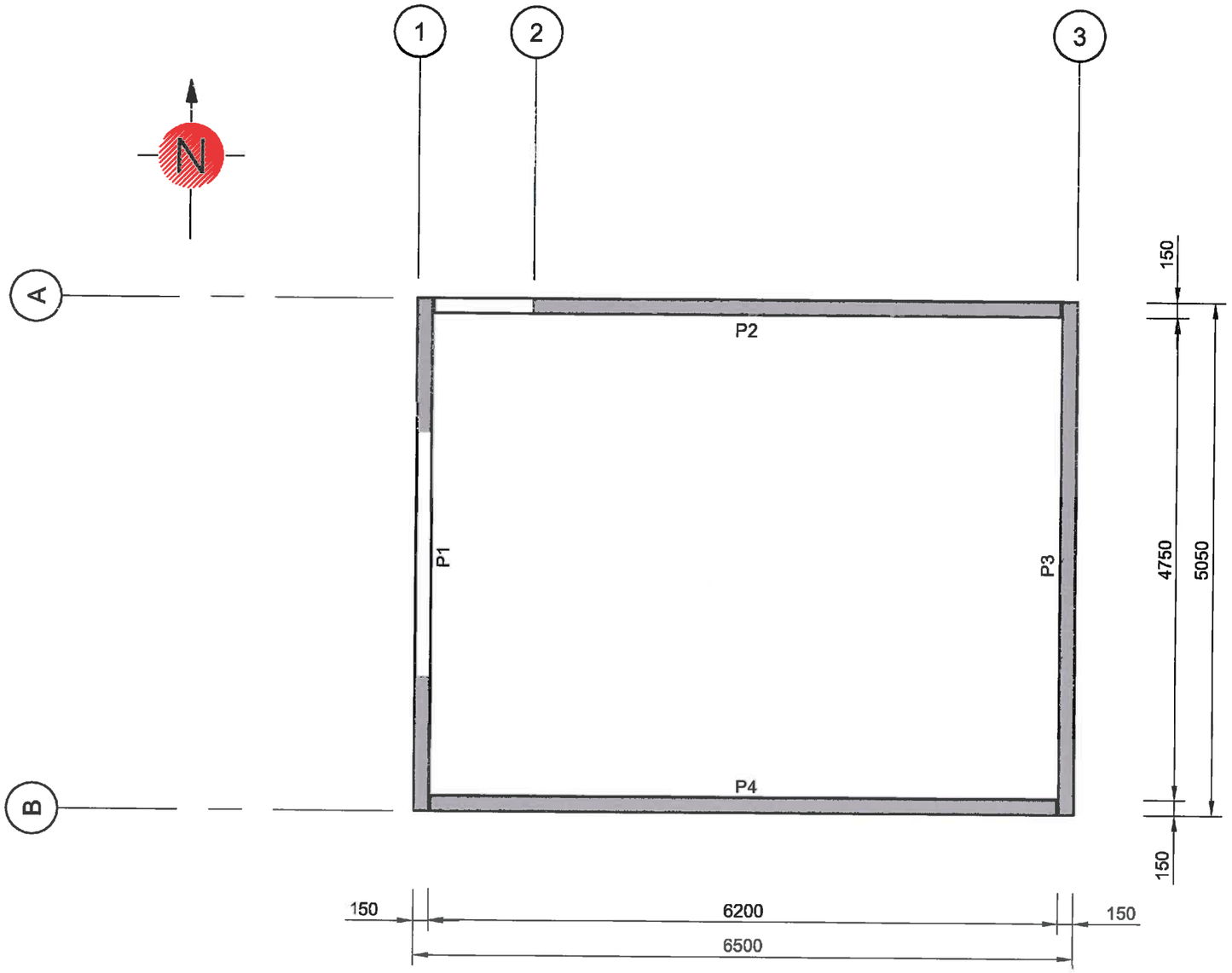
Revision: RAB

Project: Selwyn District Council
Darfield Water Supply
SH73 Headworks

Sheet: Pumphouse
Building Sections

AS BUILT

Original Sheet Size A3 [420x297] Plot Date 16.06.2014 @ 8:50 a.m. File Path O:\env\da_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\Pump House (Structural) AS BUILT.dwg



Panel Layout Plan

Scale: 1:50

AS BUILT

CERTIFIED BY .....

DESIGNATION Senior Civil Engineering Consultant

DATE 2/7/2014

1:50 @ A3 — 0 — 1 — m

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	09/14

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Drawn	Designed	Approved	Revision Date
DMF	MTM	M. T. Mitchell	24/09/2013

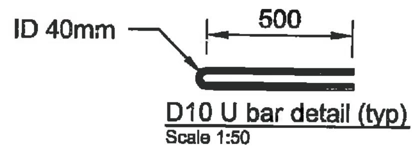
Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	As Shown @ A3	6/1515/19/7602	106	RAB

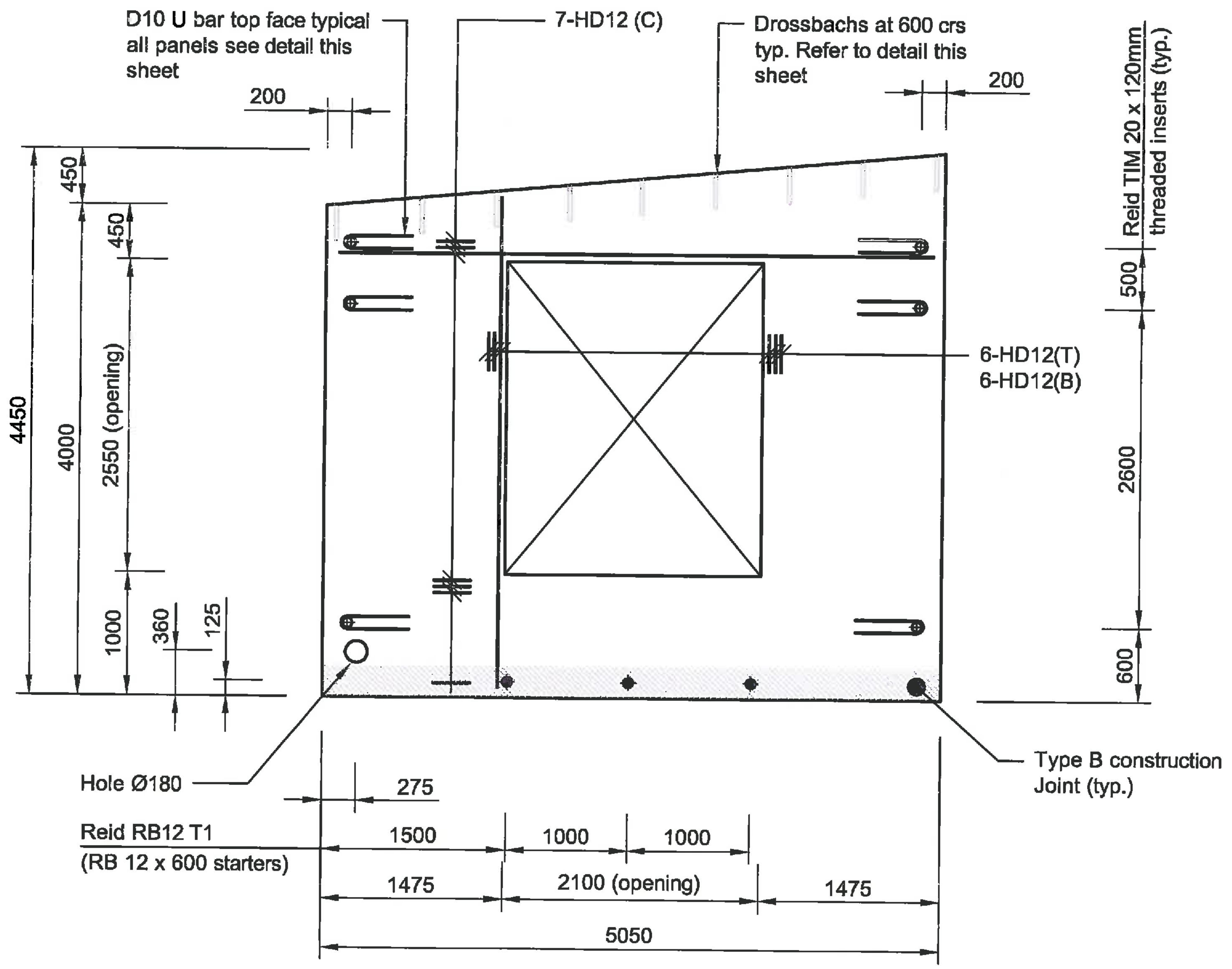
Project: Selwyn District Council
Darfield Water Supply
SH73 Headworks

Sheet: Pumphouse
Panel Layout Plan

AS BUILT

Original Sheet Size A3 [420x297] Plot Date 16.06.2014 @ 8:50 a.m. File Path O:\env\tle_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\Pump House (Structural) AS BUILT.dwg

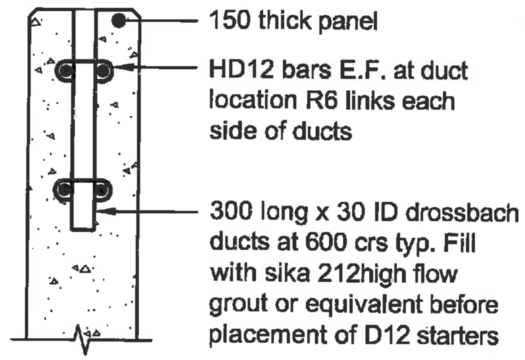




Panel P1

Scale: 1:50

Thickness: 150mm



Drossbach Detail (typ.)

Scale : 1:10

Notes:

1. All panels viewed from the interior face
2. All panels HD12 @ 200 crs EW (C) with standard 90° hooks bottom and sides
3. Lifting eyes. Reid swiftlift - to be confirmed by contractor
4. Edge anchors. Reid TIM 20 x 120 Galv
5. The contractor is responsible for the design and location of the panel lifting inserts
6. The contractor is to coordinate drossbach location with flat slab roof
7. Chamfer panel edges 10x10
8. T = 40mm top cover
9. B = 50mm bottom cover
10. C = Central

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DESIGNATION Senior Civil Consultant
DATE 2/7/2014

1:50 @ A3 0 1 m

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RAB	CERTIFIED AS RAB	GB	06/14

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DMF	MTM	M. T. Mitchell	24/09/2013

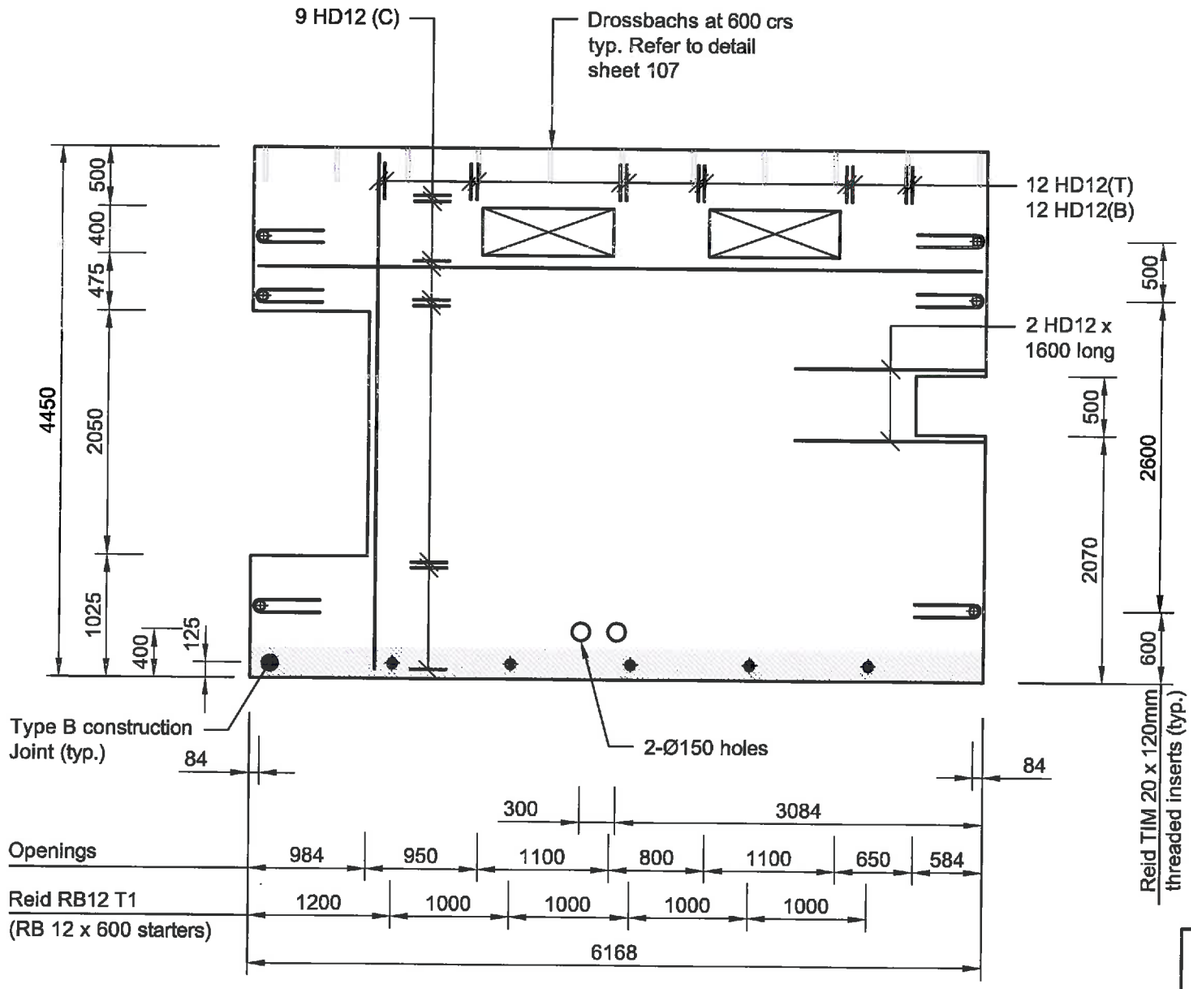
Project No. 3C1004.51
Scale: As Shown @ A3

Project: Selwyn District Council
Darfield Water Supply
SH73 Headworks

Sheet: Pumphouse
Panel P1

Drawing No. 6/1515/19/7602
Sheet No. 107
Revision RAB

Original Sheet Size A3 [420x297] Plot Date 16.06.2014 @ 8:50 a.m. File Path O:\env\tla_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\Pump House (Structural) AS BUILT.dwg



Panel P2

Scale: 1:50

Thickness: 150mm

Notes:

1. All panels viewed from the interior face
2. All panels HD12 @ 200 crs EW (C) with standard 90° hooks bottom and sides
3. Lifting eyes. Reid swiftlift - to be confirmed by contractor
4. Edge anchors. Reid TIM 20 x 120 Galv
5. The contractor is responsible for the design and location of the panel lifting inserts
6. The contractor is to coordinate drossbach location with flat slab roof
7. Chamfer panel edges 10x10
8. T = 40mm top cover
9. B = 50mm bottom cover
10. C = Central

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DESIGNATION.....

DATE.....2/7/2014

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Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	08/14

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Drawn	Designed	Approved	Revision Date
DMF	MTM	M. T. Mitchell	24/09/2013

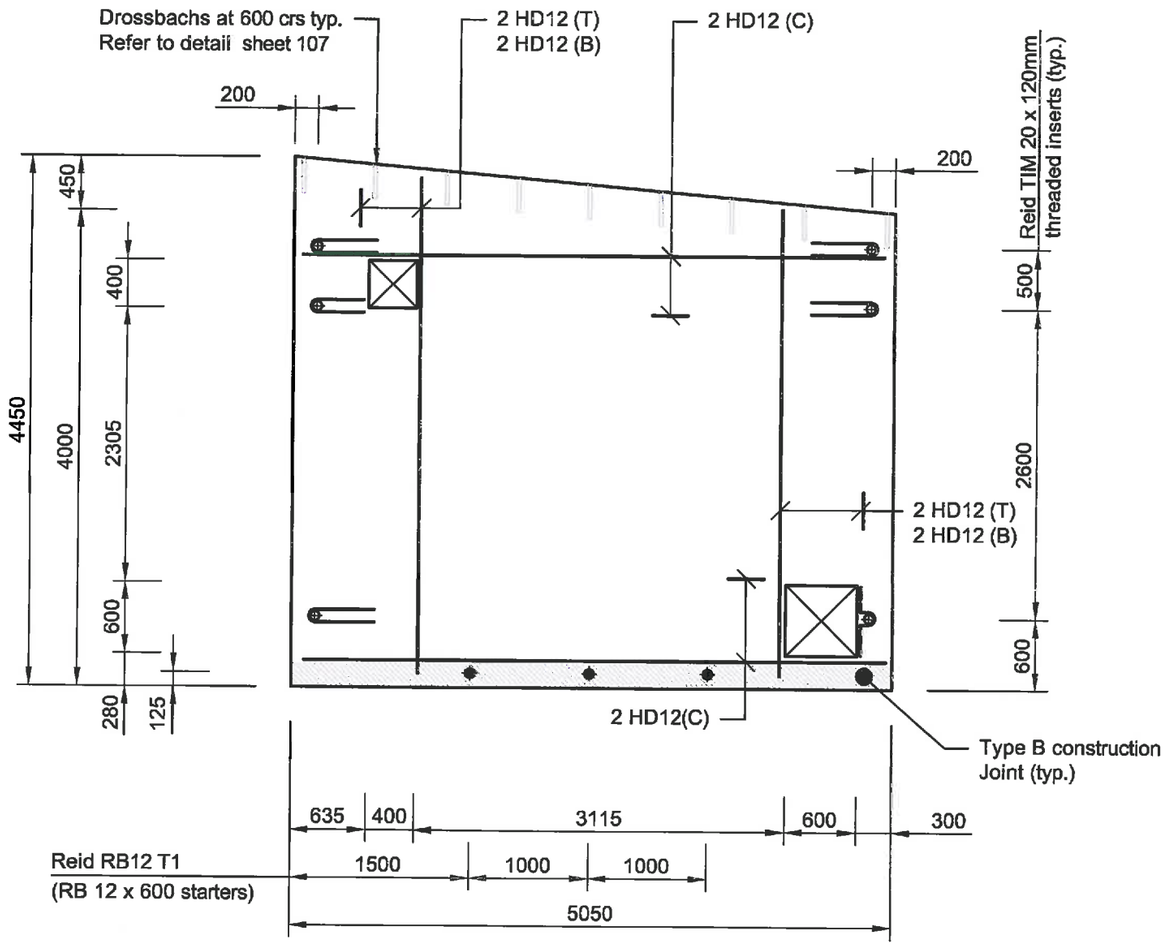
Project: Selwyn District Council
Darfield Water Supply
SH73 Headworks

Sheet: Pumphouse
Panel P2

Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	As Shown @ A3	6/1515/19/7602	108	RAB

1:50 @ A3 0 1 m

Original Sheet Size A3 [420x297] Plot Date 16.05.2014 @ 8:50 a.m. File Path O:\env\tla_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\Pump House (Structural) AS BUILT.dwg



Panel P3

Scale: 1:50

Thickness: 150mm

Notes:

1. All panels viewed from the interior face
2. All panels HD12 @ 200 crs EW (C) with standard 90° hooks bottom and sides
3. Lifting eyes. Reid swiftlift - to be confirmed by contractor
4. Edge anchors. Reid TIM 20 x 120 Galv
5. The contractor is responsible for the design and location of the panel lifting inserts
6. The contractor is to coordinate drossbach location with flat slab roof
7. Chamfer panel edges 10x10
8. T = 40mm top cover
9. B = 50mm bottom cover
10. C = Central

AS BUILT

CERTIFIED BY.....

DESIGNATION.....

DATE.....2/7/2014.....

1:50 @ A3 — 0 — 1 — m

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	08/14

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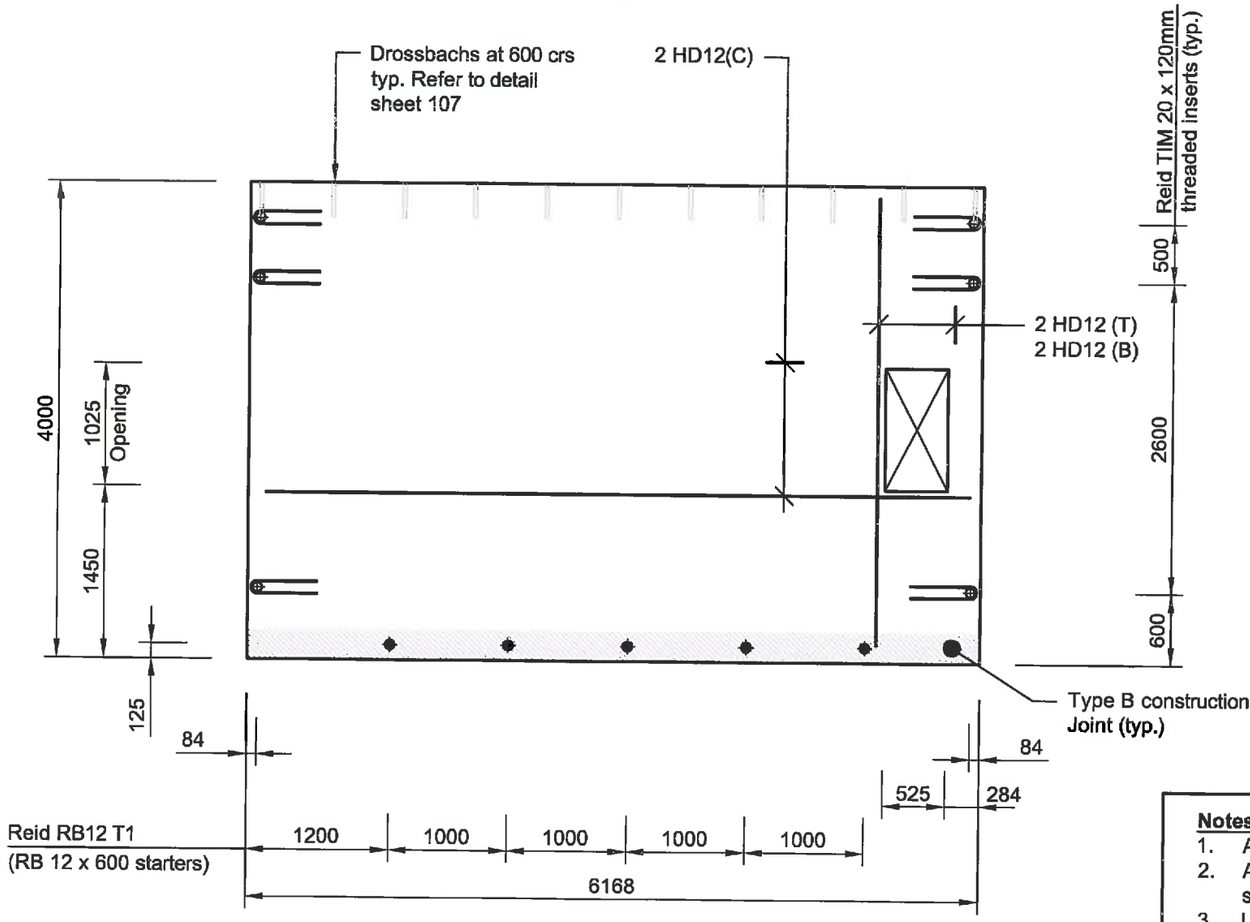
Drawn	Designed	Approved	Revision Date
DMF	MTM	M. T. Mitchell	24/09/2013

Project: Selwyn District Council
Darfield Water Supply
SH73 Headworks

Sheet: Pumphouse
Panel P3

Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	As Shown @ A3	6/1515/19/7602	109	RAB

Original Sheet Size A3 [420x297] Plot Date 16.06.2014 @ 8:50 a.m. File Path O:\cnv\lle_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\Pump House (Structural) AS BUILT.dwg



Panel P4

Scale: 1:50

Thickness: 150mm

Notes:

1. All panels viewed from the interior face
2. All panels HD12 @ 200 crs EW (C) with standard 90° hooks bottom and sides
3. Lifting eyes. Reid swiftlift - to be confirmed by contractor
4. Edge anchors. Reid TIM 20 x 120 Galv
5. The contractor is responsible for the design and location of the panel lifting inserts
6. The contractor is to coordinate drossbach location with flat slab roof
7. Chamfer panel edges 10x10
8. T = 40mm top cover
9. B = 50mm bottom cover
10. C = Central

AS BUILT

CERTIFIED BY

DESIGNATION Senior Structural Engineer

DATE 2/12/2014

1:50 @ A3 0 1 m

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	08/14

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DMF	MTM	M. T. Mitchell	24/09/2013

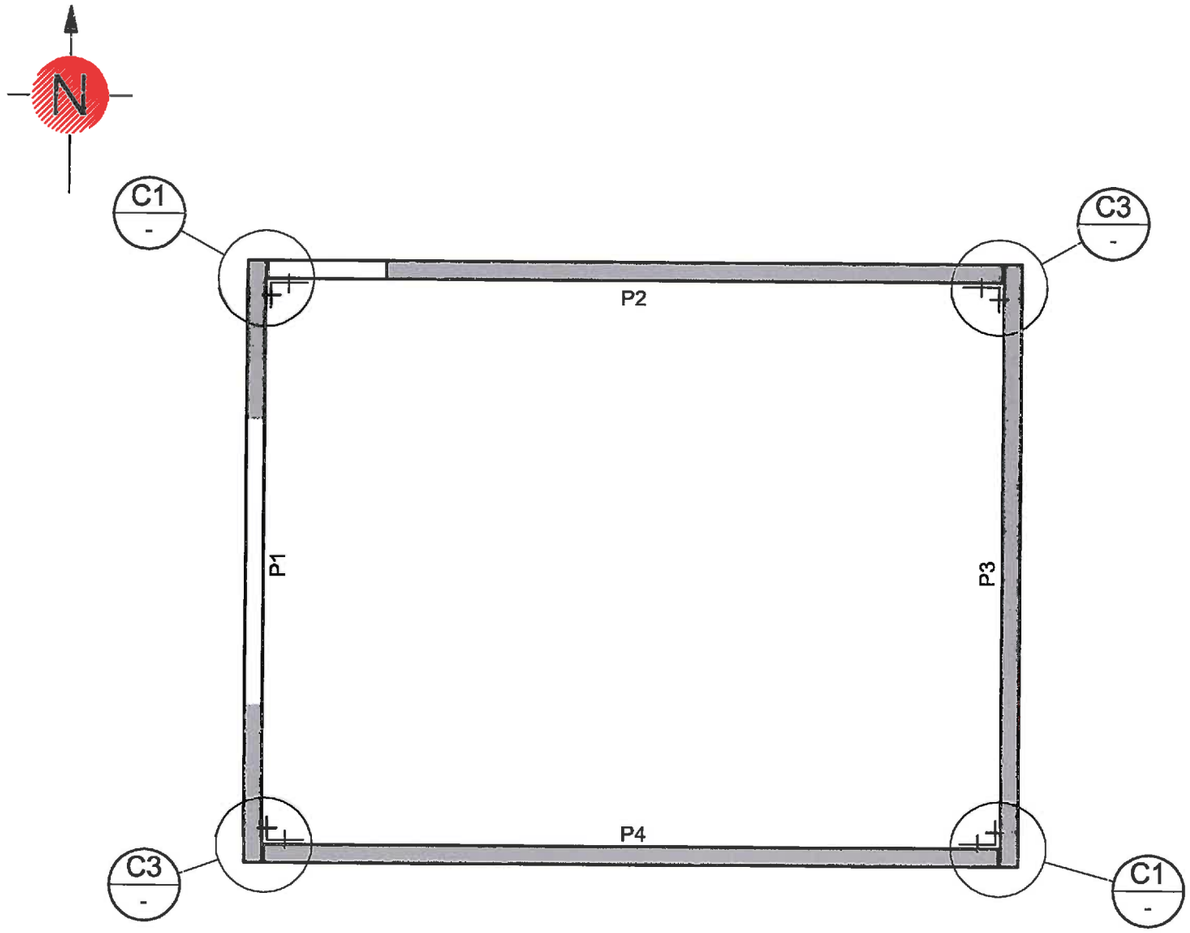
Project: Selwyn District Council
Darfield Water Supply
SH73 Headworks

Sheet: Pumphouse
Panel Details

Project No.	Scale	Drawing No	Sheet No.	Revision
3C1004.51	As Shown @ A3	6/1515/19/7602	110	RAB

AS BUILT

Original Sheet Size A3 [420x297] Plot Date 16.06.2014 @ 8:50 a.m. File Path O:\env\lle_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\Pump House (Structural) AS BUILT.dwg



Precast Panel Layout

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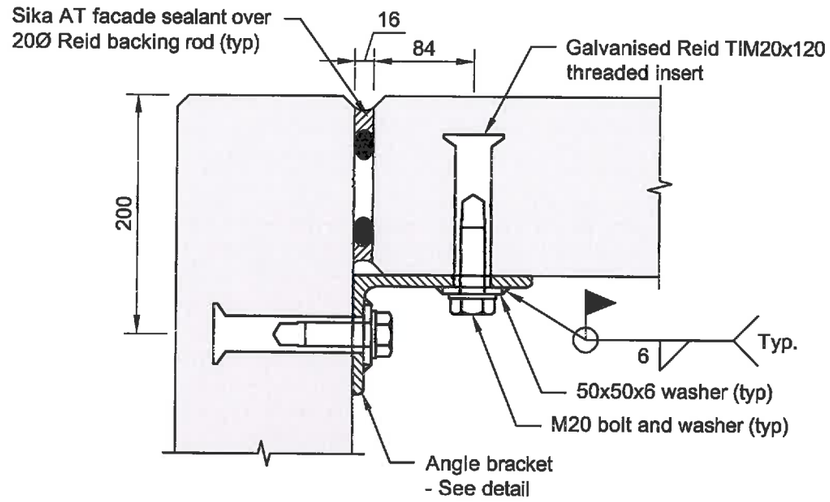
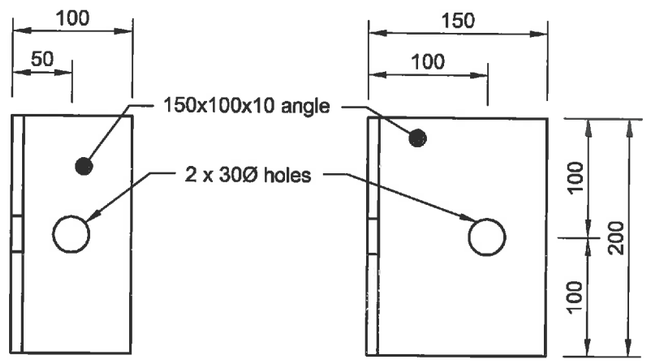


Connection C1

Scale: 1:5

(Connection C3 is other handed)



Angle bracket

Scale: 1:5

AS BUILT

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DESIGNATION Senior Utilities Consultant

DATE 2/7/2014

1:5 @ A3 0 50 100 150 200 mm

1:50 @ A3 0 1 m

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	08/14

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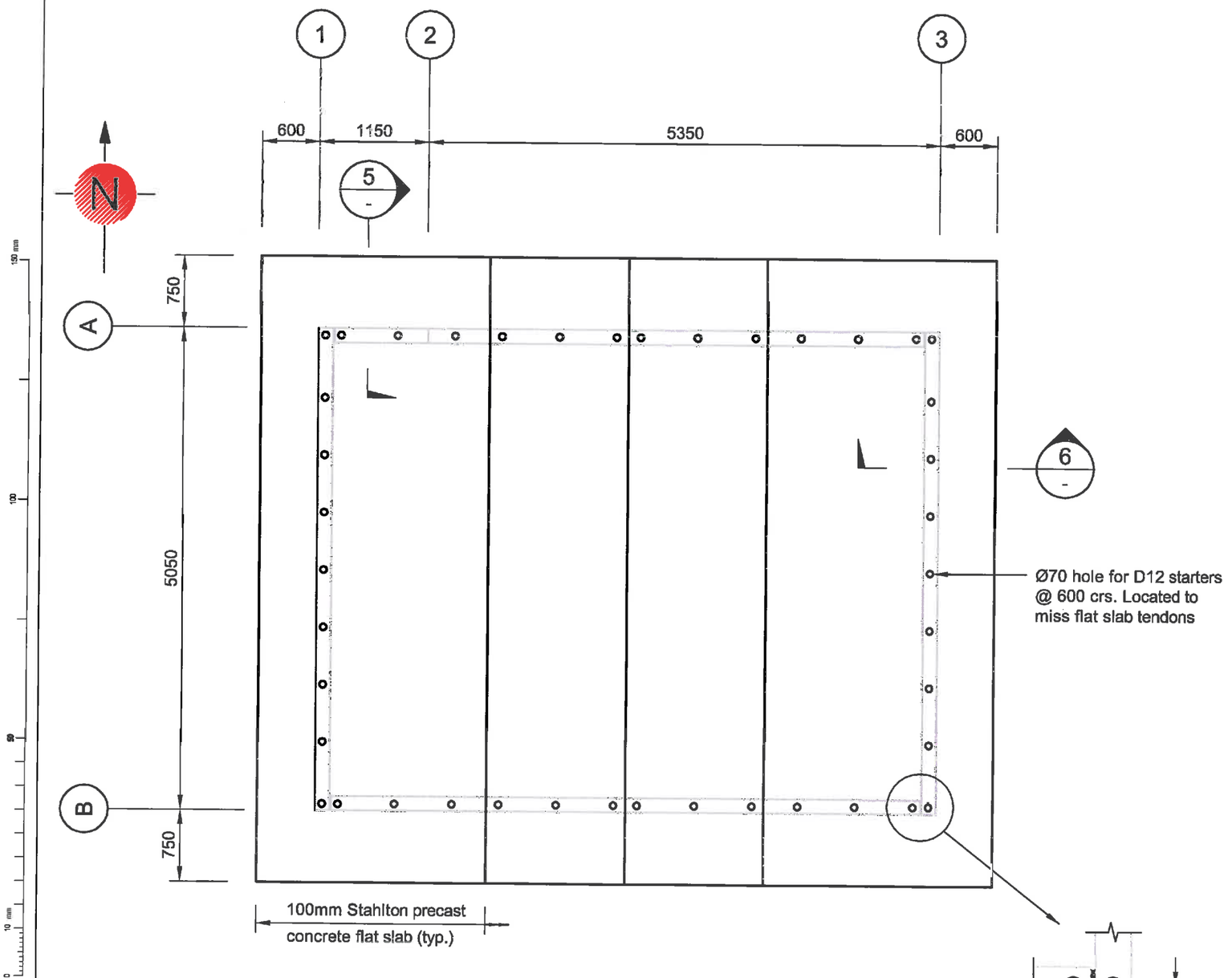
Drawn	Designed	Approved	Revision Date
DMF	MTM	M. T. Mitchell	24/09/2013

Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	As Shown @ A3	6/1515/19/7602	111	RAB

Project
Selwyn District Council
Darfield Water Supply
SH73 Headworks

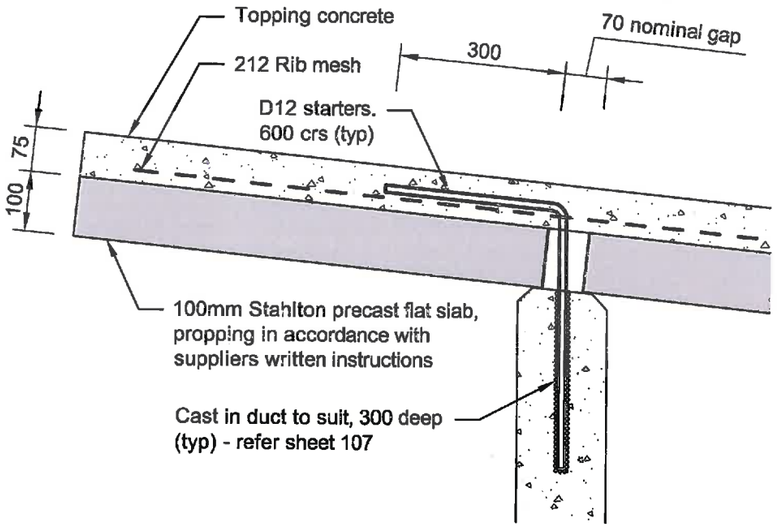
Sheet
Pumphouse
Panel Fixing Details

AS BUILT



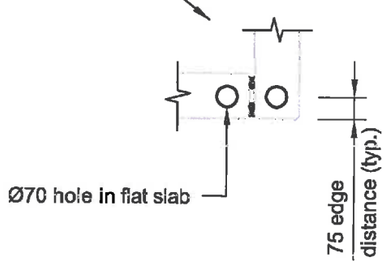
Roof Slab Plan

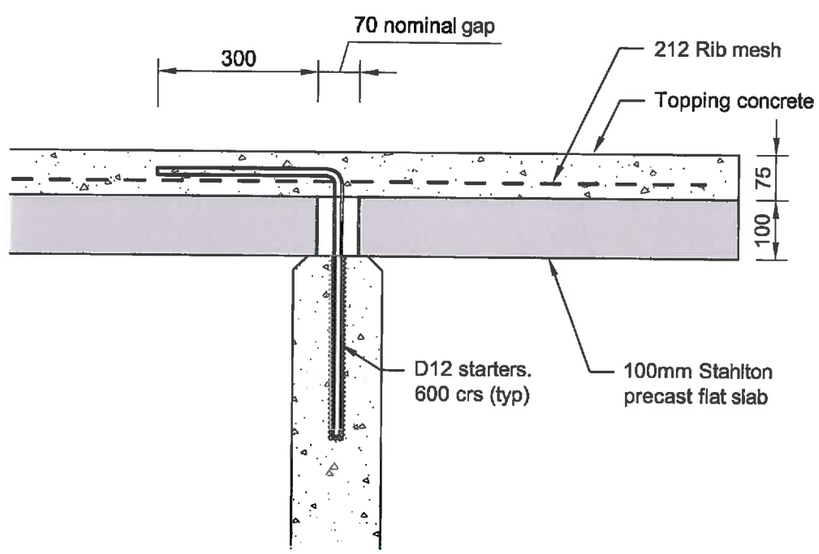
Scale: 1:50



5 Roof Slab Section

Scale: 1:10





6 Roof Slab Section

Scale: 1:10

AS BUILT

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DESIGNATION Senior Structural Engineer
DATE 2/12/2014

1:10 @ A3 0 100 200 300 400 mm

1:50 @ A3 0 1 m

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	05/14

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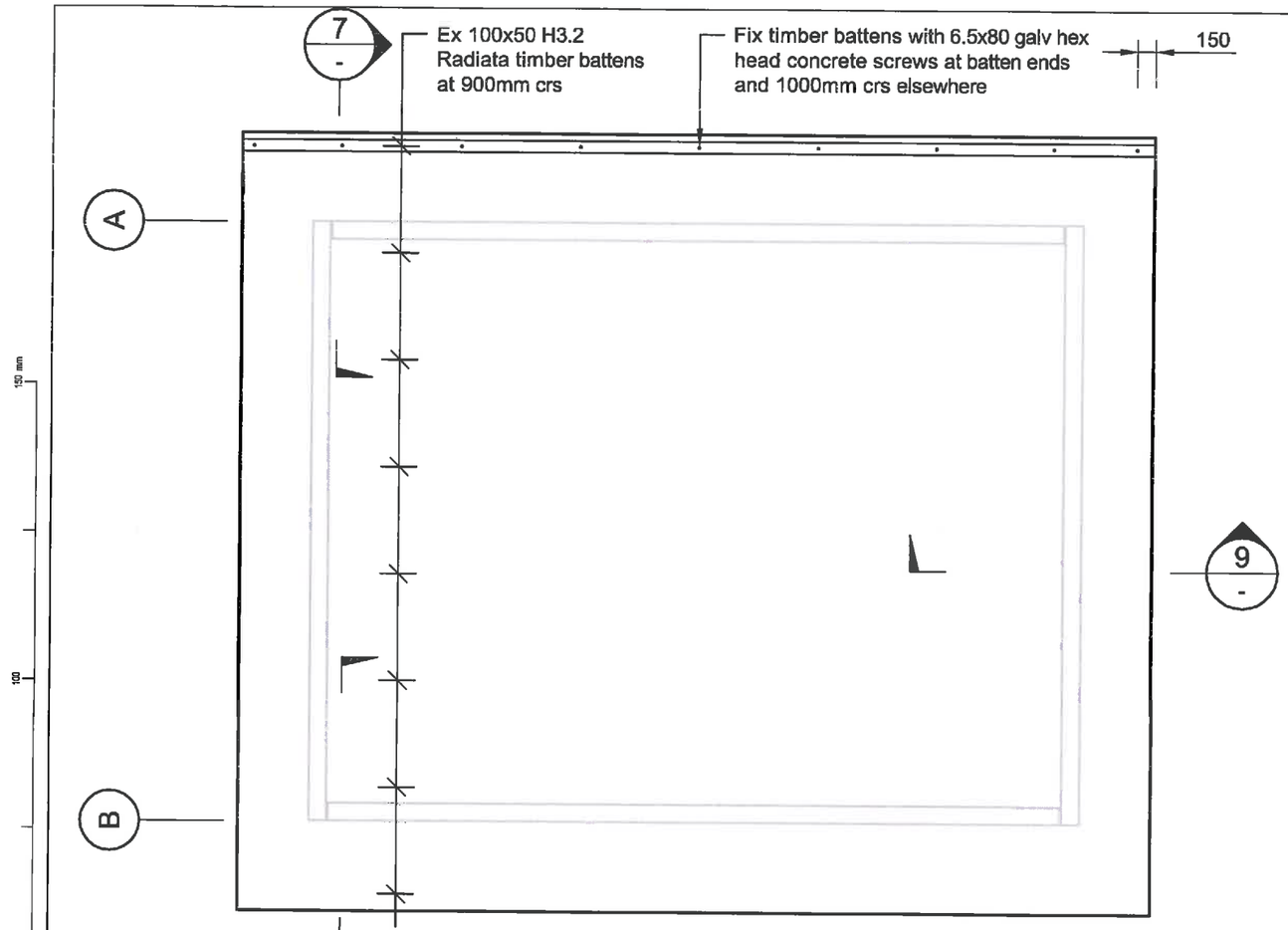
Drawn	Designed	Approved	Revision Date
DMF	MTM	M.T. Mitchell	24/09/2013

Project
Selwyn District Council
Darfield Water Supply
SH73 Headworks

Sheet
Pumphouse
Roof Slab Plan & Sections

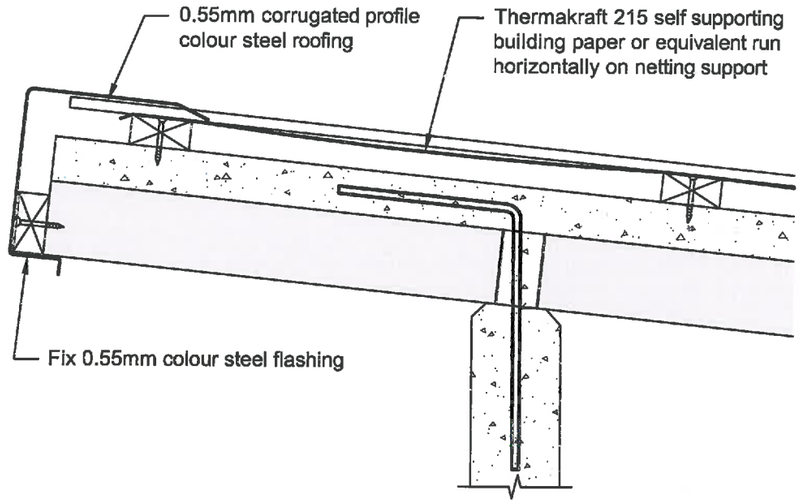
Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	As Shown @ A3	6/1515/19/7602	112	RAB

Original Sheet Size A3 [420x297] Plot Date 16.05.2014 @ 8:50 a.m. File Path O:\env\tle_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\Pump House (Structural) AS BUILT.dwg



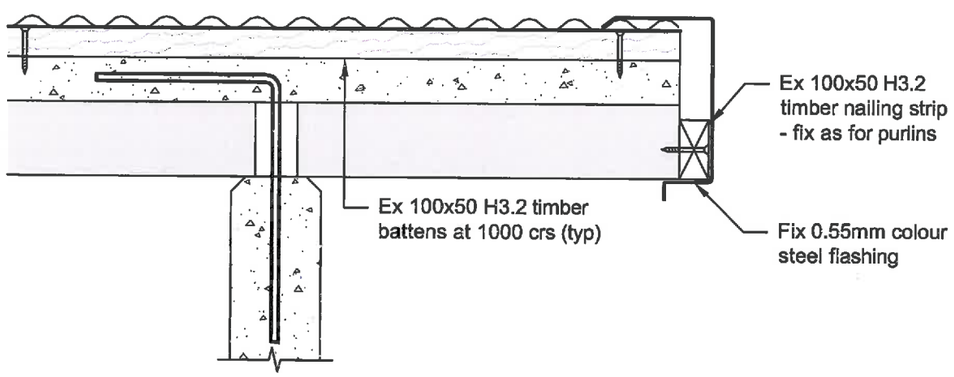
Roof Slab Plan

Scale: 1:50



7 - Roof Framing Section

Scale: 1:10



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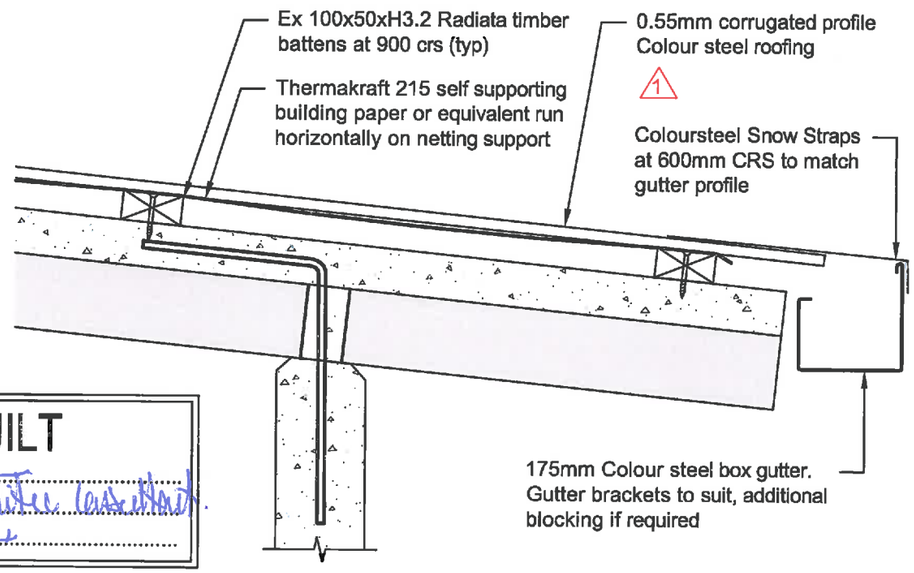
DESIGNATION.....
DATE.....2/7/2014

9 - Roof Framing Section

Scale: 1:10



8 - Roof Framing Section

Scale: 1:10

1:50 @ A3 — 0 — 1 — m

1:10 @ A3 — 0 — 100 — 200 — 300 — 400 — mm

AS BUILT

Rev/Ltr	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	08/14

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Drawn	Designed	Approved	Revision Date
DMF	MTM	M. T. Mitchell	24/09/2013

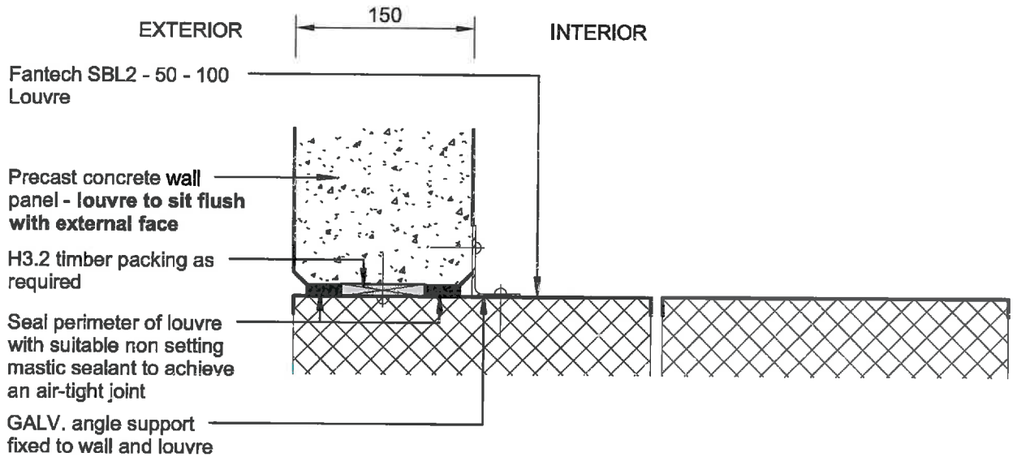
Project No: 3C1004.51
Scale: As Shown @ A3

Project: Selwyn District Council
Darfield Water Supply
SH73 Headworks

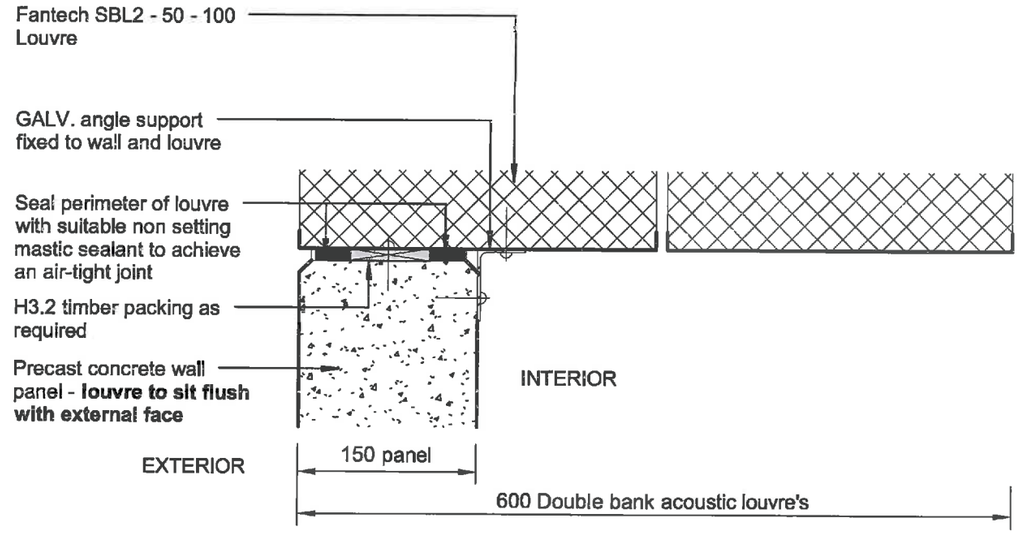
Sheet: Pumphouse
Roof Slab Framing Layout and Details

Drawing No: 6/1515/19/7602
Sheet No: 113
Revision: RAB

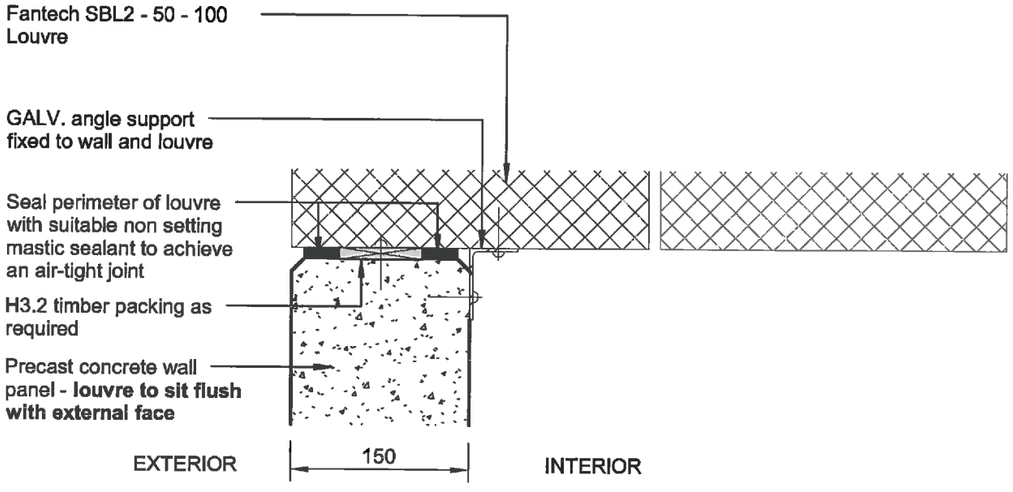
Original Sheet Size A3 [420x297] Plot Date 16.06.2014 @ 8:51 a.m. File Path O:\env\tla_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\Pump House (Structural) AS BUILT.dwg



DOUBLE BANK ACOUSTIC LOUVRE HEAD



DOUBLE BANK ACOUSTIC LOUVRE JAMB



DOUBLE BANK ACOUSTIC LOUVRE SILL

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DESIGNATION.....Senior Civil Structural Consultant
DATE.....2/12/2014

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Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	08/14

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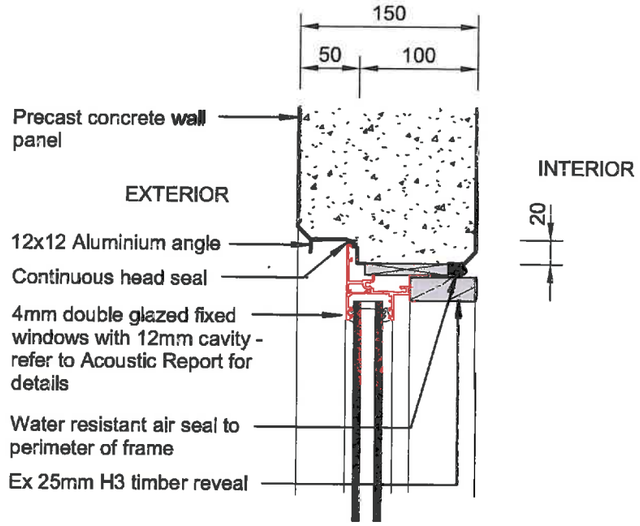
Drawn	Designed	Approved	Revision Date
DMF	MTM	M. T. Mitchell	24/09/2013

Project No: 3C1004.51
Scale: As Shown @ A3
Drawing No: 6/1515/19/7602
Sheet No.: 114
Revision: RAB

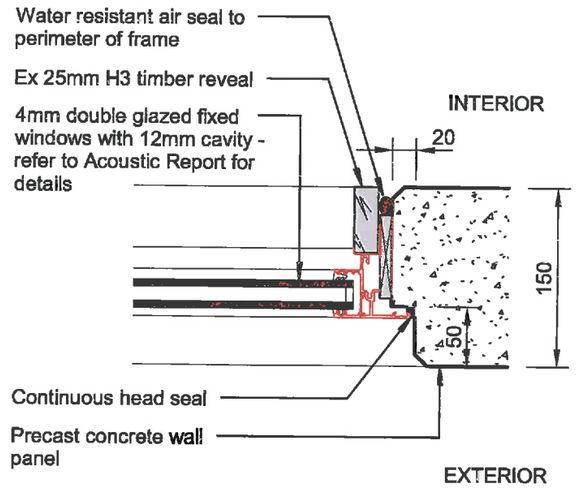
Project: Selwyn District Council
Darfield Water Supply
SH73 Headworks

Sheet: Pumphouse
Acoustic Louvre Details

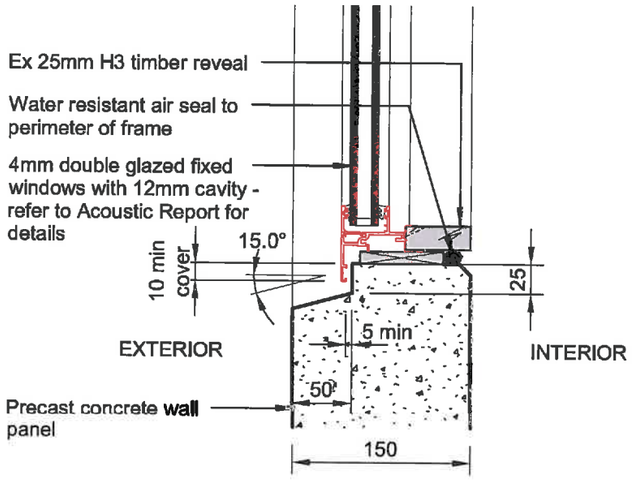
Original Sheet Size A3 [420x297] Plot Date 16.06.2014 @ 8:51 a.m. File Path O:\env\lis_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\Pump House (Structural) AS BUILT.dwg



DOUBLE GLAZED WINDOW HEAD



DOUBLE GLAZED WINDOW JAMB



DOUBLE GLAZED WINDOW SILL

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DESIGNATION.....Senior Civil Structural Consultant
DATE.....2/12/2014

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DMF	NTM	M. T. Mitchell	24/09/2013

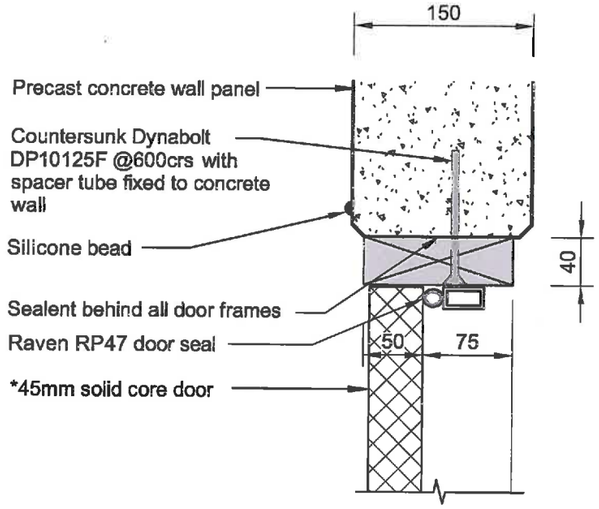
Project No. 3C1004.51
Scale As Shown @ A3

Project: Selwyn District Council
Darfield Water Supply
SH73 Headworks

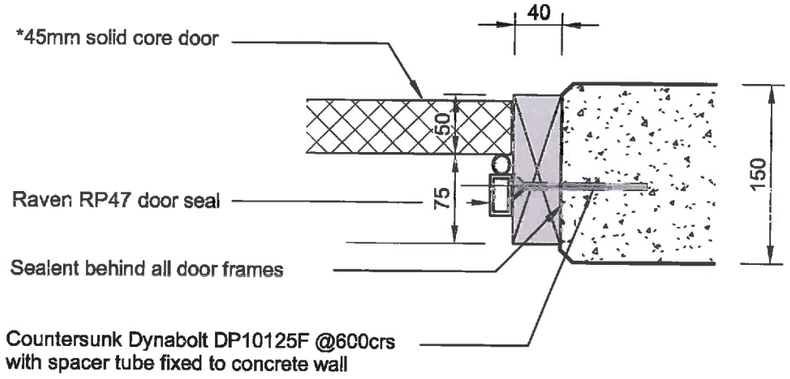
Sheet: Pumphouse
Double Glazed Window Details

Drawing No. 6/1515/19/7602
Sheet No. 115
Revision RAB

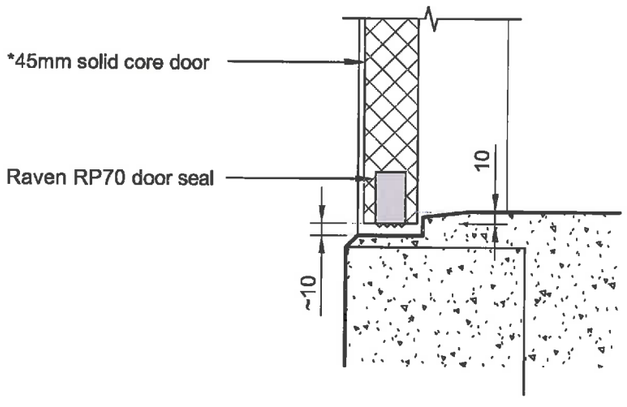
Original Sheet Size A3 [420x297] Plot Date 16.06.2014 @ 8:51 a.m. File Path O:\envlde_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\Pump House (Structural) AS BUILT.dwg



STANDARD DOOR HEAD



STANDARD DOOR JAMB



STANDARD DOOR THRESHOLD

AS BUILT
CERTIFIED BY
DESIGNATION Senior Utilities Consultant
DATE 2/7/2014

*Solid core 45mm exterior grade door with Raven RP47 & RP70 seals, and RP16si (double door joint only). Doors should have acoustic performance of at least 22 dB Rw. Refer to the Acoustic Report for more information

AS BUILT

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	06/14

Selwyn DISTRICT COUNCIL

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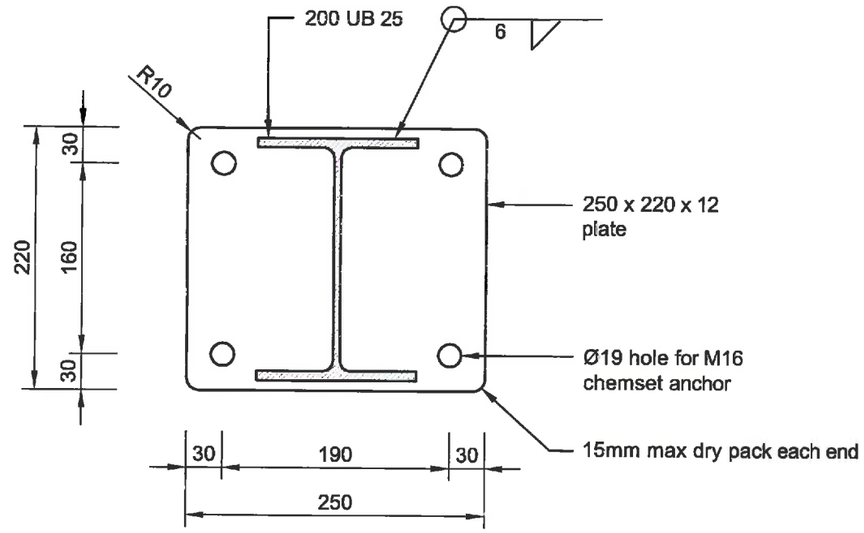
Drawn	Designed	Approved	Revision Date
DMF	MTM	M. T. Mitchell	24/09/2013

Project: Selwyn District Council
Darfield Water Supply
SH73 Headworks

Sheet: Pumphouse
Single Door Details

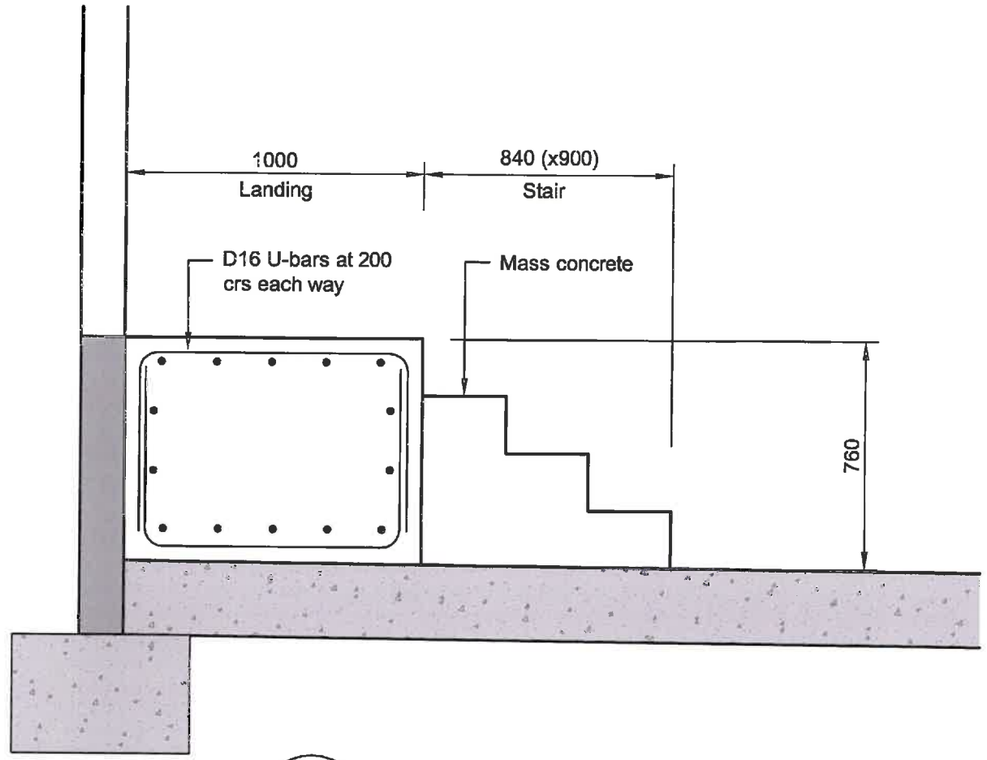
Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	As Shown @ A3	6/1515/19/7602	116	RAB

Original Sheet Size A3 [420x297] Plot Date 16.06.2014 @ 8:51 a.m. File Path O:\env\de_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\Pump House (Structural) AS BUILT.dwg



3.1 / 105 **Section**

Scale: 1:5



4.1 / 105 **Section**

Scale: 1:20

Wood float finish on landing & stair in accordance with NZS 3114:1987 class U2

AS BUILT

CERTIFIED BY

DESIGNATION Senior Civil Engineer

DATE 2/7/2014

1:5 @ A3 0 50 100 150 200 mm

1:20 @ A3 0 200 400 600 800 mm

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	06/14

Selwyn DISTRICT COUNCIL

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Drawn	Designed	Approved	Revision Date
DMF	MTM	M. T. Mitchell	24/09/2013

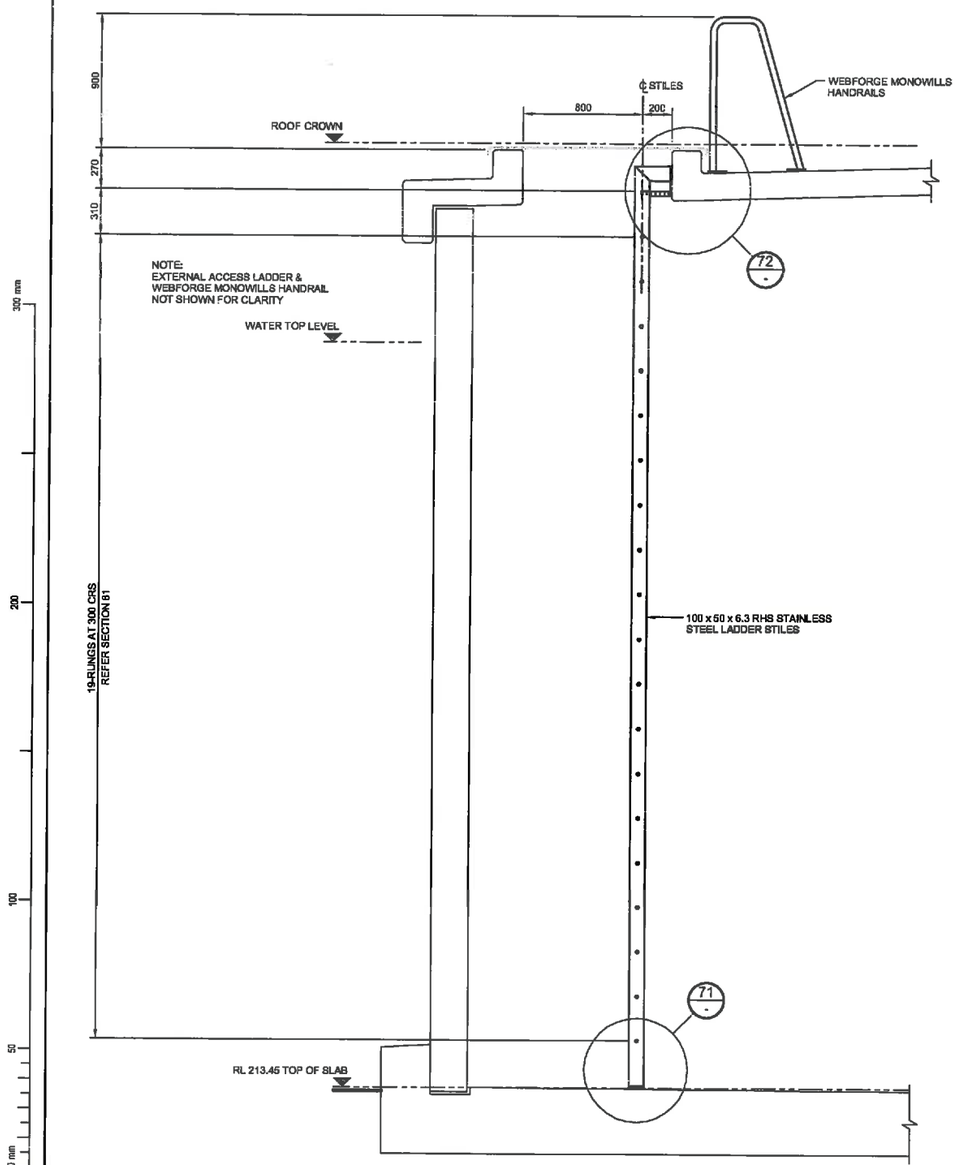
Project
Selwyn District Council
Darfield Water Supply
SH73 Headworks

Sheet
Pumphouse
General Details

Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	As Shown @ A3	6/1515/19/7602	117	RAB

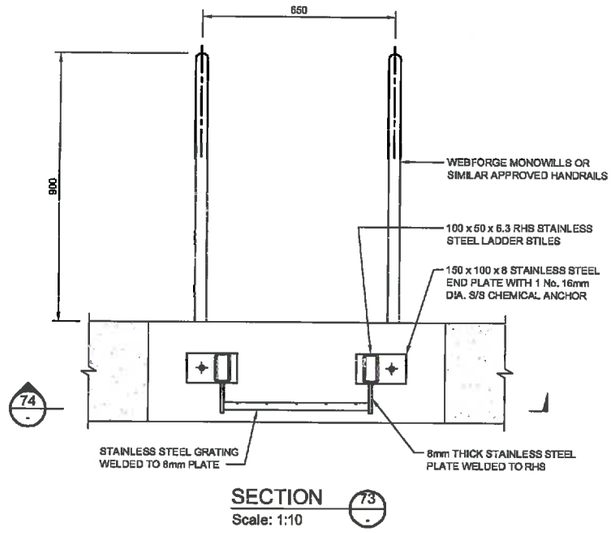
AS BUILT

Original Sheet Size A3 [420x297] Plot Date 16.08.2014 @ 8:51 a.m. File Path O:\env\tla_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\Pump House (Structural) AS BUILT.dwg

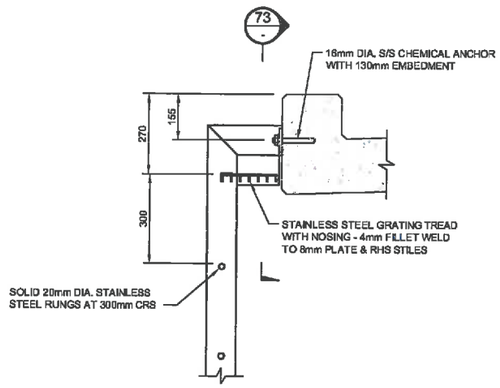


ACCESS HATCH LADDER SIDE ELEVATION

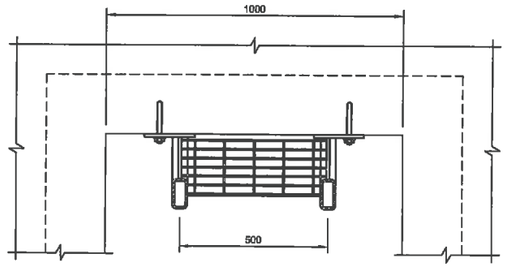
SCALE 1:20



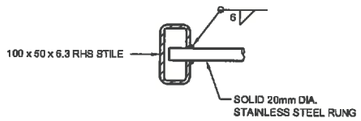
SECTION 73
Scale: 1:10



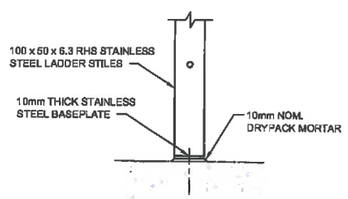
DETAIL 72
Scale: 1:10



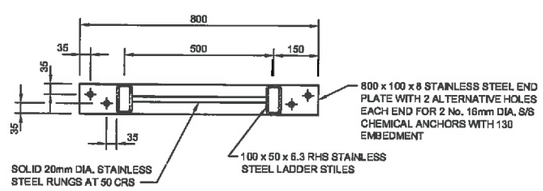
SECTION 74
Scale: 1:10



LADDER RUNG DETAIL
SCALE 1:5



DETAIL 71
Scale: 1:10



LADDER BASEPLATE DETAIL
SCALE 1:10

AS BUILT

CERTIFIED BY.....
DESIGNATION.....
DATE.....

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	6/14

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Drawn	Designed	Approved	Revision Date
G.J.McGILL	I.McDONALD	R.A.DAVEY	12 / 6 / 2013

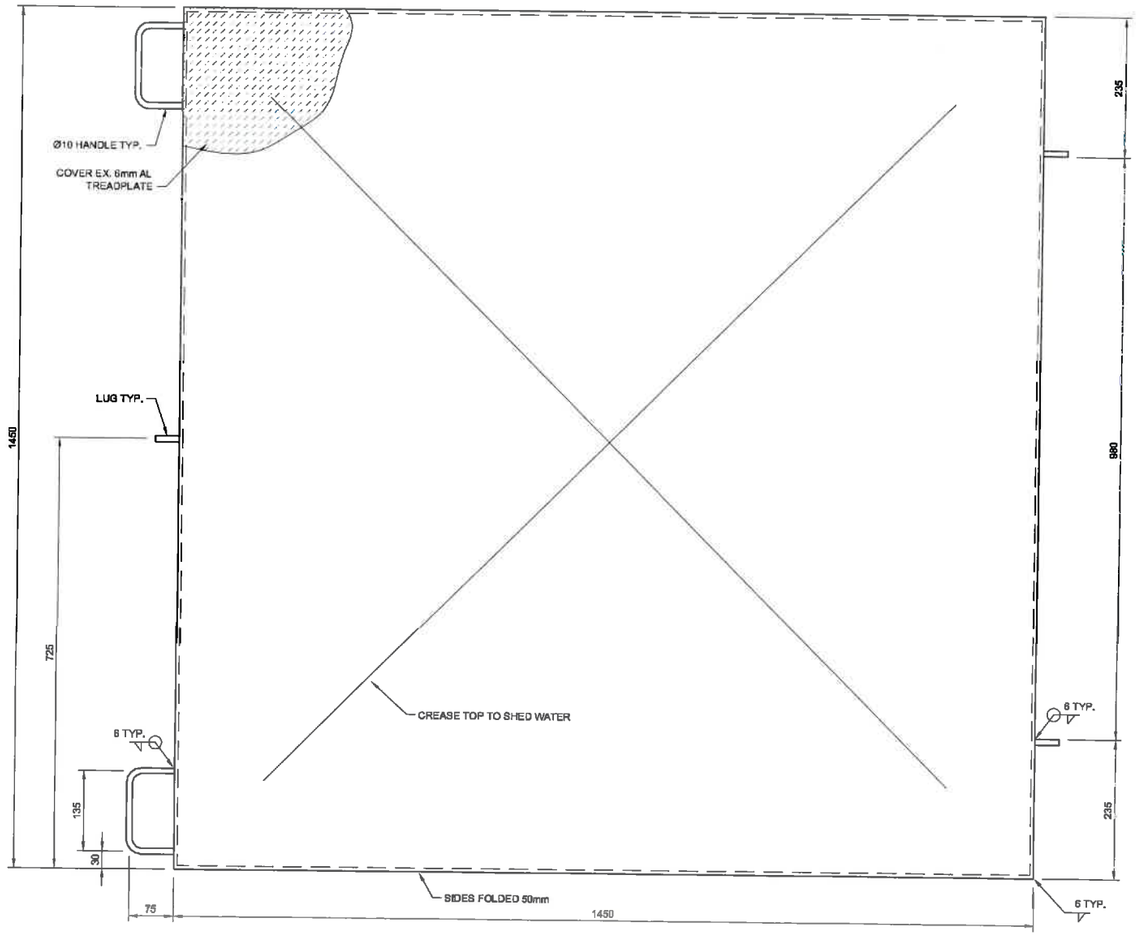
Project
SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY
SH73 RESERVOIR

Sheet
STEELWORK - ACCESS HATCH LADDER
GENERAL ARRANGEMENT ELEVATION

Project No.	Scale	Drawing No.	Sheet No.	Revision
3-C1004.51	1:20 AT A1	6 / 1515 / 19 / 7504	261	RAB

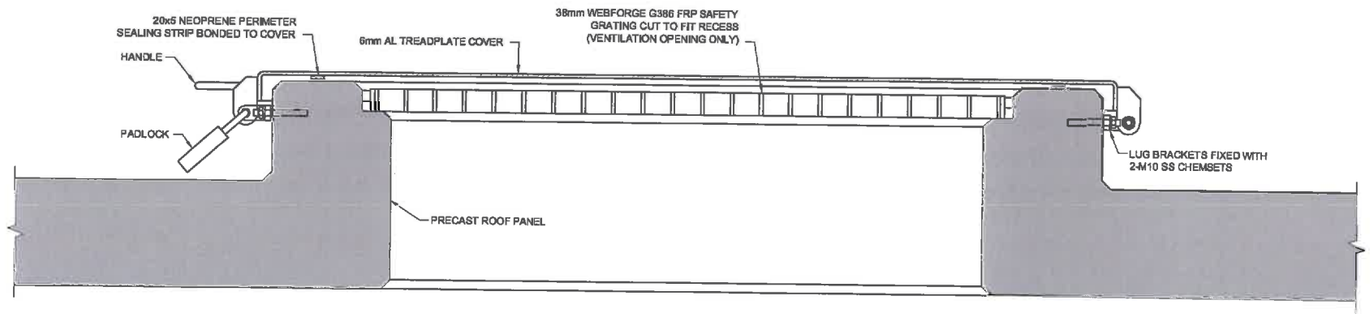
AS BUILT

Original Sheet Size A1 [841x594] Plot Date 16 Jun 2014 @ 9:09 a.m. Path O:\envwlg_south\sselwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\Redlined As-builts\6_1515_19_7504_261_STEELWORK.dwg 261



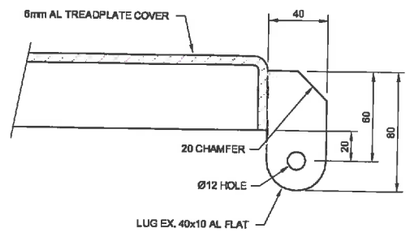
COVER DETAIL
Scale: 1:5

NOTE: ALUMINIUM IS CORROSION RESISTANT (MARINE) GRADE)

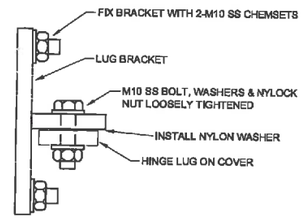


NOTE: HATCH OPENING DIRECTION TO BE SIDEWAYS i.e. NOT TOWARDS OR AWAY FROM THE CENTRE OF THE RESERVOIR

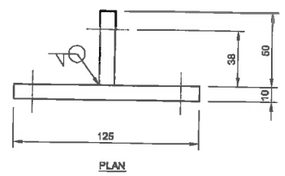
COVER ASSEMBLY
Scale: 1:5



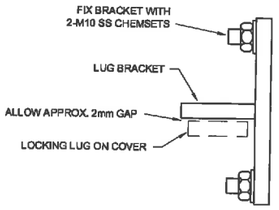
LUG DETAILS
Scale: 1:2



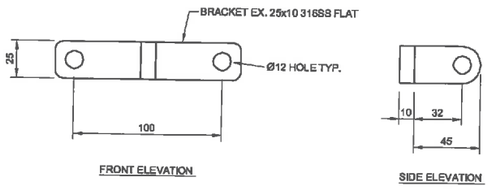
HINGE ASSEMBLY
Scale: 1:2



PLAN



LOCKING LUG ASSEMBLY
Scale: 1:2



FRONT ELEVATION

SIDE ELEVATION

LUG BRACKET DETAILS
Scale: 1:2

AS BUILT
CERTIFIED BY.....
DESIGNATION.....
DATE.....2/7/2014

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	05/14

Selwyn DISTRICT COUNCIL

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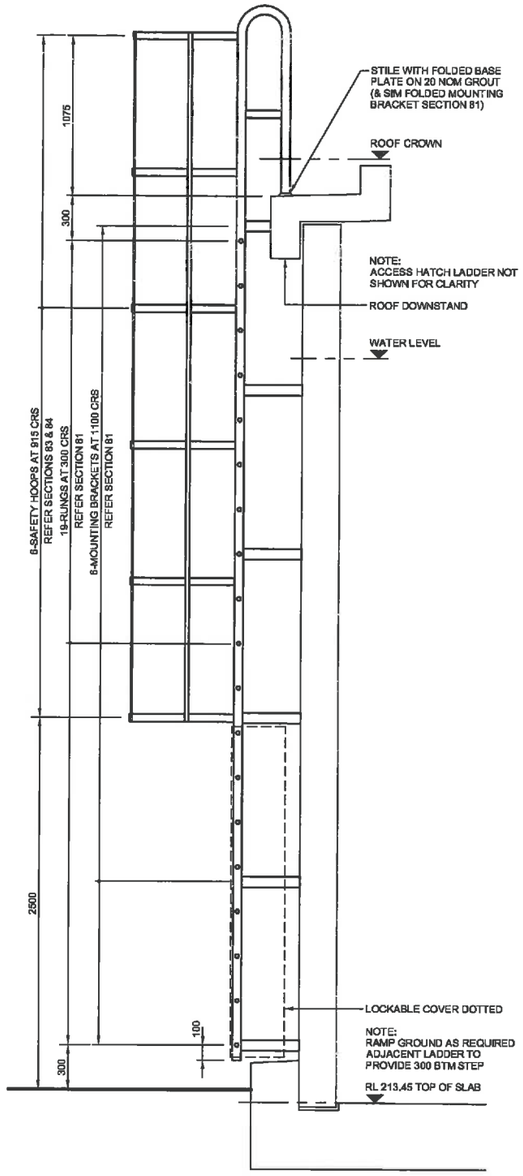
Drawn	Designed	Approved	Revision Date
GB	GB		MAY 2014

Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: RESERVOIR ACCESS HATCH DETAILS

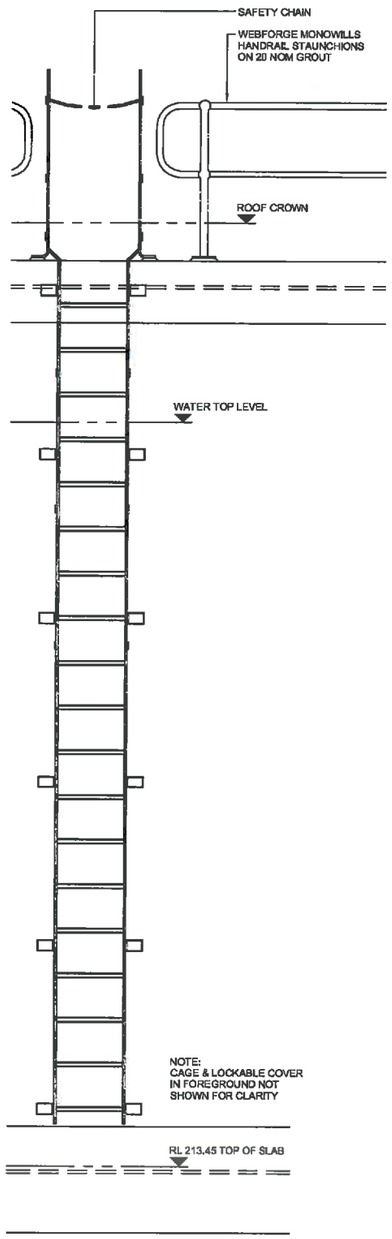
Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	AS SHOWN (A1)	6/1515/19/7605	262	RAB

AS BUILT



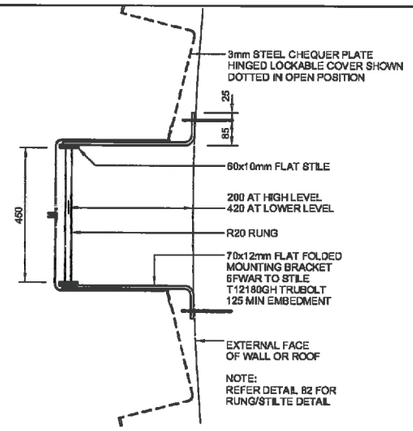
LADDER SIDE ELEVATION

SCALE 1:20



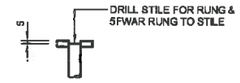
LADDER FRONT ELEVATION

SCALE 1:20



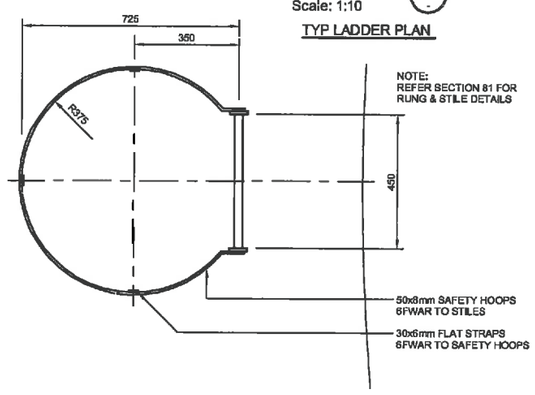
SECTION 81
Scale: 1:10

TYP LADDER PLAN



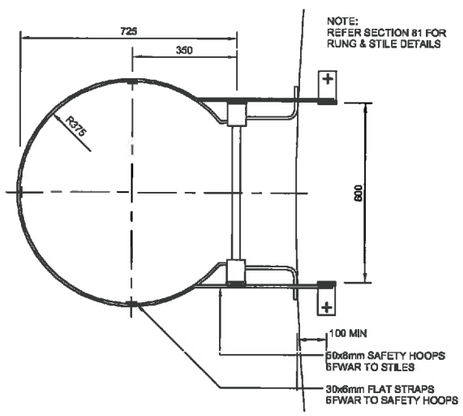
DETAIL 82
Scale: 1:5

TYP RUNG/STILE



SECTION 83
Scale: 1:10

TYP INTERMEDIATE LADDER PLAN



SECTION 84
Scale: 1:10

ROOF LADDER PLAN

AS BUILT

CERTIFIED BY.....
DESIGNATION Senior Utilities Consultant
DATE 2/7/2014

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	8/14

Selwyn DISTRICT COUNCIL

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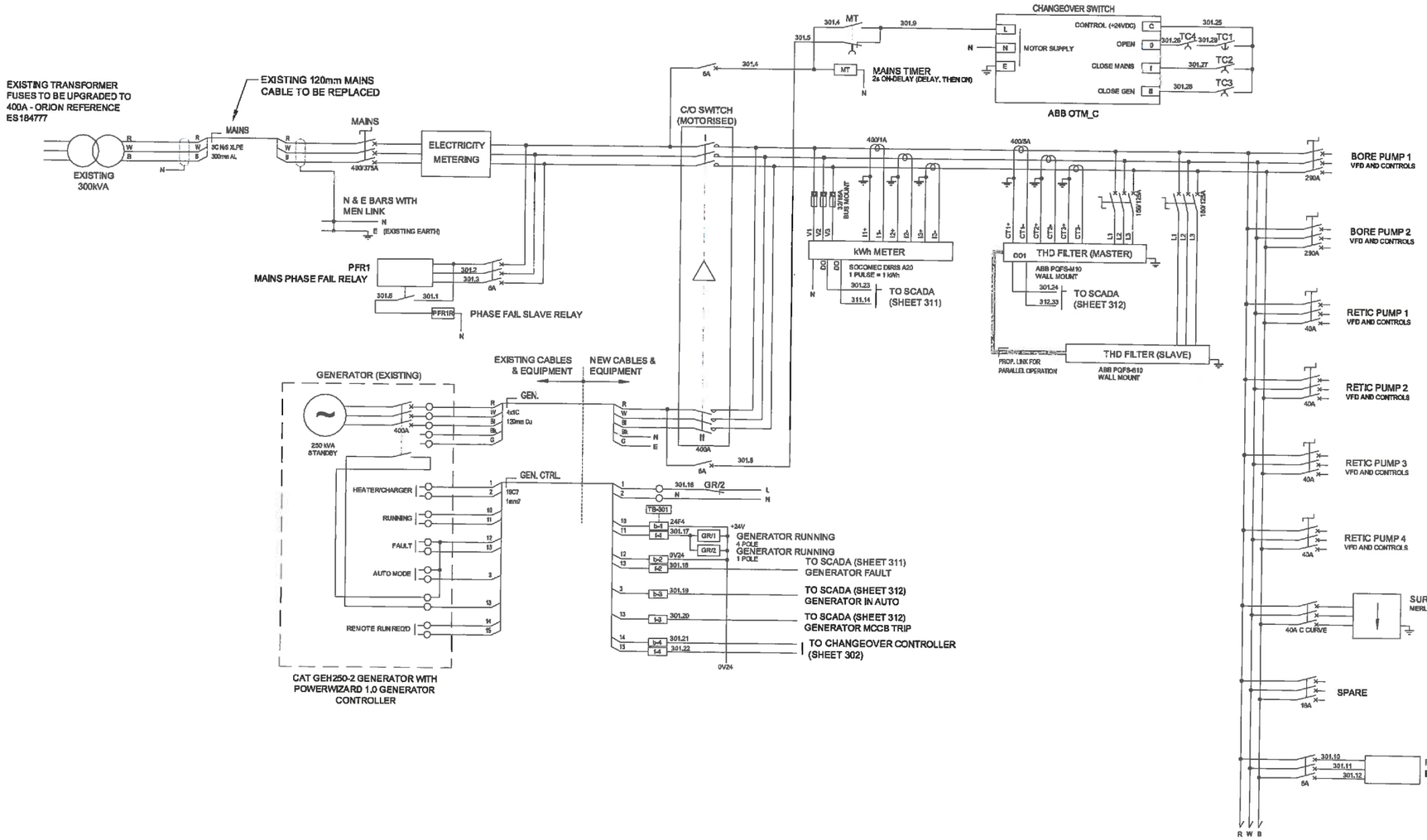
Drawn	Designed	Approved	Revision Date
G.I.McGILL	I.McDONALD	R.A.DAVEY	12 / 6 / 2013

Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY
SH73 RESERVOIR

Sheet: STEELWORK - EXTERNAL ACCESS LADDER
GENERAL ARRANGEMENT & DETAILS

Project No.	Scale	Drawing No.	Sheet No.	Revision
3-C1004.51	1:20, 1:10, 1:5 AT A1	6 / 1515 / 19 / 7504	263	RAB

Original Sheet Size A1 [841x594] Plot Date 16 Jun 2014 @ 9:10 a.m. Path O:\darville_scott\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\Recieved As-builts\6_1515_19_7504_263_STEELWORK.dwg 263



AS BUILT 7/4/14 PCSL

AS BUILT

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	06/14

Selwyn DISTRICT COUNCIL

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Drawn	Designed	Approved	Revision Date
GB	GB		FEB 2014

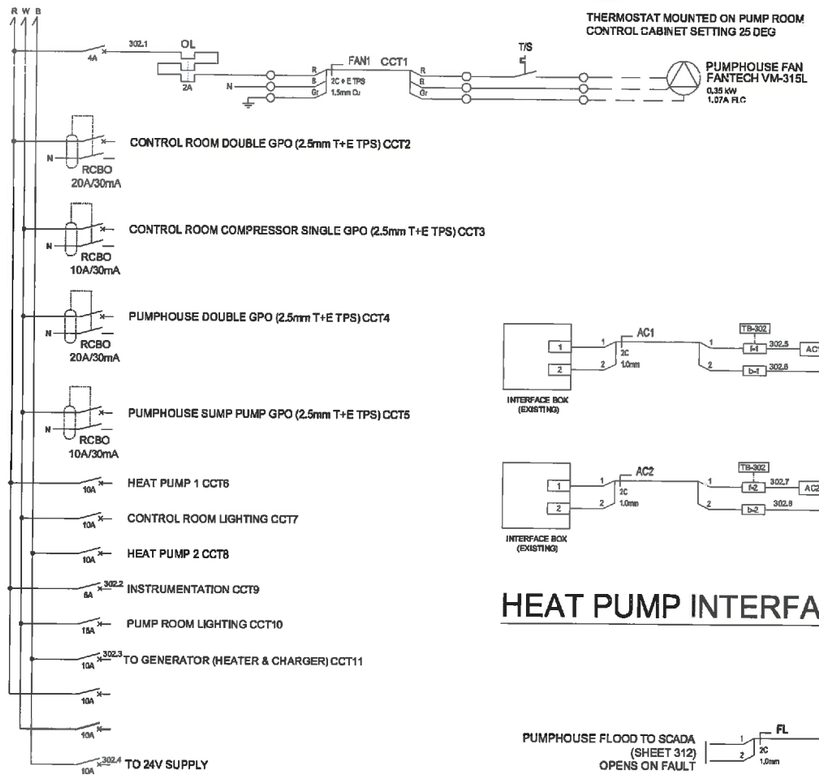
Project No. 3C1004.51 | Scale NTS

Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: ELECTRICAL CONTROLS
POWER DISTRIBUTION 1

Drawing No. 6/1515/19/7605 | Sheet No. 301 | Revision RAB

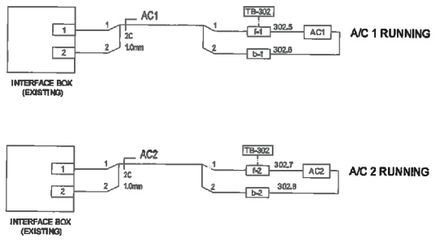
Original Sheet Size A1 [841x594] Plot Date 18 Jun 2014 @ 9:15 a.m. Path C:\envlife_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documents\Released As-builts\DDG Darfield Water 11378 CAD 301-312.dwg 301



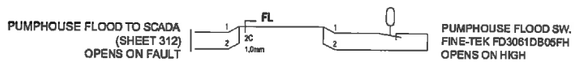
NOTE:

THERMOSTAT MOUNTED ON PUMP ROOM CONTROL CABINET SETTING 25 DEG

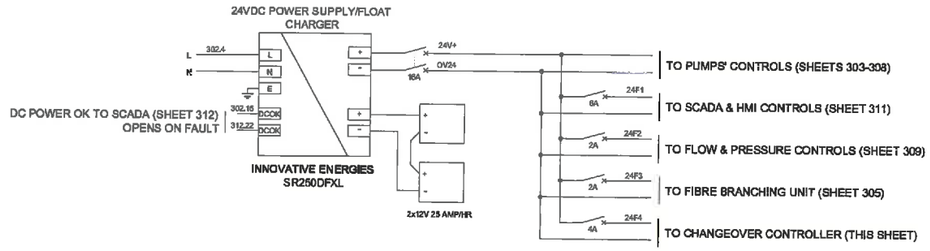
POWER DISTRIBUTION C'TD.



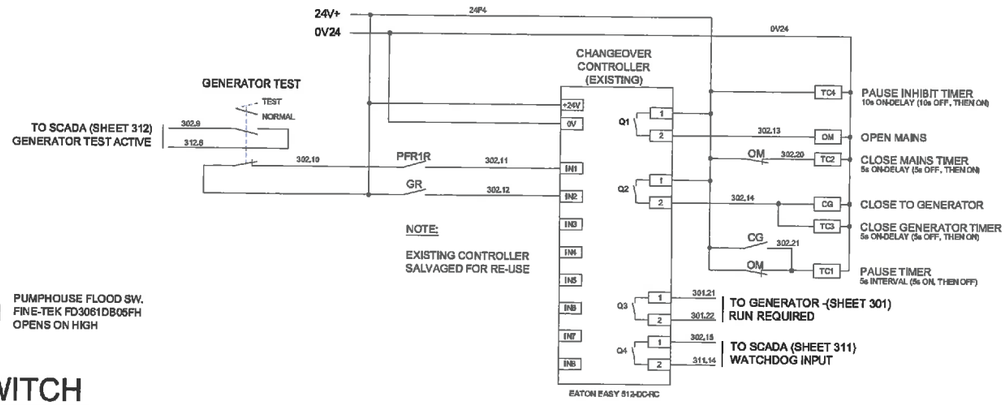
HEAT PUMP INTERFACE



PUMPHOUSE FLOOD SWITCH



24V DISTRIBUTION



NOTE:

EXISTING CONTROLLER SALVAGED FOR RE-USE

CHANGEOVER CONTROLLER

AS BUILT 7/4/14 PCSL

AS BUILT

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	09/14

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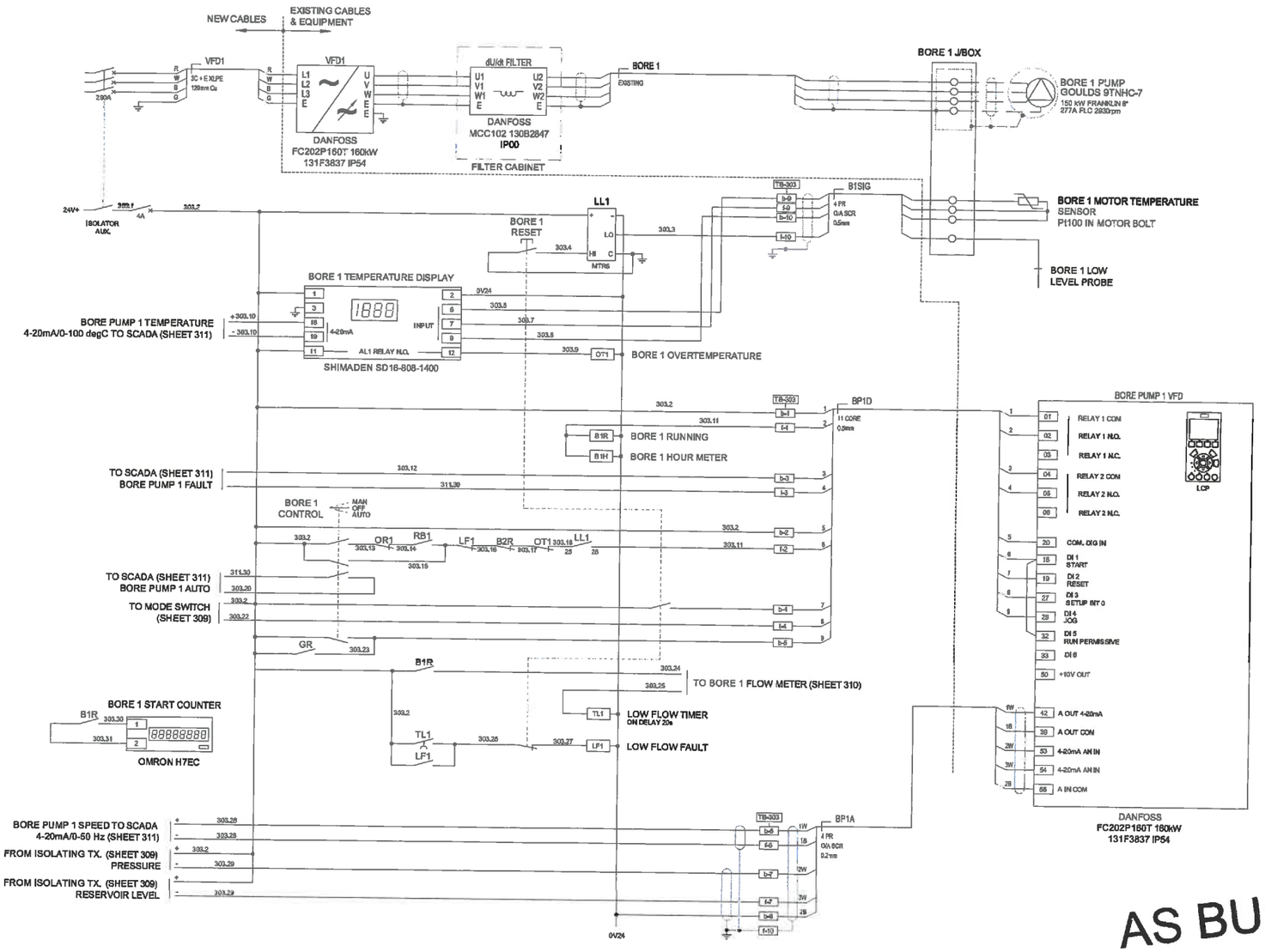
Drawn	Designed	Approved	Revision Date
GB	GB		FEB 2014

Project
SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet
ELECTRICAL CONTROLS
POWER DISTRIBUTION 2

Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	NTS	6/1515/19/7605	302	RAB



VFD SETTINGS:

- MINIMUM SPEED: 40 Hz
- MAXIMUM SPEED 50 Hz
- ANALOGUE OUT: MOTOR SPEED 0-50 Hz
- RELAY 1: RUNNING
- RELAY 2: FAULT
- AUTO RESET: ENABLED (x2, 10s DELAY)
- RAMP 0-40 Hz: 2 s
- RAMP 40-0 Hz: 2s
- ACCELERATION 30-50-30 Hz: 10s
- JOG SPEED: 40 Hz
- START DELAY: 2s

MOTOR PROTECTION: THERMAL MODEL

SETUP 1: RESERVOIR LEVEL CONTROL RAMP
- MINIMUM SPEED: RESERVOIR >80% FULL
- MAXIMUM SPEED: RESERVOIR LEVEL <70% FULL

SETUP 2: PID CONTROL OF PRESSURE TO 280 kPa
- PID GAIN: 0.4

SETTINGS TO BE CONFIRMED AND TESTED ON SITE

AS BUILT 7/4/14 PCSL

AS BUILT

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	08/14

Selwyn DISTRICT COUNCIL

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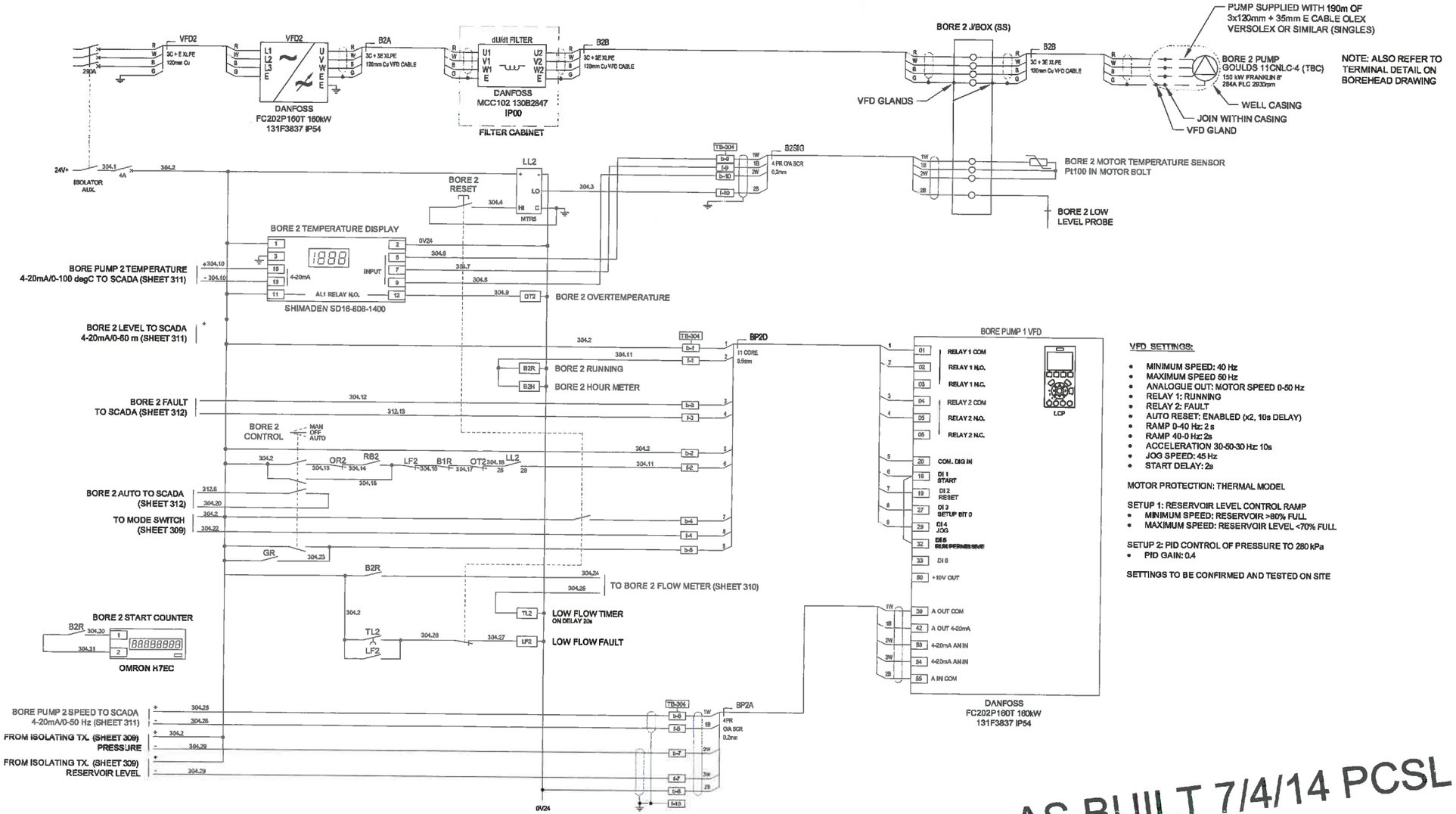
Drawn	Designed	Approved	Revision Date
GB	GB		SEP 2013

Project: SELWYN DISTRICT COUNCIL DARFIELD WATER SUPPLY UPGRADE CONTRACT 1133

Sheet: ELECTRICAL CONTROLS BORE PUMP 1 CONTROLS

Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	NTS	6/1515/19/7605	303	RAB



AS BUILT 7/4/14 PCSL

AS BUILT

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	09/14

Selwyn DISTRICT COUNCIL

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Drawn	Designed	Approved	Revision Date
GB	GB		SEP 2013

Project
SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet
ELECTRICAL CONTROLS
BORE PUMP 2 CONTROLS

Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	NTS	6/1515/19/7605	304	RAB

CONTROL ROOM | PUMPHOUSE

R1VFD
3C + E XLPE TPS
6mm Cu
40A

RETIC PUMP 1 VFD
L1 L2 L3 PE
U1 U2 U3 PE

ABB 18.5 kW ACS800-01-0025-3+
B056+E200+K466+
L509+N687+P904 (IP55)

RP1 (APPROX. 38m)
3C + 3E OIA SCR VFD CABLE
3x6mm Cu + 3x 1.5mm E XLPE

MOTOR T/BOX

RETICULATION PUMP 1
100x80-160
18.5 kW 2900 rpm
34 A

RP1T
3C SCR
0.5mm

THERMISTORS

24V+ | 305.1 | 2A | 305.2

R1R

TB-305 | 305.3 | b-8 | 1
305.4 | b-9 | 2

RP1D
18C
1mm Cu

T1 LOW FLOW TIMER
ON DELAY 30s
LR1 LOW FLOW FAULT

LR1
T1

305.6 | b-8 | 3
305.6 | b-9 | 4

RETIC PUMP 1 VFD

MANUAL START + FIXED SPEED	DI1	
RESET	DI2	
AUTO START + EXT.1	DI3	
	DI4	
	DI5	
THERMISTOR	DI6	
	+24V	
	+24V	
	DGI	
	DGI2	
	DIL	
	+24V	
	GND	
N.C.	RO1	
COM	RO1	
N.O.	RO1	
RUNNING N.C.	RO2	
RUNNING COM	RO2	
RUNNING N.O.	RO2	
FAULT N.C.	RO3	
FAULT COM	RO3	
FAULT N.O.	RO3	
	VR-	
	AGND	
	VR+	
	AGND	
	AI+	
	AI1-	
PRESSURE	AI2+	
	AI2-	
	AI3+	
	AI3-	
MOTOR SPEED	AO1+	
	AO1-	
	AO2+	
	AO2-	

VFD1D
12C
1mm Cu

305.2 | 5
305.14 | 6
305.15 | 7

TB-305

305.7	b-1	5
305.8	b-2	6
305.9	b-3	7
305.11	b-4	8
	b-10	9
305.14	b-5	10
305.15	b-6	11

LR1 RLL OR3
305.12 305.13

R1R RETIC 1 RUNNING
R1F RETIC 1 FAULT

TO SCADA (SHEET 312)
RETIC 1 IN AUTO

TB-305 | b-11 | 10
I-11 | 11
I-5 | 12
I-6 | 13
b-7 | 14

0V24

RETIC PUMP 1
CONTROL

RESET
AUTO
OFF
MAN

1HR RETIC 1 HOUR METER
RETIC 1 RUNNING
RETIC 1 FAULT
RETIC 1 LOW FLOW FAULT

PUMPHOUSE CONTROL PANEL

RP1F
B5003CS
PUMP 1 CHECK VALVE FLOW SWITCH
OPENS ON FLOW

VFD1A
4PR OA SCR
0.5mm Cu

VFD CHASSIS

TB-305 | 305.17
b-12 | I-12 | FROM SIGNAL ISOLATOR (SHEET 309)
PRESSURE 0-1000 kPa / 4-20mA
b-13 | I-13 | TO SCADA (SHEET 312)
PUMP SPEED 0-50 Hz / 4-20mA

RCD9-03 BOARD
SLOT 3

CH0	RXD	
	TXD	
CH1	RXD	
	TXD	
MASTER/FOLLOWER CH2	RXD	
	TXD	
CH3	RXD	
	TXD	

ABB 18.5 kW ACS800-01-0025-3+
B056+E200+K466+
L509+N687+P904 (IP55)

FIBRE
BRANCHING UNIT

24V+ 24F3 | +24V | POWER
0V24 | 0V

ABB FIBRE-OPTIC CABLES

	RXD	CH1
	TXD	
SHEET 306 TO VFDR2 TXD	RXD	CH2
TO VFDR2 RXD	TXD	
SHEET 307 TO VFDR3 TXD	RXD	CH3
TO VFDR3 RXD	TXD	
SHEET 308 TO VFDR4 TXD	RXD	CH4
TO VFDR4 RXD	TXD	

ABB NDBU-95

NOTE:

BRANCHING UNIT LOCATED IN MCC AND SUPPLIED DIRECTLY (NOT VIA VFD1)

BRIDGE TERMINALS X13/3 & 4

RETICULATION PUMPS' VFD KEY SETTINGS:

- MOTOR DETAILS: PER NAMEPLATE
- AUTO-RESET: 2 TIMES, 30s DELAY
- MOTOR THERM PROTECTION: THERMISTOR
- MASTER/FOLLOWER MODE: REF SYNCH
- MINIMUM SPEED: 36 Hz
- MAXIMUM SPEED: 47 Hz
- NUM PUMPS ALLOWED : 3
- FIXED SPEED: 42 Hz
- RAMP 0-36 / 36-0 Hz 5s
- SETPOINT: 280 kPa
- PI GAIN: 0.5
- PI INTEGRAL TIME: 20s
- START FREQUENCY 1/2/3: 45.9 Hz
- LOW FREQUENCY 1/2/3: 40 Hz
- FOLLOWER START DELAY: 10 s
- FOLLOWER STOP DELAY: 30 s
- AUTOCHANGE STYLE: FIXED 1440 min (1 DAY)
- MASTER ENABLE: YES (ALL DRIVES)
- F T M COMM LOSS: FOLL CTRL
- COMM DELAY: 60 s
- ALL FOLL LOST: RARE POLLING
- RAMP ACCEL TIME (60.23): 15 s
- RAMP DECEL TIME: 10 s
- MASTER LOCATION: IN STARTED

AS BUILT 7/4/14 PCSL

AS BUILT

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	09/14

Selwyn DISTRICT COUNCIL

OPUS
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Drawn	Designed	Approved	Revision Date
GB	GB		SEP 2013

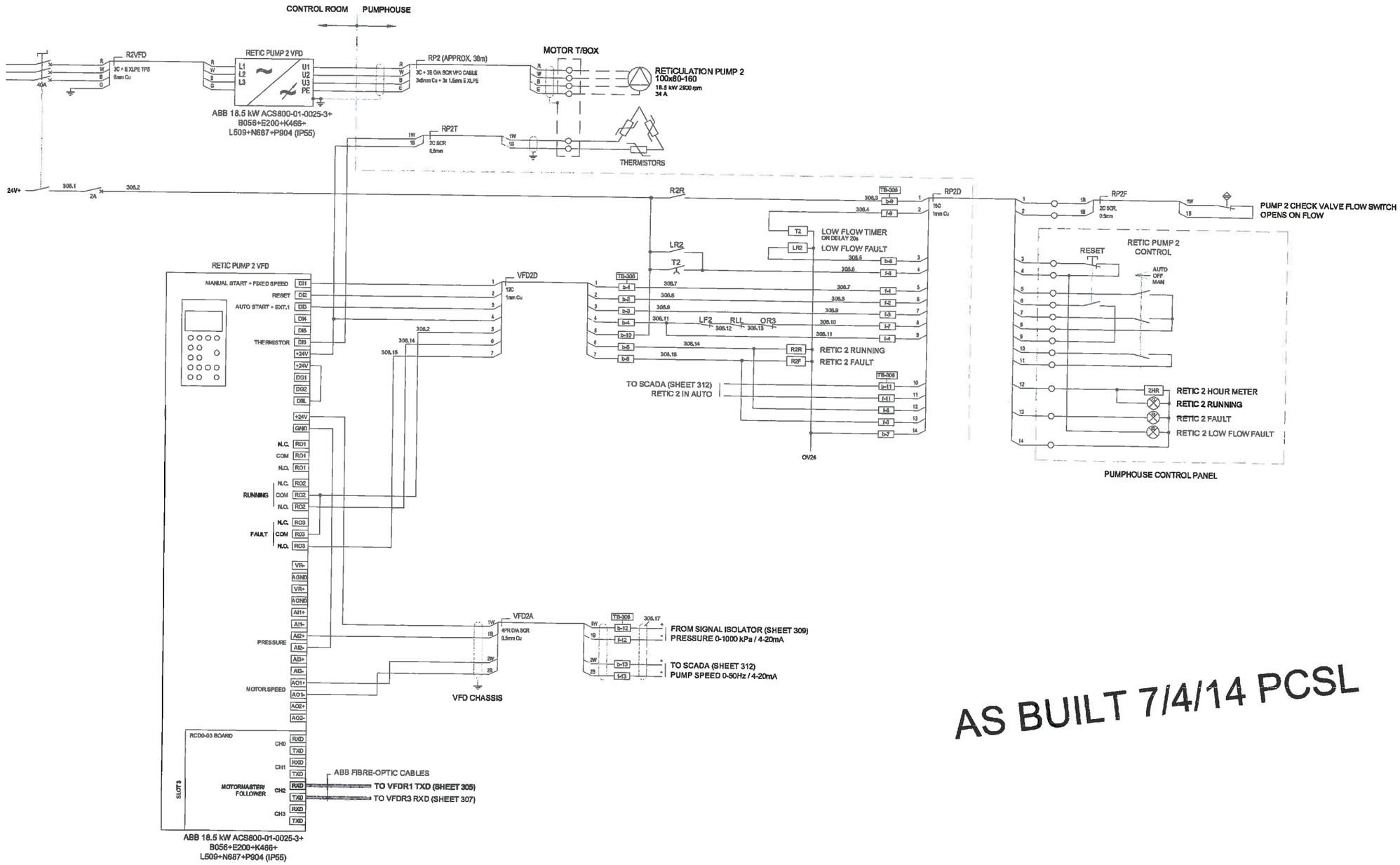
Project No. 3C1004.51 | Scale NTS

Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: ELECTRICAL CONTROLS
RETICULATION PUMP 1 CONTROLS

Drawing No. 6/1515/19/7605 | Sheet No. 305 | Revision RAB

Original Sheet Size A1 [841x594] Plot Date 16 Jun 2014 @ 9:15 a.m. Path O:\env\Civ_south\files\wyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\Recieved As-built\ODC Darfield Water 11378 CAD 301-312.dwg 305



AS BUILT 7/4/14 PCSL

AS BUILT

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	08/14

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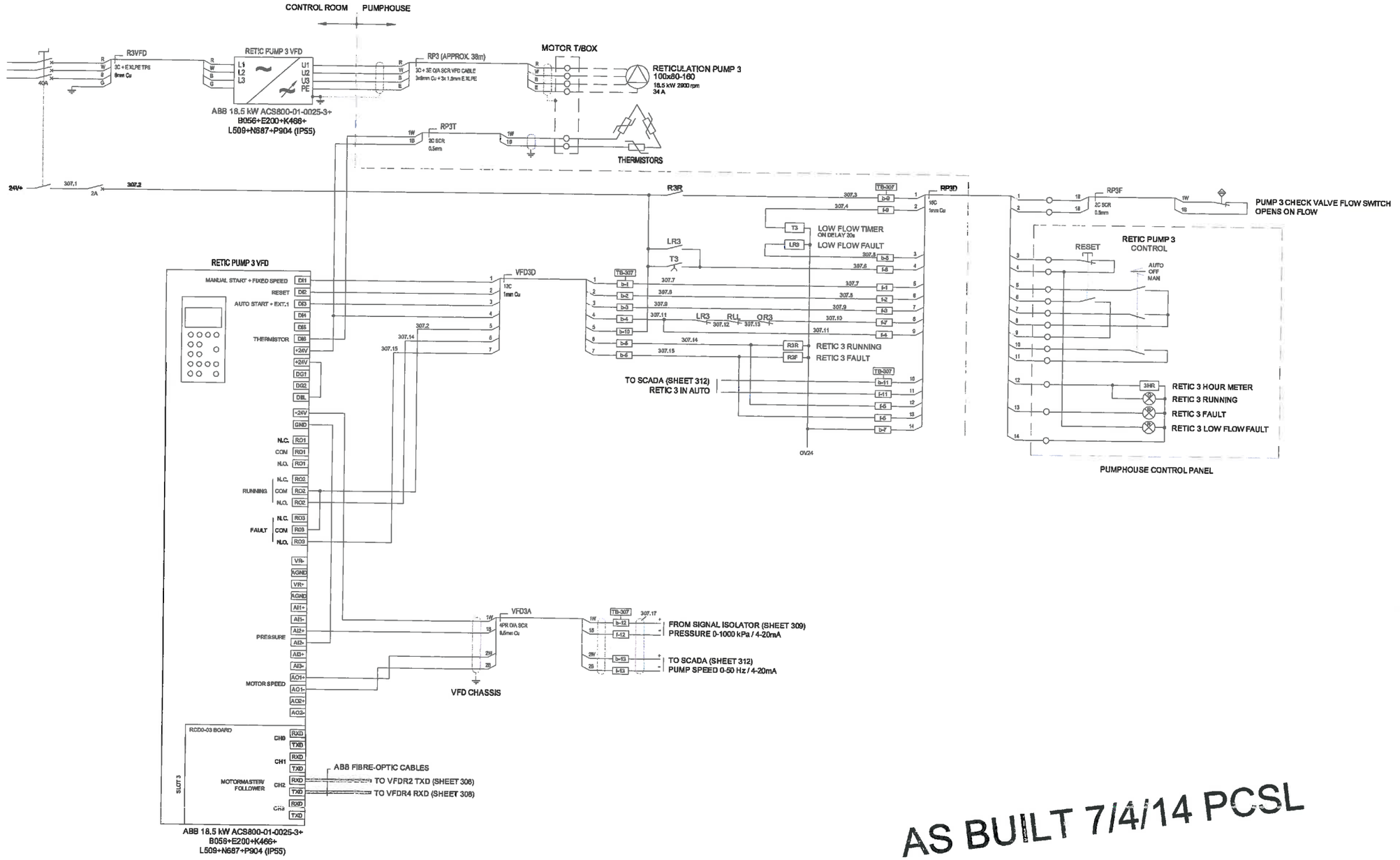
Drawn	Designed	Approved	Revision Date
GB	GB		SEP 2013

Project
SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet
ELECTRICAL CONTROLS
RETICULATION PUMP 2 CONTROLS

Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	NTS	6/1515/19/7605	306	RAB

Original Sheet Size A1 [841x594] Plot Date 16 Jun 2014 @ 9:15 a.m. Path C:\enviro_south\selwyn\prn\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\Recieved As-builts\ODG Darfield Water 11378 CAD 301-312.dwg 306



AS BUILT 7/4/14 PCSL

AS BUILT

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	06/14

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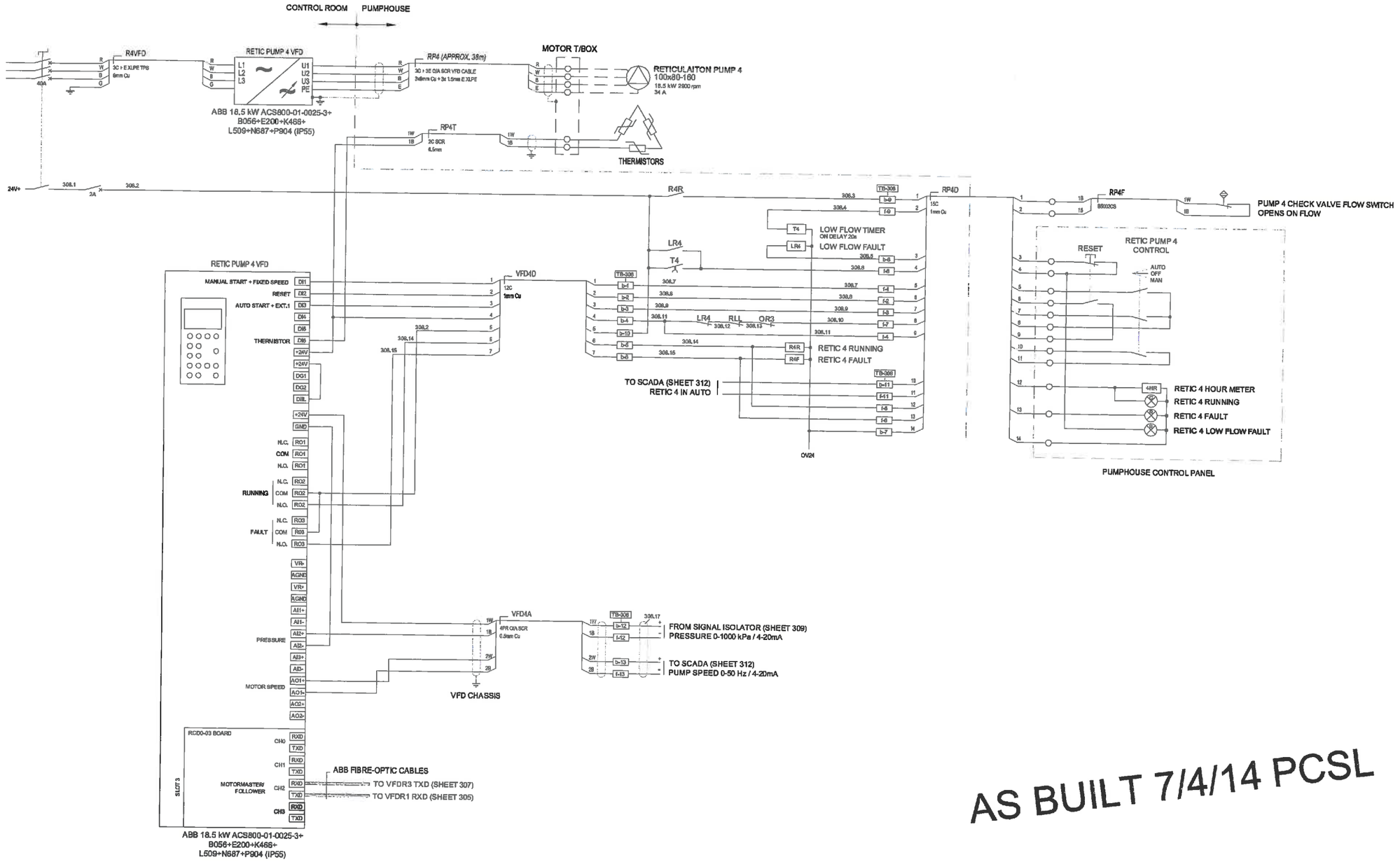
Drawn	Designed	Approved	Revision Date
GB	GB		SEP 2013

Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: ELECTRICAL CONTROLS
RETICULATION PUMP 3 CONTROLS

Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	NTS	6/1515/19/7605	307	RAB

Original Sheet Size A1 [841x594] Plot Date 16 Jun 2014 @ 9:15 a.m. Path C:\envVille_southlselwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\Recieved As-builts\ODG Darfield Water 11378 CAD 301-312.dwg 307



AS BUILT 7/4/14 PCSL

AS BUILT

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	06/14

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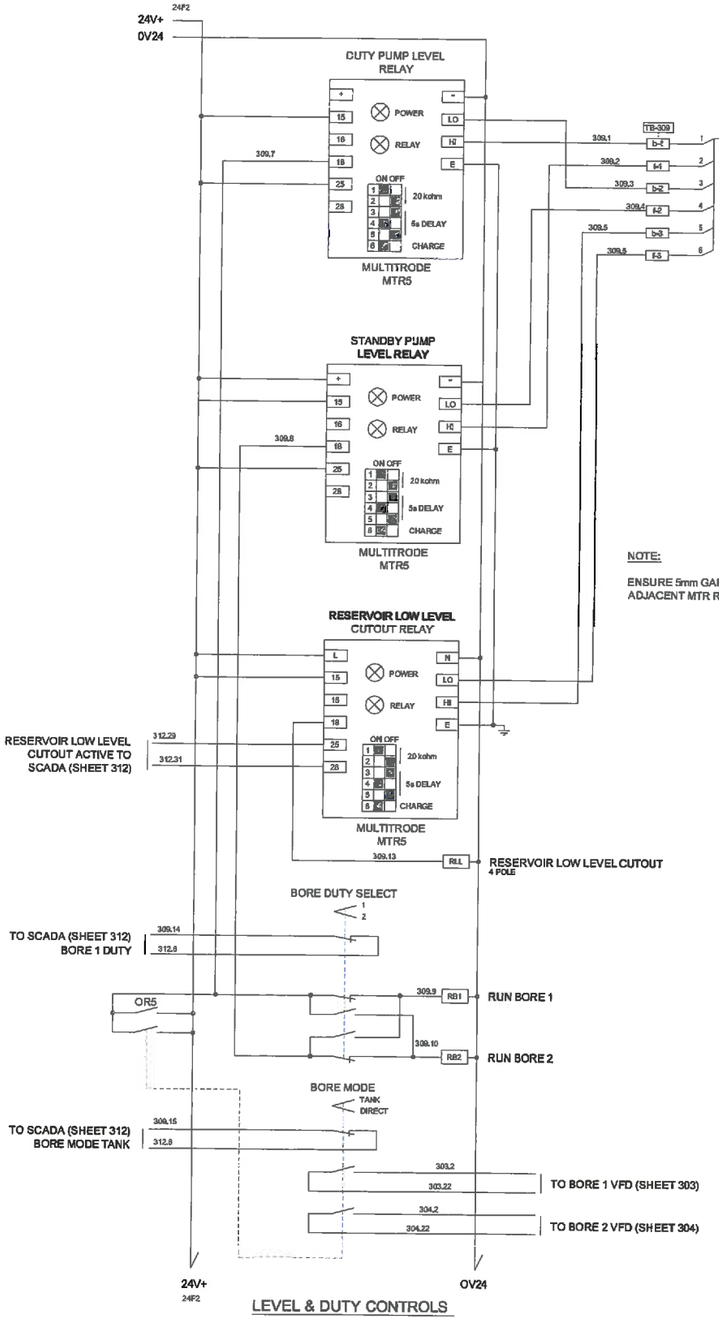
GB	GB		SEP 2013

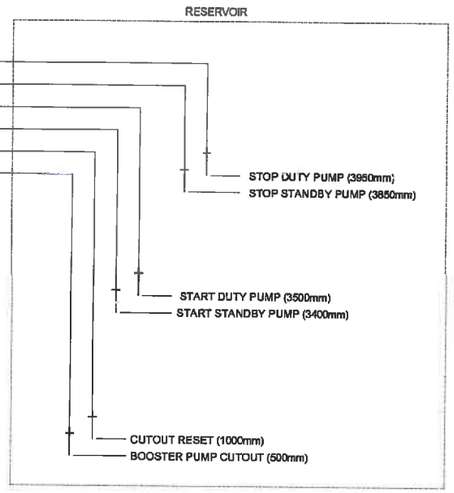
Project No. 3C1004.51 | Scale NTS | Drawing No. 6/1515/19/7605 | Sheet No. 308 | Revision RAB

Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: ELECTRICAL CONTROLS
RETICULATION PUMP 4 CONTROLS



LEVEL & DUTY CONTROLS

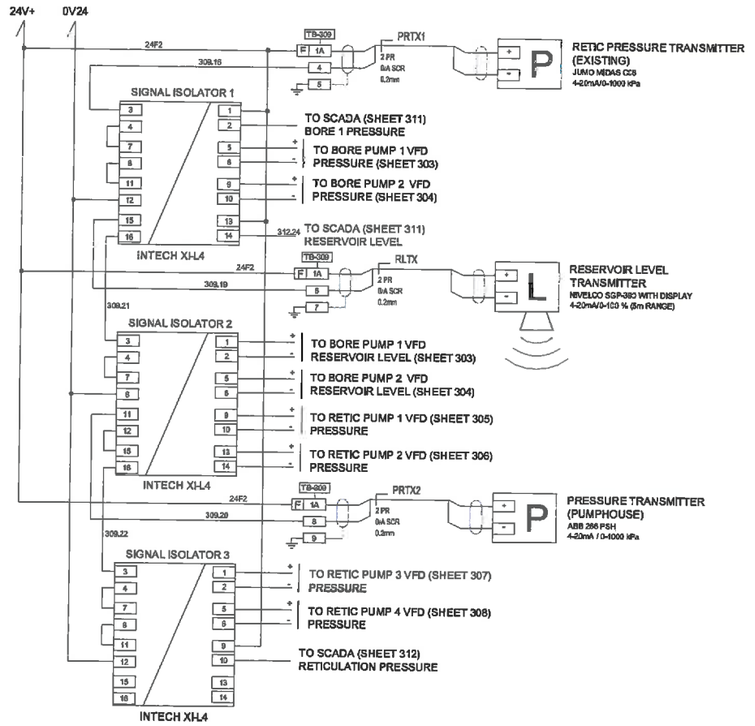


NOTE:

ENSURE 5mm GAP BETWEEN ADJACENT MTR RELAYS

NOTE:

LEVELS SHOWN ARE DISTANCE ABOVE FLOOR LEVEL (OVERFLOW = 4000mm)



SIGNAL ISOLATORS

AS BUILT 7/4/14 PCSL

AS BUILT

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	08/14

Selwyn DISTRICT COUNCIL

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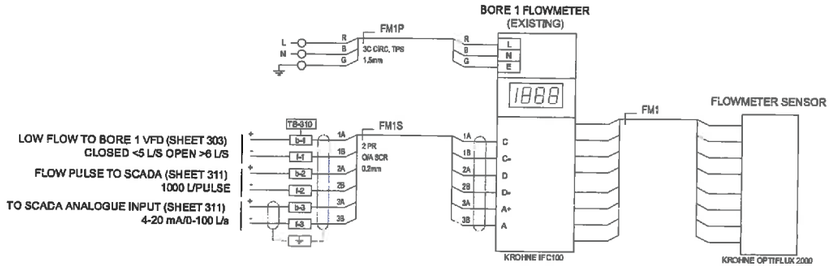
Drawn	Designed	Approved	Revision Date
GB	GB		JAN 2014

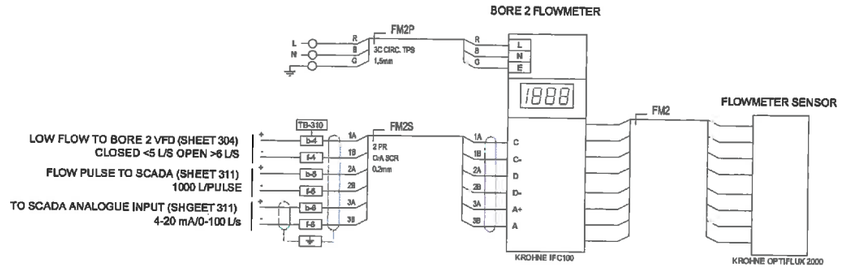
Project No. 3C1004.51 | Scale NTS

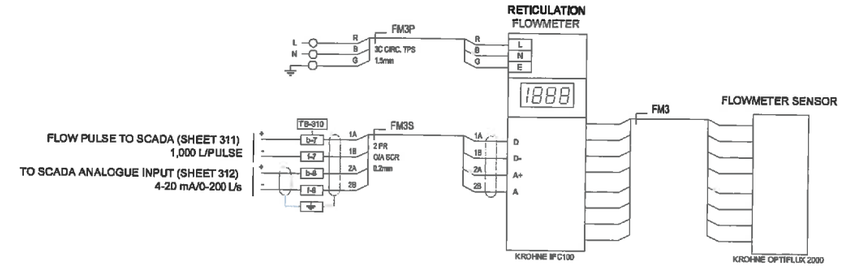
Project: SELWYN DISTRICT COUNCIL DARFIELD WATER SUPPLY UPGRADE CONTRACT 1133

Sheet: ELECTRICAL CONTROLS LEVEL & DUTY CONTROLS

Drawing No. 6/1515/19/7605 | Sheet No. 309 | Revision RAB





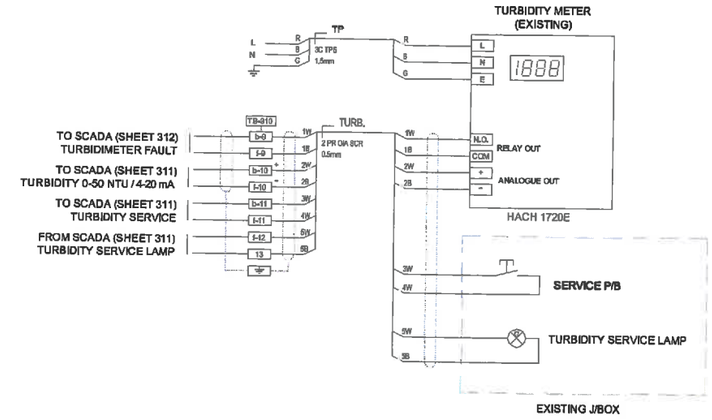


FLOW METERS

NOTE:

RETICULATION FLOWMETER
TRANSMITTER MOUNTED ADJACENT TO
PUMPHOUSE CONTROL PANEL

BORE PUMP FLOWMETER
TRANSMITTERS MOUNTED IN CONTROL
BUILDING



TURBIDIMETER

AS BUILT 7/4/14 PCSL

AS BUILT

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	06/14

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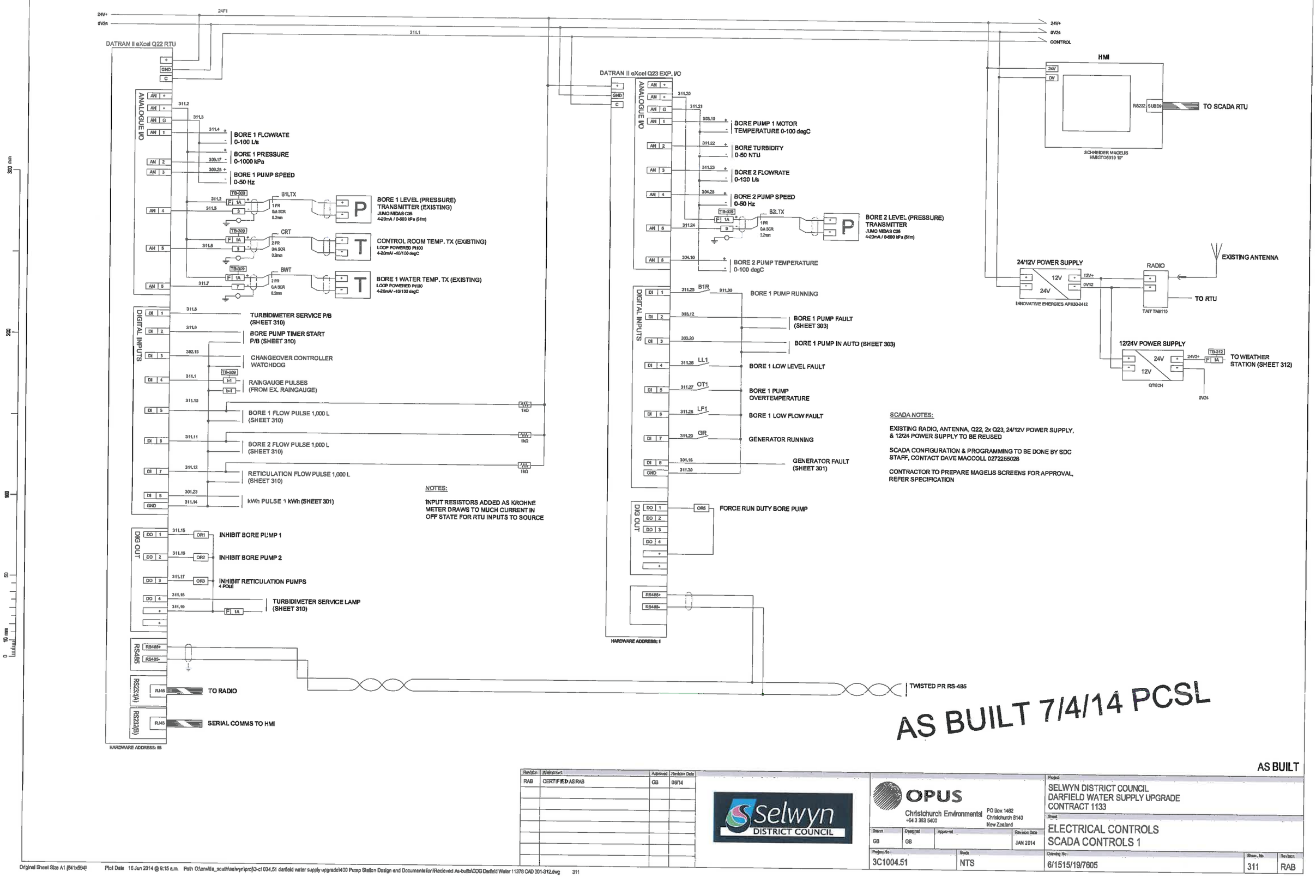
Drawn	Designed	Approved	Revision Date
GB	GB		SEP 2013

Project
SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet
ELECTRICAL CONTROLS
INSTRUMENTATION

Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	NTS	6/1515/19/7605	310	RAB



AS BUILT 7/4/14 PCSL

AS BUILT

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	06/14

Selwyn DISTRICT COUNCIL

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Drawn	Drawing ref	Approval	Revision Date
GB	GB		JAN 2014

Project No: 3C1004.51
Scale: NTS

Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: ELECTRICAL CONTROLS
SCADA CONTROLS 1

Drawing No: 6/1515/19/7605
Sheet No: 311
Revision: RAB

Original Sheet Size A1 (841x594) Plot Date 16 Jun 2014 @ 9:15 a.m. Path C:\envibe_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\Recieved As-builts\DOG Darfield Water 11378 CAD 301-312.dwg 311

24V+
0V24
CONTROL
24F1

+24V2 (SHEET 311)

DATRAN II eXcel Q23 EXP. I/O

ANALOGUE I/O

TB-312

WIND DIRECTION 0-360E
WIND SPEED 0-216 km/h
TEMPERATURE -30 - 70 degC
ATM. PRESSURE 700-1100 mb
HUMIDITY 0-100%

FROM EXISTING WEATHER STATION

DIGITAL INPUTS

GENERATOR IN AUTO (SHEET 301)
GENERATOR MCCB TRIPPED (SHEET 301)
GENERATOR IN TEST MODE (SHEET 302)
A/C 1 RUNNING
A/C 2 RUNNING
TURBIDIMETER FAULT (SHEET 310)
BORE 1 DUTY (SHEET 309)
BORE MODE IN TANK (SHEET 309)

DIG OUT

RS485

HARDWARE ADDRESS: 2

DATRAN II eXcel Q26 DIG. EXP.

DIGITAL INPUTS

BORE PUMP 2 RUNNING
BORE PUMP 2 FAULT (SHEET 304)
BORE PUMP 2 IN AUTO (SHEET 304)
BORE PUMP 2 OVERTEMP
BORE 2 LOW LEVEL FAULT
BORE 2 LOW FLOW FAULT
RETIC PUMP 1 RUNNING
RETIC PUMP 1 FAULT

DIGITAL INPUTS

RETIC PUMP 1 IN AUTO (SHEET 305)
RETIC PUMP 1 LOW FLOW FAULT
RETIC PUMP 2 RUNNING
RETIC PUMP 2 FAULT
RETIC PUMP 2 IN AUTO (SHEET 306)
RETIC PUMP 2 LOW FLOW FAULT
RETIC PUMP 3 RUNNING
RETIC PUMP 3 FAULT

DIG OUT

RS485

HARDWARE ADDRESS: 3

DATRAN II eXcel Q23 EXP. I/O

ANALOGUE I/O

RETIC PUMP 1 MOTOR SPEED 0-50 Hz
RETIC PUMP 2 MOTOR SPEED 0-50 Hz
RETIC PUMP 3 MOTOR SPEED 0-50 Hz
RETIC PUMP 3 MOTOR SPEED 0-50 Hz
RETIC FLOWRATE 0-200 L/s
RESERVOIR LEVEL 0-100 % (SHEET 309)

DIGITAL INPUTS

RETIC PUMP 3 IN AUTO (SHEET 307)
RETIC PUMP 3 LOW FLOW FAULT
RETIC PUMP 4 RUNNING
RETIC PUMP 4 FAULT
RETIC PUMP 4 IN AUTO (SHEET 308)
RETIC PUMP 4 LOW FLOW FAULT
RETIC PUMP LOW LEVEL CUTOUT ACTIVE (SHEET 309)
NETWORK POWER FAIL

DIG OUT

RS485

HARDWARE ADDRESS: 4

DATRAN II eXcel Q23 EXP. I/O

ANALOGUE I/O

RETICULATION PRESSURE 0-1000 kPa (SHEET 309)

DIGITAL INPUTS

THD FILTER FAULT (SHEET 301)
DC POWER OK (OPENS ON FAULT) (SHEET 302)
BUS POWER FAIL
PUMPHOUSE FLOOD (OPENS ON FAULT) (SHEET 302)

DIG OUT

RS485

HARDWARE ADDRESS: 5

TWISTED PR RS-485

AS BUILT 7/4/14 PCSL

AS BUILT

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	05/14

Selwyn DISTRICT COUNCIL

OPUS
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PO Box 1482
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New Zealand

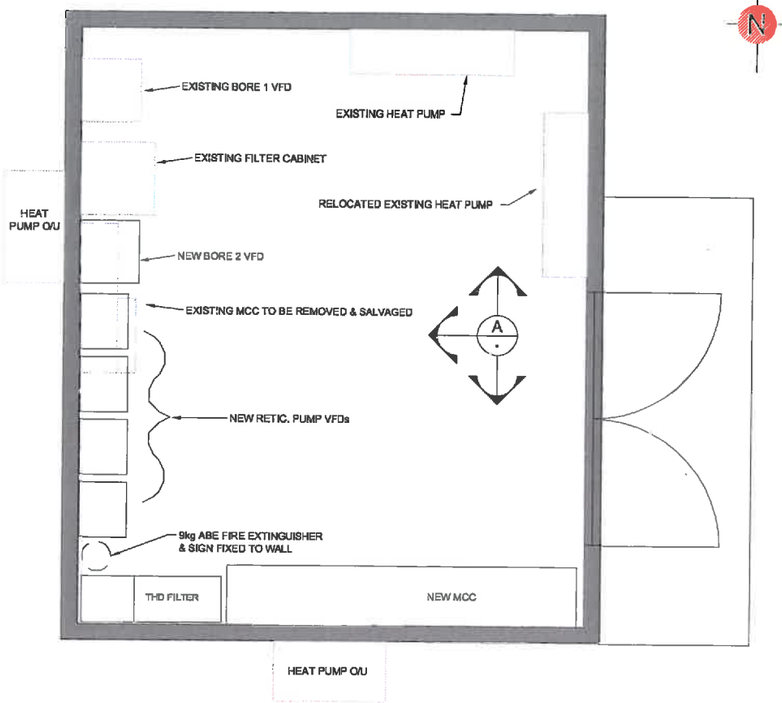
Drawn	Designed	Approved	Revision Date
GB	GB		JAN 2014

Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

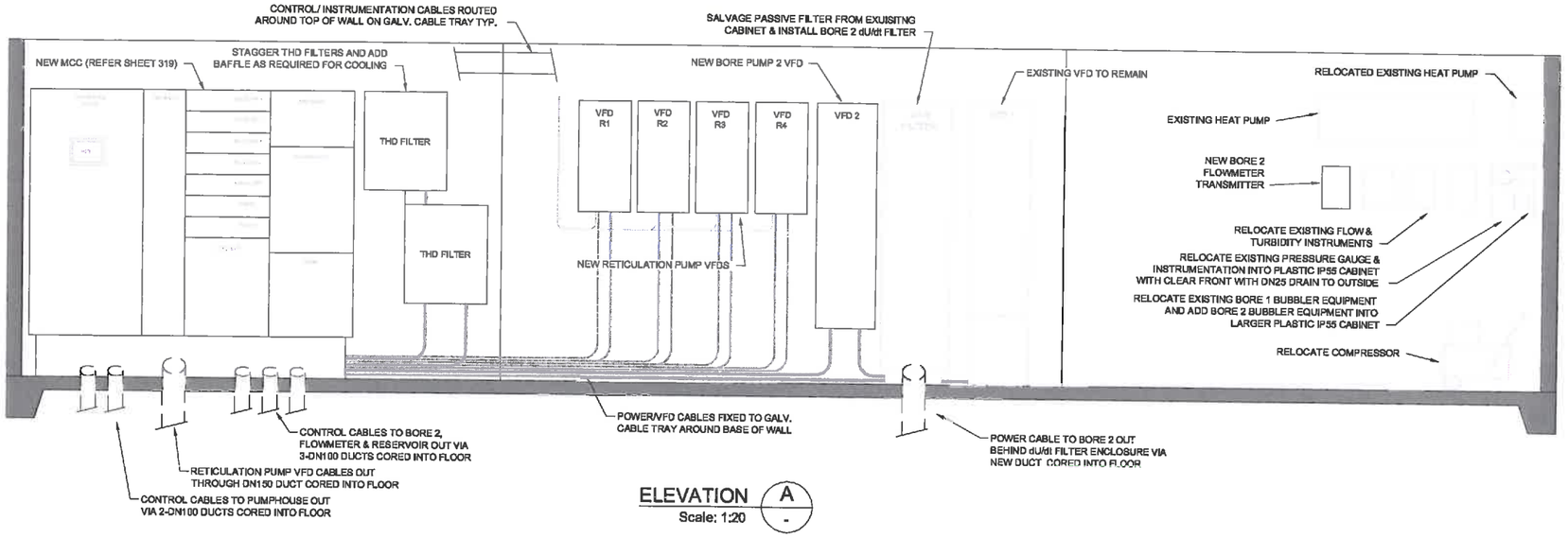
Sheet: ELECTRICAL CONTROLS
SCADA CONTROLS 2

Project No.	Scale	Drawing No.	Sheet No.	Revision
3C1004.51	NTS	6/1515/19/7605	312	RAB

Original Sheet Size A1 [841x594] Plot Date 16 Jun 2014 @ 9:15 a.m. Path O:\envVita_southlse\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\Revised As-builts\DDG Darfield Water 11378 CAD 301-312.dwg 312



CONTROL ROOM PLAN
Scale: 1:20



ELEVATION A
Scale: 1:20

AS BUILT

CERTIFIED BY
DESIGNATION Senior Water Engineer
DATE 2/7/2014

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB		05/14

Selwyn DISTRICT COUNCIL

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Drawn	Designed	Approved	Revised Date
GB	GB		MAY 2014

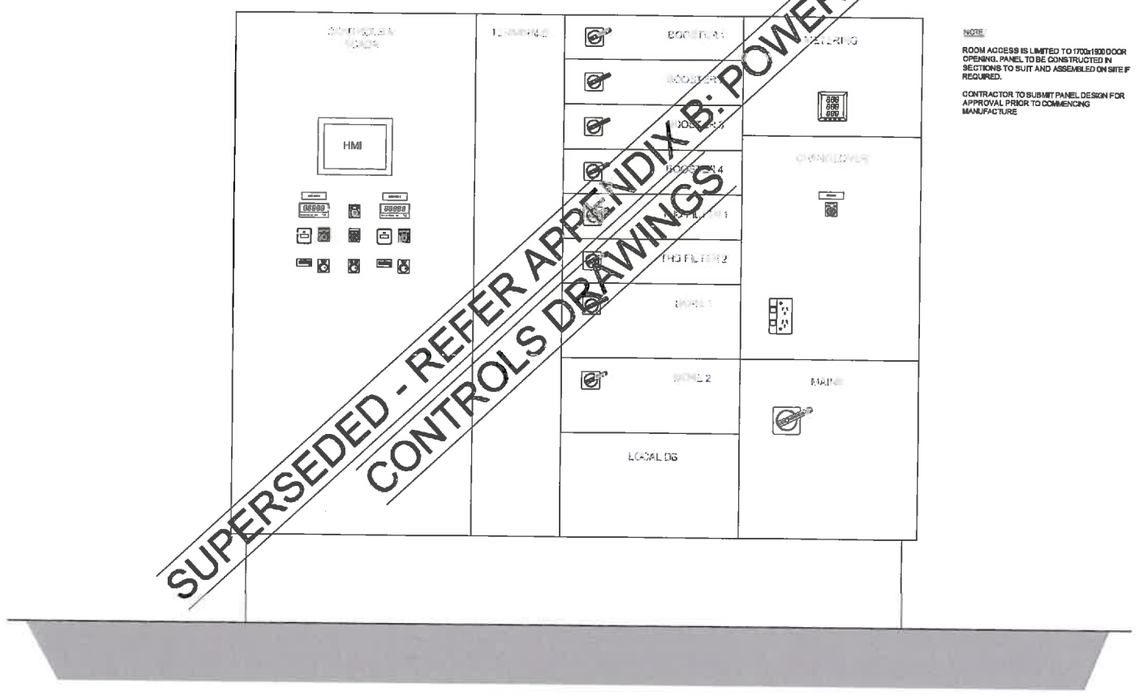
Project No. 3C1004.51
Scale AS SHOWN (A1)

Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: CONTROL BUILDING
LAYOUT MODIFICATIONS

Drawing No. 6/1515/19/7605
Sheet No. 300
Revision RAB

AS BUILT

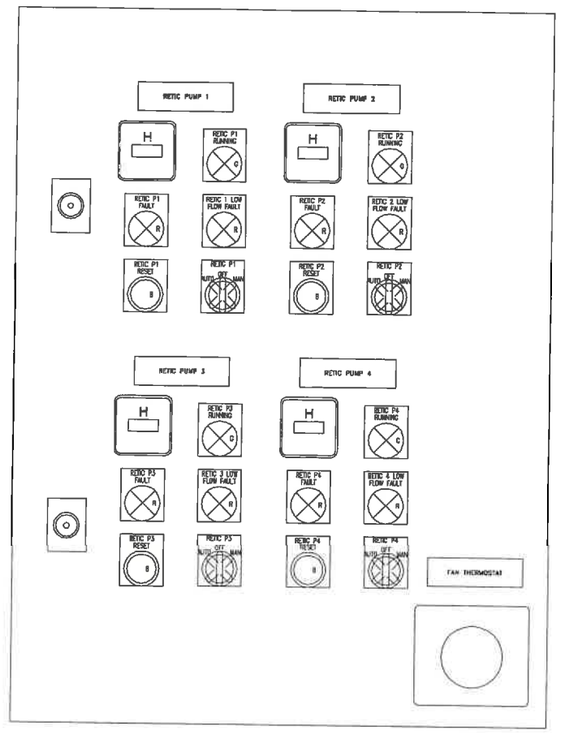


NOTE

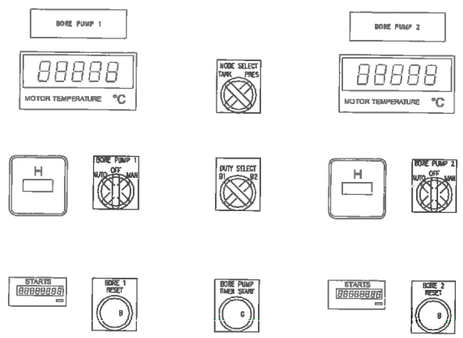
ROOM ACCESS IS LIMITED TO 1700x1800 DOOR OPENING. PANEL TO BE CONSTRUCTED IN SECTIONS TO SUIT AND ASSEMBLED ON SITE IF REQUIRED.

CONTRACTOR TO SUBMIT PANEL DESIGN FOR APPROVAL PRIOR TO COMMENCING MANUFACTURE

MSB/MCC ELEVATION
Scale: 1:20



PUMPHOUSE CONTROL PANEL
Scale: 1:2.5



MCC CONTROLS DETAIL
Scale: 1:2.5

AS BUILT

CERTIFIED BY

DESIGNATION

DATE 21/7/2014

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	08/14

Selwyn DISTRICT COUNCIL

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Drawn	Designed	Approved	Revision Date
GB	GB		SEP 2013

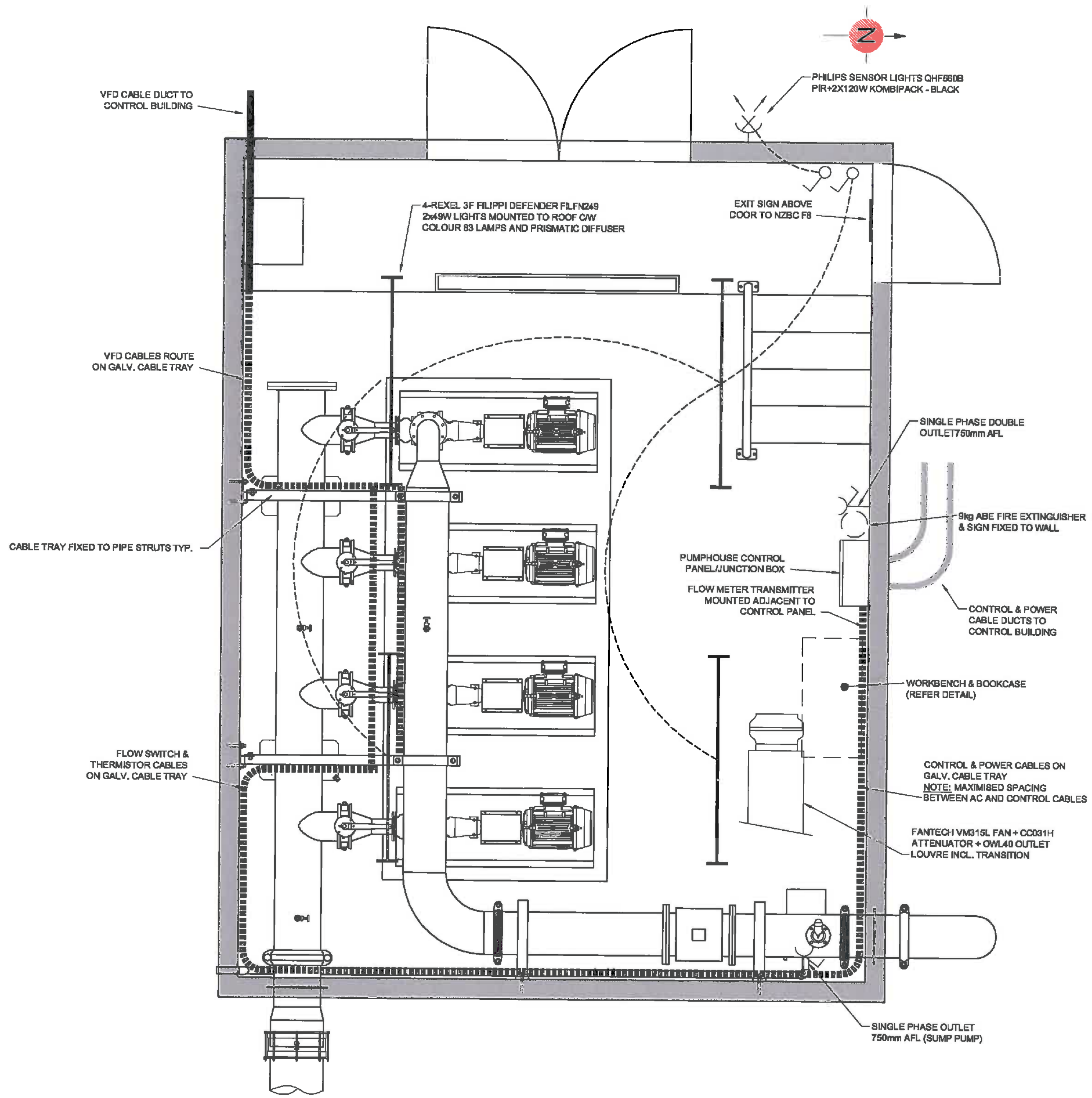
Project No. 3C1004.51 | Scale AS SHOWN (A1)

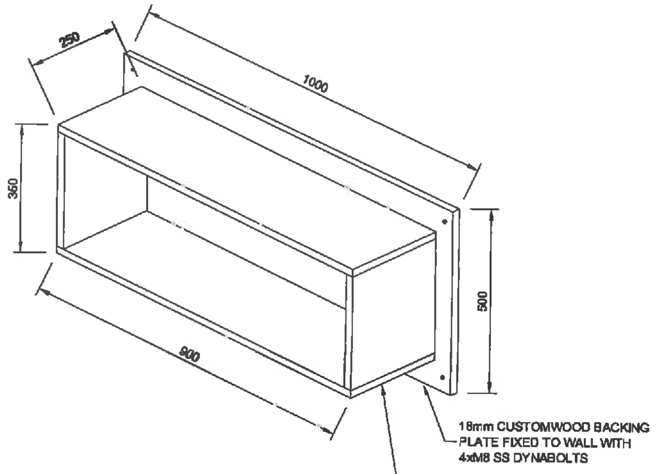
Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: MSB/MCC & PUMPHOUSE CONTROL PANEL INDICATIVE LAYOUTS

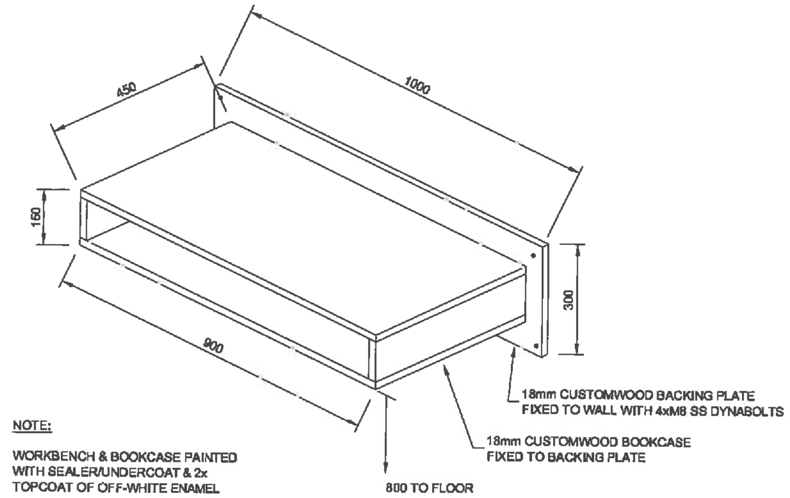
Drawing No. 6/1515/19/7605 | Sheet No. 319 | Revision RAB

AS BUILT





BOOKCASE
1:10



NOTE:
WORKBENCH & BOOKCASE PAINTED WITH SEALER/UNDERCOAT & 2x TOPCOAT OF OFF-WHITE ENAMEL

WORKBENCH
1:10

AS BUILT

CERTIFIED BY [signature]
DESIGNATION
DATE 2/7/2014

AS BUILT

Revision	Amendment	Approved	Revision Date
RAB	CERTIFIED AS RAB	GB	06/14

Selwyn District Council

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Drawn	Designed	Approved	Revision Date
GB	GB		SEP 2013

Project No.: 3C1004.51
Scale: AS SHOWN (A1)

Project: SELWYN DISTRICT COUNCIL
DARFIELD WATER SUPPLY UPGRADE
CONTRACT 1133

Sheet: PUMPHOUSE
LIGHTING & CABLING DETAILS

Drawing No.: 6/1515/19/7605
Sheet No.: 320
Revision: RAB

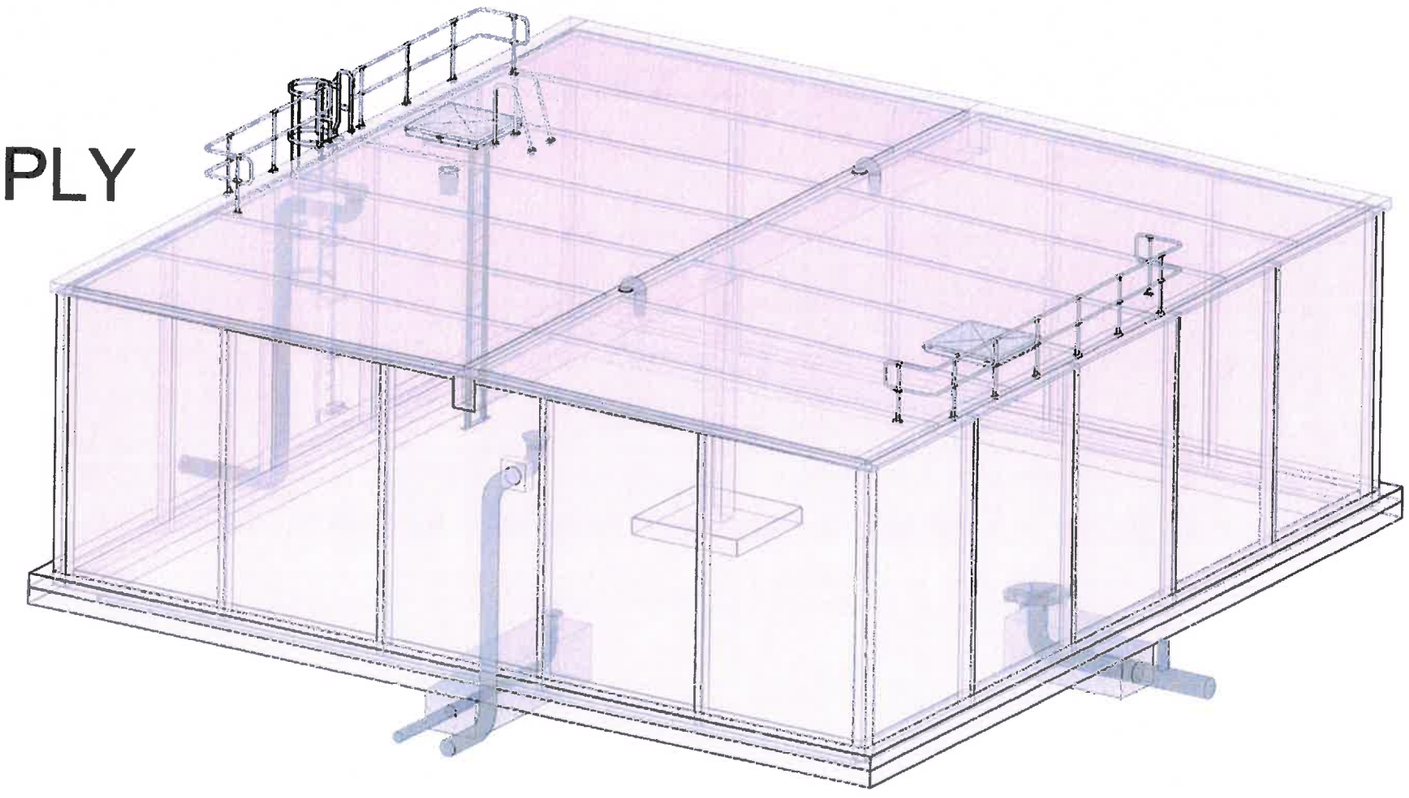
Original Sheet Size A1 [841x594] Plot Date 16 Jun 2014 @ 9:00 a.m. Path O:\anvils_south\selwyn\proj\3-c1004.51 darfield water supply upgrade\400 Pump Station Design and Documentation\10 Drawings\SH73 Headworks AS-BUILT.dwg 320

strata group
CONSULTING ENGINEERS

DRAWING SHEET LIST			
Sheet Number	Sheet Name	Current Revision	Current Revision Date
001	CIVIL NOTES	C	24-03-2014
002	STRUCTURAL NOTES - CONCRETE / MASONRY	C	24-03-2014
C001	SITE PLAN	C	24-03-2014
S100	FLOOR PLAN	D	24-03-2014
S101	ROOF PLAN	D	24-03-2014
S200	SECTIONS	D	24-03-2014
S300	DETAILS	C	24-03-2014
S301	DETAILS	C	24-03-2014
S302	DETAILS	D	24-03-2014

CONCRETE STRUCTURES (NZ) LTD

DARFIELD WATER SUPPLY UPGRADE



AS BUILT
CERTIFIED BY:
DESIGNATIOIN: Civil Manager CSL
DATE: 2/4/14

Project No. J3182

AS BUILT

24-03-2014

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Structural Fire Geotechnical Civil Strategic Planning

GENERAL

1. ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE.
2. BOUNDARY INFORMATION SHOWN SUPPLIED BY
3. LEVEL DATUM - HB DATUM.
4. COORDINATES IN TERMS OF HB2000 DATUM.
5. ALL WORK IS TO BE SET OUT BY A REGISTERED SURVEYOR.
6. ALL MEASUREMENTS ARE TO BE CONFIRMED ON SITE. ANY DISCREPANCIES BETWEEN THE SITE MEASURES AND THE DRAWINGS ARE TO BE BROUGHT TO THE ATTENTION OF THE DESIGNER AT THE EARLIEST CONVENIENCE
7. ALL UNDERGROUND SERVICES SHOWN ON THE DRAWINGS ARE INDICATIVE ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT NETWORK UTILITY PROVIDERS TO HAVE THE SERVICES MARKED ON SITE. ALL CRITICAL SERVICES SHOULD BE POTHOLED BY THE CONTRACTOR PRIOR TO COMMENCING WORK.

STORMWATER

1. ALL uPVC PIPES ARE TO BE STIFFNESS CLASS SN8 UNLESS STATED OTHERWISE ON THE PLANS.
2. ALL CONCRETE PIPES ARE TO BE CLASS X RCRRJ UNLESS STATED OTHERWISE ON THE PLANS.
3. ALL SINGLE SUMPS TO HAVE 225 DIA RCRRJ LATERAL

SANITARY SEWER

1. ALL uPVC PIPES ARE TO BE STIFFNESS CLASS SN8 UNLESS STATED OTHERWISE ON THE PLANS
2. ALL CONCRETE PIPES ARE TO BE CLASS X RCRRJ UNLESS STATED OTHERWISE ON THE PLANS.

WATER

1. WATER BORE AND RELATED SERVICES DESIGN BY OTHERS.

LEGEND

1 ABBREVIATIONS USED ON THE PLANS

SW STORMWATER	K+C CONCRETE KERB AND CHANNEL
SS SANITARY SEWER	AC ASPHALTIC CONCRETE
W WATER	TOB TOP OF BANK
TW TRADE WASTE	BOB BOTTOM OF BANK
FH FIRE HYDRANT	FO FIBRE OPTIC
SV SLUICE VALVE	TP TANGENT POINT
GV GATE VALVE	CTP COMMON TANGENT POINT
EOS EDGE OF SEAL	CL CENTRELINE

LINES AND SYMBOLS USED ON THE PLANS

STORMWATER

EXISTING SW PIPE
SW PIPE TO BE REMOVED
PROPOSED SW PIPE
EXISTING SW MANHOLE
SW MANHOLE TO BE REMOVED
PROPOSED SW MANHOLE
SW RODDING EYE
SW INSPECTION CHAMBER
SW PUMP STATION
SW SUMP / DOUBLE SUMP EXISTING
SW SUMP / DOUBLE SUMP NEW
EXISTING SUBSOIL DRAIN
PROPOSED SUBSOIL DRAIN
OVERLAND FLOW PATH
PRECAST CONCRETE HEADWALL

SANITARY SEWER

EXISTING SS PIPE
SS PIPE TO BE REMOVED
PROPOSED SS PIPE
EXISTING SS MANHOLE
SS MANHOLE TO BE REMOVED
PROPOSED SS MANHOLE
SS RODDING EYE
SS INSPECTION CHAMBER
SS PUMP STATION

WATER

EXISTING WATER PIPE
WATER PIPE TO BE REMOVED
PROPOSED WATER PIPE
EXISTING WATER TOBY
WATER TOBY TO BE REMOVED
PROPOSED WATER TOBY
EXISTING WATER VALVE
WATER VALVE TO BE REMOVED
PROPOSED WATER VALVE
EXISTING FIRE HYDRANT
FIRE HYDRANT TO BE REMOVED
PROPOSED FIRE HYDRANT
WATER PUMP STATION

TRADE WASTE

EXISTING TW PIPE
TW PIPE TO BE REMOVED
PROPOSED TW PIPE
EXISTING TW MANHOLE
TW MANHOLE TO BE REMOVED
PROPOSED TW MANHOLE
TW RODDING EYE
TW INSPECTION CHAMBER
TW PUMP STATION

UTILITIES

POWER
GAS
TELECOMMUNICATIONS

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CERTIFIED BY:
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C	AS BUILT ISSUE	24.03.2014	DS
B	ISSUED FOR CONSTRUCTION	21-10-2013	DS
A	ISSUED FOR PRELIM PEER REVIEW	03.09.2013	DS
1	ISSUED FOR INFORMATION	19.07.2013	DS
Revision	Revision For Issue	Date	By

THE CONTRACTOR IS TO BE AWARE OF ALL INSPECTIONS TO BE MADE BY THE ENGINEER AS A REQUIREMENT OF THE PRODUCER STATEMENT PS4 CONSTRUCTION REVIEW DOCUMENTATION, THE ENGINEER WILL REQUIRE 24 HOURS PRIOR NOTIFICATION WHEN ALL STRUCTURAL ELEMENTS ARE READY TO BE INSPECTED.

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Client
CONCRETE STRUCTURES (NZ) LTD

Project
DARFIELD WATER SUPPLY UPGRADE

Title
CIVIL NOTES

Designed DB	A1 Scale
Drawn DB	A1 Scale HALF SCALE
Checked DB	
Date OCTOBER 2013	

Project No	Sheet	Revision
J3182	001	C

SITE SPECIFIC TABLE:

EARTHQUAKE ZONE (NZS3604)	2
WIND ZONE	H (kPa)
SOIL TYPE	D
DESIGN LIFE	80 years
NZS 3101:2006 EXPOSURE CLASSIFICATION (TABLE 3.1) =	B2
CONCRETE ELEMENT:	MPa
FOUNDATION	35
FLOOR	35
PRECAST	45

GENERAL

1. STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION, CIVIL AND ENGINEERING SERVICES DOCUMENTS.
2. UNLESS OTHERWISE NOTED, ALL LEVELS AND DIMENSIONS ARE IN MILLIMETRES.
3. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING FROM DRAWINGS.
4. ALL DISCREPANCIES SHALL BE REFERRED TO THE DESIGN ENGINEER FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
5. THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR.
6. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT CODES OF PRACTICE EXCEPT WHERE VARIED BY THE SPECIFICATION AND/OR DRAWINGS.
7. WHERE PROPRIETY PRODUCTS ARE SPECIFIED IN THE DOCUMENTS THE CONTRACTOR MAY SUBMIT ALL ALTERNATIVE PRODUCT FOR APPROVAL.
8. CONTRACTOR TO CHECK LOCATION OF EXISTING SERVICES PRIOR TO ANY EXCAVATION WORK. NOTIFY ENGINEER OF ANY CONFLICTS AND AWAIT APPROVAL BEFORE PROCEEDING.
9. D&E INDICATES DRILL & EPOXY WITH EPCON C8 (EPCON C8 EXTREME FOR SIZES OVER 20Ø) UNLESS NOTED OTHERWISE.

CONCRETE

1. MINIMUM CONCRETE STRENGTHS SHALL BE AS SPECIFIED IN SITE SPECIFIC TABLE, UNLESS NOTED OTHERWISE ON DRAWINGS.
2. SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
3. CONSTRUCTION JOINTS WHERE NOT SHOWN ON DRAWINGS SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.
4. NO PENETRATIONS, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN ON CONCRETE MEMBERS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRECAST UNITS FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK.
6. TOLERANCES AND FINISHES TO BE AS PER SPECIFICATION.
7. SCHEDULES OF SURFACE FINISHES. NZS3114.1987.

ELEMENT	FINISH
EXPOSED CONCRETE FACES OF ABUTMENTS AND PILES	F5
CONCEALED FOUNDATION SURFACES	F1
TOP SURFACES OF FOUNDATION BEAMS AND PADS	U3
VISIBLE FOUNDATION SURFACES	F5
CONCRETE NOT EXPOSED IN FINISHED STRUCTURE (FORMED)	F1
CONCRETE NOT EXPOSED IN FINISHED STRUCTURE (UNFORMED)	U3
ALL PRECAST SURFACES EXPOSED IN THE FINISHED JOB	F5

*OFF A STEEL FORM

PRECAST WALLS

1. SHOULD THE CONTRACTOR WISH TO DO PARTIAL CONSTRUCTION OF FOUNDATION, THE TEMPORARY PROPPING METHODOLOGY TO THE PRECAST WALLS IS TO BE CONFIRMED WITH THE ENGINEER.

REINFORCEMENT

1. REINFORCING DESIGNATION AS FOLLOWS:

NOTE: HD / XD BARS ARE TO BE BENT DURING CONSTRUCTION ONCE ONLY.

SYMBOL	TYPE
R	PLAIN BARS GRADE 300 TO AS/NZS 4671 (300 MPa)
HR / XR	PLAIN BARS GRADE 500 TO AS/NZS 4671 (500 MPa)
D	DEFORMED BARS GRADE 300 TO AS/NZS 4671 (300 MPa)
HD / XD	DEFORMED BARS GRADE 500 TO AS/NZS 4671 (500 MPa)
M	MESH TO NZS 3422
RB	DEFORMED REIDBAR GRADE 500 MPa

2. CLEAR COVER TO ALL REINFORCEMENT, INCLUDING STIRRUPS, TIES ETC SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE ON THE DRAWINGS AND SPECIFICATION

TABLE 3.7 - MINIMUM REQUIRED COVER FOR A SPECIFIED INTENDED LIFE OF 100 YEARS								
EXPOSURE CLASSIFICATION	CEMENT BINDER TYPE	SPECIFIED COMPRESSIVE STRENGTH (MPa)						
		25	30	35	40	45	50	60 100
		MINIMUM REQUIRED COVER (mm)						
B2	GP, GB OR HE		65	55	50	45	40	35

NOTE:
FOR ZONE C THE TOTAL BINDER CONTENT SHALL BE EQUAL TO OR GREATER THAN 350kg/m³ AND WATER TO BINDER RATIO SHALL NOT EXCEED 0.45
THE MINIMUM COVER FOR THE C ZONE SHALL BE 50mm

3.11.3.3 CASTING AGAINST GROUND:
WHERE CONCRETE IS CAST ON OR AGAINST GROUND AND COMPACTED IN ACCORDANCE WITH NZS 3109, THE MINIMUM COVER FOR A SURFACE IN CONTACT WITH THE GROUND SHALL BE 75MM, OR 50MM IF USING A DAMP-PROOF MEMBRANE BETWEEN THE GROUND AND THE CONCRETE TO BE CAST.

3. NO REINFORCEMENT SPLICES SHALL BE MADE OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
REINFORCEMENT LAPS IN CONCRETE TO COMPLY WITH THE TABLE BELOW:
SPLICE LAP LENGTHS FOR DEFORMED BARS (IN MM) NZS3101:2006 8.8.3 (EQN 8.2).

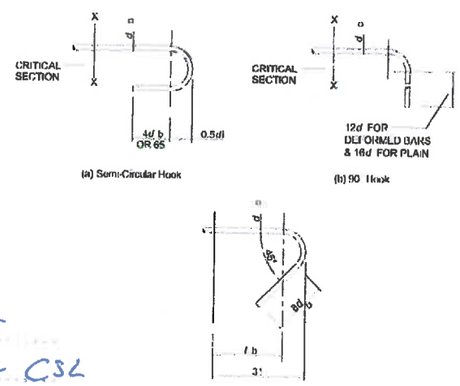
LAPS

LAP LENGTHS

HOOK BARS	12 Ø
D BARS	40 Ø
HD BARS	50 Ø

THE DEVELOPMENT OF PLAIN BARS SHALL RELY ON HOOKS.

4. EPOXY GROUTING OF REINFORCING BARS INTO CONCRETE:
HOLES FOR VERTICAL BARS SHALL BE VERTICAL. HOLES FOR HORIZONTAL STARTERS SHALL SLOPE DOWN AT 15 DEGREES.
5. WELDING OF REINFORCEMENT IS NOT PERMITTED.
6. TOP AND BOTTOM REINFORCEMENT IN SLABS SHALL BE ADEQUATELY SUPPORTED TO ENSURE ALL REINFORCEMENT STAYS IN PLACE DURING CONCRETE POURING.
7. STANDARD HOOKS AND BENDS. NZS3101:8.6.



ALL DIMENSIONS ARE FROM OUTSIDE TO OUTSIDE OF BARS EXCEPT RADII WHICH ARE TO INSIDE OF BAR. 'd' DENOTES BAR DIAMETER

BAR SIZE	MINIMUM FORMER PIN DIAMETER (mm)		
	MAIN STELL GRADE 300/500	STIRRUPS AND TIES GRADE 300/500	
		PLAIN ROUND	DEFORMED
6	30	12	24
10	50	20	40
12	60	24	48
16	80	32	64
20	100	40	80
24	144	72	144
32	192	96	192
40	240	120	240

TABLE 8.1 & 8.2 NZS3101:2006

NOTE: FOR STIRRUPS AND TIES, WHERE THE MAIN BAR SIZE IS GREATER THAN THE MINIMUM FORMER PIN DIAMETER, THE MAIN BAR SIZE WILL GOVERN.

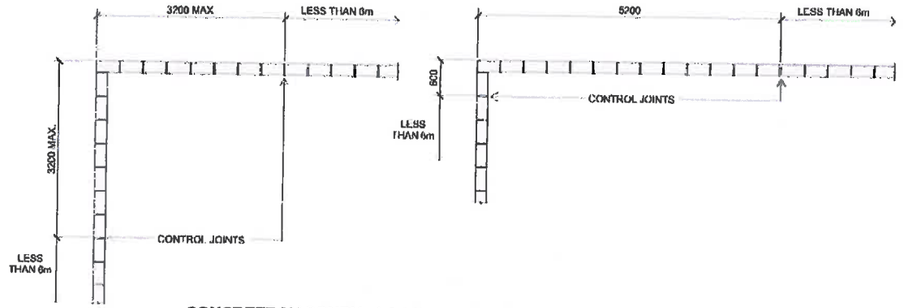
8. STANDARD BAR CRANK

WHEN MAIN BARS ARE OFFSET, i.e. FOR CRANKED LAPS, THE SLOPE OF THE INCLINE PORTION OF THE BAR SHALL NOT EXCEED 1 IN 6.

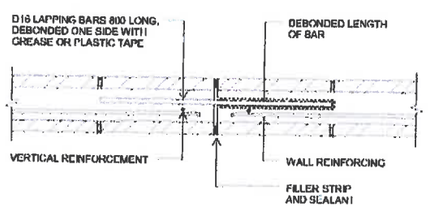
9. REINFORCING SPIRAL FOR CONCRETE POLES MUST HAVE ONE FULL TURN PLUS WELDED TERMINATOR AT EACH END AND WHEN SPLICED.

10. MESH REINFORCING REQUIREMENTS IN CONCRETE SLABS LISTED IN MESH TABLE BELOW UNLESS NOTED OTHERWISE ON DRAWINGS

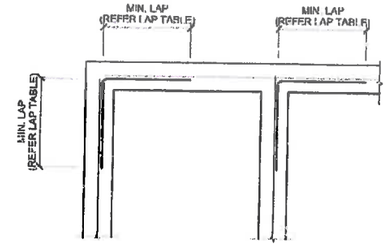
MESH:	
SLAB THICKNESS:	MESH:
100mm	SE82
125mm	SE72
150mm	SE82



CONCRETE MASONRY - LOCATION OF CONTROL JOINTS FOR SHRINKAGE



CONCRETE MASONRY - CONTROL JOINT DETAIL



TYPICAL HORIZONTAL REINFORCING LAP DETAIL

AS BUILT
CERTIFIED BY: ...
DESIGNATIOIN: Civil Manager CSL
DATE: 2/4/14

Revision	Reason For Issue	Date	By
C	AS BUILT ISSUE	24.03.2014	DS
b	ISSUED FOR CONSTRUCTION	21.10.2013	DS
A	ISSUED FOR PRELIM PEER REVIEW	04.04.2013	DS
-	ISSUED FOR INFORMATION	16.07.2013	DS

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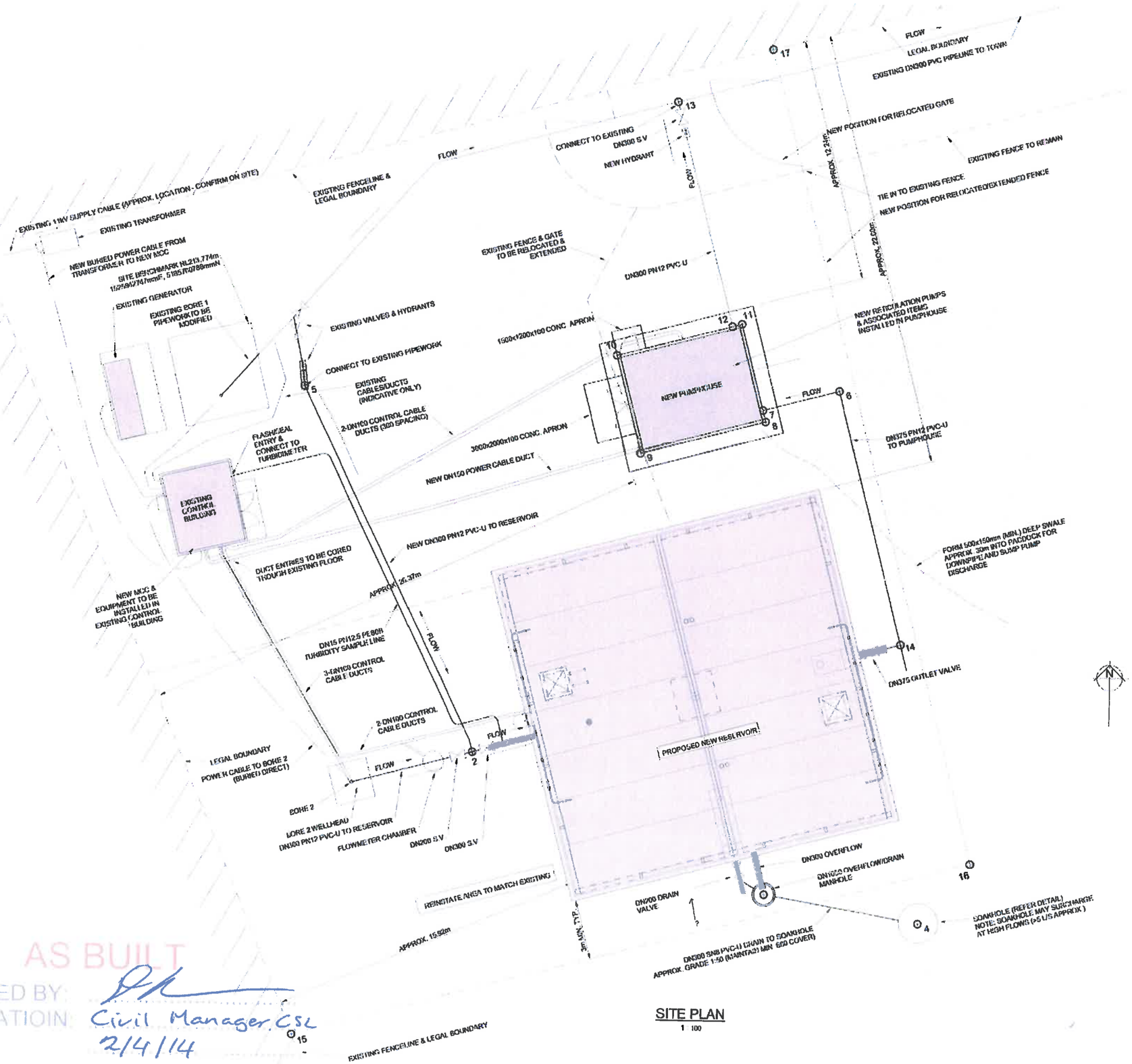
Project
DARFIELD WATER SUPPLY UPGRADE

Title
STRUCTURAL NOTES - CONCRETE / MASONRY

Designed	DS	At Scale	
Drawn	DS	Unlimited	
Checked	DB	At Scale	
Date	OCTOBER 2013	HALF SCALE	

Project No	Sheet	Revision
J3182	002	C



SITE PLAN
1 100

GENERAL NOTES

1. REFER TO OPUS DRAWINGS FOR ALL PIPE INFORMATION INCLUDING SIZES, LOCATIONS, INVERT LEVELS AND CONNECTION DETAILS PIPES SHOWN IN THIS SET OF DRAWINGS INDICATIVE ONLY.
2. CONTRACTOR TO CONFIRM ALL ELECTRICAL DETAILS INCLUDING LEVEL SENSORS AND PROBES AND THEIR RESPECTIVE POSITIONS.

Revision		Date	By
C	AS BUILT ISSUE	24-03-2014	DB
B	ISSUED FOR CONSTRUCTION	21.10.2013	DB
A	ISSUED FOR PRELIM PEER REVIEW	05.09.2013	DB
	Review For Issue		

THE CONTRACTOR IS TO BE AWARE OF ALL INSPECTIONS TO BE MADE BY THE ENGINEER AS A REQUIREMENT OF THE PRODUCER STATEMENT PS4 CONSTRUCTION REVIEW DOCUMENTATION. THE ENGINEER WILL REQUIRE 24 HOURS PRIOR NOTIFICATION WHEN ALL STRUCTURAL ELEMENTS ARE READY TO BE INSPECTED.

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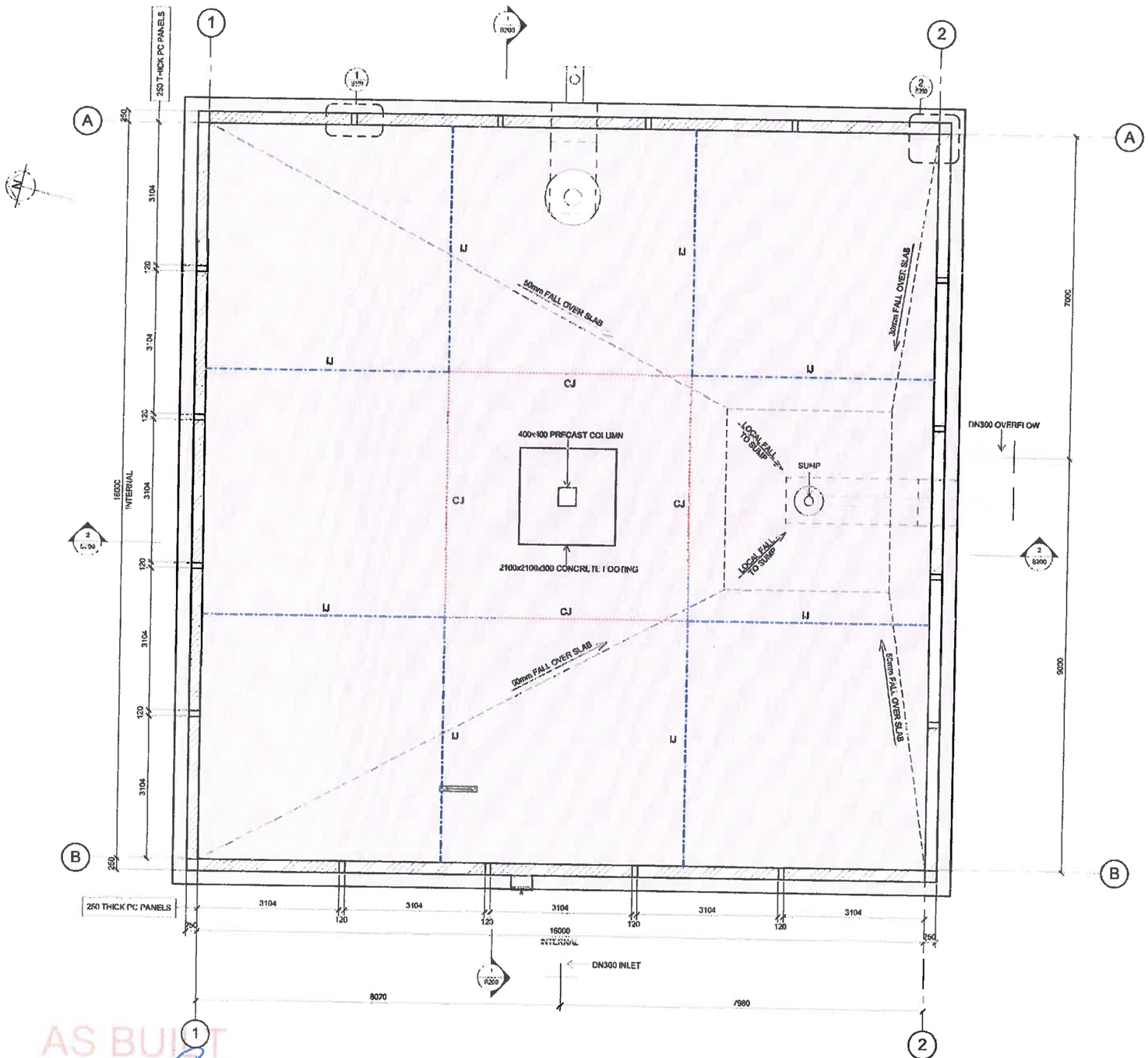
Project
DARFIELD WATER SUPPLY UPGRADE

Title
SITE PLAN

Designed DB	At Scale 1 100
Drawn DB	At Scale HALF SCALE
Checked DB	
Date OCTOBER 2013	
Project No J3182	Sheet C001
	Revision C

AS BUILT
CERTIFIED BY:
DESIGNATIOIN: Civil Manager CSL
DATE: 2/4/14

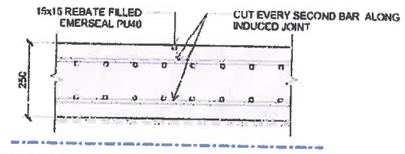


FLOOR PLAN
1 : 50

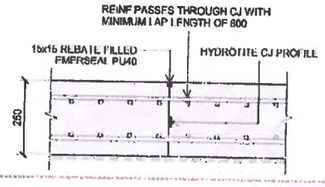
AS BUILT
CERTIFIED BY:
DESIGNATION: Civil Manager CSL
DATE: 2/4/14

NOTE

USE SIKATOP 107 PAINTED OVER SEALED JOINTS AND WALL JOINTS APPLY AS FOLLOWS
- 50mm WIDE STRIPS (25mm FROM CTR OF EACH JOINT)
- 175mm WIDE STRIPS OVER INSITU WALL JOINTS (120mm JOINT PLUS 2x 25mm EACH SIDE.)
- ALONG ANY HAIRLINE CRACKS THAT MAY DEVELOP



TYPICAL INDUCED JOINT DETAIL (IJ)
1 : 10



TYPICAL CONSTRUCTION JOINT DETAIL (CJ)
1 : 10

Revision	Date	By
D	AS BUILT ISSUE	24-03-2014	DB
C	SIKATOP JOINTS ADDED	14-01-2014	DB
B	ISSUED FOR CONSTRUCTION	21-10-2013	DB
A	ISSUED FOR PRELIM PEER REVIEW	04-09-2013	DB
1	ISSUED FOR INFORMATION	16-07-2013	DB

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Client
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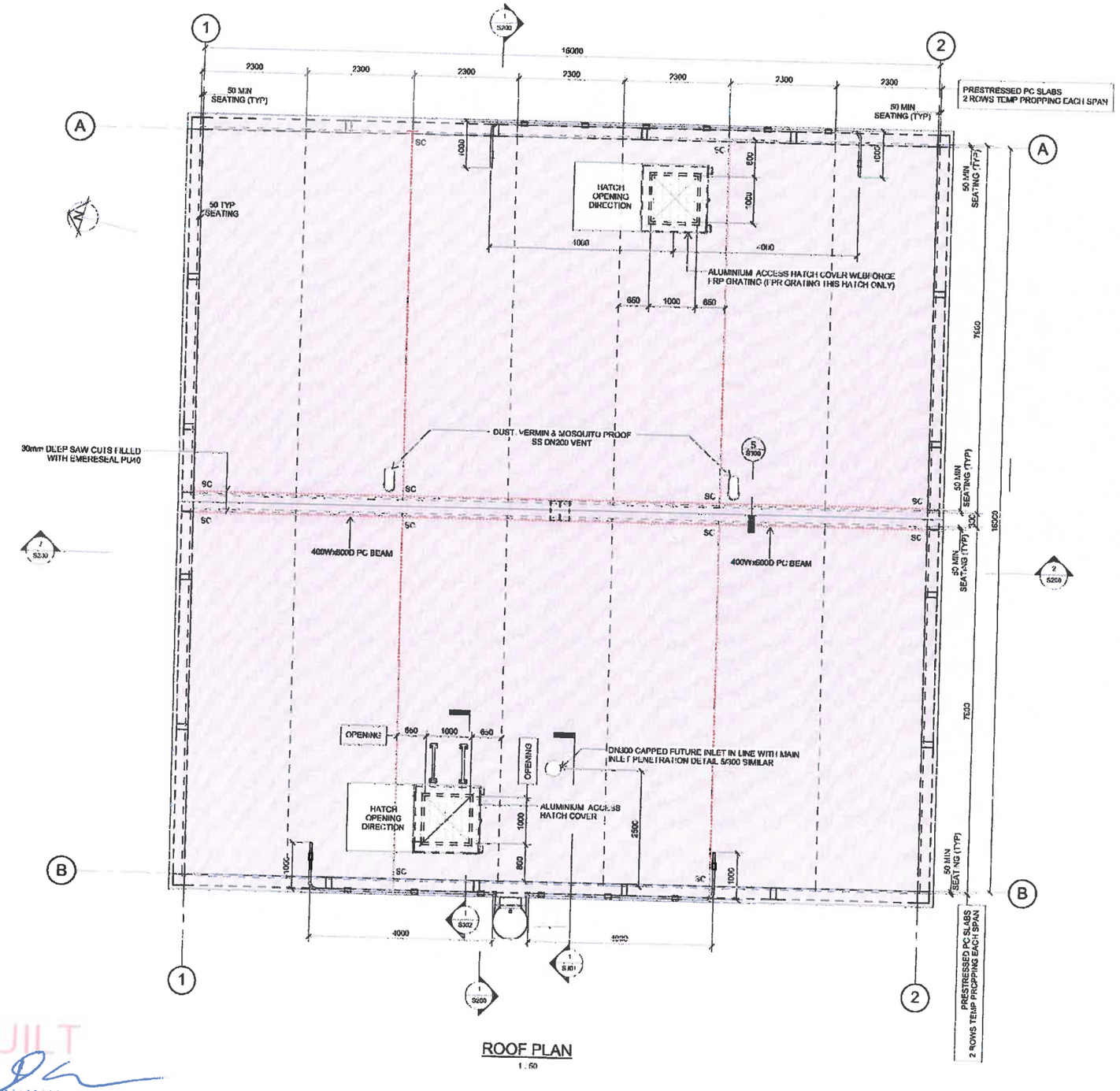
Project
DARFIELD WATER SUPPLY UPGRADE

Title
FLOOR PLAN

Designed DB	A1 Scale As Indicated
Drawn DB	A3 Scale HALF SCALE
Checked DB	
Date OCTOBER 2013	

Project No	Sheet	Revision
J3182	S100	D

NOTE:
PRESTRESSED ROOF SLAB UNITS TO BE
90 THICK x 2300 WIDE REINFORCED WITH
9-12.7Ø SUPERSTRANDS 38mm FROM
UNDERSIDE PRESTRESSED TO 1380N
AFTER LOSSES



ROOF PLAN
1 : 50

NOTE

USE SIKATOP 107 PAINTED OVER SEALED JOINTS AND WALL JOINTS APPLY AS FOLLOWS
- 50mm WIDE STRIPS (25mm FROM CTR OF EACH JOINT)
- 175mm WIDE STRIPS OVER INSITU WALL JOINTS (120mm JOINT PLUS 2x 28mm EACH SIDE)
- ALONG ANY HAIRLINE CRACKS THAT MAY DEVELOP

Revision	Revision No. Issue	Date	By
D	AS BUILT ISSUE	24-01-2014	DB
C	SIKATOP NOTES ADDED	14-01-2014	DB
B	ISSUED FOR CONSTRUCTION	21-10-2013	DB
A1	ISSUED FOR PRELIM PCER REVIEW	03-09-2013	DB
A	ISSUED FOR INFORMATION	16-08-2013	DB

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Project
DARFIELD WATER SUPPLY UPGRADE

Title
ROOF PLAN

Designed DB	At Scale
Drawn DB	As noted
Checked DB	At Scale
Date OCTOBER 2013	HALF SCALE

Project No	Sheet	Revision
J3182	S101	D

AS BUILT
CERTIFIED BY:
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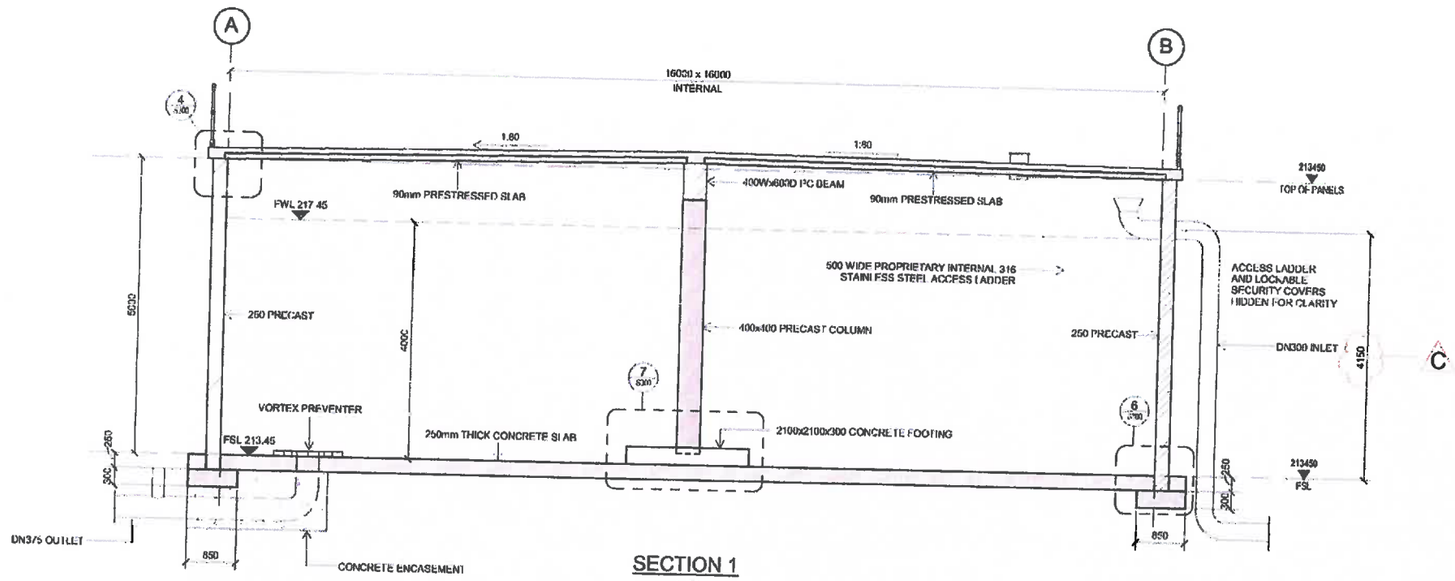
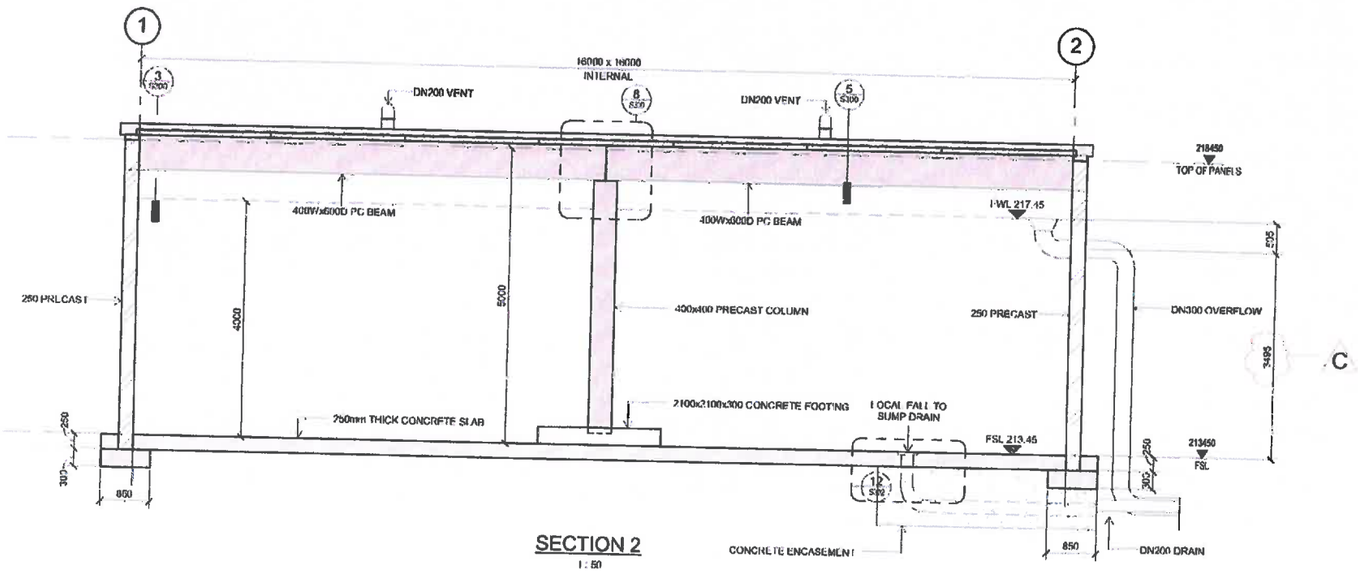


SECTION 1
1 : 50



SECTION 2
1 : 50

AS BUILT
CERTIFIED BY:
DESIGNATIOIN: Civil Manager CSL
DATE: 2/4/14

Rev	Description	Date	By
D	AS BUILT ISSUE	24 02 2014	DS
C	DIMENSIONS ADDED FOR PANEL PENETRATIONS	22 10 2013	DS
B	ISSUED FOR CONSTRUCTION	21 10 2013	DS
A	ISSUED FOR FINAL PEER REVIEW	03 09 2013	DS
1	ISSUED FOR INFORMATION	16 07 2013	DS

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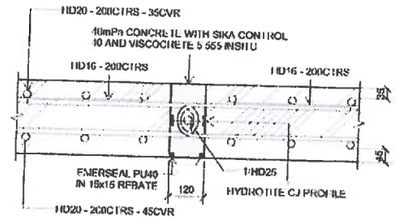
Project
DARFIELD WATER SUPPLY UPGRADE

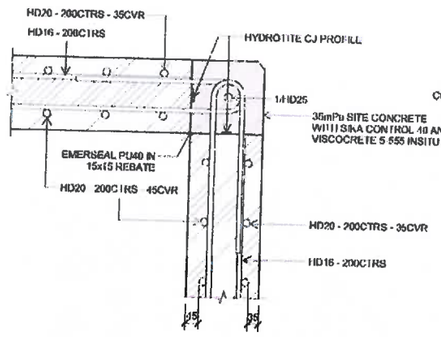
Title
SECTIONS

Designed DB	A1 Scale 1 : 50
Drawn DB	
Checked DB	A3 Scale HALF SCALE
Date OCTOBER 2013	

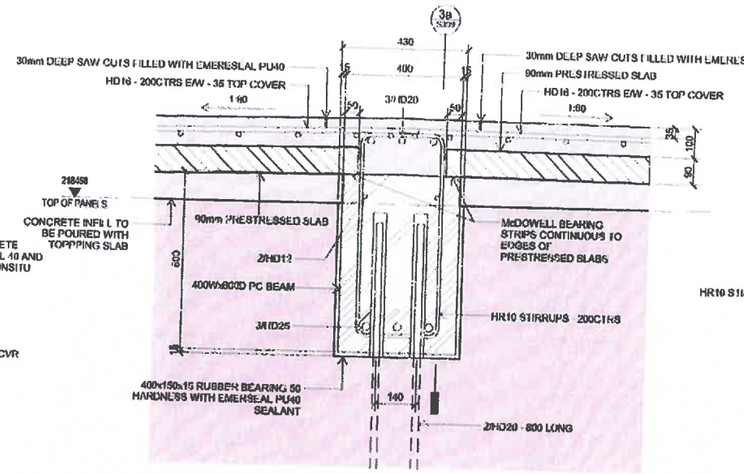
Project No	Sheet	Revision
J3182	S200	D



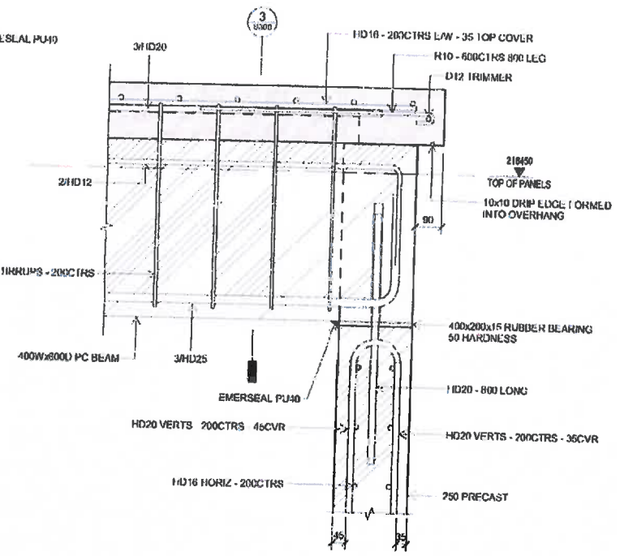
1 S100 1:10 **TYPICAL PC PANEL BUTT JOINT DETAIL**



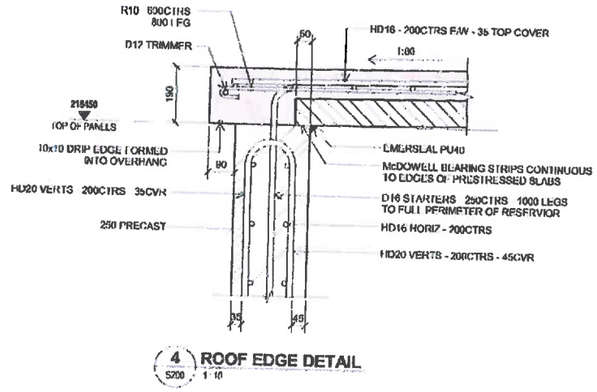
2 S100 1:10 **TYPICAL PC PANEL CORNER JOINT DETAIL**



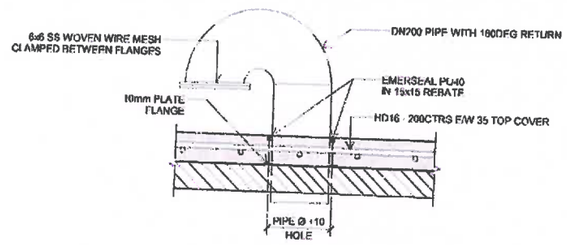
3 S200 1:10 **PRECAST BEAM TO PC PANEL DETAIL**



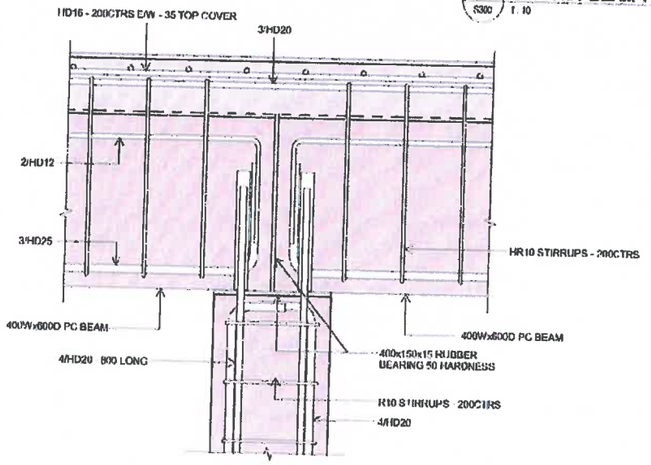
3a S300 1:10 **PRECAST BEAM TO PC PANEL SECTION**



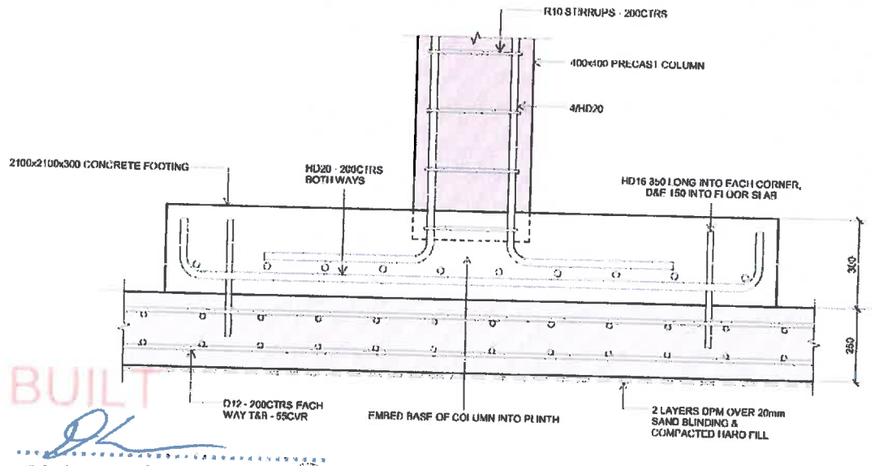
4 S200 1:10 **ROOF EDGE DETAIL**



5 S101 1:10 **VENT DETAIL**



8 S200 1:10 **PRECAST BEAM TO PC COLUMN DETAIL**



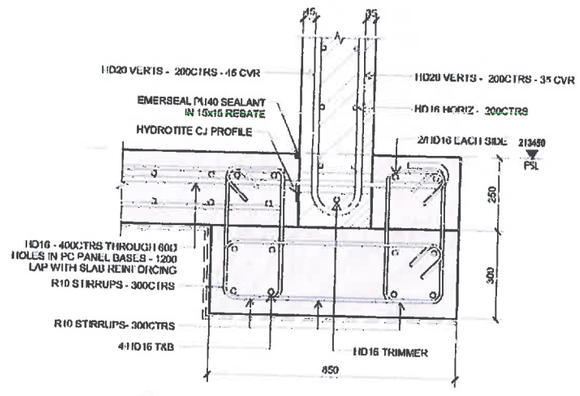
AS BUILT

CERTIFIED BY: ...DL...

DESIGNATIOIN: Civil Manager CA

DATE: 21.4.14

S100 1:10 **PRECAST COLUMN BASE DETAIL**



6 S200 1:10 **TYPICAL GROUND BEAM DETAIL**

Revision	Description	Date	By
C	AS BUILT ISSUE	24-03-2014	DB
B	ISSUED FOR CONSTRUCTION	21-10-2013	DB
A	ISSUED FOR PRELIMINARY REVIEW	03-09-2013	DB

THE CONTRACTOR IS TO BE AWARE OF ALL INSPECTIONS TO BE MADE BY THE ENGINEER AS A REQUIREMENT OF THE PRODUCER STATEMENT PS4 CONSTRUCTION REVIEW DOCUMENTATION, THE ENGINEER WILL REQUIRE 24 HOURS PRIOR NOTIFICATION WHEN ALL STRUCTURAL ELEMENTS ARE READY TO BE INSPECTED

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Hastings, New Zealand
Structural Fire Geotechnical Civil Strategic Planning

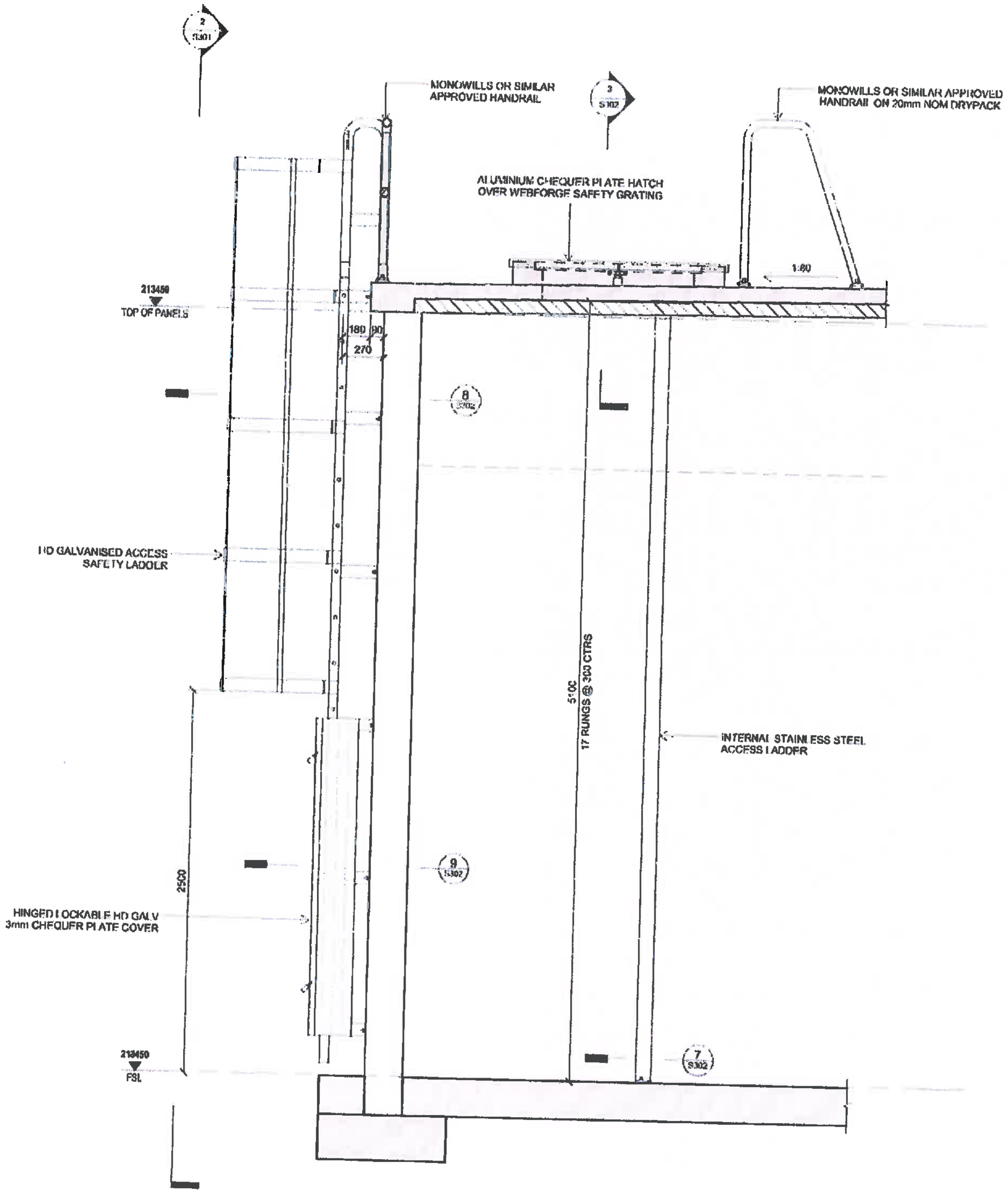
Client: **CONCRETE STRUCTURES (NZ) LTD**

Project: **DARFIELD WATER SUPPLY UPGRADE**

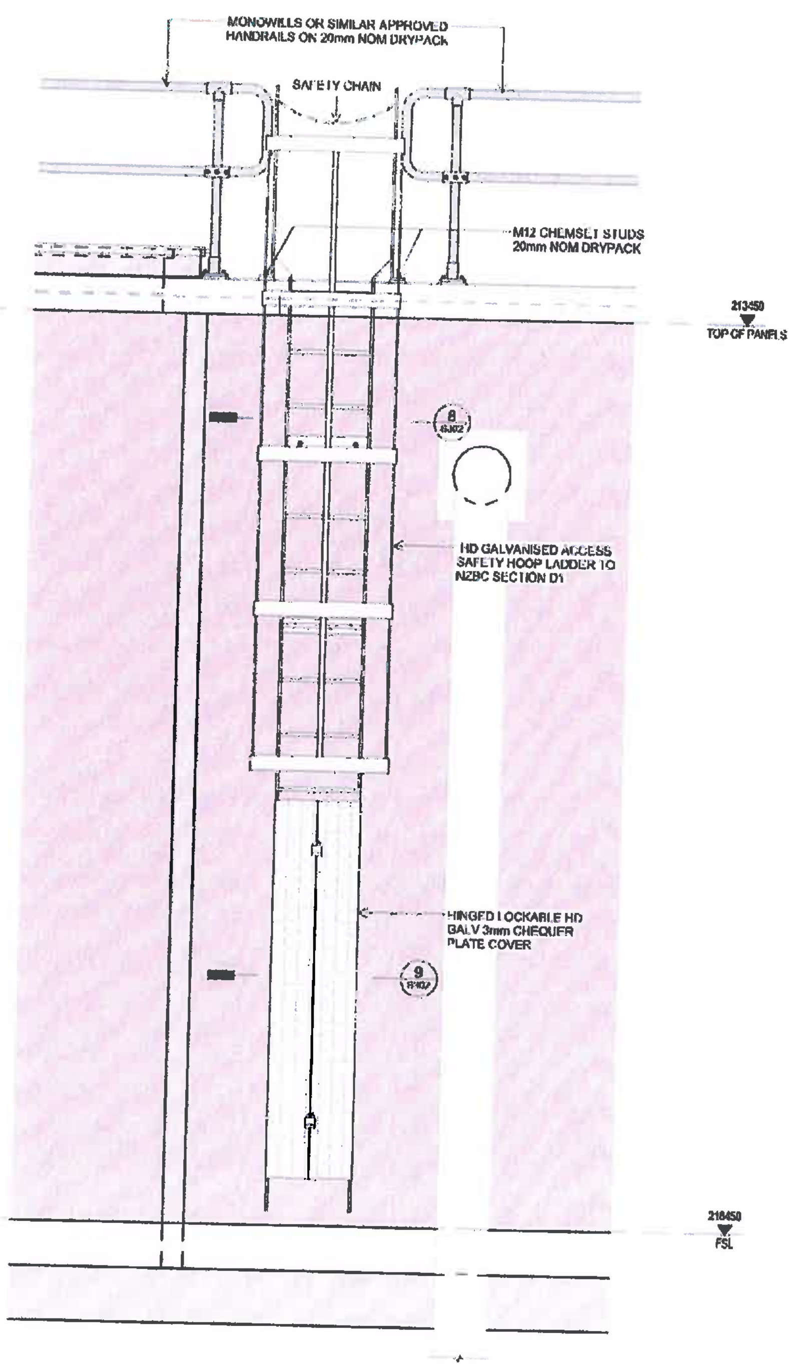
Title: **DETAILS**

Designed DB	At Scale 1:10
Drawn DB	At Scale HALF SCALE
Checked DB	
Date OCTOBER 2013	

Project No	Sheet	Revision
J3182	S300	C



1 INTERNAL LADDER ACCESS SECTION
S101 1:20



2 EXTERNAL LADDER ACCESS SECTION
S201 1:20

AS BUILT
CERTIFIED BY: [signature]
DESIGNATIOIN: Civil Manager CSL
DATE: 2/4/14

Revision	Reason For Issue	Date	By
C	AS BUILT ISSUE	24-03-2014	DS
B	ISSUED FOR CONSTRUCTION	21-10-2013	DS
A	ISSUED FOR PRELIM PEER REVIEW	03-06-2013	DS

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Client: CONCRETE STRUCTURES (NZ) LTD

Project: DARFIELD WATER SUPPLY UPGRADE

Title: DETAILS

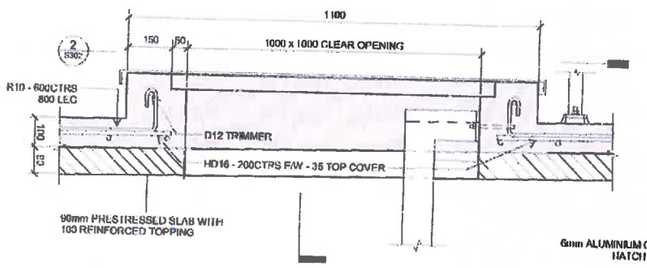
Designed	DS	A1 Scale	1:20
Drawn	DS	A3 Scale	HALF SCALE
Checked	CB		
Date	OCTOBER 2013		

Project No	Sheet	Revision
J8132	S801	C

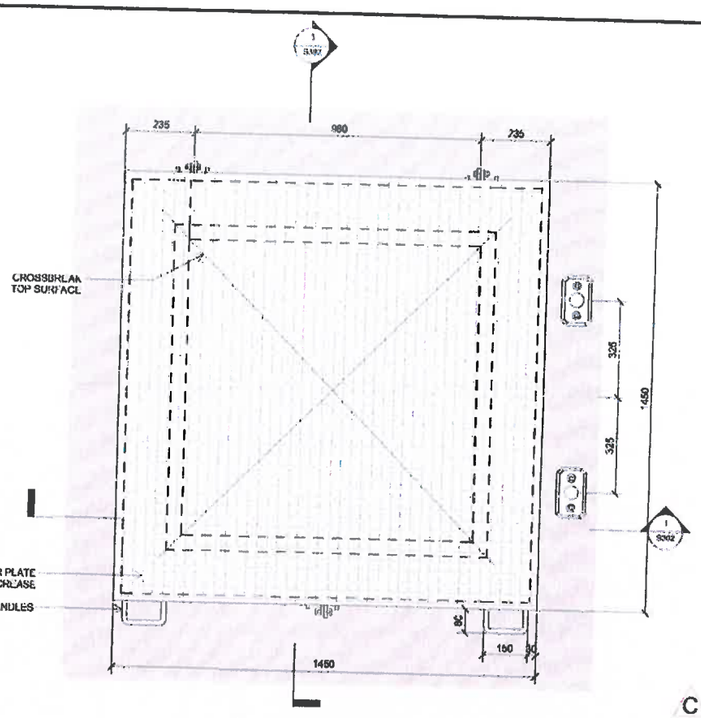
HATCH / LADDER METALWORK NOTES

1. ALL DIMENSIONS MUST BE CONFIRMED ON SITE PRIOR TO FABRICATION FOR METALWORK ITEMS SUCH AS LADDERS, HATCHES AND SECURITY COVER.
2. LADDERS AND HANDRAILS SHALL COMPLY WITH THE NZ BUILDING CODE COMPLIANCE DOCUMNET D1 : ACCESS ROUTES
3. ALL SS GRADES TO BE 316
4. ALL ALUMINIUM GRADES TO BE CORROSION RESISTANT MARINE GRADE

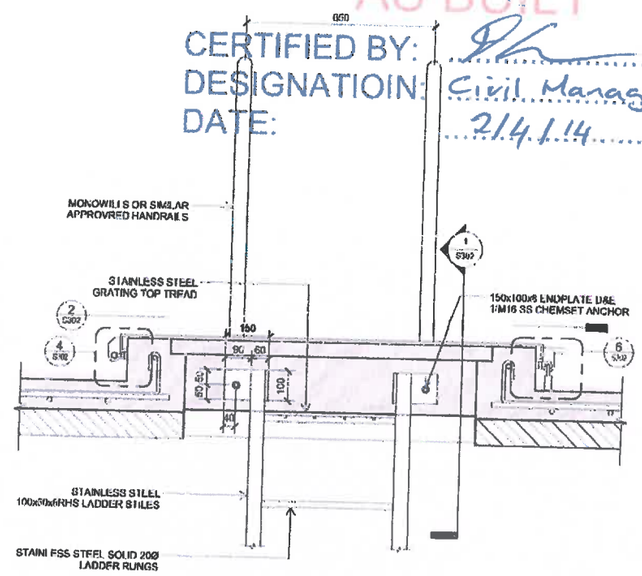
AS BUILT
CERTIFIED BY: ...
DESIGNATIOIN: Civil Manager CSL
DATE: 2.4.1.14



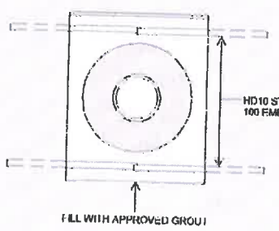
1 S101 **HATCH DETAIL** 1 : 10

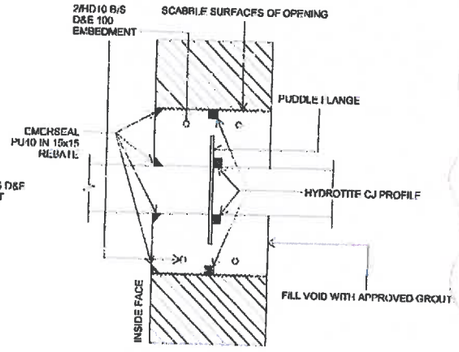


2 S302 **HATCH COVER PLAN** 1 : 10

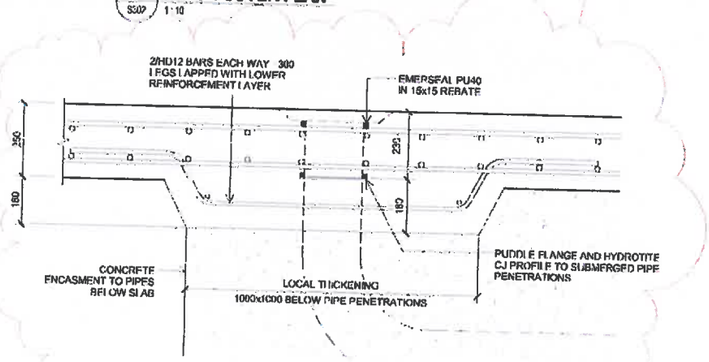


3 S301 **HATCH / LADDER SECTION** 1 : 10

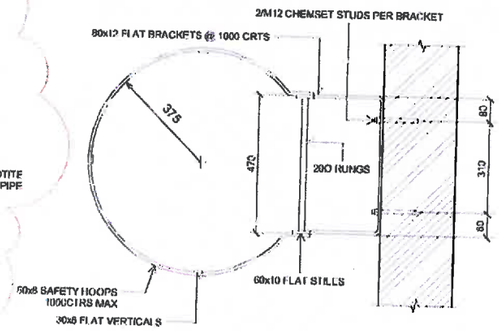




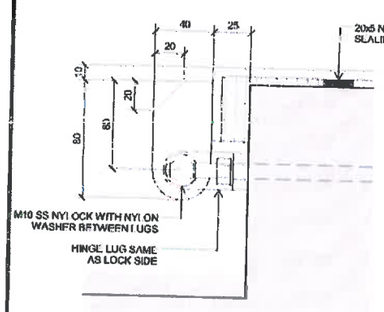
10 **TYPICAL PANEL PENETRATION DETAIL** 1 : 10



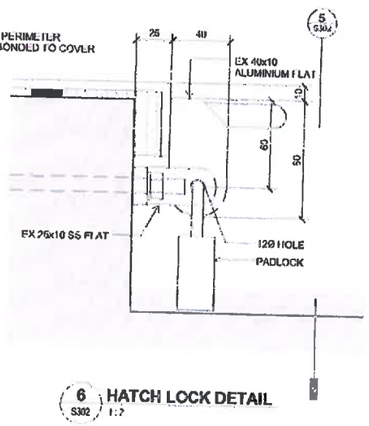
12 S200 **TYPICAL SLAB PENETRATION DETAIL** 1 : 10



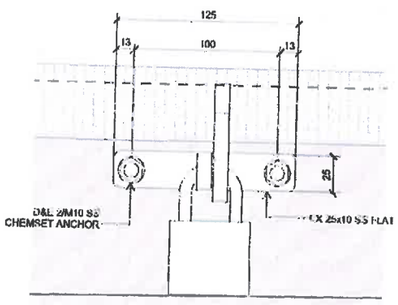
8 S301 **CAGED LADDER SECTION** 1 : 10



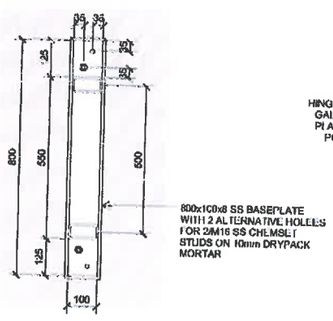
4 S302 **HATCH HINGE DETAIL** 1 : 2



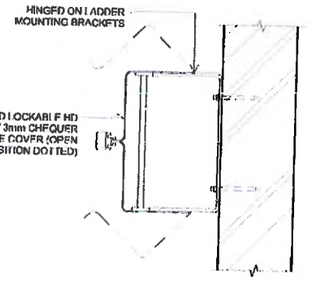
6 S302 **HATCH LOCK DETAIL** 1 : 2



5 S302 **HATCH LOCK SECTION** 1 : 2



7 S301 **INTERNAL LADDER BASE PLATE DETAIL** 1 : 10



9 S301 **LOCKABLE COVER SECTION** 1 : 10

Revision	Reason for Issue	Date	By
D	AS BUILT ISSUE	24.03.2014	DS
C	SLAB PENETRATION DETAIL REVISED TO SUIT PUDDLE FLANGE	19-11-2013	DS
B	ISSUED FOR CONSTRUCTION	21-10-2013	DS
A	ISSUED FOR PRELIM PEER REVIEW	03.04.2013	DS

THE CONTRACTOR IS TO BE AWARE OF ALL INSPECTIONS TO BE MADE BY THE ENGINEER AS A REQUIREMENT OF THE PRODUCER STATEMENT PS4 CONSTRUCTION REVIEW DOCUMENTATION, THE ENGINEER WILL REQUIRE 24 HOURS PRIOR NOTIFICATION WHEN ALL STRUCTURAL ELEMENTS ARE READY TO BE INSPECTED.

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Structural Fire Geotechnical Civil Strategic Planning

Client: **CONCRETE STRUCTURES (NZ) LTD**

Project: **DARFIELD WATER SUPPLY UPGRADE**

Title: **DETAILS**

Designed	DB	At Scale	As Shown
Drawn	DB	At Scale	HALF SCALE
Checked	DB		
Date	OCTOBER 2013		

Project No	Sheet	Revision
J3182	S302	D

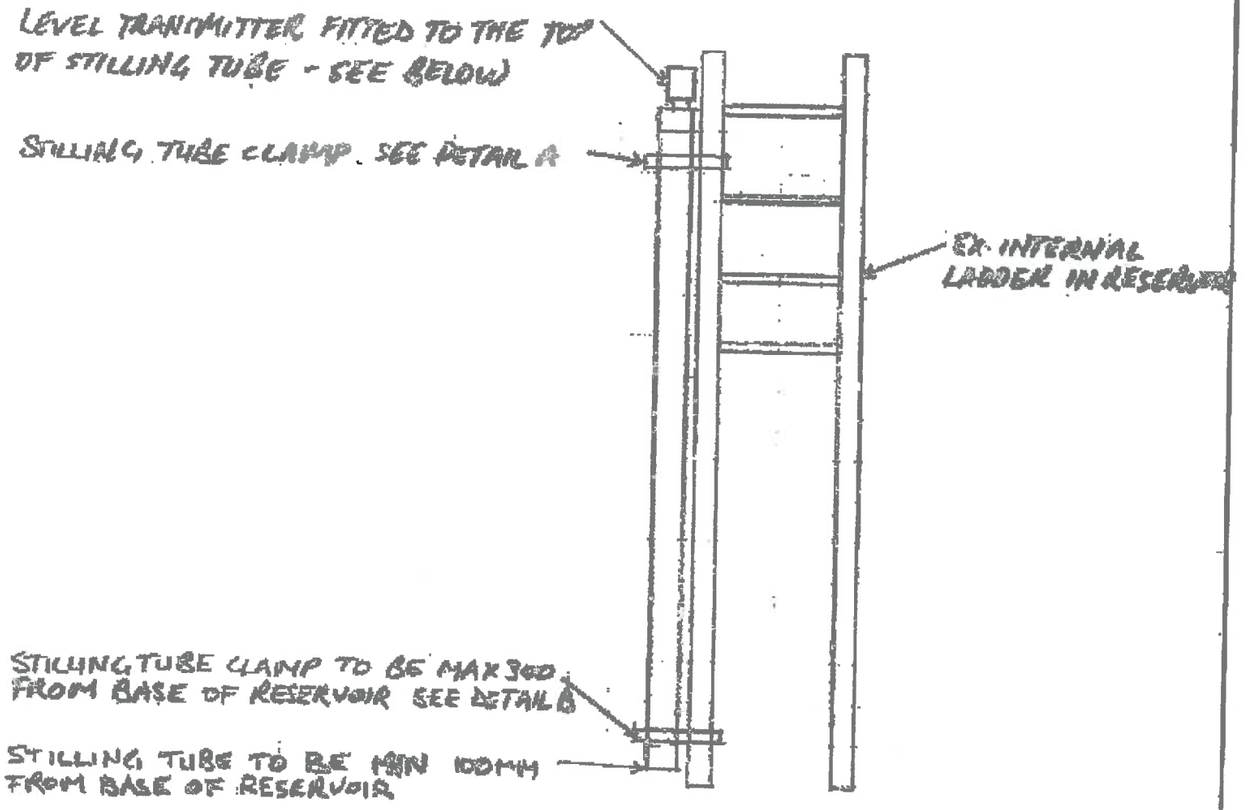
APPENDIX A

LEVEL TRANSMITTER STILLING TUBE INSTALLATION - SKETCH

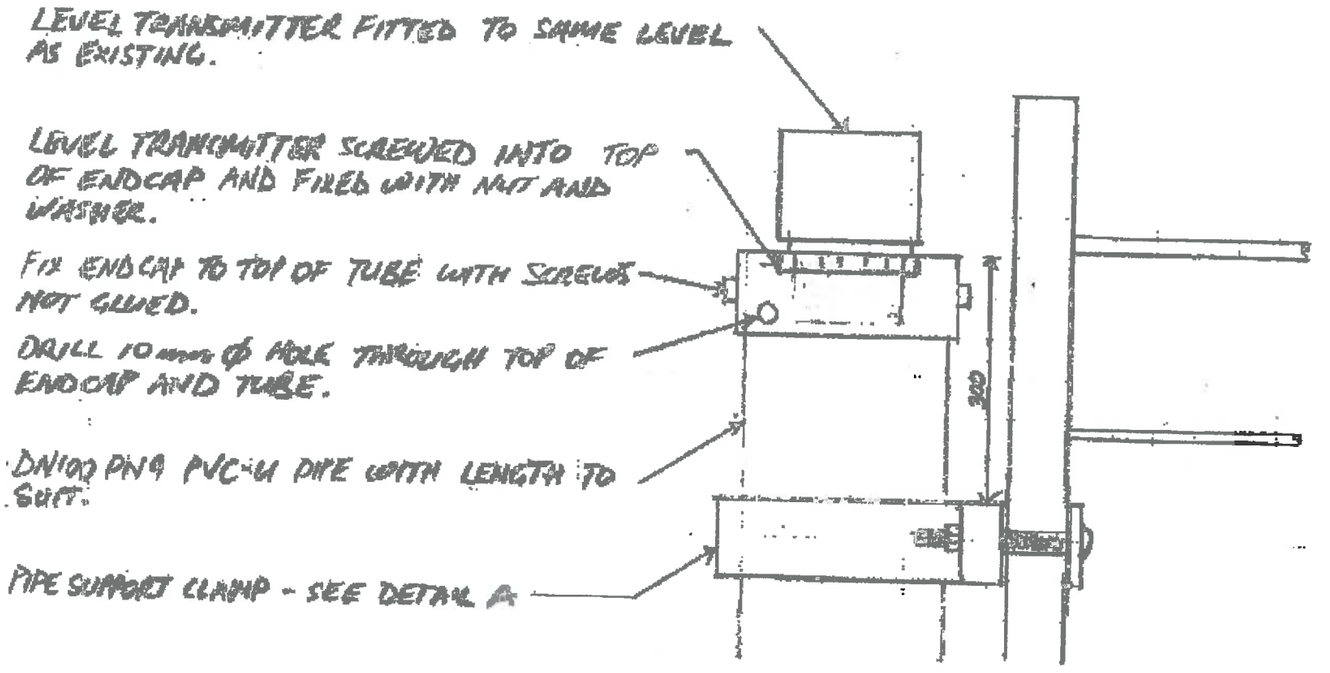
Calculation Sheet

Project/Task/File No: LEVEL TRANSMITTER - STILLING TUBE	Sheet No 1 of 2
Project/Description:	Office:
	Computed: 24 / 4 / 12
	Checked: / /

AS BUILT
CERTIFIED BY:
DESIGNATION:
Date:



ELEVATION - NTS



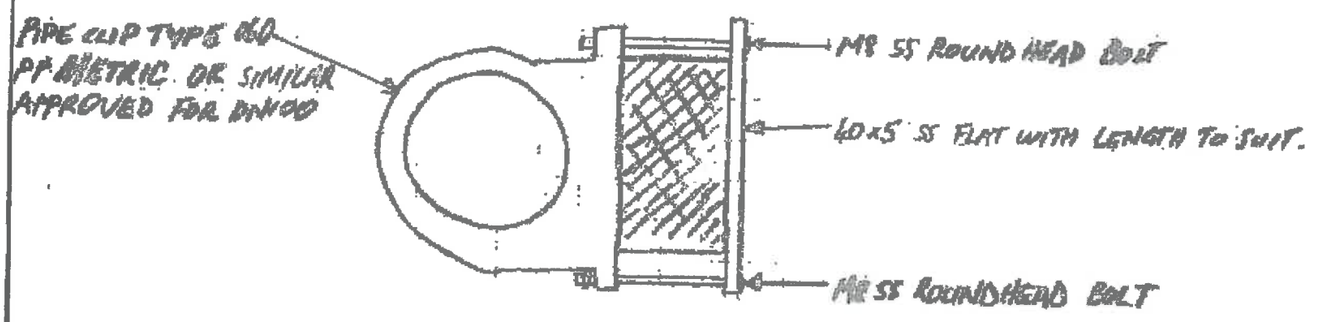
ELEVATION - NTS

NOTE: ALL MATERIALS AND FITTINGS TO BE DISINFECTED PRIOR TO INSTALLATION

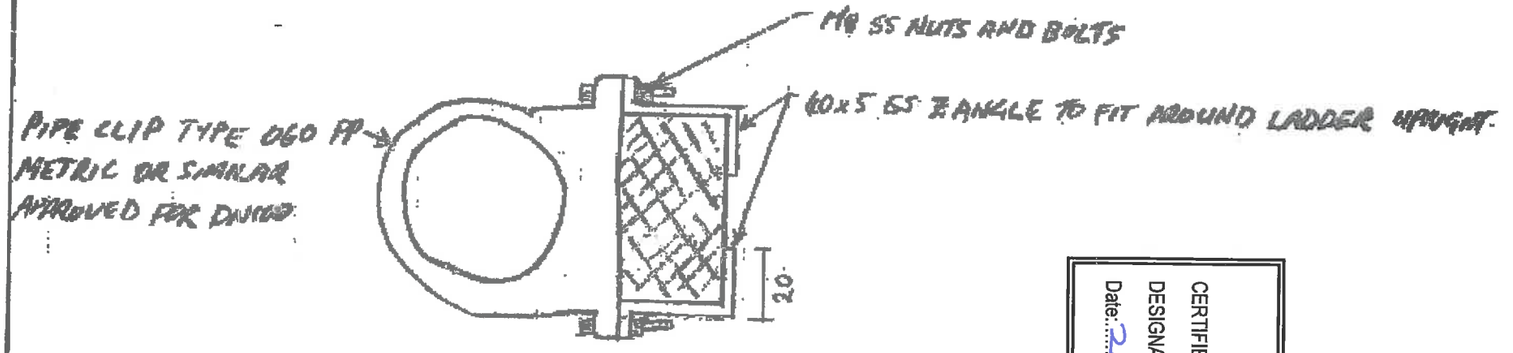
OPUS

Calculation Sheet

Project/Task/File No: STILLING TUBE FIXING DETAILS	Sheet No 2 of 2
Project/Description:	Office:
	Computed: 24 / 4 / 14
	Checked: / /



DETAIL A - PLAN



DETAIL B - PLAN

AS BUILT

CERTIFIED BY: [signature]

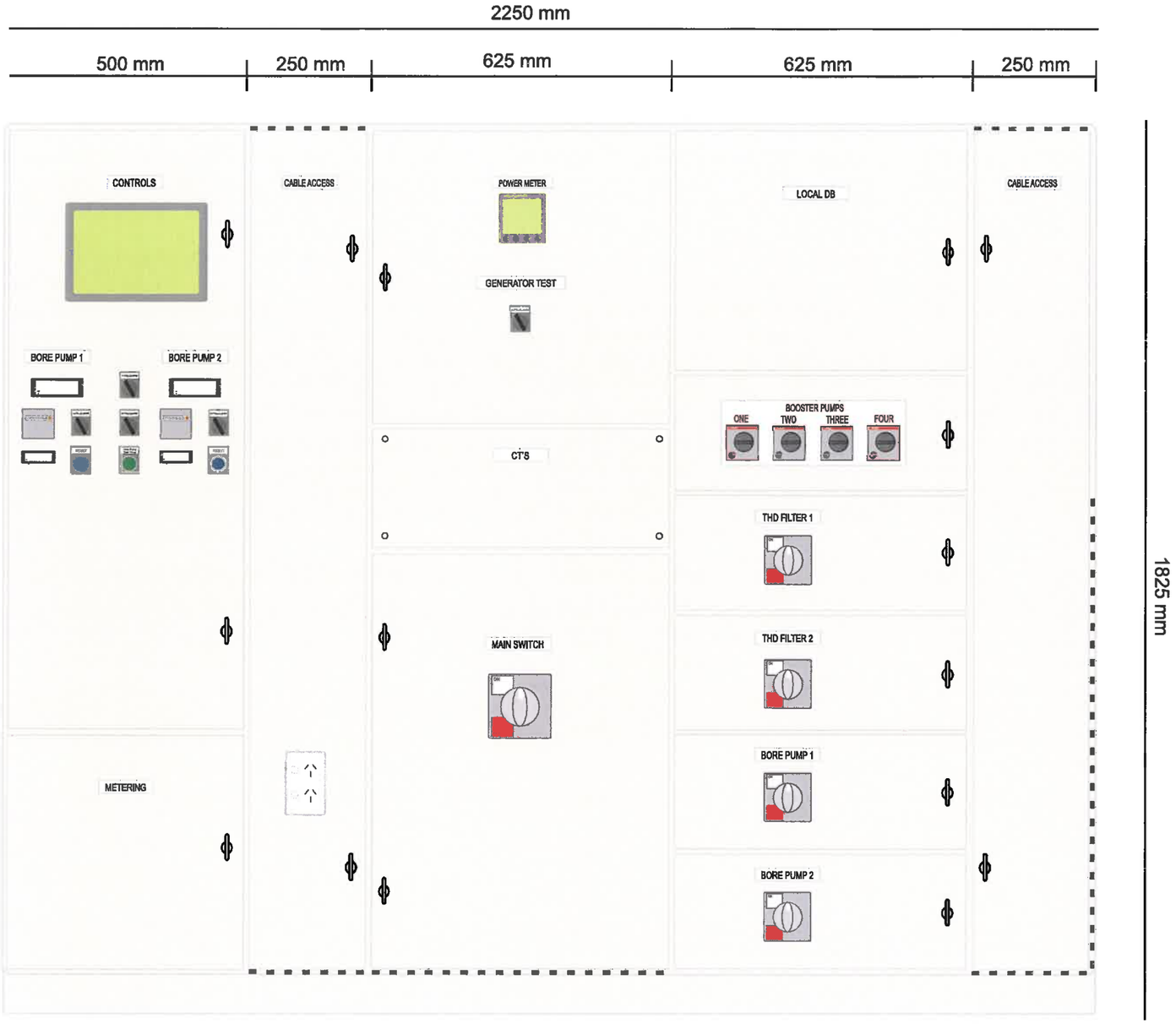
DESIGNATION: Senior Utilities Consultant

Date: 21/7/2014

OPUS

APPENDIX B

POWER CONTROLS



EQUIPMENT LIST:

1) Power Analyser - Schneider PM5350
2) Bore Pump Start Counter - Omron H7EC
3) Bore Pump Temp Display - Shimaden SD16-808-1400
4) Hour Meter- Vemer HMS 1080
5) HMI - Schneider Magelis HMIGTO5310 10

Depth - 350 mm
IP 54
Switchgear - ABB

DOORS CLOSED

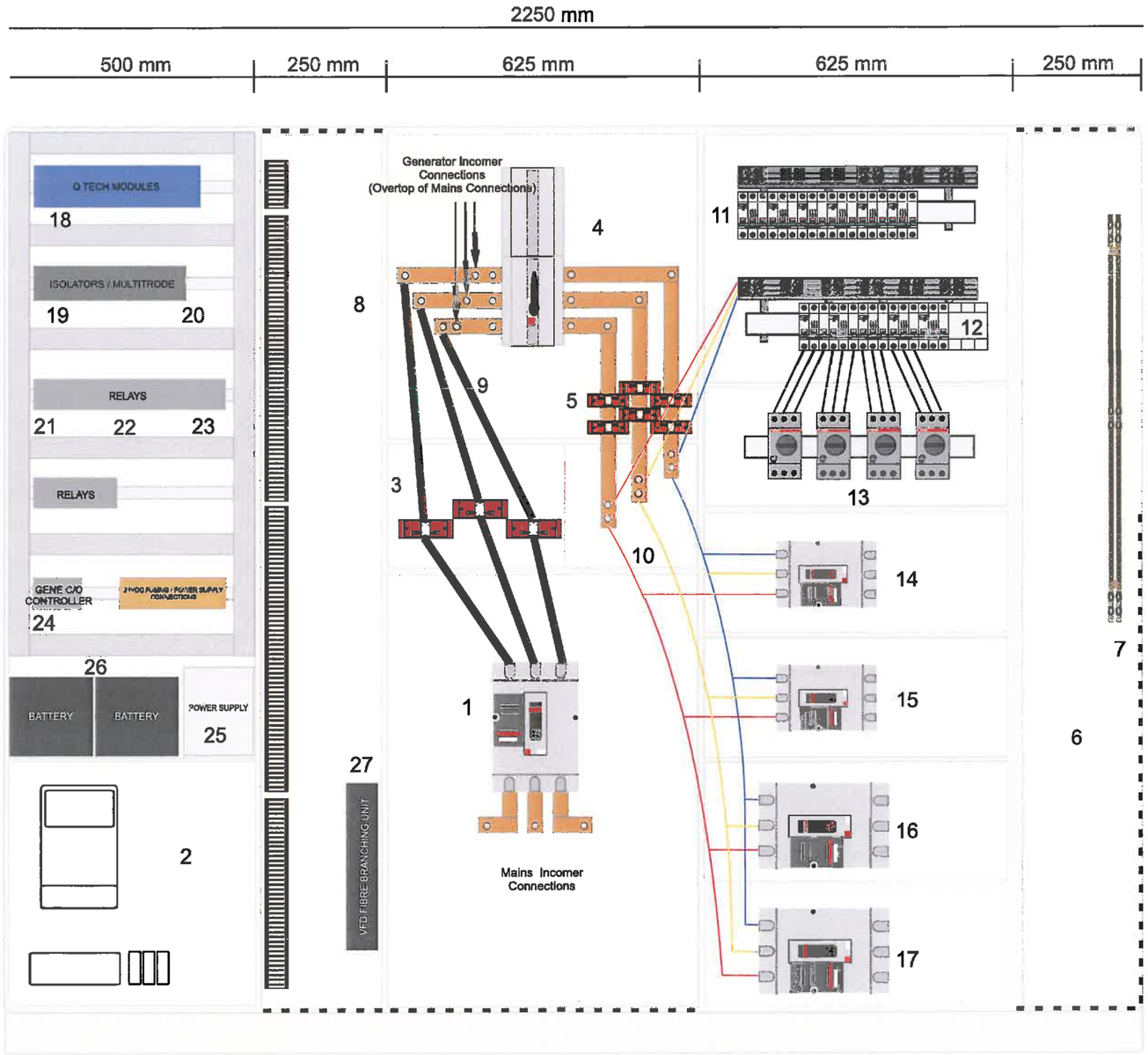
- - - - - = Gland Plates

22 ROTHERHAM STREET
PO BOX 2034
STOKE NELSON
NEW ZEALAND
PH - +643 547 8301
FX - +643 547 8312
sales@powercontrol.co.nz

POWER CONTROL SOLUTIONS LTD
Switchgear Manufacturers

	Date	Notes
A	20.11.13	Raise control cabinet. Show gland plates. Add booster pump external isolators.
B	21.11.13	Relocate socket outlet. Space out booster pump switches (motor CB's mounted forward through door)
C	23.06.14	Layout details and component information added.
D		
E		

Drawn by - LEP	Checked by - QDP	Drawing No. - PCS-99107 - 01	Scale - DNS
Client / Project	RCR Infrastructure - Darfield WTP Project		
Drawing Title	Main Switchboard - General Arrangement Drawing - Doors Closed		



DETAIL AND EQUIPMENT LIST:

1) Mains Incomer MCCB - ABB 400 Amp T5N400
2)Tarriff Metering Equipment
3) Tarriff Metering Ct's
4) ABB Motorised Changeover Switch - OTM400E3CM
5) THD Filter (400/5) and Power Analyser (400/1) Ct's
6) Power Circuit Cable Access
7) Earth and Neutral Connection Point
8) Control Circuit Cable Access and Terminal Strip
9) 400 Amp Flexible Power Tails
10) MCCB / Distribution Feed Flexible Tails
11) ABB MCB Distribution - S200 Compact Range
12) Surge Protection Unit - PRD40 3P
13) Booster Pump Isolators - ABB OT63F3
14) THD Filter 1 Supply MCCB - ABB XT1N 160
15) THD Filter 2 Supply MCCB - ABB XT1N 160
16) Bore Pump 1 Supply MCCB - ABB T4N 320
17) Bore Pump 2 Supply MCCB - ABB T4N 320
18) Q Tech Datran Equipment
19) Isolators - Intech XI-L
20) Multitrode Relays - MTR5
21) Phase Fail Relays - Omron K8AB
22) Control Relay - Contaclip/PRD
23) Timing Relay - Omron H3DS-ML
24) Generator Changeover Controller (Existing)
25) 24VDC 10A Power Supply (925.025.71)
26) Batteries (2 x 12VDC 25A/Hr)
27) VFD Fibre Branching Unit

DOORS OPEN

Depth - 350 mm
IP 54
Switchgear - ABB

- - - - - = Gland Plates

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STOKE NELSON
NEW ZEALAND
PH - +643 547 8301
FX - +643 547 8312
sales@powercontrol.co.nz

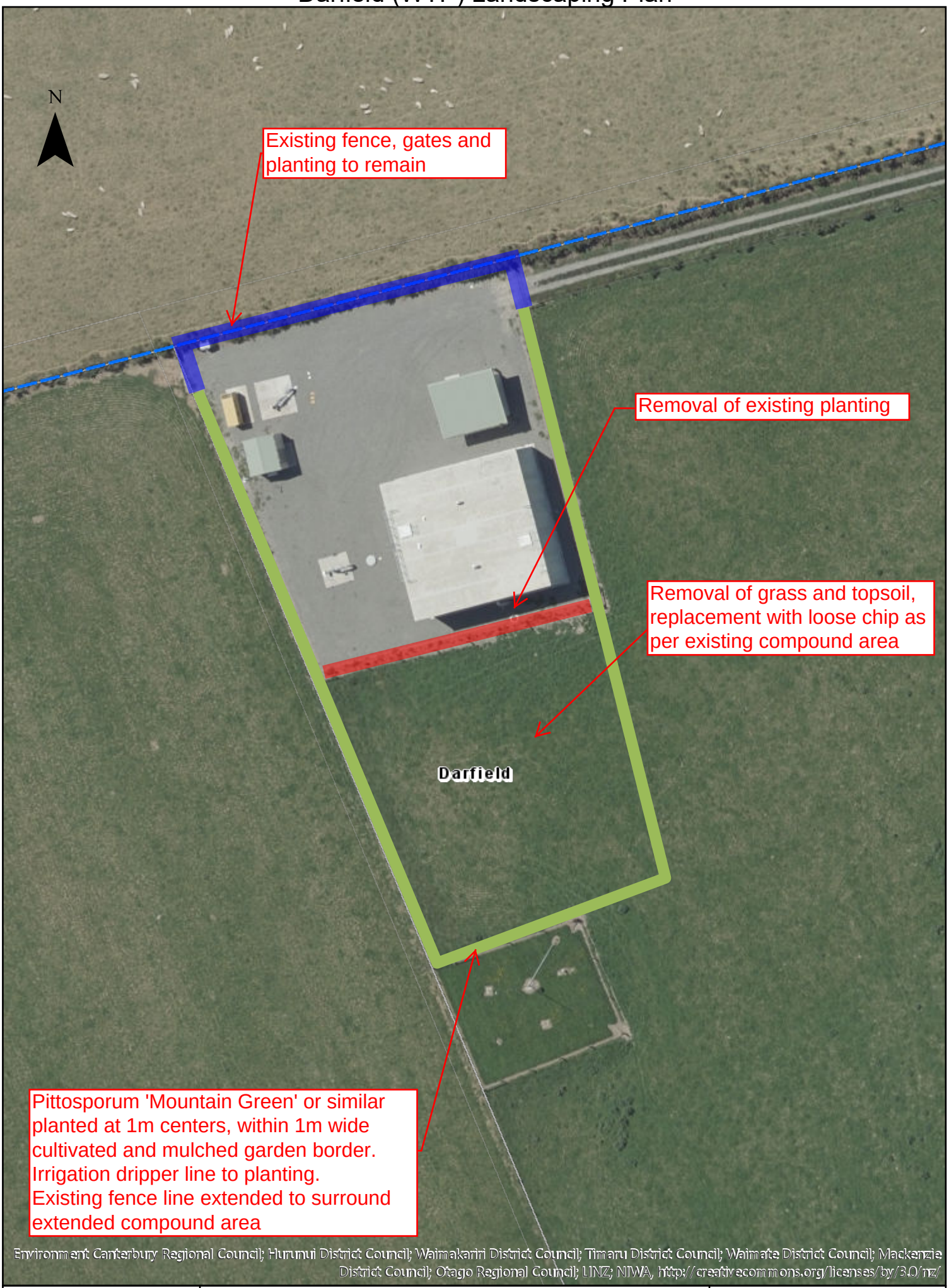
POWER CONTROL SOLUTIONS LTD
Switchgear Manufacturers

	Date	Notes
A	20.11.13	Raise control cabinet. Show gland plates. Add booster pump external isolators.
B	21.11.13	Controls gear tray layout. Ducts covers removed.
C	23.06.14	Layout details and component information added.
D		
E		

Drawn by - LEP	Checked by - QDP	Drawing No. - PCS-99107 - 02	Scale - DNS
Client / Project	RCR Infrastructure - Darfield WTP Project		
Drawing Title	Main Switchboard - General Arrangement Drawing - Doors Open		

Appendix D – Landscaping Plans

Darfield (WTP) Landscaping Plan



Selwyn DISTRICT COUNCIL

0 5 10 15 20

Metres

Date: 29/07/2020

Darfield (WTP) SH73 Landscaping

Selwyn DISTRICT COUNCIL

0 20 40 60 80

Meters

Appendix E – Objectives and Policies of the Canterbury Regional Policy Statement

Objective 5.2.1 Location, design and function of development (Entire Region)

Development is located and designed so that it functions in a way that:

1. achieves consolidated, well designed and sustainable growth in and around existing urban areas as the primary focus for accommodating the region's growth; and
2. enables people and communities, including future generations, to provide for their social, economic and cultural well-being and health and safety; and which:
    a) maintains, and where appropriate, enhances the overall quality of the natural environment of the Canterbury region, including its coastal environment, outstanding natural features and landscapes, and natural values;
    b) provides sufficient housing choice to meet the region's housing needs;
    c) encourages sustainable economic development by enabling business activities in appropriate locations;
    d) minimises energy use and/or improves energy efficiency;
    e) enables rural activities that support the rural environment including primary production;
    f) is compatible with, and will result in the continued safe, efficient and effective use of regionally significant infrastructure;
    g) avoids adverse effects on significant natural and physical resources including regionally significant infrastructure, and where avoidance is impracticable, remedies or mitigates those effects on those resources and infrastructure;
    h) facilitates the establishment of papakāinga and marae; and
    i) avoids conflicts between incompatible activities.

5.2.2 Integration of land-use and regionally significant infrastructure (Wider Region)

In relation to the integration of land use and regionally significant infrastructure:

1. To recognise the benefits of enabling people and communities to provide for their social, economic and cultural well-being and health and safety and to provide for infrastructure that is regionally significant to the extent that it promotes sustainable management in accordance with the RMA.
2. To achieve patterns and sequencing of land-use with regionally significant infrastructure in the wider region so that:
    a) development does not result in adverse effects on the operation, use and development of regionally significant infrastructure.
    b) adverse effects resulting from the development or operation of regionally significant infrastructure are avoided, remedied or mitigated as fully as practicable.
    c) there is increased sustainability, efficiency and liveability.

5.3.2 Development conditions (Wider Region)

To enable development including regionally significant infrastructure which:

1. ensure that adverse effects are avoided, remedied or mitigated, including where these would compromise or foreclose :
    a) existing or consented regionally significant infrastructure;
    b) options for accommodating the consolidated growth and development of existing urban areas;
    c) the productivity of the region's soil resources, without regard to the need to make appropriate use of soil which is valued for existing or foreseeable future primary production, or through further fragmentation of rural land;
    d) the protection of sources of water for community supplies;
    e) significant natural and physical resources;
2. avoid or mitigate:
    a) natural and other hazards, or land uses that would likely result in increases in the frequency and/or severity of hazards;
    b) reverse sensitivity effects and conflicts between incompatible activities, including identified mineral extraction areas; and
3. integrate with:
    a) the efficient and effective provision, maintenance or upgrade of infrastructure; and
    b) transport networks, connections and modes so as to provide for the sustainable and efficient movement of people, goods and services, and a logical, permeable and safe transport system.

5.3.5 Servicing development for potable water, and sewage and stormwater disposal (Wider Region)

Within the wider region, ensure development is appropriately and efficiently served for the collection, treatment, disposal or re-use of sewage and stormwater, and the provision of potable water, by:

1. avoiding development which will not be served in a timely manner to avoid or mitigate adverse effects on the environment and human health; and
2. requiring these services to be designed, built, managed or upgraded to maximise their on-going effectiveness.

5.3.6 Sewerage, stormwater and potable water infrastructure (Wider Region)

Within the wider region:

1. Avoid development which constrains the on-going ability of the existing sewerage, stormwater and potable water supply infrastructure to be developed and used.
2. Enable sewerage, stormwater and potable water infrastructure to be developed and used, provided that, as a result of its location and design:
    a) the adverse effects on significant natural and physical resources are avoided, or where this is not practicable, mitigated; and
    b) other adverse effects on the environment are appropriately controlled.
3. Discourage sewerage, stormwater and potable water supply infrastructure which will promote development in locations which do not meet Policy 5.3.1.

5.3.9 Regionally significant infrastructure (Wider Region)

In relation to regionally significant infrastructure (including transport hubs):

1. avoid development which constrains the ability of this infrastructure to be developed and used without time or other operational constraints that may arise from adverse effects relating to reverse sensitivity or safety;
2. provide for the continuation of existing infrastructure, including its maintenance and operation, without prejudice to any future decision that may be required for the ongoing operation or expansion of that infrastructure; and
3. provide for the expansion of existing infrastructure and development of new infrastructure, while:
    a) recognising the logistical, technical or operational constraints of this infrastructure and any need to locate activities where a natural or physical resource base exists;
    b) avoiding any adverse effects on significant natural and physical resources and cultural values and where this is not practicable, remedying or mitigating them, and appropriately controlling other adverse effects on the environment; and
    c) when determining any proposal within a sensitive environment (including any environment the subject of section 6 of the RMA), requiring that alternative sites, routes, methods and design of all components and associated structures are considered so that the proposal satisfies sections 5(2)(a) – (c) as fully as is practicable.

GHD

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Darfield Water Treatment Facility – Notice of Requirement

Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
A	S White	A Callaghan		A Bresler		24/08/2020

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